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ABSTRACTS

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Transvaginal Mesh-related Complications and the Potential Role of Bacterial Colonization

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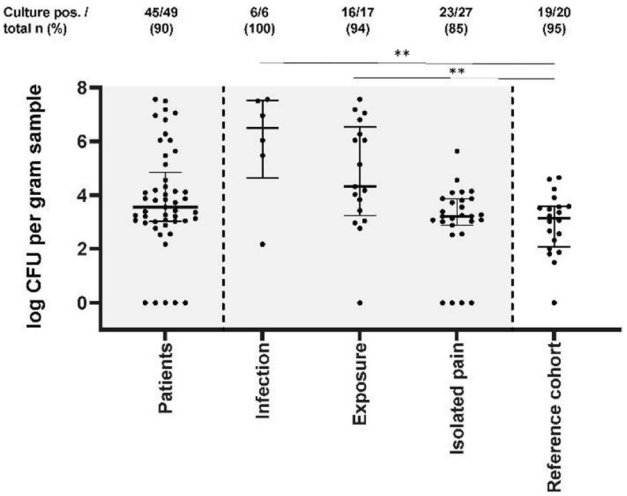
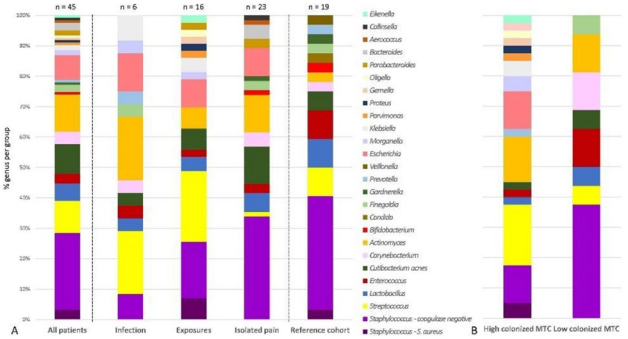
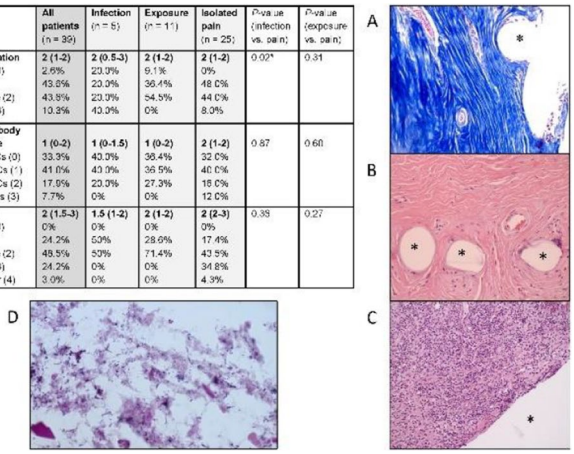
Introduction: Transvaginal mesh (TVM) surgery is associated with serious complications, such as mesh exposure and pelvic pain. It is hypothesized that bacterial colonization contributes to the development of mesh-related complications (MRCs) by inducing a persistent inflammatory response.
Objective: The aim of this study was to investigate the potential role of transvaginal mesh bacterial colonization in the development of mesh-related complication (MRCs).
Methods: An exploratory observational study was performed including 49 patients indicated for mesh removal and We first investigated bacterial presence using quantitative culture of homogenized explanted mesh-tissue complexes (MTCs) from women suffering from MRCs, and subsequent bacterial species identification. Secondly, we evaluated the host response and localization of microorganism using histology and Fluorescence in situ Hybridization (FISH). A reference cohort of 20 women undergoing prolapse surgery was included as a control.
Results: Of the 49 patients, 44 (90%) samples were culture positive (Figure 1), with a higher diversity of species, more Gram-negative bacteria and polymicrobial cultures compared to the reference cohort, with mostly staphylococci, streptococci, Actinomyces spp., Cutibacterium acnes and Escherichia coli (Figure 2). Patients with clinical signs of infection or exposure had the highest bacterial counts. Histology demonstrated moderate to severe inflammation in the majority of samples (Figure 3). Gram staining showed bacteria in 57% of culture positive samples and in selected samples FISH illustrated a polymicrobial biofilm.
Conclusions: In this study we observed distinct differences in bacterial numbers and species between patients suffering from MRCs compared to a reference cohort. Bacteria were observed at the mesh-tissue interface in a biofilm. These results strongly suggest a role of bacterial mesh colonization in the development of MRCs.
Disclosure: No
Images:





	All patients (n = 39)	Infection (n = 5)	Exposure (n = 11)	Isolated pain (n = 25)	P-value (infection vs. pain)	P-value (exposure vs. pain)
Inflammation	**2 (1-2)**	**2 (0.5-3)**	**2 (1-2)**	**2 (1-2)**	0.02*	0.31
Absent (0)	2.6%	20.0%	9.1%	0%		
Mild (1)	43.6%	20.0%	36.4%	48.0%		
Moderate (2)	43.6%	20.0%	54.5%	44.0%		
Severe (3)	10.3%	40.0%	0%	8.0%		
Foreign body response	**1 (0-2)**	**1 (0-1.5)**	**1 (0-2)**	**2 (1-2)**	0.87	0.60
No FBGCs (0)	33.3%	40.0%	36.4%	32.0%		
1-2 FBGCs (1)	41.0%	40.0%	36.5%	40.0%		
3-5 FBGCs (2)	17.9%	20.0%	27.3%	16.0%		
>5 FBGCs (3)	7.7%	0%	0%	12.0%		
Fibrosis	**2 (1.5-3)**	**1.5 (1-2)**	**2 (1-2)**	**2 (2-3)**	0.38	0.27
Absent (0)	0%	0%	0%	0%		
Mild (1)	24.2%	50%	28.6%	17.4%		
Moderate (2)	48.5%	50%	71.4%	43.5%		
Severe (3)	24.2%	0%	0%	34.8%		
Pure scar (4)	3.0%	0%	0%	4.3%		



2

Atomic Force Microscopy Evaluation of Cellular Mechanical Changes in Adipose Mesenchymal Stem Cell Induced Fibroblasts

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Introduction: After pelvic floor tissue injured, tissue mechanics have changed, resulting in pelvic organ displacement. What is the role of cells in the microenvironment of tissue injury in the change of tissue mechanics? In this study, we compared the changes of cellular mechanics in adipose mesenchymal stem cells and fibroblasts inducted by adipose mesenchymal stem cells, and investigated the effects of microenvironment on the changes of cellular mechanics.
Objective: The purpose of this study was to investigate the changes of cell adhesion and stiffness between adipose mesenchymal stem cells and fibroblasts induced by growth factor
Methods: In this study, fat from rat was extracted for primary culture of adipose mesenchymal stem cells. The third generation of adipose mesenchymal stem cells were cultured by bFGF and EGF growth factor ,for induced into fibroblasts. The cell adhesion stiffness were detected and compared with atomic force microscope.
Results: 1. The cellular mechanical Young's modulus and adhesion force of cytoplasm and nucleus were obviously different(P<0.05). 2. The average Young's modulus of the nuclear region was lower than that of the cytoplasm region, indicating that the stiffness of the nuclear region was larger(P<0.05). 3. The mean value of adhesion in the nuclear region was greater than that in the cytoplasm(P<0.05). 4. The average adhesion force of fibroblasts was larger than that of adipose mesenchymal stem cells(P<0.01), and the average Young's modulus of fibroblasts was smaller than that of adipose mesenchymal stem cells(P<0.005), indicating greater cell stiffness.
Conclusions: Growth factor can adjust cell mechanics by influencing microenvironment. Under the action of growth factor, the stiffness of fibroblast is significantly increased, indicating that it is less prone to deformation, which may enhance the mechanical properties of tissues.
Disclosure: No
Images:

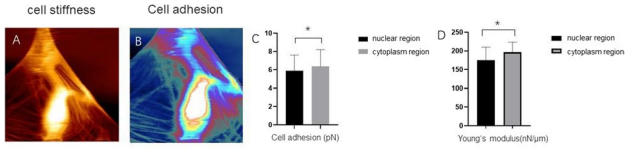

Figure.1 Young's modulus and adhesion of adipose mesenchymal stem cells

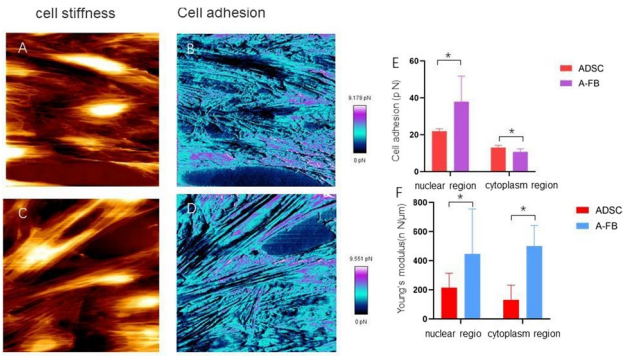

Figure.2 Young's modulus and adhesion of adipose mesenchymal stem cells and fibroblasts

3

Randomized Clinical Trial of Perioperative Vaginal Estrogen vs. Placebo as Adjuvant Therapy to Native Tissue Vaginal Apical Prolapse Repair

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2 - University of Alabama at Birmingham
3 - Women and Infants Hospital of Rhode Island

Introduction: Adjunctive therapies that may improve outcomes of native tissue prolapse surgery are needed. The vagina and surrounding muscular and connective tissue support are estrogen-responsive, but the effect of intravaginal estrogen as a potential perioperative adjunctive therapy in surgical prolapse management is uncertain.
Objective: To examine if perioperative vaginal estrogen (compared to placebo) combined with native tissue transvaginal prolapse surgery impacts failure rates through 1y postoperatively.
Methods: Randomized, double-blind surgical trial including postmenopausal women with ≥stage 2 symptomatic apical and/or anterior vaginal wall prolapse planning transvaginal native tissue apical repair enrolled at 3 clinical sites in the US (12/2016 – 2/2020). Adjunctive intervention was 1g conjugated estrogen (CE) vaginal cream (0.625mg/g) or identical vehicle placebo, inserted nightly for 2wk, then 2x/wk for ≥5 weeks preoperatively, resumed postoperative day 1 and continued 2x/wk for 1y. Randomization was stratified by site, hysterectomy status, and duration since menopause (35, current tobacco or steroid use, prior prolapse repair using mesh, or estrogen contraindications. Participants underwent vaginal hysterectomy (if uterus present) and either standardized bilateral uterosacral or unilateral sacrospinous ligament fixation with concomitant repairs at surgeon's discretion. The primary outcome was time-to-surgical failure through 1y, defined by ≥1 of 3 outcomes: anatomical/objective prolapse of the anterior or posterior walls beyond the hymen and/or the apex descending >1/3 TVL, subjective vaginal bulge symptoms, or retreatment. A sample size of 186 subjects achieved 80% power at α-0.05 to detect a hazard ratio of 0.5188 when the proportion of cumulative failures was 20% vs. 35%, measured at 1y, accounting for up to 25% loss-to-follow-up or study cream non-adherence. Data were analyzed as intent-to-treat and "per-protocol" (i.e., ≥50% of expected cream use, per objective tube before/after weights, for the preoperative period and ≥3mo postoperatively).
Results: Of 206 women consented, 199 were randomized (mean age 65y) and 186 underwent surgery. Characteristics were similar at baseline between groups. There was no difference in time to surgical failure (Fig.1) in women receiving CE vs. placebo through 1y (adjusted hazard ratio, 1.97 [95%CI, 0.92-4.22]); 1y failure incidence, 23% CE vs. 12% placebo, with anatomic failures being most common (Table 1A). Per-protocol, the CE group had greater failure (hazard ratio, 2.44 [1.01-5.88]) with 1y failure incidence 24% CE vs. 11% placebo. Subjective pelvic floor disorder symptoms were improved significantly in both arms (Table 1B). Masked surgeons' assessment of vaginal tissue

quality and estrogenization was significantly greater in the CE group at time of surgery (Table 2). Atrophy-related symptom score for most bothersome symptom was significantly more improved with CE compared to placebo. Granulation tissue ≥6mo post-surgery was more common in the CE group, 16(18%) vs. 7(8%), p=0.048.

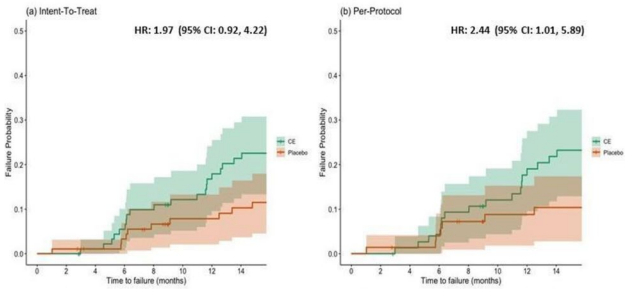
Conclusions: There was no difference in surgical failure outcomes with use of adjunctive vaginal CE application in postmenopausal women with anterior/apical prolapse over 1y after native tissue transvaginal repair. However, when cream was used per-protocol, the CE group had greater surgical failure. CE provides improvement in urogenital atrophy complaints compared to placebo. Further follow-up to 36mo post-procedure continues.

Disclosure: Yes, this is sponsored by industry/sponsor: Pfizer, Inc

Clarification: Industry funding only - investigator initiated and executed study

Images:

Fig.1 Failure Probability for the Composite Primary Outcome Comparing Conjugated Estrogen (CE) to Placebo



Cox regression model adjusts for site and treatment group. Proportional hazards assumption met. Hazard ratio estimates the hazard of failure in CE as compared to placebo.

Per-protocol is defined as those participants who used at least 50% of anticipated study cream, for the preoperative period and for at least 3mo postoperatively, using objective tube before-&-after weights

TABLE 1A. Categorization of Participants by Failure Types at 12 Months

	Treatment Group, No. (%)		
	CE (n=93)	Placebo (n=93)	Risk Difference,% (95% CI)
Intent-to-treat*	*6 LTFU*	*10 LTFU*	
Failure, No./total (%)	20/87 (22.9%)	10/83 (12.0%)	9% (-1, 20)
Failure types^, No. (%)			
Re-treatment	1 (1)	0 (0)	
Anatomic & symptom failure	2 (2)	1 (1)	
Anatomic failure only	12 (14)	4 (5)	
Symptom failure only	5 (6)	5 (6)	
Per-protocol**	n=76	n=70	
	4 LTFU	*6 LTFU*	
Failure, No./total (%)	17/72 (23.6%)	7/64 (10.9%)	13% (1.4, 25)
Failure types, No. (%)			
Re-treatment	0 (0)	0 (0)	
Anatomic & symptom failure	2 (3)	1 (2)	
Anatomic failure only	10 (6)	3 (5)	
Symptom failure only	5 (3)	3(5)	

LTFU, lost to follow-up

* participants who were randomized, underwent prolapse repair surgery, and returned for at least one postoperative visit are analyzed according to randomized group

^ The 4 failure types are mutually exclusive, with re-treatment and combined anatomic + symptomatic, if occuring by 12mo, prioritized above anatomic- or symptomatic-only failure

** those participants who used at least 50% of anticpiated study cream preoperatively and at least 3mo postoperatively, using calculated before-&-after weights

TABLE 1B. Subjective Measures of Pelvic Floor Disorders at 12mo

	CE	Placebo	*P* value
Patient Global Impression of Improvement [much better or very much better], No. (%)	88 (99)	84 (98)	0.616
Patient Global Impression of Severity of prolapse, median (IQR), from 1 (Normal) to 4 (Severe)	1 (1,1)	1 (1,1)	0.316
Pelvic Floor Distress Inventory-20	(n=88)	(n=86)	
Adjusted mean (95% CI)	-92.8 (-105.6, -80)	-83.8 (-96.8, -70.7)	0.325
Pelvic Organ Prolapse Distress Inventory-6	(n=88)	(n=86)	
Adjusted mean (95% CI)	-46 (-51, -41)	-41 (-46.1, -35.9)	0.168
Urogenital Distress Inventory-6	(n=88)	(n=86)	
Adjusted mean (95% CI)	-30.5 (-36.5, -24.5)	-28 (-34.2, -21.9)	0.567
Colorectal Anal Distress Inventory-8	(n=89)	(n=86)	
Adjusted mean (95% CI)	-16 (-20.2, -11.9)	-14.7 (-19, -10.5)	0.659
Pelvic Floor Impact Questionnaire-7	(n=88)	(n=86)	
Adjusted mean (95% CI)	-63.5 (-76.6, -50.3)	-57.3 (-70.7, -43.8)	0.512
Pelvic Organ Prolapse Impact Questionnaire-7	(n=88)	(n=86)	
Adjusted mean (95% CI)	-26.5 (-32.2, -20.8)	-24.3 (-30.1, -18.5)	0.591
Urinary Impact Questionnaire-7	(n=89)	(n=86)	
Adjusted mean (95% CI)	-24.7 (-30.2, -19.2)	-22.7 (-28.3, -17)	0.608
Colorectal Anal Impact Questionniare-7	(n=88)	(n=86)	
Adjusted mean (95% CI)	-12.3 (-16.4, -8.1)	-10.3 (-14.5, -6.0)	0.501
PISQ-IR change from baseline of sexually active women	(n=33)	(n=29)	
Adjusted mean (95% CI), scored from 1 (worst sexual experience) to 5 (better sexual experience)	0.4 (0.2, 0.6)	0.5 (0.3, 0.7)	0.55

TABLE 2. Intraoperative Outcomes, Concomitant Procedures, Complications, Physical Examination and Atrophy-Related Patient-Reported Outcomes

	Treatment Group, Surgery Participants		
Characteristic	**CE (n=93)**	**Placebo (n=93)**	***P* value**
Intraoperative Outcomes, Concomitant Procedures, & Complications			
Operative time, min, mean (SD)	170 (61)	170 (60)	0.977
Estimated Blood Loss, mL, mean (SD)	189 (139)	175 (110)	0.445
Transfusion at time of surgery, No. (%)	0 (0)	0 (0)	
Vaginal atrophy assessment total, mean (SD)[1]	9.2 (2.2)	8.4 (2.0)	**0.009**
Surgeon's perceived tissue quality [1, attenuated/poor to 5, thick/robust], mean (SD)	3.6 (0.8)	3.3 (0.9)	**0.015**
Apical Procedure Performed, No. (%)			0.096
Uterosacral Ligament Suspension	62 (67)	75 (81)	
Sacrospinous Ligament Suspension	29 (31)	17 (18)	
Other	2 (2)	1 (1)	
Hysterectomy Performed, No. (%)	76 (82)	79 (85)	0.555
Concomitant Anterior Colporrhaphy performed, No. (%)	82 (88)	73 (79)	0.694
Concomitant Posterior Colporrhaphy performed, No. (%)	61 (66)	59 (63)	0.878
Concomitant Midurethral Sling performed, No. (%)	53 (57)	53 (57)	>0.99
Bladder perforation, No. (%)	3 (3)	6 (6)	0.494
Ureteral injury, No. (%) [resolved w/ suture release]	5 (5)	7 (8)	0.765
Postoperative Complications, No. (%)			
Urinary Tract Infection(s) (or Pyleonephritis)			
Any UTI, any time point, counted once per participant	18 (19)	22 (24)	0.592
Total number of UTIs up to 12mo	20	32	
Rate of UTIs (number of UTIs per participant)	0.215	0.344	0.148
Mesh Exposure (i.e., midurethral sling mesh)	0 (0)	0 (0)	>0.99
At 6mo or later,			
Granulation tissue	16 (18)	7 (8)	**0.048**
Suture exposure	14 (16)	15 (17)	0.974
Vaginal skin erosion or ulceration	0 (0)	1 (1)	0.497
Physical Examination at 12 Months	n=90	n=87	
POP-Q Measurements, median (IQR)			
Ba	-2 (-2, -1)	-2 (-2, -1)	0.803
Bp	-2 (-3, -2)	-2 (-3, 2)	0.513
C	-7 (-8, -6)	-7 (-8, -6)	0.919
TVL	9 (7.5, 9)	8 (7.25, 9)	0.11
Atrophy-Related Patient-Reported Outcomes at 12 Months			
Vaginal Atrophy Symptoms[2] change, mean score			
Adjusted mean (95% CI)	-0.46 (-0.62, -0.30)	-0.44 (-0.61, -0.27)	0.86
Vaginal Atrophy Symptoms change, max score for MBS[2]			
Adjusted mean (95% CI)	-1.25 (-1.56, -0.93)	-0.74 (-1.06, -0.41)	**0.027**
Vaginal Atrophy Symptoms, Most Bothersome Symptom, No. (%)			0.187
None	72 (81)	62 (72)	
Dryness	8 (9)	8 (9)	
Soreness/ pain	0 (0)	1 (1)	
Pain with intercourse	2 (2)	9 (11)	
Discharge	0 (0)	1 (1)	
Itching	7 (8)	5 (6)	

CE, Conjugated Estrogen

[1] Assessment of moisture, color, rugae, & petechiae, each from 1 (least) to 3 (most) estrogenized, i.e. max score 12

[2] Patient report of dryness, soreness, dyspareunia, discharge, & itching, from no (0) to quite a bit of bother (4); MBS, most bothersome sympmtom

4

The Impact of Dietary Choline Intake on the Development of Urinary Urgency Incontinence

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Introduction: Acetylcholine (Ach) is one of the main mediators of normal and abnormal micturition; and acetylcholine receptors are the primary target of mainstay pharmacotherapy. Ach is derived from choline (Ch), an essential nutrient which humans primarily predominantly obtain through diet. Therefore, evaluation of choline intake may lead to insights regarding the development of urinary urge incontinence (UUI).

Objective: To evaluate the association between Ch intake and the development of UUI in two prospective cohort studies with over 10 years of follow-up.

Methods: We evaluated the intake of dietary choline, choline-containing compounds (phosphocholine, glycerophosphocholine, phosphatidylcholine, and sphingomyelin) and betaine, a choline metabolite, and risk of UUI among women in the Nurses' Health Study 1 (NHS 1) (2004-2012) and NHS 2 (2005-2013) who did not have UI or neurological conditions at baseline. Nutrient intake was assessed using a validated food frequency questionnaire (FFQ) updated every four years. . Each intake was categorized into quartiles within the entire cohort. We followed the women for incident UUI, defined as new UI occurring at least monthly from 2004-2013; women were censored at first diagnosis of stress or mixed incontinence. We conducted multivariable Cox proportional hazards regression models to estimate the relative risk for the association between total choline and betaine intake, and separately free choline, phosphocholine, glycerophosphocholine, phosphatidylcholine, and

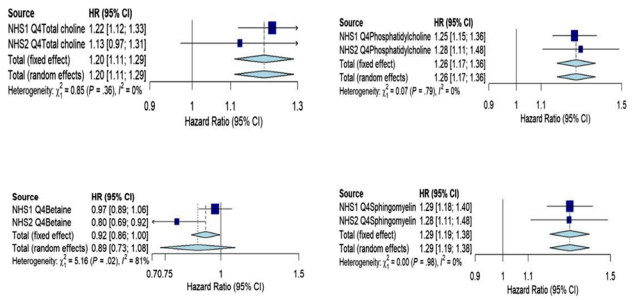
sphingomyelin, and development of UI. The analysis was adjusted for age, geographic region, race, BMI, smoking status, thiazide diuretic use, physical activity level (METS), diabetes, vascular disease, depression, parity, hysterectomy, and hormone replacement therapy. We conducted the analyses separately among NHS1 and NHS 2, and conducted meta-analyses using random-effects models to calculate pooled estimates. We further conducted analyses stratified by menopausal status in NHS 2.

Results: A total of 65,914 (NHS1: 44,351 & NHS 2: 21,563) women were included, with 9.0% (n=5,886) reporting new UUI during the study period. Mean choline intake was 317.8 +/- 44.9 milligrams in NHS1 and 327.1 +/- 47.6 milligrams in NHS2. Higher total choline intake was associated with an increased risk of UUI in NHS1 (HR : 1.22, 95%C: 1.12-1.33) and in pooled analysis (HR: 1.20, 95%CI: 1.11-1.29) (Figure 1). Higher betaine intake was associated with decreased risk of UUI only in NHS2 (HR: 0.80, 95%CI: 0.69-0.92). Increased phosphatidylcholine was associated with UUI risk across all analyses (NHS1: HR: 1.25, 95%CI: 1.15-1.36), NHS2:HR: 1.28, 95%CI: 1.11-1.48], Pooled:HR: 1.26, 95%CI: 1.17-1.36). Higher sphingomyelin was also associated with UUI risk overall (pooled HR: 1.29, 95%CI: 1.19-1.38). There were no associations between free choline, phosphocholine, glycerophosphocholine and UUI. The association between choline intake and UUI was only found among post-menopausal women in both NHS1 and NHS2

Conclusions: There appears to be a dose dependent relationship between choline intake and development of UUI, particularly for phosphatidylcholine and sphingomyelin . This relationship may be in part mediated by metabolic changes that occur in the postmenopausal state.

Disclosure: No

Images:



5

Patient Satisfaction with Telehealth Visits for New Patient Appointments for Pelvic Floor Disorders: A Randomized Trial of Telehealth versus Standard In-Person Office Visits

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Introduction: Telehealth has emerged as an increasingly useful tool to provide care amidst the COVID-19 pandemic. The acceptability and safety of telehealth has been previously reported in Urogynecology for preoperative counseling and postoperative care but not for new patient evaluation.

Objective: To determine if new patient telehealth encounters are non-inferior to in-person office encounters for women presenting to a Urogynecology clinic using a patient satisfaction questionnaire. Secondary objectives were to assess number of follow up visits, phone calls, and travel distance and time.

Methods: This was a randomized controlled trial of women presenting to a Urogynecology clinic for a new patient visit. Participants were randomized after appointment scheduling to either telehealth or in-person visits. Telehealth visits were scheduled for 15 minutes and conducted over a video platform by the attending physician. Pelvic exams were not performed over telehealth and patients were counseled and scheduled for follow-up including procedures and treatments. In-person visits included trainees and a pelvic exam. Patients completed the validated Patient Satisfaction Questionnaire-18 (PSQ-18) after their visit. The primary outcome was composite patient satisfaction on the PSQ-18 questionnaire. Demographics and health care utilization data were abstracted from chart review. Using a non-inferiority margin of 5 points on the PSQ-18 composite score, 25 patients per arm were required with a power of 80% and an alpha of 0.05.

Results: From March to September 2021, 133 women were screened for eligibility, 71 were randomized, and 58 were included in the final analysis (30 in telehealth group and 28 in in-person group). Demographic characteristics were similar between groups. Patients overall had a high education level, with 60% having a college degree or higher. Patient satisfaction, as measured on the PSQ-18 questionnaire (maximum score 90), was high for both groups but higher for in-person visits vs telehealth visits (75.68± 8.55 vs 66.60 ± 11.80, p=0.001, difference -9.08, 90% confidence interval -4.57 to -13.6) and our results were inconclusive with respect to determining non-inferiority. Patients ≥ 60 years reported higher rates of satisfaction overall compared to those younger than 60 years (p=0.009). Women in the in-person group were more likely to perceive that they had enough time with the provider (p=0.003) and their visit was timely and efficient (p=0.016) despite having less attending physician face time. Women in the telehealth group expressed uncertainty regarding the format and the perceived benefits of telehealth. There were no differences in the number of follow up visits (p=0.81), patient-initiated (p=0.52) or staff-initiated phone calls (p=0.07), distance from home to office (p=0.87), or travel time from home to office (p=0.94) between groups. There were no differences in treatments (surgical vs non-surgical) chosen based on PSQ-18 scores.

Conclusions: Women seen by urogynecologic providers either in person or via telehealth demonstrated high satisfaction with their first visit. Although the results are inconclusive with respect to non-inferiority, telehealth is safe and does not impact conversion to surgical or procedural treatments. As telehealth use continues to demonstrate safety, efficacy, and tolerability by patients, we must educate providers and patients on the utility of this platform.

Disclosure: No

Images:

Table 1: Demographics of Patients presenting for New Visits to a Urogynecology Practice

Characteristic	Telehealth Visit (n=30)	In-Person Visit (n=28)	p value
Age (years)	59 ± 14	58 ± 16	0.70 [a]
Race, n (%)			0.069 [b]
White	21 (70)	24 (86)	
Black	5 (17)	0 (0)	
Asian	1 (3)	2 (7)	
Hispanic	3 (10)	1 (4)	
Declined to answer	0 (0)	1 (4)	
Charlson Comorbidity Index	1.50 [1, 4]	2 [0.25, 3.75]	0.99 [c]
Level of education, n (%)			
High school	1 (3)	1 (4)	0.68 [b]
Vocational school	1 (3)	0 (0)	
Associate degree	0 (0)	3 (11)	
College degree	12 (40)	10 (36)	
Master's degree	4 (13)	3 (11)	
Graduate degree	1 (3)	2 (7)	
Doctorate degree	1 (3)	2 (7)	
Not provided	10 (33)	7 (25)	
Type of Health Insurance, n (%)			0.29 [b]
Private	20 (67)	14 (50)	
Public	7 (23)	7 (25)	
Both	3 (10)	7 (25)	

a=student's t test
b=chi square test
c=Mann U Whitney test

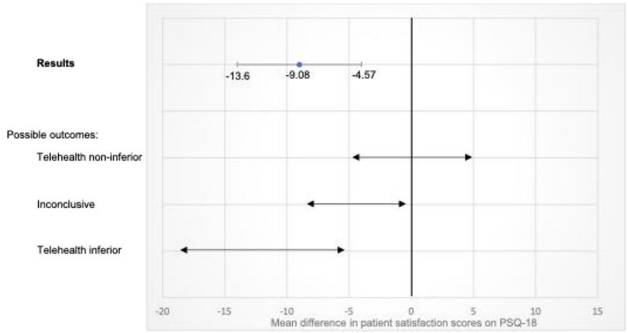

Figure 1: Non-inferiority Analysis

Table 2: Patient Satisfaction with Telehealth Visit vs In-Person Visit for New Visits

Patient Satisfaction Categories	Telehealth Visit (n=30)	In-Person Visit (n=28)	p value
Total satisfaction score	66.60 ± 11.80	75.68± 8.55	**0.001** [a]
General satisfaction score	3.60 ± 1.09	4.26 ± 0.69	**0.016** [c]
Technical quality score	3.86 ± 0.75	4.49 ± 0.55	**<0.001** [c]
Interpersonal manner score	4.28 ± 0.67	4.68 ± 0.51	**0.010** [c]
Communication score	3.78 ± 0.81	4.57 ± 0.63	**<0.001** [c]
Financial aspects score	3.68 ± 1.00	3.95 ± 0.83	0.35 [c]
Time spent with provider score	3.67 ± 0.98	4.36 ± 0.68	**0.003** [c]
Accessibility and convenience score	3.28 ± 0.92	3.52 ± 0.81	0.50 [c]

a=student's t test
b=chi square test
c=Mann U Whitney test

6

Development and Initial Validation of a Pictorial Scale to Assess Symptomatic Prolapse and Urinary Incontinence

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Introduction: Existing epidemiologic studies of pelvic organ prolapse (POP) and urinary incontinence (UI) in low and middle-income countries are generally limited by the lack of appropriate validated instruments to assess symptoms. Visual tools are a valuable tool for ascertaining patient symptoms, especially in areas where literacy rates are low or the dominant language is a primarily spoken one.
Objective: To develop and validate a patient-centered pictorial scale to assess symptomatic pelvic organ prolapse (POP) and urinary incontinence (UI) among women in western Kenya.
Methods: Initial candidate pictorial representations of POP, stress urinary incontinence (SUI), and urgency urinary incontinence (UUI) were developed by a local Kenyan artist and underwent review by an expert group of gynecologists and urogynecologists from Kisumu, Kenya and Durham, USA. Virtual individual Zoom interviews were then conducted with gynecologic providers in Kisumu, Kenya soliciting feedback on the appropriateness of the illustrations among their patient population. Pre-testing was then performed via cognitive interviews among patients presenting for outpatient care at a tertiary referral hospital in Kisumu. Finally, validation of the illustrations against the gold standard of clinical history and pelvic exam was performed among a population of patients presenting for outpatient care at 2 additional sub-county hospitals.
Results: Sixteen virtual interviews were conducted with Kenyan gynecologic providers in 2020. Illustrations representing POP, SUI and UUI were revised to more clearly reflect each disorder and decrease confusion with other conditions. Eight patients participated in cognitive interviews (age range 21 to 76) between March and October of 2021. One hundred patients presenting for outpatient care in Kisumu, Kenya were then included in the validation study between October and November 2021. Median age of participants was 35 (IQR 28, 45). Nine patients (9%) had symptomatic POP, whereas 32% had UUI and 25% had SUI. Overall sensitivity and specificity for the SUI illustration was 80% (95%CI 61-91%) and 97% (95%CI 72-98%) and for UUI was 81% (95%CI 65-91%) and 99% (95%CI 92-100%), respectively. The two candidate POP illustrations had lower sensitivity and specificity, with the better-performing illustration having a sensitivity of 67% (95%CI 35-88%) and specificity of 99% (95%CI 94-100%). Sensitivity improved significantly on subanalysis of only POP patients with bulge or pressure symptoms.
Conclusions: We present a newly developed and validated pictorial scale to assess for clinical UI and POP which was developed using a hybrid virtual and in-person format. The SUI and UUI illustrations had acceptable performance characteristics in our population. Validation of the POP illustrations was limited by the overall low number of participants with symptomatic POP and require further evaluation in a larger population of patients with POP. These illustrations may be adapted and evaluated in other culturally and linguistically distinct settings for clinical and research purposes.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: GE Women's Health Ultrasound
Images:

Table 1. Demographic and clinical characteristics of validation study participants

	Symptomatic N= 53[a]	Asymptomatic N= 47
Age	39 (20,72)	32 (19,64)
Parity	4.3 (2.5)	2.7 (1.8)
Largest infant (kg)	3.8 (0.8)	3.6 (0.5)
Education level		
None	2 (3.8)	2 (4.3)
Primary	31 (58.5)	23 (48.9)
Secondary	15 (28.3)	13 (27.7)
College	5 (9.4)	9 (19.1)
Prior hysterectomy	1 (1.9)	1 (2.1)
LMP over 1 year ago	20 (37.7)	9 (19)
SUI symptoms	25 (47)	0
UUI symptoms	32 (60.4)	0
POP symptoms	9 (17)	0
POP grade		
Grade 0	17 (32.1)	22 (46.8)
Grade 1	22 (41.5)	14 (29.8)
Grade 2	7 (13.2)	10 (21.3)
Grade 3	6 (11.3)	1 (2.1)
Grade 4	1 (1.9)	0

[a]Median (IQR) or mean (SD)

Table 2. Sensitivity, specificity and likelihood ratios for POP and UI illustrations

	Sensitivity (%)	95% CI	Specificity (%)	95% CI	+LR	95% CI	-LR	95% CI
SUI	80	61-91	97	91-99	30.0	10.8 - ∞	0.21	0.06-0.38
UUI	81	65-91	99	92-100	54.4	15.2 - ∞	0.19	0.06-0.33
POP v1	56	27-81	97	91-99	16.9	4.31 - ∞	0.46	0.12-0.80
POP v2	67	36-88	99	94-100	60.7	14.9 - ∞	0.34	0.02-0.67
POP v1 (bulge)	71	36-92	97	91-99	21.7	7.68 - ∞	0.30	0-0.64
POP v2 (bulge)	86	49-97	99	94-100	78	15.0 - ∞	0.14	0-0.43

+LR Positive likelihood ratio. -LR negative likelihood ratio.

7

Feasibility Pilot of Transurethral Catheter Self-discontinuation (FLOTUS)

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Introduction: In-person postoperative voiding trial (VT) for transurethral catheter removal is inconvenient and burdensome. At-home catheter self-discontinuation (CSD) has been proposed as a safe and feasible alternative.
Objective: The primary objective was to assess the feasibility of CSD on post-op day 1 (POD1). Secondary objectives included (1) assessing the rates of postoperative healthcare utilization and (2) identifying risk factors for VT failure.
Methods: This is an ongoing pilot study of women undergoing outpatient urogynecologic or minimally invasive gynecologic surgery at one academic practice in the Mid-Atlantic. Data from August to December 2021 is presented. Women with pre-operative urinary retention, known upper motor neuron disease, those undergoing active treatment for malignancy, or women planning for fistula repair, diverticulectomy, sacral neuromodulation, hysteroscopy only or concomitant extra-pelvic procedures were excluded. Enrolled women who failed immediate postoperative VT on post-operative day 0 (POD0) were instructed to perform CSD at 6am on POD1 and record their voided volumes over the subsequent four-hours. Patients who voided less than 150 mL underwent repeat VT in the office. Demographics, medical history, attending surgeon, procedure(s) performed, anesthesia, estimated blood loss, operative time, perioperative complications, duration of catheterization, persistent urinary retention, and number of post-operative office calls/visits and emergency department (ED) visits within 30 days were collected. Students t-test and Kruskall-Wallis rank sum test were used to compare continuous parametric and nonparametric variables, respectively. Fisher's exact test was used for categorical variables.
Results: One-hundred and eight women enrolled and 38 (35%) failed POD0 VT. POD0 VT failures were more likely to be older (61 vs 53 years, p=0.008) and undergo vaginal prolapse repair (84% vs 52%, p=0.001) compared to women who passed. Of the 38 women who failed POD0 VT, 36 (95%) performed CSD on POD1. Two women who failed POD0 VT did not perform CSD on POD1. The first presented to the ED POD0 for pain management where her catheter was removed. The second performed CSD on POD0, presented to the ED in retention where a catheter was reinserted, and then passed in-office VT on POD1. 32/36 (89%) of the women who performed CSD successfully passed at-home VT on POD1. Of the four who failed POD1 VT, one (25%) passed in-office VT on POD1 and three (75%) failed in-office VT and required catheter reinsertion. Women who failed POD1 VT attended more post-op office visits than women who passed POD1 VT (2 vs 1, p less than 0.001), but there was no difference in office calls/messages or ED visits. Importantly, there were no complications or adverse events with the process of CSD. Women who failed POD1 VT after CSD were older when compared to those who passed (77 vs 60 years, p=0.013) with no other significant differences between these two groups.
Conclusions: In our study, successful catheter removal was performed by all women who attempted at-home CSD on POD1 with no adverse events. CSD following advanced urogynecologic and minimally invasive pelvic surgery appears to be a safe and feasible option that may reduce burden for women unable to sufficiently void prior to discharge on POD0.
Disclosure: No

8

Characteristics of Urinalysis from a Clean-catch Midstream Urine vs. Catheterized Specimen in Women after Vaginal Surgery for Pelvic Organ Prolapse

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Introduction: Urinary tract infection (UTI) is a recognized complication of surgery for pelvic organ prolapse POP) (1). Postoperative complaints after vaginal surgery such as dysuria, frequency, pelvic pain and low-grade fever are similar to those of UTI symptoms. When addressing these concerns a urinalysis is often ordered as part of a work-up. Most commonly this is done on a voided specimen. However, recent vaginal surgery is associated with vaginal bleeding and discharge which can lead to the contamination of the voided urine specimen. The reliance on the contaminated urinalysis may lead to misdiagnosing a UTI in a patient presenting postoperatively for acute care, and potentially missing a more significant diagnosis. Additionally, accurate diagnosis of UTI is imperative in maintaining antibiotic stewardship as antibiotic overuse leads to antimicrobial resistance.
Objective: The aim of our study is to compare urinalysis characteristics and urine culture results obtained via clean-catch midstream urine vs. a catheterized specimen in women who recently underwent vaginal surgery for POP.
Methods: This is a prospective, longitudinal, non-randomized, non-blinded study that evaluates patients after vaginal surgery for pelvic organ prolapse. A clean-catch urine specimen and a straight catheter urine specimen were collected from participants at their routine 3-week postoperative appointment. Participants were asked to complete UTI symptoms assessment (UTISA) questionnaires. Urinalyses of both specimens were evaluated specifically for leukocyte esterase, nitrites, and blood. Urine cultures were sent on both specimens. The following results were considered contamination on urine culture: mixed urogenital flora (which includes Lactobacillus species), coagulase-negative staphylococci and Streptococcus species(2-3).
Results: Fifty-nine participants were enrolled in the study. Twelve straight catheter urine specimens were positive (22.2%). E. coli was the most common bacterium isolated (53.8%). Among those who were positive, the clean catch urine culture was more than twice as likely to be contaminated (i.e., a "mixed" result) as the straight catheter urine (53.7% vs 23.1%). Leukocyte esterase on clean-catch correlated with positive urine culture on straight catheter (p<0.001). The positive and negative predictive values of leukocyte esterase were 22.6% and 100%, respectively. Nitrites on clean-catch did not correlate with positive urine culture on straight catheter. The positive and negative predictive values of nitrites were 100% and 84.0%, respectively, although only four catheter urine specimens were positive for nitrites.
Conclusions: Leukocyte esterase on urine analysis obtained from clean-catch specimen is a poor screening tool for UTI. Voided urine specimens are more likely to be contaminated in the immediate postoperative period following vaginal surgery. Therefore, when assessing for UTI, a catheterized specimen should be obtained. Our findings may help guide postoperative care in women after recent vaginal surgery provided by the surgeon and by the other providers in the inpatient and outpatient settings.
Disclosure: No

9

Following the Trails of White Blood Cells to Reveal Causative Pathogens in Chronic Urinary Tract Infection

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Introduction: Urinary tract infection (UTI) is one of the most common bacterial infections worldwide, with an estimate that over 50% of all women will have an episode of UTI in their lifetime. While acute UTI is generally self-limiting or can be treated with a course of antibiotics, UTI can become a recurrent or chronic occurrence for a subgroup of the population. Patients with chronic UTI experience varying degrees of lower urinary tract symptoms related to urgency, incontinence, voiding and pain. In recent years, it has been established that the urine is not sterile, and bacteria are ubiquitously present in health and disease. This has complicated the diagnosis and treatment of UTI as it is now harder to distinguish pathogens from commensals. As part of the

body's immune defence towards UTI, epithelial cells are shed into the urine accompanied by directly proportional white blood cell counts. By targeting the bacteria implicated in the activation of these white blood cells, pathogens that potentially cause chronic UTI can be identified.
Objective: To isolate bacteria associated with the white blood cells in urine samples of chronic UTI patients.
Methods: Urine samples from 2 chronic UTI patients were collected and centrifuged, providing the supernatant and sediment portions of "neat urine". The cells in the sediment were labelled with CD45 microbeads and separated with magnetic-activated cell sorting, resulting in CD45-positive "white blood cell (WBC)" and CD45-negative "non-WBC" fractions. Aliquots of the supernatants and sediments of neat urine, WBC and non-WBC fractions were individually cultured on chromogenic agars (chromID® CPS® Elite). Colony growth was recorded after two-day incubation at 37°C. The cells in the sediments were also stained with DAPI (for nucleus and bacteria) and WGA (for cell membrane) and examined with confocal microscopy.
Results: The bacterial colonies were putatively identified based on colour as Enterococcus sp. (turquoise), Proteus sp. (light brown) and Streptococcus sp. (purple). Supernatant cultures provided information on free-floating bacteria present in the urine while sediment cultures showed bacteria associated with WBC in the WBC fraction and epithelial cells in the non-WBC fraction. In Sample 1 (Figure 1a-c), Enterococcus sp. was observed in every aliquot while Proteus sp. was found in the supernatant and sediment of neat urine and WBC sediment. Of interest was Streptococcus sp., which was observed in the neat urine sediment and again only in the WBC sediment. In Sample 2 (Figure 1d-f), Proteus sp. was observed in all aliquots. Confocal microscopy showed presence of bacteria in neutrophils.
Conclusions: This preliminary study described a workflow for isolating bacteria that are potentially being targeted by the white blood cells of the host immune system in chronic UTI. More samples are required to establish a meaningful biological interpretation of the bacterial growth observed. Definitive identification of the bacteria could be achieved through mass spectrometry to pinpoint possible pathogens linked to the development of chronic UTI.
Disclosure: No
Images:

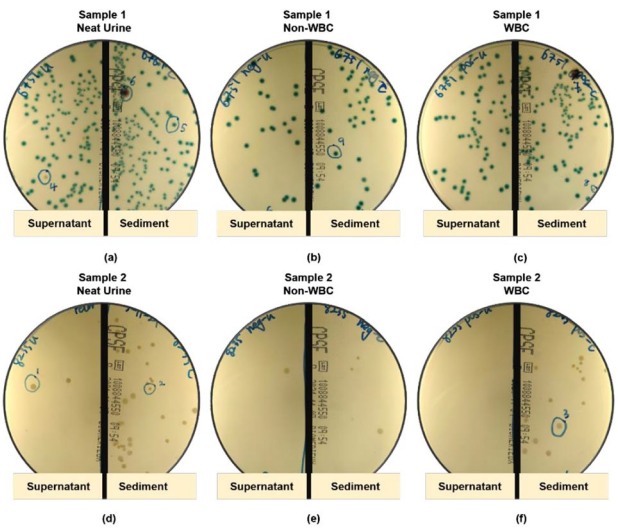

Figure 1. Bacterial colonies grown on chromogenic agars from different fractions of urine samples from Patient 1 (a-c) and Patient 2 (d-f).

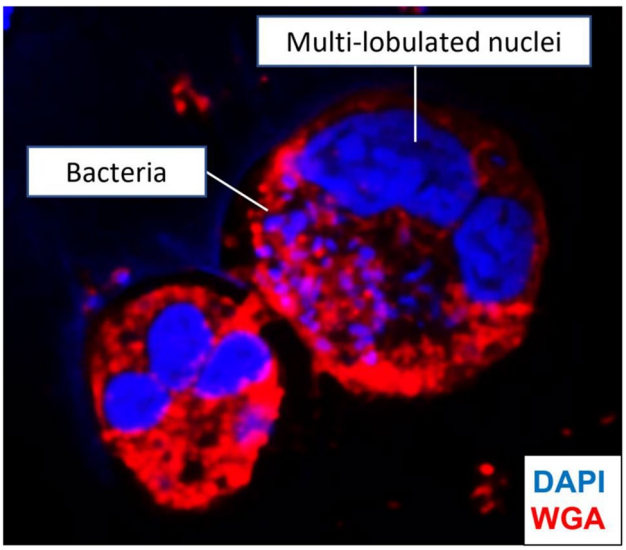

Figure 2. Confocal microscopy showing bacteria associated with two neutrophils.

10

Emerging Uropathogens, Aerococcus Urinae and Coagulase-Negative Staphylococci are more Frequently Detected by M-PCR/Pooled-AST than Standard Urine Culture, in Female Patients Symptomatic of Urinary Tract Infection
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Introduction: The standard urine culture (SUC) has been the gold standard test for the diagnosis of urinary tract infection (UTI). Its limited culture conditions are biased for the identification of classical E. coli and monomicrobial UTI infections. Recently, other bacterial species, including other Gram-negative and Gram-positive bacteria, have increasingly been acknowledged for their role in UTIs. Furthermore, recent research in this field has demonstrated that not all UTIs are monomicrobial and those polymicrobial infections are common. Novel advanced methods, such as multiplex polymerase chain reaction (M-PCR) can provide clinically relevant microbiological data missed by SUC. Aerococcus urinae is a Gram-positive bacterium that has been isolated from urine from UTI, urgency urinary incontinence and overactive bladder. It has been known to cause bacteremia and endocarditis, generally preceded by UTI and UTI symptoms. Coagulase-Negative Staphylococci (CoNS) is a group of Gram-positive cocci. Nosocomial isolates of CoNS are often found in polymicrobial cultures. Among them, S. saprophyticus is the second most frequent causative microorganism of uncomplicated lower UTI in young, sexually active women.
Objective: This study was conducted to compare Guidance® UTI, a M-PCR-based test, including Pooled Antibiotic Susceptibility Testing (P-AST), with SUC to detect A. urinae and CoNS in female symptomatic UTI patients.
Methods: Female patients from a prospective study, recruited by 75 physicians from 37 urology offices in seven states between July 26, 2018, and February 27, 2019, were included in the analysis (Western IRB 20181661). Guidance® UTI and SUC were performed on their urine samples. Detections at > 10^5 CFUs in SUC or > 10^5 bacteria/mL in Guidance® UTI were defined as positive for A. urinae and CoNS (S. epidermidis, S. haemolyticus, S. lugdunenesis, and S. saprophyticus).

Results: A total of 1,360 female patients, with an average age of 73.3 years, were included in this analysis. All patients enrolled in the study presented with UTI symptoms. Most of the urine samples (94.2%) were voided midstream urine (Table 1). A. urinae and CoNS were detected in 159 and 15 ($p < 0.0001$) and 55 and 17 ($p < 0.0001$) patients by M-PCR/P-AST and SUC, respectively (Table 2). There were 144 patients detected with A. urinae by M-PCR/P-AST but missed by SUC (Table 2). Among the 144 patients, 70.8% were polymicrobial (A. urinae was detected with > 1 other bacteria). SUC reported normal urogenital microflora in 38 of the 144 patients (26.4%) and no bacteria detected in 57 (39.6%) patients (Table 3). M-PCR/P-AST identified 40 patients with CoNS that were missed by SUC (Table 2), with 67.5% being polymicrobial (Table 3). Thirty percent (30%) of these patients were reported as normal urogenital microflora by SUC (Table 3).
Conclusions: M-PCR/P-AST-based Guidance® UTI is more powerful than SUC in detecting emerging uropathogens, A. urinae, and CoNS in female symptomatic UTI patients. This may be due to the limited ability of SUC to detect emerging organisms and polymicrobial infections.
Disclosure: Yes, this is sponsored by industry/sponsor: Pathnostics
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: Pathnostics
Images:

Table 1: Patient demographics and clinical information

Demagraphical and clinical characteristics (N = 1,360)	
Age, mean (SD)	73.3 (8.7)
Method of urine collection	
Voided, n (%)	1281 (94.2%)
Catheterized, n (%)	75 (5.5%)
UTI Symptoms, n (%)	
Dysuria	459 (33.8%)
Urine cloudy or strong smell	242 (17.8%)
Pain/Pelvic discomfort	465 (34.2%)
Fever	36 (2.7%)
LUTS	973 (71.5%)
Urinary incontinence	532 (39.1%)
Gross hematuria	295 (21.7%)
Antibiotic Usage in the Last 3 Weeks, n (%)	226 (16.9%)
Positive Urine Analysis or Dipsticks Results, n (%)	1123 (82.6%)

Table 2: Detection of *Aerococcus urinae* and Coagulase-Negative *Staphylococci*, by Guidance® UTI and SUC

N = 1,360	*Aerococcus urinae*	Coagulase-Negative *Staphylococci*
Detected by SUC # of patients (%)	15 (1.1%)	17 (1.3%)
Detected in Guidance® UTI # of patients (%)	159 (11.7%)	55 (4%)
# Detected by Guidance® UTI, but not by SUC # of patients (%)	144 (10.7%)	40 (2.9%)
p value	<0.0001	<0.0001

Table 3: Results of the patients detected by Guidance® UTI, but missed by SUC, with *Aerococcus urinae* and Coagulase-Negative *Staphylococci*

	Aerococcus urinae (N = 144) # of patients (%)	Coagulase-Negative Staphylococci (N = 40) # of patients (%)
Results of Guidance® UTI		
Monomicrobial	42 (29.2%)	13 (32.5%)
Polymicrobial	102 (70.8%)	27 (67.5%)
Results of SUC		
No bacteria detected	57 (39.6%)	22 (55.0%)
Normal urogenital microflora	38 (26.4%)	12 (30.0%)
Other bacteria detected Monomicrobial Polymicrobial	87 (60.4%) 70 (48.6%) 17 (11.8%)	18 (45.0%) 16 (40.0%) 2 (5.0%)

11

Optimal Ureteric jet Visualization at the Time of Pelvic Reconstructive Surgery: A Double-blinded, Randomized Controlled Trial Comparing Vitamin B2 to 5% Dextrose in Water

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4 - Biostatistics Research Unit, University Health Network, University of Toronto

Introduction: Confirmation of ureteric integrity is important during pelvic reconstructive surgery. Lack of availability and higher costs of traditionally used methods have prompted a need for the evaluation of new ureteric visualization agents.
Objective: To compare pre-operative vitamin B2 versus intra-operative cystoscopy distension using 5% dextrose in water (D5W) for visualization of ureteric jets during pelvic reconstructive surgery.
Methods: We conducted a double-blinded, randomized controlled trial at three tertiary hospitals evaluating two ureteric visualization agents. Patients were randomized to receive 100mg of vitamin B2 pre-operatively versus bladder distension with D5W intra-operatively. The primary outcome was the rate of accurate detection of bilateral ureteric jets during cystoscopy. Secondary outcomes included the time to visualize both jets, use of intravenous furosemide to assist visualization, use of intravenous fluorescein as a rescue agent, surgeon satisfaction, and positive urine culture one week after surgery. All statistical analyses used an intention-to-treat principle.
Results: In total, 236 patients were enrolled, randomized, and completed their intervention (vitamin B2 n=117, D5W n=119). Pre-operative characteristics were similar across randomization groups. Accurate detection of both ureteric jets was high in both groups (vitamin B2 97.4% versus D5W 90.8%, p=0.062). The vitamin B2 group had significantly lower use of fluorescein rescue compared to the D5W group (3.4% versus 11.8% respectively, p=0.025). Surgeon satisfaction while using vitamin B2 was significantly higher (p<0.001). There were no significant differences in the time elapsed until visualization, the use of furosemide, or the incidence of positive urine culture at one week after surgery.
Conclusions: Both pre-operative vitamin B2 and intra-operative cystoscopy distension with D5W are highly available and inexpensive methods to detect ureteric jets with high accuracy at the time of pelvic reconstructive surgery. However, vitamin B2 was shown to have lower rates of fluorescein rescue for visualization and higher rates of surgeon satisfaction.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Szio, COSM, Pfizer
Images:

Table 1. Intra-operative Outcomes Comparing Vitamin B2 versus 5% Dextrose in Water for Ureteric Jet Visualization during Pelvic Floor Reconstructive Surgery

	Vitamin B2 (n=117)	5% Dextrose in Water (n=119)	P
Types of surgical procedure*			
Prolapse surgery only	65 (55.6)	58 (48.7)	0.359
Incontinence surgery only	11 (9.4)	12 (10.1)	1.000
Other surgery only	2 (1.7)	7 (5.9)	0.171
Prolapse and incontinence surgery	38 (32.5)	42 (35.3)	0.749
Prolapse and other surgery	1 (0.9)	0 (0)	0.496
Study medication intake time†			1.000
Before 12PM	95 (81.2)	97 (81.5)	
After 12PM	22 (18.8)	22 (18.5)	
Time from taking study medication to looking for ureters‡ (minutes)	140.4 (100.0-167.0)	127.6 (98.4-162.1)	0.209
Primary outcome†			
Detection of both ureteric jets	112 (97.3)||	108 (90.8)	0.062
Detection of one ureteric jet	4 (3.4)	5 (4.2)	0.181
Detection of no ureteric jet	1 (0.9)	6 (5.0)	
Secondary outcomes			
Time looking for ureter 1§ (seconds)	32.0 (12.3-93.0)¶	29.0 (15.0-115.0)¶	0.325
Time looking for ureter 2§ (seconds)	81.5 (35.8-178.5)¶	83.0 (43.5-201.0)¶	0.456
Furosemide use†	4 (3.4)¶	7 (5.9)¶	0.539
Fluorescein rescue†	4 (3.4)¶	14 (11.8)	0.025

*All procedures included in this study required routine cystoscopy. Surgical details are outlined in Appendix 1.

†Categorical data described by number of patients (%) and compared between groups using Chi-squared test or Fisher's exact test.

‡Continuous data described as median (interquartile range) and compared between groups using the Mann-Whitney test.

§Time measured during cystoscopy from when the surgeon noted they were looking for ureteric jets to seeing the first jet and then seeing the second jet (seconds).

||Two patients eliminated from this analysis as the second ureter was kinked by surgical intervention (uterosacral vault suspension), n=115.

¶Data missing for time looking for ureter 1 (n=7), time looking for ureter 2 (n=16), furosemide use (n=2), fluorescein rescue (n=1); values are calculated from those with complete data.

Table 2. Post-Operative Outcomes Comparing Vitamin B2 versus 5% Dextrose in Water for Ureteric Jet Visualization during Pelvic Floor Reconstructive Surgery

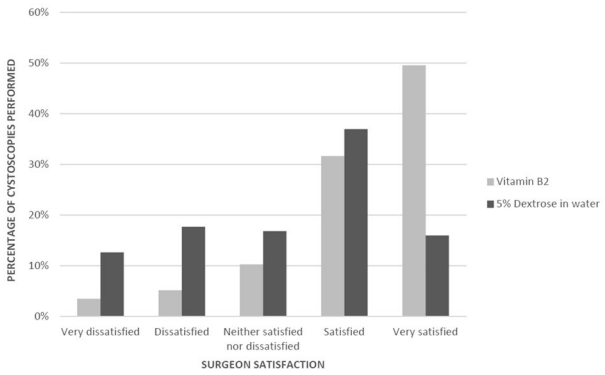
	Vitamin B2 (n=117)	5% Dextrose in Water (n=119)	P
Discharged home with catheter*	85 (72.6)	71 (59.7)	0.099
Foley catheter	19 (16.2)	18 (15.1)	
Suprapubic tube	66 (56.4)	53 (44.5)	
Post-operative follow-up day†	6 (5-7)	6 (5-7)‡	0.855
Using catheter at follow-up visit*	84 (71.8)	66 (55.5)	0.013
Currently on antibiotics*	84 (71.8)	66 (55.5)	0.013
Length of catheterization (days)†	5 (1-7)	3 (1-6)	0.014
Positive urine culture*	21 (17.9)	19 (16.1)‡	0.839

*Categorical data described by number of patients (%) and compared between groups using Chi-squared test or Fisher's exact test.

†Continuous and count data described as median (interquartile range) and compared between groups using the Mann-Whitney test.

‡Data missing for post-operative follow-up day (n=1) and urine culture positive (n=1); values are calculated from those with complete data.

Fig 1. Surgeon Satisfaction with Ureteric Jet Visualization at the Time of Cystoscopy: Vitamin B2 versus 5% Dextrose in Water



12

Development of a Patient-centered Texting Program for the Self-management of Interstitial Cystitis Symptoms: ERICA (Educational and Remote Interstitial Cystitis Aide)

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1 - University of Pennsylvania

Introduction: Current treatment recommendations for interstitial cystitis/bladder pain syndrome (IC/BPS) are not patient-centered. Our published focus group study found that IC/BPS patients have a strong interest in guided treatment programs that teach evidence-based self-care practices remotely.

Objective: To develop a text message-based platform that (i) remotely delivers first- and second-line American Urological Association (AUA) treatments of IC/BPS; (ii) integrates treatment of biological (neuropathic pain, pelvic floor dysfunction), psychological (symptom-related fear and anxiety) and social (barriers in access to care, limited patient-provider communication) domains of IC/BPS; (iii) uses clinically validated messages to provide guidance and support.

Methods: We conducted a literature review of evidence-based treatments and strategies that patients use to self-manage their symptoms. We combined the results of this review with cognitive interviews with 9 IC/BPS patients to understand the types of information that IC/BPS patients want. This data informed the creation of educational and treatment video modules, the accuracy of which was reviewed by an advisory group including urogynecology and urology clinicians, psychologist, physical therapist, and health innovation expert. Finally, we conducted a feasibility study in 10 women with IC/BPS eligible for first- and second-line treatments. Patients received video modules through a HIPPA-compliant texting platform and participated in dialogue tree-based open-ended texting with a study coordinator for 6 weeks. Patients were instructed to 1) provide narrative feedback on the content; 2) request a call from a clinician as needed; and 3) assess ease of use of the platform (System Usability Scale, score range 0-100, higher score indicates easier use).

Results: We developed a patient-centered texting platform, ERICA, that provides: 1) video modules of first- and second-line treatments (Table 1) and 2) clinically validated messages offering support and guidance (Figure 1) using a structured dialogue tree. Table 2 shows demographic data of the 10 patients. All patients received modules on patient education, bladder retraining and dietary triggers over two weeks. Each patient could then choose between cognitive behavioral therapy (CBT) for chronic pain, guided mindfulness practices, or pelvic floor physical therapy (PT) including myofascial trigger point release over four weeks. Four patients chose mindfulness, four chose PT, and two chose CBT. Median number of texts exchanged with each patient was 79 (range 49-120). Patient response rate was 89% indicating high engagement. In narrative feedback, patients expressed 1) appreciation for evidence-based treatments that they could access remotely on their own schedule and 2) confidence in implementing strategies for managing their symptoms. Qualitative comments included, "I felt like someone cared about me," "I felt empowered," and "I didn't feel like I was alone in figuring this out." No patient requested a call from a clinician. All 10 patients completed the program. Mean SUS was 87.8 +/- 6 denoting high usability of the platform. Suggestions for improvement included making the platform more personalized and interactive.

Conclusions: We developed a feasible low-cost patient-centered texting platform for the management of IC/BPS symptoms. Future work will involve incorporating patient feedback into the design, automating the dialogue tree, and evaluating clinical effectiveness of the platform.

Disclosure: No

Images:

Table 1: List of educational video modules on first and second line American Urological Association treatments

Video modules	Title	Length
Patient education & bladder health	What is IC?	4:01
	Bladder retraining 1 and 2	4:01 3:34
	Dietary triggers	2:13
Cognitive behavioral therapy for chronic pain	Introduction to CBT	0:29
	Understanding emotions	2:00
	Reversing the anxious spiral	2:41
	Opposite action	4:30
	Managing anxious thought	3:37
	Responding differently to our body	2:44
	Identifying values	3:29
	Expanding our lives	2:53
	Worry trap	4:02
Mindfulness video modules	Mindfulness introduction	4:44
	Mindfulness practice	4:24
Audio-guided mindfulness practice	Describe	4:42
	Observe	4:05
	Body Scan	5:23
	Loving Kindness	4:17
	Soften and allow	7:41
	Mountain meditation	5:33
	Lake meditation	4:58
Basics of pelvic floor PT	Introduction - The Pelvic Floor	2:44
	Diaphragmatic breathing	2:16
	Pelvic wand and trigger point release. Explanation & demonstration.	7:22
Hip adductors	Hip adductors - supine with support	1:43
	Hip adductors - supine without support	1:08
	Hip adductors - seated	0:58
	Hip adductors/ hamstrings stretch	1:23
Deep rotators and glutes	Deep hip rotators	1:20
	Deep hip rotators - internal	0:59
	Figure 4	0:59
Hip flexor and abdomen	Hip flexors stretch - standing	1:11
	Hip flexors stretch - supine	1:25
	Baby Cobra	1:09
Pelvic floor relaxation	Malasana	2:15
	Happy Baby	1:16
Low back	Cat Cow	1:05
	Child's Pose	1:19

Figure 1: Screenshot of a conversation between ERICA and a participant. Messages of guidance and support are provided. Depending on the response to the symptom bother question, an option of being contacted by a clinician is given.

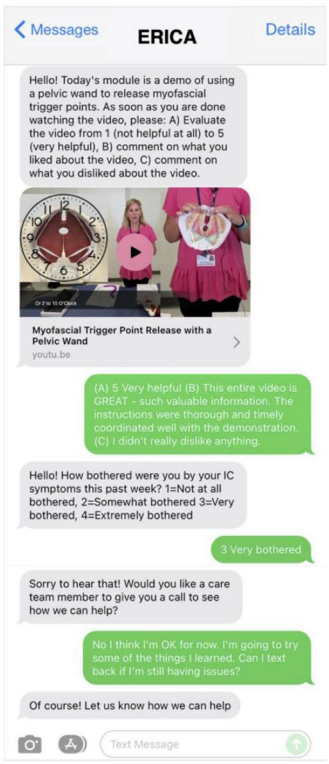

Table 2: Demographics of the 10 participants

ID	Age	Race	Concomitant chronic diagnosis	Concomitant psychiatric diagnosis	Chosen module	Baseline IC Symptom Index	Baseline IC Problem Index	Post-participation System Usability Scale
E01	40	White	Migraine, IBS	None	PT	9	6	90
E02	32	White	None	Anxiety	PT	10	5	82.5
E03	25	Hispanic	None	Anxiety	PT	11	15	85
E04	31	White	Migraine	Anxiety	CBT	11	10	85
E05	48	Black	None	Depression	Mindfulness	8	7	90
E06	31	White	None	None	Mindfulness	13	7	75
E07	26	White	IBS	Depression	CBT	9	4	90
E08	30	White	Migraine, Back pain	None	PT	14	11	95
E09	50	White	IBS	None	Mindfulness	11	11	97.5
E10	23	White	Back pain	Anxiety, Anorexia nervosa	Mindfulness	15	13	87.5

* Abbreviation: IC = interstitial cystitis, IBS = irritable bowel syndrome, PT = physical therapy, CBT = cognitive behavioral therapy

13

Pessary or Surgery for a Symptomatic Pelvic Organ Prolapse; a Multicenter Randomized Controlled Trial

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4 - Radboud UMC

Introduction: Pelvic organ prolapse (POP) can negatively affect the quality of life. Due to ageing, the number of women presenting with symptomatic POP will increase dramatically. Treatment options for moderate to severe POP are pessary and surgery. Currently, treatment selection is based on patients and physicians preference. Studies comparing pessary and surgery in a randomized setting are lacking. Therefore, we performed this multicenter randomized controlled trial (RCT) comparing both treatment modalities.
Objective: To present the 1-year interim results of a 2-year RCT comparing the efficacy of pessary and surgery for women presenting with symptomatic POP.
Methods: Multicenter RCT to prove non-inferiority of pessary as compared to surgery, including women with symptomatic POP stage ≥ 2 and a successful pessary fitting procedure. The primary outcome was subjective improvement at 12-months follow-up, defined as responding 'very much' or 'much improvement' to the Patient Global Impression of Improvement (PGI-I) questionnaire. Secondary outcomes included symptom bother measured with the Pelvic Floor Distress Inventory (PFDI-20), adverse events and cross-over of therapy. In the PFDI-20, a higher score represents more bothersome symptoms. With 198 women per group, we would achieve 80% power to reject the null hypothesis that pessary therapy is inferior to surgery, with a 1-sided alpha of 0.05 and a non-inferiority margin of 10%. Analysis of the primary outcome was done using the Manning-Farrington test for non-inferiority for the difference between two proportions, against the non-inferiority margin of 10% risk difference. Continuous data were analysed using the independent t-test, with 95% confidence intervals (CI) estimated using bootstrapping.
Results: A total of 439 women were included, 218 (49.7%) women in the pessary group and 221 (50.3%) women in the surgery group. A total of 96 (44.0%) women in the pessary group switched to surgery and in the surgery group re-surgery was performed in 7 (3.2%) women and 2 (0.9%) women additionally used a pessary. In the intention-to-treat analysis, subjective improvement was reported by 75.9% of women in the pessary group and 82.3% in the surgery group (risk difference 6.3%; 90% CI -13.3% – 0.6%; p-value for non-inferiority 0.20). Both groups showed an improvement on all subscales scores of the PFDI-20, without significant difference between groups. In a per-protocol analysis, subjective improvement was reported by 67.3% of women in the pessary group and 84.8% of women in the surgery group (risk

difference 17.5%; 90% CI -26.1% - -8.8%; p-value for non-inferiority 0.92). Additionally, the per-protocol analysis showed that significantly more women in the surgery group gained a significantly greater reduction on the UDI-6 scale (mean difference 5.6; 95% CI 0.4 – 10.6; p-value 0.02) and on the total PFDI-20 scale (mean difference 11.3; 95%CI 1.0 – 21.4; p-value 0.03), as compared to the pessary group.
Conclusions: For women presenting with symptomatic POP, surgery, as compared with initial pessary, results in higher rates of subjective improvement at 1-year. Moreover, over 40% of women initially treated with a pessary was indicated for surgery within the first year. Our data showed that surgery should be considered as primary intervention for symptomatic POP.
Disclosure: No
Images:

Table 1. Primary and secondary outcome in the pessary and surgery group at 12 months.

	Pessary group (N=218)	Surgery group (N=221)	
			Risk difference (90% CI), *p*-value
PGI-I: improvement – no./total no.	142 / 187 (75.9%)	149 / 181 (82.3%)	-6.3% (-13.3% – 0.6%), 0.20*
Change in PFDI-20 domain score ¶			Mean difference (95% CI), *p*-value ‡
POPDI-6	-20.48 ± 21.74	-22.52 ± 16.56	2.04 (-1.90 – 6.10), 0.31
CRADI-8	-4.09 ± 13.49	-3.83 ± 11.75	-0.26 (-2.82 – 2.33), 0.84
UDI-6	-10.44 ± 20.85	-13.30 ± 19.58	2.86 (-1.32 – 6.96), 0.18
PFDI total score	-34.72 ± 45.98	-39.65 ± 36.28	4.93 (-3.51 – 13.52), 0.26

* Farrington-Manning test for non-inferiority against the non-inferiority margin of -10%.
‡ Bootstrapped 95% confidence intervals for the difference of means.
¶ A negative change indicates improvement. Data were available for 186 women in the pessary group and 179 women in the surgery group.

Table 2. Per-protocol analysis of primary and secondary outcome at 12 months.

	Pessary (N=111)	Surgery (N= 193)	
			Risk difference (90% CI), *p-value*
PGI-I: improvement – no./total no.	70 / 104 (67.3%)	145 / 171 (84.8%)	-17.5 (-26.1 – -8.8), 0.92*
Change in PFDI-20 domain score ¶			Mean difference (95% CI), *p*-value ‡
POPDI-6	-19.43 ± 22.21	-23.49 ± 16.01	4.06 (-0.86 – 8.95), 0.10
CRAD-8	-2.52 ± 11.26	-4.14 ± 11.85	1.62 (-1.24 – 4.41), 0.26
UDI-6	-8.16 ± 21.23	-13.80 ± 19.86	5.64 (0.47 – 10.55), **0.02**
PFDI total score	-30.11 ± 45.0	-41.42 ± 36.22	11.31 (1.07 – 21.38), **0.03**

P-values in bold are significant.
Per-protocol definitions: pessary group excludes women who later also had surgery (96), women who stopped pessary therapy (3) and in case it was unknown if the woman used a pessary (8); surgery group excludes women who did not undergo surgery (22), women who had re-surgery because of a recurrence of prolapse (4) and women who additionally used a pessary because of a recurrent prolapse (2).
* Farrington-Manning test for non-inferiority against the non-inferiority margin of -10%.
‡ Bootstrapped 95% confidence intervals for the difference of means.
¶ A negative change indicates improvement. Data were available for 104 women in the pessary group and 169 women in the surgery group.

Table 3. Discontinuation of therapy and additional therapy

	Pessary group (*n*=218)	Surgery group (*n*=221)
Discontinuation pessary ¶	99/210 (47.1%)	n/a
Switch to surgery ¥ or add. therapy after surgery ¤	96 (44.0%)	10 (4.5%)
Reason to switch to surgery or add. therapy after surgery		
Loss of pessary	37 (38.5%)	n/a
Discomfort	17 (17.7%)	n/a
Pain	14 (14.6%)	n/a
No/ not much effect	13 (13.5%)	n/a
Complaints of incontinence	8 (8.3%)	n/a
Excessive discharge	5 (5.2%)	n/a
Dissatisfied about pessary management	2 (2.0%)	n/a
Recurrence of prolapse	n/a	4 (1.8%)
Secondary bleeding	n/a	2 (0.9%)
Prolapse of untreated compartment	n/a	1 (0.5%)
Pain after SSF	n/a	1 (0.5%)

¶ Data was available for 210 women.
¤ Re-surgery was performed 8 times, one woman had re-surgery twice (because pain after SSF and recurrence of prolapse). An additional pessary was used 2 times (both times because of a recurrent prolapse).
¥ From the 99 women who discontinued pessary therapy before 12 months, 96 switched to surgery and 3 did not have any kind of treatment at 12 months follow-up.

14

Donor-Age Related Efficacy and Biodistribution of iPSC-Derived Smooth Muscle Cell Progenitors for Stress Urinary Incontinence

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1 - Stanford University

Introduction: The internal urethral sphincter, consisting mostly of smooth muscle cells (SMC), contributes to urethral continence mechanism. Trauma and aging are associated with urethral SMC loss. Surgery is currently the main treatment for stress urinary incontinence (SUI), but recurrence rate is high in older patients. The process of genetic reprogramming of patient somatic cells into induced pluripotent stem cells (iPSCs) that can then be differentiated into smooth muscle cell progenitors (pSMC) can erase epigenetic cell changes due to aging and provide a homogenous cell population for therapeutic applications. Therefore, pSMCs may be used to restore internal urethral sphincter function. We confirmed efficacy of human pSMCs in a SUI animal model previously.
Objective: Here, we test whether pSMCs produced by iPSC reprogramming of cells from older patients are effective for treatment of SUI, and examine the biodistribution of pSMCs after clinical site injection.
Methods: Fibroblasts from female patients in different age groups (40, 70, 80 years) were reprogrammed into iPSCs using a miRNA reprogramming method. These were differentiated into pSMCs. SUI rat model was created via urethrolysis and ovariectomy in the immune compromised RNU rat. All SUI rats underwent peri-urethral injections: saline (sham saline group) and pSMCs three weeks post-surgery. Blinded vertical tilt table leak point pressure (LPP) tests were performed 5 weeks post injection. Total RNA was extracted from the urethras, and RT-PCR was performed to evaluate rat elastin and collagen III mRNA levels. For biodistribution, peri-urethral pSMC injections were performed on NSG (severely immune compromised) mice to maximize long-term survival of the human cells. Mice were euthanized at day 1, 4 ,7 and 14 and pelvic tissues/organs harvested for immunohistochemistry and Alu-seq PCR. The Alu sequence is a well-preserved gene in human cells which can be used to detect presence of human cells. Alu-seq PCR was performed from DNA extracted from the liver, brain, kidneys, vagina, bladder, and urethra to trace and quantify cell migration up to 4 months post injection.
Results: Compared to intact control rats with no surgery, the mean LPP was significantly lower in SUI rats injected with saline (sham saline). All three SUI groups treated with patient-specific pSMCs exhibited higher LPPs compared to sham saline rats (P<0.05, Fig 1). Compared to saline treatment, one out of three pSMC-treated SUI groups demonstrated significant upregulation of elastin mRNA in the urethra, with the other two groups showing a trend for upregulation of elastin (Fig 2). Two out of three pSMC-treated SUI groups showed significant upregulation of collagen III mRNA. pSMCs were detected in the bladder, vagina, and urethra at day 1, 4, and 7 post-injection via Alu-PCR and confirmed via immunohistochemistry. pSMCs were detected only in the urethra via Alu-PCR up to 4 months after injection (Fig 3).
Conclusions: In summary, our data suggest that pSMCs derived from older patients may be efficacious for autologous cell treatment of SUI and pSMCs appear to ingraft in the injected site (urethra/periurethral region) without migration to distant organs. Long term in vivo studies are needed to confirm sustained efficacy and safety.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Cellino Biotech, Inc., Hims, Inc., Procter & Gamble
Images:

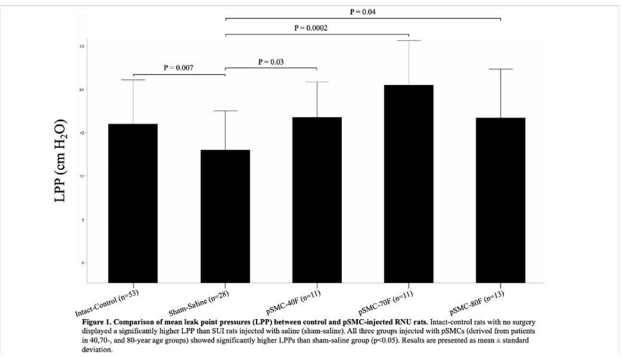

Figure 1. Comparison of mean leak point pressures (LPP) between control and pSMC-injected RNU rats. Intact-control rats with no surgery displayed a significantly higher LPP than SUI rats injected with saline (sham-saline). All three groups injected with pSMCs (derived from patients in 40,70-, and 80-year age groups) showed significantly higher LPPs than sham-saline group (p<0.05). Results are presented as mean ± standard deviation.

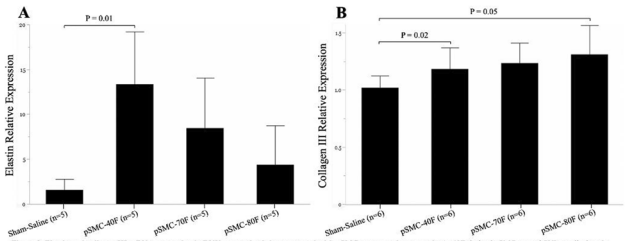

Figure 2. Elastin and collagen III mRNA expression in RNU rat urethral tissues treated with pSMCs compared to controls. A: 40F-derived pSMC-treated SUI rats displayed a significantly higher relative fold-change of elastin compared to SUI sham-saline rats. **B:** 40F- and 80F-derived pSMC-treated SUI rats exhibited significantly higher relative fold-change of collagen III. Results are presented as mean + standard deviation.

A

Group Assignment	Treatment
Control	Saline injection
Short-Term Cell Tracking	70F-pSMCs Only
Long-Term Tracking (1 and 3 Months)	40F-pSMCs Only
Long-Term Tracking (2 and 4 Months)	70F-pSMCs Only

B

Time Point	Treatment	Location of Detected Cells
Days 1, 4, 7	70F-pSMCs Only	Bladder, Vagina, Urethra
Days 9 and 14	70F-pSMCs Only	None Detected
1 Month	40F-pSMCs Only	None Detected
2 Months	70F-pSMCs Only	None Detected
3 Months	40F-pSMCs Only	None Detected
4 Months	70F-pSMCs Only	Urethra

C

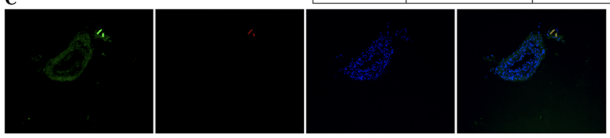

Figure 3. In vivo short- and long-term biodistribution of patient-derived pSMCs after peri-urethral injection in the NSG mice. A: Control mice were injected with saline in tandem with treatment mice. To track short-term cell distribution, mice were injected with 4*10⁶ of 70F-derived pSMCs at day 0 and were sacrificed 1, 4, 7, 9, and 14 days post-injection. For evaluating long-term biodistribution of cells, mice were injected with 4*10⁶ of 40F- and 70F-derived pSMCs at day 0 and were sacrificed at 1-4 months post-injection. **B:** Cells were detected in all pelvic floor organs up to day 7. No pSMCs were detected days 9 and 14 as well as months 1, 2, or 3 post-injection. At 4 months, 70F-pSMCs were detected within the urethra. None were detected in distant organs. **C:** Immunohistochemistry for smoothelin and human nuclei demonstrated cell localization in the urethra.

15

Loss of an Essential Gene for Cellular Senescence (Cyclic GMP-AMP Synthase) Rescues Pelvic Organ Prolapse

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Introduction: Pelvic organ prolapse becomes more prevalent with increasing age. Cellular senescence is associated with the process of aging and contributes to both tissue dysfunction and impaired tissue regeneration. Cyclic GMP-AMP Synthase (cGAS) is a cytosolic DNA sensor that plays a key role in activating innate immunity and is essential for cellular senescence.
Objective: To determine if loss of cGAS rescues prolapse in fibulin-5 knockout mice (Fbln5-/-). We hypothesized that inhibition of cGAS activity will eliminate or decrease the severity prolapse in Fbln5-/- mice.
Methods: Female wild type (WT) (n=9), Fbln 5-/- (n=14) and DKO (n=9) mice were followed with weekly mouse pelvic organ prolapse quantification system (MOPQ) measurements from 4 weeks to 24 weeks. Vaginal tissue was harvested at 12 and 24 weeks for immunostaining and cytokine analysis. ANOVA with post hoc testing was used for statistical analysis. Quantitative data is presented as mean ± standard error of the mean.
Results: The magnitude of perineal bulge (bulge) and perineal body length (PBL) increased significantly with age in Fbln5-/- mice. Loss of cGAS in DKO animals rescued prolapse indicated by stable measurements of bulge and PBL (Figure 1). There were no differences between groups in young animals (4, 8, or 12 weeks). Significant differences were observed starting at 20 weeks with the most striking differences observed at 24 weeks when average bulge was 9.7±0.75mm in Fbln5-/- and 4.7±0.12mm in DKOs (p=0.0006). Likewise, PBL was 9.5±0.42mm in Fbln5-/- animals and 5.6±0.19mm in DKO mice (p=0.004). Interestingly, WT and DKO were indistinguishable suggesting complete rescue of the prolapse phenotype. Immunofluorescence demonstrated although expression of senescence markers p16, and γH2A.x increased with age in both Fbln5-/- and DKO mice, age-associated increases in these markers was attenuated in DKO animals (17.1% vs 0.06%, p=0.036 and 3.72% vs 0.76%, p=0.047) respectively (Figure 2). In contrast, p21 expression increased in Fbln5-/- mice, but not DKO. Cytokine analysis revealed increased expression of macrophage inflammatory protein-3 (6.3pg/mL ± 0.3 vs 4.8pg/mL ± 0.2, p=0.002), granulocyte-macrophage colony-stimulating factor (0.1pg/mL ± 0.03 vs 0.4pg/mL ± 0.04, p=0.0003), C-C motif chemokine 11 (32.2pg/mL ± 1.5 vs 508.3pg/mL ± 124.4, p=0.006), and macrophage inflammatory protein-1 alpha (0.9pg/mL ± 0.1 vs 7.3 ±1.4, p=0.001) in Fbln5-/- compared with DKO mice at 12 weeks. Differences in these senescent markers were not observed in older mice at 24 weeks suggesting initiation of cell senescence may occur prior to development of prolapse.
Conclusions: Pelvic organ prolapse was rescued in DKO mice compared to Fbln5-/-mice suggesting that cGAS, an essential gene for cellular senescence plays a key role in the development of prolapse in these animals with age. In agreement with this finding, senescence-associated cytokines were increased in Fbln5-/-mice prior to the development of prolapse at 12 weeks, but not in DKO mice. Increased cytokine expression was followed by increased expression of γH2A.x and p21, markers of cellular senescence. These findings suggest that cellular senescence may play a role in the pathogenesis of pelvic organ prolapse and strategies to mitigate its effects may aid in disease prevention.
Disclosure: No
Images:

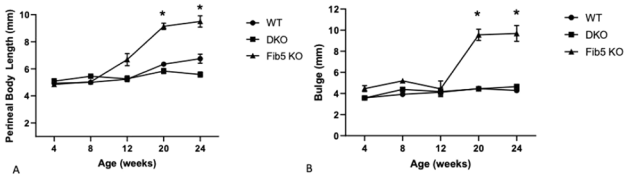

Figure 1. Effect of cGas inhibition on pelvic organ prolapse. Perineal body length (PBL) (A) and prolapse grade (B) were measured weekly from 4 to 24 weeks in wild type (WT), double knockout (DKO), and Fibulin-5 knockout mice (Fib5 KO). Significant differences, denoted by asterisks, in both PBL and prolapse grade in Fib5KO and DKO mice were noted beginning at 20 weeks and progressed by 24 weeks.

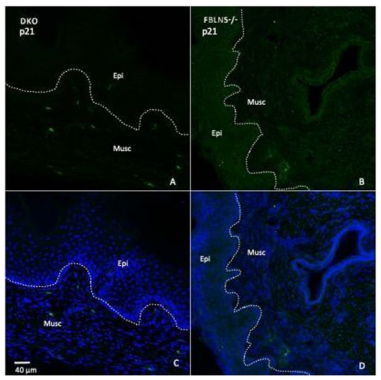

Figure 2. Effect of cGas inhibition on the expression of p21 in the wall of the vaginal stroma of Double-knockout (DKO) and Fibulin-5 knockout (Fbln 5$^{-/-}$) mice at 24 weeks. Representative tissue sections from the DKO (Panel A) and Fbln 5$^{-/-}$ (Panel B) mice demonstrate differences in p21 expression. Panels C and D display corresponding DAPI staining to label cellular nuclei for anatomical reference.
Epi= epithelium, Musc= muscularis. 20X magnification

16

Development and Validation of Models Predicting Treatment Patterns in Women with Urinary Urgency and/or Urgency Incontinence

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6 - University of Washington

Introduction: Urinary urgency (UU) and urinary urgency incontinence (UUI) are chronic conditions often managed with multiple treatments, but it is difficult for clinicians to predict which treatments women are likely to use or discontinue over time.
Objective: To develop and internally validate model-based clinical tools to predict treatment patterns over 12-month for women with bothersome UU and/or UUI.
Methods: This is a secondary analysis of a prospective cohort study that enrolled adult women with bothersome UU and/or UUI seeking care for lower urinary tract symptoms in specialty care clinics. Recommended treatments were organized from the least to more invasive: (1) behavioral therapy, (2) pelvic floor physical therapy, (3) OAB medications, and third line treatments including (4) percutaneous tibial nerve stimulation, (5) intradetrusor onabotulinumtoxinA, and (6) sacral neuromodulation. Ordinal logistic and Cox proportional hazards models were fitted to predict two outcomes: 1) the most invasive level of treatment and 2) time to OAB medication discontinuation during the 12-month follow-up, respectively. As some UU/UUI patients also had concurrent bothersome stress urinary incontinence (SUI) and got treated with sling surgery, a binary logistic model was built to predict sling surgery during the study follow-up. Model selection was done using backward elimination and variables with p-value < 0.10 were kept in the model. All models were internally validated using a bootstrap with 500 resamples and model performance was evaluated using Brier score, bias-corrected c-statistic, and bias-corrected calibration curves. The three models were incorporated into an online calculator for clinical evaluation.
Results: 349 women with bothersome UU and/or UUI were included. After controlling for treatments (level of treatment and sling) received at or prior to baseline, the most invasive level of treatment over 12-month follow-up was predicted using the following characteristics: 1) education level, 2) history of hypertension, 3) severity of urgency, 4) severity of SUI, and 5) Anticholinergic Burden Score at baseline. Among 105 (30%) participants that used OAB medications during the study period, PROMIS depression score and severity of urgency were predictive of time to OAB medication discontinuation. Participants with less depression (depression score < normative mean) and participants with more severe urgency were less likely to discontinue OAB medication. 70 (20%) participants underwent sling placement prior to baseline or during study follow-up. After controlling for sling prior to baseline visit, four variables predicted a higher likelihood of sling placement during study follow-up: 1) white race; 2) more negative feelings if had to live with current urinary condition for the rest of the life (from the American Urological Association Symptom Index questionnaire); 3) lower severity of urgency; and 4) higher severity of SUI. Each model's performance is demonstrated in Table 1. The calibration curves (Figure 1) demonstrated moderate calibration with predicted probabilities close to observed probabilities in the ranges of making clinical decisions. The online calculator is linked here: https://duke-som.shinyapps.io/UUI_treatments-app/.
Conclusions: These models, combined into a tool for clinical evaluation, show potential to help providers counsel patients and develop focused treatment plans for women at high risk for treatment discontinuation when seeking treatment for UU and UUI.
Disclosure: No
Images:

Table 1: Summary of model performance

	C-statistic [95% CI] (0 to 1, higher is better)	Brier Score [95% CI] (0 to 1, lower is better)
Outcome: The most invasive level of treatment		
Ordinal Logistic Regression Model [a]		
Overall	0.686 [0.657, 0.741]	NA [b]
Level 1-4 vs. 0	0.686 [0.657, 0.742]	0.154 [0.126, 0.175]
Level 2-4 vs. 0-1	0.685 [0.658, 0.741]	0.217 [0.193, 0.226]
Level 3-4 vs. 0-2	0.686 [0.658, 0.741]	0.162 [0.137, 0.180]
Level 4 vs. 0-3	0.684 [0.656, 0.741]	0.063 [0.040, 0.084]
Outcome: Time to OAB medication discontinuation		
Cox Proportional Hazard Model	0.671 [0.579, 0.766]	0.185 [0.151, 0.247] [c]
Outcome: Sling		
Binary Logistic Regression	0.832 [0.828, 0.834]	0.090 [0.089, 0.091]

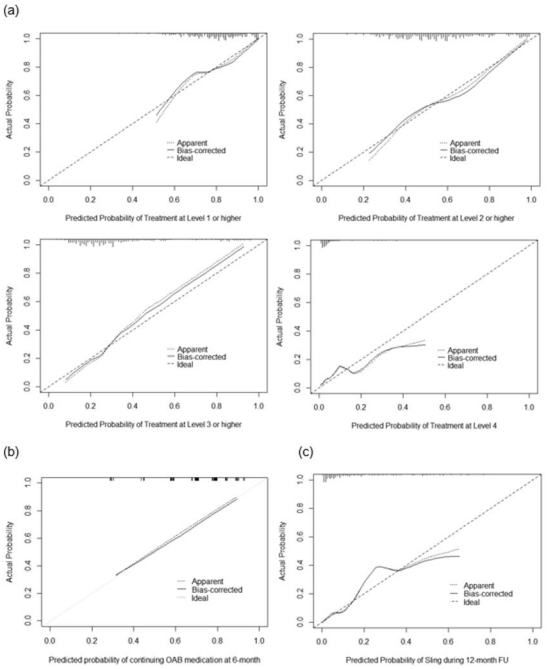
Note: Brier score captures both discrimination and calibration. It ranges between 0 and 1 with lower score indicating better model performance. C-statistic assess discrimination and ranges between 0 and 1 with higher score indicating better discrimination performance.

[a] Third line treatments including percutaneous tibial nerve stimulation, intradetrusor onabotulinumtoxinA, and sacral neuromodulation were combined as level 4 due to small number of participants in each of the individual treatments.

[b] Brier score is not applicable for an ordinal outcome.

[c] Brier score evaluated at 6-month since OAB medication initiation or baseline if medication was started before baseline. It is not corrected for bias.

Figure 1: Calibration curves for (a) ordinal logistic regression model predicting higher vs. lower level of treatment, (b) OAB medication discontinuation model, and (c) sling model during 12-month study follow-up in women with UU and/or UUI. Lines at the top of each figure are a histogram of the predicted probabilities.



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Obstetric Anal Sphincter Injury: Guidance for Future Delivery Route

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Introduction: Up to 79% of women experience an obstetric laceration during a vaginal delivery. Obstetric anal sphincter injuries (OASIs) are the most severe lacerations and include third and fourth-degree tears. While OASIs only occur in up to 4.4% of vaginal deliveries, long-term effects can be debilitating and future delivery route planning can be challenging.
Objective: Our study objectives were to analyze OASI delivery characteristics between women with a subsequent vaginal delivery versus

subsequent cesarean delivery and to describe demographic and OASI delivery characteristics in women who had a recurrent OASI.
Methods: This was a retrospective cohort study of women who experienced a vaginal birth that resulted in an OASI between 2013 and 2015 at a tertiary academic medical center. Electronic medical records were reviewed for patient demographics, obstetric delivery data, and subsequent pregnancy delivery data. The Pearson's chi-square and Fisher's Exact test were used to compare OASI delivery characteristics in women who subsequently had either a vaginal or cesarean delivery. Level of significance was set to a p-value less than or equal to 0.05.
Results: 287 women who experienced an OASI met eligibility criteria. The majority of women were white (n = 209, 72.8%), non-Hispanic (n=262, 91.3%) and aged between 20 and 34 years (n=249, 86.8%). Most women had a spontaneous vaginal delivery (n=190, 66.2%), while 72 (25.1%) and 25 (8.7%) had a vacuum-assisted (VAVD) and forceps-assisted vaginal delivery (FAVD), respectively. The majority of women did not experience shoulder dystocia (n=258, 92.1%) or episiotomy (n=215, 74.9%). The most common OASI was a 3A laceration (n=158, 55.1%), followed by 3B (n=75, 26.1%), fourth degree (n=37, 12.9%), and 3C (n=17, 5.9%). The mean infant weight was 3513g (SD +/- 462.1). Table 1 highlights characteristics in the OASI delivery that may have contributed to subsequent delivery route. Significantly more women experienced a cesarean delivery in their subsequent pregnancy if their prior delivery was impacted by a shoulder dystocia (p<.001) or a fourth-degree laceration (p<.001). There was no difference in subsequent delivery route among women with prior postpartum laceration complications or fecal incontinence. While only 3 of the 127 (1.9%) women who experienced a subsequent vaginal delivery experienced a recurrent OASI, history of OASI and maternal request represented the majority of the indications for cesarean delivery (n=38, 64.4%). Of the 3 women with recurrent OASI, all were white, non-Hispanic, and non-smokers, with only 1 woman having an episiotomy and VAVD.
Conclusions: Only 1.9% of women experienced a recurrent OASI in this cohort. The increased morbidity associated with cesarean delivery should be weighed against the potential impact and sequelae from recurrent OASI, and utilized to inform careful, patient-centered counseling when planning a subsequent obstetric delivery route in all women with history of OASI.
Disclosure: No
Images:

Table 1 Subsequent Pregnancy Delivery Route Among Women with Prior OASI

	Vaginal (N = 127)		Cesarean (N = 44)		
Factor	**N**	**Statistics**	**N**	**Statistics**	**p-value**
Mode of first delivery	127		44		0.34[a]
Vaginal, spontaneous		92 (72.4)		29 (65.9)	
Forceps		10 (7.9)		2 (4.5)	
Vaginal, vacuum (extractor)		25 (19.7)		13 (29.5)	
Mode of first delivery combined	127		44		0.41[a]
Vaginal, spontaneous		92 (72.4)		29 (65.9)	
Operative		35 (27.6)		15 (34.1)	
Episiotomy, first delivery	127	25 (19.7)	43	10 (23.3)	0.62[a]
Shoulder dystocia	125	2 (1.6)	42	9 (21.4)	***< 0.001***[b]
Perineal laceration type	127		44		***< 0.001***[a]
Third degree, A		79 (62.2)		19 (43.2)	
Third degree, B		36 (28.3)		7 (15.9)	
Third degree, C		7 (5.5)		2 (4.5)	
Fourth degree		5 (3.9)		16 (36.4)	
Perineal laceration type combined, first delivery	127		44		***< 0.001***[a]
Third degree		122 (96.1)		28 (63.6)	
Fourth degree		5 (3.9)		16 (36.4)	
Postpartum laceration complications, first delivery	127	13 (10.2)	44	5 (11.4)	0.78[b]
Postpartum fecal or flatus incontinence (within 3 months)	125	1 (0.80)	44	3 (6.8)	0.055[b]

Statistics presented as n (%), level of significance was set to 0.05.
[a]Pearson's chi-square test
[b]Fisher's exact test

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The Usage of Tissue Sealant in Management of Genito-Urinary Fistulas: A Systematic Review
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Introduction: Tissue adhesive have gained attraction in multiple surgical fields in the past decade. Their use for vesicovaginal fistula is currently off label, but articles are getting published on its usage for this indication.
Objective: To carry out a systematic review on the effectiveness and complications of tissue sealant in the management of genitourinary fistula in women.
Methods: A systematic review of the literature was conducted through the Medline, Embase and Scopus databases according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. The research was conducted with the guidance from a librarian. Studies from 1990 to 2021 in English, using the keywords 'fistula', 'vesicovaginal fistula', 'vesicocutaneous fistula', 'urethrovaginal fistula', urethrocutaneous fistula' and 'tissue sealant' were included. Editorials, commentaries, letters, animal studies and conference abstracts were excluded. Two reviewers screened abstracts and full-text and extracted data independently. The software Covidence was used for recording decision and collection of articles. A narrative synthesis was conducted given the heterogeneity of studies.
Results: A total of 1032 abstracts were screened and 14 articles met inclusion and exclusion criteria: one randomized controlled trial, one prospective cohort, six case series and six case reports. Of the 84 women included, 12 (14.3%) had unsuccessful repair with tissue adhesive usage. The mean time of follow up was 11,46 months. The average size of the fistula was 1.05 cm (range from 0.1 to 3.9 cm). Most fistulas (81) included were vesicovaginal fistulas. In 70 (83.3%) women, the fistula tract was excised and sutured, and the tissue adhesive was used as an interposition layer over the suturing. Of the interposition technique, 8 women experience recurrences (11.4%). Nine publications reported the usage of commercial fibrin glue including a total of 46 women. Of these only three (6.5%) patients reported recurrence of fistula. The time to recurrence was 2 weeks to 26 months for women who received fibrin glue. The other studies used cyanoacrylate (7 women) and autologous fibrin injection from the patients' blood (31 women). Recurrence rates were higher for these formulations (28.6% and 22.6% respectively). The only complications reported were overactive bladder symptoms in 6 women (7.2%), urinary tract infections in 3 women (3.6%), hematuria in 2 women (2.4%) and septic pelvic thrombosis in one woman (1.2%).
Conclusions: Tissue adhesive appears to be a promising alternative for management of urogenital fistulas without reported important complications. Larger prospective studies on the subject will be required to assess outcomes.
Disclosure: No

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Association between Postpartum Genital Hiatus Size Eight Weeks Postpartum and Pelvic Organ Prolapse 1 Year Following First Vaginal Delivery
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Introduction: Vaginal parity and genital hiatus (GH) enlargement are both risk factors for pelvic organ prolapse (POP). Recent longitudinal data of women 5-10 years after first delivery suggests GH enlargement precedes POP development. However, it is unknown whether postpartum GH enlargement increases risk of POP.

Objective: The aim of this study is to determine whether an enlarged GH (≥4 cm) at 8 weeks postpartum predicts POP at 1 year following first vaginal delivery.

Methods: This is a secondary analysis of the Motherhood And Pelvic health study, a prospective cohort study of nulliparous women who delivered vaginally. Demographics, delivery characteristics, and POP-Q data at 8 weeks and 1 year postpartum were abstracted. GH size was measured during maximal Valsalva and an enlarged GH was defined as ≥4 cm. We defined POP as any of the POP-Q points Ba, Bp, or C ≥0 cm. Kaplan Meier (KM) curves were used to compare time to POP development between women with and without an enlarged 8-week postpartum GH. Proportional hazards modeling was used to 1) quantify the association between enlarged GH at 8 weeks and POP at 1 year postpartum in an unadjusted model, 2) test for difference in association in the presence of POP, and 3) adjust for maternal characteristics. Diagnostic properties of GH≥4 cm as a postpartum screening tool for POP one year postpartum were calculated.

Results: Of the 645 women who completed the study, 65 were excluded for missing POP-Q data leaving 580 women for analysis. Enlarged GH was present in 36% (n=206) of women at 8 weeks postpartum and 30% (n=172) at 1 year. Prevalence of POP at 1 year was 9% (54). In bivariable analysis, women with POP were on average 2 years older than those without POP and maternal age was the only variable significantly associated with POP. In KM analysis limited to women without POP at 8 weeks, women with (n=206), versus without (n=301), an enlarged GH at 8 weeks developed POP more quickly (p<0.001; Figure 1)). In the hazards model, GH size at 8 weeks was independently associated with POP at 1 year postpartum, after adjusting for age, BMI, and presence of POP at 8 weeks postpartum (aHR 3.34, 95% CI 1.85-6.06, p<.001). POP 8 weeks postpartum did not modify the effect of GH on POP at 1 year (Figure 2). The diagnostic properties of postpartum GH≥4 cm to predict POP at 1 year are as follows: sensitivity 0.63 (95% CI 0.50, 0.76), specificity: 0.67 (0.63, 0.71), positive predictive value: 0.17 (0.11, 0.22), and negative predictive value: 0.95 (0.92, 0.97).

Conclusions: Women with an enlarged GH (≥4 cm) postpartum have a 3.3-fold increased risk of POP at 1 year and faster onset to POP development compared to women with GH <4 cm. As a screening tool, postpartum GH ≥4 cm has moderate diagnostic properties suggesting GH may be a simple screening tool to help discern between women at average versus increased risk for POP development within the first postpartum year.

Disclosure: No

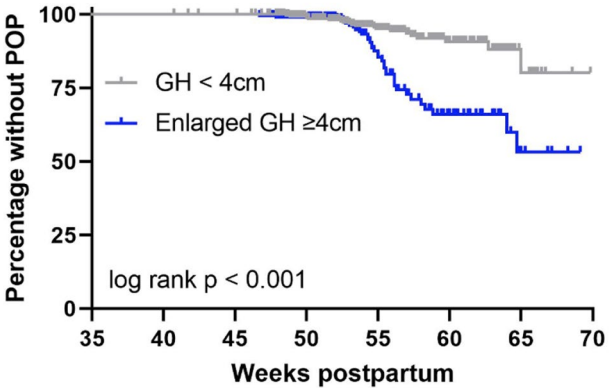
Images:

Table 1. Participant demographics and delivery characteristics by genital hiatus size and POP status

Characteristic	Value	Genital Hiatus 8 Weeks Postpartum			POP at 1 Year Postpartum		
		≥4 cm (n=206)	<4 cm (n=317)	p	Yes (n=54)	No (n=526)	
Age at Screening, years	Mean(SD)	28.8 (5.2)	28.8 (4.8)	0.945	30.4 (5.2)	28.6 (4.9)	**0.015**
Race / Ethnicity	Hispanic	45 (22)	55 (15)	0.093	8 (15)	92 (17)	0.577
	White	149 (72)	295 (79)		41 (76)	403 (77)	
	Otherwise	12 (6)	24 (6)		5 (9)	31 (6)	
Body Mass Index, kg/m^2							
Pre-Pregnancy	<25	124 (60)	258 (69)	0.064	39 (74)	343 (65)	0.233
	25-<30	48 (23)	74 (20)		11 (21)	111 (21)	
	30+	34 (17)	41 (11)		3 (6)	72 (14)	
3rd Trimester	<25	29 (14)	100 (27)	**0.001**	9 (17)	120 (23)	**0.009**
	25-<30	98 (48)	164 (44)		35 (65)	227 (43)	
	30+	79 (38)	110 (29)		10 (19)	179 (34)	
8 Weeks Postpartum	<25	75 (36)	201 (54)	**<.001**	31 (58)	245 (47)	0.074
	25-<30	80 (39)	116 (31)		18 (34)	178 (34)	
	30+	51 (25)	56 (15)		4 (8)	103 (20)	
1 Year Postpartum	<25	106 (51)	238 (64)	**0.006**	36 (67)	308 (59)	0.334
	25-<30	56 (27)	88 (24)		13 (24)	131 (25)	
	30+	44 (21)	48 (13)		5 (9)	87 (17)	
Gestational Age at Delivery, weeks	Mean(SD)	39.8 (1.0)	39.7 (1.0)	0.189	39.7 (0.9)	39.7 (1.0)	0.68
2nd Stage Duration, minutes	GM(CI)*	77 (68, 88)	76 (69, 83)	0.808	62 (47, 80)	78 (72, 85)	0.093
Mode of Delivery	Spontaneous	190 (92)	335 (90)	0.345	49 (91)	476 (90)	0.471
	Vacuum	2 (1)	10 (3)		0 (0)	12 (2)	
	Forceps	14 (7)	29 (8)		5 (9)	38 (7)	
Birth Weight, grams	Mean(SD)	3357 (373)	3304 (409)	0.12	3285 (360)	3327 (401)	0.422
3rd-4th Degree Perineal Laceration	Yes	6 (3)	16 (4)	0.41	1 (2)	21 (4)	0.433
Time From Postpartum to 1-Year Visit, weeks	Mean(SD)	54.8 (4.5)	55.0 (5.2)	0.663	54.9 (3.8)	55.0 (5.1)	0.919

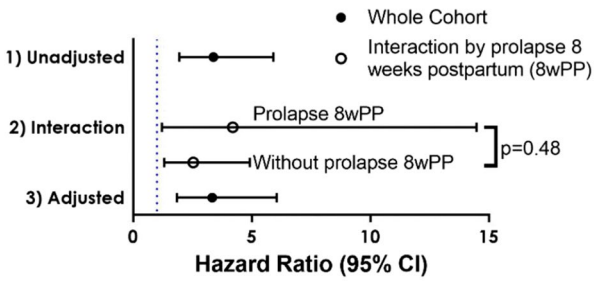
n (%) unless otherwise stated
Abbreviations: *GM(CI) – Geometric mean (95% confidence interval); (SD) – standard deviation; POP – pelvic organ prolapse

Figure 1. Kaplan-Meier curve showing POP-free survival by GH size at 8 weeks postparum



Final POP-Q exam at median 54 weeks (IQR 52-58) postpartum
POP – pelvic organ prolapse

Figure 2. Multivariable proportional hazards model showing association between 8-week genital hiatus size and pelvic organ prolapse 1 year postpartum



P-value reported from test of interaction between prolapse 8 weeks postpartum and GH

Adjusted model includes prolapse 8 weeks postpartum, BMI 8 weeks postpartum, and maternal age in late pregnancy

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What Causes Cystocele? Variations in Pattern and Severity of Structural Failure Sites on Stress 3D MRI

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Introduction: Cystocele, or anterior vaginal wall prolapse, is caused by failure at one or more fascial and muscular sites. These sites include (1) vaginal attachments to surrounding structures, as reflected by apical and paravaginal descent, (2) the fibromuscular wall of the vagina, as reflected by increased vaginal length and width, and (3) levator ani and perineal support, as reflected by the increased hiatal diameter. Women with similar prolapse size may have uniquely different failure sites. However, the relative contribution of total failure site number and failure site severity to overall prolapse size is currently unknown. The ability to identify and measure them in specific women could expand the understanding of prolapse progression, aid in operative selection, and help identify reasons for operative failure.

Objective: To compare the frequency and impairment severity of structural failure sites among women with cystocele according to increasing

prolapse size based on stress three-dimensional magnetic resonance imaging (MRI).

Methods: Eighty-three women with anterior vaginal wall-predominant prolapse and uterus in situ who had undergone stress 3D MRI as part of prior (n=30)1 and ongoing (n=53) research studies with similar protocols were selected for this analysis. Subjects had symptomatic prolapse with POP-Q location Ba > 1 and Ba > C. The vaginal wall length and width (at the mid-vagina), apex and paravaginal locations relative to the Pelvic Inclination Coordinate System (PICS), and urogenital hiatus diameter were measured at maximal Valsalva (Figure 1). Prolapse size was measured as the lowest point of anterior wall descent. Subject measurements were compared to established measurements in normal controls without prolapse (see ref.). The failure site z-score was calculated as the measurement z-score relative to the normal distribution in control subjects. A z-score greater than 1.28, or the 90th percentile in controls without prolapse, was considered abnormal. Subjects were stratified into three tertiles, "small, medium and large", based on increasing prolapse size, and the failure site frequency and impairment severity z-scores were compared between tertiles using the Cochran-Armitage and Jonckheere-Terpstra tests for trends, as appropriate. A p-value <0.05 was considered statistically significant.

Results: Increases in prolapse size from small to large tertiles were associated with increases in failure site frequency and severity across all measurements apart from frequency for apex location (Figures 2 and 3). The median number of abnormal failure sites increased across prolapse size tertiles with the largest difference between the small and medium tertiles (small: 3 [2-3.5]; medium: 5 [4-5]; large: 5 [4-5], p<0.01). Similarly, the mean failure severity z-score (Figure 3) increased across prolapse size tertiles (small: 1.35, standard error of the mean [SEM] 0.14; medium: 2.54, SEM 0.11; large: 3.46, SEM 0.16, p<0.01). Subjects were more likely to have impairment of attachment and hiatal factors than vaginal wall factors.

Conclusions: Increasing anterior vaginal wall prolapse size is associated with an increase in the number of structural failure sites from small to medium tertiles and severity of failure between all tertiles, although significant variation exists between women with similar prolapse sizes. Ref: Obstet Gynecol. 2016;128(4):853-862.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Cosm Medical

Images:

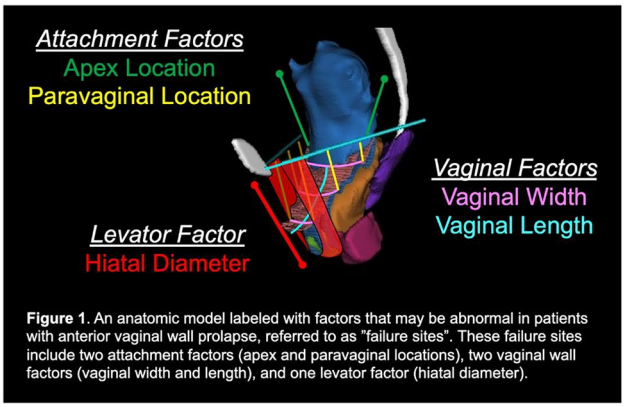

Figure 1. An anatomic model labeled with factors that may be abnormal in patients with anterior vaginal wall prolapse, referred to as "failure sites". These failure sites include two attachment factors (apex and paravaginal locations), two vaginal wall factors (vaginal width and length), and one levator factor (hiatal diameter).

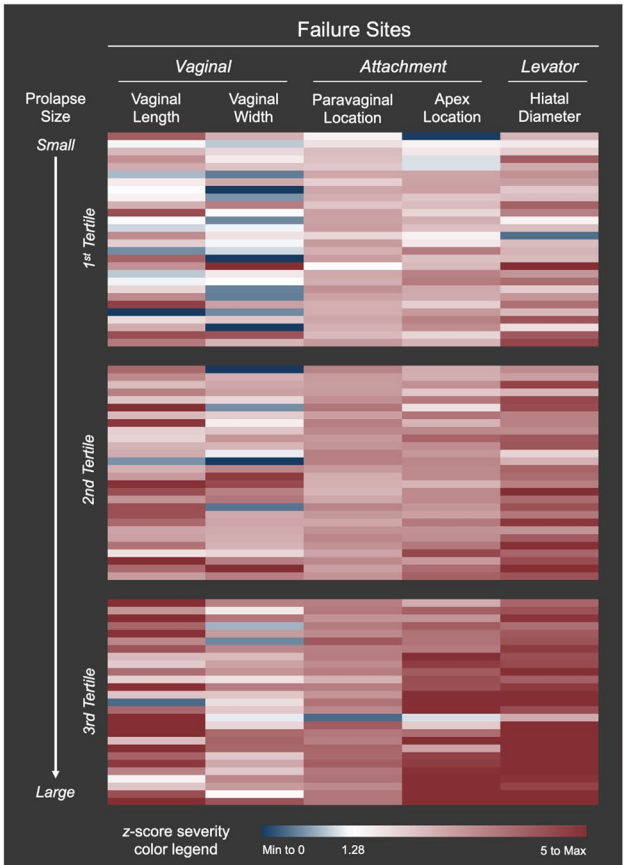

Figure 2. Each subject with anterior vaginal wall prolapse is represented by a single row and stratified into tertiles based on increasing prolapse size measured on MRI. For each subject, the z-score, which indicates the severity of individual failure sites, was calculated based on the distribution of normal controls without prolapse. Increasing z-score is represented by color shading from blue (normal range) to red (abnormal). White (borderline) is set at a z-score of 1.28, or the 90th percentile among normal controls without prolapse.

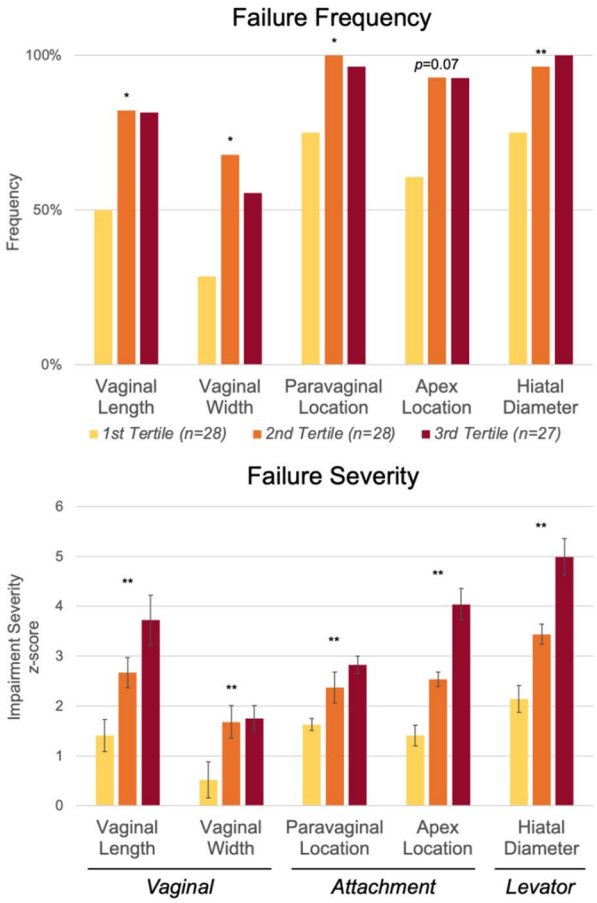

Figure 3. Subjects with anterior vaginal wall prolapse are stratified into tertiles based on increasing prolapse size measured on MRI. *Top*: the proportion of patients with an abnormal z-score (>1.28, or 90th percentile among normal controls without prolapse) for each failure site. *Bottom*: the mean z-score among subjects for each failure site. Error bars represent the standard error of the mean. Asterisks indicate statistical significance among increasing tertiles; * $p < .05$, ** $p < .01$.

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Interstitial Cystitis/Bladder Pain Syndrome Patients with a Bladder Centric Phenotype Exhibit a Variable Bladder Mucosal Fibrosis-related Gene Expression Profile Based on Hunner's Lesion Status

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Introduction: The concept of fibrosis in interstitial cystitis/bladder pain syndrome (IC/BPS) is enigmatic in that even though ~10% of patients appear to have a bladder-centered disease, characterized in part by a significantly diminished anesthetic bladder capacity (BC) which has inconsistent overlap with the presence of Hunner's lesions (HL), the etiology and pathophysiology that underlies this bladder-centric phenotype is still poorly understood.
Objective: The objective of this study was to determine, using expression profiling of fibrosis-relevant genes in bladder mucosa from IC/BPS patients, if subgroup-specific gene expression patterns were apparent.
Methods: Bladder mucosal biopsies from 48 adult females (32 IC/BPS patients; 16 non-IC/BPS controls) were evaluated in this study. Equal numbers of IC/BPS patient samples (n=16/group) were selected from our biorepository based on either a low anesthetic bladder capacity (BC; ≤400cc) or a non-low BC (more than 400cc). Within each BC subgroup, one-half of the patients (n=8) were Hunner's lesion positive (HL+) and the other half were HL-. Following RNA isolation and quality assessment, mucosal gene expression was measured using the Nanostring nCounter Fibrosis Panel, a gene array that enables the simultaneous quantitative expression profiling of 770 fibrosis-related genes. Differentially expressed gene (DEG) lists were extracted from the following 3 group comparisons: (1) all IC/BPS vs control, (2) IC/BPS/HL+ vs control, and (3) IC/BPS/HL- vs control. Subgroup analyses compared bladder-centric only (i.e., low BC) IC patients +/- HL vs control. All individual DEG lists were uploaded to Ingenuity Pathway Analysis (IPA) to allow for the identification of biological pathway involvement.
Results: Overall, in the comparisons of gene expression in mucosal specimens from IC/BPS patients to non-IC/BPS controls, there was a statistically significant overrepresentation of genes corresponding to upregulated inflammatory pathways involved in cell mediated immunity including: Systemic Lupus Erythematosus (SLE) in B Cell Signaling, Pyroptosis Signaling, and Fcγ Receptor Mediated Phagocytosis in Macrophages and Monocytes pathways. Overrepresented genes were also involved with downregulation of the Growth Arrest and DNA Damage-inducible 45 (GADD 45) Signaling pathway (Figure 1). In the comparisons between samples from bladder-centric patients (low BC) with and without HL, the HL+ subgroup was found to have upregulated active inflammation via the Neuroinflammation, T-cell Receptor Signaling, and Dendritic Cell Maturation pathways. In contrast, the HL- group had significant downregulation of the Idiopathic Pulmonary Fibrosis Signaling, Cytoskeletal Integrin Linked Kinase (ILK) Signaling and Hypoxia Inducible Factor 1α (HIF1α) Signaling pathways (Figure 2).
Conclusions: The bladder centric IC/BPS phenotype represents about 10% of all IC/BPS patients, and within this phenotypic subgroup there is an approximately 50-50 split between patients that are HL+ and HL-. The data presented here illustrate DETs unique to each phenotype (HL- and HL+), as well as the DETs that they have in common. HL- patients exhibit a downregulation of genes that populate fibrotic pathways, while patients with Hunner's lesions exhibit a gene expression profile that is suggestive of a significantly active inflammatory state. These results may suggest that distinct pathophysiologic mechanisms underlie these two similar, but different, bladder centric IC/BPS subgroups.
Disclosure: No
Images:

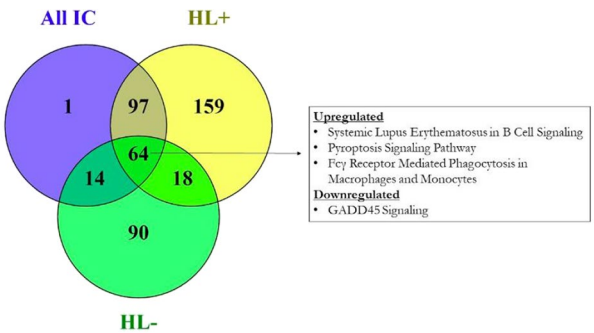

Figure 1. All samples - gene expression analysis in IC/BPS patients compared to non-IC/BPS controls. Venn diagram illustrating the overlap in differential gene expression between *all* IC/BPS patients vs controls, and between the HL+, and HL- patient subgroups vs controls. DEGs that populate biological pathways shared across all IC/BPS patients and subgroups (n=64) are indicated in the box to the right.

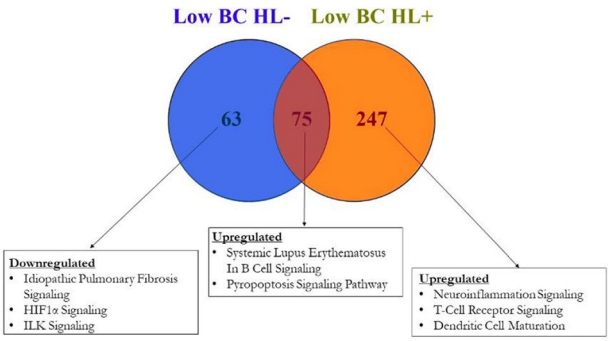

Figure 2. Subgroup analysis - gene expression analysis in two bladder centric (low BC) IC/BPS patient subgroups (HL- & HL+) compared to non-IC/BPS controls. Venn diagram illustrating the overlap in differential gene expression between low BC/**HL-** vs control and low BC/**HL+** IC/BPS patients vs control. DEGs that populate biological pathways unique to one or the other subgroup (left & right box), or shared by both subgroups (center box), are indicated.

22

Small Fiber Polyneuropathy in Interstitial Cystitis/Bladder Pain Syndrome is Associated with Chronic Fatigue Syndrome

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Introduction: Small fiber polyneuropathy (SFPN) has recently been found in small series to be associated with interstitial cystitis/bladder pain syndrome (IC/BPS), however the role of SFPN in the etiology and/or pathophysiology of IC/BPS is not known.
Objective: The objective of this study was to characterize the clinical phenotype of IC/BPS patients with a confirmed diagnosis of SFPN, and to identify which co-occurring symptoms and syndromes are associated specifically with SFPN.
Methods: 100 patients with IC/BPS undergoing therapeutic hydrodistention (HOD) provided a skin biopsy from the distal calf, which was stained with protein gene product (PGP) 9.5, a marker for intraepidermal nerve fibers (IENF). SFPN status (+/-) was determined by comparing linear IENF density (fibers/mm²) with normative reference values for age and sex (<5th percentile diagnostic for SFPN). Anesthetic bladder capacity (BC), Hunner's lesion (HL) status, and glomerulations were recorded. Demographic information and affirmative response for conditions known to co-occur with IC/BPS (e.g., fibromyalgia, chronic pelvic pain (CPP), vulvodynia, endometriosis, irritable bowel syndrome (IBS), chronic fatigue syndrome (CFS), migraines, depression, panic disorder, allergies, and asthma) were determined from patient reports. Data were compared utilizing Fisher's exact test for categorical variables, and independent samples t-test for continuous variables.
Results: In this large cohort of IC/BPS patients, 81% had IENF densities below the median for their age and sex, and almost one third were SFPN+ (31/100; 31%). SFPN+ patients were, on average, younger (46.55 versus 52.0 years old; p = 0.059) than SFPN- patients. Chronic fatigue syndrome was reported in 31% of SFPN+ patients compared to 10.6% in the SFPN- group (p = 0.034). SFPN+ patients also reported fewer allergies (37.9% vs 60.6%; p = 0.047). Two additional co-occurring conditions, CPP and dyspareunia, were more prevalent in SFPN+ patients, but did not rise to the level of statistical significance (Table 1). There was no difference between groups in rates of comorbidities known to be causally related to SFPN including diabetes mellitus, thyroid disease, vitamin B12 deficiency, celiac disease, sarcoidosis, or HIV (P>0.05).
Conclusions: Decreased intraepidermal nerve fiber density is a common finding in IC/BPS patients, and frequently reaches a level that meets the definition for small fiber polyneuropathy. The finding of SFPN correlated positively with chronic fatigue syndrome in this population. Contrary to the fact that SFPN tends to affect older individuals, the SFPN+ IC/BPS patients were, on average, almost 6 years younger than their SFPN- counterparts. Additional studies are warranted to assess the significance of SFPN in the pathophysiology of IC/BPS.
Disclosure: No
Images:

Table 1. Demographic and clinical data.

Variable	SFPN+ Mean ± SD	SFPN- Mean ± SD	p-value
	(n=31)	(n=69)	
Age	46.55 ± 17.50	52.00 ± 14.7	0.059
Sex (F)	29 (93.5%)	59 (85.5%)	0.33
BMI	29.57 ± 7.94	28.5 ± 6.6	0.485
Smoker	6 (19.4%)	24 (34.8%)	0.16
Race (White)	24 (77.4%)	63 (91.3%)	0.103
IENF Density	**3.71 ± 2.10**	**9.1 ± 4.43**	**< 0.0001**
	(n=31)	(n=68)	
Bladder Capacity	799.19 ± 357.68	765.81 ± 374.7	0.87
Hunner's Lesions	2 (6.5%)	12 (17.6%)	0.21
	(n=29)	(n=66)	
Chronic Fatigue Syndrome	**9 (30%)**	**7 (10.9%)**	**0.04**
Allergies	**11 (36.7%)**	**40 (60.6%)**	**0.047**
Chronic Pelvic Pain	16 (55.2%)	24 (36.4%)	0.12
Vulvodynia	7 (24.1%)	11 (16.7%)	0.41
Endometriosis	10 (34.5%)	14 (21.2%)	0.20
Pelvic Floor Dysfunction	11 (37.9%)	22 (33.3%)	0.82
Fibromyalgia	11 (37.9%)	21 (31.8%)	0.64
Irritable Bowel Syndrome	14 (48.3%)	23 (34.8%)	0.26
Migraines	8 (27.6%)	30 (45.5%)	0.12
Depression	14 (44.8%)	28 (42.4%)	0.83
Panic Disorder	15 (51.7%)	26 (39.4%)	0.27
Asthma	6 (20.7%)	19 (28.8%)	0.46

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Prevention of Postoperative Constipation in the Urogynecology Population: A Systematic Review

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Introduction: Constipation is common after pelvic surgery, and studies have demonstrated that surgeons underestimate the negative impact constipation has on patients during recovery. Patients undergoing pelvic reconstructive surgery are a unique population due to the anatomic proximity of the surgical field to the rectum as compared with general gynecologic or oncologic surgical patients.
Objective: Our objective was to systematically review and summarize the literature to identify evidence for prevention of postoperative constipation with medications or fiber in the urogynecologic population.

Methods: A structured literature search was performed of 5 databases (Medline, Embase, Scopus, Web of Science, and the Cochrane Library) for English-language peer-reviewed studies of postoperative laxative or fiber use in adult patients undergoing benign pelvic reconstructive surgery. Studies of preoperative bowel preparation, laxative use in a nonsurgical population, and case reports were excluded. Following PRISMA guidelines, two authors independently screened abstracts for eligibility (Figure). Manual search of reference lists was also performed to assess for additional eligible studies. Data on postoperative constipation outcomes were extracted for a qualitative analysis of the literature. Meta-analysis could not be performed due to the heterogeneity of treatment regimens. GRADE methodology was applied to assess the quality of evidence.
Results: We identified 74 references after deduplication. Only 3 studies (273 patients total) were eligible for inclusion in the review. The included studies were all randomized controlled trials assessing time to first bowel movement with the earliest published in 2010 (Table). Patel and colleagues found patients receiving senna plus docusate had their first bowel movement an average of 24 hours earlier than those receiving a matched placebo (mean 3.0 days vs. 4.0 days, p=0.002). Additionally, 43.6% of the patients in the placebo group required rescue treatment with magnesium citrate compared with only 7% of the treatment group (p<0.001). McNanley and colleagues tested a stepwise laxative regimen with docusate, fiber, polyethylene glycol, and bisacodyl against a control of docusate alone. Patients receiving the combination regimen had a bowel movement 11.7 hours earlier than the docusate-only patients after regression to adjust for preoperative bowel habits and other confounders (p=0.04). They found no difference in pain during the first bowel movement. Edenfield and colleagues randomized patients to polyethylene glycol plus docusate or docusate alone. There was no significant difference in the primary outcome of time to first bowel movement, but the polyethylene glycol group was less likely to take additional laxatives (23% vs. 42%, p=0.01). By GRADE criteria, all 3 studies provide moderate quality evidence.
Conclusions: Few studies have investigated laxative regimens in patients after urogynecologic surgery. The available literature is moderate quality and suggests benefit of multiple-agent treatment over docusate only or no treatment.
Disclosure: No
Images:

Figure: Diagram of systematic selection of articles for inclusion in the review.
Databases: Medline, Embase, Scopus, Web of Science, Cochrane Library

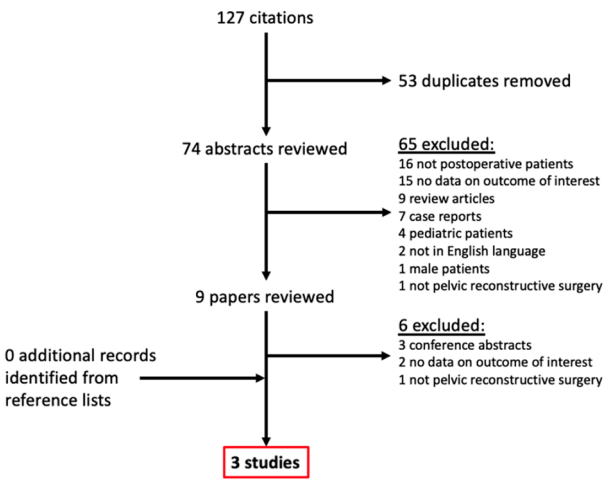

Table: Summary of data from studies of postoperative laxative use in urogynecologic surgery.

Reference	Study Design	Population	Exclusion Criteria	Laxative Regimen	Primary Outcome	Primary Results	Secondary Results	Favors	GRADE (Quality of Evidence)
Patel, et al. 2010. *AJOG.* 202 (5): 479e1-5.	Double-blind RCT, intent-to-treat	N=82 (12% dropout) Pelvic reconstructive surgery admitted overnight 52% vaginal 37% laparoscopic 12% open	-IBD, IBS -Long-term laxative use -RVF -Bowel or rectal injury or extensive LOA.	Intervention: Senna + docusate Control: matched placebo	Time to 1st postop BM.	S+D: 3.0 days (mean). Placebo: 4.0 days P=0.002	-43.6% of placebo group required magnesium citrate as rescue therapy compared with 7.0% of laxative group (p <0.001). -Subjective constipation scores worse in placebo group.	Senna + docusate (over placebo)	1B: strong recommendation, moderate quality evidence
McNanley, et al. 2012. *FPMRS.* 18 (2): 82-5.	Unblinded RCT	N=60 (17% dropout) Minimally invasive urogyn surgery 35% vaginal 65% robotic	-Preop bowel prep -Long-term laxative use -Posterior colporrhaphy -CKD, cardiac disease, IDDM.	Intervention: -Docusate -Fiber wafers -PRN PEG -PRN bisacodyl suppository Control: docusate	Time to 1st posop BM	Docusate, fiber, PRN PEG, PRN bisacodyl: 64 hrs (mean) Docusate alone: 77 hrs. P=0.03 Remained significant after regression.	-No difference in pain of 1st BM. -Lower compliance in study group (81% vs 94%, p=0.002).	Combination regimen (over docusate alone)	2B: weak recommendation, moderate quality evidence
Edenfield, et al. 2016. *Obstetrics & Gynecology.* 128 (3): 543-9.	Double-blind RCT, intent-to-treat	N=131 (10% dropout) Surgery for POP or SUI or stress urinary incontinence 63% vaginal 34% laparoscopic 2% open	-Long-term laxative use -Severe cardiac or renal disease -RVF or anal sphincteroplasty -Neuromodulation	Intervention: PEG + docusate Control: placebo + docusate	Time to 1st postop BM	PEG+D: 2.77 days (median) Placebo+D: 2.92 days P=0.25	-PEG group less likely to take other laxatives (23% vs 42%, p=0.02). -More BM's in PEG group (10/wk vs 7/wk, p=0.01). -No difference in fecal urgency or incontinence. -No difference in change in constipation QOL score from baseline.	PEG + docusate (over docusate alone)	2B: weak recommendation, moderate quality evidence

Legend: BM=bowel movement. CKD=chronic kidney disease. IDDM=insulin-dependent diabetes mellitus. P=placebo. PEG=polyethylene glycol. POP=pelvic organ prolapse. PRN=as needed. QOL=quality of life. S+D=senna plus docusate. SUI=stress urinary incontinence.

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Frailty and Acute Postoperative Urinary Retention in Older Women Undergoing Pelvic Organ Prolapse Surgery

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Introduction: Acute postoperative urinary retention (POUR) is common following pelvic organ prolapse surgery, occurring in 15-45% of women. Some studies have reported that older age is associated with POUR. Although frailty is known to be associated with adverse postoperative outcomes, there is a paucity of data on the relationship between frailty and POUR.
Objective: We aimed to examine the association between frailty, as defined by the Fried Frailty Index (FFI), and POUR in older women who underwent pelvic organ prolapse surgery.
Methods: This was a secondary analysis of a prospective study on postoperative delirium which enrolled women ≥60 years old undergoing prolapse surgery at a large academic center from October 2016 to December 2019. Exclusion criteria included history of cognitive impairment and major neurologic disorder. The FFI, measured for each patient prior to surgery, includes the following components: self-reported unintentional weight loss ≥10 pounds over the past year, self-reported exhaustion, low activity with calculated expenditure of less than 270 calories/week, decreased hand grip strength, and slowed walking speed. Total FFI score of 3 or above is categorized a "frail," score of 1-2 is "prefrail," and score of 0 is "not frail." The primary outcome is acute POUR, defined as requiring bladder catheterization at hospital discharge due to urinary retention. Chi-square (or Fisher's exact) for categorical variables and Student's t-test for continuous variables were used to compare characteristics across patients with or without POUR. Univariable logistic regression was performed to assess for risk factors of POUR in this cohort. An exploratory multivariable logistic regression was performed with forward additions and confirmed with backward removal techniques using relevant (age) and candidate variables with p<0.2 on univariable regression (body mass index (BMI), surgical approach, concomitant incontinence procedure, decreased grip strength).
Results: Analyses were conducted on the full dataset of 165 women with mean age of 72.5±6.1 years and BMI of 28.0±4.4 kg/m2 (Table 1). Most women were White (n=153, 93.3%). There were 50

laparoscopic/robotic apical suspension procedures (30.3%), 44 colpocleisis/colpectomies (26.7%), and 44 vaginal colpopexy procedures (26.7%). Nine (5.5%) women underwent a concomitant incontinence procedure. Most patients were discharged on the day of surgery (n=139, 84.2%), and 25/26 admitted patients were discharged the following day. At time of discharge, 47.3% (n=78) had acute POUR. Thirty-one women (18.8%) met criteria for "not frail," 115 (88.5%) were "pre-frail," and 19 (11.5%) were "frail." Frailty, by classification and by FFI score, was not associated with POUR. In an analysis of individual FFI components, self-reported unintentional weight loss was significantly associated with POUR (OR 4.6, 95% CI [1.23-17.15]). Of 14 women reporting unintentional weight loss, 7 (50%) met criteria for frailty, and 11 (78.6%) had acute POUR. There remained a significant association between unintentional weight loss and POUR on multivariable logistic regression (aOR 4.04, 95% CI [1.0-16.38], Table 2).
Conclusions: In this cohort of older women who underwent surgical prolapse repair, frailty was not associated with POUR. Further prospective studies are needed to explore the observed risk of POUR in older women reporting unintended weight loss in the year preceding surgery.
Disclosure: No
Images:

Table 1: Demographic and Clinical Characteristics of Study Cohort

	Total (n=165)	Women without Acute POUR (n=87)	Women with Acute POUR (n=78)	p value
Age, years	72.5 (6.1)	72.1 (6.4)	72.9 (5.7)	0.38
Body mass index, kg/m2	28.0 (4.4)	28.5 (4.6)	27.4 (4.0)	0.10
Parity	2 (2-3)	2 (2-3)	2 (2-3)	0.92
Race				0.87
White	154 (93.3)	82 (94.3)	72 (92.3)	
Black	9 (5.5)	4 (4.6)	5 (6.4)	
Other	2 (1.2)	1 (1.2)	1 (1.3)	
Pelvic Organ Prolapse Quantification Stage				0.70
Stage 2	29 (17.6)	15 (17.2)	14 (17.9)	
Stage 3	113 (68.5)	58 (66.7)	55 (70.5)	
Stage 4	23 (13.9)	14 (16.1)	9 (11.5)	
Fried Frailty Index Classification				0.17
Not frail (Score 0)	31 (18.8)	21 (24.1)	10 (12.8)	
Pre-frail (Score 1-2)	115 (69.7)	56 (64.4)	59 (75.6)	
Frail (Score 3-5)	19 (11.5)	10 (11.5)	9 (11.5)	
Fried Frailty Index Score	1 (1-2)	1 (1-2)	1 (1-2)	0.26
Unintentional weight loss	14 (8.5)	3 (3.4)	11 (14.1)	**0.02**
Exhaustion	30 (18.2)	16 (18.4)	14 (17.9)	0.94
Low activity	29 (17.6)	13 (14.9)	16 (20.5)	0.35
Decreased hand grip strength	130 (78.8)	65 (74.7)	65 (83.3)	0.18
Slowed walking speed	15 (9.1)	9 (10.3)	6 (7.7)	0.56
Surgery characteristics				
Laparoscopic/robotic approach	50 (30.3)	35 (40.2)	15 (19.2)	**0.003**
Concomitant incontinence procedure	9 (5.5)	1 (1.1)	8 (10.3)	**0.01**
Spinal anesthesia	12 (7.3)	5 (5.8)	7 (9)	0.43
Anesthesia duration, hours	3.2 (0.9)	3.2 (0.9)	3.2 (0.8)	0.96
Same day discharge	139 (84.2)	71 (81.6)	68 (87.2)	0.33

POUR: Postoperative urinary retention
Data are presented as mean (standard deviation), median (interquartile range) or n (%)

Table 2: Univariable and Multivariable Analyses of Clinically Relevant and Significant Variables and Acute Postoperative Urinary Retention

Preoperative Variable	Acute POUR Unadjusted OR [95% CI]	p value	Acute POUR Adjusted OR [95% CI]	p value
Age*	1.02 [0.97 – 1.08]	0.38		
Body mass index	0.94 [0.87 – 1.01]	0.10		
Surgical approach (laparoscopic vs vaginal)	0.35 [0.17 – 0.72]	0.004	0.31 [0.14 -0.72]	<0.01
Concomitant incontinence procedure	9.83 [1.20 – 80.47]	0.03		
Decreased hand grip strength	1.69 [0.79 -3.64]	0.18		
Unintentional weight loss score	4.60 [1.23 – 17.15]	0.02	4.04 [1.00 – 16.38]	0.05

POUR: Postoperative urinary retention
CI: Confidence interval; OR: Odds ratio
*Age was included in the final multivariable logistic regression model given its known association with POUR in the literature.

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Structural Failure Sites at Rest in Women with Cystocele: A Mid-sagittal MRI Analysis
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Introduction: Although prolapse is typically analyzed during Valsalva, we recently discovered that resting measures, such as enlarged levator hiatus and a dorsally oriented levator plate shape, are associated with increased risk of prolapse recurrence. Abnormalities at rest may be due to permanent structural changes indicating advance disease.
Objective: To quantify the resting structural failure site frequency and severity in a prospective cohort of women with cystocele compared to normal controls.
Methods: Secondary analysis of pelvic MRIs of women in two groups: 1) anterior predominant prolapse, defined as Ba $\geq$ 1 cm below the hymen, and 2) parous controls with normal pelvic support. We analyzed resting structural measurements on mid-sagittal MRIs using ImageJ: apex location, urogenital hiatus (UGH), levator hiatus (LH), levator area (LA), and levator plate (LP) shape as shown in Figure 1 1. Principal component analysis was used to quantify LP shape variations between groups. Positive principal component (PC) scores indicate a more vertical position of the LP in relation to the body axis which indicates a lower pelvic floor. MR measures and PC scores were compared between groups using independent t-test. "Structural failure site" was defined as MRI measures greater than the 90th percentile of normal controls. The failure frequency was calculated as the proportion of prolapse women with respective structural site failures. The impairment severity z-score was calculated as the structural measurement z-score relative to the normal distribution in control subjects. We also examined the correlation between resting MRI measures and maximum prolapse size on POP-Q.
Results: Eighty-nine women were included: 59 (66.3%) women with prolapse and 30 (33.7%) controls. Mean age (mean 59.9 $\pm$ standard deviation 11.7 years vs 57.7 $\pm$ 5.6 years, p=.34), BMI (26.2 $\pm$ 4.6 kg/m2 vs 27.7 $\pm$ 6.2 kg/m2, p=.26), and parity (mean 3 IQR (2,4) vs 3 (2.75, 5)) did not differ between groups. Maximum prolapse size on POP-Q in cases was 3 (2,4) versus -1.5 (-2.5, -1) in controls (p<.001). Women with cystocele had 31.9% larger LA (p<.001), 35.9% larger UGH (p<.001), 13% larger LH (p<.001), and 2 cm lower apex

location (p<.001) on resting MRIs compared to controls (Figure 2). Women with prolapse also had significantly larger PC1 scores, indicating a more dorsally orientated LP than normal controls (4.9±17.5 vs -9.6±16.5, p<.001). Failure frequency was highest at apex location (55.8%), followed by UGH (45.8%), PC1 score (40%), LH (37.3%), and LA (28.8%) (Figure 3). The median number of failure sites was 2 (1,4) in women with prolapse, with an average (SE) impairment score of 1.3 (0.41). (Figure 3). Resting measures have moderate to strong correlations with POP-Q maximum prolapse size (r ranges from .33 to .67, p<.001).

Conclusions: At rest, 56% women with cystocele have an abnormally low apical location, 40-46% have larger than normal UGH and an abnormal dorsally oriented LP shape. The severity of these resting structural failures is significantly associated with increasing maximum prolapse size.

Disclosure: No

Images:

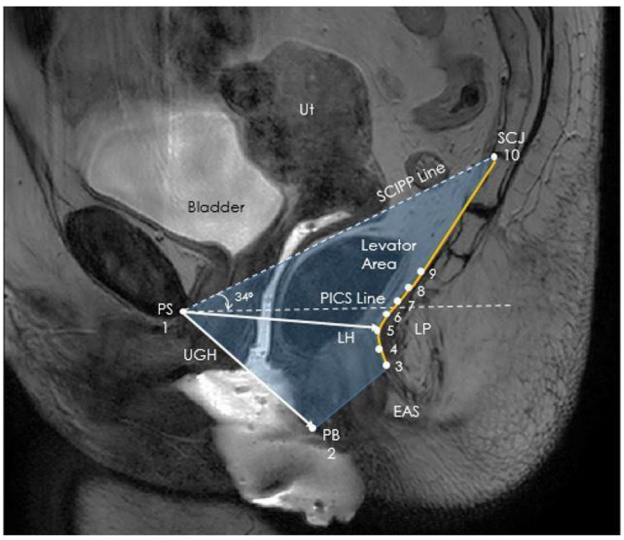

Figure 1. Resting midsagittal MRI-based measurements include pubic symphysis (PS), urogenital hiatus (UGH), genital hiatus (GH), levator hiatus (LH), sacrococcygeal joint (SCJ), levator area (blue shaded area). Levator plate (yellow line) identified based on landmarks noted by white dots. From Schmidt 2021.

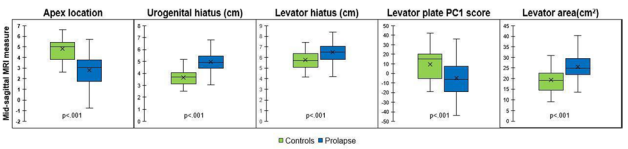

Figure 2. Resting MRI measures in subjects with anterior vaginal prolapse compared with normal controls. The top error bar indicates the 75th percentile to the maximum and the bottom error bar indicates the 25th percentile to the minimum.

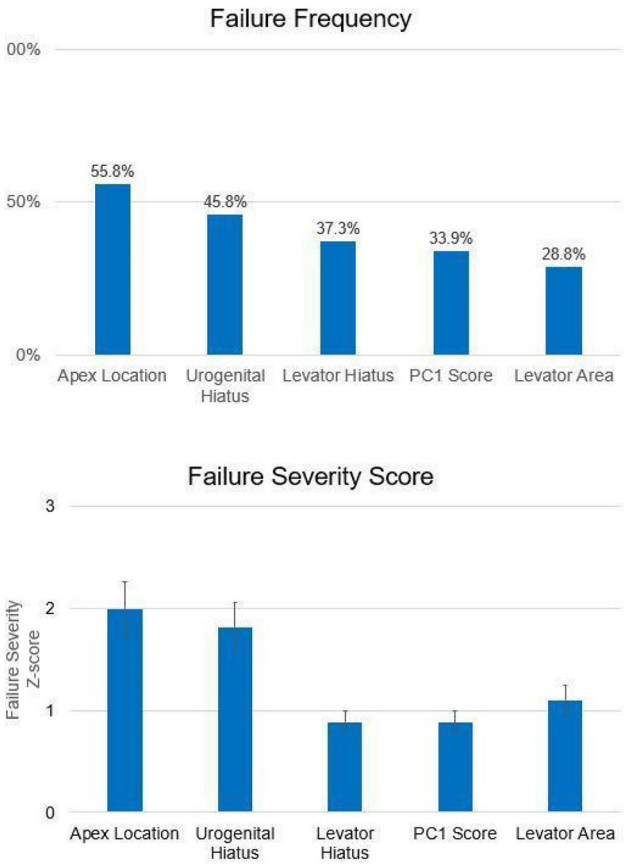

Figure 3. Resting failure site frequency and severity score among women with anterior vaginal wall prolapse. Top: the percentage of subjects with MRI measures outside the 90th percentile for normal controls. *Bottom*: the mean z-score among subjects for each MRI measure. Error bars represent the standard error of the mean.

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OPTimizing Parameters in Post-Operative Trials of Void: The OPTion Study

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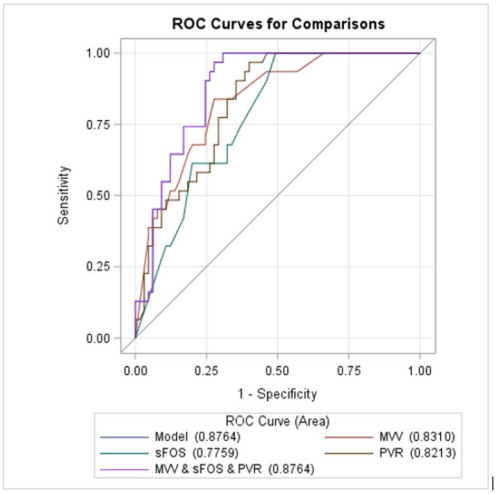
Introduction: Post-operative trials of void (TOV) are routinely performed to assess voiding function after Female Pelvic Medicine and Reconstructive Surgery (FPMRS) procedures. There is a paucity of information regarding the comparative diagnostic accuracy of commonly used TOV parameters.
Objective: To compare the diagnostic performance of post-operative TOV parameters in an outpatient FPMRS population.
Methods: Prospective study of patients undergoing outpatient FPMRS procedures at an academic tertiary referral center from September 2018 through June 2021. Participants recorded their post-void residual (PVR), minimum voided volume (MVV) and subjective force of stream (sFOS) for all voids postoperatively until they met criteria to stop. The primary outcome was the sensitivity of TOV parameters in predicting impaired voiding function, defined as PVR greater than or equal to 1/2 of voided volume on the first two postoperative voids. To detect a 25% difference in the sensitivity between TOV parameters using McNemar's test (alpha = 0.05, beta-0.2) with ability to accommodate 20% missing data, sample size was set at 183. McNemar's test for paired proportions was used to compare TOV parameters by diagnostic accuracy with adjustment for multiple comparisons by the Benjamini-Hochberg procedure. Youden's index was calculated to determine optimal TOV thresholds.
Results: A total of 160 participants completed the study. Mean age was 52.1 +/- 11.4 years, mean BMI was 28.9 +/- 5.8 kg/m2, with 140/157 (89.1%) participants identifying as white and 18/156 (11.5%) identifying a Hispanic ethnicity. Mean pre-operative PVR was 25.8 +/- 29.9mL. Most participant's surgeries included a midurethral sling 137/160 (85.6%). There were 35/160 (21.9%) participants meeting criteria for impaired voiding function (PVR greater than or equal to 1/2 of voided volume on the first two post-operative voids). Of the compared TOV parameters, initial PVR greater than or equal to 87mL and sFOS less than 60% had the highest sensitivities and the highest negative predictive values (Table 1). MVV less than 100mL had the highest specificity (84.6%) and positive predictive value (63.0%). The optimal thresholds for TOV parameters per the ROC curves generated from the data are depicted in Figure 1.
Conclusions: Among this cohort of patients, PVR greater than or equal to 87mL, MVV less than or equal to 150mL, and sFOS less than 60% had optimal performance in predicting impaired voiding function postoperatively.
Disclosure: No
Images:

Table 1. Diagnostic Performance of Trial of Void Parameters in Prediction of Impaired Voiding Function

Parameter	Sensitivity	95% CI	Specificity	95% CI	PPV	95% CI	NPV	95% CI
PVR ≥ 87mL	96.8	83.3 – 99.9	60.0	47.1 – 72.0	53.6	39.7 – 67.0	97.5	86.8 – 99.9
PVR ≥ 100mL	90.3	74.3 – 98.0	61.5	48.6 – 73.4	52.8	38.6 – 66.7	93.0	80.9 – 98.5
PVR ≥ 200mL	67.7	48.6 – 83.3	70.8	58.2 – 81.4	52.5	36.1 – 68.5	82.1	69.6 – 91.1
PVR ≥ 1/2 VV*	100	88.8 –100	66.2	53.4 – 77.4	58.5	44.1 – 71.9	100	91.8 - 100
MVV < 100mL	54.8	36.0 – 72.7	84.6	73.5 – 92.4	63.0	42.4 – 80.6	79.7	68.3 – 88.4
MVV ≤ 150mL	83.9	66.3 – 94.6	72.3	59.8 – 82.7	59.1	43.3 – 73.7	90.4	78.0 – 96.8
MVV < 200mL	83.9	66.3 – 94.6	66.2	53.4 – 77.4	54.2	39.2 – 68.6	89.6	77.3 – 96.5
sFOS < 60%	100	88.8 – 100	50.8	38.1 – 63.4	49.2	36.4 – 62.1	100	89.4 - 100

*PVR ≥ ½ voided volume for the first two consecutive post-operative voids was used as the "gold standard" for impaired voiding function post-operatively. PVR= Post void residual; MVV= minimum voided volume; sFOS= subjective force of stream; PPV = Positive Predictive Value; NPV = Negative Predictive Value; CI = Confidence Interval

Figure 1. Receiver Operating Characteristic (ROC) Curves for Comparisons of Trial of Void Parameters



Optimal cut-points for each parameter that maximize sensitivity and specificity are:
MVV < 150mL, sFOS < 60%, PVR ≥ 87 mL
PVR= Post void residual; MVV= minimum voided volume; sFOS= subjective force of stream

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Same Day Discharge after Minimally Invasive Hysterectomy in the COVID-19 Pandemic

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1 - Vanderbilt University Medical Center

Introduction: While same day discharge after minimally invasive hysterectomy (MIH) has demonstrated efficacy, patient's and provider's comfort and safety concerns have limited the universal transition to outpatient MIH. Beginning in March 2020, the COVID-19 pandemic led to an increased demand for hospital beds and limited the capacity for overnight admissions. Additionally, concerns over infection exposure increased patient and provider interest in limiting patient time in the hospital system. Together, these factors increased pressure for same day discharge in MIH cases.
Objective: To quantify the impact of COVID-19 pandemic on same day discharges for MIH and evaluate the effect on postoperative outcomes and health care utilization.
Methods: This was a retrospective cohort study of women who underwent MIH at a single institution between March 2018 and October 2021. Women over age 18 who underwent laparoscopic, vaginal, or robotic assisted hysterectomy by any gynecologic surgeon were included. Cases that converted to laparotomy or where a gynecologic surgeon was not listed as the primary surgeon were excluded. The primary objective measure was rate of same day hospital discharge. Secondary measures included length of stay and 30-day postoperative complications, readmissions,

reoperations, and mortality. Continuous variables were summarized using medians (quantiles) and assessed with Wilcoxon rank tests; Categorical variables were presented using frequencies (percentages) and assessed with $\chi 2$ tests. All analyses were conducted using R version 4.1.

Results: A total of 1608 women were included: 896 in the pre-pandemic cohort and 712 in the post pandemic cohort. Demographics are summarized in Table 1. The pre-pandemic cohort was more likely to have an ASA class III or IV (p<0.01) and more likely to have a diagnosis of diabetes (p<0.01). Surgical characteristics are described in Table 1 and Figure 1. Breakdown of surgeon subspecialty was similar between groups, endoscopic procedures were more frequent in the post-pandemic cohort (p <0.01), and the timing in the day of cases was not different between groups. Intraoperative complications were more frequent in the pre-pandemic cohort (2.8% vs. 1.0%, p<0.01). The post-pandemic cohort was significantly more likely to discharge on postoperative day 0 (32% vs. 54%, p<0.01). Rates of 30-day postoperative complications were not significantly different (16.4% vs. 15.4%, p=0.60), and there were not significant differences in postoperative transfusion (0.6% vs 1.0%, p= 0.78), readmissions (3.5% vs. 2.5%, p=0.28), reoperations (0.8% vs. 0.8%, p=0.89), or mortality (1 vs. 0, p=0.37). Thirty-day postoperative emergency department visits were more frequent in the post-pandemic cohort (0.1% vs. 1.3%, p<0.01).

Conclusions: The COVID-19 pandemic was associated with an increase in same day discharge without increase in 30-day postoperative complications, although there was a significant increase in postoperative emergency room visits. Our data suggests increased utilization of same day discharge is a safe strategy for management of capacity and hospital bed constraints caused by the COVID-19 pandemic.

Disclosure: No

Images:

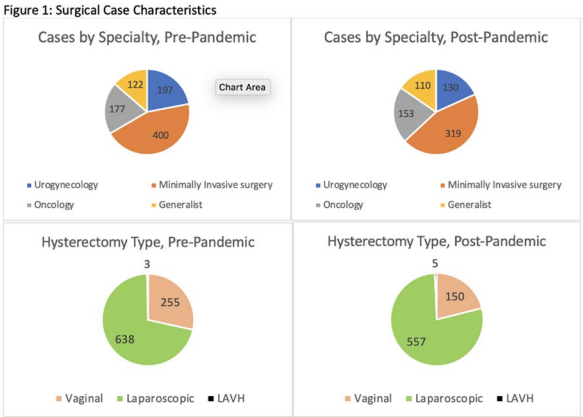
Table 1: Demographics and Surgical Characteristics

	Pre-Pandemic Mar 2018-Mar 2020 (n=896)	Post-Pandemic Apr 2020-Oct 2021 (n=712)	Total (N=1608)	p value
Patient Demographics				
Age				0.05
Median (IQR)	46.0 (40.0, 58.0)	45.0 (39.0, 56.0)	46.0 (39.0, 57.0)	
BMI				0.85
Median (IQR)	29.8 (25.1, 35.4)	29.7 (25.1, 35.5)	29.8 (25.1, 35.5)	
RACE				0.26
Black or African American	136 (15.2%)	129 (18.1%)	265 (16.5%)	
Other or Unknown	46 (5.1%)	39 (5.5%)	85 (5.3%)	
White	714 (79.7%)	544 (76.4%)	1258 (78.2%)	
ASA Class				< 0.01
I-II	416 (46.4%)	397 (55.8%)	813 (50.6%)	
III-IV	480 (53.6%)	315 (44.2%)	795 (49.4%)	
Tobacco Use				0.05
Current	91 (10.2%)	65 (9.2%)	156 (9.8%)	
Former	201 (22.5%)	126 (17.9%)	327 (20.5%)	
No	602 (67.3%)	513 (72.9%)	1115 (69.8%)	
Malignancy	148 (16.5%)	128 (18.0%)	276 (17.2%)	0.44
Diabetes Mellitus	86 (9.6%)	41 (5.8%)	127 (7.9%)	< 0.01
Surgical Characteristics				
Hysterectomy				< 0.01
Vaginal	255 (28.5%)	150 (21.1%)	405 (25.2%)	
Total Laparoscopic	638 (71.2%)	557 (78.2%)	1195 (74.3%)	
LAVH	3 (0.3%)	5 (0.7%)	8 (0.5%)	
Surgical Division				0.24
Urogynecology	197 (22.0%)	130 (18.3%)	327 (20.3%)	
Gynecologic Oncology	177 (19.8%)	153 (21.5%)	330 (20.5%)	

Table 2: Postoperative Outcomes

	Pre-Pandemic Mar 2018-Mar 2020 (N=896)	Post-Pandemic Apr 2020-Oct 2021 (N=712)	Total (N=1608)	p value
Same Day Discharge	287 (32.0%)	388 (54.5%)	675 (42.0%)	< 0.01
Length of Stay (days)				< 0.01
0	287 (32.0%)	388 (54.5%)	675 (42.0%)	
1	567 (63.3%)	297 (41.7%)	864 (53.7%)	
2	30 (3.3%)	18 (2.5%)	48 (3.0%)	
3 or more	12 (1.3%)	9 (1.3%)	21 (1.3%)	
Any Postoperative Complication	147 (16.4%)	110 (15.4%)	257 (16.0%)	0.60
Surgical Site Infection	26 (2.9%)	19 (2.7%)	45 (2.8%)	0.78
Postoperative Blood Transfusion	5 (0.6%)	7 (1.0%)	12 (0.7%)	0.33
Emergency Department Visit	1 (0.1%)	9 (1.3%)	10 (0.6%)	< 0.01
Readmission	31 (3.5%)	18 (2.5%)	49 (3.0%)	0.28
Reoperation	7 (0.8%)	6 (0.8%)	13 (0.8%)	0.89
Mortality	1 (0.1%)	0 (0.0%)	1 (0.1%)	0.37

Figure 1: Surgical Case Characteristics



LAVH= Laparoscopic assisted vaginal hysterectomy. Laparoscopic cases included both traditional and robotic-assisted cases.

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Patient Satisfaction with Same-Day Discharge after Urogynecologic Surgery for Apical Vaginal Prolapse during the COVID-19 Pandemic

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Introduction: To alleviate strain on hospital resources during the COVID-19 pandemic, urogynecologists at our institution transitioned to same-day discharge for patients undergoing minimally invasive urogynecologic surgery for apical vaginal prolapse. Such practice has previously been shown to be safe and effective.

Objective: This study aims to investigate patient satisfaction with same-day discharge after minimally invasive urogynecologic surgery for apical vaginal prolapse during the COVID-19 pandemic.

Additionally, we aim to identify demographic and surgical characteristics that may influence patient satisfaction.

Methods: All patients undergoing apical prolapse surgery at a single academic institution during the COVID-19 pandemic (n=137) from March 2020 to December 2021 were queried using applicable CPT codes. In this retrospective, observational cohort study, each participant was surveyed by phone. The survey included questions on patient demographics, the Surgical Satisfaction Questionnaire (SSQ-8) to assess general satisfaction with the surgical experience, and questions on the impact of the COVID-19 pandemic on satisfaction with the surgical experience. The SSQ-8 is an eight-question validated survey with scores ranging from 8-40, higher scores indicating greater satisfaction. Participants responding "satisfied" or "very satisfied" with an average overall score ≥32 were classified as "Satisfied." Participants with scores <32 were considered "Unsatisfied." Those with missing values were excluded from analysis. Surgical satisfaction relating to the COVID-19 pandemic was assessed with Likert scale and open-ended questions. Crosstab tables were generated with chi-squared testing to compare patients that were defined as "satisfied" and "unsatisfied."

Results: We identified 137 patients who met inclusion criteria and obtained responses from 60 patients with a response rate of 43.8%. Among surveyed patients, mean age was 64 and 47 (78.3%) self-identified as white (Table 1). SSQ-8 scores revealed high overall satisfaction with the surgical experience (34.7 ± 5.7 out of 40). Itemized SSQ-8 results are included in Table 2. When considering the COVID-19 pandemic, 54 (90%) patients reported feeling "very" or "somewhat" safe going home the day of surgery and only 14 (23.3%) patients would have preferred to stay overnight (Table 2). The majority of patients, 43 (71.7%), found that the ongoing COVID-19 pandemic had "no impact" on their surgical satisfaction. When examining global satisfaction, pain control, and return to baseline as measured by the SSQ-8, there were no statistical differences in demographic or surgical factors between satisfied and unsatisfied patients (p>0.05, Table 3). Patients with "poor or fair" general health self-assessments were more likely to be unsatisfied (p=0.02). Additionally, having surgery during the early COVID-19 pandemic prior to widespread vaccine availability in April 2021, compared to having surgery after widespread vaccine availability had no impact on patient satisfaction (p=1.00).

Conclusions: Same-day discharge after surgery for apical vaginal prolapse is regarded as highly satisfactory and safe by the majority of patients. Of specific patient characteristics, poor or fair general health self-assessment had a negative impact on patient satisfaction. Overall, the COVID-19 pandemic had no impact on patient satisfaction with same-day discharge after urogynecologic surgery at our institution.

Disclosure: No

Images:

Table 1: Baseline Characteristics (n = 60)	
Current Age	64.60 (±11.92)
Age at Time of Surgery	64.0 (±11.79)
Race	**Frequency (Percent)**
White	47 (78.3)
Black or African American	10 (16.7)
Hispanic or Latino	1 (1.7)
Other	2 (3.3)
Education	**Frequency (Percent)**
8th grade or less	1 (1.7)
Some high school, but did not graduate	2 (3.3)
High school graduate or GED	16 (26.7)
Some college or 2-year degree	26 (43.3)
4-year college graduate	4 (6.7)
More than 4-year college degree	11 (18.3)
Household Support	**Frequency (Percent)**
Self (I live alone)	13 (21.7)
Spouse/Partner	23 (38.3)
Children and/or grandchildren	3 (5)
Other family member(s)	5 (8.3)
Other non-family member(s)	2 (3.3)
Multiple family members	14 (23.3)
Tobacco Use	**Frequency (Percent)**
Current User	4 (6.7)
Former User, using at surgery	1 (1.7)
Former User, NOT using at surgery	16 (26.7)
Never	39 (65)
Prior Surgeries	**Frequency (Percent)**
1 surgery	1 (1.7)
2 surgeries	6 (10)
3 to 5 surgeries	33 (55)
6 to 9 surgeries	16 (26.7)
10 or more	4 (6.7)
General Health Self-Assessment	**Frequency (Percent)**
Poor	0 (0)
Fair	2 (3.3)
Good	26 (43.3)
Very Good	25 (41.7)
Excellent	7 (11.7)
Mental Health Self-Assessment	**Frequency (Percent)**
Poor	1 (1.7)
Fair	0 (0)
Good	18 (30)
Very Good	23 (38.3)
Excellent	18 (30)

Table 2: Surgical Satisfaction Questionnaire (SSQ-8) Results	
SSQ-8 Results	Mean (Std.Dev.)
SSQ-8 Overall (n=35)	34.7 ± 5.7 out of 40
SSQ-8 Subscales:	
Pain: Q1 – Q2 (n=60)	8.8 ± 1.7 out of 10
Return to Baseline: Q3 – Q5 (n=36)	12.3 ± 2.4 out of 15
Global Satisfaction: Q6 – Q8 (n = 59)	13.9 ± 2.5 out of 15
SSQ-8 Individual Items	Frequency (Percent)
Q1: How satisfied are you with how your pain was controlled in the hospital after surgery?	**n = 60**
Very Satisfied	46 (76.7)
Satisfied	10 (16.7)
Neutral	3 (5)
Unsatisfied	1 (1.7)
Very Unsatisfied	0 (0)
Q2: How satisfied are you with how your pain was controlled when you returned home after surgery?	**n = 60**
Very Satisfied	33 (55)
Satisfied	17 (28.3)
Neutral	1 (1.7)
Unsatisfied	3 (5)
Very Unsatisfied	6 (10)
Q3: How satisfied are you with the amount of time it took for you to return to your daily activities, for example housework or social activities outside the home?	**n = 60**
Very Satisfied	29 (48.3)
Satisfied	26 (43.3)
Neutral	2 (3.3)
Unsatisfied	1 (1.7)
Very Unsatisfied	2 (3.3)
Q4: How satisfied are you with the amount of time it took for you to return to work	**n = 36**
Very Satisfied	14 (23.3)
Satisfied	16 (26.7)
Neutral	6 (10)
Unsatisfied	0 (0)
Very Unsatisfied	0 (0)
Q5: How satisfied are you with the amount of time it took for you to return to your normal exercise routine?	**n = 57**
Very Satisfied	25 (41.7)
Satisfied	20 (33.3)
Neutral	6 (10)
Unsatisfied	3 (5)
Very Unsatisfied	3 (5)
Q6: How satisfied are you with the results for your surgery?	**n = 60**
Very Satisfied	35 (58.3)
Satisfied	16 (26.7)
Neutral	5 (8.3)
Unsatisfied	0 (0)
Very Unsatisfied	4 (6.7)
Q7: Looking back, if you "had to do it all over again" would you have the surgery again?	**n = 59**
Yes	55 (91.7)
Maybe	1 (1.7)
Unsure	0 (0)
Don't Think So	0 (0)
No	3 (5)
Q8: Would you recommend this surgery to someone else?	**n = 60**
Yes	53 (88.3)
Maybe	2 (3.3)
Unsure	1 (1.7)
Don't Think So	0 (0)
No	4 (6.7)
COVID- 19 Satisfaction Results	**Frequency (Percent)**
Felt Safe Going Home Day of Surgery	
Very Safe	49 (81.7)
Somewhat Safe	5 (8.3)
Neutral	2 (3.3)
Somewhat Unsafe	4 (6.7)
Not Safe at All	0 (0)
Felt Satisfied Going Home Day of Surgery	
Very Satisfied	39 (65)
Satisfied	12 (20)
Neutral	1 (1.7)
Unsatisfied	7 (11.7)
Very Unsatisfied	1 (1.7)
Impact of Covid on your Surgical Satisfaction	
Very Positively	3 (5)
Somewhat Positively	3 (5)
No Impact	43 (71.7)
Somewhat Negatively	6 (10)
Very Negatively	5 (8.3)
Surgeon acted in your best interest sending you home	
Yes	51 (85)
No	2 (3.3)
Undecided	7 (11.7)
Preferred to Stay overnight after surgery during the pandemic	
Yes	14 (23.3)
No	43 (71.7)
Undecided	3 (5)

Table 3: The Impact of Patient Characteristics on Overall Satisfaction	Overall	Satisfied (SSQ 8>32)	Unsatisfied (SSQ 8<32)	p-Value
Age at Surgery				
≤65	24	21	3	0.64
65+	11	9	2	
Education				
High School or Less	11	9	2	0.64
Some College and Beyond	24	21	3	
Race				
White	25	22	3	0.61
Non-White	10	8	2	
General Health Self-Assessment				
Poor - Fair	2	0	2	**0.02**
Good - Excellent	33	30	3	
Mental Health Self-Assessment				
Poor - Fair	1	0	1	0.14
Good – Excellent	34	30	4	
Support System at Home				
Lives Alone	9	8	1	1.00
Lives with Another	26	22	4	
Surgery Rescheduled Due to COVID-19				
Yes	9	9	0	0.30
No	26	21	5	

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Lifetime risk of Pelvic Organ Prolapse and Stress Urinary Incontinence Surgery and Trends in Type of Surgery from 2010 to 2020

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Introduction: In terms of the lifetime risk of pelvic organ prolapse surgery, based on data obtained from the USA covering the years 2007 – 2011 relating to a large population of adult women (over 10 million), the cumulative risk for POP surgery was 12.6% and for SUI 13.6% [1]. In the Czech Republic all inhabitants have the same mandatory health insurance. All health insurance companies have to report all data about outpatient and inpatient procedures to the National Register of Covered Health Services from the year 2010.
Objective: The aim of the study was to estimate the lifetime risk of pelvic organ prolapse surgery and stress urinary incontinence in the whole population of the Czech Republic, and to assess the overall number and type of surgery provided.
Methods: The analysis is based on data provided by the Institute of Health Information and Statistics of the Czech Republic (IHIS CR); these data are collected in the context of The National Health Information System (NHIS) and national health registers; the relevant data from 2010 to 2020 are available. The methodology used to establish the lifetime risk of surgery for prolapse (or incontinence)

was based on data from the Czech Statistical Office estimating the probability of the woman surviving to a particular age.
Results: 60,996 women underwent surgery for pelvic organ prolapse and 44,403 for SUI between 2010-2020 (at 1 January 2020 5,421,943 women were living in the Czech Republic); the average age of women undergoing surgery for POP was 64, and for SUI the mean age was 57. The most common prolapse procedure was hysterectomy (40,082), generally in combination with traditional vaginal wall repair (20,188 procedures). Similarly, the provision of traditional vaginal wall repair remained steady (overall 25,723 procedures). In the period monitored an increase in laparoscopical procedures was evident, rising by 100% from 1180 procedures in 2010 to 2009 surgeries in 2019 (in total 18727 from 2010 to 2020). The most common procedure is laparoscopically assisted vaginal hysterectomy (15268). And increase in laparoscopical sacrocolpopexis is also apparent (total 2298). The risk of reoperation for POP in women undergoing surgery between 2010 and 2015 varied between 3.3 and 4.2%. Mean lifetime risk for POP surgery for women having surgery between the years 2015 and 2020 is 14.12% (min 13.58, max 14.37%). The Covid pandemic significantly decreased the number of procedures for POP (on average on 29%). The most common anti-incontinent procedure is tension-free vaginal tape (total 44389). In terms of risk, the risk of reoperation for SUI for women having surgery between 2010 and 2015 varied between 0.2 and 0.7%. The mean lifetime risk for SUI surgery for women undergoing surgery between the years 2015 and 2020 is 6.44 (min 5.82, max 6.71) with a declining trend of anti-incontinence surgery.
Conclusions: We have unique data available which covers the whole female population of the Czech Republic, indicating trends in surgical treatment of POP and SUI and making it possible to estimate lifetime risk of such surgery and also the risk of recurrent surgery.
Disclosure: No

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Analysis of Clinical Response, Sexuality and Vaginal Health in Women with Genitourinary Syndrome of Menopause Treated with Topical Estrogen, Microablative Fractional CO 2 Laser and Microablative Fractional Radiofrequency: Randomized Controlled Trial

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Introduction: The Genitourinary Syndrome of Menopause (GSM) is a set of vulvovaginal and urinary signs and symptoms associated with decreasing circulating hormones after menopause, especially estrogen. GSM affects around 50% of women, negatively impacting their quality of life. In contrast to hot flashes which usually reduce or disappear spontaneously, the longer the time elapsed from menopause, the worse the GSM. The classical treatment is topical estrogen therapy (ET). On the other hand, some clinical situations contraindicate its use. Moreover, the need for continuous use and frequent vaginal manipulation for medication insertion contribute to treatment non-adherence. Therefore, alternative therapeutics based on tissue remodelation by energy's use, such as Microablative Fractional CO 2 LASER (CO 2 L), have been proposed with promising results. Another option to deliver energy to vaginal tissue is the Microablative Fractionated Radiofrequency (RF), a more accessible and less expensive technology that has also been described with good results.
Objective: To compare clinical response and impact on sexual function of the treatments: ET, CO 2 L, and RF on the vaginal health of women with GSM.
Methods: This is a prospective randomized controlled. After given written informed consent, were included women with GSM moderate to severe, assessed by a visual analog scale (VAS). They underwent a standardized gynecological examination for Vaginal Health Index (VHI) analysis, had vaginal walls smear collected for bacterioscopy, followed by lactobacillus quantification and Nugent Score (NS) and answered Female Sexual Function Index (FSF-I). Women were randomized: ET, CO 2 L, and RF. The ET group consisted of domiciliary use of 0,5mg Estriol vaginal cream for 14 consecutive days, and later two times a week for four months. In the CO 2 L and RF groups, three vulvovaginal Fractional CO2 laser or Microablative fractionated radiofrequency therapies, respectively, were applied in monthly intervals. 120 days after the beginning of the treatments the patients were reevaluated to access the same parameters obtained at the first visit by an observed blinded to the treatment group.
Results: This are preliminary results of RCT were included 67 women randomized 56 and reached the 120 days follow-up 34 (figure1). The groups were homogenous regarding age (56(48-60)y, p-0.018), BMI (26.8(21.2-40.3) kg/m2, p-0.70), time since menopause (4(2-10)y, p-0.7). The symptoms that reached the highest pre-treatment scores in all groups were dryness, lack of lubrication and dyspareunia. This information was confirmed by FSF-I domains score. Clinical symptoms, sexual function, and VHI significantly increased after the three proposed treatments (p value<0.001), without difference among them (table1, figure2). There was a predominance of lactobacillus in the vaginal flora of the three groups after treatment, even though not statistically different to the pre-treatment parameters. NS also did not show a statistically significant difference after the treatments, neither among the groups. No urinary infection, or vaginal mucosa scarification or fibrosis were observed.
Conclusions: CO2L and RF seem to be good alternatives to ET for ameliorating clinical symptoms, sexual function and vaginal health in patients with GSM with no statistically significant difference between the treatments,
Disclosure: No
Images:

Figure 1. Consort Flow-Chart

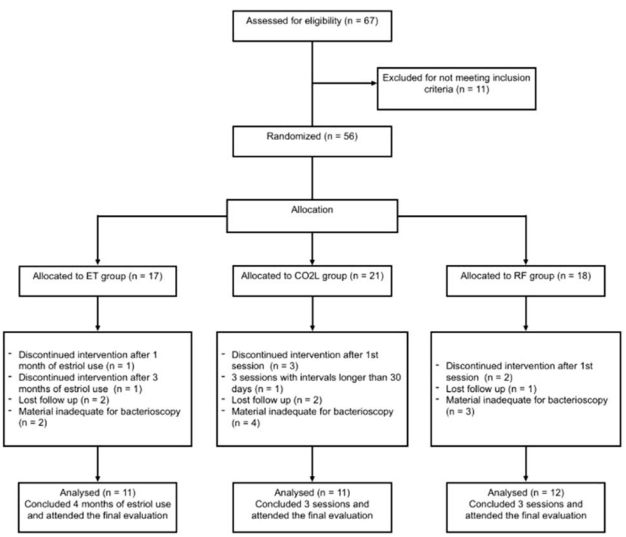

Figure 2. Evolution of GSM symptoms after the ET, CO_2L and RF treatments

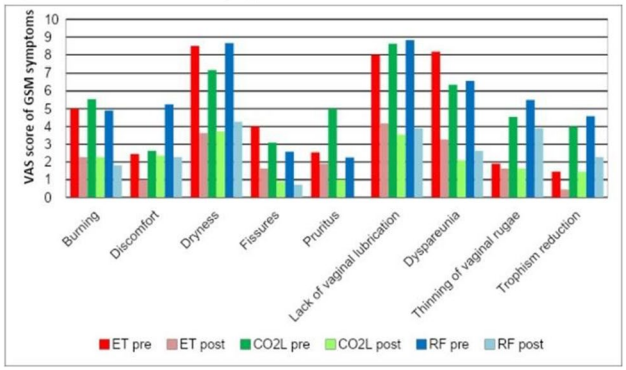

Table 2. Clinical response of ET, CO_2L, and RF as treatments of GSM

		ET	CO2L	RF	p value
VAS	Pre	42.1 (+-14.1)	47 (+- 22.9)	49.2 (+-12.8)	Group = 0.78
	Post	20 (+- 19.1)	19 (+- 17.8)	22.9 (18.7)	Time = 0.00000002*
					Group*Time = 0.66
FSFI	Pre	15.8 (+- 5.3)	14.8 (+-4.5)	17.2 (+- 7.3)	Group = 0.81
	Post	22.0 (+-8.2)	24.9 (+-6.9)	26.1 (+- 6.2)	Time = 0.0000007*
					Group*Time = 0.38
NS	Pre	2.4 (+-1.8)	3.7 (+- 3.1)	2.6 (+- 3.3)	Group = 0.84
	Post	2.1 (+-2.5)	2.6 (+-3.7)	2.7 (+- 2.7)	Time = 0.70
					Group*Time = 0.90
VHI	Pre	15.4 (+- 4.2)	17.3 (+- 4.3)	19.2 (+- 5.5)	Group = 0.18
	Post	19.4 (+-3.2)	19.9 (+-4.6)	19.2 (+- 4.9)	Time = 0.041*
					Group*Time = 0.22

Mixed ANOVA. *p<0.05. VAS - Visual Analog Scale of GSM Symptoms; FSF-I – Female Sexual Function Index; NS - Nugent Score; VHI - Vaginal Health Index.

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Toileting Behaviors and Lower Urinary Tract Symptoms in Young Female Athletes

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Introduction: Stress urinary incontinence (SUI) prevalence reaches 80% among high school and collegiate female athletes, yet overall prevalence of other lower urinary tract symptoms (LUTS) is not well described. High-impact sports participation and female athlete triad are known SUI risk factors. Other individual risk factors, such as toileting behaviors, are not established.
Objective: To characterize and correlate individual toileting behaviors and LUTS in high school and collegiate female athletes.
Methods: One hundred high school and collegiate female athletes from 3 universities and 4 high schools participated. Athletes 13-23 years old were included, and excluded for prior parity or history of neurogenic bladder. Informed consent occurred in a one-on-one setting, including parental assent for subjects <18 years old. Eligible participants completed a demographic questionnaire, the Toileting Behaviors-Women Elimination Behaviors Scale (TB-WEB) and the Bristol Female LUTS Questionnaire (BFLUTS) in a single visit. Associations between TB-WEB and BFLUTS sub-scale scores were assessed for statistical significance using Spearman's rank correlation coefficients.
Results: Athletes had a mean age of 19.6, BMI 23.4, and identified as White (78.9%), Black (12.5%), Latino (6.7%), and Asian (1.9%). Comorbid medical conditions included UTIs (26%), dysmenorrhea (19%), and constipation (13%). Athlete's sports included track & field (33%), softball (14%), volleyball (14%), cross country (12%), basketball (7%), swimming (7%), lacrosse (7%), soccer (2%), dance (2%), golf (2%), hockey (1%), tennis (1%), and water polo (1%). LUTS were prevalent with athletes reporting "filling" (non-incontinence storage) symptoms (69%), incontinence symptoms (27.6%), and voiding symptoms (39%), Table 1. Athletes reported multiple filling symptoms: urgency (39%), frequency (31.3%), nocturia (8%), and bladder pain (7%); multiple incontinence symptoms: SUI (20.4%), urge UI (14.4%), and frequent incontinence (9.2%); and multiple voiding symptoms: hesitancy (32%), intermittency (14%), and straining (11.1%), Table 1. Maladaptive toileting behaviors were prevalent with athletes reporting sometimes, often, or always emptying their bladder before leaving home (96%), worrying about public toilet cleanliness (89%), delaying emptying when busy (84%), hovering over the toilet seat away from home (70.7%), pushing down to empty the bladder (51%), and waiting to empty until unable to hold any longer (50%), Table 2. Strained voiding correlated with LUTS for voiding symptoms (r = 0.53, 95% CI: 0.37, 0.66) and incontinence symptoms (r = 0.21, 95% CI: 0.37, 0.66); delayed voiding correlated with all LUTS including filling symptoms (r = 0.27, 95% CI: 0.07, 0.44), incontinence symptoms (r = 0.27, 95% CI: 0.08, 0.45), and voiding symptoms (r = 0.28, 95% CI: 0.08, 0.45); and premature voiding correlated with LUTS voiding symptoms (r = 0.28, 95% CI: 0.08, 0.45), Figure 1.
Conclusions: LUTS were prevalent among young female athletes, particularly urgency, frequency, hesitancy, and to a lesser degree, SUI. Maladaptive toileting behaviors including preemptive voiding, delayed voiding, hovering, and straining were also. Straining and delayed or premature voiding behaviors were all highly correlated with LUTS, suggesting that abnormal toileting behaviors may negatively impact pelvic floor mechanics and function. These findings highlight areas that could be targeted for bladder health education, prevention, and treatment in young female athletes.
Disclosure: No
Images:

Table 1: Lower Urinary Tract Symptoms in Female Athletes as reported on the BFLUTS

	Athletes N=100
Filling (Non-Incontinence Storage) subscale, mean (SD)	3.5 (1.7)
Filling (Non-Incontinence Storage) symptoms, n (%)	
Nocturia	8 (8.0)
Urgency	39 (39.0)
Bladder pain	7 (7.0)
Frequency [n=99]	31 (31.3)
Any filling symptom	64 (64.0)
Incontinence subscale, mean (SD)	2.2 (2.2)
Incontinence symptoms, n (%)	
Urgency incontinence [n=97]	14 (14.4)
Frequent incontinence [n=98]	9 (9.2)
Stress incontinence [n=98]	20 (20.4)
Unexplained incontinence [n=98]	2 (2.0)
Nocturnal enuresis [n=98]	1 (1.0)
Any incontinence symptom [n=98]	27 (27.6)
Void subscale, mean (SD)	2.4 (1.7)
Void symptoms, n (%)	
Hesitancy	32 (32.0)
Straining [n=99]	11 (11.1)
Intermittency	14 (14.0)
Any void symptom	39 (39.0)

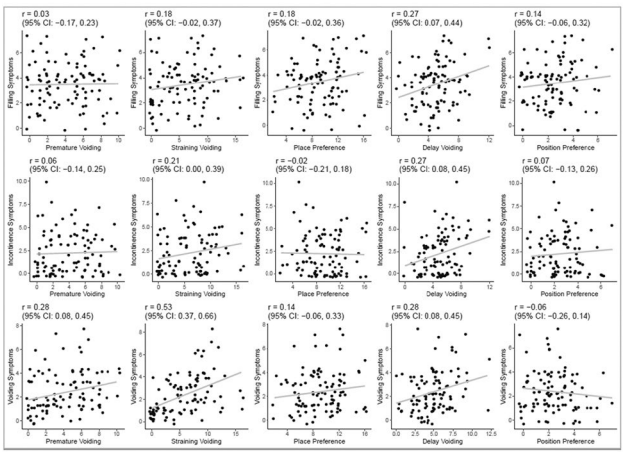
Symptoms indicated for item score ≥ 2 points

Table 2: Toileting Behaviors in Female Athletes as reported on the TB-WEB

	N (%) with toileting behavior*
Worry about public toilet cleanliness	89 (89.0)
Avoid public toilets	54 (54.0)
Empty bladder before leaving home	96 (96.0)
Hold urine until get home [n=99]	47 (47.5)
Empties at home when doesn't feel need	32 (32.0)
Empties away from home when doesn't feel need	9 (9.0)
Empties at other's home when doesn't feel need	7 (7.0)
Empties in public place when doesn't feel need	8 (8.0)
Empties just in case	44 (44.0)
Delay emptying when busy	84 (84.0)
Wait to empty until cannot hold any longer	50 (50.0)
Wait too long at work	36 (36.0)
Does not intentionally empty bladder [n=97]	14 (14.4)
Push down to begin urinating [n=97]	42 (43.3)
Push down to keep urine flowing [n=98]	44 (44.9)
Push down to empty bladder [n=98]	50 (51.0)
Push down to empty bladder faster [n=98]	61 (62.2)
Empties bladder completely when urinating [n=98]	97 (99.0)
Sits on toilet seat at home	100 (100.0)
Hovers over the toilet seat at home [n=99]	10 (10.1)
Sits on toilet seat away from home [n=98]	77 (78.6)
Hovers over the toilet seat away from home [n=99]	70 (70.7)

*sometimes, often, or always

Figure 1: Correlation between LUTS and Maladaptive Toileting Behaviors in Female Athletes



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Correlation Between Overactive Bladder and Detrusor Overactivity: A Retrospective Study

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Introduction: Overactive bladder (OAB) is a syndrome diagnosed clinically with symptoms of urinary urgency associated with frequency and nocturia in the absence of urinary tract infection or other pathology. Detrusor overactivity (DO), as seen with detrusor contraction during the filling cystometry in a urodynamic study is a demonstratable finding correlating to OAB symptoms. However, the etiology of OAB and DO is not well defined, and half of the patients with OAB does not have DO.
Objective: The primary objective of this study is to determine the prevalence of OAB and DO in patients from a single tertiary teaching center who were referred for UDS due to lower urinary tract symptoms (LUTS). The secondary objective is to determine the subjective and objective differences between OAB patients with and without urodynamically proven DO.
Methods: All patients who underwent UDS in a single, tertiary medical center for LUTS between June 2016 to September 2019 were retrospectively reviewed. Personal history, medical history, and physical examination were collected. Patients were asked to complete validated questionnaire including OABSS, ICIQ-IU SF, UDI-6, POPDI-6, IIQ-7, PISQ-12, and CRADI-8. One-hour pad test and multichannel urodynamic study was performed according to ICS Standard Good Urodynamic Practices (ICS- GUP2016).
Results: A total number of 4184 patients underwent UDS due to LUTS between June 2016 to September 2019. A total of 1524 patients were analyzed for OAB or DO/DOI. In all patients with lower urinary tract symptoms, the occurrence of OAB was 36.4%. The overall incidence of DO/DOI in patients with OAB was 15.5%. 9.5% of all patients had DO/DOI finding on UD study, and the incidental finding of DO/DOI was 4.6%. There were significant differences between mean age, parous number, ICIQ-UI SF, OABSS, and POPDI-6 between patients with and without DO/DOI. Except for maximal urethral pressure and pressure transmission ratio, all other urodynamic parameters had significant differences between the two groups. In patients with DO/DOI, there were no significant differences between age, parous, and BMI in patients with or without OAB symptoms. However, there were significant differences between the mean OABSS, ICIQ-UI SF, UDI-6, POPDI-6, IIQ-7, and pad test.
Conclusions: UDS was previously considered as an invasive examination that should be limited to OAB patients that failed first line treatment regardless of presence and absence of DO. However, patient's perception of symptoms is often unreliable, leading to misdiagnosis and improper treatment. In the present study, we have found patients with DO are associated with older age, increased parity, greater urine leakage, and worse storage and micturition functions on UDS. The combination of subjective and objective measurements are better predictive models for OAB patients than either one alone.
Disclosure: No
Images:

Table 1
Comparison of patients with and without detrusor overactivity or detrusor overactive incontinence.

Parameter	All Patients n=1524	Without DO/DOI n=1125 Mean ± SD	With DO/DOI n=399	p-value
History				
Age	58.65 ± 14.26	55.92 ± 13.39	66.36 ± 13.80	**<0.001**
BMI	24.49 ± 4.09	24.46 ± 4.03	24.58 ± 4.28	0.619
Parous	2.71 ± 1.52	2.57 ± 1.41	3.13 ± 1.71	**<0.001**
Questionnaire				
OABSS	8.66 ± 3.07	8.80 ± 2.79	8.28 ± 3.74	**0.013**
ICIQ-UI SF	5.47 ± 3.50	5.07 ± 3.36	6.62 ± 3.63	**<0.001**
UDI-6	7.04 ± 3.61	7.03 ± 3.43	7.07 ± 4.07	0.855
POPDI-6	5.44 ± 3.98	5.72 ± 3.95	4.62 ± 3.95	**<0.001**
IIQ-7	8.70 ± 6.00	8.74 ± 5.78	8.60 ± 6.58	0.699
PISQ-12	30.35 ± 6.90	30.15 ± 6.91	31.81 ± 6.70	0.060
CRADI-8	4.63 ± 4.22	4.58 ± 4.09	4.77 ± 4.58	0.571
Pad test				
Pad test (gram)	19.98 ± 32.70	14.77 ± 27.93	34.79 ± 39.95	**<0.001**
Uroflow				
Peak flow rate (mL/s)	17.86 ± 13.47	18.95 ± 12.69	14.79 ± 15.06	**<0.001**
Voided volume (mL)	253.1 ± 140.7	280.7 ± 139.4	175.0 ± 112.2	**<0.001**
Flow time (sec)	35.67 ± 19.20	37.76 ± 19.59	29.76 ± 16.69	**<0.001**
Residual urine (mL)	70.48 ± 98.16	66.27 ± 97.32	82.36 ± 99.65	**0.005**
Residual urine percentage (%)	21 ± 23	18 ± 21	31 ± 26	**<0.001**
Filling cystometry				
First desire (mL)	146.1 ± 89.70	154.0 ± 89.89	124.1 ± 85.50	**<0.001**
Maximal cystometric capacity (mL)	336.0 ± 204.6	364.8 ± 199.4	201.5 ± 172.5	**<0.001**
Urethral pressure profile				
Maximal urethral pressure (cmH20)	61.68 ± 41.74	63.34 ± 27.74	56.98 ± 66.87	0.066
Functional urethral length (mm)	26.27 ± 36.41	27.57 ± 42.07	22.61 ± 7.15	**<0.001**
Total profile area (cmcmH20)	698.9 ± 576.6	726.5 ± 600.6	620.8 ± 494.7	**0.001**
Proximal area to peak (cmcmH20)	382.5 ± 357.7	398.1 ± 343.2	338.3 ± 392.8	**0.007**
Pressure transmission ratio (%)	33.29 ± 25.53	32.81 ± 20.45	34.66 ± 36.30	0.338
Voiding cystometry				
Peak flow rate (mL/s)	14.44 ± 9.44	15.19 ± 7.83	12.36 ± 12.68	**<0.001**
Detrusor pressure at peak flow (cmH20)	25.48 ± 29.82	26.39 ± 31.58	22.93 ± 24.08	**0.028**
Voided volume (mL)	310.8 ± 166.4	351.1 ± 157.3	199.0 ± 137.3	**<0.001**
Bladder scan (mL)	78.39 ± 125.3	84.05 ± 130.5	62.38 ± 108.1	**0.001**

p-value by independent t test

Table 2
Multiple logistic regression predictive model.

Variables	Univatiate analysis OR (95%CI)	P-value	Model I aOR (95%CI)	P-value	Model II aOR (95%CI)	P-value	Model III aOR (95%CI)	P-value
Age	1.061 (1.051 - 1.071)	**<0.001**	1.056 (1.043 - 1.068)	<0.001			1.050 (1.034 - 1.066)	<0.001
BMI	1.007 (0.979 - 1.035)	0.619						
Parous	1.268 (1.176 - 1.367)	**<0.001**						
OABSS	0.946 (0.911 - 0.983)	**0.004**	0.737 (0.695 - 0.782)	<0.001			0.692 (0.639 - 0.749)	<0.001
ICIQ-UI SF	1.139 (1.101 - 1.179)	**<0.001**	1.228 (1.162 - 1.298)	<0.001			1.220 (1.137 - 1.308)	<0.001
UDI-6	1.003 (0.972 - 1.036)	0.842						
POPDI-6	0.928 (0.899 - 0.958)	**<0.001**	0.922 (0.888 - 0.957)	<0.001			0.919 (0.873 - 0.967)	0.001
IIQ-7	0.996 (0.977 - 1.015)	0.680						
PISQ-12	1.038 (0.998 - 1.079)	0.061						
CRADI-8	1.010 (0.977 - 1.045)	0.549						
Pad test (gram)	1.017 (1.013 - 1.020)	**<0.001**	1.015 (1.011 - 1.019)	<0.001	1.010 (1.005 - 1.015)	<0.001	1.010 (1.004 - 1.016)	0.001
Peak flow rate (ml/s)	0.955 (0.942 - 0.969)	**<0.001**						
Voided volume (mL)	0.993 (0.992 - 0.994)	**<0.001**	0.994 (0.992 - 0.995)	<0.001				
Flow time (sec)	0.972 (0.965 - 0.980)	**<0.001**						
Residual urine (mL)	1.002 (1.000 - 1.003)	**0.006**						
Residual urine percentage (%)	9.050 (5.632 - 14.543)	**<0.001**			11.204 (4.591 - 27.342)	<0.001	13.860 (4.905 - 39.167)	<0.001
First desire (mL)	0.995 (0.994 - 0.997)	**<0.001**						
Maximal cystometric capacity (mL)	0.992 (0.990 - 0.993)	**<0.001**			0.992 (0.991 - 0.994)	<0.001	0.992 (0.991 - 0.994)	<0.001
Maximal urethral pressure (cmH20)	0.993 (0.988 - 0.997)	**0.001**						
Functional urethral length (mm)	0.947 (0.931 - 0.965)	**<0.001**						
Total profile area (cmcmH20)	1.000 (0.999 - 1.000)	**0.002**						
Proximal area to peak (cmcmH20)	0.999 (0.999 - 1.000)	**0.004**						
Pressure transmission ratio (%)	1.003 (0.998 - 1.007)	0.233						
Peak flow rate (mL/s)	0.954 (0.938 - 0.969)	**<0.001**						
Detrusor pressure at peak flow (cmH20)	0.995 (0.990 - 1.000)	0.054						
Voided volume (mL)	0.993 (0.992 - 0.994)	**<0.001**						
Bladder scan (mL)	0.998 (0.997 - 0.999)	**0.003**			0.997 (0.995 - 0.999)	0.005	0.997 (0.995 - 0.999)	0.007

Model I : stepwise forward model selection, AUROC=0.8203
Model II : stepwise forward model selection, AUROC=0.7954
Model II : stepwise forward model selection, AUROC=0.8640

Table 3
Comparison of patients with and without overactive bladder symptoms in patients with detrusor overactivity

Parameter	All Patients	Without OAB	With OAB	p-value
		Mean ± SD		
History				
Age	66.63 ± 13.78	67.74 ± 12.80	65.49 ± 14.65	0.109
BMI	25.31 ± 12.46	25.85 ± 17.04	24.78 ± 4.43	0.400
Parous	3.23 ± 2.97	3.34 ± 3.79	3.13 ± 1.80	0.489
Questionnaire				
OABSS	8.48 ± 3.63	6.07 ± 2.61	10.93 ± 2.78	**<.0001**
ICIQ-UI SF	6.72 ± 3.54	6.24 ± 3.71	7.21 ± 3.29	**0.007**
UDI-6	7.15 ± 4.06	6.08 ± 3.70	8.23 ± 4.12	**<.0001**
POPDI-6	4.57 ± 3.87	3.99 ± 3.51	5.17 ± 4.13	**0.003**
IIQ-7	8.52 ± 6.51	7.22 ± 6.28	9.85 ± 6.49	**<.0001**
PISQ-12	31.49 ± 6.79	32.73 ± 6.23	30.71 ± 7.08	0.237
CRADI-8	4.76 ± 4.57	4.37 ± 4.21	5.21 ± 4.93	0.151
Pad test				
Pad test (gram)	34.88 ± 40.04	30.56 ± 37.76	39.27 ± 41.87	**0.035**
Uroflow				
Peak flow rate (mL/s)	14.95 ± 15.21	15.42 ± 19.39	14.48 ± 9.19	0.5442
Voided volume (mL)	174.9 ± 111.3	172.7 ± 106.6	177.2 ± 116.1	0.693
Flow time (sec)	29.61 ± 16.57	29.78 ± 18.15	29.43 ± 14.84	0.835
Residual urine (mL)	80.50 ± 98.23	80.98 ± 105.1	80.01 ± 91.01	0.922
Residual urine percentage (%)	31 ± 26	30 ± 25	32 ± 27	0.549
Filling cystometry				
First desire (mL)	121.1 ± 82.47	121.3 ± 84.15	120.8 ± 80.95	0.945
Maximal cystometric capacity (mL)	196.0 ± 165.4	206.7 ± 171.1	185.4 ± 159.6	0.333
Urethral pressure profile				
Maximal urethral pressure (cmH20)	56.34 ± 67.76	50.71 ± 25.02	62.09 ± 92.73	0.103
Functional urethral length (mm)	22.75 ± 7.25	22.09 ± 7.14	23.43 ± 7.32	0.068
Total profile area (cmcmH20)	623.5 ± 502.9	560.5 ± 440.6	687.5 ± 552.9	**0.013**
Proximal area to peak (cmcmH20)	342.1 ± 403.7	329.2 ± 465.2	355.3 ± 330.5	0.526
Pressure transmission ratio (%)	34.64 ± 36.73	36.84 ± 49.53	32.40 ± 14.98	0.235
Voiding cystometry				
Peak flow rate (mL/s)	12.31 ± 12.74	13.00 ± 16.63	11.62 ± 6.83	0.291
Detrusor pressure at peak flow (cmH20)	23.64 ± 24.42	22.29 ± 26.85	24.97 ± 21.74	0.295
Voided volume (mL)	193.9 ± 128.5	197.2 ± 131.4	190.5 ± 125.7	0.617
Bladder scan (mL)	59.79 ± 105.5	56.36 ± 104.2	63.28 ± 107.0	0.521

p-value by Independent t test

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Prevention of Urinary Tract Infections (UTIs) in Patients after Urogynecological Procedures – Non-antibiotic Herbal Therapy (Canephron N) versus Antibiotic (Fosfomycin Trometamol): A Parallel-group, Randomized, Non-inferiority, Experimental Trial

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Introduction: Urinary tract infections are one of the most common complications of urogynecological surgeries. The potential risk of UTI increases because of catheterization of the bladder during and after the surgery, intraoperative cystoscopy, and urine retention after the procedure. Surgeries such as midurethral sling procedure are connected to a high incidence of UTI, the risk reaches up to 34%. Increasing antibiotic resistance is the main reason for searching of new methods of post-operative UTI prevention. Commonly used antibiotic prophylaxis is being replaced with non-antibiotic preparations such as Canephron N, which is a mixture of century herbs, lovage roots, and rosemary leaves with a diuretic, spasmolytic, anti-inflammatory, antibacterial, and nephroprotective properties.
Objective: The aim of the study is to demonstrate the non-inferiority of Canephron N versus antibiotic (trometamol fosfomycin) in the overall results of post-operative urine culture analysis.
Methods: The study protocol was approved by the local institutional ethical committee. One hundred twenty-five female patients age 18-70 years old before urogynecological surgeries such as implantation of midurethral sling, vaginal plastic surgery and Manchester operation were included in the study. The patients had a urine analysis taken in the morning before the surgery. Eight patients were disqualified due to a urinary tract infection (UTI) before the procedure. The remaining patients were randomized into two groups, a control group (n=48) who received one dose of 3g of Fosfomycin trometamol the day after the procedure, and a study group (n=45) who received Canephron N 3 times a day for 14 days, starting the day after the procedure. Another urine analysis was taken 14 days after the surgery, also a urine culture was performed in case of abnormal urine analysis result or symptoms of urinary tract infection. All patients were assessed using the ACSS questionnaire on the day of the procedure and 14 days after.
Results: Urinary tract infection (UTI) after 14 days from the procedure was observed in 6,4% of patients. Urine culture showed Escherichia coli in 6 cultures, Enterococcus faecalis, and Streptoccocus agalactia in the remaining cultures. There was no statistically significant difference between the use of trometamol Fosfomycin and Canpehron N in terms of UTI (Chi^2 N-1 =0.8837; p=ns). Additional factors like menopausal status and type of the procedure were statistically significant in terms of UTI. Factors such as BMI, sexual activity, and parity, had no correlation with postoperative UTI.
Conclusions: Urinary tract infections (UTIs) are one of the factors of treatment failure due to improper healing. Postoperative UTI is associated with the development of de novo urgency urinary incontinence and the risk of reoperation for mesh revision/removal. UTI in postoperative period is also a risk factor for recurrent stress urinary incontinence. Canephron N is non-inferior to fosfomycin trometamol in the prevention of postoperative UTI. Non-antibiotic methods of postoperative prophylaxis should be considered because of their safety in terms of antibiotic resistance.
Disclosure: No

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Patterns of the Use of Botulinum Toxin in Overactive Bladder: Results of a Multinational Online Survey of Urogynecologists in Germany, Austria and Switzerland

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Introduction: Botulinum toxin is a widely used treatment for overactive bladder (OAB). Nevertheless, no standardization exists to this day, concerning dosage, frequency of application and peri-interventional procedures (e.g., number of injections, antibiotics).

Objective: To evaluate patterns of the use of botulinum toxin in overactive bladder among German speaking urogynecologists using an online survey.
Methods: A clinical practice online survey was carried out between May 2020 and January 2021. All members of the German, Suisse and Austrian urogynecologic societies were invited to participate. The aim of the questionnaire was to evaluate the practical use of botulinum toxin in women with overactive bladder.
Results: A total of 116 urogynecologists participated in the online survey. 85.3% of respondents used botulinum toxin as a treatment of overactive bladder, but only 75.0% of these performed the procedure themselves. Furthermore, only 37.3% of participants presented a high caseload of over 20 procedures per year. Most participants used botulinum toxin to treat idiopathic OAB and mixed urinary incontinence (MUI) with a predominant OAB (92.3% and 83.3%, resp.), whereas the treatment was performed mainly as a second-line therapy (88.5%). Physicians with high caseloads use botulinum toxin more frequently as a first-line treatment (21.1% vs 6.3%, p=0.025). Board-certified urogynecologists perform significantly more interventions per year (46.6% vs 10.7%, p<0.001). Anesthesia: 95.9% of surgeons performed the procedure in an OR under general anesthesia (83.3.%). Local anesthesia was more often used by high caseload surgeons (57.9% vs 28.2%, p=0.003). Furthermore, almost two-third of patients (66.3%) received pre-operative single-shot antibiotics, with board-certified urogynecologists using it more frequently (69.9% vs 57.1%, p=0.017). Intraoperative procedure: Most of the surgeons applied 11-20 injections (70.9%), while only a small percentage (1.9%) used 31-40 injections. Besides, the trigone and/or the ureteric orifices were spared by 74.5% of participants and the preferred locations for injections were documented at the posterior bladder wall and the lateral walls (95.1% and 72.5%, resp.). Surgeons with a higher caseload (84.2% vs 96.9%, p=0.008) injected less frequently, while board-certified urogynecologists (21.9% vs 3.6%, p=0.027) injected more frequently botulinum toxin into the trigone and/or the ureteric orifices. Postoperative care: Postoperative indwelling catheters were used by almost half of surgeons (48.0%), while only a minority of surgeons preferred clean intermittent self-catheterization perioperatively (26.5%). Postvoid residual volume (PRV) was measured by 82.4% of participants, mostly prior to patient's discharge (72.6%). Half of respondents measured PRV one month later after the intervention. Repeated treatments in case of insufficient effect were proposed by 75.5%, with 61.0% not putting any limit to the number of repetitions. In 99.0%, treatment was proposed at the charge of the health insurance.
Conclusions: Our survey confirmed that botulinum toxin is widely used by urogynecologists in the three German speaking countries, but practice patterns vary widely, and no standardized method could be detected. Our results clearly demonstrate that there is a strong need for standardized perioperative protocols regarding the use of botulinum toxin in patients with OAB.
Disclosure: No

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Cervicosacropexy (CESA) or Vaginosacropexy (VASA) for Apical Prolapse and Urinary Incontinence: A Narrative Systematic Review

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Introduction: The Integral Theory holds that lax uterosacral ligaments may result in apical prolapse as well as urinary incontinence. Therefore, prolapse repair may result in the resolution of urinary incontinence symptoms. Cervicosacropexy or Vaginosacropexy with Dynamesh is described as treatment for these conditions.
Objective: We aimed to synthesize the evidence of the efficacy and safety of this procedure.
Methods: A systematic review was performed searching MEDLINE, COCHRANE's Trial Register, EMBASE and other sources. The latest date search was September 2021. Risk of bias and the certainty of the evidence were done by Robin's tools and GRADE. Data collection was by standard Cochrane methods.
Results: Of 7130 titles screened, nine studies were included, reporting on 851 procedures with follow-up ranging from 4 weeks to 36 months. All included studies showed a moderate to high risk of bias and low certainty of evidence. Due to heterogeneity in study methodology and estimation of outcomes, no pooling of data was done. The cure rate for apical prolapse, mixed urinary incontinence and urge incontinence was 97-100%, 47,5% (CI95% 42,4-52,6) and 73,8% (CI95% 61,9-85,7) respectively, at a mean follow-up of 9.7 months (± 7.3). Concomitant or subsequent surgery for prolapse was done in 4.4% (13/299) and additional incontinence surgery (trans-obturator tape placement) was done in 216/555 (38.9%) of patients with initial urinary incontinence. Only one serious intra operative hemorrhage and one mesh exposure were described.
Conclusions: Cervicosacropexy or Vaginosacropexy seems to correct apical prolapse and may remedy urinary symptoms of urge and mixed urinary incontinence, at least up to two years after surgery. The intervention seems safe. Nevertheless, overall level of evidence is low. Therefore we suggest, according to NICE and the IDEAL framework, the setup of randomized trials comparing to other current treatments for apical prolapse and urge urinary incontinence.
Disclosure: No
Images:

Table 1: Postoperative anatomical success of apical prolapse repair by CESA or VASA in studies where presence of apical prolapse was primary or co-primary outcome.

	Participants	Follow-up	Results				
Jäger2016	76	4 months	POP-Q stage 0: 100% (76/76)				
Elmantwe 2016	10	6 months	POP-Q	Before surgery	After surgery	Mean differences	95% CI	p-value
			Aa	1,6 (1,1)	-1,5 (1,2)	3,1	2,1-4,1	≤0,0001
			Ba	2,6 (1,9)	-2,1 (1,5)	4,7	3,2-6,2	≤0,0001
			C	2,2 (3,4)	-7,1 (1,2)	9,3	7,1-11,5	≤0,0001
			D	2,4 (3,3)	-8,8 (1,2)	11,2	9,0-13,4	≤0,0001
			Ap	-0,5 (1,8)	-2,6 (1,3)	2,1	0,7-3,5	0,0003
			Bp	-0,9 (1,7)	-2,8 (1,4)	1,9	0,5-3,3	0,0005
Rexhepi 2018	120	4 months*	POP-Q stage	Before surgery	After surgery	Risk difference	95% CI	p-value
			0	0 (0)	116 (97)	97%	84,2-100.0	<0.0001
			1	63 (53)	4 (3)	50%	37,8-60,5	<0.0001
			2 to 4	57 (47)	0 (0)	47%	36,2-58,8	<0.0001

Data are presented as number (%) or mean (SD). Means were compared using a two-sided t-test and proportions were compared using the Chi-squared test.

*Four patients had a relapse of apical prolapse within 2 months of surgery because of failing cervical fixation, for which absorbable sutures were used. These patients had a second laparoscopy with refixation at the cervix using nonabsorbable sutures, which restored anatomy.

Table 2: Postoperative cure rates following CESA or VASA in studies where the persistence of urinary incontinence was the primary or co-primary outcome

	MUI			UUI			SUI		
	n (%)	95% CI	p-value	n (%)	95% CI	p-value	n (%)	95% CI	p-value
Jäger 2012*	49/64 (76.5)	59,7-93,4	n.s.	53/69 (76.8)	60,6-93,0	n.s.	n.r.	n.r.	n.r.
Jäger 2016	34/49 (69.4)	50,5-88,2	<0.01	n.r.		n.r.	n.r.	n.r.	n.r.
Ludwig 2016**	31/87 (35.6)	24,0-45,2	n.r.	22/31 (71.0)	47,2-94,7	n.r.	n.r.	n.r.	n.r.
Rexhepi 2018	60/94 (63.8)	50,5-77,2	<0.001	18/26 (69.2)	43,4-95,1	<0.001	n.r.	n.r.	n.r.
Ludwig 2019	23/55 (41.8)	26,6-57,0	<0.001	n.r.		n.r.	n.r.	n.r.	n.r.
Jäger 2021	75/183 (41.0)	32,7-49,2	n.r.	n.r.		n.r.	n.r.	n.r.	n.r.

CI, Confidence Interval; MUI, Mixed Urinary Incontinence; UUI, Urge Urinary Incontinence; SUI, Stress Urinary Incontinence; n.r., not reported; n.s., not significant

*Cure rates for MUI and UUI are only reported after a subsequent sling procedure (TOT) for persistent or de novo SUI was offered.

** Cure rates displayed in this table are after CESA or VASA only. When an additional TOT was performed cure rates improved to76% (66/87) for MUI and 84% (26/31) for UUI.

Table 3: Summary Of Findings (SOF)

Certainty assessment							№ of patients	Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	cesa or vasa	/	Relative (95% CI)	Absolute (95% CI)		
Pelvic organ prolapse (follow-up: range 4 months to 20 months)												
4	observational studies	serious	not serious	not serious	serious	none	2 studies (196 patients) report 97-100% POP-Q grade 0 postoperatively. 1 study (10 patients) shows significant (p ≤ 0,0001) improvement in POP-Q scores for all compartments postoperatively (Mean differences for Aa, Ba, C and D are 3.1, 4.7, 9.3 and 11.2 respectively). 1 study (93 patients) reports 12/93 symptomatic POP recurrences and a 4/93 reintervention rate for POP.				⊕⊕◯◯ Low	IMPORTANT
Urinary Incontinence (follow-up: range 4 weeks to 22 months)												
5	observational studies	serious	not serious	not serious	not serious	none	5 studies (686 patients) report on UI cure rates. Mean cure rate for UUI is 73% (±4) and mean cure rate for MUI is 64% (±15).				⊕⊕⊕◯ Moderate	IMPORTANT

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Bilateral apical fixation	Solifenacin	Relative (95% CI)	Absolute (95% CI)		
Urinary continence (follow-up: 16 weeks)												
1	randomised trials	very serious*	not serious	not serious	serious	strong association	23/55 (41.8%)	4/41 (9.8%)	RR 4.286 (1.605 to 11.441)	321 more per 1.000 (from 59 more to 1.000 more)	⊕⊕◯◯ Low	CRUCIAAL

Table 3: SOF-table for NRS and RCT. * Non-blinded, underpowered trial; **CI:** confidence interval; **RR:** risk ratio

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Levator Plate and Iliococcygeal Muscle Shape Changes Contribute to the Increasing Levator Bowl Volume with Aging

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Introduction: Pelvic floor failure is a critical causal factor in prolapse. A full understanding of its structural alterations is incomplete, and the separate contribution from childbirth and age is unclear. Levator bowl volume (LBV), of which the levator plate (LP) and iliococcygeus muscle (ICM) shapes are key structural features, increases with age in women with, and without, prolapse (Figure 1A). The contributions of LP and ICM shape changes alone or in combination to increased LBV with aging is unclear.
Objective: To quantify age-related changes independent from childbirth changes in the LP and ICM across three different nulliparous age groups. Additionally, we sought to quantify the contribution of these shape changes to LBV.
Methods: 3D Slicer™ was used to model the LP, ICM, and LBV using high resolution 2mm resting sagittal, axial, and coronal MR images from young, middle-aged, and older nulliparous women (Figure 1B). First, the LP was identified on mid-sagittal image and the ICM was then sampled in the middle of the LP. On rotated axial and coronal MRI, B-spline curves were identified representing ICM muscle shape (Figure 1B). LP and ICM shape evaluation was performed with principal component analysis (PCA). For each analysis, two independent shape variations (PC1, PC2) were identified, and PC scores were compared using one-way analysis of variance. A bivariate correlation was explored to identify the shape variations significantly associated with LBV. Linear regression model estimated significant shape variation's relative contribution to LBV.
Results: Ten young (24 ± 3.5 years old), 10 middle-aged (58 ± 4.7 years old), and 10 older (74 ± 4.7 years old) nulliparous women were included. LBV from young to middle-aged women were similar (59 ± 19.3 cm3 versus 63 ± 10.2 cm3, p=>0.99). LBV in the older group was larger than both younger groups (older 108 ± 34.5 cm3 vs middle 63 ± 10.2 cm3 vs younger 59 ± 19.3 cm3, p=<0.001) (Figure 1C). Age-related LP shape change was seen in PC1 (Figure 2). Younger women had a more horizontal LP shape while the middle-aged and older women had a more vertical LP shape. For the ICM shape analysis, an age-related shape change was seen in PC2 (Figure 3). Older women had a more concave upward ICM than young and middle-aged women who had a more convex ICM. LP PC1 and ICM PC2 were significantly correlated with LBV (r=.67, r=.64 respectively). LP PC1 can explain 40% of the variation of LBV. ICM PC2 can explain an additional 26% of LBV variation. Together, ICM and LP can explain 66% of the variation in LBV.
Conclusions: Older nulliparous women have a more vertical LP and concave ICM which contribute to an enlarged levator bowel volume. Comment: Age and vaginal birth are two primary factors in prolapse. This project deepens our understanding of age specific pelvic floor change to complement birth-related changes.
Disclosure: No
Images:

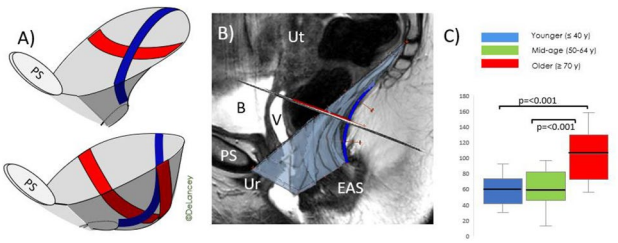

Figure 1. A) Conceptual model for age-related pelvic floor changes, representing the levator plate (blue band) and ICM (red band). B) Mid-sagittal MRI with blue line showing the levator plate. Axial plane tipped to measure in plan of ICM. Levator bowl volume is demonstrated. Pubic symphysis (PS), bladder (B), urethra (Ur), vagina (V), uterus (Ut), external anal sphincter (EAS). C) Average levator bowl volumes for young, middle-aged, and older nulliparous women.

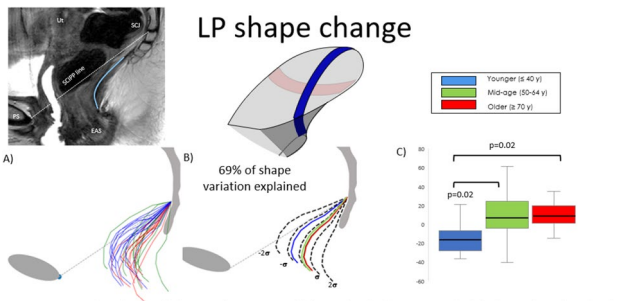

Figure 2. Levator plate shape analysis comparing younger, middle-aged, and older women. A) Original LP tracings aligned at the sacrococcygeal joint. B) Predominant LP shape variations for each groups. C) PC scores compared among groups. PC = principal component

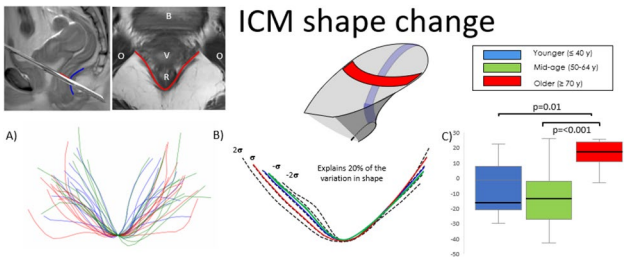

Figure 3. Iliococcygeus shape analysis comparing younger, middle-aged, and older women. A) Original ICM tracings aligned at the levator plate. B) Predominant ICM shape variations for each group. C) PC scores compared among the three groups. PC = principal component

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Native Tissue and Mesh-augmented Prolapse Repairs Improve Resting Level I but not Level II/III Pelvic Floor Support: A Preliminary Pre- and Postoperative MRI Analysis

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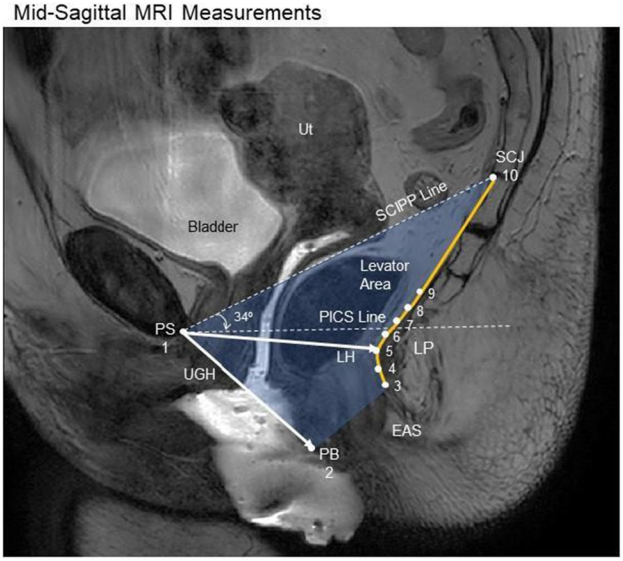
Introduction: Enlarged pre- and postoperative resting Level II/III levator ani MRI measures, but not lower apical (Level I) measures, have been associated with increased risk of long-term recurrence after prolapse repair.1,2 We hypothesize that reconstructive prolapse surgeries are effective at improving Level I support but not Level II/III levator ani support.
Objective: To compare pre-and short term postoperative resting MRI-based anatomical measures following native tissue and mesh-augmented prolapse repairs.
Methods: This was a secondary analysis study, using two primary prospective studies of women who underwent MRIs for research preoperatively and postoperatively 3 months after undergoing native tissue (NT) or 6 months after mesh-augmented (MA) (laparoscopic sacrocolpopexy) prolapse repairs. Demographic, clinical, and surgical data were abstracted. Resting mid-sagittal MRIs were used to perform measurements including: apex location, urogenital hiatus (UGH), levator hiatus (LH), levator area (LA), and to trace the levator plate (LP) (Figure 1). Principal component shape analysis was used to quantify two independent shape variations in LP shape (PC1 and PC2) and principal component (PC) scores calculated. Negative PC1 scores corresponded to a more horizontal position and negative PC2 scores corresponded to a more caudad position relative to the body axis. MR measures and PC scores were compared between (1) native tissue versus mesh-augmented prolapse repair groups using independent t-test and (2) pre- to postoperatively using a paired t-test.
Results: Thirty-eight participants were included with mean age of 63.4 ± 12.3 years and BMI 36.6 ± 4.7 mg/kg2. Sixteen women underwent NT and 22 women underwent MA prolapse repairs. There were no differences in age, BMI, or parity between groups. The native-tissue group had a larger preoperative Ba (median 3.0 cm IQR (3.0, 4.0) vs 0.0 (-2.0, 1.0), p<.001), GH (5.0 cm (4.5, 6.0) vs 3.0 (3.0, 4.0), p<.001), and TVL (9.0 cm (8.0, 9.5) vs 8.0 (8.0, 8.0), p=.001), however there were no significant differences in resting preoperative MRI measures (Table 1). Apex location was higher after both NT (preoperative 2.3±0.2 cm vs postoperative 4.4±0.1 cm, <.001) and MA (preoperative 2.8±0.2 cm vs postoperative 3.9±0.2 cm, p=.004) prolapse repairs. However, there were no significant differences between pre- and postoperative UGH, LH, LA, LP shape in both the NT and MA groups (Table 1).
Conclusions: Native tissue and mesh-augmented prolapse repairs improve apex location (Level I) in the short term postoperatively, however neither procedure type induces significant changes in Level II/III levator ani support measures. Innovative prolapse repair procedures are needed to better address Level II/III levator ani support.
Disclosure: No
Images:

Mid-Sagittal MRI Measurements



PS: pubic symphysis, UGH: urogenital hiatus, PB: perineal body, EAS: external anal sphincter, LP: levator plate, LH: levator hiatus, SCJ: sacrococcygeal joint, SCIPP line: sacrococcygeal to inferior pubic point line; Ut: Uterus, PICS line: horizontal reference line. 11 anatomical points were marked with points 3-9 placed equidistant along the levator plate from the top of the EAS to the bottom of the coccyx. From Schmidt 2021.

	Native Tissue (NT) n=16			Mesh-augmented (MA) n=22			Preoperative NT vs MA	Postoperative NT vs MA
	preop	postop	p	preop	postop	p	P	p
Apex location (cm)	2.3±0.2	4.4±0.1	<.001	2.8±0.2	3.9±0.2	.004	.3	.2
Levator hiatus (cm)	6.8±0.7	6.9±0.8	0.42	6.6±0/8	6.7±0.7	.9	.6	.4
Levator Area (cm²)	26.2±6.0	27.0±6.2	0.46	26.3±8.2	26.4±6.4	.8	.9	.8
LP shape								
PC1 score	-2.8±9.2	-5.6±12.3	0.24	1.6±19.0	1.0±13.1	.7	.4	.2
PC2 score	-0.1±13.5	2.3 ± 16.1	0.3	0.2±10.5	-0.6±13.1	.6	.9	.6

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Comparison of Pessaries to Pelvic Floor Training to Treat Postpartum Urinary Incontinence: Results from a Randomized Pragmatic trial (BREST).

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Introduction: Postpartum urinary incontinence is a frequent and bothersome pathology. Pelvic floor training is widely used but its effectiveness is limited. Pessaries though widely used in prolapse and incontinence have not been studied in postpartum women.
Objective: This study aimed to compare the effectiveness and acceptance of pessaries compared to two types of pelvic floor training in women with postpartum urinary incontinence.
Methods: Randomized controlled, pragmatic multicenter trial in 6 outpatient clinics in Germany. The trial was conducted from June 2019 to July 2021. Patients with urinary incontinence at postpartum check-up were included and randomized into three groups: 1) Pelvic floor exercise courses, 2) pelvic floor physiotherapy, and 3) vaginal pessary. Satisfaction was evaluated after 6-10 weeks of treatment via a standardized phone interview or questionnaire. Secondary outcomes included treatment complications.
Results: 516 patients were screened for urinary incontinence at postpartum check-up in the study, of these, data from 511 was available for analysis. Urinary incontinence was present in 21.7% of women. Almost half of all affected women wanted to participate in the treatment phase (46.8%, n=52). In the pelvic floor exercise-group, 46.7 % (n=7/15) were satisfied with the treatment, compared with 28.6 % (n=4/14) in the physiotherapy group and 93.3% (n=14/15) in the pessary group. The difference between the groups was statistically significant (p=0.001). No differences between the groups were found for age, mode of delivery, pre- or post-pregnancy BMI or parity. Drop-out rate was 11.8% (n=2) in the pelvic floor exercise-group, 17.6% (n=3) in the physiotherapy group, and 16.7% (n=3) in the pessary group, no differences between the groups were found. No complications especially neither vaginal lesions nor infections due to pessary were noted in either group.
Conclusions: Pessaries are rarely used to treat postpartum urinary incontinence. In this study, patients who were treated with pessaries showed higher rates of satisfaction compared to pelvic floor training. This indicates that pessaries might be an efficient way to treat postpartum urinary incontinence. Further studies need to be done to confirm these results. Long term effects of postpartum pessary use on urinary incontinence should also be investigated.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: coma-urogyn gmbh

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Use of a Computerized Decisional Aid Tool in Women with Urgency Urinary Incontinence

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Introduction: Decision Analysis Tools (DAT) are shared decision-making (SDM) instruments that include patient input on treatment goals and values and have been shown to decrease decisional regret in women's healthcare .
Objective: We describe a novel, computer-based DAT for women with urinary incontinence (UI) and aim to assess the concordance between treatment fit as determined by the DAT and treatment selected after physician counseling.
Methods: We created a computer-based DAT for the treatment of women with UI in partnership with WiserCare, Inc., using a proprietary algorithm that incorporates up-to-date evidence and patient-provided preferences about treatment goals. Use of the DAT was implemented in 2020 as part of routine practice and is given to all new patients screening positive for UI using the Pelvic Floor Distress Inventory (PFDI-20), administered during the scheduling process. Patients complete the DAT prior to the initial consult visit to support SDM in this single, university-based practice of 7 fellowship trained urogynecologists. We retrospectively analyzed DAT results of new English-speaking patients between June 2020 and December 2021 with urgency urinary incontinence (UUI) and urgency-predominant mixed urinary incontinence (MUI) according to items 16 and 17 of PFDI-20. We abstracted demographic and clinical data and treatment plans established after initial physician consults. DAT results including top attribute preferences (treatment factors that differ between treatments) and treatment fit maps (lists of treatments in order of best to worst fit) were collected. The DAT algorithm can identify >1 top attribute preference and more than one top treatment fit for each patient.
Results: We identified 400 women with UUI (219, 55%) or urgency predominant MUI (181, 45%) who completed the DAT before their consults. The mean (SD) age was 61 (16) years, and the mean (SD) body mass index was 29 kg/m2 (8). Table 1 shows additional demographic and clinical characteristics. The most frequently selected first-choice treatments on pre-counseling DATs were pelvic floor physical therapy (PFPT) (44%), sacral neuromodulation (SNM) (38%), and medication (12%). Treatment choice was driven most strongly by the desire to improve UI (54%), to avoid an injection into the bladder (18%), and to avoid implantation of a permanent device (9.8%). After clinical counseling, PFPT (55%), medication (17%) and intradetrusor OnabotulinumToxinA injection (10%) were the top treatment plans. For 66% the treatment plan after counseling matched the DAT-determined best treatment fit. When we compared women with concordance between DAT and post-counseling treatment choices to those with discordance, BMI, race, ethnicity, and diagnosis (isolated UUI or MUI) did not differ. Women with treatment concordance were slightly younger (61 vs. 66 years; p=.03), and less likely to have a diagnosis of diabetes (p=.03).
Conclusions: Women choosing treatment for UUI and urgency predominant MUI using a novel, computer-based DAT to prepare for SDM with their physicians often choose to proceed with their top DAT-determined treatment fit after counseling. Those with concordant treatment choices were younger than those with discordant treatment plans. More data on DATs in women's pelvic health are needed to support widespread implementation of SDM.
Disclosure: No
Images:

Table 1: Patient demographic and clinical characteristics	
	N (%)
Age (SD)	60.83 (16.12)
BMI (kg/m^2, SD)	29.16 (7.92)
Race	
White	298 (74.5)
Black	49 (12.3)
Asian	11 (2.8)
American Indian/Alaska Native	3 (.8)
Native Hawaiian/Pacific Islander	2 (.5)
Other	18 (4.7)
Declined or unable to answer	19 (4.8)
Ethnicity	
Non-Hispanic	360 (90)
Hispanic	21 (5.3)
Declined	19 (4.8)
Comorbidities	
Diabetes	38 (9.5)
Multiple Sclerosis	5(1.3)
Myasthenia Gravis	3 (0.8)
Uncontrolled Hypertension	19 (4.8)

Table 2: Treatment preferences on Decisional Aid Tool	
Treatment preferences	**N (%) N=400**
Behavioral and lifestyle modifications	25 (6.3)
Pelvic floor physical therapy	175 (43.8)
Vaginal estrogen	14 (3.5)
Oral medications	46 (11.5)
Electrical stimulation	2 (0.5)
Peripheral tibial nerve stimulation	4 (1)
Intradetrusor OnabotulinumToxinA injection	8 (2)
Sacral neuromodulation	151 (37.8)
Mid-urethral sling	0 (0)

Table 3: Treatment attributes on Decisional Aid Tool that were rated by patients as most important in selecting treatment plan	
Treatment Attributes	**N(%) N=400**
Avoid pessary	0 (0)
Avoid risk of surgical site infection	23 (5.8)
Avoid urinary tract infection	23 (5.8)
Avoid office visits for treatment	2 (0.5)
Avoiding an injection into the urethra or bladder during an office procedure	71 (17.8)
Avoid medication side effect	14 (3.5)
Avoid mesh or suture related complications	2 (0.5)
Avoid implant of permanent device	39 (9.8)
Avoid surgery	0 (0)
Avoid surgical complications	28 (7)
Avoid taking medications everyday	4 (1)
Avoid urinary retention	19 (4.8)
Improving urinary incontinence	215 (53.8)
Avoid mesh exposure/erosion	0 (0)
Avoid dyspareunia	0 (0)
Avoid surgical complications	0 (0)
Treating both urgency urinary incontinence and fecal incontinence	17 (4.3)

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Safety and Effectiveness of Midurethral Sling for Stress Urinary Incontinence after Urethral Bulking

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Introduction: Stress urinary incontinence (SUI) affects 20% to 40% of women [1]. Midurethral sling (MUS) is the gold standard for the treatment of SUI and has been shown to be safe and effective. For patients who desire a less invasive procedure, injection of urethral bulking agents is a minimally invasive alternative. There is limited current literature regarding the safety and effectiveness of MUS after urethral bulking. In a retrospective study, Koski et al. found sling placement after urethral bulking to be safe and effective [2]. This has been the only study over the past decade evaluating this unique treatment combination.

Objective: Our primary objective was to evaluate the safety and effectiveness of MUS for the treatment of recurrent SUI following urethral bulking compared to MUS alone.

Methods: This was a retrospective IRB approved cohort study of patients within the Southern California Permanente Medical Group who underwent MUS from January 2009 to December 2020. Patients who underwent prior urethral bulking were compared with a control group with no prior urethral bulking in a 1:1 ratio based on similar MUS procedure date. Patients were identified using the Current Procedural Terminology (CPT) code 57288 for MUS and CPT code 51715 for urethral bulking injection. The primary outcome was either subjective failure defined by symptoms of SUI or objective failure defined by a positive cough stress test, urodynamic stress incontinence or re-treatment for SUI. Secondary outcomes were perioperative complications such as increased estimated blood loss (EBL) or operative time, urethral or bladder injury, urinary retention and urinary tract infection (UTI). Multivariable logistic regression and Cox proportional hazard regression analysis, controlling for sling type, BMI and vaginal parity were used to examine the association between safety and effectiveness and each potential variable.

Results: Eighty-five patients underwent MUS after urethral bulking and 85 matched controls who underwent MUS alone were identified. There was no difference in age, race, BMI, vaginal parity and menopausal status between the groups. In univariate analysis, those undergoing MUS after urethral bulking were more likely to have concomitant surgery at the time of MUS (p=0.0013) and abnormal cystoscopy intraoperatively than the MUS only group (p=0.0232). These cystoscopic findings were urethral mucosa changes from the prior bulking. Controlling for concomitant surgery, there was no difference in EBL between groups. The operative time was longer in the MUS after urethral bulking group without concomitant surgery by 5.3 minutes (p=0.0039), which is not clinically significant. The operative time was prolonged by 95.4 minutes for the MUS only group compared to the MUS after urethral bulking group when there was concomitant surgery (p=0.001). In multivariate analysis controlling for confounders, there were no differences in safety or effectiveness of MUS between the groups.

Conclusions: In this study, we found that the unique treatment combination of MUS after urethral bulking for recurrent SUI appears to be safe and effective. This result supports this routine practice.

Disclosure: No

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Examining Pelvic Floor Disorders and Pelvic Pain in Transgender Persons: A Pilot Study

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2 - Emory

Introduction: Although much is known about how cis-gender women experience and present with pelvic floor disorders (PFD) and pelvic pain (PP), it is unclear how these symptoms manifest in transgender(TG) and gender non-binary(GNB) people.
Objective: The aim of this study is to evaluate the presentation and perception of pelvic floor disorders and pelvic pain in transmasculine, transfeminine, and GNB persons via in-depth interviews.
Methods: This was an IRB approved qualitative study. Semi-structured, in-depth, one-on-one interviews were conducted by the same interviewer using a standardized interview guide. This guide was developed with the assistance of women's and transgender care providers, and qualitative research experts. Interviews were conducted with patients in the Emory and Grady Healthcare systems. These patients were recruited by providers in the Department of Gynecology and Obstetrics. Ninety patients were identified as candidates for interview. The presentation, perception, and experiences of pelvic floor symptoms and interaction with the healthcare system of transgender and GNB persons were explored in 60-90 minute interview sessions. These interviews were audio-recorded and then transcribed. The transcripts were then analyzed and coded with QDA Miner Lite. Themes were analyzed by debriefing with the researchers weekly. Codes for themes and subthemes were then developed and the transcripts were analyzed by the research team. Themes organized into four categories: sexual health, experience with PFD and PP, perceptions, and barriers.
Results: A total of 14 participants were interviewed. Six (42%) respondents identified as transmasculine, and of the transmasculine group, 3(50%) had undergone bottom surgery, and 3(50%) had not undergone bottom surgery. Six (42%) of respondents identified as GNB. Four participants (67%) of this group had undergone bottom surgery, while one (16%) had not undergone bottom surgery. One (6%) of the participants identified as transfeminine, and also undergone bottom surgery. Symptoms of bladder dysfunction, sexual dysfunction, urinary frequency/urgency, and chronic pelvic pain were common amongst the participants (Table). Seven participants (50%) noted vaginal dryness, but only 3 (21.4%) have been prescribed vaginal estrogen. Two (14.3%) participants had undergone surgery for PFD or PP, and 8 (57.1%) of participants utilized nonsurgical modalities for their PP or PFD including exercise, Kegels, timed voiding, and meditation. PFD symptoms affected self-reported quality of life (QOL) in 8 (57.1%) participants and PP affected QOL in 9 (64.3%) participants. All fourteen participants reported having at least one positive experience with accessing care, and 10 (62.5%) reported having at least one negative experience. All of these participants stated discomfort caused by perceived homophobia/transphobia or misgendering by the physician/office staff was a significant barrier to pelvic healthcare.
Conclusions: Understanding how transgender and GNB persons experience PFD/PP is pivotal to providing care to these patients. Using these in-depth interviews, we can elucidate how to better care for this patient population. We plan to continue to recruit patients to further understand the presentations, perceptions, and experiences of transgender and GNB persons. Also, further study is underway to identify specific symptoms using more condition specific questionnaires and determine if these are different from cis-gender persons.
Disclosure: No
Images:

Table 1: Presentation and perception of pelvic floor dysfunction and pelvic pain in transgender and gender non-binary persons

Sexual Health		Participants N (%)
	Positive experience with a provider	14/14 (100)
	Negative experience with a provider	9/14 (64.3)
	Gender Identity affecting access	11/14 (78.6)
Symptoms		
	Bladder Dysfunction	7/14 (50)
	Sexual Dysfunction	11/14 (78.6)
	Pelvic Organ Prolapse	3/14 (21.4)
	Urinary frequency/urgency	11/14 (78.6)
	PFD>1yr	11/14 (78.6)
	PP>1yr	10/14 (71.4)
	Had surgery for PFD/pain	2/14 (14.3)
	Had surgery for PFD/pain & gender affirmation	3/14 (21.4)
Perceptions		
	PFD has affected QOL	8/14 (57.1)
	Pain has affected QOL	9/14 (64.3)
	Pain affected sexual health	4/14 (28.6)
	PFD affected sexual health	4/14 (28.6)
	Rx for vaginal estrogen used	3/14 (21.4)
	open to trying vaginal estrogen	7/14 (50)
Barriers		
	Has accessed a provider for PFD/Pain	10/14 (71.4)
	Treatments for PFD/PP offered	10/14 (71.4)

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Return to Work after Mid-urethral Sling: Secondary Analysis of the Trial of Mid-Urethral Slings (TOMUS)

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Introduction: The timing for returning to work is an important part of surgical counseling and quality of life.
Objective: To evaluate the pattern of patients returning to work and return to normal daily life following mid-urethral sling surgery.
Methods: This is a secondary analysis of the randomized controlled Trial of Mid-Urethral Slings (TOMUS), a two-arm randomized controlled trial that compared two types of mid-urethral slings used for the treatment of stress urinary incontinence: the retropubic mid-urethral mesh sling (RMUS) and the transobturator mid-urethral sling (TMUS). Our primary outcome is return to work defined by the answer to "How many paid workdays did you take off after surgery?" Return to normal daily life was defined by "Have you returned to full normal activities of daily life (including work, if applicable) since your surgery?" and "How many days did it take you to return to full normal activities of daily life (including work, if applicable) after surgery?" Patients who underwent a concomitant surgery were excluded. Predictors affecting the timing of return to work and normal activities were also assessed. Given multiple comparisons, Bonferroni correction with threshold at 0.003 was used to assess the statistical significance of P-values.
Results: Among patients undergoing a mid-urethral sling, 183 (41.5%) returned to normal activities within 2 weeks, with a median of 6 days (interquartile range 1-14 days). Median paid workdays was 4 (interquartile range 0-12 days) with 141 (67.8%) citing restrictions on heavy lifting. Within 6 weeks of surgery, 308 (70.0%) had returned to normal activities including work. At the 6 months follow up, 407 (98.3%) had returned to normal activities including work. Patients who returned within 2 weeks versus after 2 weeks did not have significantly different characteristics after accounting for multiple comparisons (Table 1). The risk of objective and subjective treatment failures were not significantly different between those who returned within 2 weeks and those who returned after 2 weeks. There were also no differences in physician visits, emergency room visits, hospitalization, abdominal/pelvic surgery, antibiotics, or urinary

tract infection treatments for patients who returned within 2 weeks. Similar results of no significant differences were found for failure rates and adverse outcomes comparing patients who returned within and after 6 days . In multivariate regression analysis, there was no significant predictor of the timing of returning to normal activity/work.

Conclusions: Out of approximately forty percent of patients who returned to work/normal activities within 2 weeks of a mid-urethral sling surgery, half did so within 6 days. The timing of return to work was not associated with significant differences in treatment failure or adverse outcomes.

Disclosure: No

Images:

Figure 1. Percentage of patients returning to normal activities including work, at 2 weeks, 6 weeks, and 6 months following mid-urethral sling with no concomitant surgery. RMUS: retropubic mid-urethral mesh sling; TMUS: transobturator mid-urethral sling.

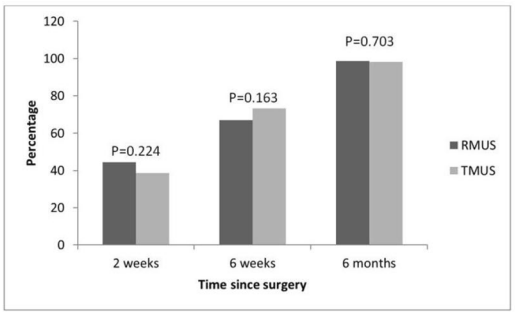

Table 1. Patient characteristics among patients undergoing mid-urethral sling procedures who returned to work/normal activities within 2 weeks of surgery compared to those who returned to work/normal activities after 2 weeks. Data shown as median (interquartile range), mean ± standard deviation, or N (%).

	Return to work within 2 weeks (N=183)	Return to work after 2 weeks (N=258)	P-value
Age (years)	50.3 (31.4 – 78.8)	51.6 (32.3 – 76.2)	0.378
Ethnicity			0.779
Hispanic	21 (11.5)	38 (14.7)	
Non-Hispanic white	148 (80.9)	199 (77.1)	
Non-Hispanic black	5 (2.7)	8 (3.1)	
Non-Hispanic other	9 (4.9)	13 (5.0)	
Married	119 (65.0)	185 (71.7)	0.135
Current smoker	27 (14.8)	37 (14.3)	0.903
Nam-Powers-Terrie occupational score	63.7 ± 21.4	59.3 ± 23.3	0.045
Body mass index (kg/m^2)	29.9 ± 7.0	30.3 ± 6.5	0.518
UDI score	125.7 ± 43.9	134.0 ± 44.0	0.051
IIQ score	143.0 ± 98.1	153.5 ± 94.9	0.260
Diabetes	12 (6.6)	15 (5.8)	0.748
Objective failure	46 (25.1)	74 (28.7)	0.410
Subjective failure	85 (46.45)	132 (51.16)	0.329
Surgery time (minutes)	32.4 ± 14.0	29.0 ± 15.0	0.017
Sling type			0.224
Retropubic sling	98 (44.3)	123 (55.7)	
Transobturator sling	85 (38.6)	135 (61.4)	

*UDI: Urinary Distress Inventory, IIQ: Incontinence Impact Questionnaire

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An Analysis of Stated Insurance Coverage and Estimated Actual Cost of Treatments for Female Pelvic Conditions

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Introduction: While medication coverage gaps or caps by insurance providers generally lead to worse outcomes for patients, little information is available concerning how such deficiencies impact care of lower urinary tract symptoms (LUTS). LUTS affect more than half of all adults, commonly manifesting as overactive bladder (OAB), interstitial cystitis/bladder pain syndrome (IC/BPS), and genitourinary syndrome of menopause (GSM). Yet despite this healthcare burden, clinical care remains poor; fewer than 10% of patients ever receive effective treatment. It is unclear how poor insurance coverage and patient-incurred costs for prescribed therapies impact quality of LUTS care.

Objective: To analyze insurance coverage and patient-incurred costs for guideline-based pharmacologic treatments for LUTS across five leading insurers' low and high cost plans.

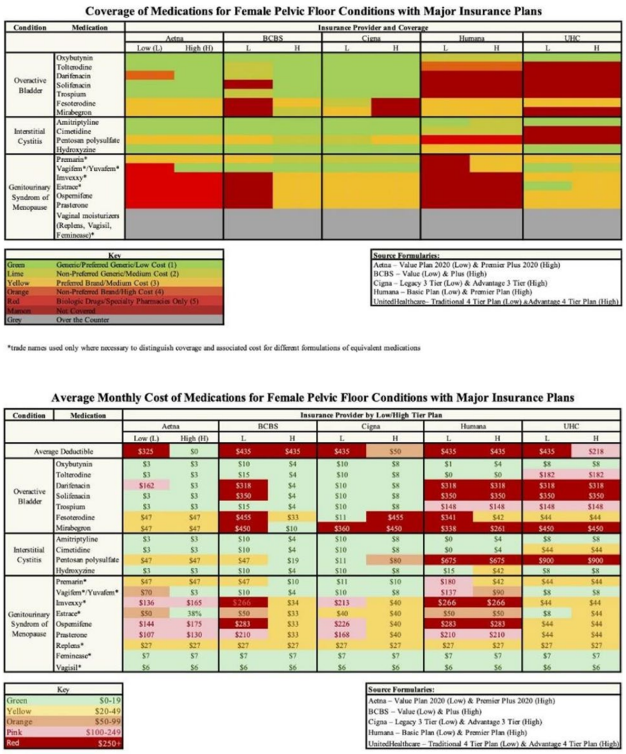
Methods: For each of five major nationwide insurance providers, formularies for a low-cost and high-cost plan were reviewed for coverage of medications for OAB, IC/BPS, and GSM: Aetna Value Plan (low), Aetna Premier Plus (high), BCBS Value (low), BCBS Plus (high), Cigna Legacy 3 Tier (low), Cigna Advantage 2 Tier (high), Humana Basic Plan (low), Human Premier Plan (high), UHC Traditional Tier 4 Plan (low), and Advantage Tier 4 Plan (high). Average cash cost of medications was determined from GoodRx.

Results: This analysis demonstrates poor coverage for pharmacologic treatment of LUTS diagnoses across insurance plans (Table 1). For OAB, oxybutynin, a non-selective anticholinergic with significant side-effects and a dose-dependent risk of cognitive impairment, is the only drug covered by all plans with a monthly average cost under $10. While mirabegron, a beta-3 adrenoreceptor agonist that lacks these side effects, is also a first-line pharmacologic agent for OAB, only one plan offered mirabegron for under $40/month, with an median cost across plans of $349/month (±$185), making the yearly cost over $4000. The only FDA-approved oral medication for IC/BPS, pentosan polysulfate, is covered at low cost by only 2/10 plans reviewed. For the remaining 8, average patient-incurred cost is over $400/month. Amitriptyline, a TCA used off-label for IC/BPS, is the only guideline-recommended IC/BPS medication available at under $10/month, but has numerous side effects and contraindications that impact its utility. For moderate-severe GSM, vaginal estrogen is the gold standard treatment. Despite multiple available generics, 4/10 plans did not offer any low-cost option for vaginal estrogen. The median price of vaginal estrogen across plans was over $72/month (±$45), bringing the yearly cost to $866. Most plans had a deductible of $200-450 to meet before coverage begins (Table 2). These costs represent the best possible coverage, as patients who fill prescriptions outside approved pharmacies may experience costs as much as three-fold higher.

Conclusions: There are significant discrepancies between consensus for best treatment practices in LUTS and associated insurance coverage. Even when medications are FDA-approved, indicated by guidelines, and covered by insurers, average costs can still be prohibitive. As lack of care can have profound impacts of quality of life, ability to live independently, and overall morbidity, improved price transparency is required to understand the overarching health implications of limited coverage on accessibility of care for LUTS.

Disclosure: No

Images:



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Opioid Use Following Pelvic Reconstructive Surgery: A Prospective Cohort Study

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4 - MetroHealth Hospitals

Introduction: There is an indelible link between narcotic prescriptions and the opioid epidemic, mandating increased vigilance on postoperative opioid prescribing practices.
Objective: To determine the amount of opioid used by patients undergoing surgery for pelvic floor disorders (PFD) and identify risk factors for opioid consumption greater than the median.
Methods: This was a prospective cohort study conducted at two tertiary care medical centers between 11/01/2020 and 10/15/2021. All English-speaking patients who were 18 – 89 years old and undergoing major surgery for PFD were approached for participation. Consenting subjects completed one preoperative questionnaire that surveyed factors expected to influence postoperative pain and pain medication use. At approximately one- and two-weeks following surgery, patients completed two additional questionnaires ("questionnaire 2" and "questionnaire 3") about their pain scores and pain medication use. On analysis, the cohort was divided into four procedural groups: 1. Laparoscopic apical suspension (LA), which included laparoscopic sacrocolpopexy, robotic sacrocolpopexy, and laparoscopic uterosacral ligament suspension; 2. Vaginal apical suspension (VA), which included vaginal uterosacral ligament suspension and vaginal sacrospinous ligament fixation; 3. Vaginal repair only (VR), which included anterior repair and/or posterior repair; and 4. Obliterative (O) procedures, which included colpocleisis. Opioid prescribing practices and use between groups was then compared using the Kruskal-wallis test. Finally, the median amount of opioid used by the time of the questionnaire 2 and questionnaire 3 was determined, and multivariable regression was performed to determine those variables which were significantly associated with greater than the 50th%tile of morphine milligram equivalents (MME).
Results: One hundred and ninety-three patients were included in the final analysis: LA n=69 (35.8%), VA n=62 (21.8%), VR n=42 (21.8%), O n=20 (10.4%). Milligram morphine equivalents used by patients in the hospital, MME prescribed at discharge, MME used by questionnaire 2, and MME used by questionnaire 3 were all found to be significantly different between procedural groups on Kruskall-wallis analysis (Table 1). When looking at the entire cohort, the median amount of MME prescribed at discharge was 100 MME (100-120), whereas the median amount used by questionnaire 2 was 15 MME (0-50) and by questionnaire 3 was 20 MME (0-75). On multivariable logistic regression, variables found to be associated with using greater than the 50th%tile of MME at the time of questionnaire 2 included a diagnosis of arthritis (OR=2.57 95%CI 1.21-5.77), a diagnosis of endometriosis (OR=4.25, 95%CI 1.17-18.48), and undergoing VR relative to LA (OR 2.80, 95%CI 1.18-6.90); whereas for questionnaire 3, only a diagnosis of fibromyalgia (OR=17.26, 95%CI 2.39-384.3) was significantly associated. Increasing age was associated with a lower odds of above median MME use at both time points (questionnaire 2: OR=0.397, 95%CI 0.026-0.58) vs questionnaire 3: OR=0.43, 95%CI 0.27-0.65), as was undergoing O relative to LA (OR 0.18, 95%CI 0.04-0.71) at the time of questionnaire 3.
Conclusions: Patients undergoing surgery for PFD use far less opioids than they are prescribed. Carrying a preoperative diagnosis of arthritis, endometriosis or fibromyalgia increase the risk that a patient will have a higher postoperative opioid consumption, whereas increasing age decreases that risk.
Disclosure: No
Images:

	LA	VA	VR	O	p-value
MME used by patients in the hospital:	25	19	15	0	<0.001
Median (95%CI)	(10-55)	(5-52.5)	(0-50)	(0-8)	
Discharge MME prescribed:	112.5	100	100	100	0.0127
Median (95%CI)	(100-120)	(90-112.5)	(75-112.5)	(90-106.25)	
MME used by questionnaire 2:	22.5	20	15	0	0.002
Median (95%CI)	(0-60)	(5-47.5)	(5-45)	(0-7.5)	
MME used by questionnaire 3:	30	22.5	20	0	0.014
Median (95%CI)	(0-87.5)	(5-80)	(5-67.5)	(0-45)	

Table 1. MME used by and prescribed to patients following surgery for PFD

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Pudendal Nerve Block with Liposomal Bupivacaine for Sacrospinous Ligament Suspension: A Randomized Controlled Trial

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Introduction: Achieving adequate pain control after surgery is of utmost importance to promote timely recovery. Pudendal nerve block has been frequently utilized for postoperative pain management following vaginal reconstructive surgery. However, studies investigating its efficacy and the type of anesthetic used have had conflicting results.
Objective: To determine the effects of intraoperative pudendal nerve block with liposomal bupivacaine 1.3% on post-operative pain up to 3 days following sacrospinous ligament suspension. We hypothesized that pudendal nerve block using 1.3% liposomal bupivacaine would lead to a 2-point reduction in postoperative pain on their visual numerical scale (VNS) score.
Methods: This is a single-blinded randomized controlled trial. Eighty-three women undergoing sacrospinous ligament suspension with or without vaginal hysterectomy were randomized to receive either intraoperative bilateral pudendal block with liposomal bupivacaine or no pudendal block. Additional prolapse repairs or placement of a mid-urethral sling was allowed. Participants were sent home with a packet containing VNS scales to complete on postoperative days (POD) 1-3 and day 7 and instructed to mark the number corresponding with the worst pain of the day, overall pain of the day, pain with sitting and pain with first bowel movement. The packet also contained a diary to record the day of first bowel movement, and the number of ibuprofen 600-mg tablets and narcotic tablets consumed on POD 1-3. Finally, the quality of recovery was assessed using the Quality of Recovery-15 (QoR-15) questionnaire filled pre-operatively and on POD 3. Based on a review of the literature, a 2 points difference on an 11-point VNS scale would be clinically significant. Assuming 80% power with a 10% dropout rate, 74 participants (37 in each group) were needed. Continuous variables were analyzed using Student t test. Non-parametric variables with the Mann-Whitney U test, and categorical variables were compared with the Fisher exact or Chi-square tests as appropriate.
Results: Forty-one women were randomized to the pudendal block group and 42 to the control group. Mean age was 64.6 years [range 41-89] (P=0.549). 68% of participants were white, 18% were Hispanic and 6.4% were black. There was no statistically significant difference in the overall pain scores between the pudendal block group vs. control group for POD 1 and 3: 5 [2-6.25] vs. 5.5 [4-8] (P=0.058); and 4 [1-6] vs. 5 [2-7] (P=0.146) respectively. For POD 2 overall pain score, the difference between the groups was statistically but not clinically significant: 5 [1.75-5] vs. 5 [3.25-7.75] (p= 0.023). Return to normal bowel function was faster in the pudendal block group than the control group, 2 days [1.5-3] vs. 3 days [2-3] (p=0.047). There were no significant differences in opioid and NSAID consumption, the remaining pain scores, or mean change in QoR-15 scores [-10.92 vs -16.30] (P=0.365).
Conclusions: Bilateral pudendal block with liposomal bupivacaine did not result in a clinically significant reduction in postoperative pain scores following sacrospinous ligament suspension.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Boston Scientific

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Virtual Reality Training Model for Retropubic Sling Surgery
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Introduction: Surgical placement of a Retropubic Mid-Urethral Sling is most often accomplished by estimating insertion angles using external anatomic landmarks, sensing subtle tactile changes through tissue, while passing trocars in the neurovascular-rich retropubic space. The "Blind" nature of this technique, even in experienced surgeons' hands, can result in an up to 13% complication rate, including bladder perforation, mesh complication, vascular or neurologic injury, and voiding dysfunction. There have even been reports of death related to vascular or bowel injury. Surgeons are typically trained via an apprenticeship model working with more experienced surgeons on live patients; static models, or, if available, cadaver labs which carry expense, often require travel, time away from work, and are technically limited by the distortion of anatomy after multiple uses. We need a new way to teach procedures that require learning by feel and high-volume pattern recognition.
Objective: The objectives of this video are to describe the creation of a virtual reality model using deidentified patient data and artificial intelligence algorithms; and to demonstrate the use of the training system for trocar passage of the retropubic mid-urethral sling procedure.
Methods: Deidentified MRI and CT images were used to generate a volume image. The display was then customized to reveal the anatomy of interest. Then using artificial intelligence algorithms, we are able to detect the relative distances between the pertinent anatomy and the surgeon. The final 3d model is combined with haptics and then enters the virtual operating room environment.
Results: In this video we highlight the ability of the training model to detect the surgeons' relative position to the pelvis, bladder and major blood vessels. The system also provides haptic and visual alerts when approaching at-risk anatomy and generates real-time scoring feedback for developing competency. We demonstrate use of the model with ideal trocar passage, and what occurs when the trainee deviates from this path to perforate the bladder or blood vessels. This innovative training system overcomes the lack visualization and blind nature of sling surgery. Novel artificial intelligence provides high accuracy of anatomic landmarks and ensures a realistic 3D environment. The trainee benefits from haptic and visual alerts for real-time feedback on the trocar insertion pathway. And is Integrated in a simulated operating room environment As we innovate the way we teach surgical technique that truly requires learning by feel and high-volume pattern recognition, we have a huge potential for future impact.
Conclusions: This will be the first non-cadaveric, non-static model available in the field. It allows for multiple low risk exercises and allows more surgeons to be trained outside of the operating room, at their own institution, and would avoid the need for patient subjects. Training can be disseminated at a significantly lower cost and higher convenience than remote cadaver labs or intraoperative observation and has a higher fidelity than available static models, particularly after multiple passes. This has implications for not only for retropubic mid-urethral slings but for urogynecologic and transvaginal surgery as a whole. This technology has the potential to lead to product development that improves patient safety and decreases perioperative complications.
Disclosure: No

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Congenital Dysplastic Kidney with Ectopic Ureter to the Uterine Cervix
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2 - Atrium Health

Introduction: Unilateral congenital dysplastic kidneys are uncommon and may remain asymptomatic into adulthood. Ectopic ureters, similarly, are uncommon and tend to have varying presentations contingent on the location of the distal insertion. When found together, the treatment is typically unilateral nephrectomy with complete excision of ectopic ureter. A blind ended ectopic ureter to the cervix with associated dysplastic kidney is an exceptionally rare condition and there is little to no data available on surgical treatment or postoperative outcomes.
Objective: To describe a unique case of a congenital dysplastic kidney with ectopic ureter to the uterine cervix, as well as highlight relevant anatomy and demonstrate the surgical technique used to identify and treat her ectopic ureter.
Methods: A video case report of a single surgical patient at an academic hospital.

Results: We describe the unusual presentation of a 40-year-old female who was referred to our facility due to the complaint of 6-months of tissue protruding from her vagina. She was noted to have an anterior vaginal mass. In office cystovaginoscopy revealed no left ureteral orifice and large cystic mass adjacent to the cervix on the left. Imaging confirmed a dysplastic left kidney with an ectopic ureter to the uterine cervix associated with a left sided paracervical and paravaginal abscesses. She subsequently underwent an uncomplicated robotic-assisted nephrectomy and complete excision of the ureter as well as paravaginal and paracervical abscesses utilizing a multidisciplinary approach.
Conclusions: In this video case report, we demonstrate a successful surgical technique to identify and excise an ectopic ureter and paravaginal/paracervical abscesses using a multidisciplinary approach with combined nephrectomy. This presentation reviews the pertinent pelvic anatomy and highlights the importance of complete resection of an ectopic ureter at the time of nephrectomy for a dysplastic kidney to prevent recurrence of abscess at the location of the insertion point of the distal ureter.
Disclosure: No

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Surgical Neurovascular Anatomy during Sacrospinous Ligament Fixation
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Introduction: Sacrospinous ligament fixation (SSLF) is a commonly used procedure for the surgical correction of pelvic organ prolapse. Given the narrow surgical space involved, the neurovascular anatomy surrounding the sacrospinous ligament can be difficult to conceptualize.
Objective: This video aims to describe the relevant neurovascular anatomy for SSLF, show potential locations of neurovascular injury, and demonstrate a method for appropriate suture placement in a cadaveric specimen.
Methods: A literature review was performed of SSLF to provide information on techniques, complications, and relevant anatomy for the procedure. Still photographs and video footage from dissections of unembalmed female cadavers were used to demonstrate the neurovascular anatomy surrounding the coccygeus-sacrospinous ligament complex (C-SSL) and how this anatomy might be injured at the time of surgery. Video footage from an unembalmed cadaver was used to demonstrate appropriate suture passage through the C-SSL using both a Mayo needle and ligature carrier device. A method of suture attachment to the vaginal apex was shown.
Results: The sacropinous ligament spans from the ischial spine to the lateral border of the lower sacrum and coccyx. The average ligament length is 5.4cm and the average height at its midpoint is 1.4cm. The coccygeus muscle overlies the ligament, and together they are referred to as the C-SSL. Critical structures adjacent to the C-SSL include the nerves to the levator ani and coccygeus muscles in the mid portion of the ligament; the pudendal nerve, internal pudendal artery, and sciatic nerve laterally; the S4 nerve medially; and the S3 nerve and inferior gluteal artery on the superior margin of ligament. The relationship of each of these structures to the C-SSL is described. Examples of neurovascular injuries are shown using video footage in a cadaver. Appropriate suture passage approximately 2-3cm medial to the ischial spine through the lower portion of the ligament is shown. A method of creating four suture pairs from two needle punctures is illustrated.
Conclusions: SSLF can be safely performed with appropriate knowledge of the relevant neurovascular anatomy. The majority of these neurovascular structures can be avoided with suture placement through the lower aspect of the mid portion of the C-SSL.
Disclosure: No

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Urethral Diverticulum Marsupialization with Modified Spence-Duckett Procedure
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Introduction: A urethral diverticulum is an outpouching of urethral mucosa, occurring in 2-5% of the population. They are thought to most commonly arise as a result of chronic inflammation or infection of the peri-urethral glands. The classic triad of symptoms include the "3 D's": dysuria, dyspareunia, and dribbling. Although commonly cited, presence of all these symptoms is limited to less than 5% of cases. It is imperative to map the specific location of the diverticula along the urethra and extent of urethral involvement to best plan the surgical technique used for excision. They are typically located postero-laterally at the mid- or distal urethra, however can be found at any location along the urethra. The continence mechanism is located at the mid-urethra and is made up of the compressor urethrae, urethrovaginal sphincter, and the striated urethral sphincter. Care must be taken to avoid disruption of these muscles to prevent incontinence after surgery. Surgical planning can be facilitated by ultrasound or magnetic resonance imaging (MRI) and can vary based on the location of the diverticula along the urethra. Pathologic examination is important because while rare, cancers can originate from urethral diverticula, with a prevalence of 6-9%. The most common type of cancer is adenocarcinoma, however transitional cell and squamous cell carcinomas have been reported.
Objective: Demonstration of a modified approach to the surgical technique described by Spence and Duckett for treatment of a distal urethral diverticulum.
Methods: N/A
Results: We present a 37-year-old female with vaginal bulge, dyspareunia, and dysuria. On examination, the patient had a two-centimeter tender mass abutting the distal urethra. MRI revealed a 1.7 x 1.7 x 1.8 centimeter unilocular cystic structure at the left posteromedial distal urethra consistent with a urethral diverticulum without characteristics suspicious for malignancy such as presence of any solid masses, irregular or focal diverticular wall thickening. The patient desired surgical management. Spence and Duckett traditionally described insertion of one blade of the Metzenbaum scissors in the urethra with incision into the diverticulum and anterior vaginal wall followed by marsupialization. Given the small size of the diverticular ostium identified, we opted to make an incision using a scalpel from the ostium down the posterior aspect of the urethra and proximally to the anterior vaginal wall. The diverticular sac measured approximately 2 x 1 centimeter in size. The distal portions of the sac were dissected from its periurethral and vaginal attachments and partially excised, taking care to preserve as much urethral and vaginal tissue as possible. The remaining diverticular sac edges were then everted and sutured to the anterior vaginal wall in an interrupted fashion to complete the marsupialization. The patient did well post-operatively and six weeks after surgery, she had full resolution of her prior symptoms without development of urinary incontinence. Pathology was consistent with urethral diverticulum and negative for dysplasia.
Conclusions: While effective, the Spence-Duckett technique is described as a "generous meatotomy" with risks of urethral shortening and stricture. Our modified approach reduces these risks, resolves bothersome symptomatology, improves cosmesis, and minimizes risk of anatomic or functional urethral compromise.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Welgoss is a consultant for Coloplast

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Use of Previous Sacral Mesh Tails for Redo-Sacrocolpopexy

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Introduction: Sacrocolpopexy is the preferred treatment for apical suspension and has a recurrence rate of approximately 2.3-4%. Use of synthetic mesh in this procedure results in tissue fibrosis, making this a durable repair. However, scarring and distortion of normal anatomy can pose a challenge during re-operation for recurrent prolapse.
Objective: The goal of this video was to report two cases of recurrent prolapse after sacrocolpopexy and demonstrate surgical techniques for mesh reattachment.
Methods: A laparoscopic approach was taken for redo sacrocolpopexy. In both cases, the previously placed mesh was identified and evaluated. Dissection of the mesh allowed for suture reattachment to the new vaginal mesh.
Results: Case 1: The first case is a 66-year-old female with recurrent Stage III anterior and apical prolapse 7 years status post laparoscopic sacrohysteropexy and TVT-O sling. The mesh was still attached to the posterior vaginal wall but had lost its attachment to the cervix, a finding likely contributing to the recurrent anterior defect. Supracervical hysterectomy was performed, and the anterior vagina was plicated to reduce tissue redundancy. The mesh tail was dissected for exposure and mobilization. A lightweight polypropylene mesh was sutured to the anterior vagina and bilateral cervix using CV-3 Gortex sutures. The opposite end was then attached to the sacral tail mesh with CV-2 Gortex sutures. Adequate suspension of the cervix and vaginal compartments was confirmed vaginally. Case 2: The second case is a 53-year-old multipara with recurrent Stage II anterior and apical prolapse status post laparoscopic sacrocervicopexy, paravaginal repair, posterior colporrhaphy, and TVT-O sling 17 years ago followed by vaginal mesh excision and then laparoscopic mesh excision. The detachment point of the mesh was at the cervix, while the mesh tail was still anchored to the sacrum. The mesh was dissected to free the distal portion of the sacral tail. A cerclage hysteropexy was performed using a polypropylene sling mesh. The tail of the sling mesh was sutured to the sacral mesh using two separate CV-2 GoreTex sutures. Adequate suspension was confirmed vaginally.
Conclusions: The two cases presented demonstrate use of sacral tail from a previous sacrocolpopexy as a reattachment site in surgical management of recurrent prolapse. This technique reduces the need for dissection at the sacrum and may reduce the risk of vascular or ureter injury in these cases. Long-term postoperative follow up is warranted to monitor the integrity of this revision approach.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: P. Rosenblatt: Boston Scientific, C.R. Bard, Ethicon, Coloplast, Medtronic, Hologic, Stryker

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Surgical Technique and Ouctomes of Malone Antegrade Continence Enema (MACE) in adults

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Introduction: Constipation is a chronic condition that is prevalent in children and adults and has a considerable impact on their quality of life. Although there are multiple medications or enema options for this condition, a small subset of patients do not respond to medical therapy and are candidates for surgical management of their constipation by colorectal surgery. Some of these options include colectomy with ileorectal anastomosis, sigmoid colostomy or even loop ileostomy. The Malone Antegrade Continence Enema (MACE) offers an alternative to these patients. This procedure is common in the pediatric population, where pediatric urologists offer MACE in addition to bladder reconstruction procedures for patients with neurogenic bladder and bowel. There is limited evidence on outcomes of this procedure in adults.
Objective: To present and describe the technique for robotic assisted laparoscopic MACE in addition to our experience and outcomes of MACE in adult patients.
Methods: We describe the technique for robotic assisted laparoscopic MACE in a 45 year old male with neurogenic bowel and functional constipation following a spinal cord injury. Additionally, a retrospective review of adult patients who underwent robotic or open MACE procedures in our tertiary center for neurourology, pelvic floor and reconstructive surgery.
Results: The technique for robotic assisted laparoscopic Malone Antegrade Continent Enema (MACE) is described. Our experience from 2014 to 2021 with six patients who underwent open and minimally invasive MACE for neurogenic bowel and/or functional constipation. Two patients required stoma revision for stenosis at 21 and 13 months. One of them required additional Interventional Guided Cecostomy tube placement due to complete stenosis of the channel and the second patient is currently using the MACE daily.
Conclusions: The Malone Antegrade Continent Enema (MACE) procedure is a feasible option either open or minimally invasive (Robotic or Laparoscopic) for adults with functional constipation or neurogenic bowel before considering colostomy or colon resection.
Disclosure: No

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Robotic Ureteroneocystotomy and Vesicovaginal Fistula Repair after Cesarean Section Injury

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Introduction: Cesarean section carries less than 1% risk of urologic injuries. These injuries, however, can lead to significant patient morbidity. This risk increases when the procedure is performed during the second stage of labor, which increases the risk of hysterotomy extensions inferiorly toward the bladder or laterally toward the ureters. Recognition of these injuries intraoperatively is essential for expeditious repair to avoid fistula formation and/or renal compromise. Although bladder injuries are easily recognizable intraoperatively, ureteral injuries often go undiscovered.
Objective: We present a complex robotic-assisted repair of extensive urologic tract injury that went unrecognized intraoperatively at the time of cesarean delivery.
Methods: A 37-year-old G4P1021 female underwent full term primary cesarean section for arrest of fetal descent. The case was complicated by postpartum hemorrhage due to hysterotomy extensions. Postoperatively the patient developed hematuria, oliguria, and acute kidney injury. She was found to have bilateral distal ureteral obstruction with bilateral renal forniceal rupture, possible vesicovaginal fistula, and uroperitoneum requiring urgent bilateral percutaneous nephrostomy placement. Her acute kidney injury resolved, however she continued to leak urine per vagina and require prolonged foley catheterization. The patient was taken for delayed repair at nine weeks postoperatively with preoperative repeat imaging showing persistent vesicovaginal fistula, left ureteral obstruction, possible ureterovaginal fistula, and a patent right ureter. In the operating room a robotic approach was utilized beginning with bilateral ureterolysis revealing extensive retroperitoneal

fibrosis within the left broad ligament and significant ureteral stricture near the left vaginal fornix. The left ureter was transected and later re-implanted into the bladder. A large vaginal defect as well as a fistulous connection to the bladder was identified. The right ureter was stented robotically by first introducing a stent through the cystoscope. The fistulous tract was excised and the vesicovaginal defects were repaired separately after careful mobilization. The bladder was further mobilized by dissection into the space of retzius. The pre-peritoneal fat surrounding the bladder was interposed between the vesicovaginal repair to aid in healing and prevention of fistula recurrence. The left ureter was re-implanted into the bladder dome over a ureteral stent. To reduce tension on the anastomisis the adipose tissue adjacent to the bladder was clipped to the left round ligament.
Results: The patient is recovering well after surgery and was discharged with foley catheter, ureteral stents, and bilateral percutaneous nephrostomy tubes in place. She is recovering well with plan for close outpatient follow up to remove the nephrostomy tubes, foley, and ureteral stents as indicated.
Conclusions: In this case we show the use of robotic assistance for management of complex urologic injuries and highlight techniques for their repair.
Disclosure: No

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Surgical Anatomy of the Clitoris and Surrounding Vulvar Structures
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Introduction: Thorough knowledge of the anatomy of the clitoris and surrounding vulvar structures is critical to the wide array of commonly performed vulvar and periurethral procedures. Obstetric laceration repair, wide local vulvar excisions, labial and prepuce reductions, and midurethral sling placement are all common examples in which this anatomy is encountered. Preservation of structures critical to urinary and sexual function reduces the likelihood of adverse postoperative outcomes.
Objective: To describe the anatomy of the clitoris and the surrounding vulvar structures and to highlight key neurovascular structures, including the dorsal nerve of the clitoris and autonomic nerve supply to the vulva. Additionally, to discuss relevant clinical and surgical applications.
Methods: The anatomy of the clitoris and surrounding vulvar structures was reviewed using dissections from unembalmed cadavers. The boundaries of the superficial perineal pouch were outlined and key structures within this space including the perineal muscles, clitoral body, crura, suspensory ligament of the clitoris, vestibular bulbs, dorsal nerve of the clitoris (DNC), periurethral and paravaginal autonomic nerve supply and terminal branches of the pudendal vessels were highlighted. Clinically relevant examples of vulvar and peri-clitoral pathology were discussed.
Results: The clitoris is comprised of three regions including the glans, clitoral body and bilateral crura. Excluding the glans, which is located externally, the components of the clitoris are located within the superficial perineal pouch, and are deep to layers of subcutaneous tissue and the perineal muscles. Relevant measurements of the components of the clitoris and distances to surrounding anatomical structures are defined. In addition to attachments to the pubic symphysis, the clitoral body is supported by the suspensory and fundiform ligaments of the clitoris, which are condensations of subcutaneous tissue that surround and fuse with the fascia of the clitoris. The DNC is a terminal branch of the pudendal nerve that innervates the glans and prepuce of the clitoris. It perforates the perineal membrane bilaterally along the medial and posterior aspect of the ischiopubic ramus, travels deep to the ischiocavernosus muscle and clitoral crus, then courses along the clitoral body before penetrating the clitoral glans. The DNC courses between the tunica albuginea and fascia of the clitoris along the dorsal aspect of the clitoral body covered by the prepuce before nerve fibers penetrate into the glans. The DNC is likely most susceptible to injury in this region outside of the protective layer of the tunica albuginea.
Conclusions: Knowledge of the anatomy of the clitoris and surrounding structures is critical for the performance of vulvar and peri-urethral procedures. Careful dissection during such procedures reduces the risk of injury that may contribute to urinary symptoms, pain, decreased sensation and sexual dysfunction.
Disclosure: No

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Vestibulectomy for Provoked Vulvodynia: Not Just a Last Resort
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Introduction: Vulvodynia is a chronic vulvar pain condition affecting up to 16% of women in the general population and can have devastating effects on a woman's psychosocial well-being. A multi-societal consensus defines vulvodynia as vulvar pain of at least 3-months duration in which there is no identifiable cause. Symptoms commonly include burning, stinging and irritation often making coitus difficult or intolerable. The majority of women experience provoked localized vulvodynia and it is, therefore, the focus for ongoing research. Treatment of this condition is challenging as there is no established gold standard and the etiology is unclear. The condition is likely multi-factorial and may in part be due to the unique embryological origin of the vulva and its response to hormonal influences, inflammation and pro-inflammatory mediators, genetic vulnerability to chronic pain, pelvic floor muscle overactivity, and psychosocial stressors. Treatment options often include strict vulvar skincare, pelvic floor physical therapy, psychological counseling, topical anesthetic agents, or oral and injectable medications. Surgical intervention has historically been reserved for refractory cases but there is growing evidence that a vestibulectomy has better long-term success than other treatments with a low risk of complications and excellent cosmesis.
Objective: To review important anatomical landmarks and highlight simple surgical techniques to accomplish a clinically successful vestibulectomy.
Methods: This video demonstrates anatomical landmarks to consider when performing a vestibulectomy and uses surgical footage to outline tools and techniques for optimal tissue resection and clinical success. This video article was reviewed by the Investigational Review Board and further investigation was waived as the study was "not considered human subject research".
Results: We utilize surgical techniques that can be easily reproduced. By outlining the planned area of resection and using needlepoint cautery, precise excision and hemostasis are achievable. The epithelial tissue between Hart's line and the hymenal ring, including the Bartholin's and Skene's gland openings should be included. The inferior edge of the resection should extend to the posterior fourchette to include the fossa navicularis, as this is an especially painful area in women with provoked vestibulodynia. Dissection should extend to Colle's fascia, which is approximately at a depth of 3mm. Although complete excision of the Bartholin's glands can be performed at the same time, this increases surgical time, blood loss, and is associated with a 15 to 20 percent risk of pudendal neuralgia and is therefore typically reserved for patients who have concurrent Bartholin's cysts or have failed a simple vestibulectomy. Pleating stitches to reapproximate Colle's fascia allow for reduced tension on the epithelial closure, eliminate dead space, and help achieve hemostasis. A pudendal block is recommended for postoperative pain control, as well as topical lidocaine.

Conclusions: Vestibulectomy for provoked vulvodynia is a highly effective treatment and should be considered earlier in the treatment algorithm. Success rates have been reported to be more than 90%. This video demonstrates preferred and reproducible techniques for a successful clinical outcome.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Abbvie; Caldera

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Surgical Management of Congenital Labial Fusion
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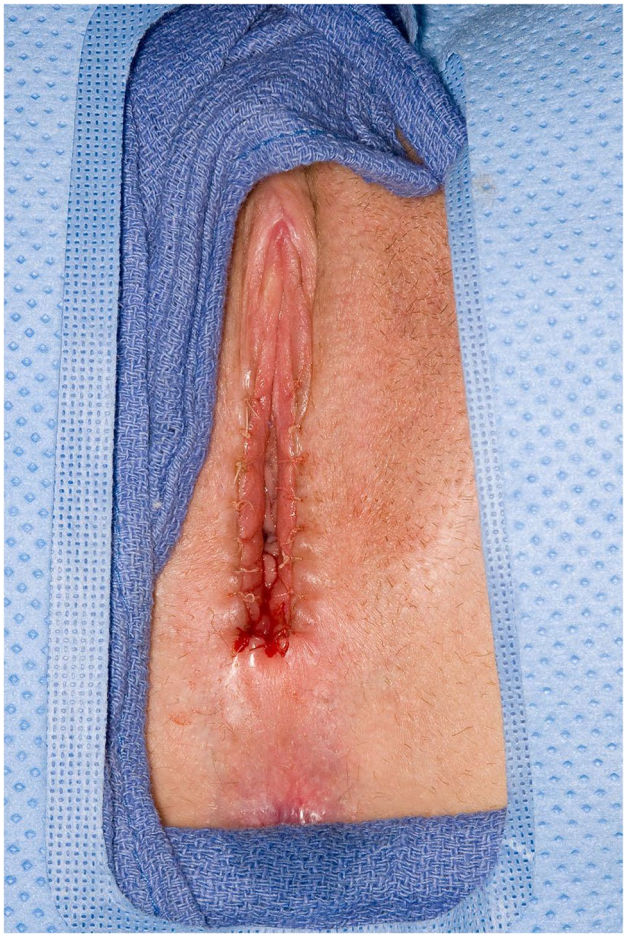
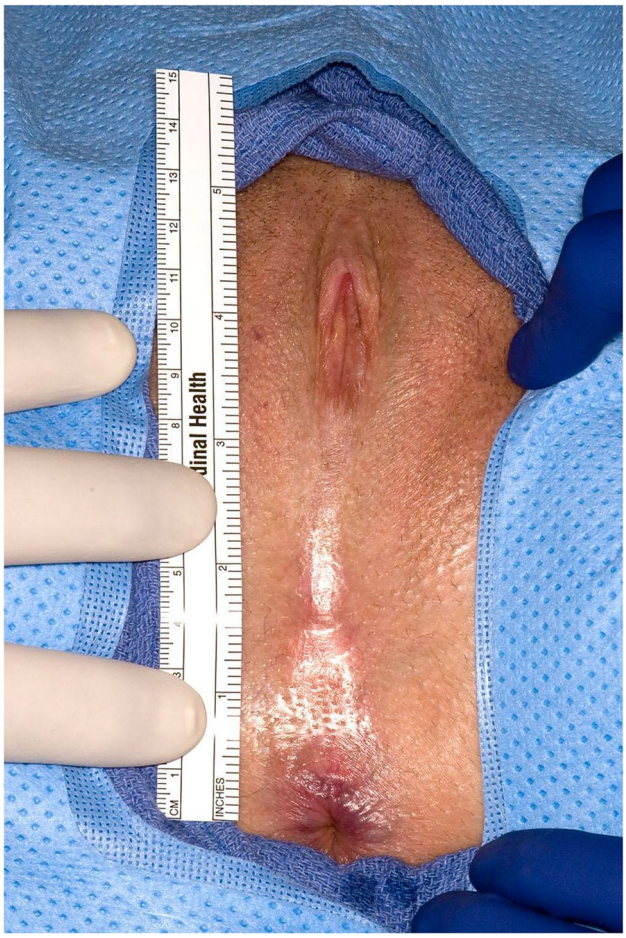
Introduction: Congenital labial fusion is a defect that is usually diagnosed in infancy and separated spontaneously before 7 years of age. Rarely, labial fusion can be diagnosed in adolescents in the form of a thick agglutination of the labia minora and can present with dyspareunia, menorrhagia, vulvar irritation or recurrent urinary tract infections. In these cases, surgical correction is required.
Objective: `- To present cases of labial fusion in adolescents and adulthood, allowing providers to identify patients with this issue in their office and allow for appropriate surgical correction. - To illustrate the steps taken for proposed surgical correction, allowing for satisfactory functional and cosmetic results.
Methods: Two cases of congenital labial fusion are presented. We review their clinical presentation, differential diagnosis, additional workup as well as a video explaining the steps taken in their surgical correction.
Results: Our correction of congenital labial fusion in adolescents and adults yields good functional and cosmetic results. This surgical video can aid other providers in correcting congenital labial fusion in patients in a safe and effective way.
Conclusions: Surgical correction for congenital labial fusion in the adolescent patient is rare, as the majority of cases resolve in infancy. After the appropriate workup was conducted, surgical correction following the steps illustrated in this video can yield satisfactory functional and cosmetic results.
Disclosure: No
Images:





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Surgical Approach to Dorsal Urethral Diverticulectomy

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Introduction: Dorsal urethral diverticula are rare, sac like protrusions occurring on the anterior surface of the urethra. These lesions present unique surgical challenges given their anatomic relationships with the pubic symphysis, urethral sphincter, and clitoral vascular supply. Careful consideration should therefore be given to the appropriate surgical approach.
Objective: (1) To describe the surgical options for management of dorsal urethral diverticula and (2) to highlight the indications, advantages/disadvantages, and steps to performing surgical excision via a suprameatal approach.
Methods: Abdominal, transurethral, transvaginal, and suprameatal approaches may be used for dorsal diverticulectomy. The abdominal approach may be performed robotically and is ideal for proximal lesions. The vaginal approach is most commonly performed for ventral lesions, but may result in sphincter disruption or overskeletonization for dorsal lesions. A suprameatal approach is most appropriate for mid to distal lesions and provides excellent access to the diverticular os. It also avoids urethral overskeletonization or transection, may result in lower rates of urethrovaginal fistula formation, and does not disrupt the ventral vaginal anatomy. Furthermore, the suprameatal approach can be utilized without significant bleeding with careful dissection, particularly around the clitoral blood supply.
Results: The patient described in this video was a 47-year-old G3P3 who presented with dyspareunia, dysuria, recurrent UTI, and SUI. Exam revealed expression of purulent fluid with palpation of the midurethra. MRI demonstrated a 2.3 cm mid to distal dorsal lesion. The patient desired surgical management and a suprameatal approach was chosen given the mid to distal location. Cystourethroscopy at the beginning of the case demonstrated the anterior diverticular os located at the 11 o'clock position. The suprameatal tissue was marked and injected with local. The area was then incised and dissection continued cephalad until the os was reached. A wire was inserted cystoscopically into the diverticulum to aid in os identification. The diverticulum was then completely excised with care to stay near the urethra to avoid bleeding. The urethral defect was closed with running 4-0 Vicryl vertically and the closure was confirmed to be watertight. The periurethral tissue was closed horizontally to avoid overlapping suture lines. The epithelium was then closed with 2-0 Vicryl mattress sutures. The patient was discharged home with a transurethral silastic catheter for 2 weeks. A filling trial in the office revealed a patent urethra with a watertight suture line and the catheter was removed. The patient's symptoms completely resolved following her surgery.
Conclusions: A suprameatal approach may be selected for mid to distal dorsal urethral diverticula. This approach provides excellent visualization of the diverticular os, minimizes vaginal dissection, and allows for quick recovery.
Disclosure: No

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Robotic-assisted Laparoscopic Anterior Urethral Diverticulectomy

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Introduction: A 31-year-old woman with history of fetal sacrococcygeal teratoma requiring resection and pelvic reconstruction during the first year of life presented with a 3-year history of recurrent vulvar abscesses and voiding dysfunction. Magnetic resonance imaging demonstrated a midline 2.2 cm collection anterior to the urethra, inferior to the pubis, and caudal to the urinary bladder.
Objective: We aim to demonstrate the key steps in the resection and repair of an anterior urethral diverticulum via a robotic-assisted laparoscopic approach.
Methods: Cystoscopy followed by robotic-assisted laparoscopic retropubic dissection was used for the identification and resection of an anterior urethral mass followed by anterior urethral reconstruction. Intentional cystotomy and use of a wire with Council tip catheter facilitated placement of transurethral catheter in the setting of challenging urethral anatomy.
Results: Cystoscopy revealed a large anterior cavity at the midpoint of the urethra consistent with an anterior urethral diverticulum. This location was adjacent to an area of the recurrent vulvar abscesses. Laparoscopic retropubic space exploration revealed dense fibrotic tissue to be adherent to the underside of the pubic tubercule, contiguous with the anterior urethral diverticulum. This diverticulum arose just distal to the bladder neck, communicated with the midportion of the anterior urethra, and was successfully resected with subsequent urethral repair.
Conclusions: Female anterior urethral diverticulum is a rare entity. A robotic-assisted laparoscopic approach can be safely utilized to successfully identify and resect an anterior urethral diverticulum. Key points include the optimization of port placement, use of a Council tip catheter to facilitate bladder drainage in the setting of distorted pelvic anatomy, and a multi-layered tension-free urethral closure with flap placement.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: GE Women's Health Ultrasound (Michele O'Shea)

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Transurethral Dorsal Buccal Graft Urethroplasty for Proximal Female Urethral Strictures

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Introduction: Female urethral strictures are a rare entity. Stricture management is based on symptoms and the stricture location, with options ranging from urethral dilation to distal urethrectomy with meatal advance for distal strictures, or urethroplasty with flap or graft. Current treatments for proximal strictures have significant limitations. For instance, urethral dilation, while minimally invasive, has a high recurrence rate. More invasive reconstructive options have limited data on outcomes, greater technical difficulty, for instance requiring a suprameatal urethral incision and dissection, and risks de novo stress urinary incontinence.
Objective: To demonstrate a surgical technique for performing a dorsal buccal graft urethroplasty via a transurethral approach.
Methods: The patient is a 69-year-old female who presented with a 2.5-year history of a slowing urinary stream, and worsening urinary frequency and urgency. She had undergone urethral dilation twice previously which improved her symptoms; however, this only lasted a few months. Her evaluation showed a recurrent proximal urethral stricture. After discussion with her about reconstructive options she opted for a transurethral dorsal buccal graft urethroplasty. The procedure begins with harvesting a buccal graft to be used in the repair. Care is taken to avoid Stetson's duct. After graft harvest we proceed with the vaginal portion of the procedure. A nasal speculum is introduced into the urethra, staying distal to the stricture. A Beaver blade is used to incise the full length of the urethra superficially at the 12 o'clock position. Additional feathering incisions are carried out from the 10 to 2 o'clock position. A suture passing device is then used to pass three sutures at the level of the bladder neck, which are then passed through the buccal graft. These are positioned so the mucosal side of the buccal graft will be within the urethral lumen when the graft is placed. The bladder neck sutures are tied transurethrally using a laparoscopic knot pusher. The distal aspect of the buccal graft is secured to the urethral meatus with interrupted suture. A surgical glue is used to secure the midportion of the graft bed. A foley catheter is left in place at the conclusion of the procedure.
Results: The procedure took 90 minutes, and the patient was discharged on the same day as her procedure. A foley catheter was left in place for 3 weeks. At that time, she has a successful voiding trial. She had no issues with the buccal graft site healing. Follow up at 3 months with cystoscopy and uroflow showed patency of the proximal urethra and significant improvement in her flow parameters. She had no stress incontinence postoperatively.
Conclusions: Transurethral approach for dorsal buccal graft placement is a feasible option for proximal urethral stricture management. Given decreased periurethral dissection compared to other techniques this may decrease the risk of stress incontinence and perioperative morbidity. Additional cases with longer follow-up are warranted to further assess this technique.
Disclosure: No

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Bull's-Eye Technique to Optimize S3 Foramen Access: Applying a Trusted Technique to Sacral Neuromodulation

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Introduction: Sacral neuromodulation (SNM) is an advanced therapy that stimulates sacral spinal nerves in order to modulate bladder or bowel dysfunction and is an approved therapy for overactive bladder, fecal incontinence, and non-obstructive urinary retention. A trial of SNM can come in the form of a percutaneous nerve evaluation (PNE) or a staged trial. During this period, quality lead placement translates to improved response and outcomes.
Objective: This video abstract demonstrates the bullseye technique to achieve optimal lead placement in sacral neuromodulation.
Methods: The bullseye technique starts by having the patient lie prone. The medial edges of the S3 foramen are marked in the anteroposterior (AP) view. A horizontal skin mark is then made at the level of S3. The entry point is chosen approximately 2 cm cephalad from the horizontal marking. The pelvis is imaged with live fluoroscopy starting at 0 degrees and then rotating the C-arm to 30 degrees. Rotating the C-arm provides an optimal view of the sacral foramina. The surgeon places the needle at the level of the skin in line with the image. Live fluoroscopy is performed to align the needle with the image intensifier to form the bullseye. The needle hub is grasped with a Kelly clamp as to keep the surgeon's hand away from the field. Once the correct angle is identified, the needle is advanced. The procedure is repeated on the contralateral foramen.
Results: The bullseye technique allows easy access to S3 in patients with complex anatomy. It can potentially lessen operating time and it minimizes needle entries in PNE.
Conclusions: The bullseye technique can assist in obtaining optimal access in SNM and can quickly be applied into current practices.
Disclosure: No

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Excision of Transvaginal Mesh via a Robotic Approach

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Introduction: Pelvic pain is a documented complication that can occur from placement of transvaginal mesh. The literature supports a variety of techniques for safe removal and suggests that some patients with pelvic pain will receive benefit from mesh excision.
Objective: The aims of this video are to demonstrate the technique for robotic removal of transvaginal mesh attached to the sacrospinous ligament and describe the surrounding anatomy.
Methods: The patient is a 56 year old female who underwent placement of transvaginal mesh anchored to the bilateral sacrospinous ligaments 15 years prior, now with chronic pelvic pain and right-sided vaginal pain. An ultrasound had revealed a hyperechoic structure near the right ischial spine. Exam demonstrated a foreshortened vagina and a tight band in the pelvis near the right sacrospinous ligament. She attempted conservative therapies without adequate relief and was on chronic opioids for pain. She desired surgical excision. A robotic approach was preferred to avoid a large vaginal dissection that could lead to bleeding or worsening of pain. She underwent a robotic-assisted laparoscopic removal of mesh. Dissection of the pelvis sidewall was performed to the level of the pelvic floor. An assistant performed a rectal exam to palpate the sacrospinous ligament and mesh band to guide the surgeon's dissection. The video describes the anatomical structures encountered during dissection to the sacrospinous ligament.
Results: A 4 cm long piece of mesh was successfully removed without injury. The patient experienced a 30% improvement in pain following surgery and was able to decrease her dose of daily opioids.
Conclusions: The case represents the feasibility of removal of vaginal mesh by a robotic laparoscopic approach.
Disclosure: No

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Implication of Selenoproteins in the Progression of Interstitial Cystitis

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Introduction: Interstitial Cystitis (IC)/painful bladder syndrome (PBS) is a chronic disease that significantly reduces the quality of life for patients. Previous studies of bladder biopsies from patients with IC revealed changes in the cellular expression of certain biomarkers, however, the etiology of IC/PBS is still not fully understood. Selenoproteins, class of proteins that play a role in inflammatory responses within the body, might also have a role in regulating the chronic inflammation associated with this disease. In this study, we attempt to identify the correlation between inflammatory response genes, including those of selenoproteins, and IC.
Objective: The objective of this analysis is to implicate several selenoprotein genes in the progression of Interstitial Cystitis to determine the inflammatory reaction pathway and the possible role of these proteins. Another objective of our study is to create a searchable database that provides information about expression values of genes in patients with Interstitial Cystitis. This database contains the names of over 50,000 genes and their expression values. Raw data for each gene is generated as well as the average values for IC and control patients, and the Log2 fold change to include up- or downregulation.
Methods: Using a gene expression profile from previous study done on ulcerative cystitis, we analyzed twenty different selenoproteins and their possible involvement in the inflammatory response associated with IC. As a control, known chemical markers of IC (including interleukins and anti-proliferative factors) were also analyzed. We also explored the highly upregulated and downregulated genes to explore novel pathways that might be involved in IC development.
Results: Of the genes studied, five had significant changes in gene expression level, with the upregulation of tRNAU1AP, SEPSECS, SEPH1 and downregulation of in GPX2 and GPX4. Control gene markers like CXCL6 and IL3RA were highly expressed in IC patients and VEGFB and EGFR were downregulated. Interestingly, the SERPINA1 gene, with known associations with pulmonary disease, and BCL2A, which is upregulated by extracellular factors, were the two most highly expressed genes in the patients.
Conclusions: Analysis of the gene expression profile in our study revealed that compared to control and healthy patients, patients with IC have a higher expression of immune system response, cell communication and inflammatory response genes. We also documented that selenoproteins have a significant role in the inflammatory and immune responses to IC. Therefore, we hypothesize that certain selenoproteins may have a notable role in the pathogenesis of IC pathways. Future studies may explore the selenoproteins as a potential target in the treatment of IC.
Disclosure: No

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Quantitative Polymerase Chain Reaction to Identify Common Uropathogens in Urine in a Cohort of Female Urogynecology Patients With and Without Lower Urinary Tract Symptoms

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Introduction: A sizeable number of asymptomatic individuals have bacteriuria on standard cultures, a value that increases with age. Chronic lower urinary tract symptoms (LUTS), such as incontinence, urinary frequency, urgency, and dysuria, overlap with symptoms of urinary tract infection (UTI). Distinguishing infection from asymptomatic bacteriuria co-occurring with a chronic urogenital condition is challenging. Culture-independent molecular diagnostics, including quantitative polymerase chain reaction (qPCR), reveal a breadth of microbial populations in urine not recognized by standard cultures and have high sensitivity in detecting uropathogens. While qPCR is increasingly used in the diagnosis of UTI, data regarding the use of these techniques to distinguish UTI from non-infectious LUTS is limited.
Objective: To assess relative levels of common uropathogens from urine samples in a cohort of uninfected urogynecology patients using qPCR.
Methods: Urine samples from 502 women with and without LUTS were collected. Diagnoses included microscopic hematuria, fibroids, stress urinary incontinence, urge incontinence, pelvic organ prolapse, pelvic pain, and recurrent UTI. Women suspected of having acute cystitis were excluded. qPCR was performed on DNA isolated from urinary cellular material using microbe-specific primers to evaluate relative levels of three common uropathogens, Escherichia coli, Enterococcus species, Klebsiella species, as well as four commensal Lactobacillus species (L. crispatus, L. jensenii, L. gasseri, and L. iners) and Candida albicans. Stringent thresholds were assigned to distinguish a positive from a negative result. Results were stratified by menopausal status and diagnosis to evaluate for differences in urinary microbial profiles related to age or symptoms. Proportions of women with positive results in each category were compared by logistic regression analysis.
Results: For symptomatic women judged by their provider to have a low suspicion of acute cystitis, 18% had elevated levels of urinary E. coli, 69% Enterococcus species, 50% Klebsiella species, and 31% C. albicans by qPCR. Except for decreased L. crispatus in subjects with recurrent UTI, no differences in the quantities or rates of positivity were observed between controls, patients with LUTS, and subjects with recurrent UTI for the evaluated taxa. Significant differences in the

amounts of urinary E. coli, Enterococcus species, Lactobacillus crispatus, Lactobacillus jensenii, and Lactobacillus iners were observed when stratified by menopausal status, with postmenopausal women having higher amounts of E. coli (p=0.023) and Enterococcus (p=0.002), and lower amounts of Lactobacillus species (p<0.001) compared to pre- and peri-menopausal women (Table 1).

Conclusions: A clinically significant portion of asymptomatic women and women with symptomatic genitourinary conditions have detectable levels of uropathogens in the urine by qPCR. No qPCR detection threshold was capable of distinguishing recurrent UTI subjects from either asymptomatic controls or patients with LUTS (Figure 1). Differences in detection frequencies were observed based on menopausal status, with postmenopausal women having higher levels of uropathogens and lower levels of commensals than pre- and peri-menopausal women. Providers should exercise caution when using culture-independent molecular tests in women without a high suspicion for acute cystitis. Given the high rates of detection in both asymptomatic women and women with chronic LUTS, testing carries a high risk of UTI overdiagnosis and antibiotic overuse.

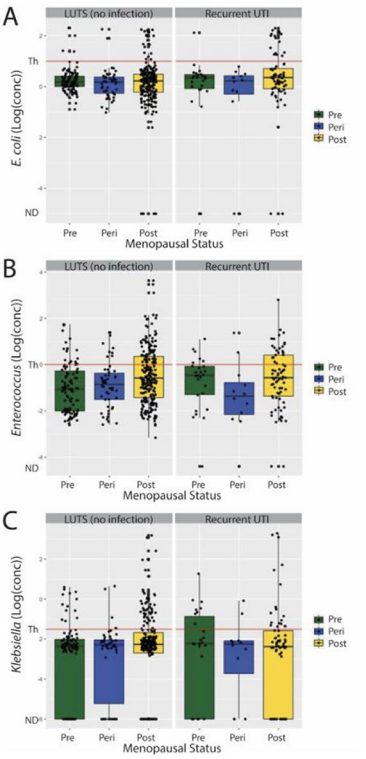
Disclosure: No

Images:

Table 1. Proportions of positive quantitative PCR results for *E. coli, Enterococcus* species, *Klebsiella* species, *Candida albicans,* and *Lactobacillus* species (*L. crispatus, L. gasseri, L. jensenii,* and *L. iners*) stratified by menopausal status from a cohort of 502 female urogynecology patients with and without LUTS. Menopausal differences were compared using logistic regression analysis. SMD: standard mean difference.

	Menopausal status				
	Pre	Peri	Post		
n	127	62	313	P value	SMD
E. Coli	0.04	0.03	0.11	p=0.023	0.195
Enterococcus species	0.20	0.16	0.33	p=0.002	0.264
Klebsiella species	0.17	0.11	0.22	p=0.082	0.199
Candida albicans	0.10	0.08	0.13	p=0.391	0.115
Lactobacillus crispatus	0.44	0.31	0.17	p<0.001	0.412
Lactobacillus gasseri	0.23	0.11	0.19	p=0.160	0.206
Lactobacillus jensenii	0.30	0.15	0.08	p<0.001	0.388
Lactobacillus iners	0.28	0.27	0.07	p<0.001	0.366

Figure 1. Box and whisker plots of the relative levels of three uropathogens, *E. coli, Enterococcus* species, and *Klebsiella* species, in women with LUTS (no infection) and recurrent UTI by menopausal status (pre-, peri-, and postmenopausal). The red line represents the threshold to distinguish between a positive and negative qPCR result.



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Comparing the Urinary Microbiome in Women with Urgency Urinary Incontinence and Well-Matched Controls

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Introduction: Several studies suggest that alterations in the typical urinary microbiome (i.e., "urobiome") are associated with urgency urinary incontinence (UUI). However, many of these studies fail to comprehensively control for clinical variables (e.g., age, menopausal status, history of recurrent urinary tract infections, insulin resistance) that could potentially confound observed associations.

Objective: To re-assess associations between the urobiome and UUI in a population of well-phenotyped women with UUI and matched controls.

Methods: Women with idiopathic UUI (defined as >3 UUI episodes per week, confirmed with validated questionnaires), and matched controls without incontinence were recruited for a translational research study. Insulin resistance was assessed via medical history, serum Hemoglobin A1C, and Homeostatic Model Assessment for Insulin Resistance [HOMA-IR]. Catheterized urine samples, microbe-free water (negative control), and serial dilutions of a mock microbial community (ZymoBIOMICS Microbial Community Standard, positive control) underwent DNA extraction with the DNeasy Blood and Tissue Kit (QIAGEN). Genomic DNA was submitted for 16S rRNA gene sequencing via PCR amplification of the V4 hypervariable region with Illumina MiSeq. Sequences were processed into amplicon sequence variants (ASVs) with a DADA2 pipeline and assigned taxonomy with BLCA using the 16S rRNA gene collection from NCBI as a reference database. Potential contaminant ASVs were identified using decontam; further visualization and comparisons of microbial data between groups were performed in R with the microshades, phyloseq, and vegan packages. Unifrac distances were calculated to summarize microbial compositions. Unifrac distances were compared between groups using permutational multivariate analysis of variance (PERMANOVA) while incorporating clinical covariates (e.g., age, race, BMI, smoking, OABq score, history of recurrent UTI, menopausal status, sexual activity, Charlson Comorbidity Index (CCI), and HOMA-IR)

Results: A total of 83 women (54 with UUI, 29 without) were included. Most baseline characteristics were not significantly different between the groups, however women with UUI had significantly higher BMI and bladder symptom severity (assessed with OABq, Table 1). Recovered microbial taxa were evaluated at the species and genus level (Figure); overall patterns were not substantially different between UUI and non-UUI groups nor were alpha diversity indices. In PERMANOVA analyses when controlling for covariates there were no significant differences in microbial compositions between UUI and non-UUI groups, though multiple covariates remained associated with microbial composition (Table 2). Trends towards group differences were noted in a reduced model when we did not control for insulin resistance.

Conclusions: Associations between the urobiome and UUI are complex, particularly because UUI is more common in populations who are older, more likely to be menopausal, with higher BMI, and with insulin resistance. Contrary to prior reports, we did not identify differences in the urobiome between well-phenotyped women with UUI and matched controls. Trends towards differences are seen in reduced

models when a covariate indicating insulin resistance is removed. This illustrates the importance of incorporating multiple clinical covariates when assessing relationships between the urobiome and urologic conditions.

Disclosure: No

Images:

Table 1. Baseline characteristics stratified by treatment group.

	Non-UUI (n= 29)	UUI (n= 54)	P-Value
Age	56.0±16.8	58.4±12.2	0.45^
Hemoglobin A1C	5.9±0.9	5.8±0.9	0.86^
Insulin Resistance ɬ	13 (32.5)	27 (67.5)	0.88*
HOMA-IR ratio#	2.5±2.5	3.1±4.1	0.50
Menopausal Status			0.27*
Pre- and peri-menopausal	9 (31.0)	14 (25.9)	
Post-menopausal on estrogen	9 (31.0)	10 (18.5)	
Post-menopausal without estrogen	11 (37.9)	30 (55.6)	
Race&			0.57*
American Indian or Alaskan Native	0 (0.0)	1 (1.9)	
Black	6 (20.7)	18 (33.3)	
Native Hawaiian or Pacific Islander	0 (0.0)	1 (1.9)	
Other	0 (0.0)	1 (1.9)	
White	22 (75.9)	33 (61.1)	
Latina ethnicity	1 (3.4)	0 (0.0)	0.30*
Body Mass Index (BMI)	29.5±7.5	33.7±7.6	**0.02^**
History of recurrent UTI&	1 (11.1)	8 (88.9)	0.11*
OABq Symptom Severity score	10.7 ± 6.2	23.0 ± 7.2	**<0.01^**
Sexually active	12 (41.4)	22 (40.7)	0.38
Charlson Comorbidity Index (CCI)	0.2±0.6	0.4±0.9	0.34^
Current Smoker	2 (6.9)	3 (5.6)	0.81*

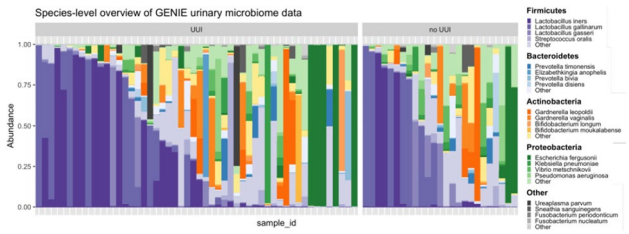
ɬ defined by HgB A1c > 5.7% or medical history
#Homeostatic Model Assessment for Insulin Resistance (HOMA-IR) ratio calculated from fasting serum insulin and glucose (n = 79 for this variable; 4 with UUI did not provide fasting blood)
&based on patient self-report
Continuous variables displayed as mean ± SD; ^p-value by t-test
Categorical variables displayed as N (%); *p-value by chi-square

Table 2. Comparison of microbial compositions

Main model with all covariates	
Variable	P-Value
UUI vs. no UUI	0.127
Age	**0.068•**
Race	0.889
BMI	**0.012***
OABq score	0.861
Current smoker	0.889
H/o recurrent UTI	0.428
Menopausal Status	**0.018***
Sexually Active	0.591
CCI	0.104
HOMA-IR ratio	**0.047***

Reduced model with insulin resistance covariate removed	
Variable	P-Value
UUI vs. no UUI	**0.087•**
Age	**0.064•**
Race	0.993
BMI	**0.005***
OABq score	0.947
Current smoker	0.538
H/o recurrent UTI	0.296
Menopausal Status	**0.022***
Sexually Active	0.537
CCI	0.141

Microbial composition estimated by Unifrac distance; Unifrac distances compared using PERMANOVA while incorporating clinical covariates as noted
•Significance threshold p <0.1; *Significance threshold p <0.05



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Concordance of Urinary Microbiota Detected by 16S rRNA Amplicon Sequencing Versus Expanded Quantitative Urine Culture

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Introduction: Multiple techniques exist for characterizing the urinary microbiome. Two commonly used methods include expanded quantitative urine culture (EQUC) and 16S rRNA amplicon sequencing (16S sequencing). Even with enhanced techniques, culture-based methods may still fail to detect several organisms that are difficult to grow. Sequencing methods also have limitations, such as failure to identify organisms with thick cell walls (e.g. Gram positive bacteria) due to inefficient cytolysis.

Objective: Given that each method of detecting the urobiome may present intrinsic biases toward which organisms are detected, we aimed to assess how the results from EQUC and 16S sequencing compared when both methods were performed on the same samples.

Methods: Catheterized urine samples were collected from menopausal women using vaginal estrogen at one institution from 12/2017-3/2019. Women with active UTI were excluded. Urine samples were immediately divided; one portion was sent for EQUC in the clinical microbiology laboratory using a published protocol. A separate portion was placed into a nucleic acid protectant (Assay Assure□) prior to DNA extraction with the DNeasy Blood and Tissue Kit (QIAGEN, Germantown, Maryland, USA). DNA was submitted for library preparation and 16S sequencing via PCR amplification of the V4 hypervariable region with Illumina MiSeq. Raw sequences were processed into amplicon sequence variants (ASVs) with a DADA2 pipeline (v 1.14.0) and mapped to the SILVA reference database (v 132) using the RDP classifier. Decontam (v 1.2.1) was used to identify potential contaminant ASVs. Data were further processed and visualized in R using phyloseq (v. 1.26.1). At the family level, we assessed the concordance of microbiota identified from EQUC and 16S sequencing.

Results: 59 specimens were analyzed with both methods. A total of 403 organisms were identified and assigned taxonomy at the family level across all samples (Figure 1). EQUC and 16S sequencing identified concordant organisms from the same sample on 61/403 occasions (15.1%). Within each sample, discordant organisms were also detected between methods - 16S sequencing identified 322 (79.9%) organisms that were not identified by EQUC and EQUC identified 20 (5.0%) not identified by 16S sequencing. The families Lactobacillaceae

and Streptococcaceae had the highest concordance between EQUC and 16S sequencing, at approximately 50% concordant. In general, 16S sequencing identified more organisms than seen in culture. However, a few families were only identified in culture. This included one Gram negative (Morganellaceae) and multiple Gram-positive bacteria (Peptoniphilaceae, Leuconocostaceae, Enterococcaceae, Corynebacteriaceae). In addition, one yeast (Saccharomycetaceae) and one fungal organism (Trichocomaceae) were only identified via EQUC (Figure 1).
Conclusions: We present a novel analysis comparing EQUC and 16S sequencing data from the same specimens. 16S sequencing identified far more organisms in most samples, which is consistent with the known increased sensitivity of this method. The highest degree of observed concordance was approximately 50%, which highlights the limitations of culture-based methods to identify urinary microbiota. Conversely, there were a few bacterial, yeast, and fungal families only identified using EQUC. As such, scientists may need to consider additional methods of accounting for biases in the urobiome based on the identification method that is applied.
Disclosure: No
Images:

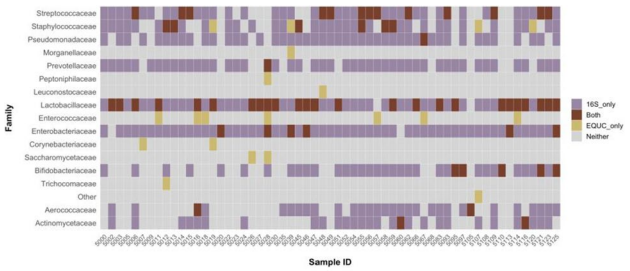

Figure 1. Correlation of expanded quantitative urine culture (EQUC) and 16S rRNA amplicon sequencing results. This figure depicts families of organisms that were recovered on expanded quantitative urine culture (EQUC) and 16S rRNA amplicon sequencing within each sample. Organisms are depicted in the rows and samples are depicted in columns. The colored bars denote whether each organism was recovered through 16S rRNA amplicon sequencing only (purple), EQUC only (yellow), both methods (red), or neither method (gray).

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Longitudinal Study Assessing the Effects of Methenamine Hippurate on the Urinary Microbiome of Postmenopausal Women with Recurrent UTI

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Introduction: Postmenopausal women with recurrent urinary tract infections (RUTI) are repeatedly exposed to antibiotics and therefore at risk for colonization by multi-drug resistant organisms. Methenamine hippurate (MH) is FDA-approved for the prevention of RUTI; however, the mechanism of action of MH or, more specifically, the role of MH in the alteration of the urobiome is not known. Since preliminary data has shown that MH may be effective against some bacteria (e.g., Escherichia coli), but not others (e.g., Enterococcus faecalis), we hypothesize that resident bladder microbiota will be altered by administration of MH.
Objective: Our objective is to determine the longitudinal effect of MH on the urobiome of postmenopausal women with RUTI.
Methods: A longitudinal study with a convenient sample of 10 postmenopausal women with a clinical history of RUTI was conducted (Figure 1). UDI6 questionnaires, voided urine, catheterized urine, and peri-urethral swabs were obtained at baseline and three months after daily MH use. Expanded quantitative urine culture (EQUC) was performed on these specimens. In addition, during the 3-month timeframe, four self-collection windows were completed (windows A-D): (A) prior to initiating MH (baseline urobiome), (B) one week after starting MH, (C) two weeks before the 3-month follow-up, and (D) one week before the 3-month follow-up. Voided urine and peri-urethral swabs were collected daily for one week during windows A-D to determine how the urobiome changed. Sequencing of samples from these collection windows is pending.
Results: Ten participants enrolled; however, three participants were not able to complete the study due to allergic reaction, improper handling of samples, and COVID infection. Six participants have completed the study; microbiological studies for one participant are still in process. There were no episodes of acute cystitis for any participant during the length of the study. UDI6 results suggested a trend towards a decrease in frequency, leakage with urgency, and abdominal pain; however, none of these were statistically significant (Table 1). Of the six remaining participants, the average baseline urine pH was 5.8 ±0.8. For the completed participants, an initial microbiological comparison of EQUC results at baseline and 3-month visits show differences in sample diversity. Specifically, the number of species detected (richness) in catheterized urine increased for all but one participant (Figures 2A and 2B) though there was little or no changes in overall diversity (Shannon Index, Figure 2B) or evenness (Pielou's Index, Figure 2C) for any sample type. Exposure to MH did not result in the loss of uropathogenic species present in catheterized urine at baseline; instead, additional uropathogenic and commensal microbiota were detected at the 3-month visit.
Conclusions: UDI6 trended towards symptom improvement in frequency, urge incontinence, and pain, consistent with RUTI prevention and symptoms control. Microbiological results suggest that MH increases the richness of the bladder urobiome. This consistent trend suggests MH may reduce RUTI events by altering the urobiome community richness instead of eliminating uropathogenic microbiota from the bladder. Further studies are needed to understand the interaction between MH and a host that is susceptible to uropathogen overgrowth.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Cooper Surgical
Images:

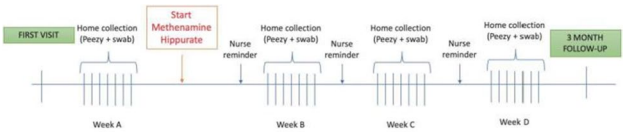

Figure 1. Schematic representation of study timeline, specifying the times of urine collection for each participant. Each participant provided a periurethral swab, a voided specimen, and a catheterized urine specimen collected during the initial and the 3-month visits. During each 7-day window, a periurethral swab and a voided specimen were collected at home. This allowed for longitudinal phenotyping of the participant's urobiome before and during MH treatment.

	Baseline (mean, n=6)	3-month follow-up (mean, n=6)	Mean Difference in Symptom Change from Baseline
Frequent urination	2.33	1.00	-1.33
Leakage due to urgency	2.67	1.83	-0.83
Leakage due to coughing, sneezing, or laughing	2.50	2.50	0
Small amounts of urine leakage	2.17	2.17	0
Difficulty emptying bladder	0.50	1.17	+0.67
Abdominal pain	1.33	0	-2.83
UDI6 Calculated Score	**47.92**	**36.11**	**-11.81**

Table 1. UDI6 questionnaires at baseline and 3-month. Mean Difference in symptom change from baseline were calculated for the participants who had completed the study (n=6).

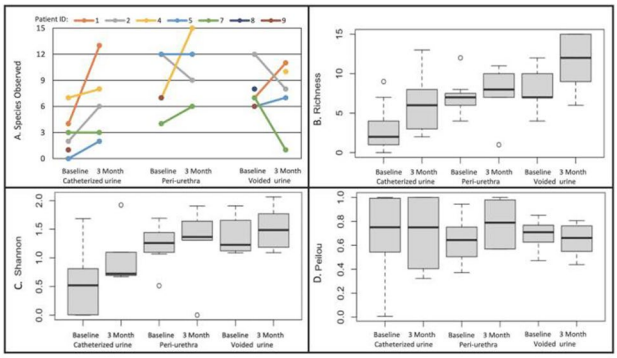

Figure 2. Microbiological analysis of samples at baseline and at 3-month visit. Alpha diversity metrics (y-axes) were used to assess the change in community structure within samples at each time point (x-axes). A) The number of species detected (x-axis) was quantified for each sample at each timepoint. Lines connect a participant's data at each timepoint. B, C & D) Boxplots displaying the median (black line) and interquartile range (gray box) for each diversity metric (y-axes) between samples at each timepoint (x-axes). Diversity metrics displayed are (B) richness, or the number of species present; (C) Shannon index, or total alpha diversity; (D) Pielou index, or measure of evenness, a comparison of the abundance of each species.

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Randomized Trial on Expectations and Pain Control Advancement in Surgery: The REPAIR Study

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Introduction: Opioid use disorder is an epidemic directly related to providers' narcotic prescribing practices. Limiting post-operative pain management to the fewest necessary pills following urogynecologic procedures can help curb misuse by reducing opioid medications available in communities.

Objective: The objective of this study was to assess the impact of 1) patient-centered pre-operative education and 2) shared decision-making in determining amount of post-operative narcotics prescribed on outpatient narcotic consumption in women undergoing pelvic floor surgery.

Methods: Women undergoing pelvic floor surgery were randomized to pre-operative education delivered via a "standard" video (content determined by provider consensus based on current practices) or "patient-centered" video (content determined by patient focus-groups, including patient recommendations regarding pain management). The "standard" group received 225 morphine milligram equivalents (MME) for major surgery or 90 MME for minor surgery at hospital discharge (equivalent to 30 oxycodone pills for major and 12 for minor surgery) and the "patient-centered" group chose the amount of narcotics (ranging from 0-30 oxycodone pills for major and 0-12 for minor surgery). The primary outcome was outpatient opioid consumption within 2 weeks of surgery. Secondary outcomes included opioids prescribed at discharge and number of unused narcotics within 2 weeks of surgery. Opioid consumption was determined by pill counts and translated into MME (presented as equivalent number of oxycodone pills for ease of understanding). Both Spanish and English-speaking women were enrolled as the videos were available in both languages. An intent-to-treat analysis with bivariate and multivariate regression models was performed. Chi-square and Fisher's exact tests were used for categorical variables, while t-tests and Wilcoxon-Mann-Whitney tests were used for continuous variables.

Results: The study enrolled 174 women between September 2019 and October 2021. A total of 154 patients completed the primary outcome (89% of those enrolled) and were included in analysis. Of those, 78 were randomized to standard pre-op education and 76 to patient-centered pre-op education. There were no differences between groups' demographic characteristics (Table 1). The patient-centered group undergoing major surgery had a median of 20 pills prescribed at discharge (IQR 10, 30) while those undergoing minor surgery had a median of 12 pills (IQR 6, 12). The patient-centered group had fewer unused narcotic pills (median difference of 9 pills, 95% CI 5 to 13, p<0.001, Table 2). There was no between group difference in the median number of pills taken (0, 95% CI 0 to 1, p=0.627). With multivariate modeling to adjust for confounders, there was no difference between groups for the number of pills taken within 2 weeks of surgery.

Conclusions: In this study, patient-centered preoperative education did not decrease narcotic consumption at 2 weeks postoperatively compared to the standard preoperative education. However, shared decision-making for narcotic prescribing did decrease the number of unused narcotic pills following pelvic floor surgery. With limited literature specific to narcotic consumption following urogynecologic surgery, this study shows that aligning patient and surgeon goals preoperatively with patient-centered education may blunt the impact of unused narcotics on the community and the opioid epidemic.

Disclosure: No

Images:

Demographic Variable	Intervention Group	Standard Group	P value
Age	53 ±13	55 ±13	0.382
Race			0.180
American Indian/Alaska Native	7 (9%)	11 (14%)	
Hispanic/Latino	36 (47%)	27 (35%)	
White/Caucasian	33 (43%)	35 (45%)	
Other/Multiple	1 (1%)	5 (6%)	
Income			0.740
≤$50,000	37 (52%)	34 (48%)	
>$50,000	41 (55%)	33 (45%)	
Education			0.375
Less than high school, or unknown	1 (1%)	3 (4%)	
Completed high school or GED	47 (62%)	41 (53%)	
Graduated college	28 (37%)	34 (44%)	
Used opioids within 3 months of surgery: Yes	4 (5%)	5 (6%)	1.00
Has a chronic pain diagnosis: Yes	19 (25%)	19 (24%)	1.00
Substance abuse history: Yes	5 (6%)	4 (5%)	1.00
Surgery type			0.490
Major	51 (66%)	56 (72%)	
Minor	25 (34%)	22 (28%)	
Surgery stay			0.614
Inpatient	49 (64%)	53 (68%)	
Outpatient	27 (36%)	25 (32%	

Table 1. Participant Characteristics

Outcome	Intervention Group	Standard Group	P value	Hodges-Lehmann estimate of effect size and 95% CI
Pills taken at 2wks:	2 (0, 9.75)	3.5 (0, 8.25)	0.627	0 (0, 1)
Major surgery	2 (0,12)	4.5 (0, 11.75)	0.599	0 (-1, 3)
Minor surgery	2 (0, 5.5)	0.5 (0, 8)	0.780	9 (-2, 1)
# of unused pills at 2 weeks postoperative	9.5 (4.25, 15)	22 (11.75, 29)	0.001	9 (5, 13)
Total MME at 2 weeks postoperative	15 (0, 75)	22.5 (0, 60)	0.819	0 (-7.5, 7.5)
MME per day at 2 weeks postoperative	7.5 (0, 11.8)	7.5 (0, 13)	0.836	0 (-0.4, 1.7)

Table 2. Median number of MME and narcotic pills consumed within 2 weeks postoperatively between groups.

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Healing After Pregnancy: Assessing the Impact of an Educational Video on Knowledge of Pelvic Floor Disorders Among Obstetric Patients

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Introduction: Urinary incontinence (UI) and pelvic organ prolapse (POP) are common conditions in parous women. Despite its prevalence, knowledge of pelvic floor disorders remains low in obstetric populations. Video-based education may serve as an accessible platform for counseling.
Objective: To evaluate the impact of an educational video on knowledge of POP and UI in an antenatal patient population
Methods: This is a quality improvement study of English and Spanish speaking pregnant adult females who were recruited at routine antepartum visits. Knowledge on UI and POP was assessed through the validated Prolapse and Incontinence Knowledge Questionnaire (PIKQ), a 24-question survey that includes 12 questions each on UI and POP. Demographic characteristics were collected. Overall scores and knowledge proficiency on the PIKQ were compared before and after watching an original animated educational video on POP and UI, available in English and Spanish. Proficiency for UI knowledge was defined as having a score of ≥ 80% on the PIKQ-UI and ≥50% on the PIKQ-POP for POP. Satisfaction level with the video was also assessed. To estimate the effect of the video upon knowledge, paired t-test and McNemar's test of proportions were used to calculate statistical significance. Images from the videos and QR codes for each video seen in Figure 1.
Results: Forty participants completed the study; 30 watched the video in English and 10 in Spanish. The mean age was 31.2 (SD 5.3) years and mean gestational age 33.9 (SD 5.8) weeks. The mean parity was 1.9 (SD 4.9); 55% had at least one delivery, among whom, 86.4% had previously delivered vaginally. 40% identified as Hispanic or Latina. 82.5% completed at least high school/GED and 57.5% were publicly insured. 25% of participants had symptoms of POP or UI. None had seen a urogynecologist. Prior to watching the video, on the PIKQ, 55% of participants agreed with the statement that "not much can be done" to treat UI and only 52.5% believed surgery to be the only treatment. For POP, 27.5% knew that POP was more common in older women and only 17.5% knew of pessary as a management option. After watching the video, the number of questions answered accurately on the PIKQ for both UI and POP significantly increased (p <0.0001), see Table 1. Among the most significant changes between pre and post-video responses included the increase in percentage of patients who agreed that giving birth many times may lead to UI or POP. Knowledge proficiency significantly increased for both UI and POP; 32.5% and 52.5% had baseline proficiency in UI and POP respectively, versus 75.0% and 97.5% after watching the video. Participants rated the quality of information to be "Good" or "Excellent" on the Client Survey Questionnaire. 97.5% would recommend this video to a friend and 92.5% would watch it again if they were looking for information on POP and UI.
Conclusions: Video education increased antenatal patient knowledge on POP and UI. Education that utilizes virtual platforms may be a beneficial adjunct to peripartum counseling.
Disclosure: No
Images:

Figure 1. Healing After Pregnancy and Curación Después del Embarazo*

*The original videos have been shown to participants in HD format. For the purposes of this submission, names and institutional logos that appear in the original videos have been omitted. Therefore, the quality of the videos obtained from these QR codes is slightly compromised in order to ensure anonymity of the authors and our institution.

Table 1. Prolapse and Incontinence Knowledge Questionnaire – Raw Accuracy and Proficiency

Questionnaire	BEFORE VIDEO N=40	AFTER VIDEO N=40	P-value
PIKQ UI - 12 items			
Mean (SD) raw accuracy*	7.6 (3.1)	10.4 (1.9)	<0.0001
Median (Range)	8 (0 – 12)	11 (5 – 12)	
Proficiency n (%)[a]	13 (32.5)	30 (75.0)	<0.0001
PIKQ POP - 12 items			
Mean (SD) raw accuracy*	5.3 (3.2)	9.8 (2.5)	<0.0001
Median (Range)	6 (0 – 12)	11 (0 – 12)	
Proficiency n (%)[b]	21 (52.5)	39 (97.5)	<0.0001

* Total number of questions answered correctly out of 12.
[a] Assuming proficiency on PIKQ UI is mean score of 80% on all 12 questions
[b] Assuming proficiency on PIKQ POP mean score of 50% on all 12 questions

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Development and Reliability of Urinary Diary Mobile Application

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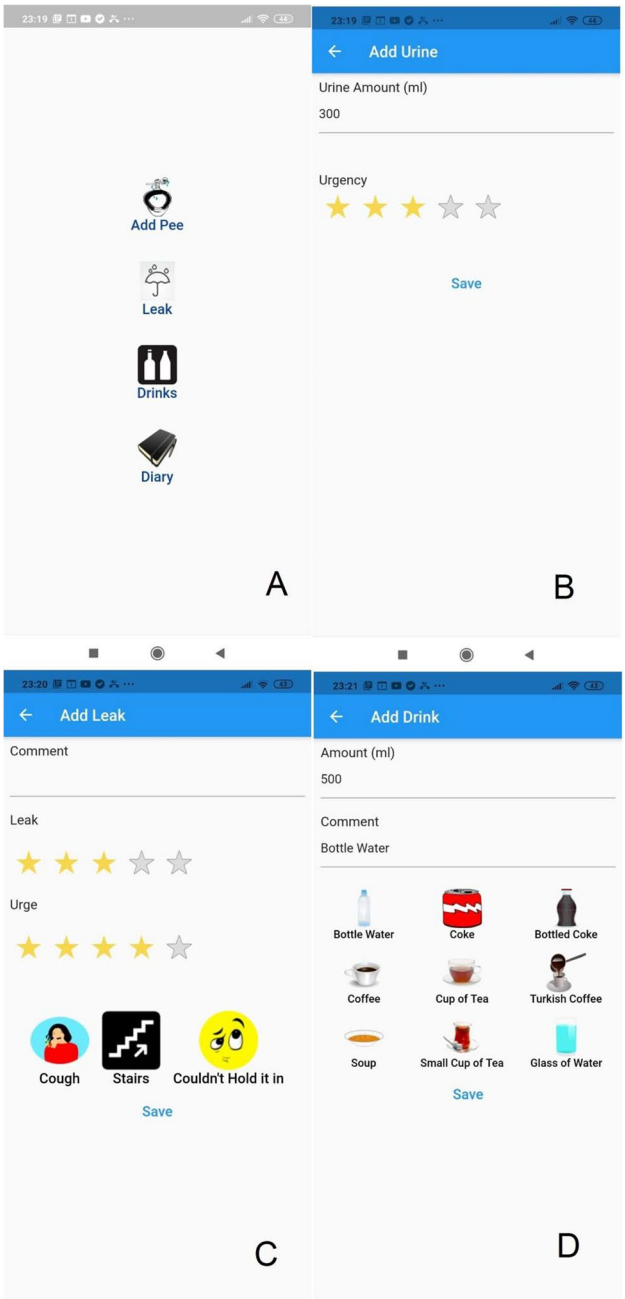
Introduction: Patient-reported outcome measures play a great role in the objective evaluation of lower urinary tract and voiding disorder symptoms. A urinary diary is a daily record of the patient's bladder activity and liquid intake for determining the severity of the problem and need for follow up, and provides an objective documentation of the patient's voiding pattern, episodes of incontinence, and inciting events associated with urinary incontinence. However, traditional pen-and-paper urinary diaries have poor completion rates, inconsistent patterns in data entry, and are deficient in validation. The use of smartphones has steadily increased, with 98% of adults using mobile phones and 77% using smartphones according to the reports for digital usage. People tend to go to the bathroom with their smartphones. According to the results of a website survey of over 2114 people, 80% of men and 69% of women use their smartphones while using the toilet.
Objective: The aim of this study was to develop feasible smartphone urinary diary application (UDA), evaluate reliability and patient acceptability as collection, calculation and sharing tool.
Methods: We developed the UDA for smartphones, which collects voiding, leakage, take fluid, grade of urgency data. The application interface has four icons, representing, voiding, leakage, fluid intake and diary summary (Figure 1). Two way cross sectional study was conducted with 60 participants, participants split into two groups (Figure 2). Thirty partcipants completed UDA for 3 days either preceded or followed by a standard paper diary. We assessed paper app

reliability of the UDA with Kappa variable and internal correlation coefficient (ICC).
Results: Twenty nine (96.6%) participants completed the 3 day UDA in the first phase, 92.6% in second phase, in comparison to 90% and 79.4% in paper form, respectively. Incomplete variable recording was observed 10.3- 20% in UDA group in comparison to 33.3-34.8 % in paper form group. From the 48 participants who experienced both diaries, 40 (83.3%) preferred the UDA. Paper app correlation was good to very good with ICC ranged from 0.60 to 0.90 for all variables ($P < 0.001$). Kappa values for incontinence, stress incontinence, urge incontinence, increased frequency were 0.95, 0.94, 0.82 0.87 and 0.54; respectively ($P < 0.001$).
Conclusions: The performance of developed smartphone UDA is comparable with and highly correlated with paper form with most users finding the app feasible. Convergent validity with urinary incontinence and other lower urinary tract dysfunctions is required.
Disclosure: No
Images:



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Geriatric Patient Receptivity To The Integration Of Telehealth In Urogynecology Care
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Introduction: Several urogynecology conditions can be managed through telehealth visits as this is a combined surgical and medical specialty. However, geriatric patients may experience difficulty using such a modality due to the inherent ageism within the medical system. This manifests in portal developers and providers presuming the elderly's obligatory conformance to what is provided and a limited interest in this population's constraints, thus disregarding their needs when designing the interface as well as forgoing conversations on patient portals with their patients. With the COVID-19 pandemic catalyzing the digitalization of medicine, excluding the needs of this patient population risks impacting their care. Online health portal use must be optimized accordingly to improve access to geriatric urogynecology patients.
Objective: To identify facilitators, concerns, technical or personal issues encountered, and the desired features of the online patient portals among geriatric urogynecology patients.
Methods: This is a cross-sectional study of patients (>=65 years of age) at an academic medical center in Northwest Ohio, where telehealth practices had been well established since early 2020. The data collection occurred between June 1-30, 2021. Two focus groups were conducted with the identified themes used to devise the anonymous survey. The questions addressed comfort with telehealth visits for urogynecology-specific conditions and the practicality of patient portals for physician visits. The promoters and deterrents were compared using the Pearson's Chi-squared test between those comfortable and uncomfortable having telehealth visits for preoperative, postoperative, and medical management.
Results: A total of 205 patients completed the study (91% response rate, 225 surveys distributed). Mean age was 68.9 (SD 4.9) with 81% of participants being Caucasian and 10% being African American. Promoters of patient portal use identified included provider encouragement, enrollment on-site with concurrent education, and clarification of relevance of the telehealth to one's care (Table 1). Patients who were uncomfortable with telehealth use reported anxiety and technical issues as deterrents for using such technology. This included difficulty using the hardware, accessing the portal, and significant input needed to log on. More than half of the patients were comfortable having online visits for preoperative (51.7%), postoperative (66.3%), and medical management (73.7%) (Table 2). Up to 60.5% of the patients believed that telehealth visits were equally stressful as in-person visits, while 24.4% believed that the logistics of in-person visits were the cause of stress. Most of the patients who considered in-person visits stressful reported provider encouragement, enrollment by the hospital, and clarification of benefits as major promoters for portal use. Specific design features such as additional drop-down lists, colors, and icons in addition to an intuitive design were desired. Patients who preferred in-person visits were deterred primarily by technical and privacy concerns, anxiety, and cost of use (Figure 1).
Conclusions: To improve access to care, augment the utilization of online patient portals, and combat ageism, enhancing the geriatric urogynecologic patient portal experience is vital. Investment in this population's needs includes education of patients, active enrollment, engagement by healthcare systems, and addressing technical concerns.
Disclosure: No
Images:

Table 1. Focus Group Identified Geriatric Patient Promoters And Deterrents Of Telehealth Adoption

Promoters
Facilitators
Provider encouragement
Social circle/family encourage use
Enrollment on site with concurrent education
Clarification of benefits with relevance to one's personal care
Features Desired by patients
More videos
Simpler design
More voice commands
More colors (more contrast)
More icons/pictures with less text
Ability to change the size of the icons and text
Ability to send notes to family to assist with comprehension of results or management
Deterrents
Concerns
Cost
Privacy
Technical Issues
Personal Issues Encountered
Anxiety during use
Eye strain/joint pain/other physical effects
Difficulty due to arthritis and finger mobility/joint pain/other physical restrictions
Technical Issues Encountered
Too slow
Text size is too small
Buttons/icons are too small
Difficulty using the hardware
Difficulty accessing the portal
Not easy or intuitive to navigate
Too complicated to get what I need
Unable to print/save/share personal results/documents
Location of the Icons on the screen is not intuitive or easy to use
Significant input needed on login (unable to save username or password)

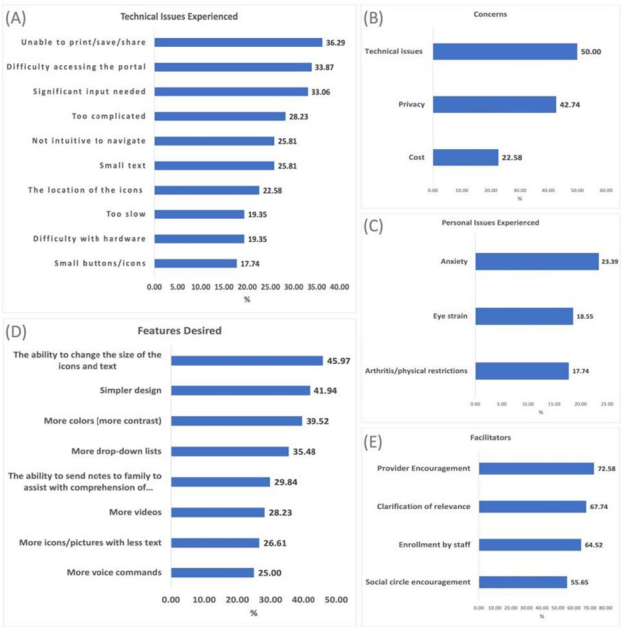
*Considerations are not listed in any specific order

Table 2. Promoters And Deterrents For Consideration of Telehealth In Urogynecologic Medical, Preoperative, And Postoperative Management

Medical Management	Comfortable (N=151) 73.7%	Uncomfortable (N=54) 26.3%	P-value*
Promoters			
Provider encouragement	83.4% (126)	42.6% (23)	<0.001
Enrollment on site with concurrent education	72.8% (110)	57.4% (31)	0.036
Clarification of benefits with relevance to one's personal care	72.8% (110)	57.4% (31)	0.036
Deterrents			
Significant input needed on login	30.5% (46)	50% (27)	0.010
Unable to print/save/share personal results/documents	29.8% (45)	48.1% (26)	0.015
Difficulty accessing the portal	27.8% (42)	44.4% (24)	0.025
Preoperative Visits	Comfortable (N=106) 51.7%	Uncomfortable (N=99) 48.3%	P-value*
Promoters			
Provider encouragement	84.0% (89)	60.6% (60)	<0.001
Clarification of benefits with relevance to one's personal care	76.4 % (81)	60.6% (60)	0.015
More icons/pictures with less text	25.5% (27)	38.4% (38)	0.047
Deterrents			
Significant input needed on login	25.5% (27)	46.5% (46)	0.002
Unable to print/save/share personal results/documents	26.4% (28)	43.4% (43)	0.010
Difficulty accessing the portal	25.5% (27)	39.4% (39)	0.033
Postoperative Visits	Comfortable (N=136) 66.3%	Uncomfortable (N=69) 33.7%	P-value*
Promoters			
Provider encouragement	77.2% (105)	63.8% (44)	0.041
Share results notes with family to assist with management	25.7% (35)	47.8% (33)	0.002
Deterrents			
Significant input needed on login	28.7% (39)	49.3% (34)	0.004
Difficulty accessing the portal	26.5% (36)	43.5% (30)	0.014
Text size is too small	17.6% (24)	37.7% (26)	0.002

* Only the top three statistically significant findings among groups are reported in this table with percentage sorted in descending order relative to promoters in the Comfortable group whereas to deterrents in the Uncomfortable group

Figure 1. Deterrents (A, B, C) And Promoters (D, E) Of Portal Use In Those Who Prefer In-Person Visits



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Implementing Telemedicine in Urogynecology: A Feasibility Study

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Introduction: The use of telemedicine in urogynecology was accelerated in the context of Coronavirus disease (COVID-19) pandemic, since it was considered an opportunity to minimize exposure without sacrificing treatments. Even though it is believed that low-and middle-income countries can benefit more from remote access to health care services, there is no data assessing its usage in this population.
Objective: Evaluate the feasibility of implementing telemedicine, in the context of COVID-19 pandemic, in an urogynecology setting of a middle-income country.
Methods: We included first visits and follow-up appointments of patients who's in-person visits were canceled due to COVID-19 pandemic and that had the diagnose of a condition possible to be followed by telemedicine according to Grimes et al (2020) guide. The appointments were performed between November 2020 and March 2021; Seven to 15 days after, a telephone call was made in order to assess if the patient was able to access the sent documents and to perform a satisfaction questionnaire. The feasibility of telemedicine was evaluated according to the composite outcomes: appointment resolvability, defined as the capacity of the physician to make a clinical decision

based on the data of the appointment and the report from the patient that she felt the physician was able to understand her health-condition; technical feasibility, defined as the quality of the audio/video of the call, length of the appointment inferior to 20 minutes and access to the sent documents; and patient satisfaction, defined as the overall satisfaction and the acceptance to engage with telemedicine in future appointments. The statistical analysis consisted of a description of the variables and a Chi-squared test was performed to evaluate the association between patient's satisfaction with the others feasibility criteria.
Results: From the 225 patients that had their appointment cancelled, 203 were eligible to telemedicine, we were able to contact 171 of them, 83 (48%) agreed to participate and 71 (85.5%) responded to the satisfaction survey. Most of the appointments (92,7%) were made through a telephone call. There were 27 (32,5%) first visits and 31,1% of all the appointments required an in-person visit afterwards. The mean appointment length was 12 minutes (SD: 5.48). The audio was considered adequate in 97.6% of the appointments by the physicians and 91.5% by the participants. From the 47 participants to whom a document was sent, 43 responded to the survey and 60.5% reported being able to access them. The resolvability criterion was met by 73,2% of the appointments, 78,9% were technically feasible and 57.7% of the patients were satisfied with telemedicine. There was no significant statistical association between the patient satisfaction with the appointment resolvability (p = 0,494) nor with the technical feasibility (p=0,494).
Conclusions: In spite of the potential benefits of telemedicine, this form of care still finds barriers to its implementation. The main difficulties found include technological resources and the patient acceptance to engage in this form of care. We believe telemedicine is feasible and should be implemented to this population, but actions to support patient's preferences and improve acceptance are needed.
Disclosure: No
Images:

Table 1 – Association between patient satisfaction and the other feasibility criteria (n=71)

	Satisfied	Unsatisfied	p-value*
Resolvability			0,1701
Resolvable	27	25	
Unresolvable	14	5	
Technical feasebility			0,494
Feasible	34	22	
Unfeasible	7	8	

*Bilateral chi-square test

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Structural Failure Sites in Anterior Wall Prolapse: Validation of Correlated Apical, Paravaginal, and Hiatal Impairments in a Prospective Cohort

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Introduction: Historically, study of prolapse has focused on what fell (e.g., anterior wall), but now it is possible to identify specific failure sites responsible for the fallen structure in individual women. Cystocele, or anterior vaginal wall prolapse, has been shown to be associated with several failures: apical and paravaginal location, vaginal length and width, and urogenital hiatus size in patterns unique to each woman. A prior pilot study (see ref.) comparing women with cystocele and normal controls using three-dimensional magnetic resonance imaging (MRI), showed that apical location, paravaginal location, and urogenital hiatus size were the predominant failure sites and correlated with one another. Vaginal width did not differ between patients with and without prolapse. However, due to technical challenges at the protocol development phase, many subjects had to be excluded from the pilot study resulting in a small sample size (n=30) and possible selection bias.
Objective: To identify structural site failure in a larger, prospective cohort of women with cystocele undergoing high- resolution stress 3D MRI.
Methods: A prospective cohort of fifty-three women with anterior vaginal wall-predominant prolapse who had undergone stress 3D MRI at maximal Valsalva were compared to thirty women without prolapse (controls) from prior studies with similar protocols (see ref.). The anterior vaginal wall length and width (at four equally spaced along vaginal axis), apex and paravaginal locations relative to the Pelvic Inclination Coordinate System (PICS), and urogenital hiatus diameter were measured (Figure 1). Clinical characteristics were compared using the Wilcoxon rank-sum test. Spearman correlation coefficients were calculated to assess bivariate relationships. A p-value <0.05 was considered statistically significant.
Results: Subject clinical characteristics are shown in Table 1. Measurement comparisons between groups are shown in Figure 1. Vaginal length was 57% longer in women with prolapse compared to controls (p<0.01). Similarly, vaginal width was 15-58% greater in women with prolapse compared to controls, with larger differences observed among vaginal segments closer to the urethrovesical junction. On average, patients with prolapse had a 33.5 cm lower vaginal apex and 21.5 cm lower paravaginal locations (p<0.01 for all) compared to controls. Hiatal diameter was 88% greater in women with prolapse compared to controls (p<0.01). Bivariate correlations between structural failure sites are shown in Figure 2. Paravaginal location, apex location, and hiatus size (the collinear triad) were highly correlated to each other with the correlation coefficient ranging from 0.81 to 0.84 (p<0.01 for all). Moderate correlations were observed between vaginal length and hiatal diameter (R=0.63, p<0.01), and prolapse size (R=0.61, p<0.01). Vaginal width was weakly correlated with other structural supports (R<0.6, p<0.01 for all).
Conclusions: We have confirmed the primary causes of cystocele (apical and paravaginal descent and enlarged hiatus size) and their collinearity in an independent prospective and larger cohort of women. These causes are strongly predictive of prolapse presence and size among subjects with cystocele. Contrary to prior findings in less severe prolapse, we found a difference in vaginal width between patients with and without prolapse and a positive correlation between vaginal width and other factors, although this correlation was weak. Ref: Obstet Gynecol. 2016;128(4):853-862.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Cosm Medical
Images:

Table 1. Clinical characteristics between control and prolapse groups.

Demographics	Control (n=30)	Anterior Wall Prolapse (n=53)	*p*-value
Age (y)	57.2 (54.6-62.1)	63.2 (59.8-69.4)	<0.01
BMI (kg/m^2)	26.9 (24.4-30.5)	24.8 (23.1-28.7)	0.19
Parity	3.0 (2.0-4.0)	3.0 (2.0-4.0)	0.50
POP-Q			
Aa (cm)	-2.0 (-3.0 to -1.0)	1.0 (0.0 to 2.5)	<0.01
Ba (cm)	-2.0 (-3.0 to -1.0)	3.0 (2.5 to 4.0)	<0.01
C (cm)	-7.0 (-8.0 to -6.0)	-2.0 (-3.5 to 3.0)	<0.01
D (cm)	-9.0 (-10.0 to -8.0)	-6.0 (-7.2 to -5.0)	<0.01
Ap (cm)	-2.0 (-3.0 to -2.0)	-2.0 (-2.0 to -1.0)	<0.01
Bp (cm)	-2.0 (-3.0 to -2.0)	-2.0 (-2.0 to -1.0)	<0.01

BMI = body mass index; POP-Q = pelvic organ prolapse quantification. Data are presented as median (IQR).

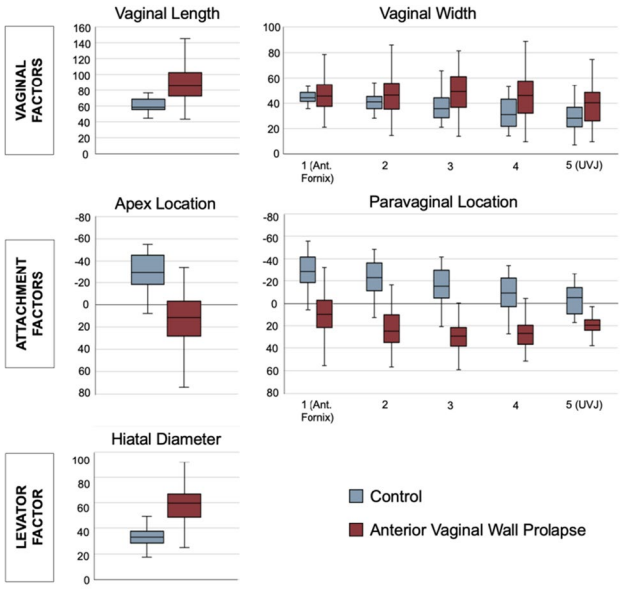

Figure 1. Comparison of vaginal factors (top row), attachment factors (middle row), and levator factors (bottom row) by control and anterior vaginal wall prolapse groups. All *y*-axis measurements are in millimeters. Apex and paravaginal locations are in reference to the inferior pubic point, with more positive values indicating further pelvic descent. All measurements were statistically significant between groups ($p < .01$ for all).

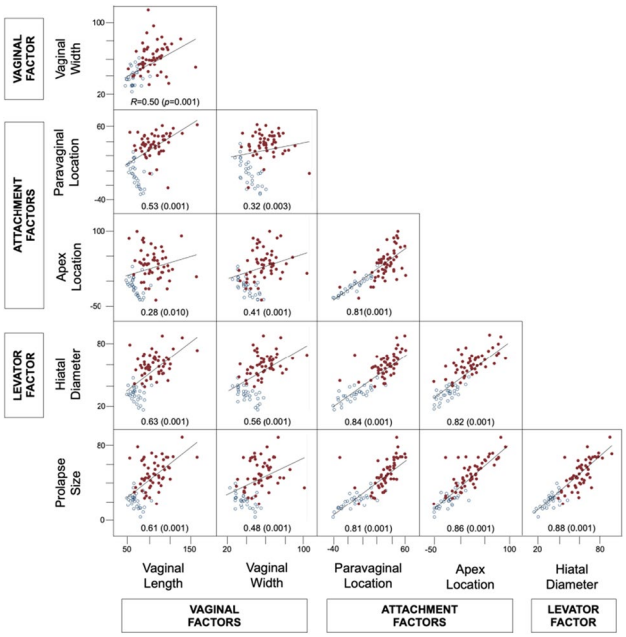

Figure 2. Bivariate scatterplots for each support factor among subjects with prolapse (filled red dots) and controls (open blue dots). Note that paravaginal location, apex location, and hiatal diameter (the "collinear triad") are all highly correlated. The collinear triad is also highly correlated with prolapse size.

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Predictors of Persistent Overactive Bladder Following Surgery for Advanced Pelvic Organ Prolapse

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4 - University of Insubria

Introduction: Overactive bladder (OAB) and pelvic organ prolapse (POP) are widely prevalent conditions: up to 88% of POP patients

present with OAB. One of the motivations for POP repair is to resolve OAB symptoms. Urgency has been shown to improve following POP surgery in about 50-85% of cases. Nevertheless, persistent OAB following POP repair is common. Studies seeking to determine clear predictors of OAB outcome following POP surgery have yielded conflicting results. There are still no reliable preoperative parameters to adequately predict patients at risk for persistent OAB and evidence regarding the role of pre-operative urodynamic in this regard is scarce.

Objective: The aim of this study is to assess which peri-operative variables are associated with persistent OAB following POP surgery for POP stage 3-4.

Methods: The study includes analysis of women suffering from combined POP stage 3-4 along with OAB who underwent surgery from November 2012 to December 2020. Pre-operative evaluation included targeted pelvic floor symptom history, prolapse staging according to POP-Q, and multi-channel urodynamic studies. UDI-6 questionnaire was also completed by all women who are literate and data was analyzed. Surgical procedures included: anterior and posterior colporrhaphy, sacrospinous ligament suspension, single-incision mesh repair with Anterior Elevate™, robotic-assisted laparoscopic sacrocolpopexy. At the 12-month follow-up, pelvic floor symptom history was repeated, POP-Q evaluation and cough stress test were carried out and the UDI-6 questionnaire was administered. For statistical analysis, continuous variables were reported as median and interquartile range (IQR). Student's t test and the Mann–Whitney rank sum test were performed to compare continuous parametric and non-parametric variables, as appropriate. Categorical variables were analyzed using the Chi-squared test. Multiple logistic regression was performed to identify factors involved in the risk of persistence of postoperative OAB symptoms. The multivariate model included those variables that achieve significance ($p<0.05$) or association ($p\leq0.10$) in the univariate analysis. Statistical significance was considered achieved when $p < 0.05$.

Results: One hundred-seventy-three patients were identified. Resolution of urgency was observed in 56% of women following surgery. Demographic data (Table 1) were similar between groups but for a higher body mass index (BMI) in women with persistent urgency (27 kg/m2 vs 25.7 kg/m2, p=0.04). Pre-operative increased daytime frequency and urgency urinary incontinence (UUI), detrusor overactivity (DO), and lower maximum flow rate during voiding cystometry (13.9 ml/sec vs 15 ml/sec, p=0.04) were associated with persistent post-operative urgency. Multivariate analysis confirmed the following predictive risk factor for persistence of OAB symptoms: preoperative DO (OR: 12.2 [95%CI: 1.4-16.6]; p 0.01), preoperative UUI (OR 3.8 [95%CI: 1.3-11.0]; p 0.008) and BMI > 25 kg/m2 (OR 1.8 [95%CI: 1.1-7.2]; p 0.04).

Conclusions: In women with advanced POP, we have found BMI>25 kg/m2, pre-operative UUI and DO to be predictors of persistent OAB following POP surgery. Our findings suggest that overweight women with more severe urgency are at risk for post-operative persistent OAB. According to our findings, urodynamic testing indicating DO is an important tool for setting surgery expectations in this group of patients.

Disclosure: No

Images:

Table 1- Demographic and perioperative data in women with post-operative persistent and with resolved urinary urgency.

Characteristics	Resolution of urgency (n=97)	Persistence of urgency (n=76)	*p*-value
MCC, median (IQR)	532 (432.5-704.5)	500 (400.5-634)	0.15
Voided volume, median (IQR)	424 (306.5-530.5)	391 (249.5-496)	0.17
Age, yrs, median (IQR)	65 (57.5-70)	64 (58-70)	0.89
BMI, kg/m^2, median (IQR)	**25.7 (23.2-28.0)**	**27.0 (24.2-31.1)**	**0.04**
Diabetes (%)	27 (27.83)	26(34.21)	0.40
Smoking (%)	9 (9.28)	9 (11.84)	0.62
Constipation (%)	24 (24.74)	21 (27.63)	0.72
Previous UI surgery (%)	4 (4.12)	8 (10.52)	0.13
Previous POP surgery (%)	14 (14.43)	9 (11.84)	0.66
Q max, median (IQR)	**15 (10.7- 22.8)**	**13.9 (8.1-18.7)**	**0.04**
BOOIF*, median (IQR)	0.5 (-26.1- 18.69)	-2.6 (18.5-21.8)	0.27
BVE§, median (IQR)	72.9 (46.3-98.2)	68.6 (52.4-94.3)	0.83
BCI #, median (IQR)	108.5 (92.2-139.7)	97.8 (83.8-130.5)	0.10
PDET QMAX, median (IQR)	34 (20.8-50)	31 (21.6-41.5)	0.65
Ant. colporrhaphy, n (%)	46 (47.42)	36 (47.37)	1.0
Post. colporrhaphy, n (%)	25 (25.77)	13 (17.1)	0.2
Anterior Elevate, n (%)	8 (8.25)	7 (9.21)	1.0
Vag Hyst, n (%)	52 (53.61)	47 (61.84)	0.28
TOT-TVT, n (%)	55 (56.7)	42 (55.26)	0.87
SSF, n (%)	49 (50.52)	45 (59.21)	0.28
Robotic SCP, n (%)	13 (13.4)	16 (21.05)	0.22
POP symptoms post op, n (%)	6 (6.19)	9 (11.84)	0.27
Frequency pre, n (%)	**45 (46.39)**	**47 (61.84)**	**0.05**
Nocturia pre, n (%)	54 (55.67)	49 (64.47)	0.27
UUI pre, n (%)	**50 (51.46)**	**61 (80.26)**	**0.0001**
SUI pre, n (%)	38 (39.17)	37 (48.68)	0.28
Voiding symptoms pre, n (%)	64 (65.98)	49 (64.47)	0.87
Cale UDI, median (IQR)	**33.3 (12.5-75)**	**62.5 (45.8-75)**	**0.0002**
DO PRE, n (%)	**39 (40.20)**	**47 (61.84)**	**0.009**
Pop post op ≥ 2, n (%)	27 (27.84)	28 (36.84)	0.25

* BOOIF=bladder outlet obstruction index female

§ BVE=bladder voiding efficiency

\# BCI=bladder contractility index

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Postoperative Complications and Pelvic Organ Prolapse Recurrence Following Combined Rectal Prolapse and Pelvic Organ Prolapse Surgery Compared to Pelvic Organ Prolapse Surgery Only

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Introduction: There is a growing interest in combined pelvic organ prolapse (POP) and rectal prolapse (RP) surgery for concomitant pelvic floor prolapse despite a paucity of data regarding complications and clinical outcomes of combined repair.
Objective: The primary objectives of this study were to compare the <30-day postoperative complications and POP recurrence in women undergoing combined POP+RP surgery to those undergoing POP-only surgery. The secondary objectives were to determine preoperative predictors of <30-day postoperative complications and predictors of POP recurrence.
Methods: This was a multicenter, retrospective case-control study at five academic hospitals. Patients undergoing combined POP+RP surgery were matched by age, POP stage by leading compartment and POP procedure to those undergoing POP-only surgery from March 2003 to March 2020. Primary outcome measures were <30-day complications separated into Clavien-Dindo (CD) classes as well as 1) subsequent POP surgeries and 2) POP recurrence, defined as patients who complained of vaginal bulge symptoms postoperatively.
Results: Two hundred and four women underwent combined surgery for POP+RP and 204 women underwent surgery for POP-only. Average age (59.3+1.0 vs 59.0+1.0) and parity (2.3 vs 2.6) was similar in each group. Average follow-up time was 307.2+31.5 days for the combined cohort and 487.7+49.9 days for the POP-only cohort. One hundred and nine patients (26.7%) had at least one <30-day postoperative complication. The proportion of patients who had a complication in the combined group and POP-only group was similar (27.5% vs 26.0%, p=0.82). CD scores were similar between the groups (10.3% vs 9.3% Grade 1, 11.8% vs 12.3% Grade 2, 3.9% vs 4.4% Grade 3, 1.0% vs 0% Grade 4, 0.5% vs 0% Grade 5). Combined patients were less likely than POP-only patients to develop postoperative UTIs and urinary retention but were more likely to be treated for wound infections and pelvic abscesses. After adjusting for combined vs POP-only surgery, patients who had anti-incontinence procedures (aOR=1.85, 95% CI 1.16, 2.94, p=0.02) and perineorrhaphies (aOR=1.68, 95% CI 1.05, 2.70, p=0.02) were more likely to have <30-day postoperative complications. Twelve patients in the combined group and 15 patients in the POP-only group (5.9% vs 7.4%, p=0.26) had subsequent POP repairs. In the combined group, 10 patients (4.9%) underwent one repair and 2 patients (1.0%) underwent two repairs. All patients who had recurrent POP surgery in the POP-only group had one subsequent POP repair. Twenty-one patients in the combined surgery group and 28 patients in the POP-only group (10.3% vs 13.7%, p=0.26) reported recurrent POP. On multivariable analysis adjusted for number of prior POP repairs, combined vs POP-only group and perineorrhaphy at the time of surgery, patients were more likely to have a subsequent POP surgery if they had had 2 or more prior POP repairs (aOR=6.06, 95% CI 2.10, 17.5, p=0.01).
Conclusions: In this case-control study, patients undergoing combined POP+RP surgery had a similar risk of <30-day postoperative complications compared to patients undergoing POP-only surgery. Combined patients also had a similar risk of recurrent POP and subsequent POP surgery compared to patients undergoing POP-only surgery.
Disclosure: No
Images:

Table 1: Demographics of patients undergoing combined POP+RP surgery versus POP-only surgery

	Total	Combined POP+RP Surgery	POP-only surgery	p-value
	(n=408)	Total (n=204)	Total (n=204)	
Patient Characteristics				
Age		59.3 ± 1.0	59.0 ± 1.0	0.83
Race/Ethnicity				0.14
Caucasian	309	154 (75.49)	155 (75.98)	
Asian	16	7 (3.43)	9 (4.43)	
Black	18	8 (3.92)	10 (4.93)	
Hispanic	49	22 (10.78)	27 (13.30)	
Other	11	8 (3.92)	3 (1.48)	
Parity				0.22
0	28	20 (9.80)	8 (3.92)	
1	50	28 (13.73)	22 (10.78)	
2	163	78 (38.24)	85 (41.67)	
3	94	46 (22.55)	48 (23.53)	
4	42	19 (9.31)	23 (11.27)	
5	15	6 (2.94)	9 (4.41)	
6	6	3 (1.47)	3 (1.47)	
7	3	2 (0.98)	1 (0.49)	
8	2	2 (0.98)	0 (0.00)	
10	2	0 (0.00)	2 (0.98)	
11	2	0 (0.00)	2 (0.98)	
BMI		25.2 ± 0.4	26.8 ± 0.3	0.001
Smoking				0.0008
Nonsmoker	285	126 (61.76)	159 (77.94)	
Former smoker	86	51 (25.00)	35 (17.16)	
Current smoker	36	27 (13.24)	9 (4.41)	
ASA				0.001
NA	16	10 (4.90)	6 (2.94)	
1	24	6 (2.94)	18 (8.82)	
2	269	125 (61.27)	144 (70.59)	
3	99	63 (30.88)	36 (17.65)	
Comorbidites				
Cardiac disease	91	51 (25.00)	40 (19.61)	0.19
Pulmonary Disease	75	45 (22.06)	30 (14.71)	0.06
Connective tissue disorder	23	19 (9.31)	4 (1.96)	0.001
Obesity (BMI >30)	94	51 (25.00)	43 (21.08)	0.38
Diabetes Mellitus	38	23 (11.27)	15 (7.35)	0.17
Psychiatric Diagnosis	109	76 (37.25)	33 (16.18)	<0.001
Prior Pelvic Floor Surgeries				
Prior hysterectomy	139	74 (36.27)	66 (31.86)	0.35
Number of prior vaginal prolapse surgeries				0.83
None	315	155 (75.98)	160 (78.43)	
Yes 1	69	36 (17.65)	33 (16.18)	
Yes 2+	24	13 (6.37)	11 (5.39)	
Prior sling procedure	52	22 (10.78)	30 (14.71)	0.24
Number of prior rectal prolapse surgeries				<0.001
None	375	171 (83.82)	204 (100.00)	
Yes 1	27	27 (13.24)	0 (0.00)	
Yes 2+	6	6 (2.94)	0 (0.00)	
Prior therapies for vaginal prolapse				0.001
None	273	150 (73.53)	123 (60.29)	
Pessary	93	29 (14.22)	64 (31.37)	
Pelvic floor physical therapy	20	13 (6.37)	7 (3.43)	
Pessary and pelvic floor physical therapy	21	11 (5.39)	10 (4.90)	

Table 2: <30-day postoperative complications by Clavien-Dindo classification

	Total	Combined POP+RP Surgery	POP-only surgery	
Total	**408**	**204**	**204**	p-value
No complications	**299**	**148 (72.6%)**	**151 (74.0%)**	
Clavien Dindo I	**40**	**21 (10.3%)**	**19 (9.3%)**	**0.82**
Urinary retention		9 (4.4%)	15 (7.4%)	
Wound hematoma		2 (1.0%)	0 (0.0%)	
Wound disruption		2 (1.0%)	2 (1.0%)	
Fever (focus not identifed)		4 (2.0%)	1 (0.5%)	
Constipation/abdominal distension relieved with purgatives/suppositories		4 (2.0%)	1 (0.5%)	
Clavien Dindo II	**49**	**24 (11.8%)**	**25 (12.3%)**	
Urinary tract infection		11 (5.4%)	14 (6.9%)	
Vaginal cuff cellulitis/infection		5 (2.5%)	5 (2.5%)	
Wound infection		5 (2.5%)	4 (2.0%)	
Pelvic abscess		3 (1.5%)	2 (1.0%)	
Clavien Dindo III	**17**	**8 (3.9%)**	**9 (4.4%)**	
Reoperation for hemorrhage		2 (1.0%)	2 (1.0%)	
Reoperation for urinary retention		1 (0.5%)	1 (0.5%)	
Reoperation for small bowel obstruction		2 (1.0%)	3 (1.5%)	
Reoperation for fistula		2 (1.0%)	0 (0.0%)	
Reoperation for pancreatitis		0 (0.0%)	1 (0.5%)	
Reoperation and suture release for severe sciatic pain		0 (0.0%)	2 (1.0%)	
Acute limb compartmnent syndrome		1 (0.5%)	0 (0.0%)	
Clavien Dindo IV	**2**	**2 (1.0%)**	**0 (0.0%)**	
Congestive heart failure		1 (0.5%)	0 (0.0%)	
Pulmonary failure		1 (0.5%)	0 (0.0%)	
Clavien Dindo V	**1**	**1 (0.5%)**	**0 (0.0%)**	
Death		1	0	
Total	**109**	**56 (27.5%)**	**53 (26.0%)**	

Table 3: POP recurrence and POP surgeries in patients undergoing combined POP+RP surgery versus POP-only surgery

	Total	Combined POP+RP surgery	POP-only surgery	
	408	204	204	p-value
Pelvic Organ Prolapse (POP) recurrence				
Symptomatic POP recurrence				0.22
Unknown	2 (0.5%)	2 (1.0%)	0 (0%)	
No	356 (87.3%)	180 (88.7%)	176 (86.3%)	
Yes	49 (12.0%)	21 (10.3%)	28 (13.7%)	
Deceased	1 (0.2%)	1 (0.5%)	0 (0)%	
Subsequent POP surgeries				0.22
None	380 (93.1%)	191 (94.1%)	189 (92.7%)	
1 POP surgery	25 (6.1%)	10 (4.9%)	15 (7.4%)	
2 POP surgeries	2 (0.5%)	2 (1.0%)	0 (0%)	
Deceased	1 (0.2%)	1 (0.5%)	0 (0)%	

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Reversible and Persistent Alterations in Structural and Soluble Components in the Extracellular Matrix of the Rat Pelvic Floor Muscles Along the Nonpregnant-to-Postpartum Continuum

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Introduction: During pregnancy, the overall extracellular matrix (ECM) content of the rat pelvic floor muscles (PFMs) increases to support the elongated myofibers, assure adequate muscle load-bearing capacity, and protect myofibers from excessive mechanical injury during parturition by conferring resistance to strains. The specific changes within ECM are challenging to study due to high molecular weight and decreased solubility of its components.
Objective: The objective was to identify and quantify the structural and soluble ECM proteins altered in response to the fluctuating hormonal and mechanical cues associated with pregnancy and delivery.
Methods: PFMs, comprised of coccygeus (C) and the two portions of the rat levator ani- iliocaudalis (ICa), and pubocaudalis (PCa), were harvested from non-pregnant (NP), mid-pregnant (MP, D11), late-pregnant (LP, D21) and postpartum (PP, 8 weeks post spontaneous vaginal delivery) 4-month old Sprague-Dawley rats (n=9/group). For high resolution mass spectroscopy, individual PFMs were snap frozen, milled, lyophilized, and decellularized for ECM isolation. Analysis was done by liquid chromatography and mass spectroscopy with peptide identification and quantification. Data were visualized and significantly differentially expressed proteins were identified with Metaboanalyst.
Results: Overall, greater proteomic differences between groups were observed for soluble compared to structural ECM components (Fig.A). Seven structural ECM proteins, including collagens (CO1A1, CO3A1, CO5A1), fibrinogens (FIBB, FIBG), the elastin-modulating protein FBLN5, and the laminin-collagen interaction mediating protein NID2 were altered in all PFMs. In PCa and ICa, collagens gradually increased during pregnancy and then decreased PP relative to NP state. In C, collagens decreased in MP, increased in LP compared to NP and MP states, and then decreased PP compared to LP and MP states. Fibrinogens and FBLN5 varied between timepoints along the gestational period and between individual PFMs. NID2 was increased in PCa and C in PP period despite low levels in NP, MP, and LP states. (Fig.B) With respect to soluble ECM components, 16 proteins were altered in all PFMs along the nonpregnant-to-postpartum continuum. These included ECM regulators, ECM affiliated proteins, proteoglycans, and signaling DAMPs (Fig.C). ECM regulators, TRY1a, A1M, A1AT, and ECM affiliated proteins, ANXA2, ANXA5b, HEMO, LEG1, increased in MP (relative to NP) then decreased in LP (relative to MP), with further decline PP (compared to NP, MP, and LP). In ICa and PCa, proteoglycans variably increased during pregnancy and universally declined PP. In C and ICa, signaling DAMP, S10A1, increased dramatically PP despite minimal expression during gestation. In PCa, this protein returned to NP levels PP, despite decreased expression during pregnancy (Fig.C).
Conclusions: PFM ECM constituents vary along the nonpregnant-to-postpartum continuum. In mid-pregnancy, many structural and soluble ECM proteins are increased relative to non-pregnant state, followed by decrease at the end of gestation, with further decline postpartum. Notably, PFMs' ECM composition does not return to the nonpregnant state postpartum. Soluble rather than structural proteins account for the greatest proteomic variability along the nonpregnant-to-postpartum continuum. Soluble ECM is critical for structural ECM remodeling and homeostasis and therefore may be significant in determining functionally relevant properties of PFMs.
Disclosure: No
Images:

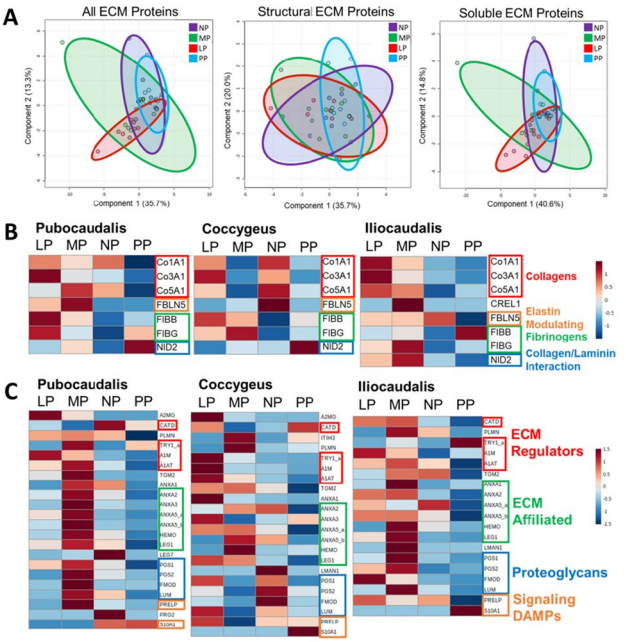

Figure. Partial least squares discriminant analysis of intramuscular extracellular matrix (ECM) of the rat pelvic floor muscles (PFMs). **A.** Separation between samples from animals in non-pregnant (NP, purple), mid-pregnant (MP, green), late pregnant (LP, red) and postpartum (PP, blue) states for ECM overall (left panel), structural ECM components (middle panel), and soluble ECM components (right panel). These separations represent significant differences in the ECM composition along the nonpregnant-to-postpartum continuum. Greater separation is seen between groups for soluble than structural ECM components, indicating greater proteomic differences in soluble ECM between pregnancy states. The greatest variability between states is represented by component 1 which accounted for 35.7% of variability for all ECM, 34.4% of variability for structural ECM, and 40.6% of variability for soluble ECM. **B.** Hierarchical heat map of structural ECM proteins showing temporal and relative magnitude alterations of differentially expressed collagens (red), elastin-modulating proteins (orange), fibrinogens (green), and collagen-laminin interaction proteins (blue) between groups. **C.** Hierarchical heat map of soluble ECM proteins showing temporal and relative intensity alterations of differentially expressed ECM regulators (red), ECM affiliated proteins (green), proteoglycans (blue), and signaling damage-associated molecular patterns (orange) between groups. Names of the genes that code for the differentially expressed rat proteins detected in PFMs were obtained from the Rat Genome.

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TGF-β1 Selectively Suppresses Wound Closure by Stromal Fibroblasts from the Human Female Reproductive Tract

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Introduction: Wound healing following surgery requires optimized behavior of fibroblasts, the integral cells for tissue repair and remodeling (1). Fibroblasts help maintain pelvic floor support to prevent prolapse and urinary incontinence. Transforming growth factor beta 1 (TGF-β1) is a fibroblast mitogen involved in extracellular matrix

turnover, which may have altered expression in vaginal tissue of women with stress urinary incontinence and in uterosacral ligament tissue of women with aging (2,3). While vaginal and uterosacral ligament fibroblasts have been focuses of recent research, less is known about the effects of TGF-β1 on wound closure by endometrial, endocervical and ectocervical fibroblasts.

Objective: To determine the effects of TGF-β1 on endometrial, endocervical and ectocervical stromal fibroblast cell proliferation and wound closure in vitro.

Methods: Matched endometrial, endocervical and ectocervical tissues were obtained from three de-identified patients (age 45, 46, and 50 years old) undergoing hysterectomy for benign indications. Fibroblasts were isolated from each tissue through mechanical dissection, enzymatic dissolution, and cell filtration as previously described (4). For wound closure studies, fibroblasts were plated on 96-well plates in standardized growth media (5,6). After 24 hours, fibroblast monolayers were treated with TGF-β1 at several concentrations (0.01, 0.1, 1, 10 ng/mL) for 48 hours. A uniform wound was then created in the fibroblast monolayer, after which the cells were retreated with the same concentrations of TGF-β1. Wound closure was determined as relative wound density (the cellular density of the wounded area versus the non-wounded area) measured with the live-cell analyzer (IncuCyte® Zoom) every hour over the next 48 hours. For cell proliferation studies, fibroblasts were plated in standardized growth media. After 24 hours of growth, the cells were treated with TGF-β1 at several concentrations (0.01, 0.1, 1, 10 ng/mL). Cell proliferation was determined using the live-cell analyzer (IncuCyte® Zoom) over 96 hours of TGF-β1 exposure, with retreatment occurring at 48 hours.

Results: TGF-β1 selectively and dose-dependently inhibited wound closure in ectocervical and endocervical fibroblasts relative to control cells with the greatest suppression occurring at 10 ng/ml of TGF-β1 in 3 out of 3 experiments (Fig. 1, 2). In contrast, TGF-β1 did not alter the wound closure of endometrial fibroblasts. Cell proliferation was not affected by TGF-β1 treatment of endometrial, endocervical, or ectocervical fibroblasts (Fig. 3).

Conclusions: In vitro fibroblast wound closure is selectively inhibited by TGF-β1 in ectocervical and endocervical fibroblasts. In contrast, there is no effect of TGF-β1 on endometrial fibroblast wound closure. Endometrial, endocervical, and ectocervical fibroblast proliferation was not affected by TGF-β1. This suggests that TGF-β1-mediated suppression of endocervical and ectocervical wound closure is not caused by changes to fibroblast proliferation post-injury. Decreased cell migration may be responsible for suppression of wound closure. Further studies are required to understand the effects of TGF-β1 on fibroblast interactions and tissue-level differences in TGF-β1 receptor expression. These studies indicate that all fibroblasts are not created equally, raising concerns about the need to evaluate those fibroblasts that contribute to resolving pelvic floor disorders such as pelvic organ prolapse and urinary incontinence following reconstructive surgery.

Disclosure: No

Images:

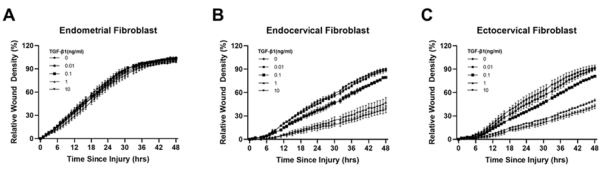

Figure 1: *TGF-β1 selectively suppresses wound closure in endocervical and ectocervical fibroblasts but not endometrial fibroblasts.* Human fibroblasts from the endometrium (A), endocervix (B) and ectocervx (C) of a single individual were grown to confluence in vitro and treated with TGF- β1 (0, 0.01, 0.1, 1, 10 ng/ml) for 48 hours prior to injury using a Wound Maker™ (Essen Bioscience). Wound healing was measured as relative wound density every hour over the next 48 hours. Following injury, fibroblasts were retreated with TGF- β1 for a total exposure time of 96 hours to TGF- β1. Data is shown as mean +/- SEM. Each point is the mean average of triplicate wells.

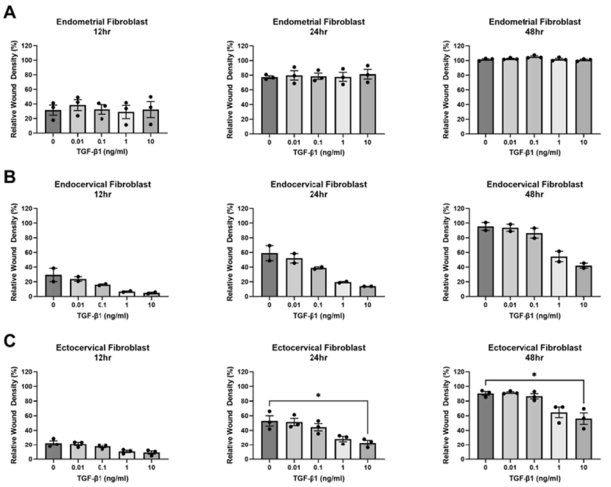

Figure 2: *TGF- β1 suppresses wound closure by endocervical and ectocervical fibroblasts.* Patient-matched endometrial (A), endocervical (B), and ectocervical (C) fibroblasts were treated with TGF- β1 (0, 0.01, 0.1, 1, 10 ng/ml) followed by injury and TGF-β1 retreatment at 48 hours. Wound healing was measured as relative wound density at 12 (left column), 24 (middle column), and 48 (right column) hours post-injury using an IncuCyte® Zoom. Data is shown as mean +/- SEM from three patient samples. Each symbol represents the average of an individual patient performed in triplicate. *p<0.05; One-way ANOVA with a non-parametric Friedman test.

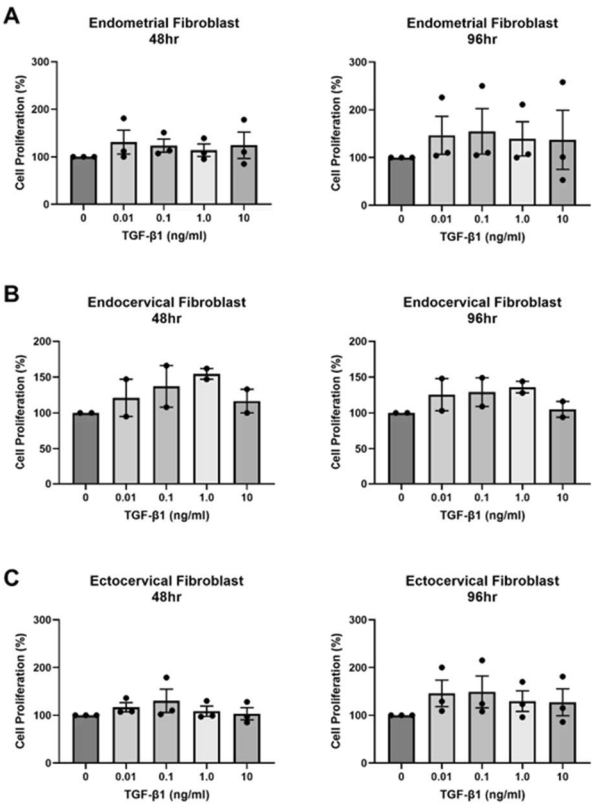

Figure 3: *TGF- β1 has no effect on fibroblast proliferation.* Endometrial (A), endocervical (B), and ectocervical (C) fibroblasts were treated with TGF- β1 (0, 0.01, 0.1, 1, 10 ng/ml) with replenishment at 48 hours. Cell proliferation was measured using an IncuCyte® Zoom live cell analyzer at 48 (left column) and 96 (right column) hours of TGF- β1 exposure. Cell proliferation values were normalized to the untreated controls which was set to 100%. Data is shown as mean +/- SEM from three patient samples. Each symbol represents the average of an individual patient performed in triplicate.

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The Role of the Use of Platelet Rich Plasma in Common Cases in Urogynecology : A systematic Review

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Introduction: There are many challenges in the case of urogynecology. This case affects the quality of life of women in the long term therefore it requires improvement and proper management of complaints faced. Platelet-Rich Plasma (PRP) is an innovative treatment designed to stimulate cell regeneration, neovascularization, and the formation of healthy cells.
Objective: This paper systematically evaluate the role of platelet-rich plasma in the common case in urogynecology
Methods: A systematic review was conducted through the PubMed, Google Scholar, and ScienceDirect databases using a combination of the Medical Subject Heading (MeSH) terms and relevant keywords. The arrangement follows the PRISMA guidelines.
Results: In patients with pelvic organ prolapse, an increase in collagen concentration after PRP application was observed. In addition, PRP was also effective in relieving the symptoms of stress urinary incontinence at 1 month and 6 months after treatment with no significant adverse reactions reported. PRP can also be used in the treatment of vesicovaginal fistulas. In vulvo-vaginal rejuvenation with lipofilling, injection of a combination of platelet-rich plasma and hyaluronic acid showed an increase in the modified Stabbatsberg scale and vulva-perineal rejuvenation by increasing vaginal trophic and restoring normal vaginal caliber. Perineal trauma can also be treated with platelet-rich plasma containing high concentrations of platelets and various growth factors. As a minimally invasive method, administering PRP to the distal anterior vaginal wall can enhance the sexuality of women with high satisfaction.
Conclusions: Platelet-rich plasma can be a hope for case management in the field of urogynecology by seeing the many opportunities from common cases that can be overcome. However, further research is needed on how to use PRP to function properly and study its effectiveness.
Disclosure: No

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Use of Decision Aids to Support Shared Decision Making in the Treatment of Overactive Bladder

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Introduction: Although first- and second-line treatment options for overactive bladder (OAB) are associated with poor compliance and suboptimal efficacy, the utilization of third line options is very low, in part due to the complex nature of the options. Patient counseling and perceptions impact treatment choices and adherence, and Decision Aids (DAs) used as part of shared decision making (SDM) could be effective tools for improving patient experience and outcomes as well as guiding patients to third line options that may be more effective.
Objective: The purpose of this study is to examine the impacts of using a DA in counseling patients with OAB.
Methods: This pilot study enrolled patients presenting to a Urogynecology ambulatory practice for OAB care. Participants in the control group underwent usual care without a DA, and in the intervention group, providers utilized a DA for counseling on OAB options. The groups were randomized by first enrolling all patients into the control group then recruiting subsequent patients into the intervention group. Post-visit telephone surveys containing validated SDM scales were administered in each participant's primary language to assess patient perceptions, preferences, and satisfaction. Post-visit surveys included the validated SURE scale, a 4-item short form of the Decisional Conflict Scale (representing the subjective variables: sure of myself, understand information, risk-benefit ratio, and encouragement). The Wilcoxon rank-sum test was used to compare continuous variables, and Fisher's exact test was used to compare categorical variables.
Results: A total of 81 patients were enrolled in the study, of whom 62 (77%) completed the post visit survey (33 control, 29 intervention). Median age was 65.5 (IQR 52.3, 71). The majority (52/62, 84%) of patients identified as white, and 13% (8/62) identified as Hispanic/Latino. There were no significant differences in demographic variables between the two groups. On univariate analysis, none of the survey responses were statistically significant between the two groups. However, a trend was observed towards patients in the intervention group feeling that behavioral interventions and PT were discussed more (median score of "a lot" of discussion compared to "some" discussion; p=0.39). There was also a trend toward patients in the intervention group feeling a greater effort was made to understand their health issues (median of 9 versus 8 on a scale of 0-10, with 10 representing "every effort"; p=0.21). There was no difference in SURE score between groups.
Conclusions: Patients who received counseling using a DA may have recalled greater emphasis on behavioral treatments and may have perceived greater effort from their providers in understanding their health issues. Patient perceptions impact compliance, satisfaction, and outcomes. The use of DAs in counseling on OAB shows promise, and additional studies are warranted to better articulate the role of DAs in Urogynecology.
Disclosure: No
Images:

Table 1: Demographic characteristics did not significantly differ between the group who used a decision aid (DA) and those in the control group.

	Control group (n=33)	DA group (n=29)	p-value
	Median (continuous variables); Count (categorical variables)		Wilcoxon (continuous variables); Fisher's Exact Test (categorical variables)
Age	67	64	0.467
First language			1
English	29	25	
Non-English	4	4	
Race			0.917
White	27	25	
Black	1	1	
Asian	1	1	
Native Hawaiian or Pacific Islander	0	0	
American Indian or Alaska Native	0	0	
Other	4	2	
Education level			0.830
8th grade or less	1	0	
Some high school, did not graduate	1	0	
High school graduate or GED	2	1	
Some college or 2-year degree	12	10	
4-year college graduate	8	6	
More than 4-year college degree	9	12	

Figure 1: There was a non-significant trend towards a perception of increased discussion of behavior changes and physical therapy in the DA group compared to the control group. Dots represent medians of each group.

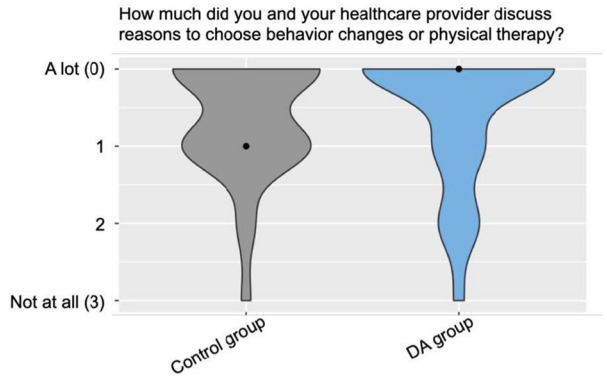
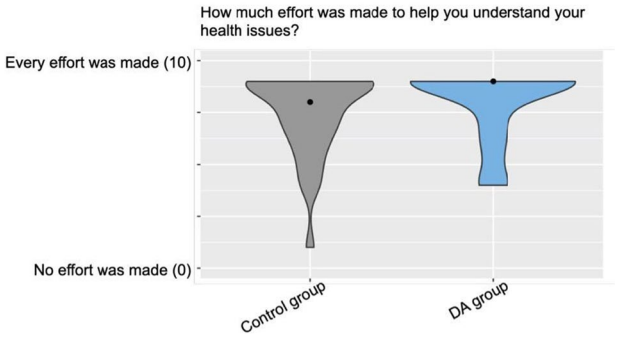


Figure 2: There was a non-significant trend toward those in the DA group feeling that there was a greater effort made to help understand their health issues compared to the control group. Dots represent medians of each group.



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Digital Therapeutic Device for Urinary Incontinence: a 6- and 12-month Follow-up of a Randomized Controlled Trial

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Introduction: Supervised pelvic floor muscle therapy (PFMT) for stress, urgency, and mixed urinary incontinence (UI) optimizes treatment results and can lead to improvement or resolution of UI symptoms. However, most women do not access skilled care, do not adhere to PFMT programs, and/or do not perform exercises correctly. An 8-week randomized controlled study (RCT) showed that a motion-based digital therapeutic device to guide PFMT was superior to home PFMT program for the treatment of stress UI and stress-predominant mixed UI. The device incorporates an accelerometer-based intravaginal insert that detects pelvic floor motion during PFMT and provides visual feedback via a blue-tooth paired smartphone application.
Objective: The objective of this study was to report long-term follow-up, 6-months and 12-month following an 8-week RCT.
Methods: Between October 2020-March 2021, an all-remote, virtual trial was conducted, in which 363 women with stress or stress-dominant mixed UI were randomized to complete PFMT using a motion-based digital therapeutic intravaginal device or a home program following written/video instructions. Primary outcomes at 8-weeks included the Urogenital Distress Inventory (UDI-6) and stress UI episodes on a 3-day bladder diary. At 8 weeks, the intervention group demonstrated significantly greater improvement in UI symptoms on UDI-6, bladder diary, and Patient global impression of improvement (PGI-I) outcomes. UDI-6, PGI-I, and adherence data were also collected at 6- and 12-months. PGI-I improvement was defined as responses of 'much better' or 'very much better'. A modified intention-to-treat analysis was performed using Student t-tests and Chi-square tests as appropriate.
Results: Of 299 subjects analyzed at 8-weeks, 286 (96%) returned 6-month data, 151 and 135 in the control and intervention groups, respectively. Preliminary 12-month data show 235/277 (84%) of eligible subjects have responded (Figure 1). 46 subjects have not yet reached 12 month follow up. There were no demographic or baseline UDI-6 differences between those who did or did not return 6-month data. Mean age was 52.3±12.7 years, and mean BMI was 31.9±7.4 kg/m2; 84% of subjects were parous, and 57% were post-menopausal (Table 1). Based on recommended 3 times daily use, device reported adherence for the intervention group after the initial 8-week period was 13% (vs 69% during the active study period). Mean change in UDI-6 scores from baseline to 6-months was significantly greater in the intervention group than the control group (23.54 vs. 18.87 points, p=0.019) (Table 2). Improvement using PGI-I was significantly greater in the intervention group than the control group at 6-months (43.4% vs. 21.2%, OR 3.33, (95%CI 1.99, 5.68), PGI-I data for available 12-month respondents demonstrate 52/108 (48%) improved in the intervention group and 35/127 (27%) improved in the control group (p=0.002; OR 2.44, 95% CI 1.42-4.20).
Conclusions: PFMT guided by a motion-based digital therapeutic intravaginal device yielded significantly greater UI symptom improvement compared to a standard home program at 8-weeks with significantly improved results maintained at 6 months and available 12-months data. Use of this technology may provide maintained efficacy and facilitate remote access to PFMT with biofeedback for women with UI and represents an effective modality for enhancing conservative first-line care above standard PFMT home program.
Disclosure: Yes, this is sponsored by industry/sponsor: Renovia Inc. Clarification: Industry initiated, executed and funded study
Images:

Figure 1. Consort Diagram

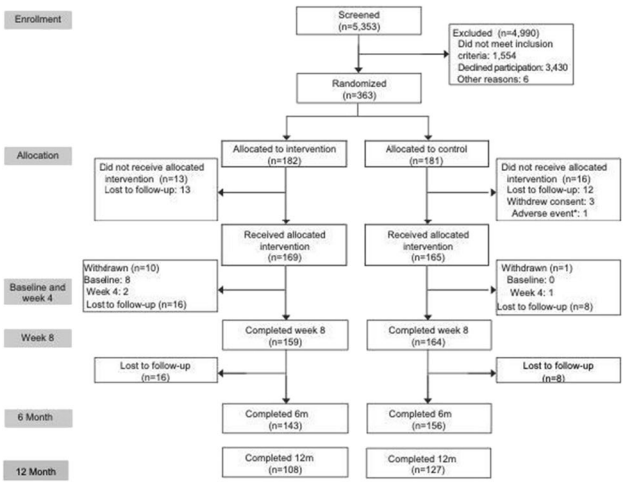

Table 1: Demographic characteristics

Demographic	Statistics	Control Arm (N=151)	Intervention Arm (N=135)	Overall (N=286)
Age	Mean ± SD#	51.9 ± 12.7	52.7 ± 12.6	52.3 ± 12.7
	Median (IQR*)	50 (43-64)	54 (44-65)	52 (43-64)
Race, n (%)	Asian	8 (5.3)	2 (1.5)	10 (3.5)
	Black	11 (7.3)	18 (13.3)	29 (10.1)
	Middle Eastern/North African	0 (0)	1 (0.7)	1 (0.3)
	Multiracial	2 (1.3)	7 (5.2)	9 (3.2)
	Pacific Islander/Native Hawaiian	0 (0)	0 (0)	0 (0)
	Unknown	0 (0)	1 (0.7)	1 (0.3)
	White	127 (84.1)	101 (74.8)	228 (79.7)
	None of the above	3 (2.0)	5 (3.7)	8 (2.8)
Ethnicity, n (%)	Hispanic/Latino	12 (8.0)	16 (11.8)	28 (9.8)
	Non-Hispanic/Latino	139 (92.0)	117 (86.7)	256 (89.5)
	Declined to answer	0 (0)	2 (1.5)	2 (0.7)
BMI (kg/m^2)	Mean ± SD	31.9 ± 7.5	31.9 ± 7.2	31.9 ± 7.4
	Median (IQR)	31.5 (26.6-35.4)	31.0 (26.1-36.9)	31.2 (26.6-36.5)
Pregnancy n (%)	Mean ± SD	2.5 ± 1.8	2.6 ± 1.7	2.6 ± 1.8
	Median (IQR)	2 (1-4)	3 (2-3)	2 (1-4)
Mode of Delivery n (%)	Nulliparity	29 (19.2)	16 (11.8)	45 (15.7)
	Vaginal	71 (47.0)	74 (54.8)	145 (50.7)
	Forceps/Vacuum	32 (21.2)	29 (21.5)	61 (21.3)
	Cesarean	19 (12.6)	16 (11.8)	35 (12.2)
Menopausal Status n (%)	Post-menopausal	82 (59.3)	80 (59.3)	162 (56.6)
	Pre-menopausal	69 (45.7)	55 (40.7)	124 (43.4)
Hysterectomy n (%)	Yes	29 (19.2)	19 (14.1)	48 (16.8)
	No	122 (80.8)	116 (85.9)	238 (83.2)

#SD=Standard Deviation *IQR=Inter-Quartile Range,

Table 2. Urogenital Distress Inventory (UDI-6) at Baseline & 6-months

Parameter and groups	Baseline	6-months	Within groups p-value (Baseline to 6-months)	Between groups p-value (Baseline to 6-months)
UDI-6*	Mean ±SD#	Mean ±SD	Paired t-test	Student t-test
Control (n=151)	54.6 ±18.84	39.9 ± 19.88	<0.001	0.0187
Intervention (n=135)	52.9 ±19.79	32.42 ± 22.06	<0.001	

*Urogenital Distress Inventory, short-form, #Standard Devation

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Short Term Outcomes of Surgical Interventions for Stress Urinary Incontinence during the UK Mesh Pause

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Introduction: Stress urinary incontinence (SUI) has a prevalence of 24% in the UK(1). In 2018, NHS England implemented a pause on the synthetic mid-urethral sling (MUS) for SUI. This led to an increase in the use of previously less utilised surgical interventions. Comparative outcome data of these interventions, particularly following the advent of laparoscopy, are sparse.
Objective: To report short-term safety and efficacy data on the current permissible NICE approved surgical interventions for SUI in the immediate post-pause period.
Methods: This was a retrospective cohort study of patient that underwent peri-urethral bulking (PUB), laparoscopic colposuspension (LC) or autologous fascial sling (AFS) for urodynamic confirmed SUI. Operations were performed between January 2015 and August 2021. All patient attended for three-month follow up. Data were collected from the BSUG database.
Results: We identified 161 patients; 88 PUB, 59 LC, and 14 AFS. The demographics of the groups were similar for age, parity and previous urogynaecological surgery. Average length of stay was 0 days following PUB, 1.8 days following LC and 1.8 days following AFS. There were no returns to theatre in any of the groups and none reported post-operative pain at follow-up. The rate of post operative catheterisation for more than 10 days was 2% in the LC group and 0% in the AFS and PUB groups. Requirement for oral post-operative overactive bladder (OAB) was 1% following PUB, 0% after LC, and 7% following AFS. After PUB, LC and AFS, 40%, 80%, and 79% of patients respectively reported a PGI – I of 'much better' or 'very much better'. 58%, 96%, and 79% of patients respectively reported 'improvement' or 'cure' of SUI. Mean reduction in ICIQ-FLUTS score were –8.0, -6.9, and –16.2 after PUB, LC, and AFS respectively.
Conclusions: All procedures offered following the mesh pause appear to have a good safety profile. In this cohort PUB appeared the most commonly chosen procedure. However, it appears to be the least effective, with lower rates of subjective cure and improvement of symptoms at follow up. Laparoscopic colposuspension confers the highest likelihood of short-term cure and subjective improvement. Whilst AFS is associated with the biggest improvement in ICIQ-FLUTS, there is a higher risk of needing ongoing oral therapy for OAB. Our findings may justify LC as a first line surgical therapy for women with SUI whilst the MUS is not available. Further comparative studies are needed, to assess cost-efficacy and more long-term outcomes.
Disclosure: No

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The Association Between Obstetrical Anal Sphincter Injury and Postpartum Urinary Retention: A Contemporary Nationwide Cohort Study

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Introduction: Postpartum urinary retention is a common consequence of vaginal delivery. Identification and prompt management is essential to minimize the risk of long-term morbidity. Obstetrical anal sphincter injury (OASIS) has been identified as a possible risk factor for urinary retention. Characterization of this relationship will guide surveillance and counselling.
Objective: The objective of this study was to estimate the association between OASIS and postpartum urinary retention.
Methods: We conducted a population-based, retrospective cohort study of pregnant persons delivering singleton fetuses via vaginal delivery using the Agency for Healthcare Research and Quality National Inpatient Sample (NIS) database. This is the largest all-payer inpatient database in the United States. Logistic regression models adjusting for maternal age, prolonged second stage, operative vaginal delivery, large for gestational age infants, epidural use, shoulder dystocia, constipation, and grand multiparity, defined as ≥5 prior deliveries, were used to estimate the odds ratio (OR) for the association between OASIS and postpartum urinary retention overall and by grade of perineal tear.
Results: 2,024,021 delivery admissions were included in this cohort which was representative of a population size of 10,120,098 utilizing the complex sampling design of the NIS database. 47,192 (2.33%) admissions sustained an OASIS and 5,486 (0.27%) of admissions experienced overt urinary retention. After adjusting for potential confounders, vaginal deliveries where an OASIS occurred had 3.57 times the odds of postpartum urinary retention compared to vaginal deliveries where an OASIS was not sustained (95% CI 3.24-3.94). Postpartum urinary retention was associated with a mean increased length of stay (3.06 days vs 2.30 days, p=0.04) and 1.4 times the mean total cost of admission ($23,854.73 USD vs $16,891.44 USD, p<0.01). When patients with urinary tract infection (UTI) were excluded (n=6,034), the odds of urinary retention following vaginal delivery that sustained OASIS were 3.58 times that of vaginal deliveries who did not sustain OASIS (95% CI 3.24-3.95) in multivariable models.
Conclusions: OASIS is associated with increased risk of postpartum urinary retention compared to vaginal deliveries where OASIS did not occur. Close surveillance of postpartum voiding and interventions in the early postpartum period in this high-risk population may avoid long-term complications associated with unrecognized urinary retention.
Disclosure: No

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Mode of Delivery Following OASI: A 7-year Retrospective Review and Follow up Cohort Survey

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Introduction: Limited evidence exists regarding long-term outcomes following births after prior obstetric anal sphincter injuries (OASI).
Objective: To describe delivery outcomes following birth after OASI. To review the grades of tear, endoanal ultrasound (EAUS) findings, and subsequent delivery outcomes, as well as long-term symptoms.
Methods: This study was conducted in two parts. The first involved a retrospective review of all OASI at a tertiary hospital over 7 years (2013 – 2019 inclusive) where the patient underwent a subsequent delivery. Following this a retrospective cohort survey of this group was performed, inviting the 247 women who experienced OASI and a subsequent birth to complete a survey.
Results: There were 27,284 vaginal births and 828 OASIs (3.03%), of which 86.6% had been nulliparous. As part of follow up of the index OASI, 81% had an EAUS at our institution by a single operator, of which the majority were normal (92.5%, 185/200). Those with a residual defect at EAUS were more likely to have a caesarean for all subsequent deliveries (53%) than if EAUS was normal (23.8%). A persistent defect was more likely following 3C/4th degree tears (24%) than after 3A/B tears (5.2%). 247 (29.8%) had at least one subsequent birth by January 2021. Vaginal delivery occurred in 68%, recurrence of OASI was 5.4%. There were 90 responses (36.4%) to a follow up survey. EAUS had been performed in 87.5%; none demonstrated a defect. Vaginal birth was the preferred mode for 77.8%, this occurred in 64%. The majority had high levels of satisfaction on Likert scale, this related to communication rather than the mode of delivery itself. Faecal or flatal incontinence was reported in 17.8% after the index delivery; 12% have had these symptoms since. Of those who had only vaginal births 10% reported symptoms after the index delivery; 15% since. Of those who had only caesarean sections since OASI, 29.6% reported faecal or flatal incontinence prior to their last delivery and 7.4% since. There was no statistically significant difference between St Marks incontinence scores for those having had vaginal deliveries vs caesarean sections when compared with a two-tailed T-test ($p = 0.59$).
Conclusions: In our unit most women who sustain OASI will have a subsequent vaginal delivery in future pregnancies. The majority remain asymptomatic at long term follow up with no statistically significant difference in incontinence scores regardless of mode of delivery. The rate of recurrent OASI was 5.4%.
Disclosure: No

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Interdisciplinary Laparoscopic Rectopexy Combined with Sacrocolpopexy for Obstructed Defecation Syndrome in Women with Pelvic Organ Prolapse: A Pilot Study

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Introduction: Obstructive defecation syndrome (ODS) is a disturbed defecation process due to a protrusion of the lower rectum or intussusception and frequently associated with chronic obstipation and pelvic organ prolapse (POP) in women. The quality of life of affected patients is substantially compromised, especially among younger patients. Conservative treatment options are often limited to slightly improvement of patients´ symptoms, and do not achieve cure. Surgical interventions aim to the anatomical reconstruction of the bowel and pelvic holding apparatus. So far, these surgical interventions are characterized by individual approaches and methods of each individual department and sufficient data on standardized interdisciplinary treatment options are missing.
Objective: The study investigates the feasibility of a standardized laparoscopic resection rectopexy combined with mesh sacrocolpopexy (either biological/resorbable mesh or synthetic mesh) in an interdisciplinary setting. So far, there is no interdisciplinary approach for ODS in women and the use of a biological/resorbable mesh in combination with a resection rectopexy. For the first time, this is a promising novel treatment alternative, in an interdisciplinary setting especially in premenopausal women.
Methods: Women who presented with an ODS combined with POP were operated in an interdisciplinary approach. All patients underwent laparoscopic resection rectopexy with mesh sacrocolpopexy using either synthetic or biologic mesh (Figure). Primary endpoint is postoperative morbidity and mortality measured by the Clavien-Dindo-Classification (CDC) at 12 months after surgery. Further endpoints are relapse of prolapse and improvement of bowel evacuation based on scores (Altomare, modified Longo, rectal toxicity score; quality of life according to the SF 312 and PHQ 9 score), the control imaging with MRI defecography, and the costs of treatment between the two groups assessed by time-derived basic costs (TDBC).
Results: Between 2020 and 2021, 26 patients were operated on this interdisciplinary approach with a median follow-up of 14 months (7 – 19 months). In five cases a biological mesh was used (3 due to patients' preference and 2 due to planned pregnancy). Grades of complications according to CDC and frequency of postoperative complications were low. Anatomical outcomes were excellent (Table).
Conclusions: The combined approach is safe, feasible, and effective to treat the medical condition. For the first time, the medical condition of the patients involved is addressed with an interdisciplinary surgical approach instead of a variety of individual treatment approaches which are seldom discussed and addressed between disciplines. Additionally, a biological mesh as an alternative to the standardized synthetic mesh is offered for sacrocolpopexy. The use of a biological mesh in combination with a resection rectopexy is safe and feasible and offers an additional treatment option, especially for younger and fertile women.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: FEG Textiltechnik mbG Aachen, Germany
Images:

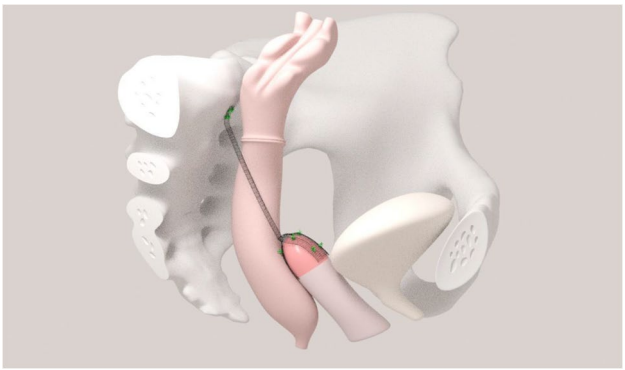

TABLE 1: Characteristics and outcome of patients undergoing an interdisciplinary L-RRP with L-SCP; unpublished data.

	all patients n = 26	biomesh n = 5	synthetic mesh n = 21	*P*
Age, y, median (IQR)	57 (47 – 65)	48 (38 – 75)	57 (49 – 63)	0.606
Female, n (%)	25 (96.2%)	5 (100%)	20 (95.2%)	0.619
ASA, n (%)				0.507
1	2 (7.7%)	1 (20.0%)	1 (4.8%)	
2	17 (65.4%)	3 (60.0%)	14 (66.7%)	
3	7 (26.9%)	1 (20.0%)	6 (28.6%)	
4	none	none	none	
BMI, median (IQR)	24 (22 – 26)	26 (23 – 26)	23 (22 – 27)	0.522
Operation time in min, median/IQR	223 (180 – 263)	230 (175 - 290)	215 (180 – 265)	0.910
Surgical access, n (%)				
Laparoscopy	25 (96.2%)	5 (100%)	20 (95.2%)	0.619
Overall morbidity, n (%)	8 (30.2%)	1(20%)	7 (32.3 %)	0.798
Minor (CDC 1 – 3a), n (%)	7 (26.9 %)	1 (20%)	6 (28.6%)	
Major (CDC 3b – 5), n (%)	1 (3.8%)	0 (0%)	1 (4.8%)	
Mortality, n (%)	0 (0%)	0 (0%)	0 (0%)	
Complications, n (%)	8 (30.8%)	1 (20%)	7 (33.3%)	0.892
Pulmonary events	1 (3.8%)	0 (0%)	1 (4.8%)	
Access comp.	2 (7.7%)	0 (0%)	2 (9.5%)	
Gastrointestinal events	1 (3.8%)	0 (0%)	1 (4.8%)	
Urologic events	3 (11.5%)	1(20%)	2 (9.5%)	
Allergic events	1 (3.8%)	0 (0%)	1 (4.8%)	

Distributions are presented as median and interquartile range (IQR) for continuous, and total number and percentages (%) for binary data

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Review of Patient Characteristics and Outcomes of Genitourinary and Genitoenteric Fistula Surgical Repair in Multidisciplinary Center

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Introduction: The development of pelvic health centers creates greater opportunity for multidisciplinary surgical approach in the complex care and surgical treatment of genitourinary and genitoenteric fistulas.
Objective: To describe current approach and patient characteristics for surgical repair of pelvic fistulas in multidisciplinary pelvic health center and to compare reconstructive approach, complications, and recurrence rates between genitourinary and genitoenteric fistulas.
Methods: A retrospective cohort review was completed at academic health system between 2017 and 2021 of multidisciplinary clinic including Urogynecology, Reconstructive Urology, Colorectal Surgery, and Plastic Surgery providers. Female patients over 18 years with surgical repair of pelvic fistula isolated by CPT code. Electronic medical records were reviewed for sociodemographic, presentation, perioperative, and postoperative outcomes. Direct comparisons were made between urinary and enteric fistulas groups.
Results: CPT code guided search yielded 67 records, 27 were excluded as repeated patients, 14 were non-fistula repairs, resulting in 26 records for analysis. Urinary tract involvement was noted in 8 patients (6 vesicovaginal and 2 urethrovaginal) while the remaining 18 patients had enteric fistulas (8 rectovaginal, 5 anovaginal, 1 enterouterine, and 1 pouchvaginal). Overall characteristics included median age of 49 years (iqr 14), 61% white, 23% black and mean BMI 31 (SD 9.1) Four patients in each group had respective urinary or bowel diversion on presentation. One patient in enteric group had history of malignancy (cervical); no patients with history of radiation. Smoking status and menopausal status did not differ between groups. Comorbidities were similar between groups, except cardiovascular disease which was more common in urinary group. The use of flaps or grafts did not differ by fistula type. Median length of stay (0.5 vs 1) and prolonged antibiotic (>24 hours) (37% vs 22%) were similar between urinary and enteric groups respectively (table 1). Overall adverse event rate was 52%. There were more immediate recurrent fistulas (<90 days) (12% vs 16%) and reoperations in enteric group (12% vs 16&). Enteric fistulas also tended toward more recurrence (41% vs 25%) and reoperation past 90 days postoperatively (27 v 15%) but not significantly different. Median months of follow up did not differ between groups 9.5 (iqr 17.5) vs 7.5 (iqr 21). Patients in both groups were able to maintain long-term sexual function.
Conclusions: While multidisciplinary surgical approach was taken in most surgical repairs (18/26, 69%) adverse events and fistula recurrence were still common. The majority of patients at our referral center had prior repair attempts (57%) and about 15% in each group had prior diversion. The vast majority of patients retained long term physical and sexual function. In conclusion, even in multidisciplinary referral center, recurrence rates and surgical adverse events were common. A uniform approach to perioperative management with good preoperative counseling and patient optimization is critical.
Disclosure: No
Images:

Table 1. Comparison of genitourinary and genitoenteric fistula patient characteristics and surgical outcomes at multidisciplinary center.

Variable	All N=26	Urinary N=8	Enteric N=18	P value [a]
Previous Surgery	15 (57.69)	3 (37.5)	12 (66.67)	0.218
Number prior surgeries, median (iqr)	2 (3)	1(1)	3 (2.5)	0.123
Surgical Provider				
Urogynecology	23(88.46)	7 (87.50)	16 (88.89)	1
Urology	4 (15.38)	4 (50)	0	**0.005**
Colorectal	16 (61.54)	0	16 (88.89)	**<0.001**
Plastic Surgery	4 (15.38)	0	4 (22.22)	0.277
Flap or Graft Utilized	17 (65.38)	4 (50)	17 (73.22)	0.382
Length of Stay (days), median (iqr)	1 (4)	0.5 (2)	1 (5)	0.190
Fistula Recurrence <90 days	3 (11.54)	1 (12.50)	3 (16.67)	1
Antibiotics >24 hours	7 (26.92)	3 (37.5)	4 (22.22)	0.635
Perioperative Adverse Event	13 (52)	4 (57.1)	9 (50)	1
Surgical Site Adverse Event				
Wound Infection	5 (19.23)	1 (12.50)	4 (22.22)	1
Hematoma/ Seroma	1 (3.85)	0	1 (5.56)	1
Sloughing or loss of flap/ graft	1 (3.85)	0	1 (5.56)	1
Repeat Surgery within 90 days	4 (15.38)	1 (12.50)	3 (16.67)	1
SBO omental flap	1 (3.85)	1 (12.50)	0	0.308
Surgical Adverse Event				
Systemic Infection	6 (23.08)	3 (37.50)	3 (16.67)	0.330
UTI	1 (3.85)	1 (12.50)	0	1
Ileus	1 (3.85)	0	1 (5.56)	1
Bowel Obstruction	1 (3.85)	1 (12.50)	0	1
Ostomy Complication	2 (7. 69)	0	2 (11.11)	1
Chron's Flare	1 (3.85)	0	1 (5.56)	1
Anemia/Transfusion	1 (3.85)	0	1 (5.56)	1
Ostomy at time of fistula repair	5 (19.23)	0	5 (27.78)	0.281
Urinary Diversion at time of fistula repair	13 (52)	8 (100)	5 (29.41)	**0.002**
Urinary Diversion Time days median (iqr)	12 (11)	14 (11.5)	3 (0)	**0.002**
Follow-up (months), median (iqr)	8.5 (21)	9.5 (17.5)	7.5 (21)	0.653
Recurrence > 90 days	9 (36)	2 (25)	7 (41.18)	0.767
Reoperation > 90 days[b]	6 (23.08)	1 (12.50)	5 (27.78)	0.628
Functional Complaints from flap	2 (7.69)	0	2 (11.11)	1
Cosmetic Complaints from flap	0	0	0	1
Unable to return to Sexual Function	1 (12.50)	1 (12.50)	0	1

[a] p-values from Fisher's exact or Student's t-test, where appropriate. Categorical data is expressed as n (%), continuous data are expressed as mean (±standard deviation), and non-parametric as median (inter quartile range).

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Evaluation of Multidisciplinary Surgical Team Outcomes for Complex Vaginal, Urethral, Perineal, and Rectal Fistulas using Flaps and Grafts

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Introduction: Autologous flaps, biologic mesh, and graphs can enhance the surgical approach to complex and genitourinary fistulas though there is no consensus on best practices.
Objective: To describe patient factors, surgical techniques, adverse events, recurrence, and long term functionality related to use of grafts and flaps for complex pelvic fistulas with a multidisciplinary team approach. We hypothesized that advanced surgical techniques with graft, mesh, or flaps would have improved closure rates compared to repairs with local tissue alone.

Methods: Retrospective cohort from 2017 to 2021 at an academic center of gynecology, urology, urogynecology, plastics, and colorectal procedures utilizing grafts, flaps, or biologic meshes for complex vaginal, urethral, perineal, and rectal fistula repair. Included patients were female, over age 18 with surgical fistula repair by CPT code query.
Results: Sixty-seven patient were screened from CPT code search result; 27 repeats excluded, 14 non-fistula procedures excluded, 26 remained for analysis. Patients were dichotomized into two groups by surgical repair technique, 14 with grafts or flaps and 12 with local tissue. There were 10 Martius (bulbocavernous/ labial fat pad) flaps, 4 Gracilius muscle transpositions, 2 cadaveric fascia lata grafts, and 1 omental flap. Patients with graft or flap procedures were older, had lower bmi, current non-smoker and were more frequently white (table 1). More patients in the local tissue group were premenopausal 66% vs 42%. Prior surgical repair history including number of surgeries, prior repair with graft/flap, and prior diversion were not statistically different between groups. Median length of stay was significantly greater in graft/flap group 3 (iqr 4) vs 0.5 (iqr 1). There were 6 patients (13.5%) with graft/flap associated adverse events including 5 wound infections, 1 hematoma, 1 sloughing/loss of graft, 1 SBO from omental graft, and 4 repeat surgeries. Overall short term recurrence rates (90 days) at 23%. Median months of follow-up months was different between groups 13.5 (iqr 17) flap/grafts vs 2.5 (iqr 11.5) local tissue. Gracilius flaps had a higher immediate reoperation rate 75% (n=3) vs 20% (n=2) than Martius flaps but lower reoperations after 90 days 0% vs 20% (n=2). Functional limitations after surgery were rare but higher in local tissue group 11% vs 7%. There were no cosmetic complaints of changes at surgical site and infrequent loss of sexual function (4%).
Conclusions: The additional of grafts or flaps to surgical repair of pelvic fistulas does not seem to increase risk of long term complications or loss of functionality. Graft and flaps can provide additional surgical reinforcement in fistula repair without comprising physical or sexual functionality. Perioperative adverse events and long term recurrence did not differ by surgical technique. In an academic medical center, many patients present with prior surgical attempts and there may be a bias toward grafts/flaps in repeat procedures though number of prior surgeries was similar between groups. Further long term studies with validated questionnaires are needed to further assess this population venerable to development of pelvic floor disorders.
Disclosure: No
Images:

Table 1: Comparison of characteristics and surgical outcomes for genitourinary fistula by surgical approach.

Variable	All N=26	Flap/ Graft N=17	Local Tissue N=9	P –value*
Fistula Type				
Vesciovaginal	6 (23.08)	3 (21.43)	3 (25)	1
Urethrovaginal	2 (7.69)	1 (7.14)	1 (8.33)	1
Rectovaginal	8 (30.77)	5 (41.67)	3 (21.43)	0.401
Anovaginal/ Anoperineal	10 (38.46)	7 (50)	2 (25)	0.248
Enterouterine	1 (3.85)	1 (7.14)	0	1
Enteric Pouch vaginal	1 (3.85)	1 (7.14)	0	1
Previous fistula surgery	15 (57.69)	10 (71.43)	5 (41.67)	0.233
Number prior surgeries, median (iqr)	2 (3)	2.5 (3)	2 (2)	0.422
Prior Surgery with graft or flap	8 (53.33)	6 (60)	2 (40)	0.608
Surgical provider				
Urogynecology	23 (88.46)	13 (92.86)	10 (83.33)	0.580
Urology	4 (15.38)	3 (21.43)	1 (8.33)	0.598
Colorectal	16 (61.54)	10 (71.43)	6 (50.00)	0.422
Plastic Surgery	4 (15.38)	4 (28.57)	0	0.100
Length of stay (days), median (iqr)	1 (4)	3 (4)	0.5 (1)	**0.028**
Perioperative adverse event	13 (52.0)	9 (69.23)	4 (33.33)	0.156
Adverse Events				
Wound infection	5 (19.23)	4 (28.57)	1 (8.33)	0.330
Hematoma	1 (3.85)	1 (7.14)	0	1
Systemic Infection	6 (23.08)	4 (28.57)	2 (16.67)	0.652
UTI	1 (3.85)	1 (7.14)	0	1
Ostomy complications	3 (10.74)	3 (21.42)	0	0.225
Crohn's flare	1 (3.85)	1 (7.14)	0	1
Ileus	1 (3.85)	1 (7.14)	0	1
Bowel obstruction	1 (3.85)	1 (7.14)	0	1
Anemia/ Transfusion	1 (3.85)	1 (7.14)	0	1
Recurrence <90 days	4 (15.38)	3 (21.43)	1 (8.33)	0.598
Months until recurrence, median (iqr)	2 (4)	3.5 (5)	2 (5)	0.667
Ostomy with fistula repair	5 (19.23)	5 (29.41)	0	**0.042**
Urinary diversion with fistula repair	13 (52)	8 (61.54)	5 (41.67)	0.434
Follow-Up (months), median (iqr)	8.5 (21)	13.5 (17)	2.5 (11.5)	**0.034**
Reoperation for fistula >90 days	9 (23.08)	5 (35.71)	1 (8.33)	0.170
Functional complaints from flap	2 (9.09)	1 (7.69)	1 (11.11)	0.698
Cosmetic complaints from flap	0	0	0	
Unable to return to sexual function	1 (3.85)	1 (9.09)	0	1

*p-values from Fisher's exact or Student's t-test, where appropriate. Categorical data expressed at n (%), continuous as mean (standard deviation), and non-parametric as median (interquartile range).

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A Machine Learning-based Approach to the Detection of Rectal Hypermobility and Folding using Dynamic Ultrasound Imaging
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Introduction: Rectal Compression Ratio which is a key factor in diagnosing and determining the severity of rectal hypermobility/ folding in women with obstructed defecation symptoms can be calculated using data from Magnetic Resonance Imaging (MRI) and Dynamic Ultrasound Imaging (DUI) of the pelvic floor. While DUI is commonly believed to outperform MRI in terms of speed, cost and complexity, its applicability has been hindered by the relatively poor quality and high levels of noise in DUI images.
Objective: We propose a Machine Learning-based approach to the segmentation of pelvic floor dynamic ultrasound images. The proposed approach uses a deep neural network (of the U-Net architecture) to automatically detect landmark points and segment DU images of the pelvic floor.
Methods: The dynamic ultrasound recording started with the patient at rest and captured 5 seconds of Valsalva straining and 5 seconds of squeeze while visualizing mid sagittal view of posterior compartment. Cul de sac, levator plate and rectum were segmented on each image and used for training the network to detect the landmarks (Figure 1). An artificial deep neural network (of the U-Net architecture) was designed and trained to take raw DU images as input and extract features from individual image frames. In order to generate training data for the network, several DUI clips from diagnosed patients were manually converted into individual frames and then segmented so that the required features could be extracted by a specialist. Labeled data generated in this way were divided into training and test subsets which were then used to train and evaluate the reliability of the network results.
Results: A U-Net was designed and trained using 50 ultrasound clips with 110-frame from 20 diagnosed patients. The network was then applied to several cases it had not been previously exposed to; and was able to extract the required features with accuracies of 83.5%, 70% and 90.5% for Cul de Sac, levator plate, and rectum, respectively. The average Intersection over union (IOU)-based accuracy of 82.9% is expected to improve with more clinical data presented to the network and minor refinements made to the architecture of the network.
Conclusions: As there continues to be an emerging clinical application for the use of ultrasound in urogynecology imaging, there is significant opportunity to utilize AI technology to address some of the main limitations of ultrasound for this application to drive increased up-take and new user use. Results from the application of the trained U-Net to several DU images suggest that the proposed approach can generate information that would enable the physician to diagnose and determine the severity of rectal hypermobility/folding fairly accurately. Future studies with larger data is required to improve the accuracy of current trained AI for this application.
Disclosure: No
Images:

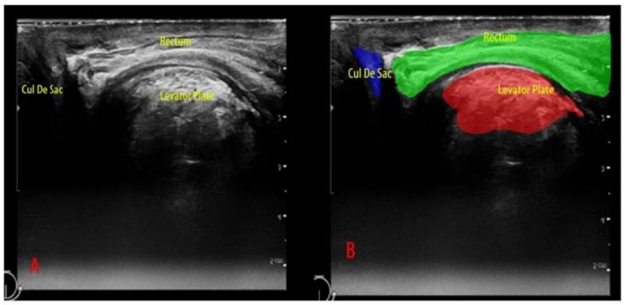

Figure 1: Dynamic posterior compartment ultrasound mid-sagittal view A) Landmarks should be Captured on each image B) main landmarks are segmenetd manually.

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Impact of Permanent versus Absorbable Suture in Sacrocolpopexy for Pelvic Organ Prolapse: A Systematic Review and Meta-Analysis

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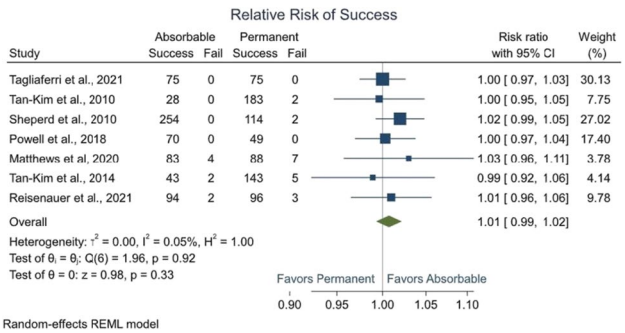
Introduction: Sacrocolpopexies are commonly performed surgeries for apical vaginal prolapse. Either permanent or absorbable sutures are used at the discretion of the surgeon. There is limited data comparing the outcomes of permanent and absorbable sutures used during sacrocolpopexy. Our study focuses on the anatomic outcomes of permanent versus absorbable suture use on the vaginal mesh attachment in sacrocolpopexy.
Objective: To systematically review the literature regarding how permanent versus absorbable suture impacts anatomic failure in women undergoing sacrocolpopexy.
Methods: MEDLINE and EMBASE were searched from their inception through 6/11/21 using pre-identified search terms. Our population included studies of women who underwent sacrocolpopexy. We excluded cadaver, tissue sample, or animal studies. We excluded hysteropexy. Our intervention was defined as permanent sutures (polytetrafluoroethylene, polypropylene, poliglecaprone 25, polyester, silk, and nylon). Our comparator group was absorbable or delayed absorbable sutures (polyglactin, polydiaxanone, and polyglyconate). Outcomes included anatomic failure defined using POP-Q stage or Baden Walker grade, subjective symptoms of a bulge, re-operations, or re- treatments. A single composite anatomic success proportion was determined for each study. Adverse events including suture exposure, mesh exposure, granulation tissue, surgery for suture complication, and dyspareunia were collected. Abstracts were double-screened using Abstrackr, then full text articles were doubly screened, and then accepted articles were doubly extracted. Quality of studies was assessed using GRADE criteria. In studies using either absorbable or permanent sutures (single-arm studies), random effects meta-analyses of pooled proportions were used to assess anatomic success. In studies investigating both suture types (comparative studies), random effect meta-analyses of pooled risk ratios were used. Analyses were performed using STATA, v.17 and p<=0.05 was considered statistically significant.
Results: 4,357 abstracts were screened, 349 full-text papers assessed, and 41 studies met eligibility criteria. (Figure 1). Of these, 7 compared both suture types, and 34 used one suture type. Overall, 11 studies were RCTs, 12 were comparative (1 prospective and 11 retrospective) and 17 were single arm (8 prospective, 9 retrospective, 1 unclear direction). 4 studies had quality ratings of A, 18 were rated B, and 19 were C. Mean follow up was 17.4 months. The proportional anatomic success rate of absorbable suture (n=13) was 90% (95% CI 0.86, 0.94), and permanent suture (n=24) was 93% (95% CI 0.91, 0.95) with considerable heterogeneity. On meta-analysis, there was no difference in relative risk of success compared to failure for permanent sutures versus absorbable sutures (n=7), RR = 1.01 (95% CI 0.99, 1.02) with low heterogeneity (Figure 2).
Conclusions: Overall, failure rate was low and similar for both absorbable and permanent suture for the vaginal attachment of sacrocolpopexy with medium term follow-up.
Disclosure: No
Images:

Figure 1. Summary Table Of Sacrocolpopexy Studies

Study	Study Design (Quality)	N	Follow up time (months)	Sacral Suture Type	Vaginal Absorbable Anatomic Success	Vaginal Permanent Anatomic Success	Vaginal Adverse Events for Absorbable sutures	Vaginal Adverse Events for Permanent sutures
Tagliaferri, 2021	RCT (A)	150	12	permanent	75/75 (100%)	75/75 (100%)	0/75 Mesh erosion	3/75 Mesh erosion
Shepherd, 2010	Comparative: restrospective (B)	415	1.5	unclear	256/254 (100%)	114/116 (98%)	2/254 Mesh erosion 8/254 Suture exposure/extrusion	0/161 (mesh and suture erosion rate)
Powell, 2018	Comparative: restrospective (C)	119	NR	unclear	70/70 (100%)	49/49 (100%)	2/70 Suture exposure/extrusion 0/70 Surgery for suture complication	9/49 Suture exposure/extrusion 2/49 Surgery for suture complication
Matthews, 2020	RCT (A)	182	12	permanent	83/87 (95%)	88/95 (93%)	7/87 Mesh erosion 5/87 Suture exposure/extrusion 0/87 Surgery for suture complication	2/88 Suture exposure/extrusion 1/88 Surgery for suture complication 5/88 Mesh erosion
Tan-Kim, 2014	Comparative: restrospective (B)	193	18	NR	43/45 (96%)	143/148 (97%)	6/45 Mesh erosion	8/148 Suture exposure/extrusion 4/148 Mesh erosion
Tan-Kim, 2010	Comparative: restrospective (C)	211	4.5	NR	28/28 (100%)	181/183 (99%)	NR	NR
Reisenauer, 2021	RCT (B)	195	6	Permanent	94/96 (98%)	96/99 (97%)	2/96 Suture exposure/ extrusion 0/96 Surgery for suture complication 0/96 Mesh erosion	3/99 Suture exposure/extrusion 0/99 Mesh erosion
Morciano, 2018	RCT (B)	84	12	absorbable	82/84 (98%)		NR	
Berger, 2020	RCT (B)	46	12	permanent	41/46 (89%)		NR	
Cvach, 2012	Comparative: unclear direction (C)	9	19	permanent	5/8 (63%)		2/8 Mesh erosion	
Tan-Kim, 2014	RCT (B)	64	12	permanent	50/55 (91%)		2/55 Mesh erosion	
Bazzi, 2019	Comparative: restrospective (C)	131	12	NR	99/125 (79%)		6/125 Mesh erosion	
Gilleran, 2008	single group: restrospective (C)	29	23	permanent	29/29 (100%)		1/29 Suture exposure/extrusion 1/29 Dyspareunia	
Borobay, 2014	single group: restrospective (C)	20	17.3	permanent	20/20 (100%)		0/ 20 Suture exposure/ extrusion 0/ 20 Mesh erosion	
Stubbs, 2011	single group: restrospective (C)	36	3.8	permanent	33/36 (92%)		NR	
Shekhar, 2020	single group: prospective (C)	20	16	permanent	19/20 (95%)		0/20 Mesh erosion	
Balsamo, 2017	Comparative: restrospective (B)	73	94	Absorbable	67/73 (92%)		1/73 Mesh erosion	
Bazzi, 2019	Comparative: restrospective (B)	131	3	NR	41/66 (62%)		41/66 Mesh erosion	
Kallidonis, 2017	single group: restrospective (C)	20	13.6	Permanent	16/20 (80%)		6/20 Mesh erosion	
Lui, 2018	single group: restrospective (C)	15	3	Permanent	15/15 (100%)		NR	
Culligan, 2013	RCT (B)	58	12	permanent		50/58 (86%)		5/58 Dyspareunia 4/58 Suture exposure
Elliot, 2006	single group: prospective (B)	21	24	permanent		18/20 (90%)		2/20 Mesh erosion
Ross, 2005	single group: prospective (B)	51	12	permanent		43/51 (84%)		4/51 Dyspareunia 4/51 Mesh erosion
Davila, 2020	Comparative: restrospective (C)	30	6	permanent		29/30 (97%)		0%
Culligan, 2005	RCT (A)	145	12	permanent		41/45 (91%)		3/45 Mesh erosion
Noe, 2014	RCT (B)	41	19.5	permanent		37/41 (90%)		NR
Gracia, 2015	Comparative: prospective (B)	30	6	permanent		21/30 (70%)		9/30 Mesh erosion 0/30 Dyspareunia
Coolen, 2017	RCT (B)	74	12	permanent		30/35 (86%)		4/35 Dyspareunia
Nosti, 2016	Comparative: restrospective (B)	75	12	permanent		93/104 (89%)		3/104 Suture exposure/extrusion
Benson, 2010	Comparative: restrospective (C)	21	29	permanent		31/33 (94%)		0/33 Dyspareunia 0/33 Mesh erosion
Culligan, 2020	single group: prospective (B)	253	66	permanent		226/253 (89%)		9/253 Mesh Erosion
Salamon, 2012	single group: restrospective (C)	64	12	permanent		57/64 (89%)		3/64 Mesh Erosion
Salamon, 2012	single group: prospective (B)	118	12	permanent		105/118 (89%)		2/118 Dyspareunia 2/118 Mesh erosion
Tate, 2010	RCT (A)	29	60	permanent		26/29 (90%)		3/29 Mesh erosion
Liu, 2019	single group: restrospective (C)	49	3	permanent		49/49 (100%)		
Martin, 2015	Comparative: restrospective (C)	181	3	permanent		160/165 (97%)		5/165 Suture exposure/extrusion 3/165 Surgery for suture complication
Sato, 2020	single group: restrospective (C)	46	12	permanent		43/46 (93%)		NR
Kenton, 2016	prospective cohort (B)	66	12	permanent		65/66 (98%)		1/66 Suture exposure/extrusion 1/66 Mesh erosion
Belsante, 2013	single group: restrospective (C)	35	28	permanent		35/35 (100%)		1/35 Mesh erosion
Claerhout, 2009	single group: prospective (C)	132	12.5	Permanent		77/99 (78%)		15/133 Dyspareunia 6/133 Mesh erosion
Elliot, 2007	single group: prospective (C)	35	36	Permanent		34/35 (97%)		2/35 Mesh erosion 1/35 Suture exposure/extrusion 0/35 Surgery for suture complication



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Risk of Recurrent Prolapse by Extent of Synthetic Mesh Excision Procedures: A Multicenter Study

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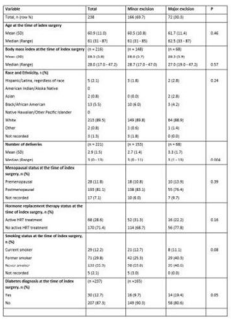
Introduction: There is limited evidence guiding surgeons in how much mesh to resect when treating mesh complications.
Objective: To compare rates of recurrent prolapse after surgical procedures for mesh complications.
Methods: This multicenter, retrospective cohort study included patients treated surgically for complications of mesh placed for prolapse repair at 8 institutions between 2010 and 2019. We identified patients by relevant CPT codes; they were excluded if the mesh was placed for incontinence, had prolapse at time of excision, or less than two weeks of follow-up data were available. Cases were categorized as "major excisions" (total vaginal mesh excision, extravaginal mesh excision, and total mesh excision) or "minor excisions" (partial vaginal mesh excisions and mesh revisions) based on the AUGS/IUGA Joint Statement. The primary outcome was composite prolapse recurrence (prolapse beyond the hymen, symptoms of bulge, or prolapse retreatment) at 1 year after index mesh excision surgery, or the most recent, highest extent surgery. Time to recurrence was evaluated by Kaplan-Meier curves and Cox proportional hazards regression.
Results: Of 238 eligible patients, 166 had minor excisions (69.7%) and 72 (30.3%) had major excisions. Median follow-up was 0.9 years (IQR 0.2-3.1) and was similar between groups. Between groups, there were no differences in demographics or medical history except the major excision group on average had higher parity (3.3 vs 2.7, $p < 0.01$), Table 1. Major excisions more often involved multiple compartments (64.6% vs 22.5%, $p < 0.01$), prior transvaginal mesh kits (52.9% vs 40.1%, $p = 0.03$), and were more likely to occur at a different facility than mesh implantation (73.9% vs 53.5%, $p < 0.01$). Major excisions were more likely to have followed previous mesh-complication related surgeries (41.7% vs 21.7%, $p = 0.01$), and less likely to have followed non-surgical treatments (44.4% vs 66.3%, $p < 0.01$). There were no differences in concurrent colporrhaphy or apical suspension procedures at the time of the index procedure. Of 27 total recurrences, 9.6% (n =16) and 15.3% (n =11) were in the minor and major groups, respectively. Most cases (92.6%, n=25) of recurrent prolapse were based on anatomic findings; 63% (n=17) in the anterior compartment, 37.0% (n=10) posteriorly, and 7.4% (n=2) apically. At 1 year, 3.3% (n =3) of minor and 8.2% (n =5) of major excisions recurred. In unadjusted regression analysis, major excisions were not significantly associated with recurrences when compared to minor excisions (hazard ratio [HR] 3.76, 95% CI 0.9-15.73), Figure 1. However, when adjusting for type of mesh implant, major excisions were associated with increased recurrence at 1 year (HR 5.17, 95% CI 1.20-22.35). In long term follow-up, there was no difference in recurrence rates of minor (37.8%, 95% CI 20.3-63.0) and major (28.7%, 95% CI 15.7-49.0) excisions.
Conclusions: Our study demonstrates overall low prolapse recurrence after mesh excision of prolapse mesh in the first year. When adjusting for mesh type, major mesh excision was associated with increased prolapse risk compared with minor excision. Recurrence increases time in both groups. Planning surgical intervention for mesh complications may consider prolapse recurrence risk.
Disclosure: No
Images:



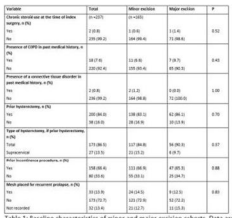


Table 1: Baseline characteristics of minor and major excision cohorts. Data are n (column %) unless otherwise noted. Number with non-missing data is in parentheses when less than the total number. Age compared by T-test, BMI and parity compared by Wilcoxon rank-sum test, and remainder of the variables compared with Fishers exact test.

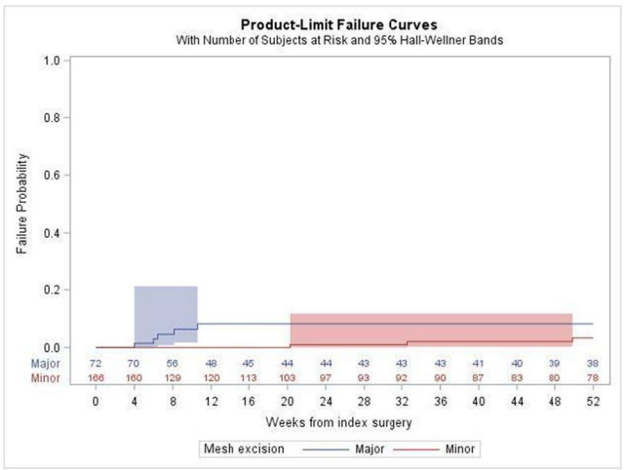


Figure 1. Recurrent prolapse within one year of mesh excision procedure. Patients at risk of in the major and minor excision groups below the graph.

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1-year Outcome after Bilateral Uterosacral Ligament Replacement - Comparison of Abdominal and Laparoscopic Surgical Techniques in Treatment of Pelvic Organ Prolapse and Urinary Incontinence

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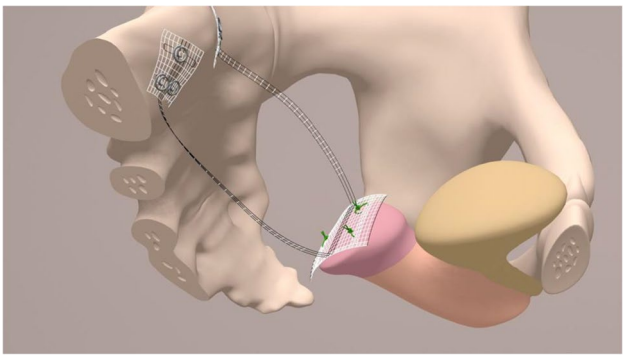
Introduction: Laxity of the anterior vaginal wall leads to the funnelling of the bladder neck and triggering inappropriate micturition reflexes and thus might lead to urinary incontinence. In the upright body position the anatomical support of the anterior vaginal wall (on which urethra and bladder base rest) is mainly ensured by the cervix / uterus, thus an intact apical suspension is mandatory.
Objective: Sacrocolpopexy (SCP) is the gold-standard for apical reconstruction. The technical performance of each SCP varies according to the surgeońs discretion, and comparison of clinical outcomes may be hampered. Therefore, a comprehensible surgical technique for bilateral apical fixation with a minimum amount of synthetic material was developed. Evaluation of the clinical 1-year results after cervicosacropexy (either abdominal or laparoscopic) and its safety and efficacy are presented for the first time.
Methods: Retrospective analysis in a tertiary center of women with POP-Q stages I-IV and urinary incontinence. All patients received a standardized bilateral uterosacral ligament (USL) replacement using polyvinylidene-fluoride tapes (PVDF) either open abdominal or laparoscopic cervicosacropexy. These PVDF tapes were identical in shape, that is 0.4 cm width and 8.8 cm length (Fig. 1). Clinical outcome was assessed at 12 months.
Results: 145 patients were evaluable, 75 patients were operated with the abdominal, 70 patients with the laparoscopic approach. No major complications occurred intraoperatively, and no mesh erosions were detected within 1-year postoperatively. There was no significant difference in clinical outcome one year after surgeries. Apical support (POP-Q stage 0) was restored in 100% of patients and urinary continence restored in 59% of patients (59% after laparotomy vs 62% after laparoscopy, respectively). After laparoscopy, patients stayed 3 days in mean compared to 5 days after laparotomy. Regarding the operating time, a laparotomy lasted in mean 120 minutes (89 - 168 minutes), whereas a laparoscopy lasted in mean 89 minutes (58 - 128 minutes).
Conclusions: In contrast to many other apical fixations, both USL were replaced using a clearly defined surgical technique (in term of type of material, size, shape of mesh, and positioning). This standardization ensured comparable and reproducible clinical outcomes, despite different surgical access paths. This bilateral cervicosacropexy shows a very good anatomical result even one year after surgery, without any mesh complications. Beside the anatomical correction of the prolapse, the anterior vaginal wall (and its vesico-urethral junction) is emphasized and urinary continence could be restored. This surgical procedure is one alternative option in women with apical prolapse and urinary incontinence, especially since only a minimum of synthetic material is used.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: FEG Textiltechniuk mbH Aachen, Germany
Images:



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Pelvic Organ Prolapse Assessment after Pessary Removal – The Importance of Timing

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Introduction: Vaginal pessaries are widely used as a conservative treatment option in the management of pelvic organ prolapse (POP) [1,2] and have proven effective in relieving POP symptoms [3–5]. However, some patients, after initial successful pessary fitting, choose for surgical management. This decision is often based on continued pessary dislodgment or the development of pressure ulcers. These patients typically require new pelvic organ prolapse quantification (POP-Q) to assess the involved compartments as well as the extent of prolapse to allow for proper surgical planning. From a clinical perspective one could expect a direct descent of all affected compartments since the physical support which the pessary gave to the vaginal walls and pelvic organs is gone. However, a delayed descent due to retainment of the organ position might also be possible. To the best of our knowledge there are no guidelines or studies describing the amount of time that should be applied between pessary removal and POP-Q assessment. Assessing this time period should, in line with previous study results [6], be done in upright position.
Objective: To evaluate the amount of time needed after pessary removal to assess the full extent of POP by means of upright MRI.
Methods: 15 post-menopausal women with POP stage ≥2, ≥1 vaginal delivery and with successful pessary (ring) management ≥ 3 months were included. Pessaries were removed 15 minutes before scanning in case of removal by physician (group 1; n=12) or the evening before scanning in case of self-management (group 2; n=3). All women were scanned in the morning (8:00-10:00), midday (12:00-14:00) and afternoon (16:00-18:00) during one day. The T2/T1 weighted sagittal scans were acquired in upright position using a tiltable 0.25T MRI scanner (G-scan Brio, Esaote SpA, Italy). Bladder and cervix height were determined, defined as their distance perpendicular to the horizontal line (Figure 1). The Wilcoxon signed-rank test was used to evaluate statistically significant differences in bladder and cervix heights between the morning and midday/afternoon measurements.
Results: In group 1 (Table 1), at 4 hours after pessary removal (midday) the bladder height decreases with a median (min, max) difference of -0.2cm (-2.8 , 1.2), with a further significant descent after 8 hours up to -0.5cm (-5.4, 1.2) (p=0.028) (Figure 2). Comparable results were found in cervix height, with a median difference of -0.3cm (-1.2, 1) and -0.4cm (-2.6, 0.6) at 4 and 8 hours after pessary removal respectively. In group 2 (Table 2) no significant differences in bladder and cervix height were found between the morning, midday and afternoon measurements, but a similar descent during the day was found (Table 1).
Conclusions: Median descent of POP is limited in time between pessary removal and assessment. However 83% of the patients have organ descent during the day, with delayed POP descent up to 5 cm. The current study sample was limited and measurements were done in upright rest position, while POP-Q is done in supine straining position. These results indicate that, to prevent POP underestimation, at least 8 hours should be planned between pessary removal and POP-Q assessment.
Disclosure: No
Images:

Table 1 Bladder and Cervix height by means of upright MRI assessment with pessary removal 15 minutes before scanning

Pessary removal directly before scan	Bladder		Cervix	
(N=12)	Morning vs midday	Morning vs afternoon	Morning vs midday	Morning vs afternoon
Descent	7	10	7	8
Ascent	5	2	4	2
Median(min, max) difference	-0.2 (-2.8 ; 1.2) cm	-0.5 (-5.4 ; 1.2) cm	-0.3 (-1.2, 1) cm	-0.4 (-2.6, 0.6) cm
p-value (Wilcoxon)	0.751	**0.028**	0.265	0.059

Table 2 Bladder and Cervix height by means of upright MRI assessment with pessary removal the evening before scanning

Pessary removal evening before scan	Bladder		Cervix	
(N=3)	Morning vs midday	Morning vs afternoon	Morning vs midday	Morning vs afternoon
Descent	3	3	3	3
Ascent	0	0	0	0
Median (min, max) difference	-0.6(-1.6, -0.6)	-1 (-1.2, -1)	-0.8(-2, -0.6)	-1.2(-1.6, -1)
p-value (Wilcoxon)	0.102	0.102	0.109	0.109

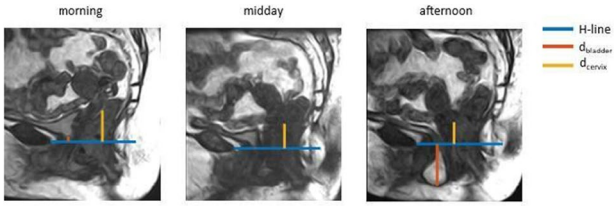
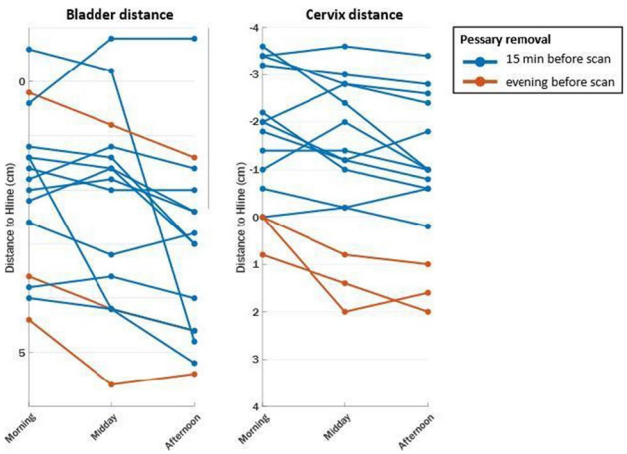


Figure 1 Sagital MR images of one patient at different moments during the day in upright position, on which the measured distances of the bladder and cervix to the H -line ($d_{bladder}$ and d_{cervix} respectively) are visualized.



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Is There an Association Between 6-month Genital Hiatus Size and 24-month Composite Subjective Prolapse Recurrence following Minimally Invasive Sacrocolpopexy?

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Introduction: Postoperative genital hiatus (GH) size has been identified as a predictor of surgical success following POP surgery.
Objective: To describe 24-month composite subjective prolapse recurrence following minimally invasive sacrocolpopexy (MI-SCP) between patients with a 6-month post-operative GH measurement of <3cm compared to those ≥3cm; and, to explore the impact of concurrent level 3 support procedures on subjective prolapse recurrence, bowel, and sexual function.
Methods: This was a secondary analysis of two randomized, single-blinded controlled trials of women who underwent MI-SCP for uterovaginal or post-hysterectomy vaginal vault prolapse at a tertiary care center from June 2014 through January 2020. Women who had a documented preoperative and 6-month postoperative POP-Q examination, and those who had completed the 20-item Pelvic Floor Distress Inventory (PFDI-20) questionnaire preoperatively and at 6- and 24 months postoperatively were included. Our primary outcome was composite subjective prolapse recurrence defined as retreatment with either a pessary or surgery, and/or a positive response to question 3 of the PFDI-20 questionnaire. The EMR was queried for demographic and perioperative data. 6-month GH measurements were used as a proxy for early postoperative GH size. A receiver operating characteristic (ROC) curve was generated to identify a 6-month GH cut point associated with 24-month bothersome vaginal bulge, and/or retreatment and this threshold was explored. Based on this, patients were categorized as having a GH<3cm or GH≥3cm, and comparisons between these two groups were made.
Results: A total of 108 women met inclusion criteria. 35 patients (32%) underwent robotic-assisted SCP and 73 (68%) laparoscopic SCP. Mean age and BMI were 60±8 years and 28±5 kg/m2. The majority of women were white (94%), postmenopausal (94%), and had anterior predominant, stage 3 POP (56%). 23 (21%) patients had a GH 3cm underwent retreatment for prolapse. Of the patients, 45% (49) underwent a concurrent level 3 support procedure at the time of MI-SCP. Mean GH size reduction was greater for patients who underwent concurrent level 3 support procedures (-1.0cm vs -0.5cm, p=0.02). There were no differences in de novo dyspareunia or de novo defecatory dysfunction between patients who underwent concurrent level 3 support procedures and those who did not.
Conclusions: 24-month composite subjective failure following MI-SCP did not differ based on 6-month GH size; however, surgical failure was only seen in patients with a GH size of 3cm or greater. Concurrent level 3 support procedures were not associated with subjective prolapse recurrence, bowel symptoms, or de novo dyspareunia.
Disclosure: No

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Laparoscopic Sacrocolpopexy versus Open Abdominal Sacrocolpopexy for Vaginal Vault Prolapse: Long-term Follow-up of a Randomized Trial

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Introduction: The prevalence of vaginal vault prolapse, requiring apical surgery, has been reported in 23% of women who underwent vaginal hysterectomy for pelvic organ prolapse (POP). Sacrocolpopexy is one of the preferred surgical treatment options. A previously conducted randomized controlled trial compared laparoscopic sacrocolpopexy (LSC) to abdominal sacrocolpopexy (ASC) as treatment for vaginal vault prolapse. The results showed less blood loss, a shorter hospital stay, and less related morbidity in favor of the laparoscopic group, after 12 months of follow-up. There was a significant improvement in quality of life in both groups. Recognition of long-term outcomes is essential for giving consensus regarding optimal surgical treatment and for adequate patient selection and preoperative counselling.
Objective: To evaluate long-term outcomes in patients with vaginal vault prolapse, who underwent a laparoscopic sacrocolpopexy or abdominal sacrocolpopexy in our previously conducted randomized controlled trial.

Methods: All patients from the initial trial were asked for participation in a long-term follow-up study. They were asked to fill in several Dutch questionnaires and visit our outpatient clinic for pelvic examination. Primary outcome was the long-term disease specific quality of life, measured with the Urogenital Distress Inventory. Secondary outcomes include the effects of the surgical treatment on POP-related functional symptoms as micturition and defecation, measured with the Urogenital Distress Inventory, Defecatory Distress Inventory, and Incontinence Impact Questionnaire. Patient satisfaction of their postoperative condition as compared to how it was before surgery was verified by the Patient Global Impression of Improvement. Anatomical outcomes were measured with the POP-Q examination.
Results: In the original trial 74 women were randomly assigned to laparoscopic sacrocolpopexy (n=37) or abdominal sacrocolpopexy (n=37) between 2007 and 2012. We analyzed 22 patients in the LSC group and 19 patients in the ASC group, with a median follow-up duration of 105 months (8.75 years) and 111 months (9.25 years), respectively (p=.856). Health related quality of life did not differ after long-term follow-up with median scores of 0.0 on the 'genital prolapse' domain of the UDI in both groups (IQR 0 – 17 for LSC and IQR 0 – 0 for ASC; p=.175). Patient satisfaction, according to the PGI-I questionnaire was also not statistically different (LSC 57.9%; ASC 58.8%; p=.317). Anatomical outcomes were the same for both groups on all points of the POP-Q. Point C on the POP-Q examination showed a mean score of -4.7 in the LSC group and a mean score of -5.8 in the ASC group (range -8 – 8 for LSC and range -8 – -3 for ASC; p=.353).
Conclusions: Results of early follow-up provided evidence in favor of the laparoscopic approach. After long-term follow-up, laparoscopic sacrocolpopexy and abdominal sacrocolpopexy show no differences on health related quality of life and anatomical outcome measures.
Disclosure: No
Images:

Table 1. Health related quality of life.

	Before surgery		Long-term follow-up		*p-value*
	LSC (n=34)	ASC (n=31)	LSC (n=20)	ASC (n=19)	
Patient satisfaction (PGI-I)					
No./total no. of patients (%)					
'Very much better' or 'Much better'	-	-	11/19 (57.9%)	10/17 (58.8%)	.317
Urogenital distress inventory (UDI)					
Median (IQR)					
Overactive bladder	33.3 (11-56)	44.4 (22-50)	16.7 (3-33)	22.2 (0-44)	.762
Urinary incontinence	16.7 (0-50)	16.7 (0-42)	25.0 (0-33)	16.7 (0-42)	.828
Obstructive micturition	0.0 (0-33)	16.7 (0-58)	0.0 (0-17)	0.0 (0-33)	.901
Genital prolapse	66.7 (58-92)	66.7 (33-67)	0.0 (0-17)	0.0 (0-0)	.175
Pain	16.7 (0-50)	33.3 (17-33)	0.0 (0-17)	16.7 (0-33)	.061
Defecatory distress inventory (DDI)					
Median (IQR)					
Obstipation	0.0 (0-17)	0.0 (0-33)	0.0 (0-17)	0.0 (0-17)	1.000
Obstructive defecation	4.2 (0-17)	8.3 (0-25)	0.0 (0-8)	8.3 (0-17)	.531
Pain	0.0 (0-0)	0.0 (0-0)	0.0 (0-0)	0.0 (0-0)	.749
Fecal incontinence	0.0 (0-17)	8.3 (0-33)	0.0 (0-29)	16.7 (0-33)	.478
Flatus incontinence	33.3 (0-67)	33.3 (0-67)	16.7 (0-58)	0 (0-33)	.396
Incontinence impact questionnaire (IIQ) Median (IQR)					
Physical	25.0 (0-50)	0.0 (0-33)	0.0 (0-13)	0.0 (0-15)	.897
Mobility	11.1 (0-33)	33.3 (11-44)	8.3 (0-23)	16.7 (8-42)	.127
Social	11.1 (0-22)	11.1 (0-33)	0.0 (0-8)	0.0 (0-17)	.967
Embarrassment	0.0 (0-17)	16.7 (0-17)	0.0 (0-13)	0.0 (0-13)	.989
Emotional	11.1 (0-33)	22.2 (0-33)	0.0 (0-8)	8.3 (0-17)	.322

Table 2. POP-Q measurements.

	1 year follow-up			Long-term follow-up		
	LSC (n=29)	ASC (n=29)	p-value	LSC (n=16)	ASC (n=13)	p-value
Aa	-1.3 ± 1.8 (-3 – 2)	-1.1 ± 1.6 (-3 – 3)	.829	-1.4 ± 2.0 (-3 – 3)	-1.6 ± 1.5 (-3 – 2)	.719
Ba	-1.3 ± 1.8 (-3 – 2)	-1.3 ± 1.3 (-5 – 8)	.947	-1.3 ± 2.0 (-3 – 3)	-1.7 ± 1.3 (-3 – 1)	.550
C	-5.6 ± 2.3 (-8 – 0)	-5.1 ± 1.5 (-8 – -3)	.621	-4.7 ± 3.9 (-8 – 8)	-5.8 ± 1.5 (-8 – -3)	.353
GH	3.6 ± 0.7 (3 – 5)	4.0 ± 0.8 (3 – 5)	.262	3.4 ± 1.0 (2 – 5)	3.6 ± 1.1 (1 – 5)	.538
PB	3.1 ± 0.7 (2 – 4)	3.3 ± 0.7 (2 – 4)	.624	3.0 ± 0.5 (2 – 4)	3.1 ± 0.6 (2 – 4)	.723
TVL	7.8 ± 0.6 (7 – 9)	7.9 ± 1.6 (4 – 10)	.896	7.7 ± 0.8 (6 – 9)	8.1 ± 1.4 (6 – 10)	.394
Ap	-1.5 ± 1.3 (-3 – 0)	-1.6 ± 1.3 (-3 – 3)	.840	-1.8 ± 1.2 (-3 – 0)	-1.8 ± 1.2 (-3 – 0)	.924
Bp	-1.5 ± 1.3 (-3 – 0)	-1.6 ± 1.3 (-4 – 8)	.840	-1.8 ± 1.2 (-3 – 0)	-1.7 ± 1.3 (-3 – 0)	.571

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Hunner's Lesions Correlate with a Decrease and Redistribution of Mucosal Collagen Content in Patients with Interstitial Cystitis
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Introduction: Interstitial cystitis/bladder pain syndrome (IC/BPS) is a chronic and highly heterogenous condition of poorly understood etiology. Stratifying patients is imperative to effectively treating this complex patient population. In previous work we characterized two phenotypic subgroups within IC/BPS: bladder-centric and non-bladder-centric.
Objective: The goal of this study was to examine the histopathological differences between clinical subgroups.
Methods: 47 females (32 IC/BPS patients; 15 non-IC/BPS controls) were selected for this study and IC/BPS patients were further divided into two groups based on anesthetic bladder capacity (BC) ≤ 400 cc (low; N=16) or > 400 cc (non-low; N=16). Within each BC subgroup, one-half of the patients were Hunner's lesion positive (HL+) and the other half were HL-. Bladder biopsy tissue slides were stained with hematoxylin-eosin (to assess inflammation) and picrosirius red (to collagen content). CT-Fire software was used to quantify collagen density. Acute and chronic inflammation were graded as either minimal (1), moderate (2), or severe (3). HL and BC groups were independently compared to the control group (3-way). Continuous variables were evaluated by Kruskal Wallis 3-way tests, and categorical variables were evaluated with Fisher's exact test; $p<0.05$ was considered significant.
Results: Results: HL+ patients had a lower overall collagen density (181.99 vs 232.72; p=0.026). Interestingly, HL+ patients showed more acute inflammation (56.3% vs 6.7%; p=0.010), and chronic inflammation (p=0.024) compared to controls. More importantly, while the overall collagen density was lower in HL+ patients, the peri-detrusor fiber deposition was significantly higher (50.0% vs 6.7%; p=0.017). Peri-inflammatory collagen thinning approached but did not reach significance (75% vs 33%; p=0.069). These observations were present in all HL+ patients, independent of BC. The HL- patients did not differ significantly from controls.
Conclusions: The presence of Hunner's lesions, regardless of BC, is associated with a unique bladder mucosa in which collagen density is diminished while peri-detrusor collagen increases, along with a concomitant increase in inflammation. These findings suggest a dynamic collagen fiber destruction and redistribution process induced by inflammation, which may be the underlying pathophysiology of Hunner's lesions.
Disclosure: No
Images:

Table 1. Quantitative and histologic analyses of collagen content and deposition in the bladder mucosa from IC/BPS patients compared to non-IC/BPS controls.

	HL+ (N=16)	HL- (N=16)	Control (N=15)	Low BC (N=16)	Non-low BC (N=16)	Control (N=15)
Quantitative CT-fire analysis						
Collagen density* (fibers/mm²) Median (IQR)	181.99 (117.86)	237.01 (84.15)	232.72 (69.89)	213.70 (86.01)	214.72 (117.45)	232.72 (69.89)
			p=0.026~			p=0.320⁺
Qualitative histologic analysis						
Peri-inflammatory collagen thinning*	11/16 (75%)	5/16 (31.3%)	5/15 (33.3%) p=0.069~	9/16 (56.3%)	8/16 (50%)	5/15 (33.3%) p=0.232⁺
Collagen thinning/disorganization*	4/16 (25%)	3/16 (18.8%)	0/15 (0%) p=0.149~	3/16 (18.8%)	4/16 (25%)	0/15 (0%) p=0.149⁺
Peri-detrusor fiber Deposition*	8/16 (50%)	2/16 (12.5%)	1/15 (6.7%) **p=0.017~**	5/16 (31.3%)	5/16 (31.3%)	1/15 (6.7%) p=0.176⁺
Acute inflammation** (presence of neutrophils)	9/16 (56.3%)	3/16 (18.8%)	1/15 (6.7%) **p=0.010~**	6/16 (37.5%)	6/16 (37.5%)	1/15 (6.7%) p=0.091⁺
Chronic inflammation** (presence of lymphocytes)						
Minimal/absent	5 (31.3%	10 (62.5%)	6 (40%)	7 (43.8%)	8 (50%)	6 (40%)
Moderate	3 (18.8%)	4 (25%)	8 (53.3%)	4 (25%)	3 (18.8%)	8 (53.3%)
Severe	8 (50%)	2 (12.5%)	1 (6.7%) **p=0.024~**	5 (31.3%)	5 (31.3%)	1 (6.7%) p=0.209⁺

*Analyzed via Picrosirius red stain
**Analyzed via H&E stain
~p-value for comparison of HL+ and HL- IC/BPS subgroups to controls; p<0.05=significant
⁺p-value for comparison of Low and Non-low BC IC/BPS subgroups to controls; p<0.05=significant

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A Clinical Consensus Treatment Algorithm for Patients with High Tone Pelvic Floor Dysfunction: A Delphi Study of National Experts

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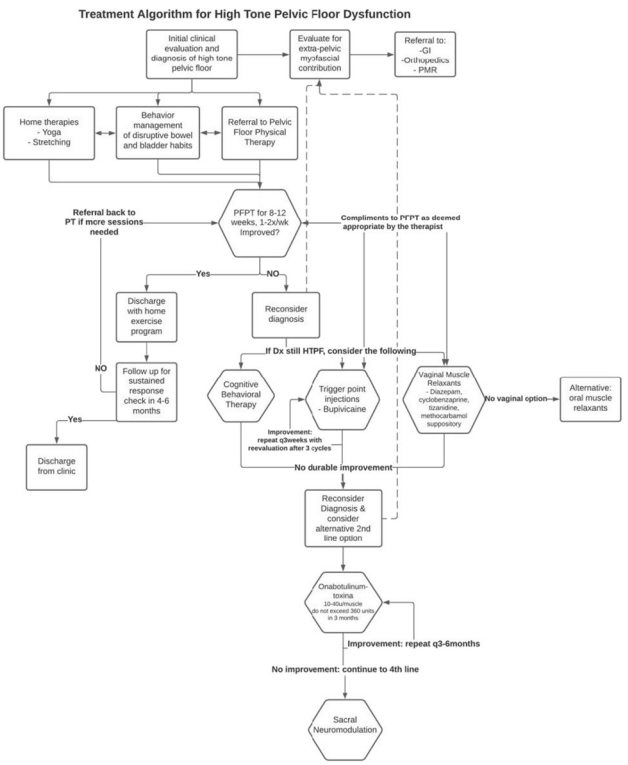
1 - UCLA
2 - UNC
3 - Cedars-Sinai Medical Center
4 - Vanderbilt
5 - Northwestern University
6 - Kotarinos Physical Therapy
7 - Washington University in Saint Louis
8 - Virginia Mason
9 - University of Kansas

Introduction: High-tone pelvic floor dysfunction (HTPFD) is a neuromuscular disorder of the pelvic floor characterized by non-relaxing pelvic floor muscles, resulting in voiding and defecatory symptoms, sexual dysfunction, and pelvic pain. Due to poor awareness of the condition and the need for detailed myofascial pelvic exam, these patients are often underdiagnosed and undertreated. Even when recognized, there are no uniformly accepted guidelines or treatment algorithms to guide the management of these patients.
Objective: To develop evidence- and consensus-based clinical practice guidelines for management of HTPFD.
Methods: A Delphi method of consensus development was used, comprising three survey rounds administered anonymously via web-based platform (Qualtrics® XM). National experts in the field of HTPFD were recruited through targeted invitation. Round 1 involved evidence-based statements about treatment for HTPFD. Panelists were asked to rate their agreement with statements on a 5-point Likert scale. Clinical consensus was defined as 70% agreement. In Rounds 2 and 3, participants re-appraised their ratings in view of the group consensus and contributed further ideas to be incorporated as new statements. Statements that did not reach consensus were revised and reposed in the subsequent round to clarify ambiguities.
Results: 11 experts participated with backgrounds in urology, urogynecology, minimally invasive gynecology, and pelvic floor physical therapy (PFPT). A total of 31 statements were reviewed by group members at the first Delphi round with 10 statements reaching consensus. 28 statements were reposed in the 2nd round with 17 reaching consensus. The posed algorithm met clinical consensus in the 3rd round. There was universal agreement that PFPT should be first-line treatment for HTPFD. At the same time as referral to PFPT, the patient should be encouraged to initiate home-based stretching and counseled on behavioral management options for concurrent bladder and bowel symptoms. If satisfactory symptom improvement is reached with PFPT, the patient can be discharged home with a home exercise program and reassessed at 4-to-6-month intervals for sustained improvement and referral back to PFPT as necessary. If no improvement after PFPT, 2nd line options may be considered, including cognitive behavioral therapy, trigger point injections, and vaginal muscle relaxants. Vaginal trigger point injections are performed by palpating the muscle perpendicular to its fiber orientation for a taut band, the taut band is palpated within its fiber direction for the most tender spot. Compounded vaginal muscle relaxants are preferred; if not accessible to the patient oral muscle relaxants may be employed. Trigger point injections and muscle relaxants may be used in conjunction with PFPT. Onabotulinumtoxina trigger point injections should be used as 3rd line at 10-40 units per muscle with symptom assessment after 2-4 weeks. There was universal agreement that sacral neuromodulation is 4th line. The largest identified barrier to care for these patients is access to PFPT. For patients who cannot access PFPT, experts recommend at-home guided pelvic floor relaxation, vaginal wands, and virtual PFPT visits.
Conclusions: A stepwise approach to the treatment of HTPFD is recommended, with patients often necessitating multiple lines of treatment either sequentially or in conjunction. However, PFPT should be offered first line.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Willow Innovations, Inc.
Images:



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Urinary Biomarkers and Overactive Bladder Symptoms Before and After Prolapse Surgery

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Introduction: Women with pelvic organ prolapse (POP) have increased prevalence of overactive bladder (OAB). Urinary biomarkers have been associated with OAB symptoms and treatment. However, evaluation of biomarkers associated with OAB in the setting of POP is limited.
Objective: The primary aim was to determine association between urinary biomarkers measured prior to POP surgery with post-operative OAB symptoms as measured by the OAB Questionnaire Short Form (OAB-q SF) in patients with POP and OAB. Secondary aims were to compare pre-operative biomarkers between those with and without OAB, compare pre-operative biomarkers in those with OAB to post-operative biomarkers, and to determine association between pre-operative biomarkers in those with OAB with post-operative Urogenital Distress Inventory-6 (UDI-6) score.
Methods: Patients with anterior and/or apical POP beyond the hymen undergoing POP surgery provided informed consent for participation. OAB symptoms were assessed using the OAB-q SF and the UDI-6 pre-operatively and 3 months post-operatively. Patients were grouped as OAB or no OAB pre-operatively based on answering 'sometimes' or greater on questions 1, 2, 5, or 6 of the OAB-q SF bother scale. A first morning void was collected pre-operatively and 3 months post-operatively. N-terminal telopeptide type 1 collagen (NTx), interleukin-8 (IL-8), matrix metalloprotease-9 (MMP-9), monocyte chemoattractant protein-1 (MCP-1), and calcitonin gene-related peptide (CGRP) were measured via colorimetric commercial enzyme-linked immunosorbent assays. Biomarkers were characterized based on their proposed pathophysiological mechanism including general inflammation (IL-8, MCP-1), tissue remodeling (NTx, MMP-9), and neuroinflammation (CGRP). Descriptive statistics were obtained for baseline clinical variables. Categorical measures were reported as counts (%). Normally and non-normally distributed continuous measures were reported as means (SDs) and medians (IQRs), respectively. Natural log transformations were applied to right-skewed continuous measures. Outliers more than two standard deviations from the mean were removed. Transformations that were approximately normal were used in parametric assessments. Pearson correlation coefficients measured the relationship between biomarkers and symptoms. Between-cohort assessments were made using two-sample t-tests. Pre- vs. post-operative biomarker comparisons in OAB patients followed paired t-tests.
Results: Seventy-seven subjects with OAB (n=67, 87.0%) and without OAB (n=10, 13.0%) enrolled. Mean (SD) age was 64.5 (9.9) years and body mass index 28.4 (4.6) kg/m2. Median (IQR) pre- and post-operative OAB-q SF symptom bother scores were 36.7 (16.7, 60.0) and 13.3 (6.7, 33.3), respectively. Pre- and post-operative OAB-q SF health related quality of life (HRQL) scores were 76.9 (53.8, 89.2) and 96.9 (83.8, 98.5), respectively. Seventy-four (96%) patients completed 3-month follow up. Amongst OAB patients, higher pre-operative MMP-9 correlated with improvement in post-operative OAB-q SF bother score (r =0.269, p=0.045). Similarly, higher pre-operative NTx correlated post-operatively with lower OAB-q SF bother score (r = -0.286, p=0.024), higher HRQL score (r=0.251, p=0.049), improvement in HRQL score (r=0.272, p=0.033), and lower UDI-6 score (r=-0.367, p=0.004). Other biomarkers did not demonstrate significant correlations. No significant differences were seen in pre-operative biomarkers between patients with and without OAB or when comparing pre-operative and post-operative biomarkers in OAB patients.
Conclusions: Pre-operative urinary MMP-9 and NTx, biomarkers of tissue remodeling, in patients with OAB may be associated with improved OAB symptoms following POP surgery.
Disclosure: No

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Labia Minora Reduction: A Clinicopathologic Correlation

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Introduction: The concept that normal tissue is resected during labial minora reduction (LMR) prevails. Labia minora hypertrophy

classifications abound. In contrast, the histologic and clinicopathologic correlations of women undergoing LMR are sparce.
Objective: Characterize the histology and perform a clinicopathologic correlation of women that underwent LMR within an urogynecology practice.
Methods: A cohort of 50 consecutive women who underwent LMR at an urogynecology practice was studied. Clinical data was restrospectively and systematically collected from medical records by a single urogynecologist. The patient's presenting complaint(s) were categorized as: exclusive pain, pain and aesthetic, or exclusive aesthetic. Histologic evaluations of all surgical specimes previously performed by pathologists were obtained(n=91). Descriptive (mean, SE) and analytic tests (Chi2 ± Logistic Regressions) were performed with STATA software. This research was IRB exempted.
Results: The mean age was 32.6 ± 9.8 years and mean BMI was 24.9 ±4.2 kg/m2. Mixed race women comprised 98% of the cohort. Only one was menopusal. Sixty-six percent had ≥ 16 years of formal education. Intercourse during the last year was reported by 79.3%, 40% were nulliparous, 46% had delivered vaginally, 40% underwent concomitant pelvic organ prolapse(POP) surgery, 24% had previous aesthetic surgery and 14% had a history of depression± anxiety. The duration of symptoms exceeded one year in 82% and resolved within sixty postoperative days for 96% of the women. Abnormal histology was reported for 74% of the patients: sebaceous gland hyperplasia(38%), inflammation(26%) and, fibroepithelial polyp or condyloma(10%). Labia minora hypertrophy was not reported. Abnormal histology was present in 80% of the nulliparous, 60% of those with vaginal and 100% of exclusive cesarean deliveries. Logistic regressions failed to demonstrate associations between abnormal histology and any studied variables(Table1). Labial pain was present in 90% of the women: 40% dyspareunia, 26% attire pinching, 20% exercise-induced and 4% abscesses related. Exclusive labial minora pain was identified as surgical indication in 72%, exclusive aesthetic indication in 10%, and both in 18%. Logistic regression analysis revealed that exclusive labial pain was significantly associated to BMI (OR 1.35, P= 0.026) and years of formal education (OR 1.70, P= 0.047), but not with age, abnormal histology, history of vaginal delivery, aesthetic surgery, nor anxiety and/or depression(Table2).
Conclusions: The present clinicopathologic study does not support the concepts that normal tissue and labial hypertrophy characterize LMR specimens. Abnormal histology was present in 76% of the patients. Labial minora hypertrophy was not identified. Exclusive labia minora pain indication was present in 72% of the women who underwent LMR. The associations of labial minora pain to BMI and education suggest that the anatomy and physiology of labia minora need to be reappraised.
Disclosure: No
Images:

Table 1. Abnormal histology associations in LMR
Logistic regression chi2=4.44, P>chi2=0.48, n=50

	Odds ratio	SE	P value	(95%)
age	1.00	0.04	0.968	0.97-1.08
BMI	0.96	0.09	0.721	0.80-1.16
Exclusive labia minora pain	0.69	0.62	0.685	0.12-3.98
History of vaginal delivery	0.26	0.20	0.078	0.06-1.16
Total volume resected	0.99	0.06	0.89	0.87-1.11

Table 2. Exclusive pain associations in LMR patients
Logistic regression chi2=21.3, P> chi =0.003, n=50

	Odds ratio	SE	P value	(95% CI)
age	1.10	0.08	0.163	0.95- 1.17
BMI	1.34	0.18	0.026	1.03-1.73
education	1.70	0.45	0.047	1.01-2.87
Abnormal histology	0.49	0.53	0.506	0.06-3.96
Previous aesthetic surgery	0.17	0.18	0.092	0.01-1.34
Depression ± anxiety	0.21	0.32	0.308	0.10-4.25
Previous vaginal delivery	3.11	3.26	0.279	0.39-24.3

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Voiding after Prolapse Surgery: What is it like? – Preliminary Study
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Introduction: Female pelvic organ prolapse (FPOP) is a common pelvic floor disorder with a lifetime risk of surgery of 13 – 19%. FPOP often coexists with lower urinary tract symptoms (LUTS)(1).
Objective: The aim of our observational cohort study was to assess the feasibility of performing a prospective study to determine the effect of prolapse surgery on voiding function measured by home-uroflowmetry and patient reported outcomes (PRO).
Methods: This is an ongoing prospective study of women undergoing prolapse surgery at a tertiary Gynaecology unit. Interim analysis was performed. All patients had a standardized interview, validated questionnaires (Pelvic Floor Distress Inventory-20 (PFDI-20), Pelvic Floor Impact Questionnaire-7 (PFIQ-7)), home-uroflowmetry and bladder diary for 3 consecutive days preoperatively and at 6 weeks and 6 months postoperatively. Primary outcomes were change in voided volume, maximum flow rate (Qmax), average flow rate (Qave), voiding time and maximum urinary flow rate (MFR) centile as seen on home-uroflowmetry. Patient reported outcomes on voiding function were assessed based on Urinary Distress Inventory-6 (UDI-6) and Urinary Impact Questionnaire-7 (UIQ-7). Symptoms of voiding dysfunction (VD), urinary incontinence (UI) and overactive bladder (OAB) were evaluated based on PFDI-20. Statistical analysis was carried out with SPSS version 28.
Results: Since inception (06/2020), 13 women have been included. Two were excluded (no questionnaires available), leaving 11. Mean age and BMI at presentation were 57 and 28 respectively. Surgical procedures performed included anterior repair (36%), posterior repair (9%), anterior and posterior repair (45%), uterosacral ligament suspension (9%) and sacrospinous fixation (18%). No concomitant stress incontinence procedures were performed. On home-uroflowmetry, MFR centile was significantly increased 6 months postoperatively (p 0.02). There was no significant difference in voided volume, Qmax, Qave and voiding time (see Table 1). Mean UDI-6 and UIQ-7 score were pre-operatively 1.21 and 1.71 respectively. At 6 months postoperatively, scores significantly improved, 0.48 (p=0.006) and 1.29 (p=0.01) respectively. While symptoms of VD significantly improved at 6 weeks postoperatively (P=0.02), there was no significant difference between pre-operative and 6 months postoperative values (P=0.12). UI symptoms did not change significantly. Symptoms of OAB were significantly reduced at 6 months postoperatively (p=0.03) (see Table 2). Most participants completed all aspects of the study.
Conclusions: MFR centile was significantly improved as assessed by home-uroflowmetry. Prolapse repair does significantly improve patient reported outcomes of voiding function. The study appears feasible based on this preliminary data. More inclusions are ongoing. Follow-up will be continued until 1 year postoperatively. Additional analysis of the correlation between voiding function, PROs, POPQ and 3D/4D translabial ultrasound findings will be performed. References 1. Int Urogynecol J. 2013;24(11):1783-90
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Minze
Images:

	Pre-operatively	6 months post-operatively	P-value
Voided volume (ml)	346	299	0.21
Qmax (ml/s)	33	36	0.37
Qave (ml/s)	12	12	0.89
Voiding time (s)	21	18	0.40
MFR centile	42	55	0.02

Table 1. Mean values as seen on home-uroflowmetry being used for 3 consecutive days.

PRO	Pre-operatively	6 weeks postoperatively	6 months postoperatively	P-value*	P-value◊
VD*	2.45	0.09	0.82	0.02	0.12
UI*	2.64	1.73	1.55	0.20	0.19
OAB◆	2.64	1.64	1.18	0.09	0.03

Table 2. Mean score based on PFDI-20 question 5, 6 and 19*. Question 16, 17 and 18◆. Question 15 and 18◆. P-value of change in mean score pre-operatively compared with 6 weeks* and 6 months◊ postoperatively.

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Complications Following Retropubic versus Transobturator Midurethral Synthetic Sling Placement

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Introduction: Recent studies have shown transobturator (TOT) slings to be less durable than retropubic (TVT) slings, but data on postoperative complications is lacking.
Objective: To determine differences in postoperative complications between retropubic and transobturator midurethral synthetic slings within one year after surgery.
Methods: Using the Premier database we identified encounters for patients undergoing a midurethral sling procedure with charge codes for "sling transvaginal tape" or "tape transobturator" between 2010 and 2020. Patients were stratified by sling type, either TVT or TOT. Patients were excluded if undergoing a concomitant procedure for cancer or non-gynecologic conditions. The primary outcome was the difference in complication rates between groups. The complications included hematoma/hemorrhage, blood transfusion, surgical site infection (SSI), emergency room (ER) visits, readmission, urinary tract infection (UTI), urinary retention, mesh exposure, sling lysis/excision, urethral stricture, urethrolysis, repeat sling, pain, cystotomy, GU tract injury, and treatment for overactive bladder with advanced therapy. Additional variables of interest included age, race, hospital size, hospital location/region, teaching status, insurance type, surgeon volume, pre-existing conditions, the Charlson Comorbidity Index (CCI), and concomitant procedures performed. Postoperative complications were identified via CPT and ICD-9 and 10 codes up to 12 months after the index procedure. Comorbidities were identified by ICD-9 and 10 codes up to one year before the index encounter. Statistical analysis was performed using Kolmogorov Smirnov test for continuous variables and $\chi 2$-test for categorical variables as appropriate. Multivariable logistic regression was used to determine risk factors for complications and risk of specific complications after sling placement. An imputation analysis was performed to estimate missing values for surgeon volume, CCI, and age.
Results: 36,991 patients were identified in the TVT group and 16,371 in the TOT group. Demographics varied significantly between groups for age, race/ethnicity, insurance type, region, teaching status, hospital size, and location. 7880 patients (14.8%) had at least one sling specific complication. TVT patients had significantly higher rates of hematoma/hemorrhage (p=0.022), urinary retention (p<0.001), sling lysis/excision (p<0.001), and cystotomy (p<0.001). TOT patients had significantly higher rates of blood transfusion (p=0.0052), SSI (p=0.0023), ER visit (p=0.0094), UTI (p<0.001), repeat sling, (p<0.001), and postoperative pain (p=0.0047). In patients with urinary retention, TVT patients were more likely to undergo sling lysis than TOT (p=0.012). Each standard deviation increase in surgeon volume was associated with a 4% decrease in risk of complications. After multivariable logistic regression was performed, TVT patients were more likely to have urinary retention (4.1% vs 3.2%, OR 1.290, 95%CI 1.162-1.431), sling lysis/excision (1.6% vs 1.2%, OR 1.294, 95%CI 1.097-1.526), and hematoma/hemorrhage (0.26% vs 0.15%, OR 1.822, 95%CI 1.163-2.855); they were less likely to have a UTI (5.4% vs 6.8%, OR 0.883, 95%CI 0.817-0.956) or repeat sling (0.38% vs 0.61%, OR 0.601, 95%CI 0.461-0.784).
Conclusions: Midurethral synthetic slings have approximately a 1 in 6 rate of postoperative complications overall, however significant complications were infrequent. TVTs are associated with a higher rate of perioperative bleeding and sling lysis/excision due to urinary retention, but less likely to be associated with UTI and treatment failure.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Renalis, Astellas, Collamedix
Images:

Table 1. Demographics and clinical characteristics of patients by sling approach

	TVT N=36991 N (%)	TOT N=16371 N (%)	p-value
Age (SD)	56 (13)	55 (13)	<0.001
Race/ethnicity			<0.001
White	28678 (78)	12864 (79)	
Black	1071 (2.9)	665 (4.1)	
Hispanic	2876 (7.8)	1158 (7.1)	
Other	4139 (11)	1616 (9.9)	
Unable to determine	227 (0.61)	68 (0.42)	
Insurance type			<0.001
Commercial	5149 (14)	1850 (11)	
Managed care	15996 (43)	7360 (45)	
Medicaid	2901 (7.9)	1539 (9.4)	
Medicare	10612 (29)	4664 (28)	
Other	1898 (5.1)	857 (5.2)	
Self-pay	453 (1.2)	101 (0.62)	
Provider region			<0.001
Midwest	6960 (19)	3064 (19)	
Northeast	5624 (15)	1704 (10)	
South	17541 (47)	9461 (58)	
West	6866 (19)	2142 (13)	
Teaching hospital	18757 (51)	7163 (44)	<0.001
Hospital size			<0.001
0-99 beds	1464 (4)	1366 (8.3)	
100-199 beds	4940 (13)	1549 (9.5)	
200-299 beds	5454 (15)	3455 (21)	
300-399 beds	5995 (16)	1967 (12)	
400-499 beds	4657 (13)	2480 (15)	
500+ beds	14481 (39)	5554 (34)	
Urban location	33975 (92)	14694 (90)	<0.001
Rural location	3016 (8.2)	1677 (10)	<0.001
Surgeon volume (SD)	26 (26)	28 (30)	<0.001
Concomitant procedures			
TAH	93 (0.25)	30 (0.18)	0.16
LAVH	1264 (3.4)	1018 (6.2)	<0.001
TLH	4195 (11)	1335 (8.2)	<0.001
TVH	3424 (9.3)	1707 (10)	<0.001
Anterior repair	3638 (9.8)	2250 (14)	<0.001
Posterior repair	3226 (8.7)	987 (6)	<0.001
Combined AP repair	4713 (13)	2166 (13)	0.12
Vaginal enterocele repair	78 (0.21)	38 (0.23)	0.70
Uterosacral suspension	1167 (3.2)	566 (3.5)	0.073
Sacrospinous suspension	2147 (5.8)	1274 (7.8)	<0.001
Abdominal sacrocolpopexy	68 (0.18)	18 (0.11)	0.065
Laparoscopic sacrocolpopexy	3691 (10)	830 (5.1)	<0.001
Obliterative procedure	2147 (5.8)	1274 (7.8)	<0.001
Burch colposuspension	28 (0.076)	7 (0.043)	0.24
Insertion of mesh	2012 (5.4)	1118 (6.8)	0.78
Robotic assistance	1081 (2.9)	362 (2.2)	<0.001
Obesity	4681 (13)	2036 (12)	0.49
Tobacco use	7629 (21)	3442 (21)	0.30
Menopausal	1538 (4.2)	553 (3.4)	<0.001
Charlson Comorbidity Index (SD)	1.2 (1.5)	1.2 (1.5)	0.21

Table 2. Perioperative and postoperative complications by sling approach

Complication	TVT N=36991 N (%)	TOT N=16371 N (%)	p-value
Hematoma/hemorrhage	96 (0.26)	25 (0.15)	0.022
Blood transfusion within 90 days	61 (0.16)	47 (0.29)	0.0052
Surgical site infection within 90 days	262 (0.71)	158 (0.97)	0.0023
ER visit within 90 days	2336 (6.3)	1133 (6.9)	0.0094
Readmission within 90 days	673 (1.8)	323 (2)	0.24
UTI within 90 days	2008 (5.4)	1117 (6.8)	<0.001
Urinary retention	1521 (4.1)	529 (3.2)	<0.001
Mesh exposure/erosion	279 (0.75)	105 (0.64)	0.17
Sling lysis/excision	598 (1.6)	202 (1.2)	<0.001
Urethrolysis	87 (0.24)	52 (0.32)	0.1
Repeat sling within 12 months	139 (0.38)	100 (0.61)	<0.001
Urethral stricture	8 (0.022)	4 (0.024)	1
Postoperative pain	1161 (3.1)	592 (3.6)	0.0047
Cystotomy/bladder perforation	305 (0.82)	68 (0.42)	<0.001
GU tract injury	212 (0.57)	117 (0.71)	0.062
PTNS within 12 months	0 (0)	0 (0)	N/A
SNM within 12 months	86 (0.23)	52 (0.32)	0.09
Botox within 12 months	31 (0.084)	18 (0.11)	0.44
Any complication	6847 (19)	3274 (20)	<0.001

Table 3. Multivariable logistic regression for postoperative complications after TVT compared to TOT

Complication	Odds ratio (95% CI)
UTI within 90 days	0.883 (0.817-0.956)
Inpatient readmission within 90 days	0.922 (0.802-1.059)
ER visit within 90 days	0.983 (0.911-1.062)
Sling lysis/excision	1.294 (1.097-1.526)
Urinary retention	1.290 (1.162-1.431)
Repeat sling within 12 months	0.601 (0.461-0.784)
Hematoma/hemorrhage	1.822 (1.163-2.855)
Mesh exposure/erosion	1.161 (0.920-1.463)
Postoperative pain	1.040 (0.935-1.156)
Sling specific complications	1.015 (0.962-1.070)

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Rate of Mesh Erosion with Sacrocolpopexy in Supracervical versus Total Hysterectomy: A Systematic Review and Meta-Analysis

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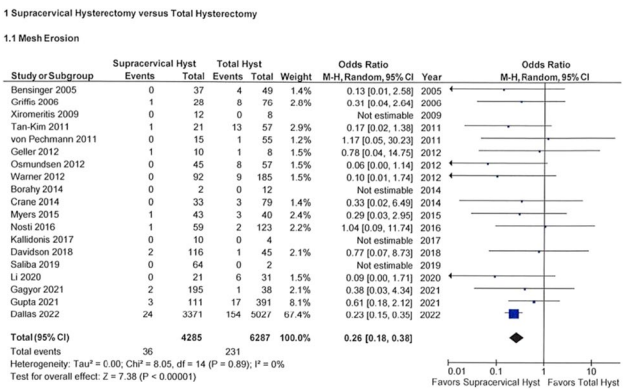
Introduction: Sacrocolpopexy is commonly used for surgical management of apical prolapse with concomitant hysterectomy frequently performed simultaneously. Studies have been conflicting if performance of a concomitant supracervical versus total hysterectomy at the time of sacrocolpopexy is associated with a lower risk of mesh erosion.
Objective: To estimate the effect on mesh erosion rate in women undergoing abdominal apical sacrocolpopexy and concomitant supracervical versus total hysterectomy by performing a systematic review and meta-analysis of the existing literature.
Methods: We explored MEDLINE, Embase, Web of Science, CINAHL, ClinicalTrials.gov and Cochrane Central Register of Controlled Trials for studies comparing the rate of mesh erosion with abdominal sacrocolpopexy with concomitant supracervical versus total hysterectomy. Two reviewers separately ascertained studies, obtained data, and gauged study quality. The rate of mesh erosion was compared, and odds ratios (ORs) with 95% confidence intervals (CIs) were estimated.
Results: Nineteen retrospective cohort studies were identified with 10,572 women (4,285 with a supracervical versus 6,287 with a total hysterectomy). Studies evaluated women who underwent surgery from August 1995 through January 2019. Fourteen studies were from the United States, two studies from Belgium and one study each from Greece, Czech Republic, and Taiwan. The overall mean age of women were 60.5 years, with an overall mean BMI of 27.0 kg/m2. Among all studies, minimally invasive sacrocolpopexy (either laparoscopic or robotic) was performed in 98% (10,375/10572) of women. Eighteen studies (n = 2,091 women) reported the specific approach to sacrocolpopexy surgery with 69% (1448/2091) undergoing laparoscopic, 21% (446/2091) robotic, and 9% (197/2091) open laparotomy. In eighteen studies, the overall mean post procedure follow-up time was 30.7 months. The median point prevalence of mesh erosion was 0.36% (95% CI 0-1.9%) in women who had a supracervical compared to 3.8% (95% CI 1.8-8.7%) in women who had a total hysterectomy. The overall rate of mesh erosion in women with a supracervical hysterectomy was less than women with a total hysterectomy (pooled OR 0.26, 95% CI 0.18 to 0.38, I2 0%) [Figure]. The overall mean time to diagnosis of mesh erosion was reported in ten studies and was 13.3 months after the surgical procedure. Twelve studies reported overall treatment outcomes in 304 women (including women with a previous hysterectomy) with mesh erosion and 83% (251/304) required a re-operation for a mesh related complication
Conclusions: In women with symptomatic apical pelvic organ prolapse undergoing sacrocolpopexy with concomitant hysterectomy, performing a supracervical hysterectomy is associated with a lower risk of mesh erosion compared to women who have a total hysterectomy.
Disclosure: No
Images:



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Less Long Term (13 years) Graft Related Complications and Reinterventions with Light Rather than Heavy Weight Mesh Laparoscopic Sacrocolpopexy

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Introduction: Prior to February 2007, patients undergoing laparoscopic sacrocolpopexy (LSCP) in our unit were implanted with a polypropylene (PP)-mesh (Gynemesh Prolene, Johnson&Johnson; Amid-I heavy weight ("HW" ≥70 g/m2)1,2. Based on experimental findings that lighter implants do not induce bridging fibrosis3 and changes in marketed products, we moved to lighter weight poliglecaprone(PG)-PP hybrid mesh, which weigh 28g/m2 ("LW") after resorption of PG (Artisyn™/Ultrapro™, Johnson&Johnson). These experimental findings bear only clinical relevance if they translate into improved outcomes.
Objective: To report on the occurrence, nature of, and reinterventions for graft related complications (GRC) and patient reported long term outcomes following LSCP with LW as opposed to HW-PP mesh.
Methods: Patients undergoing LSCP for symptomatic stage ≥2 cervical/vault prolapse are part of an ongoing prospective cohort study. Women are typically followed up yearly using a standardized subjective and objective assessment by an independent assessor. Patients not attending yearly visits are invited at regular audits, the last one in January 2021. As a consequence the maximum follow up for the first LW-implanted patient was 163 months. Herein we compare outcomes of two non-parallel cohorts (HW-mesh and LW-mesh implanted women) at similar duration of follow-up, including reinterventions (1) for GRC or (2) recurrent apical prolapse in all patients operated, and in assessed patients, (3) the Patient Global Impression of Change-score ≥4 (PGIC), (4) the occurrence and (5) nature of GRC and (6) anatomical failure (C=-1 cm or greater). Data are reported as mean (SD), median (IQR), number (%), as appropriate. Student t-test, Chi square Fisher exact and survival analysis were used to compare groups.
Results: We report on 101 HW and 238 LW-implanted women. There were no differences in baseline characteristics neither in follow-up period (97.0 months (IQR:16.0) and 92.5 months (IQR:58.0) respectively). The reoperation rate for GRC was lower in the LW-group (2.1%;5/238) than in the HW-group (18.8%;19/101;p=0.0002;HR=4.6 (95%-CI: 1.9-11.2), whereas for recurrent prolapse there was no difference (p=0.6). Reoperations for recurrent vault prolapse were scarce (0.0% in HW compared to 0.4% in LW). Of patients attending follow-ups the vast majority felt better (PGIC≥4) without difference between groups (HW:84.5%; LW:86.5%). GRC were more likely in HW-patients (22.8%;23/101) compared to LW-patients (7.3%;13/178;

p=0.0002;HR=3.3; 95%-CI:1.6-7.1). GRC were symptomatic in 2.8% (5/178) of LW and in 16.8% (17/101) of HW-implanted women. There was no significant difference in anatomical failure at point C (1.7% (HW) and 6.1% (LW); p=0.13).

Conclusions: The number of asymptomatic and symptomatic GRCs and reinterventions for GRC in patients operated with LW-mesh is significantly lower than with HW-mesh. There were no differences in long term subjective and objective outcomes neither reoperation rates for prolapse.

Disclosure: Yes, this is sponsored by industry/sponsor: Ethicon Endosurgery

Clarification: Industry funding only - investigator initiated and executed study

Images:

Figure 1: Timecourse of GRC and Reinterventions for GRC

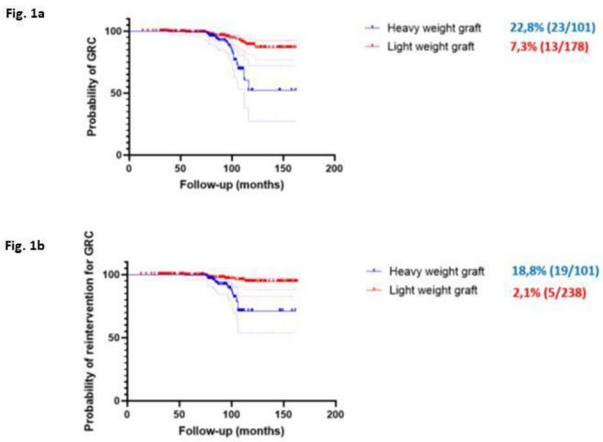

Figure 1a: Graphical display of time course of the fraction of patients with a Graft Related Complication (GRC) in the 279 study participants (P=0,0002). **Figure 1b:** Graphical display of time course of the fraction of patients with a reintervention for GRC in the 339 operated patients (P=0,0002). CIs are indicated by dotted lines.

Figure 2: Timecourse of Recurrence of apical prolapse and Reinterventions for prolapse

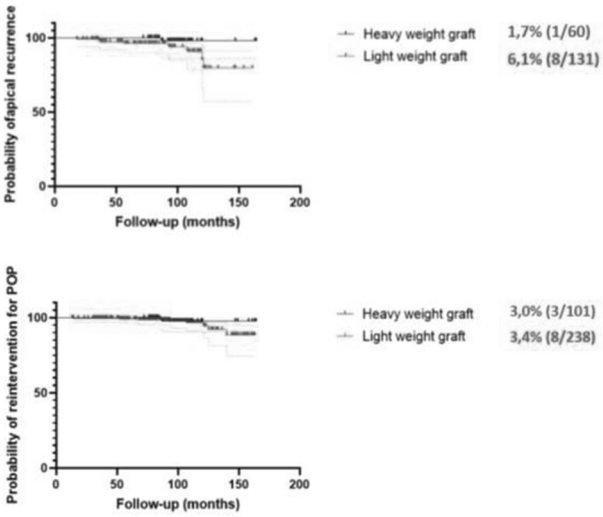

Figure 2a: Graphical display of time course of the fraction of patients with a recurrence of apical prolapse in the 191 patients assessed in person (P= 0,1268). **Figure 2b:** Graphical display of time course of the fraction of patients with a reintervention for prolapse in the 339 operated patients (P= 0,5643). CIs are indicated by dotted lines.

Figure 3: Main findings

	HEAVY (HW)	LIGHT (LW)
All operated	101	238
Follow up (months, IQR)	97 (16)	92.5 (58)
Reintervetion for GRC*	19/101 (18.8%)	5/238 (2.1%)
Reintervention for recurrent prolapse	3/101 (3.0%)	8/238 (3.4%)**
Anterior compartment	1/101 (1.0%)	5/238 (2.1%)
Middle compartment	0/101 (0.0%)	1/238 (0.4%)
Posterior compartment	2/101 (2.0%)	5/238 (2.1%)
Audited	101	178
PGIC ≥ 4	71/84 (84.5%)	154/178 (86.5%)
GRC, all*	23/101 (22.8%)	13/178 (7.3%)
GRC, symptomatic	17/101 (16.8%)	5/178 (2.8%)
Assessed in person	60	131
Recurrent apical prolapse (Point C ≥ -1cm)	1/60 (1.7%)	8/131 (6.1%)

Figure 3:* significant difference between groups; **One patient had combined anterior and middle compartment repair, two patients had combined anterior and posterior compartment repair Data are reported as median (IQR), number (%), as appropriate.

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Cost Utilization of Robotic-assisted Sacrocolpopexy: A Comparison of Two Robotic Platforms

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Introduction: Robotic assistance in pelvic organ prolapse (POP) surgery such as sacrocolpopexy can improve surgeon ergonomics and instrument dexterity compared with traditional laparoscopy but at increased surgical costs. Novel robotic platforms such as Senhance (Ascensus) mitigate increased costs by incorporating unlimited lifetime reusable instruments unlike the more widely available DaVinci (Intuitive).

Objective: To compare total hospital costs for robotic-assisted sacrocolpopexy (RSC) between two robotic platforms at an academic medical center.

Methods: Retrospective cohort study of all RSC performed at a single hospital within a large academic health system. All women who underwent RSC using Senhance between 1/1/2019 and 6/30/21 were matched 2:1 with RSC cases using DaVinci Xi or Si for comparison. Senhance cases were the first Senhance sacrocolpopexies performed in our health care system and therefore represented early experience with the platform. Medical charts were queried for demographics, medical history, operative characteristics, postoperative complications. Case-specific cost information was provided by our institution's Surgical Service Center. Upfront purchase costs of the robotic systems were not included in this analysis. Descriptive statistics, t-test, chi-squared and Fisher's exact tests were used for analysis. A multivariable linear regression was performed to model total costs and adjust for potentially confounding variables. All variables with $p<0.2$ on univariable analysis were candidates for final regressions, fit with backwards removal techniques.

Results: The matched cohort included 75 subjects. 25 Senhance and 50 DaVinci cases were similar overall, with mean age 60.5±9.7 years, BMI 27.9±4.7kg/m2, and parity 2.5±1.0 (Table 1). 97.3% (n=71) were white and 86.5% (n=64) were postmenopausal. The only major difference was longer OR time in Senhance cases (Δ=32.1 min, p=0.01). There were 47 (62.7%) concomitant hysterectomies performed, 12 (16.2%) concomitant mid-urethral slings, and 19 (25.3%) cases required lysis of adhesions. All Senhance cases

were performed by a single FPMRS surgeon who previously performed >1000 DaVinci cases; DaVinci cases were performed by 6 FPMRS surgeons. All cases involved a fellow trainee, 51 (68.0%) involved a resident trainee. Intraoperative and short-term postoperative complications were similar between platforms (all p>0.05). On univariable analysis, Senhance showed a cost savings which was not statistically significant (Senhance $5368.31±1486.89, DaVinci $5741.76±1197.20, p=0.29). When comparing cost categories for drugs/medications, supplies, diagnostic interventions, operating room, anesthesia, post-anesthesia recovery unit, medical-surgical floor, nursing, and facility costs there were no differences between groups (all p>0.05). However, on multivariable linear regression total cost was significantly lower for Senhance than DaVinci by $908.33 when adjusting for operative time, estimated blood loss, concomitant mid-urethral sling, and use of the GelPoint mini port system (Table 2). This is a 16% reduction from the mean total cost. The regression showed that concomitant mid-urethral sling, increased operative time, and use of the GelPoint system all significantly increased costs. Notably, Senhance demonstrated increased OR times with collinearity between these variables and an additional regression was performed using the same variables but omitting OR time. Senhance was still $744.61 less costly (p=0.04).

Conclusions: Despite the longer operating time, total cost of robotic-assisted sacrocolpopexy is significantly lower when using the Senhance compared to the DaVinci system.

Disclosure: No

Images:

Table 1. Senhance and Davinci Demographics, Operative Characteristics

Variable	Senhance	DaVinci	P value
Age, mean (SD), years	62.0 (9.2)	59.7 (9.9)	0.33
BMI, mean (SD), kg/m²	26.6 (3.8)	28.6 (5.0)	0.07
Race			0.60
White	24 (100)	47 (95.9)	
Asian	0	1 (2.0)	
Other	0	1 (2.0)	
Postmenopausal	21 (87.5)	43 (86.0)	1.00
Tobacco Use			0.59
Never	18 (75.0)	33 (67.3)	
Current	3 (12.5)	5 (10.2)	
Former	3 (12.5)	11 (22.4)	
Gravida, mean (SD)	2.6 (1.0)	2.8 (1.2)	0.52
Parity, mean (SD)	2.3 (0.9)	2.6 (1.0)	0.33
Diabetes Mellitus	3 (12.0)	5 (10.0)	1.00
Hypertension	12 (48.0)	20 (40.0)	0.62
Prior prolapse repair	5 (20.0)	12 (24.0)	0.78
Operative Time, mean (SD), min	210.2 (48.6)	178.1 (36.6)	**0.01**
Estimate Blood Loss, mean (SD), mL	56.0 (69.6)	51.3 (45.6)	0.76
Resident Involvement	13 (52)	38 (76)	0.06
Concomitant Hysterectomy	15 (60.0)	32 (64.0)	0.80
Concomitant Mid-urethral Sling	2 (8.0)	10 (20.4)	0.20
Concomitant Lysis of Adhesions	7 (28.0)	12 (24.0)	0.78
Concomitant Posterior repair	3 (12.0)	3 (6.0)	0.39
Concomitant Perineorrhaphy	6 (24.0)	8 (16.0)	0.53
Intraoperative Bowel Injury	0	0	--
Intraoperative Urinary Tract Injury	0	0	--
30 day postoperative complication	2 (8.0)	8 (16.3)	0.48
30 day postoperative wound infection	0	6 (12.0)	0.08
30 day postoperative Ileus or Small Bowel Obstruction	2 (8.0)	0	0.11
30 day postoperative reoperation	1 (4.0)	0	0.34
30 day readmission	2 (8.0)	1 (2.0)	0.26

*Data presented as N(%), except where noted

Table 2. Multivariable Regression for Cost of Sacrocolpopexy

Variable	Unadjusted Beta	P value	Adjusted Beta	P value
Constant	--	--	5950.14	--
Senhance	-373.45	0.25	-908.33	**0.01**
Concomitant Mid-urethral sling	1415.73	<0.01	1105.83	**<0.01**
Estimated Blood Loss (mL)	7.63	<0.01	4.22	0.08
GelPoint Umbilical Port	428.71	0.24	791.16	**0.04**
Operative Time (minutes)	10.33	<0.01	10.03	**<0.01**

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E-PACT: Extension Trial of Permanent versus Delayed-Absorbable Monofilament Suture for Vaginal Graft Attachment During Minimally-invasive Total Hysterectomy and Sacrocolpopexy

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5 - University of North Carolina

Introduction: We previously reported a 6.1% rate of mesh/permanent suture exposure at 1 year after minimally-invasive total hysterectomy and sacrocolpopexy (TLH+SCP) with a light-weight polypropylene mesh. Vaginal mesh exposures may increase over time.

Objective: The goal of this extension study was to evaluate total and incident mesh/permanent suture exposure rates at least 2 years after surgery. Our secondary aims were to evaluate surgical success and late adverse events.

Methods: This extension study included women previously enrolled in the multicenter randomized trial of permanent (2-0 GoreTex) vs delayed-absorbable (2-0 PDS) suture with Upsylon™ mesh during TLH + SCP for > stage II prolapse (POP), for follow-up at least 24 months after surgery. Due to COVID-19, women were given the option of an in-person (symptoms + exam) or telephone visit (symptoms only). The primary outcome was total and incident permanent suture or mesh exposure, or symptoms suggestive of mesh exposure in women without a pelvic examination (vaginal bleeding, bothersome discharge, partner feeling mesh). Women who did not enter the extension trial but were confirmed to have mesh exposure at 1 year were carried forward as a mesh exposure. Secondary outcomes were: 1) Surgical success, which was defined as no subjective bulge on PFDI questionnaire, no prolapse beyond the hymen, and no POP retreatment and 2) Adverse events, which were classified according to Dindo grading scale.

Results: 182/200 previously randomized participants were eligible for inclusion, of which 106 (58%) women (78 in-person and 28 via questionnaire only) agreed to the extension study. Demographic characteristics are presented in Table 1. At a mean of 3.9 years post-surgery, the rate of mesh/suture exposure was 7.7% (14/182): 5 in-person,1 in the questionnaire only group and 8 cases carried forward from 1-year follow-up. Only 2 were incident cases reported after 1-year follow-up. There were 2 cases of suture exposure in the original cohort at 1 year, and 0 suture exposures in the current group, for a carry forward rate of 1.1% (2/182). There was no significant difference in mean age or follow-up time for women with and without an exam. None reported vaginal bleeding/discharge, dyspareunia, or penile dyspareunia. Mesh/suture exposures were managed as follows: 4 (66.7%) vaginal estrogen, 2 (33.3%) office trimming and 1 (16.7%) vaginal mesh excision surgery. For women without a study visit, there was one reported mesh exposure which was treated with office removal. Surgical success was 93/106 (87.7%): 13/94 (13.8%) failed by bulge symptoms, 2/78 (2.6%) by prolapse beyond hymen, 1/85 (1.2%) by retreatment with pessary, and 0 retreatment with surgery. There were 34 (32%) subjects who reported an adverse event. The most common were vaginal atrophy (16), pelvic or vaginal pain (7), dyspareunia (5), UTI (3), vaginal bleeding (3), and vaginal discharge (3). There were no serious adverse events.

Conclusions: The rate of incident mesh exposure between 1 and 3.9 years post-surgery was low, success rates remained high, and there were no delayed serious adverse events after TLH +SCP with light-weight polypropylene mesh.

Disclosure: Yes, this is sponsored by industry/sponsor: Boston Scientific
Clarification: Industry funding only - investigator initiated and executed study
Any of the authors act as a consultant, employee or shareholder of an industry for: Boston Scientific
Images:

Table 1. Patient characteristics

Characteristics	Permanent Suture n=57	Delayed Absorbable Suture N=49	P value
Age (yr) (mean±SD)	60.7 ± 8.8	60.0 ± 10.0	.71
Race			.62
White	51 (89.5)	44 (89.8)	
African American	6 (10.5)	4 (8.2)	
Other	0 (0)	1 (2.0)	
Smoking status			.03
Never	34 (59.6)	38 (77.6)	
Prior smoker	10 (17.5)	1 (2.0)	
Current smoker	1 (1.8)	1 (2.0)	
BMI (kg/m2) (mean±SD)	29.3 ± 6.3	28.4 ± 4.9	.50
Current POPQ stage			.46
Stage II	12 (21.1)	7 (14.3)	
Stage III	3 (5.3	3 (6.1)	
Stage IV	1 (1.8)	1 (0)	
Mesh Exposure at >2 year visit	3 (5.3)	3 (6.1)	.59

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The Effect of Continuous versus Interrupted Skin Suturing Techniques on Perineal Pain after Perineorrhaphy: A Randomized Controlled Pilot Study

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2 - Medical Doctor

Introduction: Perineorrhaphy is a commonly performed procedure in female pelvic reconstructive surgery (FPMRS). Indications for this procedure may include treatment of a symptoms of prolapse and vaginal laxity. Outside of the context of obstetric laceration repairs, differences in postoperative pain after a perineorrhaphy by skin closure techniques have not been well described. Furthermore, patient satisfaction can be influenced by patient perceptions regarding postoperative pain. It is unclear whether the suturing technique for perineorrhaphy skin closure has an impact on postoperative pain after this procedure. This study aimed to evaluate postoperative perineal pain comparing two perineorrhaphy skin closure techniques.
Objective: To compare postoperative perineal pain between continuous subcuticular (continuous) and interrupted transcutaneous (interrupted) perineal skin closure in women undergoing perineorrhaphy at the time of reconstructive pelvic organ prolapse surgery.
Methods: This is a single-center, randomized controlled trial of patients undergoing reconstructive pelvic organ prolapse repair, comparing perineal pain between continuous and interrupted perineal skin closure with 3-0 polyglactin suture at the time of a perineorrhaphy. The primary outcome was patient reported postoperative pain at 2 weeks, including average perineal pain (score 0-10 on a validated Surgical Pain Scale) at rest, with normal activity, with strenuous activity, and worst pain. Perineal pain was also assessed daily for the first two weeks postoperatively and at three months. Postoperative satisfaction was evaluated by a Likert scale at 2 weeks and 3 months. Baseline and demographics data were analyzed using Student's t-test for continuous variables and Fisher's exact or $\chi 2$ tests for categorical variables. Our primary outcomes were evaluated with Student's t-test, Wilcoxon rank sum, and $\chi 2$ tests when appropriate.
Results: One hundred seventy-one women were screened and 68 participants were enrolled. Perineorrhaphy was not performed in 5 participants and 6 were lost to follow-up resulting in 57 participants with primary outcome data, with 27 (47%) in the continuous and 30 (53%) in the interrupted group. Demographic characteristics, preoperative exam including genital hiatus measurements, and concomitant pelvic procedures were similar between the two groups. There were no significant differences between the continuous and interrupted groups average perineal pain at rest (0.9 ± 1.2 vs 1.4 ± 2.0, $P = 0.22$, respectively), during normal activity (1.6 ± 1.8 vs 2.2 ± 2.3, $P = 0.31$), perineal pain with strenuous activity (1.2 ± 1.5 vs 2.0 ± 3.5, $P = 0.61$), and worst perineal pain (2.0 ± 2.3 vs 2.4 ± 2.7, $P = 0.49$) two weeks postoperatively. Patient satisfaction at 2 weeks with overall pain control between continuous and interrupted groups was high and was not significantly different [22 (38.6%) vs. 25 (43.9%), $P = 0.85$].
Conclusions: Perineorrhaphy perineal pain and patient satisfaction did not differ significantly between continuous versus interrupted skin suturing techniques. According to this study, differences in surgeon preference in skin closure technique will not impact perineal pain or patient satisfaction.
Disclosure: No

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Pelvic Floor Excursion and Endurance in Response to Pelvic Floor Muscle Training Using a Digital Therapeutic Device.

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4 - Renovia Inc.
5 - University of Alabama at Birmingham

Introduction: Important markers of pelvic floor muscle (PFM) function include movement and endurance of a contraction, often defined as PFM excursion as measured by ultrasound. Changes in PFM function correlate with changes in pelvic floor symptoms, including urinary incontinence (UI). Several publications have documented outcomes for women with UI undergoing pelvic floor muscle training (PFMT) using an intravaginal motion-based digital therapeutic device embedded with accelerometers that detect and quantify the motion produced during PFM contraction. During PFM contraction physiologic data is captured, including baseline and maximum contraction angles and contraction duration.
Objective: To characterize pelvic floor muscle excursion and endurance measured during PFMT, using data from the intervention arm of a randomized controlled trial (RCT) of women with stress and stress-dominant mixed UI.
Methods: Subjects in the RCT intervention arm were included if they 1) used the device for at least 8 weeks; 2) data collected was complete 3) evidence of correct use. Use of the device (leva, Renovia Inc.) entails a prescribed standardized PFMT regimen performed in the standing position. Each exercise session includes five 15-second contractions alternating with 15-second rest periods. The device captured user adherence and the following parameters: 1) baseline vaginal angle (BA) at rest relative to a horizontal plane, 2) maximum angle change (MAC) during a contraction, and 3) duration of contraction time at MAC $\geq$75% (endurance – maximum of 15 seconds). Correct use was defined as BA within expected physiologic range between 0-90 degrees, confirming proper device orientation. Adherence was defined as the percentage of use with perfect use of 3-times daily. Each subject completed baseline,

4- and 8-week Urogenital Distress Inventory, short-form (UDI-6). Subjects' demographic, UDI-6 scores, mean BA, MAC, endurance, and the product of MAC and endurance at baseline, 4 and 8-weeks were characterized and then analyzed using an unsupervised k-means learning algorithm. Data attributes in the algorithm were number of sessions at 4-weeks, baseline and 4-week UDI-6 scores, and the product of MAC and endurance at baseline and 4-weeks.

Results: Of 143 subjects in the device intervention arm, 90(62%) met inclusion criteria and were analyzed. Table 1 summarizes demographic, physiologic and symptom data. Adherence at 4-weeks was 82%(69/84 total possible sessions). BA were similar at all timepoints during the study, p=0.60. MAC were normally distributed and significantly increased during the study timeframe with baseline 13.7±5.8, 4-weeks 21.6±9.2, 8-weeks 23.3±9.5. Endurance was normally distributed at baseline 7.0±2.9 seconds, 4-week 10.6±2.9 and skewed right at 8-weeks 10.7±3.0 seconds (Figure 1). K-means clustering identified six groups of subjects with unique PFM function and symptom change characteristics. Figure-2 summarizes K-clustering for MAC, endurance and product of MAC and endurance for each of 6 groups based on UI symptoms change.

Conclusions: Using physiologic PFM data from a motion-based digital intravaginal therapeutic device, objective PFM parameters improved over the 8-week study. Using machine learning techniques, associations are seen between these PFM physiologic parameters and symptom improvement measured by UDI-6. More research is needed to clarify the value of these assessments for therapeutic guidance and predictive analytics.

Disclosure: Yes, this is sponsored by industry/sponsor: Renovia Inc. Clarification: Industry initiated, executed and funded study

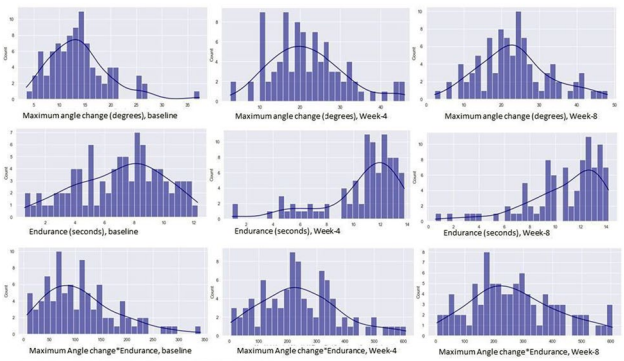
Images:

Table 1: Demographics, Physiologic parameters, and Outcomes

Subjects, N = 90	Mean ±SD	95% CI
Demographics		
Age, years	53.7 ±12.10	51.13, 56.26
BMI, kg/m2	30.75 ±7.22	29.22, 32.28
% Pre-menopausal	44.00%	N/A
Physiologic parameters		
BA, degrees	51.46 ±15.04	48.27, 54.64
Baseline MAC, degrees	13.66 ±5.77	12.44, 14.88
4-week MAC, degrees	21.63 ±9.15	19.69, 23.57
8-week MAC, degrees	23.30 ±9.46	21.32, 25.28
Baseline endurance, seconds	7.02 ±2.88	6.44, 7.66
4-week endurance, seconds	10.59 ±2.86	9.98, 11.19
8-week endurance, seconds	10.72 ±2.95	10.10, 11.34
Outcomes		
Baseline UDI-6	52.06 ±18.68	48.10, 56.02
4-week UDI-6	41.06 ±18.49	37.14, 44.98
8-week UDI-6	34.41 ±18.35	30.52, 38.30
8-week UDI-6 % improvement	32.31 ±30.74	25.78, 38.82

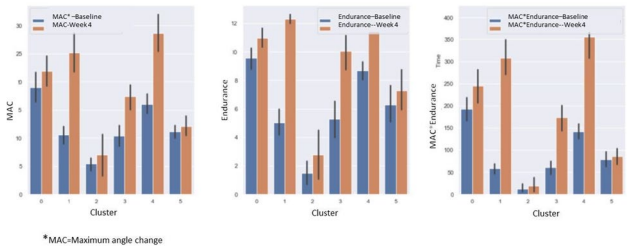
Abbreviations: BMI=Body Mass Index; BA = Baseline vaginal angle; MAC = Maximum vaginal angle change, UDI-6 = Urogenital Distress Inventory

Figure 1. Distribution of Maximum Angle Change, Endurance and Maximum Angle Change * Endurance at Baseline, Week-4 and -8



X-axis as shown for each figure, Y-axis count of subjects

Figure2. K-means cluster analysis



*MAC=Maximum angle change

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Urine Volumes in the Immediate Postpartum Period Among Women Undergoing Scheduled Cesarean Section

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Introduction: Urinary retention after gynecologic surgery is a known complication and algorithms exist to help ensure the timely diagnosis and management. In contrast, there are no guidelines that help monitor voiding postpartum and as a result urinary retention can be missed, leading to significant morbidity and undue emotional distress. As part of a quality improvement initiative, we implemented an algorithm to help identify women with postpartum urinary retention (Figure 1). Our algorithm used 200ml as a cut off for normal voiding amount. This value was based on the gynecologic literature, and we suspected it was an underestimate of a typical voided volume in postpartum patient population. We found that women undergoing cesarean section were at nine times increased risk of developing urinary retention as compared to women undergoing vaginal delivery. Determining the typical voiding patterns postpartum is essential in developing guideline that help diagnose and treat voiding dysfunction in this high-risk patient population.

Objective: The objective of this study is to determine the range of typical postpartum urine output in women undergoing scheduled cesarean section.

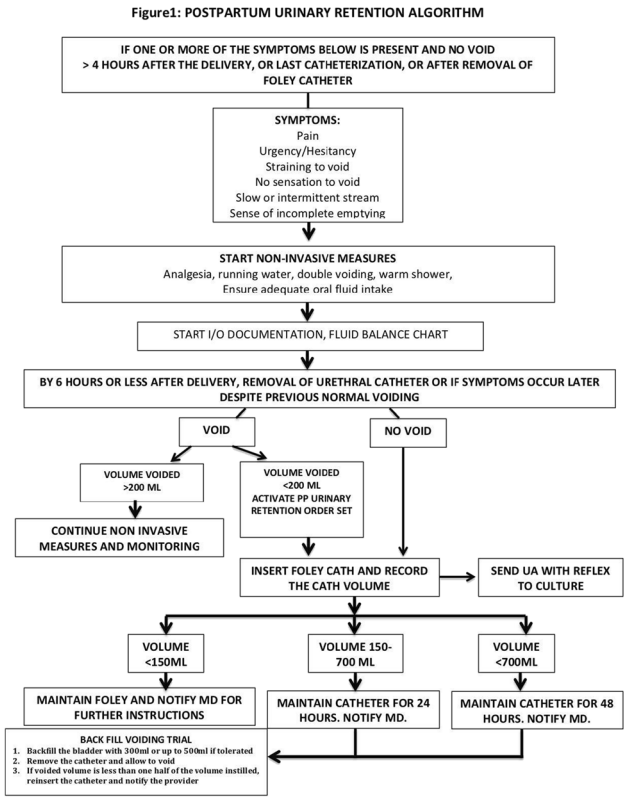
Methods: As part of the quality improvement protocol postpartum voiding volumes are closely monitored and recorded. We conducted a retrospective chart review of patients who delivered at our institution via scheduled cesarean section, primary or repeat, between August 1 and October 15, 2021. Patients are excluded if they had a non-singleton pregnancy, were admitted for induction of labor prior to cesarian section, had urinary retention, or were diagnosed with hypertensive disorder of pregnancy.

Results: We reviewed a total of 60 charts that met criteria for inclusion. Seventy percent (42) of patients underwent repeat cesarean section. The average qualitative blood loss was 625ml (□325ml). The patients' first voided urine output averaged 436ml (100-900ml). Patients maintained an average voided volume greater than 400ml for their first 5 voids.

Conclusions: Our study helps to define typical voiding patterns during the immediate postpartum period in women undergoing a scheduled cesarean section. Due to the physiologic changes postpartum the typical voided volumes are significantly higher than after gynecologic surgery. Therefore, protocols aimed to identify problems with urinary voiding postpartum should utilize higher cut-offs. Development of such protocols will allow prompt diagnosis and management of voiding dysfunction and avoid short-term and potentially long-term morbidity and sequalae.

Disclosure: No

Images:



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Impact of Enhanced Recovery After Cesarean Protocol on Postoperative Urinary Retention

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Introduction: Postoperative urinary retention (POUR) remains a common morbidity associated with cesarean delivery (CD) that may have lasting consequences for patients if inadequately treated. Efforts to expedite and improve recovery after CD have been implemented in recent years. The impact of Enhanced Recovery After Cesarean (ERAC) pathways on POUR is not well studied.
Objective: We aimed to evaluate if implementation of an ERAC protocol decreases the incidence of POUR in patients undergoing CD.
Methods: This is a secondary analysis of a prospective cohort study of patients 18 and older undergoing CD with epidural anesthesia at a single urban tertiary care center from October 2019 to September 2020. We excluded CD requiring general anesthesia, cases complicated by massive transfusion events, bowel injury, or ICU admission, and patients with chronic pain disorders, chronic opioid use, acute postpartum depression, and neonatal demise. Primary outcome was POUR, defined as failure of spontaneous voiding trial 6 hours after Foley catheter removal. Secondary outcomes were duration of Foley catheter, need for replacement of Foley catheter, time to ambulation, and length of stay (LOS). Data is reported as percentages or median and interquartile ranges (IQR). Baseline demographics and outcomes were compared between pre-ERAC and post-ERAC cohorts. Analysis was repeated after stratifying by postoperative Magnesium therapy.
Results: Three hundred eight patients undergoing CD were included. The incidence of POUR was similar between both groups (pre-ERAC: 22.6%; post-ERAC: 31.8%, p=0.08). Time to Foley removal following CD was significantly decreased in the post-ERAC cohort [10.1 h (7.2, 13.7)] when compared to the pre-ERAC cohort [12.5 h (10.9, 17.8)] (p<0.001). Need for Foley catheter replacement occurred at a similar rate between both groups (pre-ERAC: 1.0%; post-ERAC: 0.9%, p=0.7). Time to ambulation and LOS were significantly decreased following implementation of ERAC. There was no significant difference in these outcomes after stratifying for postoperative Magnesium therapy.
Conclusions: ERAC implementation demonstrated a significant decrease in duration of Foley catheter, time to ambulation, and LOS in patients undergoing CD. Although no significant difference was noted in the rates of POUR, there was a trend toward increasing incidence following implementation of ERAC. Further evaluation of the impact of ERAC pathways in POUR is needed.
Disclosure: No
Images:

Table 1. Distribution of outcomes pre and post-ERAC implementation

	pre-ERAC Cohort (n=196)	post-ERAC Cohort (n=112)	p-value
Urinary retention	22.6%	31.8%	0.08
Foley Duration (h)	12.4 (10.9-17.8)	10.0 (7.2-13.7)	0.001
Time to void (h)	4.0 (2.6 5.9)	5.0 (3.4 6.8)	0.002
Need for Foley replacement	1.0%	0.9%	0.7
Time to ambulation (h)	16 (11, 22.6)	9.5 (6.6, 16.9)	<0.0001
Length of stay (h)	76.1 (69.9, 90)	72.4 (62.7, 82.7)	0.002

Continuous data presented in medians with interquartile ranges (IQR)

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Somatic and Autonomic Nerve Distribution Within The Clitoris and Associated Vulvar Structures: An Immunohistochemical Study In Adult Female Cadavers

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Introduction: Knowledge of neuroanatomy of the clitoris and associated structures is critical when performing vulvar procedures. Descriptions of the dorsal nerve of clitoris (DNC), the primary source of somatic innervation to this region, have been reported. Less is known about the autonomic nerve supply, and nerve density of autonomic and somatic fibers. Surgical preservation of these nerves may reduce postoperative pain, decreased sensation, and sexual dysfunction.
Objective: To characterize the density and distribution of autonomic and somatic innervation within the clitoris and surrounding structures.
Methods: En bloc pelvic sections were harvested from adult female cadavers within 24 hours from death. Tissue was sectioned along the long axis of the clitoral body (CB) at the proximal aspect of the CB, distal CB and glans (Figure 1). Double immunofluorescent staining was performed using antibodies directed against Beta III tubulin (BIIIT), a global axonal marker and myelin basic protein (MBP), a myelinated nerve marker (Figure 2). Multichannel fluorescent images were acquired on a Zeiss Axioscan.Z1 whole slide scanner and anatomical regions were manually annotated in Zeiss Zen Blue Lite. Threshold-based automatic image segmentation distinguished tissue areas stained with BIIIT alone, MBP alone, and double positive regions. Autonomic and somatic nerve density was calculated as percentage of the area in each region stained with BIIIT antibodies alone, and with both BIIIT and MBP antibodies or MBP alone, respectively. Student's t-tests compared nerve density within corresponding regions at the distal CB and glans.
Results: Four cadavers, aged 22-81, were examined, including two nulliparous females. Average autonomic nerve density was greater than somatic density in all regions, and both autonomic and somatic

density increased from proximal to distal, except dorsal to the distal CB (Figure 3). Examination of immunostained slides revealed autonomic nerves were distributed within erectile tissue of the corpora cavernosa and vascular structures at all levels. (Figure 2). Average somatic nerve density was highest dorsal to the distal CB, and was significantly higher than the somatic density dorsal to the glans (1.02% vs 0.31%, p=0.015). Somatic density was significantly lower ventral to the distal CB than ventral to the glans (0.25% vs. 0.61%, p = 0.037). Consistent with gross dissection, histologic examination revealed large nerve bundles of the DNC between the tunica albuginea (TA) and deepest layers of subcutaneous tissue along the distal CB. Analysis of this dorsal subregion demonstrated significantly higher somatic and autonomic nerve density compared to surrounding dorsal tissue (3.7% vs. 0.23%, p=0.01 for somatic, 1.63% vs. 0.39%, p=0.0004 for autonomic).

Conclusions: Average somatic nerve density was greatest in a subregion dorsal to the distal CB, and decreased distally as nerve fibers penetrate the glans. This region may be most susceptible to direct injury due to the presence of large nerve bundles outside the protective TA layer. Autonomic density was greater than somatic density in all remaining regions analyzed and was distributed throughout erectile tissue and vasculature. Future research will focus on identifying the origin of autonomic nerve pathways within the periurethral and paravaginal tissue.

Disclosure: No

Images:

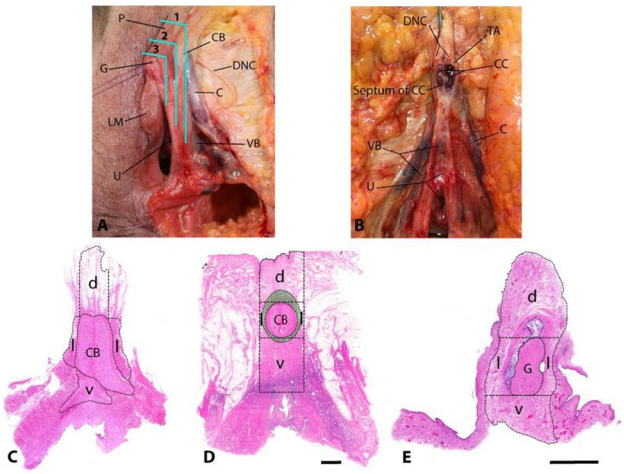

Figure 1. Panel A shows a left dissected vulva in an unembalmed cadaver. Cross-sections of the (**1**) proximal aspect of clitoral body (CB), (**2**) distal CB, and (**3**) glans (G) were examined. Panel B displays a cross-section through the distal CB. Key anatomical structures are identified. Panels C-E display corresponding Hematoxylin and Eosin (H&E) staining to cross-sections 1, 2 and 3, respectively. Outlined regions individually analyzed for somatic and autonomic nerve density included the CB, G, and areas dorsal (d), lateral (l) and ventral (v) to the CB or G. The area highlighted in green on Panel D represents a highly innervated region between the tunica albuginea (TA) and clitoral fascia on the distal CB.
C=crus; CC=corpora cavernosa of CB; DNC= dorsal nerves of clitoris; LM=labium majus; P= prepuce; U= urethra; VB= vestibular bulb. Scale bar in D applies to Panels C and D. Scale bars in Panels D and E = 5mm.

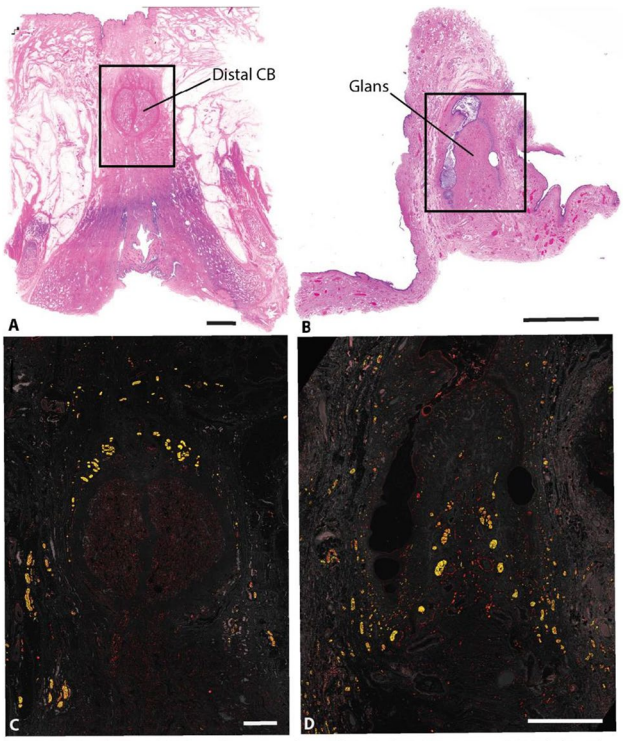

Figure 2. Panels A and B show Hematoxylin and Eosin (H&E) staining of distal clitoral body (CB) and glans, respectively. Panels C and D show the boxed areas of adjacent sections which were immunostained with antibodies against βIII tubulin (βIIIT), a general nerve marker, and myelin basic protein (MBP), a mylinated nerve marker. Unmyelinated autonomic nerve fibers are shown in red and myelinated somatic nerve fibers are shown in yellow, due to the overlap of βIIIT and MBP staining. Tissue autofluorescence is shown in grey for structural reference. Scale bars in A and B = 5 mm, C and D = 2 mm.

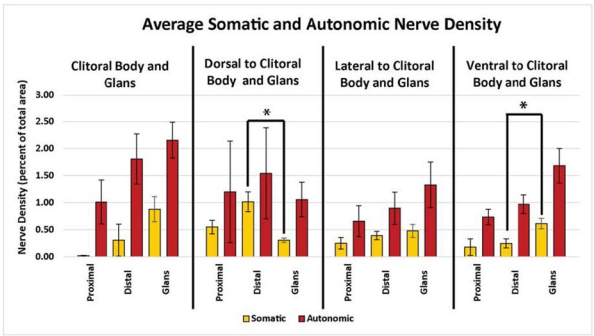

Figure 3. Average somatic and autonomic nerve density expressed as a percentage of total area. Somatic nerve density is shown in yellow and autonomic nerve density is shown in red. Autonomic fibers predominated in most anatomical regions, except in the area dorsal to the distal aspect of the clitoral body. Error bars indicate standard error of the mean (SEM). Asterisk (*) indicates a statistically significant difference between the two average values (p<0.05).

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Subspecialty Care for Postpartum Women Who Experienced Obstetric Anal Sphincter Injury is Associated with High Patient Satisfaction

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Introduction: There is paucity of data on the impact of subspecialty care by urogynecologists for women who experience an obstetric anal sphincter injury (OASI) at the time of delivery.
Objective: The objective of this study is to evaluate patient satisfaction of women who sustained an OASI and presented for care postpartum in a subspecialty pelvic floor disorder clinic.
Methods: This is a prospective cohort study of women who experienced an OASI at the time of vaginal delivery and presented for care in our Postpartum Care Clinic (PPCC). Women meeting eligibility criteria were enrolled in a prospective database at their initial visit, after which patient and delivery characteristics were collected. Patients were subsequently contacted at 6-to-12 months and invited to complete an electronic survey, which included 7 questions developed internally utilizing a Likert scale (table 1). We compared survey responses based upon patient and delivery characteristics.
Results: 151 patients met eligibility criteria and were included in this analysis, with a median time to survey completion of 216 days [IQR: 204, 238]. Patients were a mean age of 31.1 (SD: ±4.1) years, with a mean BMI of 31.0 (±5.2) kg/m2 at the time of delivery. The majority of women were white (n: 118, 78.1%) and primiparous (122, 80.8%). 81 (53.6%) had a spontaneous vaginal delivery and 131 (86.8%) had a third-degree laceration. At the 6-to-12-month survey, 144 (95.4%) responded affirmatively (very good/good) regarding the education they received (question 1), and 146 (96.7%) responded affirmatively (very good/good) regarding the care they received in the PPCC (question 2). 146 (96.7%) reported being very/somewhat satisfied with the care they received (question 3), and 144 (95.4%) responded affirmatively (strongly agree/agree) that they would recommend the PPCC to family/friends (question 4). Regarding patient education, 112 (74.2%) strongly agreed/agreed the education received impacted their future childbearing plans (question 5), while 56 (37.3%) strongly agreed/agreed the education received changed their plan for future delivery mode (question 6). 107 (71.3%) strongly agreed/agreed they understood the tear they experienced prior to being seen in the PPCC (question 7). Women who answered affirmatively to question 5 (n=112) had significantly lower UDI-6 (2.0 [1.0, 3.0] vs 3.0 [1.0, 6.0], p=.01) and Present Pain Index scores (2.0 [1.0, 3.0] vs 3.0 [2.0, 3.0] p=.03). Those who answered affirmatively to question 6 (n=56) were significantly less likely to be white (38 [69.1%] vs 80 [86.0%], p=.01), more likely to have experienced a fourth-degree laceration (13 [23.2%] vs 7 [7.4%], p=.006), more likely to wear a pad for stool leakage (7 [12.7%] vs 3 [3.2%}, p=.04) and more likely to have experienced a wound complication (9 [16.1%] vs 5 [5.3%], p=.03). Women who answered affirmatively to question 7 (n=107) were more likely to have experienced a fourth-degree laceration (19 [17.8%] vs 0, p=.003).
Conclusions: Postpartum care in a subspecialty pelvic floor disorder clinic for women who experienced an OASI is associated with high patient satisfaction in over 95%. These clinics serve an important role in patient education and can inform future childbearing plans.
Disclosure: No
Images:

Table 1. Patient satisfaction survey

Question	Answer Choices
Please rate:	
1. The education that you received in the Postpartum Care Clinic after your delivery.	[ ] Very good [ ] Good [ ] Neither good nor poor [ ] Poor [ ] Very poor
2. The care you received in this clinic after your delivery.	[ ] Very good [ ] Good [ ] Neither good nor poor [ ] Poor [ ] Very poor
3. Overall how satisfied are you with the care you received in the Postpartum Care Clinic?	[ ] Very satisfied [ ] Satisfied [ ] Neither satisfied nor dissatisfied [ ] Dissatisfied [ ] Very dissatisfied
Please agree or disagree:	
4. I would recommend my family/friends to the Postpartum Care Clinic.	[ ] Strongly Agree [ ] Agree [ ] Neither agree or disagree [ ] Disagree [ ] Strongly disagree
5. The education you received in the Postpartum Care Clinic impacted your future childbearing plans.	[ ] Strongly Agree [ ] Agree [ ] Neither agree or disagree [ ] Disagree [ ] Strongly disagree
6. The education you received in the Postpartum Care Clinic changed your plan for mode of delivery in the future.	[ ] Strongly Agree [ ] Agree [ ] Neither agree or disagree [ ] Disagree [ ] Strongly disagree
7. Before being seen in the Postpartum Care Clinic, you understood the type of tear you had during your delivery.	[ ] Strongly Agree [ ] Agree [ ] Neither agree or disagree [ ] Disagree [ ] Strongly disagree

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Theoretical Symptom and Anatomical Phenotypes Provide Insights into the Interactions of Prolapse Symptoms and Anatomy

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Introduction: Women pursue treatment for pelvic organ prolapse (POP) to relieve symptoms, including protrusion (PRO), sexual dysfunction (SD), obstructed voiding (OV), stress urinary incontinence (SUI), obstructed defecation (OD), fecal incontinence (FI) and rectal prolapse (RP). but the surgeon achieves this through repairing the anatomy. This reality underlines the importance of understanding the relationship between symptoms and anatomy. Prior efforts to associate symptoms and anatomical variation have been marginally successful and may reflect overly simplistic representations of anatomic variation or associated symptoms.
Objective: This study sought to develop a more nuanced understanding of anatomical defects leading to POP and correlating them with symptoms. We hypothesized theoretical anatomical phenotypes (AP) defined through the Pelvic Organ Prolapse Quantification (POPQ) points, and specific symptom phenotypes (SP), and explored associations between them.
Methods: We analyzed symptom questionnaires (PFDI, PFIQ, SPEQ) and anatomical measurements (POP-Q) from a large anonymized research database of 719 subjects with symptomatic POP. We defined 128 SP and 420 AP from combinations of structural defects, and symptoms, and used histograms to explore their distributions. To find patterns between the SP and AP, histograms were

generated showing the relative distribution of AP among subsets of subjects with specific symptoms. Biclustering analysis, using the multiple latent block model defined clustered groups of subjects and features (both anatomy and symptoms) towards identifying patterns.
Results: The cohort of 719 women was mainly postmenopausal (72%) with a mean age of 59. Prior pelvic surgery included hysterectomy (34%), POP surgery (22%), and incontinence surgery (13%). The majority of the cohort had symptoms of PRO (85%), SD (71%), OD (68%), OV (65%), and SUI (55%). FI (37%) and RP (18%) were less common. A third of the theoretical APs and two thirds of the SP were present. Histograms for specific symptoms demonstrated unique distributions of APs suggesting associations between anatomy and symptoms. For example, PRO had more APs with loss of anterior support, and all compartments, but less APs with loss of posterior and perineal support. OV also had more APs with combined compartments, but less with just anterior prolapse. This contrasts with SUI which had less APs with combined compartments, and more with loss of anterior, posterior, or perineal support. The symptom of OD was uncommon in APs limited to the anterior wall, but common with the loss of posterior and perineal support. This was also true of RP, but not FI. SD was more common in APs that included loss of posterior and perineal support, and was rare in phenotypes with loss of anterior support. Biclustering provided two clusters, C1 and C2. (Figure) C1 (68%) was younger with less pronounced anatomical POP, yet more SUI and SD ($p<0.001$). C2 was associated with prolapse beyond the hymen and had more PRO ($p<0.001$), and OV ($p=0.001$). Features that clustered together, such as SUI and SD, may represent underlying relationships.
Conclusions: We demonstrated a relationship between location of anatomical POP and the presence of specific symptoms, which may be useful to generate new hypotheses and guide clinical decision making.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Amara Therapeutics
Images:

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Trends in Hysterectomy for Prolapse: an Analysis of the Effect of the COVID-19 Pandemic
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Introduction: The COVID-19 pandemic has had a considerable and evolving impact on delivery of surgical care to patients. During the early stages of the pandemic, resource scarcity was experienced by many healthcare systems. This led to the implementation of a surgical moratorium on elective surgeries in New York State between the months of March through June 2020. Certain specialties, specifically those performing elective surgeries, experienced significant strain and transformation.
Objective: This study aims to describe perioperative and intraoperative characteristics of patients undergoing hysterectomy for pelvic organ prolapse (POP) with and without concomitant urogynecology procedures between 2019-2021 at a multi-hospital healthcare system that experienced significantly strain and a subsequent moratorium on elective surgery during the first peak of the pandemic.
Methods: This is a retrospective cohort analysis of all patients in a multi-hospital healthcare system in New York City who underwent hysterectomy for POP from August 19th, 2019 through August 11th, 2021. Cases were identified using procedural and diagnostic codes for hysterectomy and POP, respectively. Patients were separated into three cohorts based on dates corresponding to phases of the COVID-19 pandemic. The 'early peak' was defined from March through June 2020, coinciding with the New York State moratorium. The primary outcome was the stage of POP for patients undergoing surgery. Secondary outcomes included concomitant urogynecologic procedures, route of surgery, time from indication to procedure, length of inpatient stay, and utilization of pre-operative medical assessment/clearance (POMA).
Results: A total of 253 cases were included: 106 (41.90%), 15 (5.93%), and 132 (52.17%) patients in the 'pre-pandemic', 'early peak pandemic', and 'stable pandemic' groups, respectively. Although not statistically significant, vaginal hysterectomy approach was performed less frequently during the 'early peak pandemic' and 'stable pandemic' cohorts ($p=0.0544$). The 'early peak pandemic' cohort had significantly more stage IV POP compared to other cohorts ($p=0.0021$). Rates of concomitant urogynecology procedures including slings, anterior or posterior repair, or apical repair did not differ between the cohorts. Further, cystoscopy was utilized intraoperatively more frequently in the 'stable pandemic' cohort ($p=0.0272$). Time from surgical indication to operation was also significantly different with patients most frequently waiting at least 3 months in the 'early peak pandemic' group ($p=0.0132$). Length of inpatient stay did not demonstrate a significant difference ($p=0.3982$). The most frequent postoperative complication was transient voiding dysfunction, and this was observed more commonly in the 'stable pandemic' cohort ($p=0.0236$), though overall no cases were complicated by persistent voiding dysfunction or urinary retention requiring surgical intervention in any group.
Conclusions: In late spring 2020, when the moratorium was lifted, surgical volume returned to pre-peak numbers. However, time from booking to day of surgery remained significantly longer during and after the 'peak'. There was a statistically significant increase in patients with stage IV POP during the 'early peak' and 'stable' pandemic periods. There was a statistically significant increase in use of precautionary measures peri and intra-operatively during the 'peak' and 'stable pandemic' periods with significant increases in use of POMA performed outpatient by anesthesia and an increased utilization of intraoperative cystoscopy.
Disclosure: No
Images:

Demographic and Preoperative Characteristics of All Patients Undergoing Hysterectomy for Prolapse During the Periods of the Covid Pandemic (N=253)

	Before Pandemic (n)	Before Pandemic (%)	Peak Pandemic (n)	Peak Pandemic (%)	Stable Pandemic (n)	Stable Pandemic (%)	p
Age (Years)							
<58	28	26.42	5	33.33	28	21.21	0.9363
58 to <65	23	21.7	3	20	33	25	
65 to <71	27	25.46	3	20	34	25.76	
≥ 71	28	26.42	4	26.67	37	28.03	
Race							
White	44	41.51	10	66.67	74	56.06	0.1156
Black	16	15.09	3	20	23	17.42	
Hispanic/Latino	32	30.19	2	13.33	20	15.15	
Asian	5	4.72	0	0	4	3.03	
Other	7	6.6	0	0	11	8.33	
Unknown	2	1.89	0	0	0	0	
Surgical Approach							
Vaginal	60	56.6	6	40	49	37.12	0.0544
Abdominal	8	7.55	0	0	16	12.12	
Laparoscopic	27	25.47	7	46.67	44	33.33	
Robotic	11	10.38	2	13.33	23	17.42	
Stage of Prolapse							
1	0	0	0	0	2	1.52	0.0021
2	38	35.85	4	26.67	49	37.12	
3	55	51.89	3	20	64	48.48	
4	13	12.26	8	53.33	17	12.88	
BMI							
<30	72	67.92	14	93.33	92	69.7	0.2615
30 to 35	23	21.7	1	6.67	27	20.45	
35 to 40	9	8.49	0	0	6	4.55	
≥ 40	2	1.89	0	0	7	5.3	
ASA							
1	10	9.43	1	6.67	6	4.55	0.3357
2	68	64.15	10	66.67	95	71.97	
3	25	23.58	4	26.67	31	23.48	
4	3	2.83	0	0	0	0	

Intraoperative Characteristics of All Patients Undergoing Hysterectomy for Prolapse During the Periods of the Covid Pandemic (N=253)

	Before Pandemic (n)	Before Pandemic (%)	Peak Pandemic (n)	Peak Pandemic (%)	Stable Pandemic (n)	Stable Pandemic (%)	p
Concomitant Procedure							
Sling	37	34.91	3	20	46	34.85	0.4987
Anterior or Posterior Repair	60	56.6	6	40	69	52.27	0.4523
Sacrocolpopexy	39	36.79	4	26.67	62	46.97	0.1385
Uterosacral Suspension	53	50	9	60	62	46.97	0.6107
Any Procedure	105	99.06	15	100	132	100	0.4985
Cystoscopy	88	83.02	13	86.67	124	93.94	0.0272
Time from Indication to OR (month)							
<1	1	0.94	0	0	0	0	0.0132
1 to 2	43	40.57	2	13.33	45	34.09	
2 to 3	40	37.74	3	20	42	31.82	
≥3	22	20.75	10	66.67	45	34.09	
Preoperative Medical Assessment	39	36.79	14	93.33	51	38.64	0.0001

Postoperative Characteristics of All Patients Undergoing Hysterectomy for Prolapse During the Periods of the Covid Pandemic (N=253)

	Before Pandemic (n)	Before Pandemic (%)	Peak Pandemic (n)	Peak Pandemic (%)	Stable Pandemic (n)	Stable Pandemic (%)	p
Length of Stay (days)							
0	68	64.15	12	80	97	73.48	0.3982
1	30	28.3	2	13.33	30	22.73	
≥2	8	7.55	1	6.67	5	3.79	
Postoperative Complication							
Bladder Perforation	2	1.89	0	0	4	3.03	0.6979
Ureteral Damage	0	0	0	0	3	2.27	0.2487
Reoperation	2	1.89	2	13.33	1	0.76	0.0041
Transient Voiding Dysfunction	11	10.38	0	0	27	20.45	0.0236
Bowel Injury	0	0	0	0	3	2.27	0.2487
Other	4	3.77	0	0	3	2.27	0.6231
Any Complication	19	17.92	2	13.33	41	31.06	0.0376

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The Impact of ERAS on FPMRS Outcomes at a Public Teaching Hospital During the COVID-19 Pandemic

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Introduction: Enhanced recovery after surgery (ERAS) protocols have decreased hospital length of stay (LOS) and increased the rate of same-day discharge in patients undergoing minimally invasive surgery, including in female pelvic medicine and reconstructive surgery (FPMRS). In October of 2019, our hospital implemented an ERAS protocol; however, the onset of the COVID-19 epidemic accelerated the need to adopt a same day discharge policy. Given the rapid implementation of this policy, it was important to determine its effect on FPMRS surgical outcomes in a public teaching hospital serving predominantly uninsured and underinsured patients.
Objective: The primary objective of this study was to evaluate perioperative management and postoperative outcomes for FPMRS patients after implementation of an ERAS protocol in a public teaching hospital.
Methods: A single-center review was performed of FPMRS patients undergoing surgery prior to introduction of the ERAS protocol from January 2019 to June 2019 compared to those undergoing surgery after its implementation from January 2021 to June 2021. Demographic and surgical details were collected for all patients. A retrospective analysis was performed comparing outcomes, including percentage of outpatient surgery, emergency department visits within 30 days of surgery, and opioid use pre- and post-ERAS implementation
Results: 29 patients were included in the pre-implementation group and 19 patients were included in the post-ERAS implementation group. Procedure types and patient demographics are seen in table 1. Ninety-three percent of patients self-described as Hispanic/Latino ethnicity. The percentage of outpatient surgeries increased from 17% to 90% ($p < 0.01$). Preoperative acetaminophen use increased from 3% to 74% of patients ($p < 0.01$), while mean perioperative morphine milligram equivalents decreased from 57 mg to 42 mg ($p < 0.01$). Mean opioid pills prescribed was not different after implementation of ERAS. Thirty-day emergency department (ED) returns increased from 0% to 11% (p=0.15). These two ED returns included one visit for a urinary tract infection and the other for nephrolithiasis.

Conclusions: ERAS implementation for FPMRS patients at a public hospital led to a significant decrease in LOS, inpatient admission, and perioperative morphine milligram equivalents used without a significant increase in 30-day ED returns. While the COVID-19 epidemic resulted in an accelerated adoption of ERAS protocol, it was found to be safe and effective in our underserved FPMRS patient population.

Disclosure: No

Images:

Table 1. Patient and Case Demographics for Urogynecological Surgeries

	Pre-Intervention (N=29)	Post-Intervention (N=19)
Patient Age	55 (10)	57 (9)
Patient Hispanic/Latino Ethnicity	27 (93%)	18 (95%)
Number of Surgeons	4	4
Procedure Type		
Colpocleisis, Colpopexy, +/- Colporrhaphy	10 (35%)	2 (11%)
Total Vaginal Hysterectomy	12 (41%)	11 (58%)
Repair Posterior Vagina	2 (7%)	0 (0%)
Revision Sling	2 (7%)	0 (0%)
Robotic-Assisted Supracervical Hysterectomy	2 (7%)	3 (16%)
Robotic-Assisted Sacral Colpopexy	1 (3%)	2 (11%)
Repair Vesicovaginal Fistula	0 (0%)	1 (5%)

Pre-intervention period corresponds to dates 1/1/2019-6/1/2019.
Post-intervention period corresponds to dates 1/1/2021-6/30/2021.
Values are reported as N (%) or mean (SD)

Table 2. Peri- and Post-Operative ERAS Outcomes for Urogynecological Surgeries

	Pre-Intervention (N=29)	Post-Intervention (N=19)	P
Outpatient Surgery	5 (17%)	17 (90%)	<0.01
PACU Length of Stay (minutes)	171 (114)	245 (113)	0.04
Length of Stay (days)	0.9 (0.4)	0.3 (0.3)	<0.01
ED Return within 30 days	0 (0%)	2 (11%)	0.15
Medication Usage			
Intraoperative Intravenous Fluids (milliliters)	1685 (876)	1210 (488)	0.03
Acetaminophen	1 (3%)	14 (74%)	<0.01
Local Anesthetic	12 (41%)	10 (53%)	0.57
Ketorolac	7 (24%)	5 (26%)	1.00
Ketamine	0 (0%)	5 (26%)	<0.01
Ondansetron	28 (97%)	18 (95%)	1.00
Overall Morphine Milligram Equivalents			0.02
Total Perioperative	57 (28)	42 (12)	<0.01
Intraoperative	45 (21)	36 (15)	0.09
Postoperative (PACU +/- Ward)	12 (13)	6 (8)	0.03
Number of Opioids Pills Prescribed	12 (5)	10 (5)	0.08

Pre-intervention period corresponds to dates 1/1/2019-6/1/2019.
Post-intervention period corresponds to dates 1/1/2021-6/30/2021.
Values are reported as N (%) or mean (SD)
ED, Emergency Department; PACU, Post Anesthesia Care Unit

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Gender Balance in US FPMRS Fellowship Program Leadership

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Introduction: The proportion of female physicians in the workforce has been steadily increasing, but the proportion of women in department leadership roles across the US remains low. Prior studies have noted that even within Obstetrics and Gynecology (Ob/Gyn), where 58.9% of the physician workforce is female, women in positions of leadership are the minority, and women are significantly more likely to hold educational leadership roles over department leadership roles. Female pelvic medicine and reconstructive surgery (FPMRS) has the highest representation of women in leadership roles across Ob/Gyn and Urology subspecialties; however, the proportion of women in leadership roles within FPMRS fellowship programs has not been described previously.

Objective: To describe the proportion of female faculty in leadership roles within FPMRS fellowship departments in the United States.

Methods: This was a cross-sectional observational study of FPMRS fellowship programs in the US. The study population was determined by a list of FPMRS fellowship programs maintained by the Accreditation Council for Graduate Medical Education (ACGME). Department websites were queried for those in fellowship director and division chair positions. Gender was determined by name and/or photographic gender expression. Geography was determined by state, then categorized into regions as determined by the US census bureau. Categorical variables were presented as either frequency or proportion and were used to calculate odds ratios.

Results: A total of 68 ACGME-accredited FPMRS fellowship programs were queried. Of these, 54 are Ob/Gyn-based programs and 14 are Urology-based programs. Overall, women represent 61.8% of fellowship directors and 49% of division directors. One in five female fellowship directors concurrently hold the role of division chair. Women are significantly less likely to be fellowship directors in Urology based FPMRS programs compared to Ob-Gyn based programs (21.4% vs 72.2%, OR 0.10, 95% CI 0.03 to 0.43). Women are also less likely to be division chairs in Urology based FPMRS programs compared to Ob/Gyn programs, though this did not reach statistical significance (20% vs 56%, OR 0.2, 95% CI 0.04 to 1.04). The greatest gender parity was observed in the South, where women represent 55% of fellowship directors and 50% of division chairs. The greatest gender disparity was observed in the Northeast, where women represent 72% of fellowship directors and 36% of division chairs.

Conclusions: Across all FPMRS fellowship programs, women comprise an equal proportion of division chairs and a larger proportion of fellowship directors compared to men. However, gender parity is only observed in Ob/Gyn based FPMRS programs. Gender parity in leadership also varies by region.

Disclosure: No

Images:

Table 1: Percentage of women faculty in FPMRS leadership roles

ROLE	UROLOGY (N = 14)	OB/GYN (N = 54)	ODDS RATIO (95% CONFIDENCE INTERVAL)
FELLOWSHIP DIRECTOR	21.4%	72.2%	0.10 (0.03 to 0.43)
DIVISION CHAIR	20.0%	56.1%	0.20 (0.04 to 1.04)

Table 2: Percentage of women faculty in FPMRS leadership roles, by region

ROLE	WEST (N = 11)	MIDWEST (N = 19)	SOUTH (N = 20)	NORTHEAST (N = 18)
FELLOWSHIP DIRECTOR	63.6%	57.8%	55.0%	72.2%
DIVISION CHAIR	85.7%	46.1%	50.0%	35.7%

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Respect: 2021 Annual AUGS Scientific Meeting Demonstrates Commitment to Gender Equity During Presentations

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Introduction: Gender disparity continues to exist across all facets of medicine. One area of bias commonly reported among other surgical subspecialties is different presentation of formal titles at academic conferences.

Objective: The primary objective of our study was to evaluate differences in speaker introductions and addresses based on gender at the annual American Urogynecology Society (AUGS) meeting. Secondary objectives were to assess differences in types of questions asked of speakers by both moderators and audience members based on gender.
Methods: This was a cross sectional study performed at the 42nd annual AUGS scientific meeting on October 12-15, 2021 which was a hybrid in-person/virtual meeting. Main podium sessions, including general sessions, panel discussions, and special lectures were coded independently by two reviewers. Breakout sessions, posters, and roundtables were not included in this analysis. Data regarding introducer/moderator gender, speaker introductions and addresses ("Dr." versus "first name"), speaker gender, questions by introducer/moderator and questions by audience members (critical versus non-critical), and audience member gender were collected. Questions from the virtual chat were not included in this analysis. For this study, gender was assumed by the surrogate of gender expression. Demographic information including academic degree, academic rank, and administrative and educational leadership positions were collected from publicly available scientific program materials and webpages. Groups were compared using Fisher's exact test.
Results: A total of 37 speakers (78% women) presented in main podium presentations, panel discussions, and special lectures. 17 introducers/moderators managed these sessions; 88% of them were women. All speakers, regardless of gender, were introduced by their professional/formal titles. There were 4 instances of informal address outside of speaker introductions. Two of these informal addresses were toward male speakers and 2 were toward female speakers; all informal addresses were made by female introducers/moderators. A total of 18 questions were posed by introducers/moderators towards speakers; all questions were non-critical with no differences by gender of introducers/moderators or speakers. 41 questions were asked by audience members to speakers. The majority of questions were non-critical (n=33) while the minority were critical (n=8); there were no differences in types of questions asked based on gender of speakers (p=1.00) or gender of audience members (p=1.00).
Conclusions: Women and men were both introduced by their professional titles at the annual AUGS conference with no differences in the types of questions asked by introducers/moderators and audience members based on gender, highlighting one victory of gender equity within our field. We should celebrate and maintain this effort and also work to reduce persistent gender bias in other aspects of our specialty.
Disclosure: No
Images:

Table 1: Demographics of Speakers and Introducers/Moderations at Main Podium Presentations

Characteristic	Speaker Characteristics (n=37) N (%)	Introducer/Moderator Characteristics (n=17) N (%)
Gender		
Male	8 (22)	2 (12)
Female	29 (78)	15 (88)
Medical Degree		
Yes	31 (84)	16 (94)
No	6 (16)	1 (6)
Other Academic Degree		
PhD	7 (19)	5 (29)
MS	6 (16)	3 (18)
MPH	1 (3)	0 (0)
Other	2 (5)	1 (6)
None	21 (57)	8 (47)
Academic Rank		
Professor	7 (19)	9 (53)
Associate Professor	4 (11)	4 (24)
Assistant Professor	9 (24)	3 (18)
Unknown/unavailable	17 (46)	1 (6)

Table 2: Speaker Question Pairs by Audience Members and Introducer/Moderators

	Speaker Gender	Critcal Questions	Non-critical Questions	P value
Audience Member Gender				
Male	Male	1	5	1.00 [a]
Female	Male	1	3	
Male	Female	2	7	1.00 [a]
Female	Female	4	18	
Male	Either	3	12	1.00 [a]
Female	Either	5	21	
Either	Either	8	33	n/a
Introducer/Moderator Gender				
Male	Male	0	0	n/a
Female	Male	0	4	
Male	Female	0	1	n/a
Female	Female	0	13	
Male	Either	0	1	n/a
Female	Either	0	17	
Either	Either	0	18	n/a

a=Fisher's exact test

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Fractional CO2 Laser Treatment of Genitourinary Syndrome of Menopause in Breast Cancer Survivors
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Introduction: Fractional CO2 laser therapy is a novel treatment for genitourinary syndrome of menopause (GSM). This therapy may be particularly helpful in women who incur higher than usual risk of using low dose vaginal estrogen which is a standard treatment for GSM.
Objective: The objective of this study was to determine the effectiveness and safety of fractional CO2 laser in breast cancer survivors with GSM.
Methods: This was a retrospective review of a cohort of female breast cancer survivors suffering from GSM (defined as one or more of the following symptoms without other known cause: vaginal dryness or pruritus, dyspareunia, dysuria, urinary urgency or frequency) receiving treatment with fractional CO2 laser therapy. Patients underwent 3 to 5 treatments 6 weeks apart as an initial series of therapy. They were invited to follow up for yearly maintenance therapy of one treatment. Patient improvement was measured using estimated percentage of improvement (EPI) at completion of initial treatment course and again at annual follow up. Patients were also asked about adverse events at each visit.
Results: Forty-eight women completed at least 3 treatments. There were no serious adverse events. The most common adverse events were vaginal spotting and vulvar discomfort. All women reported some degree of improvement in GSM symptoms as measured by the EPI. Seventy five percent of patients were at least 70% improved after their initial series. Mean EPI was 74.5% (+/- 22.9). The majority of women underwent 3 treatments (25/48; 52%), 21% (10/48) required 5 treatments. Fourteen women have had a yearly follow up treatment with a mean EPI of 71.8% (+/- 27.1). Twelve of the 14 women had an EPI within 20% of the EPI seen at the last follow up visit of their primary series. Of those who were not within that range, one had improved by

35% and another reported no improvement after a 70% EPI after her initial series.
Conclusions: Fractional CO2 laser treatment resulted in improvement of GSM symptoms in a majority of breast cancer survivors in this study with no serious adverse events.
Disclosure: No

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The Role of Pessaries in the Treatment of Pelvic Organ Prolapse: A Systematic Review and Meta-analysis of Quality-of-life Improvement

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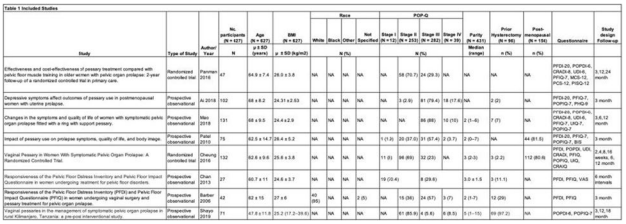
2 - NewYork-Presbyterian/Weill Cornell Medicine, Department of Urology
3 - Weill Cornell Medicine, Department of Population Health Sciences

Introduction: Pelvic organ prolapse (POP) can have a significant impact on a patient's quality of life. Several options are available for POP that range from conservative measures to more invasive surgical options. Pessaries are a common noninvasive management option for POP, though few prospective studies have evaluated their efficacy.
Objective: To evaluate the existing evidence on the efficacy of pessaries for the treatment of POP in regards to patients' quality-of-life improvement.
Methods: We searched for the terms "pelvic organ prolapse" and "pessar/y/ies/ium or vaginal support device," and "safety or safe or outcome or complication or efficacy or effective or effectiveness" in PubMed, Embase, and Cinhal on March 16, 2020. Studies that characterized pre-treatment and post-treatment mean scores and standard deviations (SD) for standardized questionnaires following pessary use were included. Studies performed in pediatric populations, pregnancy, and use of pessaries not for prolapse were excluded. Three reviewers independently screened and assessed data quality and risk of bias according to PRISMA guidelines. For the meta-analysis, the change in pre-treatment and post-treatment questionnaire scores were pooled when those values were reported by at least three studies, which included those for the Pelvic Floor Distress Inventory Short Form-20 (PFDI-20) and Pelvic Floor Impact Questionnaire Short Form-7 (PFIQ-7) with the subscale Pelvic Organ Prolapse Impact Questionnaire (POPIQ-7). When appropriate, mean and SD were derived from median and interquartile range when only those values were reported. For studies that reported only the mean but not SD, a pooled SD was imputed based on all studies that reported SD. A random-effects meta-analysis model was used to combine the estimates and capture between-study heterogeneity using the I^2-statistic. Publication bias was examined using funnel plots and the Begg-Mazumdar rank correlation test.
Results: Eight studies including 627 patients were included for systematic review (Table 1). When reported, the majority of patients had stage III prolapse (48%, n=282/586) followed by stage II prolapse (43%, n=253/586). Follow-up was variable among studies, though the majority conducted follow-up visits with questionnaire distribution at 3-month intervals. Study descriptions and extracted demographic variables are in Table 1. For the meta-analysis, studies by Ai et al., Mao et al., and Patel et al. were pooled together for PFDI-20, PFIQ-7, and POPIQ-7. A negative change between post-treatment and pre-treatment mean scores was noted for all questionnaires, signifying improvement following pessary use: PFDI-20 mean change = -46.12, SD = -65.39; PFIQ-7 mean change = -35.99, SD = -45.96; POPIQ-7 mean change = -16.27, SD = -26.84 (Figure 1). P-values for the I^2-statistic were >0.05 among all estimates (Figure 1), showing that we did not observe a significant difference in studies, with funnel plots (Figure 2) further illustrating this.
Conclusions: Based on improvements in standardized questionnaire scores among several studies, pessaries are an effective treatment option for prolapse. This supports pessary use for quality-of-life improvement, though larger studies with longer-term follow-up are warranted.
Disclosure: No
Images:



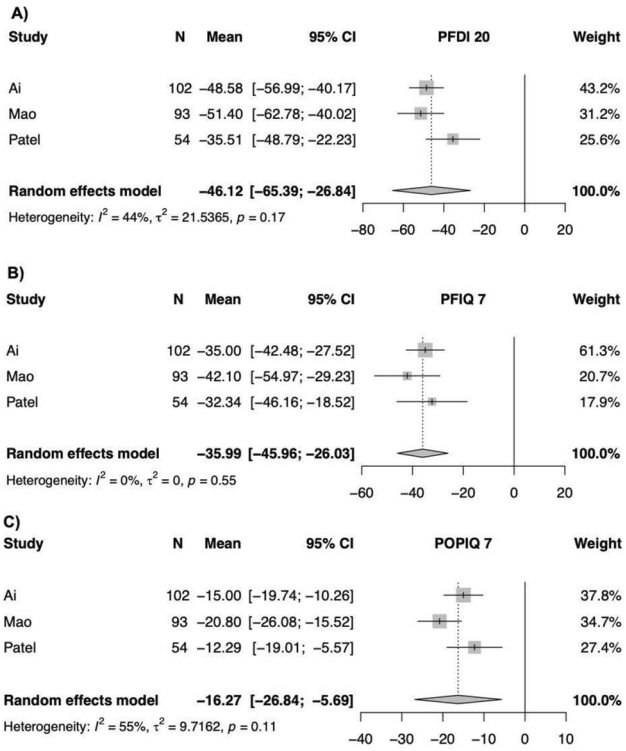


Figure 1. Forest Plots for PFDI-20 (A), PFIQ-7 (B), and POPIQ-7 (C).

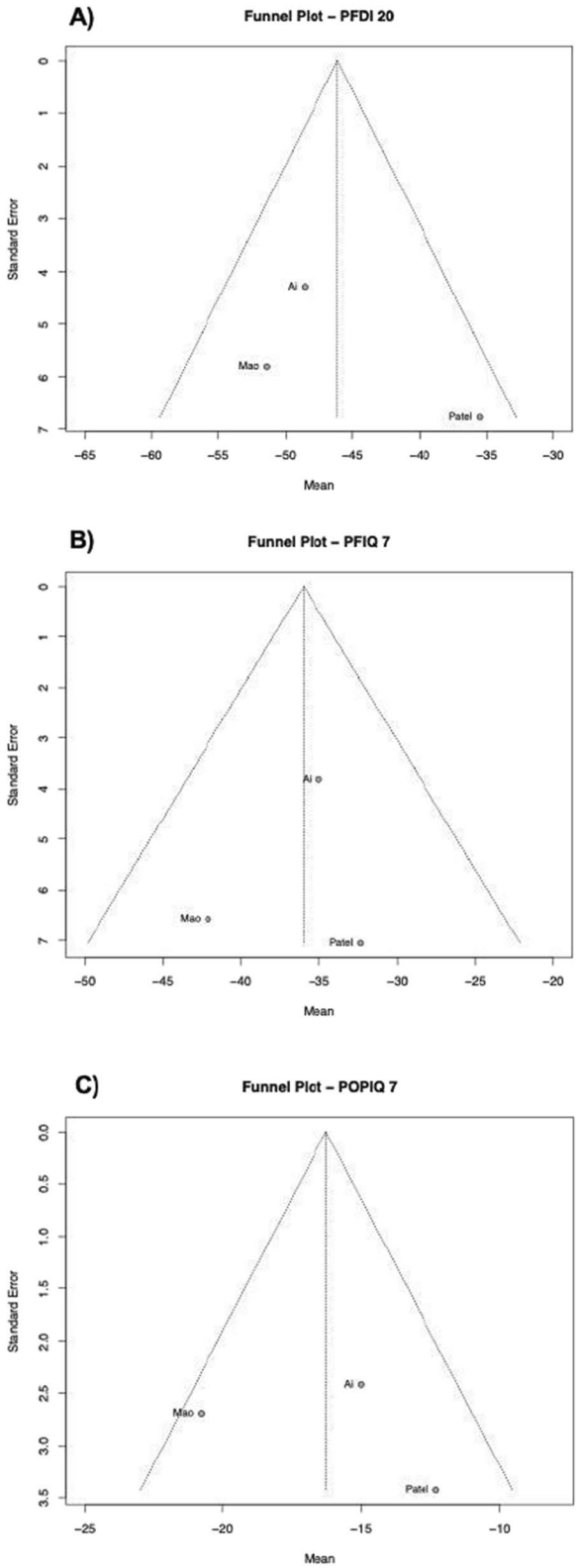


Figure 2. Funnel Plots for PFDI-20 (A), PFIQ-7 (B), and POPIQ-7 (C).

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Pelvic Floor Surgeon Attitudes to Counselling for Stress Urinary Incontinence in the Era of Adverse Publicity Around Mesh Usage: Timely Results from a Large-sample Global Survey

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Introduction: Stress urinary incontinence (SUI) is a common cause of urinary incontinence, negatively affecting a woman's quality of life. The mid-urethral sling (MUS) is a monofilament polypropylene of proven efficacy and safety in clinical trials and everyday practice. Being one of the most investigated SUI procedures, it has become the gold standard, and its prevalence has increased, resulting in declining numbers of other surgical treatments for SUI. There is little research specifically exploring counseling practice for the surgical management of SUIof pelvic floor surgeons as the mesh controversy has evolved.
Objective: To investigate doctors' opinions of the use of synthetic mesh for the treatment of SUI and the effect on patients' attitudes following recent adverse publicity and legal findings.
Methods: An international survey was distributed between December 2019 and May 2020. This electronic survey was approved by International Urogynecological Association (IUGA) and the American Urogynecologic Society (AUGS) and distributed to their members. The study population was practitioners who provide consultation and treatment for women with SUI. The Survey comprised of 16 questions: 10 assessing patient consultation with SUI, and six concerning respondents' (surgeons') demographics (Table 1).
Results: Five hundred and ninety-three surgeon respondents completed the Survey. The preferred initial surgical treatment for SUI was retropubic Midurethral sling (MUS) (62%), followed by trans-obturator MUS (19%), mini slings (10%) and then bulking agents (5%). Despite prolongation of consultation, majority of respondents (87%) believed that clinicians should provide patient information leaflet (PIL) to their clients. However, only 70% of respondents are doing this in practice. Majority of participants would use either IUGA or their institution PIL (61%). Only 8% felt that patients have a positive preconception of synthetic mesh for SUI. 83% of respondents haven't changed their recommendations for treatment and consent process. A logistic regression model identified preferences of certain geographic areas as predictors of consenting practices. Clubbed answers are presented in Table 2
Conclusions: Despite the negative publicity and the current medicolegal litigation involving MUS for SUI treatment, the majority of surgeon respondents still prefer this as the initial surgical treatment for SUI. Most clinicians value PIL in the surgical consent process.
Disclosure: No
Images:

Appendix 1 – Survey questions (Q1-Q10)

Question number	Question number
Q1- Do you feel the majority of your patients have preconceived ideas about using synthetic mesh for the treatment of SUI? 1. Yes, negative preconception 2. Yes, positive preconception 3. No 4. My patients haven't heard of the use of synthetic mesh for SUI	Q6 - Do you feel your consultation time for surgical treatment of SUI has changed in the last year? 1. Yes, it has been prolonged 2. Yes, it was shortened 3. No. There is no change
Q2 - Do you think patients should receive patient information leaflets (PIL) while consulting? 1. Yes 2. No 3. Indifferent	Q7 - In light of the recent negative publicity for synthetic mesh, have you changed your opinion about the use of synthetic mesh for surgical treatment of SUI? 1. Yes 2. No 3. Indifferent
Q3 - Do you use or provide patient information leaflets (PIL) while consulting about SUI? 1. Yes 2. No 3. Sometimes	Q8 - Should your patient require SUI surgery, and assuming she doesn't have any significant co-morbidities, please number the following options from first (1) to be offered to last (6)? 1. Urethral bulking agents 2. Retropubic MUS 3. Trasobturator MUS 4. MUS – mini sling 5. Burch colposuspension
	6. Fascial sling
Q4 - Which patient information leaflets (PIL) are you using? (you can choose more than one) 1. The IUGA PIL 2. Government-issued PIL 3. My hospital/ Department PIL 4. My national college PIL (ACOG, RCOG etc.) 5. My PIL 6. I'm not using PIL	Q9 - Have you changed your consent process to include (Tick ONE option): 1. A consent tool kit 2. A consent that requires patients to initial specific complications 3. I have not changed my consent process
Q5 - Do you feel that patient information leaflets (PIL) contribute to patient understanding of the surgical treatment options for SUI? 1. Yes. They provide essential information and assist in a better understanding of the preferred surgical treatment for SUI 2. No. They cause more confusion 3. Indifferent	Q10 - A woman with vaginal prolapse and urinary stress incontinence (tick ONE you relate the most): 1. I would perform a vaginal repair alone and MUS latter if necessary 2. I would perform an abdominal repair alone and MUS latter if necessary 3. I would perform a vaginal repair and bulking agents 4. I would perform an abdominal repair and bulking agents 5. I would perform abdominal repair and MUS 6. I would perform a vaginal repair with MUS
	7. I would perform an abdominal repair and Burch colposuspension or fascial sling 8. I would perform an abdominal repair of prolapse alone

Appendix 2 – Clubbed answers

Question number	Answers	N (%)
Q1 - Do you feel the majority of your patients have preconceived ideas about the use of synthetic mesh for the treatment of SUI?	1. Yes. Negative preconception 2. Yes. Positive preconception 3. No. 4. My patients haven't heard of the use of synthetic mesh used for SUI	338 (57) 45 (8) 185 (31) 25 (4)
Q2 - Do you think patients should receive patient information leaflets (PIL) while consulting?	1. Yes 2. No 3. Indifferent	515 (87) 15 (3) 62 (10)
Q3 - Do you use and/or provide patient information leaflets (PIL) while consulting about SUI?	1. Yes 2. No 3. Sometimes	418 (71) 78 (13) 96 (16)
Q4 - Which patient information leaflets (PIL) are you using? (you can choose more than one)	1. The IUGA PIL 2. Government issued PIL 3. My hospital/ department PIL 4. My national college PIL (e.g ACOG, RCOG etc.) 5. My own PIL 6. I'm not using PIL 7. Other (please specify)	258 (44) 56 (9) 107 (18) 144 (24) 113 (19) 61 (10) 149 (25)
Q5 - Do you feel that patient information leaflets (PIL) contribute to patient understanding of the surgical treatment options for SUI?	1. Yes. They provide essential information and assist in a better understanding of the preferred surgical treatment for SUI 2. No. They cause more confusion 3. Indifferent 4. Other (please specify)	445 (75) 35 (6) 90 (15) 22 (4)
Q6 - Do you feel your consultation time for surgical treatment of SUI has changed in the last year?	1. Yes. It has been prolonged 2. Yes. It was shortened 3. No. There is no change	335 (57) 12 (2) 246 (41)
Q7 - In light of the recent negative publicity for synthetic mesh, have you changed your opinion with regard to the use of synthetic mesh for surgical treatment of SUI?	1. Yes 2. No 3. Indifferent	62 (10) 513 (87) 18 (3)
Q8 - Should your patient require surgery for SUI, and assuming she doesn't have any significant co-morbidities, please number the following options from first (1) to be offered to last (6)? *	1. Urethral bulking agents 2. Retropubic Mid-urethral sling 3. Transobturator Mid-urethral sling 4. Mid-urethral sling - mini-sling 5. Burch colposuspension (either abdominal or laparoscopic) 6. Fascial sling	30 (5) 369 (62) 115 (19) 61 (10) 9 (2) 9 (2)
Q9 - Have you changed your consent process to include (Tick ONE option):	1. A consent tool kit 2. A consent that requires patients to initial specific complications 3. I have not changed my consent process 4. Other (please specify)	39 (7) 65 (11) 462 (78) 27 (5)
Q10 - A woman with vaginal prolapse and urinary stress incontinence (tick ONE you relate the most):	1. I would perform a vaginal repair alone and MUS latter if necessary 2. I would perform an abdominal repair alone and MUS latter if necessary 3. I would perform a vaginal repair and bulking agents 4. I would perform an abdominal repair and bulking agents 5. I would perform abdominal repair and MUS 6. I would perform a vaginal repair with MUS 7. I would perform an abdominal repair and Burch colposuspension or fascial sling 8. I would perform an abdominal repair of prolapse alone 9. Other (please specify)	91 (15) 19 (3) 3 (0.5) 1 (0.5) 77 (13) 321 (54) 7 (1) 4 (1) 70 (12)

*For Q8 – only first choice is presented

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Shortage of Specialized Pelvic Floor Therapists across the Country

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Introduction: Pelvic floor physical therapy (PFPT) is either first-line or the only recommended treatment for a wide range of urogynecologic conditions, including pelvic organ prolapse, overactive bladder, dysfunctional voiding, and pelvic pain. Prior studies of PFPT utilization have demonstrated poor rates of PFPT initiation (66%) and completion (15%), with further distance to travel associated with PFPT attrition. These studies, however, were performed in health care systems with access to specialized therapists; yet many communities do not have local therapists with the expertise needed for the effective treatment of pelvic floor disorders, further reducing the applicability of this vital therapy.

Objective: To examine regional variations across the United States in the accessibility of specialized physical therapists with a practice focus in pelvic health, incontinence, and sexual dysfunction.
Methods: Individual physical therapists and facilities offering pelvic health services registered with the American Physical Therapy Association (APTA) were catalogued by city, state, and zip code. We extracted information for all therapists documenting a practice focus in pelvic health, incontinence, or sexual dysfunction, also noting whether these providers were board-certified as a Women's Health Clinical Specialist. Therapists were grouped by state and practice focus to determine population-normalized numbers of specialized physical therapy providers per state.
Results: Of 750 physical therapists registered on the APTA "Find a Provider" site advertising some form of pelvic health treatment, only 286 are board-certified women's health clinical specialists. Of these, 116 are associated with multiple facilities. While 710 therapists (95%) advertised a practice focus in pelvic health, only 356 (47%) endorsed the treatment of incontinence. Only 208 (28%) therapists indicated a practice focus in sexual dysfunction. As expected, therapists were clustered around larger metropolitan centers, but surprisingly, when normalized to total population, no state had more than 1 therapist per 100,000 people (range: 0.2-1.1) (Figure 1). Several states (Delaware, Kentucky, and West Virginia) had only one specialized therapist for the entire state. Normalized to population, each state had similarly low numbers of all therapists offering treatment for pelvic floor therapy (median: 0.2, range: 0.02-1.1 per 100,000) and incontinence (median: 0.1, range: 0-1 per 100,000). Sexual dysfunction was the most poorly covered condition (median 0.07, range: 0-0.5 per 100,000); eight states had no documented providers at all. The number of board-certified providers (324 total) ranged from 0-0.5 per 100,000 persons for each state.
Conclusions: Patients with reasonable access to PFPT providers face significant barriers to completing a course of therapy. These data demonstrate a nationwide shortage of providers that likely further limits the accessibility of pelvic floor physical therapy. As not all therapists are registered on the APTA site, these numbers represent an underestimate of total available practitioners. This deficiency, however, underscores the many difficulties patients may face in identifying a skilled provider for care that may prove insurmountable when combined with poor insurance coverage and the time burden of treatment. The low-density coverage of specialized therapists across the country, highlights the importance of alternative treatment options for pelvic floor disorders.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Watershed
Images:

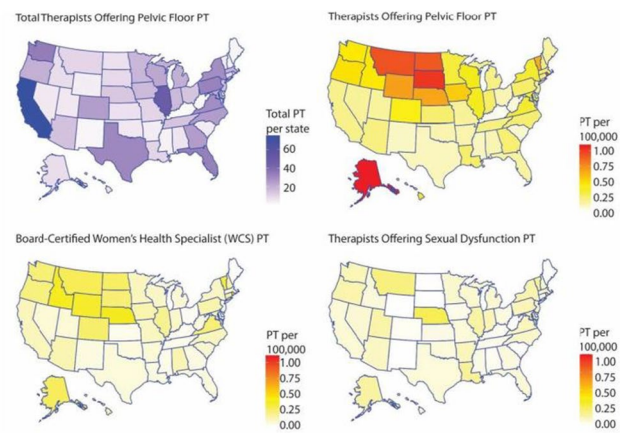

Figure 1. United States heatmap of specialized pelvic floor physical therapists normalized to population in each state.

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Sexual Functioning in Women with a Symptomatic Pelvic Organ Prolapse; A Multicenter Randomized Controlled Trial Between Pessary and Surgery

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2 - Spaarne Gasthuis
3 - Reinier de Graaf Hospital
4 - Radboud UMC
5 - University Medical Center Utrecht

Introduction: Pelvic organ prolapse (POP) has a negative effect on female sexual functioning (FSF). Women with bothersome POP symptoms can be treated with either pessary or surgery. The effects on FSF have not been compared between women undergoing pessary and surgery as treatment for POP. We performed a multicenter randomized controlled trial (RCT) comparing both treatment modalities. This abstract refers to a planned secondary analysis of the RCT, namely the effect of pessary and surgery on FSF in women with POP, measured with the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire, IUGA-Revised (PISQ-IR).
Objective: To present the 1-year interim results of a planned secondary analysis of a 2-year RCT comparing the improvement in FSF for both sexually active (SA) and sexually inactive women (NSA) who are treated with either pessary or surgery for symptomatic POP.
Methods: Multicenter RCT to prove non-inferiority, based on our primary outcome (the Patient Global Impression of Improvement scale), of pessary as compared to surgery. We included women with symptomatic POP stage ≥ 2 and a successful pessary fitting procedure. This abstract refers to the effect of both treatment modalities on the PISQ-IR. In the PISQ-IR, for sexually active (SA) women a higher score indicates better sexual functioning, for non-sexually active (NSA) women a higher score indicates a greater impact of POP on sexual inactivity. Secondary outcomes included a switch from sexual status and de novo dyspareunia. Categorical outcomes were analyzed using a Chi-squared, or Fisher's exact test as appropriate. Continuous data were analyzed using the independent t-test and we calculated the 95% confidence intervals (CI) using bootstrapping.
Results: A total of 439 women were included, 218 (49.7%) women in the pessary group and 221 (50.3%) women in the surgery group. The intention-to-treat analysis showed that SA women in the surgery group reported statistically significant more improvement on the condition-impact domain (mean difference -0.29; 95% CI -0.47 – -0.10, $p < 0.01$) and the summary score (mean difference -0.08; 95% CI -0.17 – -0.01, $p = 0.04$) as compared to the pessary group. In the per-protocol analysis, SA women in the surgery group also reported more improvement on the condition-impact domain (mean difference -0.32; 95% CI -0.57 – -0.09, $p<0.01$) and the summary score (mean difference -0.13; 95% CI -0.23 – -0.03, $p=0.02$) as compared to the pessary group. No significant differences between pessary and surgery on the domains for NSA women were found. Eight (3.6%) women in the surgery group and 8 (3.7%) women in the pessary group developed de novo dyspareunia ($p = 0.82$). After surgery, women have 1.13 times higher odds (95% CI 0.5 – 2.7, $p = 0.7$) to become sexually active as compared to pessary.
Conclusions: Surgery, in comparison with pessary therapy, resulted in significantly more improvement in sexual wellbeing in sexually active women undergoing an intervention for symptomatic POP. In non-sexually active women, both treatment modalities had similar effects on sexual functioning. Therefore, sexually active women who clearly express that POP-related symptoms limit their sexual functioning should be counseled that surgery results in a more remarkable improvement.
Disclosure: No
Images:

Table 1. Intention-to-treat analysis of the PISQ-IR domain scores at 12-months.

	Pessary group (N=218)	Surgery group (N=221)	
Change in PISQ-IR domain score SA ¥			Mean difference (95% CI), *p*-value ‡
Partner related	0.01 ± 0.39	-0.06 ± 0.48	0.07 (-0.06 – 0.20)
Condition specific	0.06 ± 0.51	0.17 ± 0.54	-0.11 (-0.27 – 0.04)
Global quality	-0.03 ± 0.52	-0.06 ± 0.55	0.03 (-0.13 – 0.18)
Condition impact	0.20 ± 0.61	0.49 ± 0.69	-0.29 (-0.47 – -0.10), **<0.01**
Arousal – orgasm	0.08 ± 0.50	0.13 ± 0.60	-0.05 (-0.22 – 0.11)
Desire	0.007 ± 0.50	-0.003 ± 0.44	0.01 (-0.12 – 0.15)
Summary score	0.05 ± 0.26	0.13 ± 0.29	-0.08 (-0.17 – -0.01), **0.04**
Change in PISQ-IR domain score NSA §			
Partner related	-0.007 ± 0.74	0.13 ± 0.87	-0.13 (-0.41 – 0.13)
Condition specific	-0.16 ± 1.09	-0.08 ± 1.12	-0.08 (-0.49 – 0.31)
Global quality	0.09 ± 0.61	0.16 ± 0.70	-0.07 (-0.30 – 0.16)
Condition impact	-0.09 ± 0.73	-0.26 ± 0.87	0.17 (-0.11 – 0.46)

p-values in bold are significant, only statistically significant *p*-values are shown.
‡ Bootstrapped 95% confidence intervals for the difference of means.
¥ An increase in the delta of change indicates less impact on FSF and better sexual functioning. Change in domain scores could be calculated for 94 women in the pessary group and 87 women in the surgery group.
§ A decrease in the delta of change indicates less impact of POP on sexual inactivity. Change in domain scores could be calculated for 66 women in the pessary group and 64 women in the surgery group.

Table 2. Per-protocol analysis of the PISQ-IR domain scores at 12-months.

	Pessary (N=111)	Surgery (N= 193)	
Change in PISQ-IR domain score SA ¥			Mean difference (95% CI), *p*-value ‡
Partner related	-0.07 ± 0.38	-0.07 ± 0.48	0.00 (-0.15 – 0.16)
Condition specific	0.007 ± 0.52	0.17 ± 0.54	-0.16 (-0.36 – 0.03)
Global quality	0.006 ± 0.54	-0.07 ± 0.56	0.07 (-0.12 – 0.27)
Condition impact	0.17 ± 0.63	0.49 ± 0.70	-0.32 (-0.57 – -0.09), **<0.01**
Arousal – orgasm	0.02 ± 0.49	0.16 ± 0.60	-0.14 (-0.33 – 0.05)
Desire	0.00 ± 0.56	0.00 ± 0.45	0.00 (-0.19 – 0.19)
Summary score	0.005 ± 0.28	0.13 ± 0.29	-0.13 (-0.23 – -0.03), **0.02**
Change in PISQ-IR domain score NSA §			
Partner related	0.00 ± 0.73	0.15 ± 0.91	-0.15 (-0.46 – 0.17)
Condition specific	-0.09 ± 1.11	-0.19 ± 1.07	0.10 (-0.33 – 0.54)
Global quality	0.17 ± 0.64	0.16 ± 0.71	0.01 (-0.25 – 0.28)
Condition impact	-0.10 ± 0.83	-0.31 ± 0.85	0.21 (-0.11 – 0.55)

p-values in bold are significant, only statistically significant *p*-values are shown.
Per-protocol definitions: pessary group excludes women who later also had surgery (96), women who stopped pessary therapy (3) and in case it was unknown if the woman used a pessary (8); surgery group excludes women who did not undergo surgery (22), women who had re-surgery because of a recurrence of prolapse (4) and women who additionally used a pessary because of a recurrent prolapse (2).
‡ Bootstrapped 95% confidence intervals for the difference of means.
¥ An increase in the delta of change indicates less impact on FSF and better sexual functioning. Data were available for 54 women in the pessary group and 101 women in the surgery group.
§ A decrease in the delta of change indicates less impact of POP on sexual inactivity. Change in domain scores could be calculated for 43 women in the pessary group and 54 women in the surgery group.

Table 3. Change of sexual status at 12-months

	Pessary group (*n*=184)	Surgery group (*n*= 176)	Odds ratio (95% CI, *p-value*)
NSA at baseline	80	78	
Remained NSA	68 (85.0%)	65 (83.3%)	
Change from NSA to SA	12 (15.0%)	13 (16.7%)	1.13 (0.48 – 2.67, 0.7)
SA at baseline	104	98	
Remained SA	94 (90.4%)	88 (89.8%)	
Change from SA to NSA	10 (9.6%)	10 (10.2%)	0.94 (0.37 – 2.36, 0.89)

Change in sexual status could be calculated for 184 women in the pessary group and 176 women in the surgery group.

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Use of CO2 LASER and Microablative Radiofrequency in Coital Incontinence Treatment. A Randomized, Controlled Trial

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Introduction: According IUGA/ICS Coital Incontinence (CI) is defined as involuntary loss of urine during coitus. This symptom might be divided into that occurs during penetration or at orgasm. It occurs even during masturbation. CI is an embarrassing condition for women, a symptom that is rarely reported spontaneously and can cause psychosexual problems. Some authors attribute the loss of urine during penetration to stress urinary incontinence (UI) due to urethral sphincter incompetence and loss during orgasm associated to urgency UI. Moreover, was reported a significant improvement in CI after sling surgeries. Recently, vaginal energies such as laser (LS) and radiofrequency (RF) have been described as an alternative treatment of UI.
Objective: To evaluate the use of vaginal energies, LS and RF, in the treatment of CI.
Methods: This is a secondary outcome of a randomized, double blinded, controlled clinical study was performed using LS and RF for the treatment of stress UI (Laser and microablative radiofrequency for stress UI: a double blind randomized controlled trial-one year follow-up) presented at 45th IUGA Annual Meeting. Were eligible for the study women referring predominant stress UI, confirmed by stress test. After providing written informed consent, women were randomized to have either LS, RF or sham control group(SCT) (allocation ratio 1:1:1). Block randomization was performed using a computerized random number generator(Microsoft□ Excel). All participants and the outcome assessors were blinded to the intervention group, and only the physician who performed the treatment application was aware of it. The treatment protocol included 3 subsequent monthly energy application sessions. In the RF group was used Microablative Radiofrequency and LS group was used CO2 fractioned LASER. Participants in the SCT group were submitted to the same procedures; however, the equipment was blocked and could not release energy. The equipment's display remained on, and sounds were emitted by pressing a pedal to ensure participant blinding. Follow-up visits occurred at 1, 6, and 12 months after the third procedure. Complications were assessed between treatment sessions and in all follow-up visits by clinical evaluation including physical exam.
Results: A total of 153 women with stress UI were enrolled, 139 were randomized and 114 women, 38 in each group, reached the 12-months follow-up. Of those 47/139 (33.8%) presented CI, that occurred mainly during penetration 32/47 (68%)(figure1). The groups were similar regarding demographic and clinical pretreatment parameters (Table1). A significant reduction of CI ($p<0.01$) was observed during the follow-up with better results associated with the energy-treated groups, LASER and RF than SCT (Table2). Mild vaginal bleeding immediately after the treatment sessions was reported and it was reduced as the treatments progressed (LS 29-8%, RF 36-5%, SCT 24-0%). Dysuria was referred mainly after the first application (LS 23%, RF 5%, SCT 1%) and did not occur after the third session in any group. No urinary infection or vaginal mucosa scarification or fibrosis were observed.
Conclusions: CO2 LASER and Microablative Radiofrequency are outpatient options for CI treatment, with no major complications. They have similar results and present better results when compared to the sham control group.
Disclosure: No
Images:

Table 1. Demographic and pretreatment data

	LASER (N = 42)	RF (N = 47)	SCT (N = 50)	p-value
Age[1] (years)	50.2 (±8.7)	49.2 (±9.6)	50.6 (±8.6)	0.757[3]
BMI[1] (kg/m²)	28.8 (±5.0)	28.7 (±4.7)	29.5 (±5.2)	0.693[3]
Parity (n)	2.0 (0-5.0)	2.0 (0-6.0)	2.0 (0-5.0)	0.479[3]
Post Menopause: n/N (%)	16 (38.1)	22 (44.9)	17 (39.5)	0.677[4]
Pad-test[2] (g)	10.5 (0-35)	8 (0-60)	4 (0-50)	0.375[5]
Voiding Diary (n)	3.6 (±1.8)	4.4 (±2.3)	4.8 (±3.6)	0.156[3]
Pure SUE n (%)	22 (52.4)	22 (46.8)	24 (48)	0.845[4]
Predominant SUI*: n (%)	20 (47.6)	25 (53.2)	26 (52)	0.694[4]
Urinary Loss in intercourse: n (%)	14 (33.3)	19 (38.8)	14 (32.6)	0.728[4]

N (total number of available patients) and n: number of patients; [1]mean (±standard deviation); [2]median (minimum-maximum); [3]ANOVA; [4]Chi-Square; [5]Kruskal-Wallis; * SUI associated with urgency or nocturia

Figure 1- Frequency CI types in stress UI

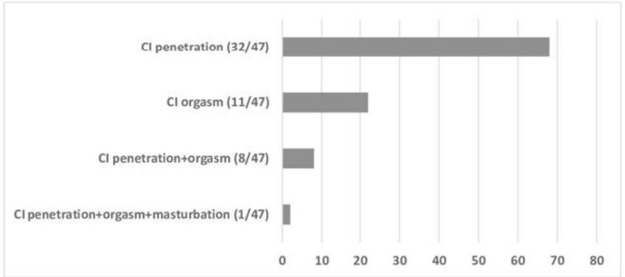

Table 2- CI Incidence in stress UI women pretreatment, 6 months and 12 months follow-up

		LASER (N=42)	RF (N=47)	SCT (N=50)	P value*
Urinary Loss in Intercourse: n (%)	Pre	14/42(33.3)	19/47(38.8)	14/50 (32.6)	p = 7.28
	6mo	4/42(9.5)	4/47 (8.5)	15/50(30.0)	p < 0.01
	12mo	2/42 (4.7)	3/47(6.3)	15/50(30.0)	p < 0.01

N (total number of available patients) and n: number of patients Per Protocol, *Chi-Square

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Impact of Intraurethral Lidocaine on Cystometric Parameters and Discomfort, a Randomized Control Trial

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Introduction: Standard teaching for urodynamic studies (UDS) is to use intraurethral aqueous jelly for insertion and removal of transurethral catheters. Despite this, some patients find urodynamic catheter insertion/removal very uncomfortable. Lidocaine jelly as an alternative may decrease discomfort but could impact accuracy of UDS findings.
Objective: Determine whether intraurethral 2% lidocaine jelly meaningfully impacts sensation during filling (primary outcome: volume at strong urge to void) and decreases discomfort for patients. Further, determine whether use of the lidocaine jelly impacts other filling metrics or voiding parameters.
Methods: Women >18 years planning UDS for assessment of urinary incontinence or in preparation for prolapse repair surgery were eligible. Exclusions were known neurologic disease impacting voiding or continence, active UTI, prolapse that could not be effectively reduced during UDS, or bladder pain syndrome/IC. After completion of uroflowmetry, participants underwent "UDS#1" with 1-2mL aqueous jelly intraurethrally; this consisted of cystometry, assessing volumes at first sensation, first urge, strong urge, and max capacity. DO was assessed (yes/no). A pressure-flow study was then completed, including measurement of "voiding efficiency" [i.e., voided volume/(voided volume + PVR)]. Discomfort (via 100mm visual analog scale) was queried for catheter insertion, max capacity, during pressure flow study, and an overall assessment. The provider also gave her assessment of the patient's discomfort. The participant was then randomized (stratified by presence/absence of DO during UDS#1) to insertion of additional aqueous jelly (i.e., "placebo") vs. 2% lidocaine jelly, and 5-10 minutes later, UDS#2 was completed with the same measurements as UDS#1. The patient and urodynamicist were masked to the lubricant used for UDS#2. The hypothesis was that lidocaine during cystometry would NOT meaningfully impact sensation during filling; this was powered as an equivalence trial assuming average strong urge to void of 300mL, standard deviation 100mL, and an equivalence margin of 75mL. Given alpha 0.05 and power 0.80, 62 participants were needed.
Results: Thirty participants were randomized to placebo and 33 to lidocaine for UDS#2. Demographics are in Table 1; groups appeared similar. The mean(SD) volume at strong urge was 277(163)mL and 282(146)mL for placebo and lidocaine, respectively, difference(90% CI) 5mL(-62.9, 72.3). Other filling metrics were not significantly different (Table 2). Likewise, voiding metrics (Table 2) were not significantly different, including voiding efficiency, which was 94.6% for placebo and 95.9% for lidocaine. There were no significantly different values for discomfort after instilling placebo vs. lidocaine (Table 3), but there was greater improvement in discomfort scores using lidocaine for overall discomfort and the provider's perception of patient discomfort.
Conclusions: Compared to placebo, use of lidocaine jelly for UDS resulted in approximately equivalent volumes for strong urge to void and no significant differences in other filling or voiding metrics, and there was greater improvement in patients' overall impression of discomfort and the provider's assessment of patient discomfort. While the magnitude of pain reduction is likely not clinically meaningful for most patients, in women anxious regarding catheter insertion or a past history of pain during urethral instrumentation, intraurethral lidocaine during UDS is a reasonable alternative to aqueous gel.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Urovant Sciences, Ltd
Images:

Table 1. Demographics

	Placebo (n=30)	Lidocaine (n=33)
Age (years), Mean (SD)	62.9 (11.2)	60.2 (11.4)
Race, Ethnicity		
White, non-Hispanic	23 (77)	21 (64)
Black, non-Hispanic	4 (13)	5 (15)
Hispanic	2 (7)	5 (15)
Other	1 (3)	2 (6)
Insurance type (one patient reporting >1 category)		
Private	16 (53)	21 (64)
Medicare	14 (47)	12 (36)
Self-pay	1 (3)	0 (0)
Current smoker	3 (10)	3 (9)
Parous (yes/no)	27 (90)	29 (88)
Prior surgery for SUI	5 (17)	7 (21)
Prior surgery for prolapse	3 (10)	4 (12)
Prior hysterectomy	14 (47)	14 (42)
≥ 3 UTIs in past year	4 (13)	2 (6)
Diabetes	2 (7)	4 (12)
Stage of most severely prolapsed compartment		
Stage 0 or 1	12 (40)	9 (28)
Stage 2	12 (40)	9 (28)
Stage 3 or 4	6 (20)	14 (44)
Detrusor overactivity observed on UDS#1*	8 (27)	9 (27)

n (%) except where otherwise stated; *randomization was stratified by presence/absence of DO

Table 2. Filling & Voiding Metrics

	Placebo (n=30)	Lidocaine (n=33)	P
CYSTOMETRY - FILLING METRICS (UDS#2)			
Volumes (mL), median (IQR)			
First Sensation	17 (9-44)	18 (11-37)	0.80
First Urge to Void	137 (86-191)	107 (62-238)	0.89
Primary outcome → Strong Urge to Void	243 (186-318)	263 (161-396)	0.80
Maximum Capacity	344 (267-505)	365 (275-450)	0.81
DO observed on UDS#2, no. (%)	10 (33)	6 (18)	0.28
If yes, to what pressure? cm H2O, median (IQR)	23.5 (10-34.2)	14 (11.2-23.5)	
Normal compliance observed [a], no. (%)	28 (100)	32 (100)	-
PRESSURE FLOW STUDY - VOIDING METRICS (UDS#2)			
Maximum flow rate (mL/sec), median (IQR)	18.2 (11.6-25.4)	16.5 (11.8-22.2)	0.70
Voiding pattern [b]			
Normal	3 (10)	3 (9)	1
Intermittent	15 (50)	21 (64)	0.40
Interrupted	14 (47)	18 (55)	0.71
Prolonged	17 (57)	24 (73)	0.28
Voided volume (mL), median (IQR)	278 (174-400)	318 (225-402)	0.61
Post-void residual (mL), median (IQR)	29 (0-61)	15 (0-66)	0.63
Voiding efficiency (%), median (IQR)	94.6 (72.2-100)	95.9 (82.3-100)	0.58
Pdet maximum (cm H2O), median (IQR)	37 (26.5-46)	28.5 (20-46.8)	0.33
Pdet peak flow (cm H2O), median (IQR)	20 (9-30)	13 (7-18)	0.17
EMG Activity [c], no. (%)			0.76
Active	3 (16)	3 (13)	
Not Active	1 (5)	3 (13)	
Active and Abdominal Overflow	15 (79)	17 (74)	

[a] 3 missing values; [b] analyzed separately as several participants with more than one pattern observed
[c] 11 patients in the Placebo group and 10 patients in the Lidocaine group did not have EMG activity assessed. These are treated as missing.

Table 3. Participant Discomfort

	Placebo (n=30)	Lidocaine (n=33)	*P*
Discomfort with/during (UDS#2)…			
Catheter insertion	7 (2-17.8)	4.5 (1-20.2)	0.84
Maximum capacity	8 (4.2-25)	10 (4-38)	0.56
Pressure flow study	7 (2-18)	3 (0-8)	0.07
Overall participant discomfort	9 (2-21)	4 (2-16)	0.30
Provider perception	9 (2-27)	6 (2-16)	0.61
Amount of *improvement* in discomfort* (from UDS#1 to UDS#2) with/during…			
Catheter insertion	3 (0-13)	9 (1-18)	0.27
Maximum capacity	4.5 (-0.2-10)	2 (-3-4.5)	0.12
Pressure flow study	-1.5 (-6.2-0)	3 (0-22)	<0.001
Overall participant discomfort	1 (-5-11)	7 (1-32)	0.01
Provider perception	2 (-18-15)	10 (2-25)	0.01

Data are median (IQR) from a VAS Pain Scale (0mm, no pain to 100mm, extreme pain); *positive numbers represent improvement/less discomfort

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Increased Risk of Stress-urinary-incontinence Surgery after Hysterectomy – A Population-based Cohort Study

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Introduction: Hysterectomy is a common procedure used to treat different gynecological conditions. A Swedish cohort study from 2007 found hysterectomy for benign indication to be associated with an increased risk of stress urinary incontinence (SUI). SUI is an invalidating condition which negatively affects quality of life. The condition can be treated surgically through a variety of different procedures. Options have improved since the previous study, with the introduction of the tension-free vaginal tape procedure (TVT) in 1998.
Objective: The aim of this study was to estimate the risk of SUI after hysterectomy for benign indication other than pelvic organ prolapse, in a contemporary context.
Methods: The study was carried out as a matched register-based cohort study including Danish women born in 1947–2000. Hysterectomized women were located and matched to non-hysterectomized women 1:5 based on age and calendar year of hysterectomy. Women who had a TVT procedure within 14 days of the hysterectomy were excluded. The risk of SUI surgery after hysterectomy was calculated. We adjusted for income, educational level and parity. The joint effect of hysterectomy and parity was calculated in the main cohort and the joint effect of hysterectomy and vaginal birth or cesarean section on SUI surgery was explored in a sub cohort of women who only had one mode of delivery. All calculations were made using Cox proportional hazard model.
Results: A total of 83,370 hysterectomized women and 413,969 reference women were included in the study. We found a large increase in the number of SUI surgeries per year throughout the study period. In total, 4.1% of hysterectomized women and 1.5% of reference women had a SUI surgery 30 years after index time (figure 1). The overall risk of SUI surgery was almost tripled for hysterectomized women (hazard ratio (HR) 2.7 confidence interval (CI) 95% 2.5-2.9). We found a trend of increasing risk of SUI surgery with increased parity among both hysterectomized women and the reference. The risk of SUI surgery was particularly increased for women with a history of one or more vaginal births. Hysterectomized women with one vaginal birth had a 15.6 (CI 95% 11.0-22.1) risk of SUI surgery, while the risk for reference women with one vaginal birth was 5.7 (CI 95% 4.0-8.0). Overall, hysterectomized women had a three times higher risk of SUI surgery than the reference, irrespective of the number of vaginal births. One or more cesarean sections also increased the risk of subsequent SUI surgery among both reference and hysterectomized women.
Conclusions: This study signifies, in accordance with previous studies, that hysterectomy increases the risk of subsequent SUI surgery. Women should be informed about the increased risk of SUI and SUI surgery when offered hysterectomy. Gynecologists should include knowledge of the increased risk in the decision-making process and choose other treatments when possible. Further precautions should be taken when treating parous women, particularly those with a history of one or more vaginal births.
Disclosure: No
Images:

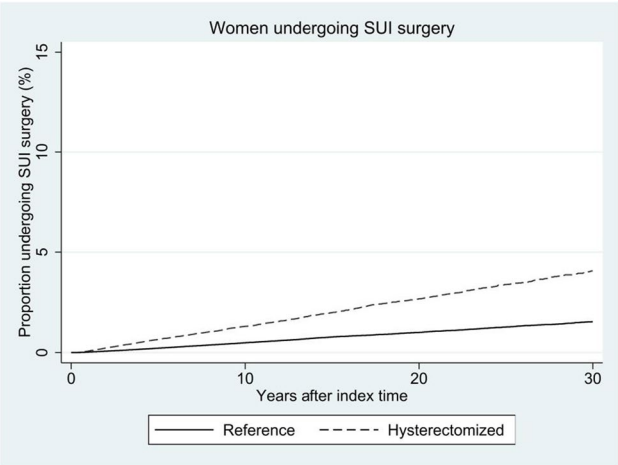

Table 1

	Hysterectomized			Reference		
	Total, N	SUI surgeries, N (%)	Crude HR (95% CI)	Total, N	SUI surgeries, N (%)	Crude HR (95% CI)
Parity*						
0	9,451	43 (0.45)	4.0 (2.7-6.2)	52.359	55 (0.1)	1 (Ref)
1	13,249	217 (1.6)	13.8 (9.9-19.0)	68,666	389 (0.6)	5.0 (3.7-7.0)
2	39,403	868 (2.2)	18.5 (13.7-25.1)	195,758	1,554 (0.8)	7.0 (5.2-9.5)
≥ 3	21,267	611 (2.9)	25.0 (18.4-34.0)	97,186	1,043 (1.1)	9.7 (7.1-13.1)
Vaginal birth**						
0	9,451	43 (0.5)	4.3 (2.8-6.7)	47,483	47 (0.1)	1 (Ref)
1	11,363	203 (1.8)	15.6 (11.0-22.1)	53,823	331 (0.6)	5.7 (4.0-8.0)
2	33,734	785 (2.3)	20.4 (14.7-28.3)	154,800	1,335 (0.9)	7.9 (5.7-11.0)
≥ 3	17,233	549 (3.1)	29.0 (20.9-40.4)	74,455	853 (1.1)	10.7 (7.7-14.8)
Cesarean section**						
0	9,451	43 (0.5)	4.3 (2.8-6.7)	47,483	47 (0.1)	1 (Ref)
≥ 1	4,335	34 (0.8)	8.9 (5.6-14.2)	18,317	33 (0.2)	2.1 (1.2-3.6)

* analysis performed in mair cohort
** analysis performed in subgroup restricted to women who had one mode of delivery only and nulliparous women

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Is the Presence of an Avulsion Injury to the Levator Ani Muscle Related to the Position of the Bladder Neck in Women with SUI?

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Introduction: Stress urinary incontinence (SUI) is a multifactorial condition and hypermobility of the urethra is one of the reasons. There is no increase in levator ani (LA) avulsion rate in women with SUI compared to the general population. However, the avulsion of LA reduces pelvic floor contractility. The pelvic floor contraction should elevate the bladder neck (BN) and prevent urine leakage during cough and increased of intrabdominal pressure. Therefore, we investigated whether the position of the BN at rest or during pelvic floor muscle contraction is affected by the status of the LA in women with SUI and with absence of prolapse (POP).

Objective: The aim of our study was to compare the BN position at rest and during the pelvic floor muscle in SUI women with and without LA avulsion.

Methods: This is a retrospective cohort study of women with history of SUI, without POP between years 2017 and 2021. Women included in the study were age 18 or older and had a history of SUI. They were examined by 4D pelvic floor ultrasound during maximal contraction and at rest. Volumes were stored for later offline, then analyed by an evaluator who was blinded to clinical data. Avulsion of LA was diagnosed as previously described. Position of BN was defined by the distance to the horizontal line (H-line) that runs through lower symphysis margin. The elevation of BN was calculated as the difference between the location of BN during contraction and at rest. The distance form the H-line was measured in centimeters, with negative values showing the distance above the lower margin of symphysis pubis.

Results: We included 180 women taking part in a pelvic floor physiotherapy study. Participants had a mean age of 55.2 years (min 32, max 88), mean BMI of 27.6 (min 16.4, max 47.8) and mean parity of 1.7 (min 0, max 4). Avulsion of the LA was detected in 38 women (avulsion rate 21%). The mean position of the BN at rest was -2.41cm (SD 0.42) in the avulsion group and -2.46cm (SD 0.50) in the group without avulsion (p=0.61). (Fig. 1.) The mean position of the BN on maximal contraction was -2.60 cm (SD 0.36) in the avulsion group and -2.77cm (SD 0.52) in the group without avulsion (p= 0.07). (Fig 2) The elevation of the BN was 0.74 cm (SD 1.3) in the avulsion group vs. 0.99 (SD 1.7) in group without avulsion (p=0.42). (Fig 3)

Conclusions: We were not able to show a significant difference in BN position between SUI patients with and without avulsion injury, either at rest or during the pelvic floor contraction. Further, the elevation of the BN from rest to contraction was similar in both groups. Whether pelvic floor physiotherapy can modify BN position differently in each group is unknown. Our data shows that the baseline is same for both groups. Physiotherapy treatment are in progress. This project was supported by CIHR, grant number 364926.

Disclosure: No

Images:

Fig. 1

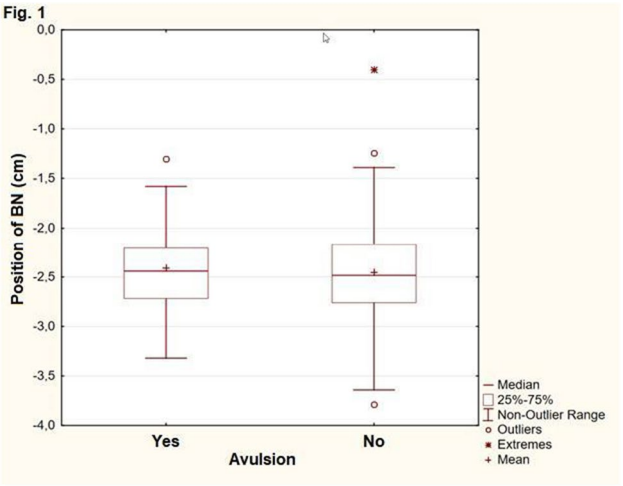


Fig. 2

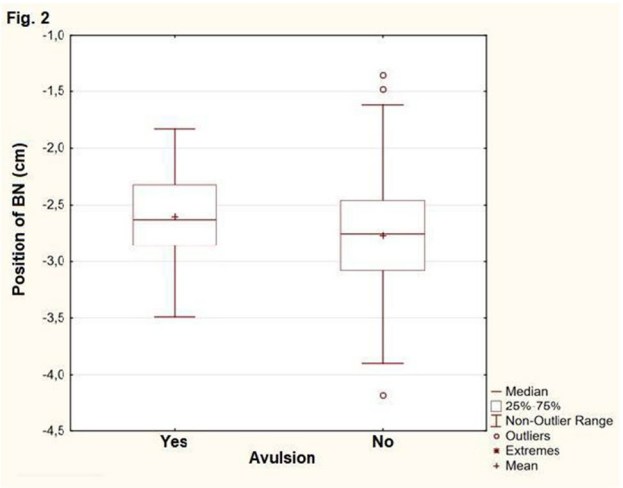
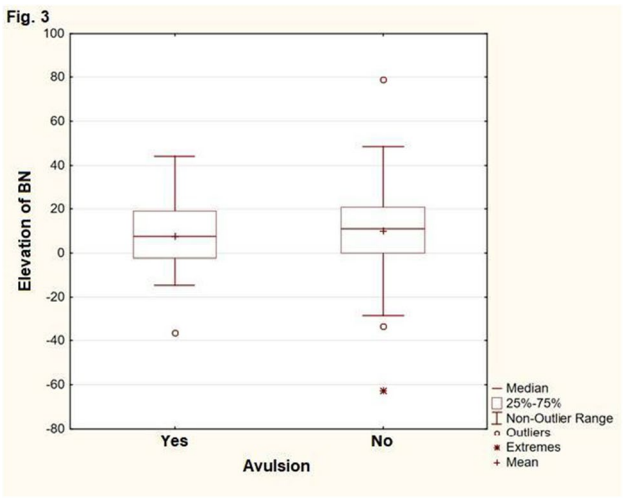


Fig. 3



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Real-World Persistence for Later-Line Therapies Used to Treat Patients With Overactive Bladder

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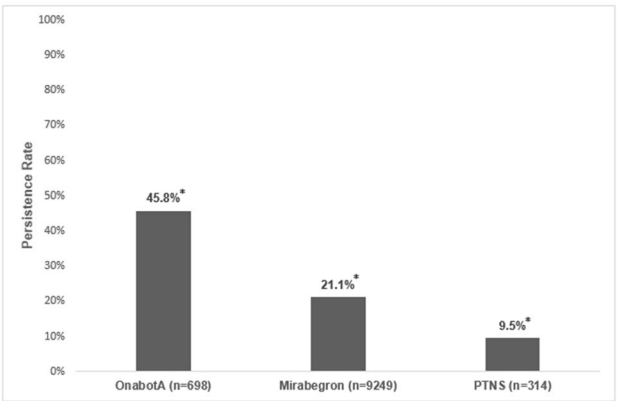
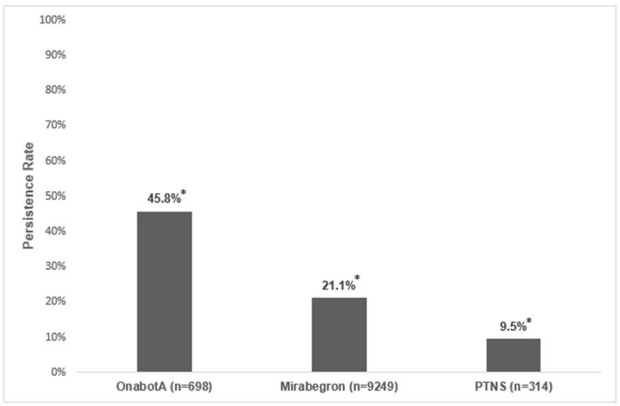
Introduction: More than half of patients (pts) with overactive bladder (OAB) are inadequately treated with anticholinergic therapy and may require later-line therapy.
Objective: This analysis evaluated patient characteristics and real-world persistence among pts with OAB receiving later-line treatment.
Methods: This retrospective cohort analysis examined the IBM MarketScan Commercial and Medicare Supplemental Database (01/01/2016 – 09/30/2020). Adults (≥18 y at index date) with a diagnosis of OAB (≥1 inpatient or ≥2 outpatient medical claims ≥60 days apart) were included if they had ≥1 claim (earliest claim = index date) for either onabotulinumtoxinA (onabotA), mirabegron, or percutaneous tibial nerve stimulation (PTNS). Continuous enrollment in medical/pharmacy benefits was required for 1 y prior to and not including the index date and for ≥14 months after the index date. A 14-month post-index window was selected to allow for the 6–7 month retreatment interval used with onabotA in clinical practice. Pts using onabotA, mirabegron, PTNS, or toxins other than onabotA before the index date, or with a neurogenic bladder diagnosis were excluded. Persistence was defined as ≥2 injections in the 14 months post-index date to allow a 30-day gap between injections (onabotA); continuous prescription claims with no gaps ≥30 days (mirabegron); and an average of ≥12 injections in the 16 weeks post-index date followed by 1 treatment/month with no gaps ≥30 days (PTNS).
Results: Of 10,261 pts in this analysis, 698 used onabotA, 9249 used mirabegron, and 314 used PTNS. At baseline, mean age was similar between the onabotA and mirabegron groups and higher in the PTNS group (61.1, 62.7, and 77.8 y, respectively) as was baseline mean Charlson Comorbidity Index (1.5, 1.5, and 2.3). The percentage of pts with a commercial insurance plan differed among the 3 groups (68%, 61%, and 3%, respectively). During the 12-month pre-index period, 55.1% used anticholinergics in the onabotA group, while 38.9% and 36.9% used anticholinergics in the mirabegron and PTNS groups, respectively. Persistence rate at 14 months post-index date was highest in the onabotA group (45.8%; P<0.0001; Figure 1).
Conclusions: Among pts with OAB initiating later-line therapy, onabotA had a higher persistence rate at 14 months post-index date compared with mirabegron and PTNS.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: AbbVie
Images:

Figure 1. Persistence Rates at 14 Months Post-index Date for Later-Line Therapies in the Treatment of Overactive Bladder



*P<0.0001 across all treatment groups.

Figure 1. Persistence Rates at 14 Months Post-index Date for Later-Line Therapies in the Treatment of Overactive Bladder



*P<0.0001 across all treatment groups.

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A Novel Screening Tool for Identifying Myofascial Pelvic Floor Dysfunction in Patients Seeking Care for Lower Urinary Tract Symptoms: Development of the Persistency Index

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Introduction: Patients with myofascial pelvic floor dysfunction often present with lower urinary tract symptoms (LUTS), such as urinary frequency, urge, and incontinence, easily confused with other lower urinary tract disorders. We have dubbed this condition myofascial frequency syndrome (MFS). A detailed pelvic floor myofascial exam performed by a skilled provider is currently the only diagnostic method to identify MFS. Despite a high impact on quality of life, the combination of poor access to specialty providers, low awareness of this condition with the lack of objective diagnostic tests leads to the frequent mis- or under-diagnosis of this population.
Objective: To develop an index to identify patients with MFS (bothersome LUTS secondary to myofascial pelvic floor dysfunction) using patient-reported symptoms.
Methods: A homogenous population of patients with MFS was identified by provider diagnosis from a tertiary urogynecology practice and verified by a standardized pelvic floor myofascial exam. We utilized Least Angle Shrinkage and Selection Operator (LASSO) to identify candidate predictors from the OAB-q, fGUPI, and PFDI questionnaires predictive of MFS in a pooled population of patients with overactive bladder (OAB, n=42) and interstitial cystitis (IC/BPS, n=51). A simple summated score of the most predictive questions using the original scaling of the PFDI (0 to 4) and GUPI5 (0 to 5) and modified scaling of fGUPI2B (0 or 3) defined the persistency composite index (PCI) (possible score 0-12), which had an AUC of 0.75. Next, the PCI was evaluated using a validation set of 719 patients with a variety of LUTS, including OAB (N=285), interstitial cystitis (n=53), MFS (n=111), and unknown diagnoses (n=61). Youden's Index was used to identify the optimal cut point PCI score for maximizing sensitivity and specificity.
Results: The severity (PFDI5) and persistent nature (fGUPI5) of incomplete bladder emptying as well as dyspareunia (fGUPI2b) were the most discriminatory characteristics of the MFS group, which were combined to create the PCI (Figure 1). A PCI score greater than or equal to 6 accurately identified patients with MFS from an unselected population of individuals with LUTS with 67% sensitivity and 64% specificity (Table 1). Combination of the PCI with the previously-defined bladder pain composite index (BCPI) and urge incontinence

composite index (UICI) separated a population of women seeking care for LUTS into groups consistent with OAB, IC/BPS, and MFS phenotypes with an overall diagnostic accuracy of 65% (Figure 2). Retrospective chart review of patients with PCI > 6 revealed that the pre-referral diagnoses for these patients were varied, including cystocele, urinary retention, dysuria, recurrent UTI, urethral pain, and urinary urgency, without a dominant diagnosis. Specialist evaluation reclassified almost all of these patients, with more than 75% of MFS subjects given a primary diagnosis of either high-tone pelvic floor dysfunction (37%), urinary frequency (29%), or pelvic pain (9%), validating PCI utility.
Conclusions: We propose a novel screening method for patients presenting with LUTS complaints to identify patients with myofascial frequency syndrome. As telemedicine becomes more common, this index provides a way of identifying these patients without the need for a detailed pelvic exam.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Dr. Ackerman receives grant support from MicrogenDx and Medtronic and is a consultant for Watershed Medical, Inc. Dr. Torosis is a consultant with Willow Innovations, Inc.
Images:

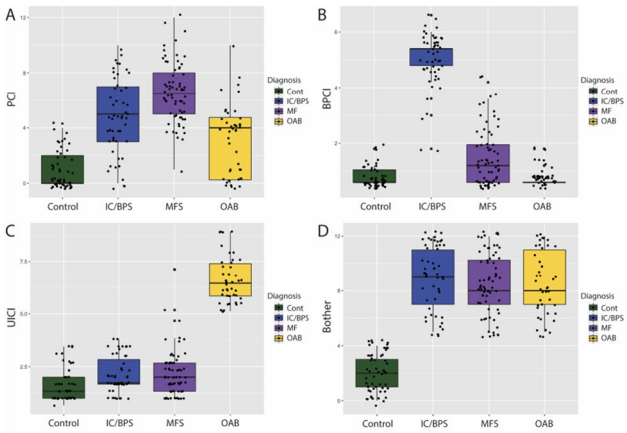

Figure 1. Distribution of scores identifying unique LUTS phenotypes. A) The Persistency Composite Index (PCI) was highest in Myofascial Frequency Syndrome (MFS) subjects, while B) the Bladder Pain Composite Index (BPCI) was highest in subjects with Interstitial Cystitis/Bladder Pain Syndrome. C) The Urge Incontinence Composite Index identified subjects with Overactive Bladder (OAB). D) All of these subjects, however, were seeking care for highly bothersome Lower Urinary Tract Symptoms (LUTS).

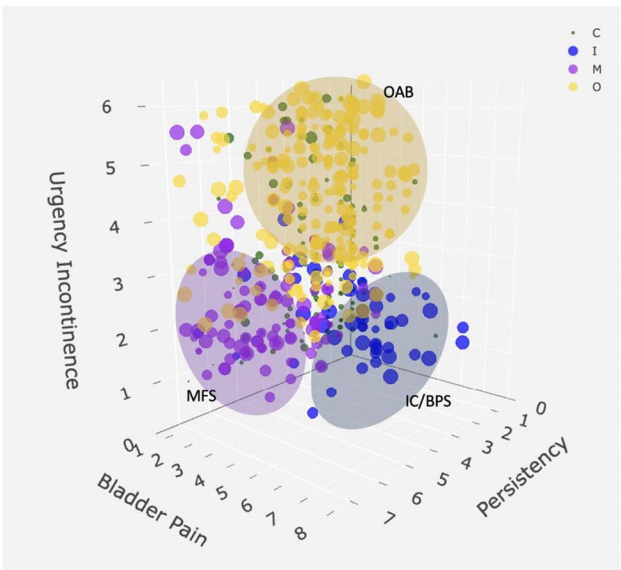

Figure 2: MFS patients lack bladder pain and urgency incontinence, however can be differentiated from OAB and IC based on high persistency scores.

Summated Score Cut point	Sensitivity	Specificity	Accuracy
≥ 0	100%	0%	22%
≥ 1	97%	15%	33%
≥ 2	96%	23%	39%
≥ 3	94%	30%	44%
≥ 4	86%	44%	54%
≥ 5	76%	54%	59%
***≥ 6**	**67%**	**64%**	**65%**
≥ 7	56%	73%	69%
≥ 8	44%	78%	71%
≥ 9	37%	83%	73%
≥ 10	21%	90%	75%
≥ 11	11%	95%	76%
≥ 12	5%	97%	77%

Table 1: Determining the cut point for the PCI to balance sensitivity with specificity and maintaining diagnostic accuracy

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Recurrence of Anterior Vaginal Prolapse After Robotic Sacrocolpopexy: Does Cervical Preservation Affect Outcome?

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Introduction: The anterior vaginal wall is the most common site of prolapse and has a high risk of surgical failure. For advanced pelvic organ prolapse, sacrocolpopexy (SCP) is superior to native tissue repair, but the risk of recurrence of anterior vaginal wall prolapse (AVP) can be as high as 41%. At the time of SCP, many surgeons perform supracervical hysterectomy (SCH) to decrease the risk of mesh exposure; however, it is unclear if presence of the cervix precludes adequate reduction of anterior vaginal wall prolapse and increases the risk of AVP recurrence.
Objective: The primary objective of this study was to determine the difference in anterior vaginal prolapse (AVP) recurrence rates in patients who have undergone robotic-assisted laparoscopic SCP with or without cervical preservation (CP) with at least 12 months of follow-up. Secondary outcome was composite failure and complications rates.
Methods: This was a retrospective cohort analysis of women who underwent robotic SCP between January 1, 2012 and August 30, 2019 at Kaiser Permanente Southern California. The cohort was divided into two groups: 1) women with CP at the time of SCP (prior or concomitant SCH) and 2) women without CP at the time of SCP (prior or concomitant total hysterectomy). Primary outcome was defined as recurrent AVP beyond the hymen. Composite failure was defined as descent of the vaginal apex more than one-half of total vaginal length; vaginal descent in any compartment beyond the hymen; sensation of vaginal bulge; or treatment for recurrent prolapse by pessary or surgery. Patients without 12-month follow-up were included in demographic and surgical data analysis only.
Results: The charts of 372 with CP and 175 without CP were reviewed. The CP group was younger and had lower rates of prior hysterectomy (5% vs 83%, $p < 0.01$), prolapse repair (6% vs 41%, $p < 0.01$), and incontinence surgery (4% vs 21%, $p < 0.01$). Women with CP had more advanced apical prolapse, but not AVP at baseline. Women with CP were more likely to undergo concomitant anterior repair at the time of SCP (14% vs 6%, $p < 0.01$); however, rates of AVP recurrence were not significantly different between groups (5% vs 3%, $p = 0.26$). Composite failure was similar between groups (17% vs 11%, $p = 0.15$). Women with CP were more likely to experience asymptomatic apical failure (13% vs 1%, $p = 0.03$). On multivariate analysis, body mass index (BMI) and diabetes mellitus were found to be independent risk factors for AVP (BMI HR 1.14, $p = 0.012$; DM HR 4.20, $p = 0.010$), while BMI and history of tobacco use were independent risk factors for overall

recurrence (BMI HR 1.07, p =0.022; Tobacco HR 1.94, p =0.031). The rate of complications was similar between groups. Median follow-up time was 2.1 years (p = 0.76).

Conclusions: CP at the time of SCP is associated with concomitant anterior repair but is not associated with higher rates of AVP recurrence. CP at the time of SCP does not appear to increase risk of AVP recurrence or composite failure.

Disclosure: No

Images:

Table 1: Patient and Surgical Characteristics

	Total (N=547)	Cervix present (N=372)	Cervix Absent (N=175)	P-value
Age	61.5 (9.06)	60.5 (9.21)	63.6 (8.35)	**< 0.01**
BMI	27.8 (4.58)	27.9 (4.70)	27.5 (4.30)	0.38
Parity	2.9 (1.40)	2.9 (1.39)	2.7 (1.41)	0.06
Race				0.41
Non-Hispanic White	244 (45%)	156 (42%)	88 (50%)	
Hispanic	239 (44%)	173 (47%)	66 (38%)	
Asian	36 (7%)	23 (6%)	13 (7%)	
Black	21 (4%)	16 (4%)	5 (3%)	
Pacific Islander	4 (1%)	2 (1%)	2 (1%)	
Refuse	2 (0%)	1 (0%)	1 (1%)	
Comorbidities				
Diabetes mellitus	100 (18%)	72 (19%)	28 (16%)	0.34
Cardiovascular disease	233 (43%)	151 (41%)	82 (47%)	0.17
Pulmonary disease	59 (11%)	32 (9%)	27 (15%)	**0.02**
Thyroid disease	89 (16%)	55 (15%)	34 (19%)	0.17
Connective Tissue Disorder	10 (2%)	7 (2%)	3 (2%)	0.89
Menopausal Status				**< 0.01**
Premenopausal	62 (11%)	55 (15%)	7 (4%)	
Postmenopausal	484 (89%)	316 (85%)	168 (96%)	
Tobacco Use				0.19
Never	419 (77%)	290 (78%)	129 (74%)	
Former	120 (22%)	75 (20%)	45 (26%)	
Current	8 (1%)	7 (2%)	1 (1%)	
Prior abdominal surgery	281 (51%)	186 (50%)	95 (54%)	0.34
Prior prolapse repair	94 (17%)	23 (6%)	71 (41%)	**< 0.01**
Apical Suspension	49 (9%)	9 (2%)	40 (23%)	**< 0.01**
Prior hysterectomy	163 (30%)	17 (5%)	146 (83%)	**< 0.01**
TH	147 (90%)	1 (6%)	146 (100%)	**< 0.01**
SCH	16 (10%)	16 (94%)	0 (0%)	
Prior incontinence surgery	51 (9%)	15 (4%)	36 (21%)	**< 0.01**
Preoperative exam				
Prolapse Stage, Apical	2.2 (0.96)	2.3 (0.89)	1.9 (1.05)	**< 0.01**
Prolapse Stage, Anterior	2.7 (0.68)	2.7 (0.65)	2.6 (0.72)	0.14
Prolapse Stage, Posterior	1.9 (1.04)	1.9 (1.00)	1.9 (1.13)	0.93
Prolapse Stage, Overall	2.8 (0.56)	2.8 (0.55)	2.8 (0.57)	0.49
Duration of surgery	182.2 (40.02)	181.7 (40.09)	183.2 (40.34)	0.84
Estimated blood loss	78.8 (56.42)	83.3 (57.06)	69.2 (53.95)	**< 0.01**
Additional procedures	1.1 (0.83)	1.2 (0.82)	1.0 (0.83)	**< 0.01**
Anterior repair	62 (11%)	52 (14%)	10 (6%)	**< 0.01**
Posterior repair	91 (17%)	66 (18%)	25 (14%)	0.32
Perineorrhaphy	243 (44%)	176 (47%)	67 (38%)	**0.05**
Anti-incontinence procedure	303 (55%)	217 (58%)	86 (49%)	**0.05**
BSO/USO	159 (29%)	118 (32%)	41 (23%)	**0.05**
Lysis of Adhesions	21 (4%)	9 (2%)	12 (7%)	**0.01**
Intraoperative complications	12 (2%)	6 (2%)	6 (3%)	0.17

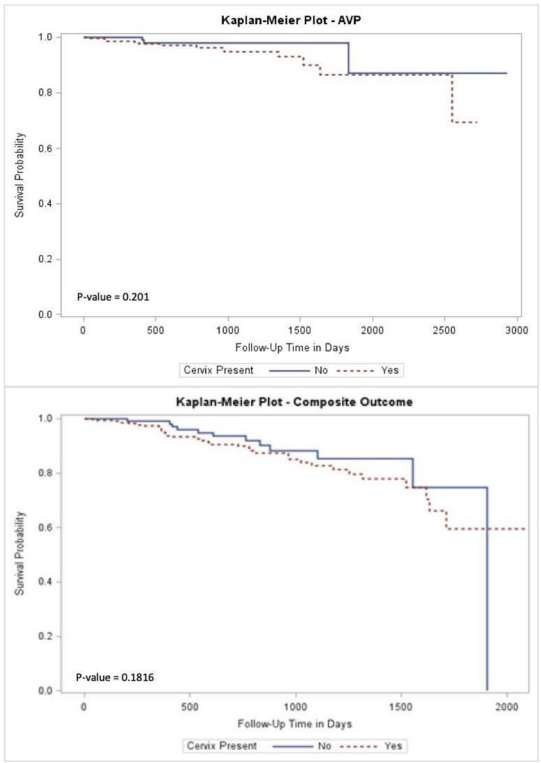
Continuous data reported as mean +/-SD when normally distributed and as median (interquartile range) if not distributed normally. The data compared using either unpaired t-test or Wilcoxon rank sum test respectively. Categorical data reported in absolute values and percentages and compared using chi-squared test.

Table 2: Postoperative Outcomes

	Total (N=343)	Cervix (N=229)	No Cervix (N=114)	P-value
Total follow-up time (years)	2.1 (1.2, 3.2)	2.1 (1.2, 3.2)	2.1 (1.5, 3.1)	0.76
Overall success	291 (85%)	190 (83%)	101 (89%)	0.15
Anterior prolapse past hymen	15 (4%)	12 (5%)	3 (3%)	0.26
Composite failure	52 (15%)	39 (17%)	13 (11%)	0.15
Prolapse past hymen	14 (4%)	11 (5%)	3 (3%)	0.33
Apical prolapse > ½ canal	14 (4%)	13 (6%)	1 (1%)	**0.03**
Postoperative pessary use	1 (0%)	1 (0%)	0 (0%)	0.48
Subjective sense of prolapse	35 (10%)	26 (11%)	9 (8%)	0.32
Treatment for prolapse				0.47
Pessary	1 (6%)	1 (8%)	0 (0%)	
Surgery	17 (94%)	11 (92%)	6 (100%)	
Anterior Repair	7 (2%)	6 (3%)	1 (1%)	0.28
Posterior Repair	9 (3%)	4 (2%)	5 (4%)	0.15
Perineorrhaphy	9 (3%)	4 (2%)	5 (4%)	0.15
Apical repair	3 (1%)	3 (1%)	0 (0%)	0.22
Post-operative Exam				
Prolapse Stage, Apical	0.2 (0.48)	0.3 (0.51)	0.1 (0.47)	**< 0.01**
Prolapse Stage, Anterior	1.0 (0.83)	1.0 (0.83)	0.9 (0.82)	0.19
Prolapse Stage, Posterior	0.7 (0.80)	0.7 (0.80)	0.7 (0.79)	0.97
Prolapse Stage, Overall	1.3 (0.78)	1.3 (0.78)	1.3 (0.78)	0.84
Post-operative complications	233 (43%)	152 (43%)	81 (46%)	0.22
Mesh exposure	8 (1%)	5 (1%)	3 (2%)	0.73
MUS	7 (88%)	4 (80%)	3 (100%)	0.41
SCP	1 (14%)	1 (25%)	0 (0%)	

Continuous data reported as mean +/-SD when normally distributed and as median (interquartile range) if not distributed normally. The data compared using either unpaired t-test or Wilcoxon rank sum test respectively. Categorical data reported in absolute values and percentages and compared using chi-squared test.

Figure 1: Kaplan Meier Survival Plot Demonstrating Change in Anterior Vaginal Prolapse Recurrence and Composite Failure Over Time



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The Impact of Diabetes Mellitus on Pelvic Organ Prolapse Recurrence After Robotic Sacral Colpopexy

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Introduction: Diabetes Mellitus (DM) is a known risk factor for mesh exposure after sacral colpopexy (SCP); however, there is limited data examining its effect on prolapse recurrence after minimally invasive robotic sacral colpopexy.

Objective: The primary objective of this study was to determine if DM affects recurrence of prolapse after robotic SCP in patients with at least 12 months of follow-up.

Methods: This was a retrospective cohort study of women who underwent robotic SCP between January 1, 2012 and August 30, 2019 at Kaiser Permanente Southern California. The cohort was divided into women with and without DM at the time of SCP. Diabetes was defined as HbA1c greater than or equal to 6.5% within 3 months of surgery and/or medical treatment for diabetes at the time of surgery. The primary outcome was a composite measure of success defined as absence of the following: descent of the vaginal apex more than one-half of total vaginal length, vaginal descent in any compartment beyond the hymen, sensation of vaginal bulge, and treatment for recurrent prolapse by pessary or surgery. Patients without 12-month follow-up were included in demographic and surgical data analysis only.

Results: The charts of 547 patients were reviewed, of whom 100 were found to have DM. On average, women with DM were older, had higher BMI, higher parity, higher rates of cardiovascular disease, and were more likely to be non-white race (Table 1).

Women with DM had more advanced prolapse at baseline but were not more likely to undergo anterior repair, posterior repair, perineorrhaphy or anti-incontinence procedures at the time of SCP. The rate of complications was similar between groups. Mean HbA1c in this cohort suggests that diabetes was overall well controlled but did significantly increase from pre- to post-operative visit (6.40% vs 6.89%, p=0.02). Over a median follow-up of 2.1 years (IQR 1.3, 3.4), women with DM did not have a higher rate of composite failure (21% vs 14%, p=0.14) but did have significantly increased incidence of anterior vaginal wall prolapse (AVP) (13% vs 3%, p<0.01). However, on Kaplan Meier survival analysis (Figure 1), composite failure significantly increased over time in women with DM (p=0.04), as did AVP and apical prolapse more than one-half of total vaginal length (p< 0.001). On multivariate analysis, women with DM experienced significantly more AVP recurrence but not composite failure (AVP Hazard Ratio (HR) 5.68, 95% CI 1.97-16.37, p 0.001; Composite HR 1.78, 95% CI 0.94-3.34, p=0.076). BMI was found to be an independent risk factor for AVP and composite recurrence (AVP HR 1.13, 95% CI 1.02-1.25, p=0.02; composite HR 1.07 95% CI 1.02-1.13, p=0.01). Prior hysterectomy was also an independent risk factor for composite failure (HR 2.73 95% CI 1.10-6.78, p=0.03).

Conclusions: In our cohort, DM was a risk factor for AVP recurrence but not composite failure at 2-year follow-up after robotic SCP. However, DM significantly increased the risk of composite failure as well as AVP over time. This was true despite patients having well controlled DM at time of surgery and post-operative exam.

Disclosure: No

Images:

Table 1: Patient and Surgical Characteristics

	Total (N=547)	Non-DM* (N=447)	DM (N=100)	P-value
Age	61.5 (9.06)	61.1 (9.25)	63.2 (7.99)	0.04
BMI	27.8 (4.58)	27.5 (4.52)	29.1 (4.65)	< 0.01
Parity	2.9 (1.40)	2.8 (1.38)	3.2 (1.43)	0.01
Race				
Non-Hispanic White	244 (45%)	227 (51%)	17 (17%)	< 0.01
Hispanic	239 (44%)	181 (40%)	58 (58%)	< 0.01
Asian	36 (7%)	23 (5%)	13 (13%)	< 0.01
Black	21 (4%)	12 (3%)	9 (9%)	< 0.01
Pacific Islander	4 (1%)	1 (0%)	3 (3%)	0.02
Refuse	2 (0%)	2 (0%)	0 (0%)	0.67
Comorbidities				
Cardiovascular disease	233 (43%)	162 (36%)	71 (71%)	< 0.01
Pulmonary disease	59 (11%)	43 (10%)	16 (16%)	0.06
Thyroid disease	89 (16%)	73 (16%)	16 (16%)	0.94
Connective Tissue Disorder	10 (2%)	10 (2%)	0 (0%)	0.13
Menopausal Status				0.13
Premenopausal	62 (11%)	55 (12%)	7 (7%)	
Postmenopausal	484 (89%)	391 (88%)	93 (93%)	
Tobacco Use				0.53
Never	418 (77%)	345 (77%)	73 (73%)	
Former	120 (22%)	94 (21%)	26 (26%)	
Current	8 (1%)	7 (2%)	1 (1%)	
Prior abdominal surgery	281 (51%)	222 (50%)	59 (59%)	0.09
Prior prolapse repair	94 (17%)	78 (17%)	16 (16%)	0.73
Apical Suspension	49 (9%)	41 (9%)	8 (8%)	0.71
Prior hysterectomy	163 (30%)	136 (30%)	27 (27%)	0.50
Total hysterectomy	147 (90%)	124 (91%)	23 (85%)	0.34
Supracervical hysterectomy	16 (10%)	12 (9%)	4 (15%)	
Prior incontinence surgery	51 (9%)	41 (9%)	10 (10%)	0.77
Preoperative exam				
Prolapse Stage, Apical	2.2 (0.96)	2.1 (0.94)	2.4 (1.02)	0.02
Prolapse Stage, Anterior	2.7 (0.68)	2.6 (0.66)	2.8 (0.73)	< 0.01
Prolapse Stage, Posterior	1.9 (1.04)	1.8 (1.04)	2.1 (1.02)	0.05
Prolapse Stage, Overall	2.8 (0.56)	2.8 (0.54)	3.0 (0.59)	< 0.01
Duration of surgery	182.2 (40.02)	180.9 (42.06)	185.7 (34.00)	0.52
Estimated blood loss	78.6 (56.23)	78.4 (55.29)	79.4 (60.52)	0.87
Additional procedures	1.1 (0.83)	1.1 (0.82)	1.3 (0.85)	0.04
Anterior repair	62 (11%)	48 (11%)	14 (14%)	0.35
Posterior repair	91 (17%)	69 (15%)	22 (22%)	0.11
Perineorrhaphy	243 (44%)	190 (43%)	53 (53%)	0.06
Anti-incontinence procedure	302 (55%)	250 (56%)	52 (52%)	0.48
BSO/USO**	159 (29%)	121 (27%)	38 (38%)	0.03
Lysis of Adhesions	21 (4%)	14 (3%)	7 (7%)	0.07
Intraoperative complications	13 (2%)	11 (2%)	2 (2%)	0.78

Continuous data reported as mean +/-SD when normally distributed and as median (interquartile range) if not distributed normally. The data compared using either unpaired t-test or Wilcoxon rank sum test respectively. Categorical data reported in absolute values and percentages and compared using chi-squared test.

*DM: Diabetes Mellitus

** Bilateral salpingo-oophorectomy/unilateral salpingo-oophorectomy

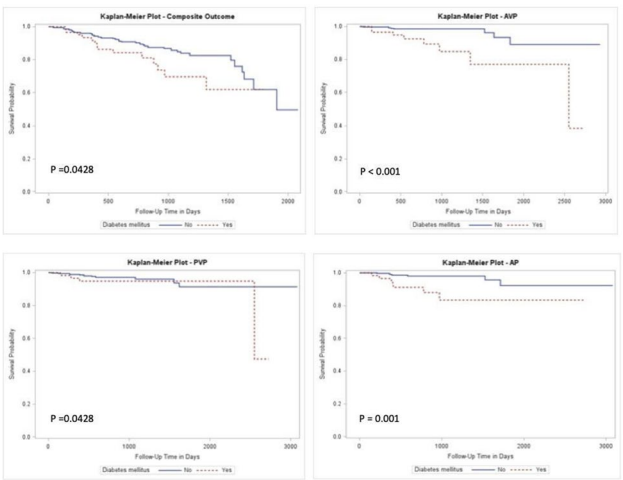
Table 2: Postoperative Outcomes

	Total (N=343)	Non-DM* (N=282)	DM (N=61)	P-value
Total follow-up time (years)	2.1 (1.3, 3.4)	2.2 (1.3, 3.5)	2.1 (1.4, 3.1)	0.63
Overall success	291 (85%)	243 (86%)	48 (79%)	0.14
Composite failure	52 (15%)	39 (14%)	13 (21%)	0.14
Anterior prolapse past hymen	15 (4%)	7 (3%)	8 (13%)	< 0.01
Posterior Prolapse past hymer	14 (4%)	10 (4%)	4 (7%)	0.27
Apical prolapse > ½ canal	14 (4%)	7 (2%)	7 (12%)	< 0.01
Postoperative pessary use	1 (0%)	0 (0%)	1 (2%)	0.03
Subjective sense of prolapse	35 (10%)	25 (9%)	10 (16%)	0.08
Treatment for prolapse				
Pessary	1 (6%)	0 (0%)	1 (25%)	0.99
Surgery	17 (94%)	14 (100%)	3 (75%)	0.25
Anterior Repair	7 (2%)	5 (2%)	2 (3%)	0.45
Posterior Repair	9 (3%)	8 (3%)	1 (2%)	0.60
Perineorrhaphy	9 (3%)	7 (2%)	2 (3%)	0.72
Apical repair	3 (1%)	2 (1%)	1 (2%)	0.48
Post-operative Exam				
Prolapse Stage, Apical	0.2 (0.48)	0.2 (0.46)	0.3 (0.56)	0.45
Prolapse Stage, Anterior	1.0 (0.83)	1.0 (0.82)	1.2 (0.87)	0.12
Prolapse Stage, Posterior	0.7 (0.80)	0.7 (0.78)	0.8 (0.86)	0.59
Prolapse Stage, Overall	1.3 (0.78)	1.3 (0.78)	1.6 (0.75)	0.02
Post-operative complications	229 (42%)	183 (41%)	46 (46%)	0.35
Mesh exposure	8 (1%)	8 (2%)	0 (0%)	0.18
Mid-urethral sling	7 (88%)	7 (88%)	0 (0%)	
Sacral Colpopexy	1 (13%)	1 (13%)	0 (0%)	

Continuous data reported as mean +/-SD when normally distributed and as median (interquartile range) if not distributed normally. The data compared using either unpaired t-test or Wilcoxon rank sum test respectively. Categorical data reported in absolute values and percentages and compared using chi-squared test.

*DM: Diabetes Mellitus

Figure 1: Kaplan Meier Survival Plots Demonstrating Change in Prolapse Recurrence and Composite Failure Over Time in Women with and without Diabetes Mellitus



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Reducing Urinary Tract Infections After Pelvic Surgery: A Bundle of Care

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Introduction: Urinary tract infections (UTI) after inpatient pelvic reconstructive surgery for prolapse and urinary incontinence can lead to significant patient morbidity and healthcare costs. Patient care bundles combine several evidence-based interventions to provide significantly better outcomes than single interventions. Bundling has significantly reduced postoperative surgical site infection rates in multiple fields, but has not been tested in urogynecology.

Our previous study found a postoperative UTI rate of 17.6% among inpatients at our tertiary center within six weeks after pelvic surgery (2016-2017). Based on risk factors identified through our prior research, we implemented a bundle consisting of three changes to our usual clinical care: universal preoperative UTI check with treatment if positive; replacing prolonged postoperative voiding trials on the ward with discharge home with indwelling catheter/management by a nurse continence advisor the next day; daily cranberry extract for six weeks postoperatively.

Objective: We aimed to compare pre- vs. post-bundle implementation UTI rates among inpatients within six weeks of clean-contaminated pelvic reconstructive surgeries.

Methods: We conducted a retrospective cohort study of inpatients after implementation of the bundle strategy (September 1, 2019 – December 1, 2021) and compared them to pre-bundle historical controls. We excluded patient charts undergoing obstetric, clean, dirty, contaminated, or outpatient procedures. We also excluded charts where compliance with any of the three arms of the bundle failed. We reviewed charts for patient demographics and pre-, intra-, and post-operative factors. UTI was defined as positive urine culture ($\geq$ 100,000 CFU/mL) in the symptomatic patient. Ethics approval was obtained. Data analysis involved hypothesis testing and assessing the difference between pre- and post-bundle implementation incidence of postoperative UTIs. Logistic regression was used to compare the odds of UTI between pre- and post-bundle groups.

Results: We reviewed a total of 193 patients during our study period and included 93. We compared the results to 204 inpatient charts from the pre-bundle cohort. There was a significant difference pre- versus post-bundle in age (60.8 vs. 66.1, p=0.001), placement of indwelling catheter at the end of surgery (91.2% vs. 100%, p=0.003), and discharge home with indwelling catheter (11.8% vs. 22.6%, p=0.016). Baseline demographics were otherwise similar. The rate of post-operative UTI up to six weeks after procedure was 6.5% in the post-bundle group compared to 17.6% in the pre-bundle group (p=0.01). After adjusting for age, anti-incontinence surgery, non-urogynecologic surgery, surgical approach, intraoperative cystoscopy, and successful pass of the first trial of void, the adjusted odds ratio for post- vs. pre-bundle likelihood of UTI was 0.35 (95% CI: 0.13, 0.98; p=0.045). Post-bundle patients were more likely to be discharged home on the first day post-operatively (37.7% vs. 76.3%. $p < 0.001$). The main reason for bundle non-compliance was continuation of trials of void on the ward.

Conclusions: A clinical bundle can significantly decrease both UTI rates and hospital stay post reconstructive pelvic surgery. Further research is required with various patient populations to establish its role as standard of care.

Disclosure: No

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Mini or Retropubic sling in women with Intrinsic Sphincter Deficiency at 6 months– an RCT (Mini RISD)

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Introduction: Intrinsic sphincter deficiency (ISD) is associated with a higher risk of sling failure and is difficult to treat. The retropubic (RP) sling and the "mini" single incision sling (SIS) are two treatment options. Comparison of the efficacy and safety for these procedures in an ISD population has not been determined. The RP sling has been shown to be superior to the obturator sling for the treatment of SUI associated with ISD1, however the RP sling is associated with more complications such as bleeding, bladder injury and voiding difficulty2,3. SISs provide a "hammock" support and are able to be placed under more tension than an obturator sling. It is plausible that SISs could be as effective as the retropubic sling but associated with less complications.

Objective: To assess if the SIS is as efficacious as the RP sling for women with urodynamic stress incontinence (USI) and ISD and compare clinical outcomes.

Methods: This was a multicenter randomized controlled trial involving women with SUI/ISD. Demographic data of eligible women and POPQ examination was collected. Randomization to SIS or RP occurred in equal probability. Concomitant prolapse operation was performed as required. Post-operative interview and examination were performed at 6 weeks and 6 months. Examination included uroflow, cough stress test and POPQ assessment. Standardized questionnaires were performed at 6 months. Primary outcome was to assess the objective cure rate (negative clinical cough stress test) of the SIS against the RP sling at 6 months post- surgery. Secondary outcomes included immediate and short term post-operative complications and patient reported outcomes. Categorical Outcomes were compared using the chi-squared test and continuous outcomes using the independent samples t-test for normally distributed data.

Results: 112 women have been randomized and completed 6 month follow up. 54 women were randomized to SIS and 58 women to RP sling. Results were analyzed by at ITT analysis. No women crossed groups. We did not achieve our sample size of 132 due to a combination of factors including withdrawal of approval of the SIS from the local regulatory body, Covid restrictions on recruitment/surgery and women's reluctance to have mesh. Average age was 66 years and BMI 27. Table 1 shows results at 6 months. There was no difference in post-operative complications between the 2 groups however, one SIS was removed for groin pain. At 6 months, women who had no symptoms of SUI (72% RP group versus 72% SIS) and who had a negative cough stress test (87% RP versus 82% SIS) were similar. 78% in the RP group and 76% in the SIS group reported improvement as "very much better or much better" (RR 1.06 (95% CI 0.68-1.66), p=0.79). 2 women had repeat surgery at 6 months. One in the RP group (1.7%) and one in the SIS group (1.9%). At 2 years, 4 women in the RP group (6.9%) had repeat surgery and 6 in the SIS group (11.1%).

Conclusions: After six months, we are unable to show a difference in subjective or objective cure between groups. With time, more women had repeat surgery.

Disclosure: No

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High Intensity Focused Electromagnetic Therapy vs. Pelvic Floor Therapy with Biofeedback for Treatment of Female Urinary Incontinence. A Multi-Center Randomized-Controlled Trial: 12-Month Analysis.

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Introduction: The pelvic floor musculature (PFM) is essential for support and function of the pelvic organs. A common consequence of loss of PFM function is urinary incontinence (UI). Pelvic floor therapy (PFT), in particular biofeedback therapy, is a cornerstone of conservative management of urinary incontinence. However, studies of long-term outcomes have had limited success and long-term adherence has been challenging. This study investigated the efficacy of novel method of pelvic floor therapy, High Intensity Focused Electromagnetic Therapy (HIFEM), compared to conventional PFT with biofeedback for improvement of UI in women.

Objective: The objective of the study was to compare HIFEM pelvic floor therapy to PFT with biofeedback for the treatment of UI as well as urinary urgency and frequency symptoms.
Methods: Forty-seven women (27-66 years) at 3 centers diagnosed with UI were randomized to 2 groups: PFT (N=22) and HIFEM (N=25). All subjects underwent 6 treatment sessions scheduled twice a week for three weeks with either standard HIFEM therapy or a standardized pelvic floor biofeedback and electrical stimulation protocol adopted from Harvard Deaconess Department of Physical Therapy. Follow-up visits performed at 1, 3, 6, 9 and 12 months after final treatment session. Outcome measures include qol questionnaires (ICIQ-BD, ICIQ-LUTS), pad use, subjective leakage, therapy adherence, and therapy comfort. Adverse events and side effects were recorded.
Results: Analysis at 6-months post-treatment showed significant improvement in UI symptoms measured by ICIQ-LUTS in the HIFEM group (-15.2 points, 35%, p<0.001) but not in the PFT group (-5.1 points, 13%, p=0.24). Significant improvement over baseline was maintained at 12-months in HIFEM (24%, p=0.02) but not in the PFT group (3%, p=0.85). ICIQ-BD demonstrated greater improvement in urgency symptoms in the HIFEM vs. PFMT group (34% vs. 5%) at 12-months. 87% of HIFEM subjects reported less leakage at 12-months compared to 71% of PFMT subjects. Pad use decreased by -2.0/day in the HIFEM group vs. -0.4/day in the PFMT group. Average therapy comfort was rated 3.9/5 for HIFEM vs. 2.4/5 for PFMT at 12-months. Subjects were 3.5 times more likely to complete the entire series of treatments in the HIFEM group. No adverse events or negative side effects were reported in either group.
Conclusions: HIFEM technology appears safe and effective for the treatment of UI in women. HIFEM was more effective and better tolerated for the treatment of UI than conventional PFT with biofeedback at 12-months in this study. Larger studies are needed.
Disclosure: Yes, this is sponsored by industry/sponsor: BTL
Clarification: Industry funding only - investigator initiated and executed study
Any of the authors act as a consultant, employee or shareholder of an industry for: BTL - consultant

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The Effect of 12 Weeks of Estriol Cream on Stress Urinary Incontinence Post Menopause: A Prospective Multinational Observational Study

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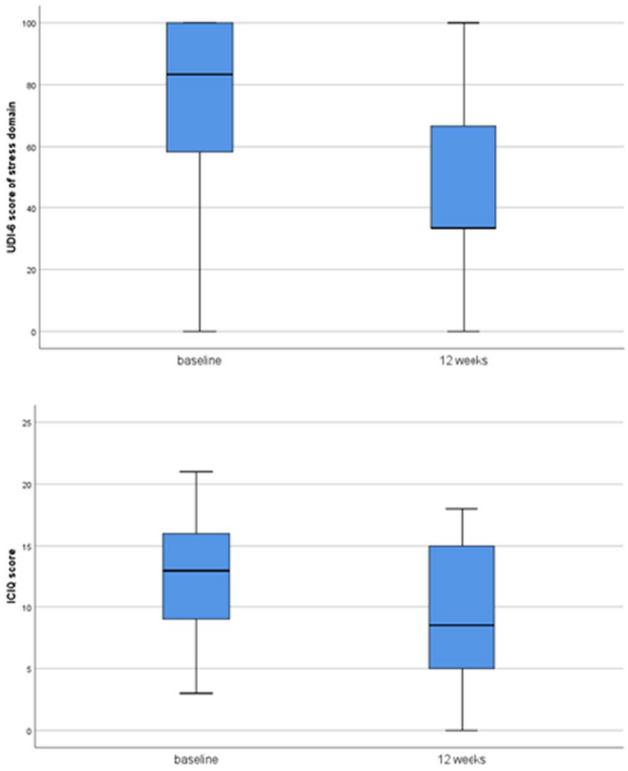
Introduction: Stress urinary incontinence (SUI) is a debilitating condition affecting up to 35% of women1. A decline in estrogen at menopause is thought to contribute to urinary incontinence, with 70% of women relating the onset to their last menses2. Theoretically vaginal estrogen should have a treatment effect in women with SUI, as estrogen receptors are found in the bladder, urethra, vagina and pelvic floor muscles3. The literature suggests that topical estrogens increase urethral resistance by thickening the superficial layer of the urethral epithelium and increasing the periurethral vascularity. Because the vascular network accounts for one third of the urethral pressure, the estriol thus raises the urethral closure pressure and creates a more efficient mucosal seal. Vaginal estrogen cream has been shown to change urethral cytology by increasing intermediate and superficial epithelial cells and decreasing transitional cells (known as a positive maturation index). Bergman et al. have demonstrated that a positive maturation index corresponds to improvement in SUI symptoms4. Unfortunately, the quantitative evidence for the benefit of vaginal estrogen cream in women with stress incontinence is very limited. The latest Cochrane review published in 2012 on vaginal estrogen therapy5 concluded that such treatment may improve or cure incontinence. However, sample sizes were small and there were marked differences in types, dosages, durations and routes of administration of the estrogen therapy. They recommend that future research should include standardised, validated, reproducible and simple outcome measures including quality of life tests. A more recent pragmatic pilot study using estriol cream for 6 weeks showed significant benefit for the SUI domain of the Urogenital Distress Inventory-6 (UDI-6)6. However, the most recent FDA report indicated that 12 weeks of estriol cream was needed for treatment of vaginal atrophy.
Objective: The aim of the present study was to provide quantitative measures of urinary incontinence in women after 12 weeks of vaginal estriol cream as monotherapy.
Methods: Postmenopausal women with symptoms of either pure SUI or stress predominant mixed urinary incontinence were instructed to apply a constant dose of estriol cream vaginally (with written instructions). Baseline and post treatment outcome measures were obtained. Main Outcome measures: The stress domain of the UDI-6 was the primary subjective outcome measure and the vaginal pH was the primary objective outcome. Other subjective outcomes included the International Consultation on Incontinence Questionnaire Urinary Incontinence Short Form (ICIQ-SF), Incontinence Impact Questionnaire-7 (IIQ-7), Most Bothersome Symptom (MBS) approach and Patient's Global Impression of Improvement (PGI-I). The secondary objective outcome used was the erect cough stress test. Patient compliance was also recorded.
Results: There were 46 postmenopausal participants, median age 62.1 (IQR 56.2–65.4). At 12 weeks the stress domain of UDI-6 significantly improved from 83.3 (IQR 50–100) to 33.3 (33.3–66.6, P=0.001 table 1 and fig 1a) and the vaginal pH from 5.1 (4.9–5.9) to 4.9 (4.6–5.0, p=0.005). The pad test at 12-week follow-up measured <1g in 18/43 patients (42%) and dry rate for the ICIQ-SF (table1 and fig 1b) was 14/43 (33%).
Conclusions: Twelve weeks of vaginal estriol cream significantly reduced symptoms of stress urinary incontinence in post-menopausal women.
Disclosure: No
Images:

	Baseline median (IQR)	12 weeks median (IQR)	p-value
UDI stress	83.33 (50.0 – 100)	33.33 (33.33 – 66.7)	≤0.001
UDI urge	50.0 (16.7 – 70.8)	0 (0 – 50.0)	0.003
UDI voiding dysfunction	0 (0 – 4.2)	0 (0 – 16.7)	0.311
ICIQ total	14.0 (9 – 16)	8.5 (5 – 15)	0.002
IIQ physical activity	33.3 (16.7 – 66.7)	16.7 (0 – 50)	0.001
IIQ travel	33.3 (16.7 – 66.7)	16.7 (0 – 50)	0.004
IIQ social/ relationships	33.3 (0 – 66.7)	33.3 (0 – 33.3)	0.001
IIQ emotional health	66.7 (16.7 – 83.3)	33.3 (0 – 66.7)	≤0.001
Vaginal pH	5.1 (4.9 – 5.9)	4.9 (4.6 – 5.0)	≤0.001
Cough Stress Test	5 (1.2 – 15)	2.7 (0 – 10.5)	0.126
MBS vaginal dryness*	7 (15%)	5 (12%)	–
MBS vaginal irritation/itching*	4 (9%)	4 (9%)	–
MBS vaginal/vulval soreness*	–	–	–
MBS dyspareunia*	4 (9%)	1 (2%)	–
MBS difficulty voiding*	1 (2%)	–	–

Table 1. Results of primary and secondary outcome measures. *Most Bothersome Symptom due to possible atrophic changes



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Inequities in Overactive Bladder Medication Prescriptions in the United States in 2019. Are We Keeping Everyone Safe?

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Introduction: The growing evidence highlighting the association between anticholinergic use and adverse cognitive effects has created an impetus for cautious anticholinergic use in patients with overactive bladder (OAB), especially given the higher rates of incident dementia amongst Black individuals. Beta-3 agonists offer similar efficacy without the concern for adverse effects on cognition. However, few studies investigating barriers to accessing this safer class of medications exist.
Objective: To examine the association between race and ethnicity and socioeconomic factors and filled prescriptions for beta-3-agonist versus anticholinergic medications in women with OAB.
Methods: The 2019 Agency for Healthcare Research and Quality Medical Expenditure Panel Survey (MEPS), which is a nationally representative survey of US households, was queried for all women with at least one prescription filled for an OAB medication. Medication class (beta-3 agonist vs anticholinergic), individual and household health status, and sociodemographic characteristics were identified. Medication fill rates were estimated using the provided survey weights. Differences in odds of anticholinergic and beta-3 agonist use were assessed by race and ethnicity, insurance status, age, household income, educational attainment, nation of origin, diagnosis of high blood pressure, and presence of cognitive decline. Multivariable logistic regression assessed for independent differences among all covariates of interest as listed above.
Results: An estimated 2,185,214 women filled prescriptions for OAB medications in 2019, with 80.8% filling an anticholinergic prescription and 24.2% filling a beta-3 agonist prescription. Overall, 81.1% of patients filling an OAB medication identified as Non-Hispanic White, 7.1% as Non-Hispanic Black, 5.5% as multiracial or a different race, 4.3% as Hispanic, and 1.9% as Non-Hispanic Asian. The majority were age 65 or greater (71.0%), and 53.3% had private health insurance, while 46.4% had only public insurance and 0.3% were uninsured. Out-of-pocket costs were substantially different between medication classes: $52.47 (95% CI: 45.16-59.79) per beta-3 agonist prescription fill vs $22.80 (95% CI: 20.05-25.54) for anticholinergics. The most common prescription was oxybutynin, followed by mirabegron (Table 1). In bivariate analyses, race and income were the only significant predictors of medication class (Table 2). However, race was the only significant factor in multivariable analysis controlling for all other covariates; Non-Hispanic Black women had an 82% lower odds of filling a beta-3 agonist prescription (aOR 0.18, 95% CI: 0.06-0.54) compared to Non-Hispanic White Americans, and conversely had a 6-fold higher odds of filling an anticholinergic prescription (aOR 6.04, 95% CI: 3.28-11.13).
Conclusions: Filled prescriptions for OAB differed significantly by race even after controlling for potential confounding factors such as socioeconomic, clinical, and demographic characteristics. The study's findings – that non-Hispanic Black women were far less likely to fill a beta-3 agonist prescription and far more likely to fill an anticholinergic for OAB compared to non-Hispanic white women – brings to light the role through which structural racism may propagate inequities in treatment for OAB in US women. As the risk of dementia is disproportionately higher among Black patients, the impact of this inequity in medications that reduce cognitive risks needs to be examined more closely.
Disclosure: No
Images:

Table 1. Overactive bladder medication prescription type.

Medication Type	Percentage of patients with a prescription
Oxybutynin	51.2
Mirabegron	25.2
Tolterodine	12.3
Solifenacin	11.0
Other anticholinergic	11.0

*Sums greater than 100% as patients could be prescribed more than one medication

Table 2. Unadjusted odds of filling an overactive bladder medication prescription in 2019.

	Beta-3 agonist prescription	Anticholinergic prescription
Race and Ethnicity[1]		
Hispanic	2.14(0.91, 5.06)	0.73(0.23, 2.28)
Non-Hispanic White	referent	
Non-Hispanic Black	**0.18(0.07, 0.46)**	**6.98(4.25, 11.45)**
Non-Hispanic Asian	1.56(0.18, 13.14)	0.47(0.05, 3.91)
Non-Hispanic other race/multiple races	1.33(0.26, 6.82)	0.55(0.10, 2.85)
Age<=65	1.05(0.56, 1.99)	0.94(0.46, 1.92)
Born outside of the US	1.57(0.63, 3.91)	0.69(0.23, 1.99)
Cognitive decline	0.72(0.41, 1.26)	1.41(0.76, 2.61)
Diagnosis of high blood pressure	0.99(0.47, 2.06)	1.25(0.53, 2.92)
Educational attainment		
Less than a high school diploma	1.34(0.54, 3.28)	0.78(0.28, 2.13)
High school diploma or GED	1.03(0.56, 1.91)	1.01(0.52, 1.95)
More than a high school diploma	referent	
Income category[2]		
Poor	0.51(0.19, 1.37)	**3.26(1.14, 9.32)**
Near Poor	0.40(0.11, 1.41)	3.04(0.58, 15.86)
Low Income	1.07(0.44, 2.61)	1.06(0.43, 2.58)
Middle Income	0.74(0.35, 1.54)	1.42(0.63, 3.17)
High Income	referent	
Insurance coverage		
Private	referent	
Public	0.72(0.43, 1.21)	1.57(0.91, 2.73)
Uninsured[3]	-	-

Data presented as odds ratio (95% confidence interval)

[1]Race and ethnicity were self-defined by survey participants.

[2]Income categories were defined based on total household income and assigned within the medical expenditure panel survey data.

[3]Insufficient observations to generate ocds ratio estimates.

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Does Treatment of Lichen Sclerosus Improve Overactive Bladder Symptoms?

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Introduction: Lichen sclerosus (LS) is a chronic disease which mainly affects the vulvar area in women. A few studies have shown a possible relationship between LS and overactive bladder (OAB) symptoms, but no studies have investigated whether OAB symptoms improve after initiating treatment of LS.
Objective: The aim of this study was to investigate whether the treatment of LS also improves OAB symptoms in women newly diagnosed with LS.
Methods: A prospective cohort pilot study based on questionnaires from women newly diagnosed with LS. Women above the age of 18 who were newly diagnosed with LS were included. The women completed two questionnaires at inclusion and after 3 months. The questionnaires consisted of the validated questionnaires Overactive Bladder Questionnaire-long form (OAB-q-lf) (33 questions, max. score 198)) and Overactive Bladder Questionnaire-short form (OAB-q- sf) (8 questions, max score 56)). All women initiated treatment with local steroid according to standard procedure by the time of the LS diagnosis.
Results: A total of 40 women were included and 13 women dropped out during the data collection period. Comparing month 0 to month 3 for the remaining 27 women a mean difference at 28.8 points was observed for OAB-q-lf and a mean difference of 5.7 points was observed for OAB-q-sf. Both results showed a statistically significant difference after 3 months ($p < 0.05$). A total of 92.6% (25/27) of the women improved their OAB symptoms.
Conclusions: Treatment with local steroid improves OAB symptoms in women newly diagnosed with LS. Larger studies are needed to confirm these findings.
Disclosure: No

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Computational Quantification of External Anal Sphincter Thicknesses

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Introduction: Endoanal ultrasound (EAUS) is routinely used to evaluate the external anal sphincter (EAS) in women with fecal incontinence (FI). Current quantification methods often produce opposing results, have low sensitivity to small alterations, are limited by lack of intra- and inter-observer reliability, and frequently do not correlate with functional outcomes. Computational quantification could overcome these limitations by reducing error, eliminating biased sampling, and increasing reproducibility.
Objective: We aimed to determine the impact of computational quantification of EAS thicknesses on comparisons between women with FI of varying age and parity status.
Methods: EAUS images obtained during routine clinical care from 101 consecutive younger (≤51 years) and older (>51 years) vaginally nulliparous and vaginally parous women with FI were used in this IRB-approved study. The borders of the distal EAS and internal AS (IAS) were outlined manually, then MathematicaTM was used to semi-automatically outline the EAUS probe and redefine it by 12 points representing each "hour" around the circle. Radial lines from these points to the EAS and IAS borders were calculated (Fig.1). EAS thickness was the distance from IAS to EAS along these lines. Two sampling rates were compared: 4 (at 12, 3, 6, and 9 o'clock) and 12 (at each "hour"), but due to collinearity between thickness variables, only the means could be statistically compared. To overcome this and increase sensitivity, a sampling rate of 360 (at each degree of the circle) was introduced and analyzed with a principal component analysis (PCA), which reduces the dimensionality while creating linearly independent variables. EAS thicknesses were compared between age and parity groups by 2-way (M)ANOVAs with Benjamini-Hochberg corrections post-hoc.
Results: Group demographic characteristics are listed in Fig.2. EAS thickness was significantly greater in vaginally nulliparous women ($p=0.001$) across the 4 and 12 sampling methods, which produced nearly identical results, and the 360-PCA method, while age groups were statistically similar. However, the 360-PCA method identified a significant interaction between age and vaginal parity ($p=0.026$) that the other methods did not (Fig.3). The 360-PCA was defined by 3 PCs: PC1 (79% of total variance) described global variation and differences due to vaginal parity ($p=0.001$), PC2 (12% of total variance) demonstrated left-right variation and differences due to the interaction term ($p=0.026$), and PC3 (6% of total variance) described anterior-posterior variation.
Conclusions: Our findings indicate that EAS thickness quantification methodology significantly impacts the information gained from EAUS. When only a mean is used, the power to detect subtle differences and regional thickness relationships is low, explaining why means only reflected variation described by PC1. Meanwhile, PC2 and 3 highlight local changes (not captured by the means) that comprise 21% of the total thickness variance. More detailed EAS thickness data stand to distinguish between subtle FI phenotypes, help resolve discrepancies between studies, and increase sensitivity without the use of more expensive and burdensome MR imaging. This 360-PCA method constitutes an essential complement to machine learning (which can be trained to classify groups but will not tell you how those groups differ) and is important to consider in future evaluations incorporating control data.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Renovia Inc.
Images:

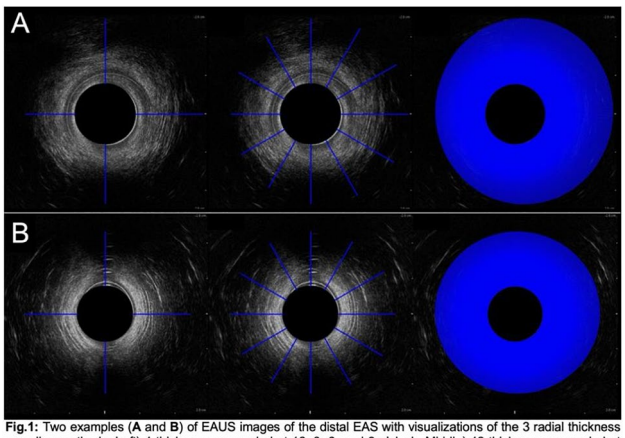
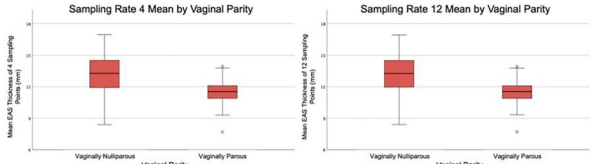


Fig.1: Two examples (**A** and **B**) of EAUS images of the distal EAS with visualizations of the 3 radial thickness sampling methods: Left) 4 thicknesses sampled at 12, 3, 6, and 9 o'clock, Middle) 12 thicknesses sampled at each hour around the clock (so to speak), and Right) 360 thicknesses sampled at each degree around the circle (i.e. probe). The black circle in the middle is the BK Medical Anorectal 3D 2052 US probe.



	Age					Vaginal Parity					Interaction Term
	Younger		Older		p-value	Vaginally Nulliparous		Vaginally Parous		p-value	p-value
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		
Patient Demographics											
N (count)	22		79			62		39			
Age (years)	43.1	7.2	65.7	8.5		60.5	12.4	61.3	12.7		
BMI (kg/m²)	27.4	6.5	26.8	5.1		27.4	5.5	26.3	5.3		
Parity median (min-max)	2	1-7	3	1-6		3	1-7	3	1-6		
Vaginal Parity median (min-max)	0	0-3	0	0-6		0	0-0	2	1-6		
Quantification Method											
Mean 4 (mm)	12.3	1.8	12.6	1.7	0.521	13.1	1.7	11.5	1.2	**0.001**	0.192
Mean 12 (mm)	12.3	1.8	12.6	1.7	0.517	13.1	1.7	11.5	1.2	**0.001**	0.191
3dQ Values (PC scores)											
PC1	3.0	34.5	-2.4	32.5	0.510	-13.1	32.7	17.6	23.2	**0.001**	0.187
PC2	0.4	15.5	0.2	11.4	0.491	0.4	12.1	0.0	12.9	0.146	**0.026**
PC3	1.8	12.4	0.0	8.7	0.342	-0.7	10.4	2.2	7.9	0.137	0.657
Multivariate					0.600					**0.002**	0.100

Fig.2: Boxplots visualizing statistically significant differences in the 4 and 12 sampling rate means between vaginally nulliparous and vaginally parous women (top) and the table showing all participant demographics, group means, standard deviations (SD), and ANOVA/MANOVA p-values. Significant p-values are in **bold**, while results that differed between methods are in red. The above indicates that the means detect large, global effects and are not influenced by the number of thicknesses sampled, however, smaller, local variation is not captured.

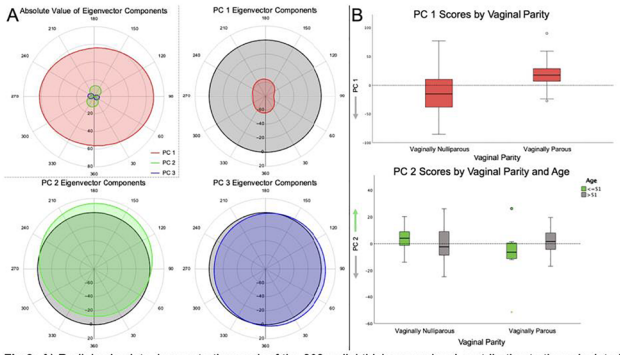


Fig.3: A) Radial axis plots demonstrating each of the 360 radial thickness values' contribution to the calculated PCs. The combined plot (top left) shows only the magnitude (absolute value) of the contributions (eigenvector components scaled by the corresponding eigenvalues), demonstrating the large, global, and fairly uniform thickness variation described by PC1 (**red**) and the smaller, more localized variation described by PC2 and 3 (**green** and **blue**, respectively). The individual plots are the original values, where distance from the reference circle at zero indicates greater influence on that PC. PC1 eigenvector components are all negative, indicative of uniform variation and an inverse relationship between EAS thickness and PC1 scores. PC2 and 3 eigenvector components vary in sign, resulting in descriptions of local variation with an inverse relationship with the PC scores in one region and a direct/positive relationship on the opposite side. **B**) Boxplots visualizing the statistically significant differences found between PC1 and 2 scores. The arrows along the y-axis correspond with the individual plots to the left, indicating which PC direction corresponds with increased EAS thickness for the eigenvector components smaller than 0 (**gray**, indicative of an inverse relationship) and larger than zero (**green**, indicative of a direct relationship). This demonstrates how the effect of PC2 was not captured by the means, with this type of EAS variation, as the thickness increases on one side, it decreases on the other, which would have a minimal impact on the overall mean.

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Coronal Plane Imaging of Levator Trauma

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Introduction: Levator ani avulsion is a major etiological factor in pelvic organ prolapse (POP).[1] To date, levator trauma has primarily been defined on tomographic axial plane imaging, and on palpation.[2] Parasagittal and coronal plane imaging of the levator can be performed with simple 2D ultrasound systems, avoiding problems with access to 3D/4D systems.
Objective: To determine reproducibility and relative validity of coronal plane imaging for the diagnosis of levator trauma.
Methods: This was a retrospective study of women seen at a tertiary urogynecology unit between January 2020 and December 2021. All underwent a history, POPQ examination and tomographic ultrasound (TUI) of the pelvic floor. [3] Trauma to the levator ani was defined as a full unilateral or bilateral avulsion and as tomographic trauma score (TTS) of 1-12. Postprocessing of saved ultrasound volume data, blinded against all other data, was utilised to measure levator ani area in the coronal plane, and to obtain a visual estimate for remaining muscle mass (0-100% on either side); see Figure 1.

Results: A test- retest series by the two authors gave an ICC of 0.74 (95% CI 0.55-0.71) for an estimate of remaining muscle mass, and 0.67 (95% CI 0.46-0.81) for coronal levator area measurement, signifying good and fair agreement. The 624 women seen during the inclusion period presented with stress urinary incontinence (448, 72%), urgency urinary incontinence (469, 75%) and/ or prolapse (338, 54%). Mean age at assessment was 58 (20-94) years, mean BMI 30 (17-65). 553 were vaginally parous, with 145 reporting at least one Forceps delivery. 106 (17%) had had previous prolapse surgery. 468 women (75%) had significant prolapse on POPQ; full avulsions were detected in 137 women (22%) and the mean hiatal area on Valsalva was 27 cm2 (SD 9). Estimates of muscle mass were possible in 620, measurements of muscle area in 612 women. The latter provided averages of 1.47 (SD 0.76) cm2 on the right and 1.55 (SD 0.74) on the left (P= 0.005). Estimates of muscle mass yielded values of 76% on the right and 79% on the left (P= 0.021). Both measures were strongy associated with tomographic trauma score on the respective side (r= -0.7 and -0.89 on the right and -0.67 and -0.88 on the left respectively for measured area and muscle mass estimate). Table 1 shows associations with symptoms and signs of prolapse, with tomographic trauma score as a comparator.
Conclusions: Levator trauma can be assessed in the coronal plane, and measures obtained in this plane are strongly asssociated with symptoms of POP and objective prolapse on POPQ and ultrasound. However, neither an estimate of remaining muscle mass nor measurement of muscle area are superior to tomographic trauma score in predictive performance as regards symptoms and signs of prolapse. An estimate of muscle mass in the coronal plane may be the best available measure if axial plane (3D/4D) imaging is unavailable. References: 1. Int Urogynecol J 2021, 32: 1623–1631; 2. Int Urogynecol J 2021, 32: 1953–1962; 3. Int Urogynecol J 2019, 30: 1389-1400
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Materna Medical, GE Medical, Mindray
Images:

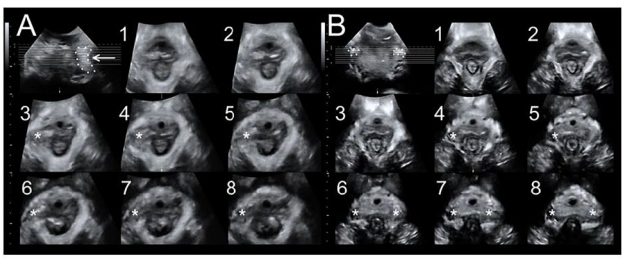

Figure: Coronal plane imaging of levator trauma. Panel A is a complete right-sided avulsion (TTS 6), with normal coronal appearances on the patient's left (arrow in top left hand image in A). Muscle masse estimates are 0% for the patient's right and 100% for the left. Panel B is a bilateral partial avulsion (TTS 8), with estimates of 20% on the patient's right and 30% on the left. Defects are indicated by stars, the levator in coronal plane images is shown by dotted outlines.

	Tomographic Trauma Score	Coronal area measurement	Coronal area estimate
	n= 624	n=612	n=620
Symptoms of prolapse (no/yes)	1.7 vs 3.6*	3.21 vs 2.86, P= 0.001	168% vs 144%*
Ba (cm)	r=0.307*	r= -0.191*	r=-0.263*
C (cm)	r= 0.235*	r= -0.169*	r=-0.226*
Bp (cm)	r=0.115, (P=0.004)	r= -0,068; n.s.	r=-0.119, P= 0.003
Gh+Pb (cm)	r= 0.304*	r= -0.144*	r= -0.262*
Cystocele on US (cm)	r=-0.346*	r= 0.206*	r= 0.3*
Uterine descent on US (cm)	r=-0.295*	r= 0.251*	r= 0.257*
Rectal descent on prolapse (cm)	r=-0.195	r= 0.127; P= 0.002	r= 0.175*
Hiatal area on Valsalva (cm2)	r=0.447*	r=-0.311*	r= -0.419*

*Table: Associations between symptoms and signs of pelvic organ prolapse and global measures of levator trauma. *P< 0.001*

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Brain Activity after Exposure to Anticholinergic Medication in Women with Overactive Bladder

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Introduction: Oral medications are frequently prescribed as therapy for overactive bladder (OAB). Anticholinergic medications have been associated with cognitive impairment in observational studies. The effect of two different classes of oral medications on brain activity has not been previously reported.
Objective: To evaluate the effect of anticholinergic (Ach) versus non-anticholinergic (Non-Ach) interventions on regional brain activation during a cognitive task in women with OAB.
Methods: Twelve women seeking therapy from community clinics were recruited to a randomized; double-blind, controlled pilot trial. Voiding dysfunction, central neurologic conditions, cognitive impairment, history of stroke, use of medications or pelvic floor therapy in the past 6 months were exclusion criteria. Regional brain activity was assessed at baseline and after 29± 1 days of intervention with Ach (solifenacin 5 mg), b3 (mirabegron 25 mg), or placebo using functional magnetic resonance imaging (Siemens MAGNETOM Vida, 3.0 Tesla full body) acquired images during a cognitive memory task. Images were transformed into Montreal neurological institute space and whole brain activation maps were generated using AFNI. Clinical data and regional activation maps were compared across two groups: Ach (n=3) versus Non-Ach [(b3, n=5) and (placebo, n=4)]. Two-way mixed ANOVA for effects of group, time, and group by time interactions were performed for the primary outcome.
Results: The Ach group had lower depression scores (2.3 vs 6.9, $p<0.03$) and higher learning scores (28.6 vs 15.8, $p<0.04$) at baseline (Table 1). Anticholinergic cognitive burden scores were higher in the Ach group postintervention (8.0 vs 4.0, $p<0.03$). Overall baseline to postintervention scores for the patient perception of bladder condition decreased ($p<0.01$) and recognition scores increased ($p<0.02$); scores did not differ by group. Baseline regional activation was similar across groups. Of 154 regions evaluated, 7 regions had significant ($p<0.05$) differences in activation by two-way mixed ANOVA (Table 2). Right mammillary body activation was higher in the Non-ach versus the Ach group (F-statistic 4.8, $p<0.04$) post-intervention. Over time (baseline to postintervention) right middle frontal gyrus (F-statistic 6.3, $p=0.02$), superior frontal gyrus (F-statistic 7.9, $p<0.01$) and right supramarginal gyrus (F-statistic 8.5, $p<0.01$) activity decreased. Group by time interactions were present in the left amygdala, left cerebellar lingual, left mamillary body. Due to the low sample size in this study, the nature and significance of interactions is unknown.
Conclusions: Activation in regions involved in working memory decreased from baseline to postintervention while memory scores remained similar over time. Decreased activation may indicate repetition of the cognitive task requires lower effort from regions involved in language processing, attention, and impulse control. This preliminary data is limited by a small sample size and powered trial with a larger sample is needed to adequately evaluate the effect of anticholinergic interventions.
Disclosure: No
Images:

Table 1. Clinical Characteristics of 12 subjects by group

	Non-Ach	Ach	
n	9	3	p
Age, y	62 (7.4)	59 (4.6)	0.47
Body Mass Index, kg/m^2	35 (7.8)	40 (5.1)	0.39
Symptom Bother score	61(21)	51 (13.9)	0.49
Quality of life score	112 (43)	112 (3.9)	1.00
Patient Perception of Bladder Condition*	4.0 (3.0, 5.0)	3.0 (3.0, 4.0)	0.37
Voids (n)	11 (4.0)	12 (2.5)	0.87
Urgency episodes (n)	8.8 (4.3)	10 (1.0)	0.65
Incontinence episodes (n)	4.9 (2.9)	2.7 (2.5)	0.26
Baseline Ach cognitive burden (ACB)*	4.0 (1.8, 5.0)	5.0 (1.0, 6.0)	0.52
Postintervention ACB *	4.0 (1.8, 5.0)	8.0 (4.0, 9.0)	**0.03**
Montreal Cognitive Assessment	27 (27, 29)	27 (27, 28)	0.28
Depression score, PHQ9	6.9 (3.1)	2.3 (1.5)	**0.04**
Anxiety score, HAMA *	6.0 (1.5, 13)	3.0 (3.0, 4.0)	0.46
Learning over trials score	16 (8.4)	29 (6.8)	**0.04**
Short term retention score	39 (14)	43 (15)	0.70
Long term retention score	109 (26)	103 (5.8)	0.74
Recognition score*	13 (12, 14)	14 (11, 15)	0.28
n (%)			
Postmenopausal (yes)	7 (78)	3 (100)	1.00
Ethnicity, Hispanic (yes)	0(0)	1 (33)	0.55
Race, White (yes)			-
Highest education level			0.51
Less than high school	2 (22)	0	
High school	3 (33)	2 (67)	
College	4(44)	1 (33)	

Mean (SD) or *median (IQR)

Table 2. Comparisons of Anticholinergic versus Non-Anticholinergic groups

Ach vs Non-Ach		Left Amygdala	Left Cerebellar Lingual	Left Mammillary Body	Right Mammillary Body	Right Middle Frontal g	Right Superior Frontal g	Right Supramarginal g
Group by Time	F-statistic	4.9	7.55	7.02	0.39	0.03	0.18	0.04
	p	**0.04**	**0.01**	**0.02**	0.54	0.87	0.67	0.85
Time Effect	F-statistic	0.02	0.44	1.57	0.86	6.31	7.91	8.53
	p	0.89	0.52	0.22	0.37	**0.02**	**0.01**	**0.01**
Group Effect	F-statistic	0.11	0.02	0.26	4.87	0.68	0.002	0.37
	p	0.75	0.89	0.61	**0.04**	0.42	0.92	0.55

g = gyrus

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Elastic Properties of the Pelvic Floor Muscles and Periurethral Structures in Patients with Stress Urinary Incontinence and Overactive Bladder Compared to the Control Group

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2 - George Mason University
3 - Inova Health System

Introduction: Urinary incontinence (UI) is common with a prevalence of about 20-30% in women. UI significantly affects the quality of life and has an estimated direct annual treatment cost of over 50 billion dollars in the United States. It consists of two very different entities. The first is stress urinary incontinence (SUI) and different theories for the development of SUI exist. The two leading theories include urethral hypermobility and decrease in maximal urethral closing pressure. Overactive bladder (OAB), on the other hand, is characterized by urgency, frequency, nocturia, and urge incontinence. OAB is manifested with detrusor overactivity. The main risk factor for OAB is advanced age, and it is not associated with parity. We hypothesized that pelvic floor tissue as examined by Ultrasound Shear Wave Elastography (SWE), is not associated with OAB or SUI status.
Objective: To investigate association of SWE of pelvic floor structures with SUI and the OAB status.
Methods: A single-center observational study including all comers to the urogynecological clinic. Data collection included acquisition and analysis of baseline characteristics, physical examination data, questionnaire scores, Pelvic Floor Disability Index (PDFI) and the Pelvic Floor Impact Questionnaire (PFIQ), pelvic floor sonographic (EVUS) measurements, and elastography measurements. SWE was carried out using the Aixplorer® (Supersonic Imagine) ultrasound machine with

the 12-3 MHz endocavity probe. The measurements were done using Kilopascal (kPa). The elastography measurements were taken at the periurethra, the levator ani and the perianal areas. Analysis was performed for SUI and OAB by using questions 17 and 16 in the PFDI questionnaire, respectively.

Results: One hundred fifteen patients were included in the analysis, 59 in the SUI group (51%) and 57 in the OAB group (50%), 50 of which reported both SUI and OAB, i.e. suffering from mixed incontinence. Subjects in the SUI and OAB groups were compared to control groups, including 56 subjects without SUI and 58 subjects without OAB in two separate analysis. The SUI and OAB groups were older ($p<0.001$), with higher BMI ($p<0.001$), and had higher prevalence of hypertension ($p<0.001$). Both SUI and OAB groups had higher scores on the UDI questionnaires. The SUI group also had higher POPQ results in all three pelvic floor compartments. The SWE findings are summarized in Tables 1 and 2. Elastography measurements of the SUI group compared to the control group were found equivocal in most areas, with lower shear moduli found in the external anal sphincter. Higher measurements were observed for the sagittal levator plate view. In the comparison of the OAB group to the control, lower measurements were found for the external anal sphincter, the axial view of the perineum in the OAB group, while all the other measures were found similar to the control group.

Conclusions: The pelvic floor SWE parameters are not significantly associated with SUI or OAB.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant to MEMIC, COSM, TRACKIMED

Images:

Table 1- Elastogram characteristics in subjects with stress urinary incontinence

Variables		All	SUI n=59	Other n=54	P value
Paraurethra	Rhabdosphincter	35.94±17.09	35.22±16.97	36.73±17.35	0.64
	Suburethra	34.22±14.99	33.92±16.65	34.54±16.42	0.83
	Trigone	25.64±13.87	26.01±13.26	25.20±14.68	0.77
Paraanal	External anal sphincter	55.54±23.42	52.99±24.25	58.59±22.26	0.23
	Perineum Axial	54.59±26.06	52.77±24.10	55.92±28.43	0.55
	Perineum sagittal	47.77±27.57	46.80±28.66	48.88±26.52	0.71
	Levator plate sagittal	54.59±22.89	57.68±24.80	51.02±20.10	0.13
Levator ani	Right eLAM	27.78±12.99	27.06±11.75	28.66±14.44	0.54
	Left eLAM	25.33±13.21	25.50±13.55	25.13±12.94	0.89
	Right mLAM	35.79±20.48	35.34±20.95	36.36±20.08	0.80
	Left mLAM	31.94±17.72	31.86±18.78	32.04±16.53	0.95

* mLAM- mid levator ani, eLAM- the Levator ani enthesis, SUI- stress urinary incontinence, OAB- overactive bladder

Table 2- Elastography characteristics in Overactive bladder subjects

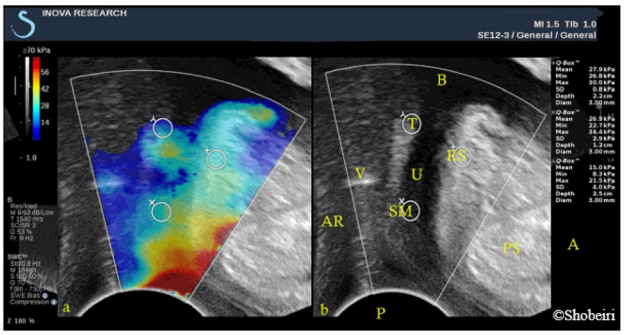
Variables		All n=114	OAB n=57	No OAB n=57	P value
Paraurethra	Rhabdosphincter	35.94±17.09	35.10±18.80	36.88±16.60	0.58
	Suburethra	34.22±14.99	33.58±13.98	34.70±16.13	0.70
	Trigone	25.64±13.87	25.87±13.84	25.57±14.11	0.91
ParaAnal	External anal sphincter	55.54±23.42	52.40±24.25	59.79±21.91	0.11
	Perineum Axial	54.59±26.06	51.48±23.80	58.07±28.30	0.21
	Perineum sagittal	47.77±27.57	48.88±28.91	46.79±26.48	0.71
	Levator plate sagittal	54.59±22.89	56.97±24.92	52.52±20.31	0.32
Levator ani	Right eLAM	27.78±12.99	26.79±12.22	29.21±13.82	0.34
	Left eLAM	25.33±13.21	24.95±12.90	26.09±13.63	0.66
	Right mLAM	35.79±20.48	34.58±19.64	37.48±21.59	0.47
	Left mLAM	31.94±17.72	30.69±18.56	33.19±16.95	0.48

* mLAM- mid levator ani, eLAM- the Levator ani enthesis, SUI- stress urinary incontinence, OAB- overactive bladder

Figure 1a, b- Elastogram measurements for suburethra

Figure 1a- 2D transperineal mid-sagittal SWE view of the bladder and the urethra in patients depicted as in the patient is in standing position

Figure 1b- 2D transperineal mid-sagittal view of the bladder and the urethra in patients depicted as in the patient is in standing position, with legends for the depicted areas from Figure 1a



A- Anterior B-Bladder, T-Trigone, U-Urethra, RS- Rhabdomyosphincter, V-Vagina, AR-Anorectum, SM- Smooth Muscle of Suburethra, PS- Pubic Symphysis, P-Probe

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Appearance of the Normal and Abnormal Perineal Membrane On MRI

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Introduction: Few critical pelvic floor structures are so seldom studied as the perineal membrane (PM). In recent research, women with prolapse have been shown to have 1) increased separation at the perineal body, 2) longer length of medial and lateral attachments, and 3) larger PM surface area compared to controls [1]. In the process of developing and publishing a technique to measure PM features on MRI [2], we have identified anatomy that contradicts what is shown in many medical illustrations and have found significant changes in PM morphology in the presence of levator injury. The appearance of PM structural changes in women with impaired pelvic support have not yet been described and could aid in advancing our knowledge of the prolapse mechanism.

Objective: To show the appearance of common variations and structural changes of the PM and describe detailed anatomy as seen on MRI in living women.

Methods: Secondary analysis of a convenience sample of MR scans from three prior studies. A total of 53 MRIs were included comprising 10 young nulliparous women, 26 primiparous women with normal support, and 17 young women (<40yo) with prolapse. The PM was identified on 2mm coronal scans and anatomical boundaries confirmed on axial and sagittal planes. Accurate identification of PM was based on consistent anatomical relationship to surrounding structures as established by previous research [3].

Results: The overall appearance of the PM on MRI differed between nullipara, primiparous women with normal support, and young women with prolapse. The most variability was seen in the dorsal aspect (adjacent to the vagina and perineal body), whereas the anatomy was similar

among different groups ventrally (near the urethra). In nullipara, the PM appeared as a mottled layer of tissue intimately connected to surrounding structures – e.g., levator ani and erectile tissue – and penetrated by dorsal clitoral branches of pudendal vessels. However, in parous women, particularly when levator defects were present, PM showed anatomical distortion with dorsal and caudal displacement of medial attachments, acquiring a more vertical orientation, and spreading of the fibers (Fig. 1). In prolapse, the greatest distortion was seen in the dorsal aspect. In addition to changes observed in parous women with normal support, a midline separation could be seen so that the two ends of the PM were not connected at the perineal body, with clear loss of spatial relationship between pelvic structures (Fig. 2). MR images showed that PM is only attached to the ischiopubic ramus 2/3rds of the way from the symphysis to the tuberosity, in contrast to common depictions that have it extend to the tuberosity (Fig.3).

Conclusions: Detailed anatomy of the PM can be seen on MRI. Structural abnormalities can be documented and their relationship to other pelvic floor injuries investigated. Depictions of the PM extending to a line between the ischial tuberosities are not correct. Comment: As reproducible techniques for assessing PM structural failure evolve with MRI and ultrasound, the biomechanical consequences of these abnormalities and potential surgical approaches to correct them can be explored. 1:AUGS/IUGA 2021; 2:PMID 33893825; 3:PMID 19375575

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Hologic

Images:

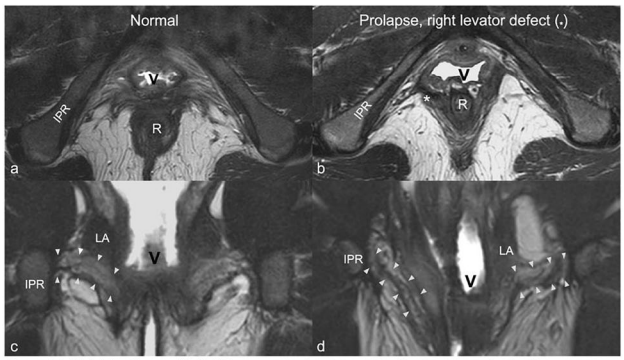

Figure 1. Axial (a,b) and coronal (c,d) MRI scan comparison between nulliparous woman (a,c) and young woman with prolapse with right levator avulsion (b,d). Note the marked asymmetry left/right in the prolapse woman caused by architectural distortion associated with levator defect (*), and caudal angulation of PM (between white arrowheads). Abbrev.: V, vagina; R, rectum; IPR, ischiopubic ramus; LA, levator ani muscle.

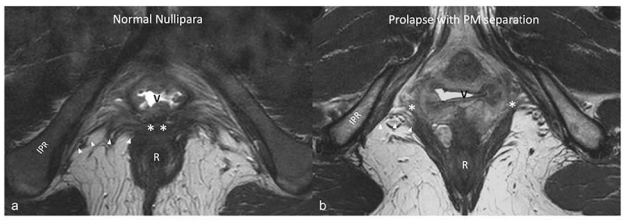

Figure 2. Axial MRI scans at the level of PM. Panel (a) shows a young nulliparous woman with close proximity of the two medial ends of the PM (**). Panel (b) shows a woman with prolapse. Separated ends of PM are each marked (*). White arrowheads indicate the dorsal limit of PM and are placed unilaterally for comparison with other side. Abbrev.: V, vagina; R, rectum; IPR, ischiopubic ramus.

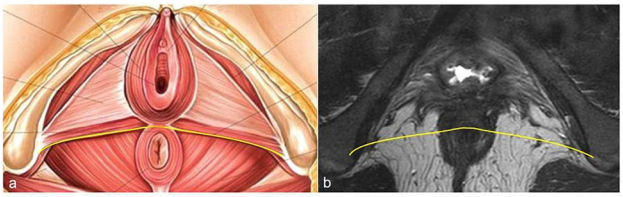

Figure 3. Comparison of typical medical illustration of PM (a) to its appearance on MRI (b). The solid yellow line shows the dorsal edge from a typical illustation superimposed on the MRI of a nullipara indicating its location far more dorsally than the anatomy seen in living women.

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Intra- and Interrater Reliability in Levator Ani Deficiency Scoring with 360° 3D Endovaginal Ultrasonography in Primiparous Women

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Introduction: Vaginal childbirth affects the levator ani muscle complex, as well as the perineal muscles including the anal sphincters. Recently, emphasis has been directed toward Levator ani deficiency, as this may lead to pelvic floor dysfunction further on in life. Levator ani avulsion, the detachment of the puborectal and pubo-/iliococcygeal muscles from the pubic bone, is found in 10–35% of vaginally delivered women and appears with a loss of muscle thickness and gaps between muscle and pubic bone. The appearance of the Levator ani muscle subdivisions and a scoring system for evaluation of Levator ani deficiency by endovaginal 3D ultrasound has previously been described, where each muscle subdivision is scored respectively. Any scoring system must be evaluated according to how consistent it is when used by different raters. Using ultrasonography adds clinically useful information when assessing the levator muscle and informing women of risks and benefits of e.g., prolapse surgery. A reliable and repeatable interpretation is paramount to patient care.

Objective: To evaluate the inter- and intra-rater and -probe reliability of assessing and scoring Levator ani muscle defects and to determine the level of repeatability of a previously published Levator ani deficiency scoring system (LAD-score).

Methods: One hundred and forty-one primiparas from a cohort of women who gave birth at two delivery clinics were examined at least one year after vaginal birth. Three-dimensional endovaginal ultrasound volumes were acquired by a single examiner using two different automated 360° endovaginal ultrasound probes. The ultrasound volumes were analyzed at a later point in time by two separate raters with different levels of experience (5 and 15 years of experience, respectively). The raters were blinded to clinical data and to each other's assessments. Each muscle subdivision was score respectively from zero points for an intact muscle to three points för a complete avulsion, resulting in a maximum of 18 points for a total bilateral avulsion. The scoring system also entails a possibility to categorize the muscle deficiency into three categories (mild, moderate, and severe). Correlations within (intra-rater) and between (inter-rater) raters and probes were calculated using Kendall's tau-b.

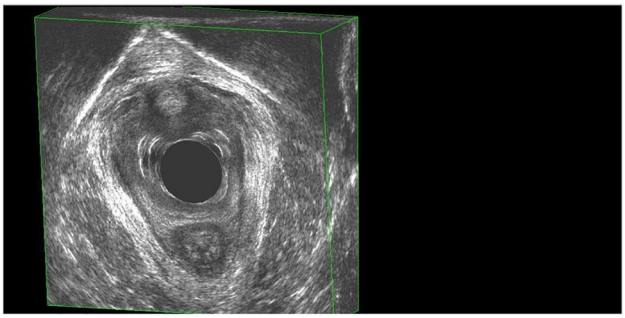
Results: Most ultrasound volumes were interpretable, but due to technical factors 6.4 to 10.6 % were missing dependent on rater, probe or repeated assessments. Intra- and inter-rater and -probe correlations were very high. Kendall's tau-b correlations for intra-rater comparisons

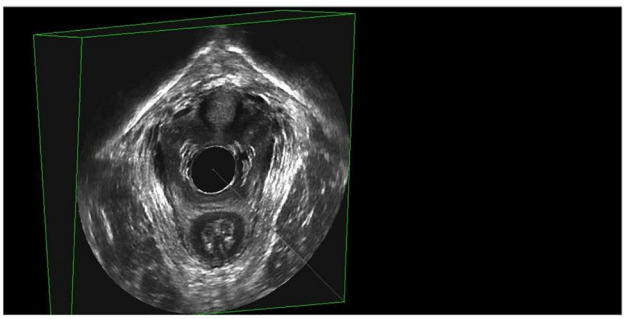
of LAD score and LAD category were 0.80 or higher for Rater 1 and >0.79 for Rater 2. The correlations for inter-rater comparisons of LAD score and LAD category were >0.9 for assessment 1 and >0.78 for assessment 2.

Conclusions: We found high correlations in the inter- and intra-rater and -probe comparisons. We therefore conclude that the Levator ani deficiency scoring system is a reproducible and applicable method. Hence, using the scoring system in clinical practice may improve concordant assessment of the levator ani muscle between diferent examinors thus providing more consistent information in day-to-day patient care.

Disclosure: No

Images:





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Cost-effectiveness of Urethral Bulking with Polyacrylamide Hydrogel Compared to Other Treatments for Stress Urinary Incontinence

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Introduction: Urethral bulking with polyacrylamide hydrogel (PAHG, Bulkamid) is a novel minimally-invasive treatment for stress urinary incontinence (SUI) that can be performed as an office or outpatient procedure. Compared to midurethral slings and other surgical treatment options, there are fewer complications and faster recovery after urethral bulking procedures. Recent data suggests higher success with PAHG than other traditional bulking agents, which can impact cost-effectiveness of treatment and could change utilization patterns.

Objective: Our objective was to perform a cost-effectiveness analysis comparing PAHG urethral bulking to other surgical and non-surgical SUI treatments.

Methods: We created a cost-effectiveness analysis using TreeAge Pro, modeling SUI treatments including no treatment, pessary, pelvic floor physical therapy, urethral bulking with PAHG, bulking with non-PAHG agents, midurethral slings (MUS), open and laparoscopic Burch colposuspension, and pubovaginal autologous slings. The time horizon was 2 years after initial treatment allowing for retreatment for recurrent SUI or complications. Expert urogynecologists developed SUI treatment pathways including recurrence with potential reoperation and complications. We assumed that 75% of PAHG procedures would be performed in the office and the rest at an outpatient surgical center. We modeled up to 3 rounds of urethral bulking in a 1-year period for both PAHG and non-PAHG treatments. Costs (2021 US$) included index surgery, surgical retreatment, and complication management including urinary retention, de novo urgency, and mesh exposure. We measured effectiveness with quality-adjusted-life years (QALY) which ranged from 0-2 over two years. The incremental cost-effectiveness ratio (ICER) was calculated for non-dominated treatment strategies (ΔCost/ΔQALY), with a willingness-to-pay (WTP) threshold of ICER<$100,000/QALY. Costs, probabilities, and utilities were gathered from Medicare reimbursement data and published literature.

Results: Treatment with MUS had the highest effectiveness (1.86 QALY) followed by PAHG (1.82 QALY), a difference less than the minimally important difference for utilities of 0.03 annually (0.06 per 2 years). The four cost-effective strategies included pessary, pelvic floor physical therapy, PAHG and MUS (Table 1). Non-PAHG bulking was dominated by PAHG with both lower costs and higher effectiveness. MUS similarly dominated other surgical strategies. When ≥58% of PAHG procedures were performed in the office setting (base case 75%), PAHG remained a cost-effective option. While MUS was the preferred treatment due to the highest QALYs with ICER<WTP, when compared to PAHG the 14.6% increase in costs (Δ $739) yielded only a 2.2% gain in QALY (Δ 0.04) at 2 years. Multiple one-way sensitivity analyses were performed, and no other reasonable thresholds would change the conclusions.

Conclusions: When the proportion of PAHG urethral bulking procedures performed in the office is greater than 58%, PAHG is a cost-effective treatment for SUI along with pessary, pelvic floor physical therapy and midurethral sling. While midurethral sling is more effective and therefore the preferred SUI treatment, alternate health systems with limited resources may place higher value on the lower costs with PAHG urethral bulking.

Disclosure: No

Images:

Table 1. Cost-effective Treatment Strategies for Stress Urinary Incontinence

STRATEGY	COST	QALY	Δ Cost	Δ QALY	ICER	
Pessary	1093.75	1.76	0	0	0	
Pelvic floor physical therapy	1289.79	1.77	196.04	0.01	23619.55	
No intervention	1446.48	1.50	156.69	-0.27		(Dominated)
PAHG urethral bulking	4312.04	1.82	3022.25	0.05	58182.36	
Non-PAHG urethral bulking	4586.38	1.77	274.34	-0.04	-	(Dominated)
Midurethral sling	5051.84	1.86	739.80	0.05	15946.02	
Open Burch colposuspension	7091.51	1.73	2039.67	-0.13	-	(Dominated)
Pubovaginal sling	7865.01	1.68	2813.18	-0.18	-	(Dominated)
Laparoscopic Burch colposuspension	8207.65	1.65	3155.81	-0.22	-	(Dominated)

PAHG= polyacrylamide hydrogel
Effectiveness was measured in Quality-Adjusted-Life-Years (QALY) at 2 years; ICER = Incremental cost-effectiveness ratio calculated as ΔCost/ΔQALY
*ICER= only calculated for the non-dominated treatment strategies

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Measurement of Preoperative and Postoperative Activity Using Consumer- Grade Fitness Trackers in Women Undergoing Retropubic Midurethral Sling for SUI – A Prospective Observational Study

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3 - Univerisity of Louisville School of Medicine

Introduction: Previous studies have demonstrated that for many women urinary incontinence can be an impediment to performing exercise. A midurethral sling (MUS) has repeatedly shown symptom improvement for women experiencing stress urinary incontinence (SUI) allowing a reasonable conclusion that activity rates/frequency of exercise should increase after treatment. Prior studies have associated increases in improved physical activity levels via validated questions. To our knowledge there are currently no prior reports of pre- and postoperative physical activity evaluation using objective measurement devices such as personal fitness trackers or accelerometers in patients undergoing surgical treatment for SUI.
Objective: To determine the difference between objectively measured preoperative and postoperative activity levels in women undergoing placement of a MUS for SUI.
Methods: Patients undergoing MUS placement were provided a commercial activity tracker that was worn on their wrists and paired to an application on their phones that measured heart rate and caloric expenditure. Participants were required to utilize the device for at least 1-week preoperatively and as often as possible for 6-months postoperatively. Concomitant surgeries for pelvic organ prolapse were permitted. Baseline demographics and surgical outcomes were collected. Paired t-tests were used to assess differences between time points and two sample t-tests and ANOVA were used to compare differences between groups; all comparisons were two-sided at a significance level of alpha=0.05.
Results: Seventy-two patients were able to provide at least one-week of preoperative data and consistently wore the activity tracker for up to 26-weeks postoperatively. The device was worn for a mean of 18.4 ±(SD=)12.1 days prior to surgery and 91.7 ±53.3 days postoperatively. Mean age of participants was 51.9 ±9.4 and 79% of subjects were BMI class overweight or obese. A concomitant hysterectomy was performed for 21% of the subjects, 34% had a concomitant prolapse reduction procedure and 54% had sling placement as the primary procedure. Preoperatively the mean daily caloric expenditure (MDCE) was 1673 ±316 while postoperatively the MDCE was 2018 ±330 calories/day. MDCE was significantly higher postoperatively compared to preoperatively (345 ±312, P<.001) and 26% of patients had a MDCE increase of 500-calories in the postoperative period. There was no significant difference in MDCE in the pre or postoperative period when comparing those who had a hysterectomy (n=15) versus those subjects who did not have a hysterectomy (n=57). Postoperative weeks 1–6 had a MDCE of 1967 ±349 calories/day which was significantly lower than the MDCE of 2120 ±339 calories/day in post-operative weeks 7-26 (p<.001). When comparing postoperative weeks 7-26 to weeks 1-6 there was a MDCE difference of 107 ±221 (p<.001) calories/day. While there were no significant differences in the preoperative MDCE when comparing body mass index (BMI) classes (p=0.296) – there was a significant difference in MDCE between the classes in the postoperative period. Regarding obesity class-II and III patients; 45% had at least a 500-MDCE increase in the postoperative period (p=0.005) with patients in the obese BMI categories having the largest increase in MDCE.
Conclusions: Treatment of stress urinary incontinence with a midurethral sling is associated with a greater caloric expenditure in the postoperative period.
Disclosure: No

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Time to OnabotulinumtoxinA Therapy for OAB: Time for a Change?

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Introduction: Treatment guidelines for overactive bladder (OAB) progress in a stepwise fashion. Third-line interventions, including percutaneous tibial nerve stimulation (PTNS), sacral neuromodulation (SNM) and onabotulinumtoxinA, often take months before initiation. The American Urologic Association (AUA) and Society for Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU) guidelines recommend first-line treatments for 8 to 12 weeks, second-line treatments for 4 to 8 weeks, followed by third line treatments if needed. Data from employer-insured populations demonstrate that median time to third-line therapies is 37.7 months, significantly longer than 20-week period recommended by AUA and SUFU.
Objective: The primary objective of this study was to review time from initial consultation to Female Pelvic Medicine and Reconstructive Surgery (FPMRS) to receiving onabotulinumtoxinA at a safety net hospital and to analyze predictors of length of time to first treatment with onabotulinumtoxinA in an under- and uninsured population.
Methods: A single-center retrospective review was performed of FPMRS patients undergoing onabotulinumtoxinA for OAB from 2015-2021. Demographic and OAB therapy characteristics were collected and included in univariate linear regression analysis for the primary outcome of time to first onabotulinumtoxinA. Variables in univariate analysis that were significant with a p<0.10 were included in a multivariate analysis and considered significant if p<0.05. A similar, separate linear regression analysis was conducted for the secondary outcome of treatment success. Success was defined as repeated treatments with onabotulinumtoxinA or reported subjective success without additional management of OAB
Results: 66 patients were included in the analysis with a median time from consultation to first onabotulinumtoxinA treatment of 331.5 days (interquartile range 178-533 days). Among the included patients, 57.5% had undergone PTNS prior to onabotulinumtoxinA and 16.7% had received monthly maintenance therapy (Table 1). Medical management of OAB was used in 89.3% patients with an average of 1.74 (SD 1.0) medications tried. Patients who underwent subsequent treatments with onabotulinumtoxinA received an average of 3.23 (SD 1.6) treatments. Eighty-two percent met criteria for success with onabotulinumtoxinA. In multivariate analysis, increasing use of PTNS therapy (B: 23 days per additional one PTNS session, 95% Confidence Interval (CI95%): 5 – 42 days, p=0.01) and a prior incontinence procedure (B: 249 days, CI95%: 22 – 477 days, p=0.03) were significantly associated with increased length of time from first consultation to onabotulinumtoxinA. No demographic or OAB therapy characteristics were associated with treatment success with onabotulinumtoxinA in univariate analysis.
Conclusions: In our study, time to onabotulinumtoxinA from initial consultation for patients in a safety net hospital was 331.5 days and eight-two percent of patients found treatment successful. Given the efficacy of onabotulinumtoxinA in this study sample and others, consideration should be given for more diligent follow-up for patients with

OAB and possible reshaping of counseling regarding third-line management of OAB.
Disclosure: No
Images:

Table 1. Patient and Case Demographics for Urogynecological Surgeries

	Pre-Intervention (N=29)	Post-Intervention (N=19)
Patient Age	55 (10)	57 (9)
Patient Hispanic/Latino Ethnicity	27 (93%)	18 (95%)
Number of Surgeons	4	4
Procedure Type		
Colpocleisis, Colpopexy, +/- Colporrhaphy	10 (35%)	2 (11%)
Total Vaginal Hysterectomy	12 (41%)	11 (58%)
Repair Posterior Vagina	2 (7%)	0 (0%)
Revision Sling	2 (7%)	0 (0%)
Robotic-Assisted Supracervical Hysterectomy	2 (7%)	3 (16%)
Robotic-Assisted Sacral Colpopexy	1 (3%)	2 (11%)
Repair Vesicovaginal Fistula	0 (0%)	1 (5%)

Pre-intervention period corresponds to dates 1/1/2019-6/1/2019.
Post-intervention period corresponds to dates 1/1/2021-6/30/2021.
Values are reported as N (%) or mean (SD)

Table 2. Peri- and Post-Operative ERAS Outcomes for Urogynecological Surgeries

	Pre-Intervention (N=29)	Post-Intervention (N=19)	*P*
Outpatient Surgery	5 (17%)	17 (90%)	<0.01
PACU Length of Stay (minutes)	171 (114)	245 (113)	0.04
Length of Stay (days)	0.9 (0.4)	0.3 (0.3)	<0.01
ED Return within 30 days	0 (0%)	2 (11%)	0.15
Medication Usage			
Intraoperative Intravenous Fluids (milliliters)	1685 (876)	1210 (488)	0.03
Acetaminophen	1 (3%)	14 (74%)	<0.01
Local Anesthetic	12 (41%)	10 (53%)	0.57
Ketorolac	7 (24%)	5 (26%)	1.00
Ketamine	0 (0%)	5 (26%)	<0.01
Ondansetron	28 (97%)	18 (95%)	1.00
Overall Morphine Milligram Equivalents			0.02
Total Perioperative	57 (28)	42 (12)	<0.01
Intraoperative	45 (21)	36 (15)	0.09
Postoperative (PACU +/- Ward)	12 (13)	6 (8)	0.03
Number of Opioids Pills Prescribed	12 (5)	10 (5)	0.08

Pre-intervention period corresponds to dates 1/1/2019-6/1/2019.
Post-intervention period corresponds to dates 1/1/2021-6/30/2021.
Values are reported as N (%) or mean (SD)
ED, Emergency Department; PACU, Post Anesthesia Care Unit

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Time to Perceived Onset of Symptom Improvement with Axonics Therapy in the ARTISTRY Post Market Registry

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3 - UPMC
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6 - Louisiana State University
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8 - Institute for Female Pelvic Medicine and Reconstructive Surgery
9 - Vanderbilt University
10 - University of California, Irvine

Introduction: The ARTISTRY post-market registry is intended to collect data on the Axonics rechargeable sacral neuromodulation (SNM) System in a real-world setting. Historically there has been the belief that patients with urinary retention (UR) and fecal incontinence (FI) require a longer external trial phase to determine benefit, yet there is little data to support this.
Objective: The purpose of this analysis is to determine the time to therapy response stratified by indication during the external trial phase.
Methods: Participants underwent an Axonics SNM external trial with either a peripheral nerve evaluation (PNE) or an Advanced Trial (AT) (i.e., tined lead trial). At the end of the trial, participants were asked when they first noticed symptom improvement and the implanting physician determined whether or not they were a Trial Responder (TR). Onset of symptom improvement for both trial types were analyzed by clinical indication.
Results: Two hundred three (203) participants are currently enrolled in ARTISTRY and data was available in 141 participants who underwent an Axonics SNM external trial with either a PNE or Advanced Trial (AT). Of the 87 participants that received a PNE lead, 80 (92%) were TR. The average duration of the PNE trial was 5.0 days. On average, TRs reported symptom improvement at 1.4 days (±0.7). Of the 54 participants that received an Advanced Trial, 100% were TR. The average duration of the AT was 9.3 days. On average, TRs reported symptom improvement at 2.1 days (±1.7). Table 1 and Table 2 shows symptom improvement stratified by indication to Urinary Retention (UR), Fecal Incontinence (FI), and Urinary Urge Incontinence (UUI) with Urinary Frequency (UF).
Conclusions: The ARTISTRY post-market registry provides evidence of the real-world performance of the Axonics System, including the external trial system. Registry participants had a high Trial Responder rate (92% PNE TR rate, 100% AT TR rate) and reported experiencing improvement in symptoms very early in the trial period (1-3 days depending on condition and trial type). Time to response to SNM therapy stratified by indication has not been well studied. Historically, UR and FI patients have been thought to require a longer trial period to determine response to therapy. The initial results from the ARTISTRY registry suggest that patients, regardless of condition, may start experiencing symptom relief within days of starting their external trial. This suggests that UR and FI patients with adequate symptom frequency may be candidates for a PNE trial, although further analysis is needed.
Disclosure: Yes, this is sponsored by industry/sponsor: Axonics, Inc.
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: Axonics, Inc.
Images:

Table 1: PNE Trial Responders, Symptom Improvement by Indication

	Mean (SD) duration of trial phase (days)	Average number of days until symptoms first improved
UR (n=10)	5.8 (±2.94)	1.2 (±0.79)
FI + dual incontinence (n=17)	5.2 (±1.31)	1.4 (±0.49)
UUI + UF (n=53)	4.9 (±1.95)	1.4 (±0.77)

Table 2: Advanced Trial Responders, Symptom Improvement by Indication

	Mean (SD) duration of trial phase (days)	Average number of days until symptoms first improved
UR (n=19)	11.7 (±4.68)	2.6 (±1.83)
FI + dual incontinence (n=6)	9.2 (±0.41)	2.0 (±2.16)
UUI + UF (n=29)	9.6 (±2.93)	2.1 (±1.49)

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Transcutaneous Posterior Tibial Nerve Stimulation in Older Adults with Overactive Bladder

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Introduction: Overactive bladder (OAB) is twice as prevalent among older adults, with respect to younger individuals. This is due to physiological conditions associated with aging, as well as the comorbidities affecting this population. Treatment options for OAB include transcutaneous posterior tibial nerve stimulation (TcPTNS), which has been shown to control symptoms. The objective of this study is to evaluate the effectiveness of this therapy in older adults with OAB.
Objective: The objective of this study is to evaluate the effectiveness of Tc PTNS in older adults with OAB
Methods: A prospective cohort study was conducted. The initial sample included 37 female patients, 65 years of age and older, with OAB; of those, patients who had undergone surgery for urinary incontinence, untreated prolapse of the third degree or greater, frequent urinary tract infections, a possible neurological basis for their symptoms, cognitive deficits that impeded their ability to follow instructions, and/or those with a life expectancy of fewer than 6 months were excluded. The final analysis included the complete data from 30 patients, who completed a three-day voiding diary and quality of life survey (OAB-Q), before and after receiving TcPTNS, which was self-administered daily by each patient in her home over the course of a month. Prior to the intervention, patients were trained to conduct TcPTNS, and correct use of the technique was validated before patients were given a transcutaneous electrical nerve stimulation (TENS) unit with superficial electrodes to use at home. A positive treatment response was at least a 50% reduction in episodes of urinary urgency. STATA V.12.1 was used for data analysis, with a p-value of 5%.
Results: The average age of the 30 patients who completed treatment was 79 years (range: 68 – 90). No adverse effects were reported. After the monthly TcPTNS treatment, there was a significant improvement in all the parameters measured with the voiding dairy and quality of life survey, compared to the baseline data ($p<0.05$). The overall response to treatment was 53%, and 13% of patients reported no episodes of incontinence post TcPTNS.
Conclusions: TcPTNS is an effective tool for controlling symptoms of OAB in older adults. Nevertheless, the treatment response among this sample was less than that reported in a younger population. Daily stimulation for a month achieves therapeutic effects similar to those described after weekly or bi-weekly stimulation over the course of three months.
Disclosure: No
Images:

Table 1: Results of the evaluation of the voiding diary in older adults with overactive bladder, treated with TcPTNS.

Parameter	Pre-treatment	Post-treatment	*p*-value
Results expressed in the 50th percentile (25th, 75th)			
Daily frequency	9.33 (8.67; 11.67)	7.16 (5.67; 9.67)	<0.0001
Intake	1491.67(123.33; 1666.67)	1416.67(1133.33; 1669.67)	0.7037
SUI*	0.5 (0; 1.67)	0.33 (0; 1)	0.0351
Nocturia	2 (1.33; 2.33)	1 (0; 1.33)	<0.0001
Diapers used	2.5 (1.0; 3.33)	1.17 (0.33; 2)	0.0002
Urge incontinence	2.67 (1.33; 5.67)	0.83(0; 2.67)	<0.0001
Urgency	4.67 (3.33; 7.67)	2.17(1.33; 3.33)	<0.0001

*Stress urinary incontinence.

Table 2: Results of the OAB-Q quality of life survey in older adults with overactive bladder treated with TcPTNS.

OAB-Q domains	Pre-treatment	Post-treatment	*p*-value
Results expressed in the 50th percentile (25th, 75th)			
1	48 (43; 48)	24 (19; 28)	<0.001
2	77.5 (69; 84)	34.5 (28; 45)	<0.001
3	43.5 (37; 51)	23 (20; 30)	<0.001

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The Impact of Antimuscarinic use on Dementia Incidence Among Women with Overactive Bladder

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Introduction: Overactive bladder (OAB) is a common condition among women. As first-line behavioral changes have low adherence rates, second-line treatment with antimuscarinics (AM) is widely used in women with OAB symptoms. Recent studies have reported an association between AM drugs and the onset of dementia.
Objective: To compare the incidence of dementia among women with OAB treated with AM and those who received other treatments. To determine whether the incidence of dementia is associated with specific AM drugs for OAB, cumulative AM exposure, and total anticholinergic burden.
Methods: This retrospective cohort study was IRB exempt. The electronic medical record was queried for ICD-9 and 10 codes to identify women aged 55 and older with a diagnosis of OAB and/or urgency incontinence. Women were excluded if they did not have at least 10 years of follow-up in the medical record system. Demographic data and comorbidities were abstracted. The total number of doses of AM used for OAB was calculated for each study subject. Three previously published anticholinergic risk scores were used to assess total anticholinergic burden for each study subject. Incidence of dementia and AM exposures were calculated as percentages. Mean cumulative AM exposures were calculated for women with and without dementia. Bivariate analysis was used to identify demographic and clinical factors associated with dementia. Multivariate logistic regression modeling is represented as odds ratios.
Results: 16,249 women aged 55 and older had a diagnosis of OAB during the study period. Of these, 7,141 (44%) received AM treatment for OAB and 9,108 chose alternative treatments. The number of women with incident dementia during the study period was 1,200 (7.3%). Women with dementia were older, less likely to be white, and had more comorbidities those without a dementia diagnosis (Table 1). AM use was more common in the dementia group (55% vs 43%, $p < 0.001$). Oxybutynin and Trospium were the most commonly prescribed AM for OAB, with 50% of women in the dementia group using oxybutynin and 20% using trospium, compared to 40% and 11% of those without dementia, respectively. The mean cumulative dose of oxybutynin and the mean anticholinergic risk score was higher in the dementia group. On multivariate analysis, only age at OAB diagnosis (OR 1.13, CI 1.12-1.14, $p<0.001$), diabetes (OR 1.43 CI 1.22-1.68, $p<0.001$) and AM use (OR 1.26 CI 1.11-1.43, $p < 0.001$) were associated with a diagnosis of dementia.
Conclusions: Dementia in women diagnosed with OAB is associated with any AM use and higher cumulative exposure to AM. This association is maintained when controlling for coexistent comorbidities.
Disclosure: No
Images:

Table 1. Demographic and clinical characteristics by dementia diagnosis

	No dementia diagnosis (*n*=15049) Mean (SD)	Dementia diagnosis (*n*=1200) Mean (SD)	*p**
Age at OAB diagnosis (years)	66.0 (7.7)	74.3 (7.7)	<0.001
	No. (%)	No. (%)	*p**
Race/ethnicity			<0.001
White	8511 (57)	632 (53)	
Hispanic/Latino	2533 (17)	217 (18)	
Asian/Pacific Islander	1908 (13)	144 (12)	
African American	1106 (7)	86 (7)	
Other	991 (7)	121 (10)	
BMI ≥25	10908 (72)	825 (69)	0.005
Tobacco use	4052 (27)	334 (28)	0.495
Diabetes	2317 (15)	268 (22)	<0.001
Chronic steroid use	117 (1)	12 (1)	0.403
Hypertension	9346 (62)	933 (78)	<0.001
Coronary artery disease	1061 (7)	165 (14)	<0.001
Chronic kidney disease	702 (5)	127 (11)	<0.001
Depression	2633 (18)	235 (20)	0.068
Any antimuscarinic use	6482 (43)	659 (55)	<0.001
Darifenacin use	63 (0)	8 (1)	0.210
Fesoterodine use	14 (0)	3 (0)	0.106
Oxybutynin use	5954 (40)	594 (50)	<0.001
Solifenacin use	102 (1)	5 (0)	0.282
Tolterodine use	867 (6)	79 (7)	0.242
Trospium use	1624 (11)	234 (20)	<0.001

**P*-values calculated from Wilcoxon rank sum test for continuous factors and from chi-square test for independence for categorical factors.

Table 2. Antimuscarinic dose and anticholinergic scores by dementia diagnosis

	No dementia diagnosis (*n*=15049) Mean (SD)	Dementia diagnosis (*n*=1200) Mean (SD)	*p**
Darifenacin (dose, mg)	18.03 (514.44)	53.63 (1323.42)	0.210
Fesoterodine (dose, mg)	2.28 (121.52)	2.20 (46.44)	0.106
Oxybutynin (dose, mg)	2875.40 (8079.41)	3852.38 (8099.79)	<0.001
Solifenacin (dose, mg)	26.94 (629.17)	10.88 (308.98)	0.281
Tolterodine (dose, mg)	112.74 (886.29)	168.60 (1284.83)	0.219
Trospium (dose, mg)	1734.31 (9446.82)	3443.15 (12618.08)	<0.001
ACB score	1.45 (1.65)	2.03 (1.82)	<0.001
ARS score	0.72 (1.16)	0.96 (1.17)	<0.001
ADS score	1.35 (1.59)	1.84 (1.70)	<0.001

**P*-values calculated from Wilcoxon rank sum test.

Multivariable logistic regression model for odds of dementia diagnosis

	OR (95% CI)	*p*
Any antimuscarinic use	1.26 (1.11-1.43)	<0.001
Age at OAB diagnosis	1.13 (1.12-1.14)	<0.001
Race/ethnicity		
White	1.00	—
Hispanic/Latino	1.14 (0.96-1.35)	0.136
Asian/Pacific Islander	1.11 (0.91-1.35)	0.302
African American	1.01 (0.79-1.30)	0.919
Other	1.69 (1.35-2.10)	<0.001
Diabetes	1.43 (1.22-1.68)	<0.001
Chronic steroid use	1.03 (0.55-1.94)	0.919
Hypertension	1.11 (0.95-1.29)	0.199
Coronary artery disease	1.18 (0.98-1.43)	0.082
Chronic kidney disease	1.17 (0.94-1.45)	0.165

OR=odds ratio, CI=confidence interval.

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Racial Differences in Urinary Catheter Use Among Female Long-Term Care Residents

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Introduction: Long-term care (LTC) facilities are often segregated, and facilities with high proportions of racial minorities have lower quality performance and resident quality of life scores. Generally, intermittent catheterization is preferred over indwelling catheters for patients with bladder emptying dysfunction for prevention of catheter-associated urinary tract infections. Women are at higher risk of developing bacteriuria from indwelling urinary catheters, compared to men. To date, racial disparities in catheter utilization among women in LTC have not been reported.

Objective: We aimed to assess racial differences in indwelling urinary catheterization and intermittent catheterization rates among LTC female residents.

Methods: We performed a cross-sectional analysis using the 2019 Minimum Data Set 3.0, which includes data from nursing home residents in Medicare/Medicaid-certified LTC facilities in the United States. All women residing in a qualifying LTC facility on April 4, 2019 were included to assess a cross-section of the nursing home population. Bivariate analyses were performed. Race and ethnicity were defined by resident/family report. To better assess the relationship between race and urinary catheter use, we devised a multivariable logistic regression model which included Hispanic ethnicity and variables associated with indwelling catheter use, including age, body mass index (BMI), dementia, recent surgery, neurogenic bladder, recent urinary tract infection, stage 3 or 4 pressure ulcer, life expectancy less than 6 months, comatose state, and facility-level indwelling catheter prevalence.

Results: Our study cohort was composed of 496,580 women with mean (standard deviation (SD)) age 79.5 (12.0) years and mean (SD) body mass index of 27.9 (8.6) kg/m2 (Table 1). LTC female residents were predominantly White (77.7%), followed by Black (12.0%), Other (7.9%), Asian (1.7%), American Indian/Alaskan Native (0.4%), and Hawaiian/Pacific Islander (0.3%). Additionally, 4.4% of residents were of Hispanic ethnicity. There were 5.8% (n=28,900) of female residents with an indwelling catheter and 0.35% (n=1,750) who used intermittent catheterization. American Indian/Alaskan Native residents were most likely to have an indwelling catheter (7.9%) and Black residents were least likely (5.2%) (Table 2). Conversely, White residents were most likely to use intermittent catheterization (0.38%) and American Indian/Alaskan Native residents were least likely (0.17%). Using our multivariable logistic regression model, we found that Black residents had a lesser odds of having an indwelling catheter compared to White women (aOR 0.88, 95% CI [0.84, 0.92]), while Asian and "Other" race residents had a greater odds (aOR 1.11, 95% CI [1.003, 1.23]; aOR 1.09, 95% CI [1.02, 1.17]) (Table 3). Black residents also had a lesser odds compared to White residents of using intermittent catheterization (aOR 0.59, 95% CI [0.49, 0.71]).

Conclusions: This study suggests that racial disparities in both indwelling catheter use and intermittent catheterization persist in LTC female residents. Further research is warranted to better understand the finding of lower indwelling catheterization rates in Black women in LTC facilities, which may suggest either undertreatment of these patients or better quality of care.

Disclosure: No

Images:

Table 1: Demographics of Study Cohort	
	Female LTC Residents (n=496,580)
Age	79.5 (12.0)
Body mass index (kg/m^2)	27.9 (8.6)
Race	
White	385,936 (77.7)
Black	59,570 (12.0)
Asian	8,341 (1.68)
American Indian/Alaskan Native	1,804 (0.4)
Hawaiian/Pacific Islander	1,707 (0.3)
Other	39,222 (7.9)
Hispanic ethnicity	21,955 (4.4)
Indwelling catheter use	28,900 (5.8)
Intermittent catheter use	1,750 (0.35%
Diagnosis of dementia	144,865 (29.2)
Recent Surgery	58,138 (11.7)
Neurogenic Bladder	10,106 (2.0)
Recent Urinary Tract Infection	51,050 (10.3)
Presence of Stage 3 or 4 Sacral Ulcer	11,002 (2.2)
Life expectancy less than 6 months	12,416 (2.5)
Comatose state	512 (0.1)
Data presented as mean (standard deviation), n (%)	

Table 2: Urinary Catherization Rates by Race among Women in LTC Facilities						
	White	Black	Asian	American Indian/Alaskan Native	Hawaiian/ Pacific Islander	Other
Indwelling Catheter	22,634 (5.9)	3,069 (5.2)	476 (5.7)	142 (7.9)	101 (5.9)	2,478 (6.3)
Intermittent Catheterization	1,471 (0.38)	134 (0.22)	21 (0.25)	3 (0.17)	4 (0.23)	117 (0.30)
Data are expressed as n (%) where n is number of women in each racial group and % represents the percentage of women per racial group.						

Table 3: Racial Differences in Urinary Catheterization among Women in LTC Facilities				
	Indwelling Catheter	p value	Intermittent Catheterization	p value
A. Bivariate analyses				
Black	0.87 [0.84 – 0.91]	<0.01*	0.59 [0.49 – 0.71]	<0.01*
Asian	0.97 [0.88 – 1.07]	0.55	0.66 [0.41 – 1.05]	0.08
American Indian/Alaskan Native	1.37 [1.16 – 1.62]	<0.01*	0.44 [0.14 – 1.35]	0.15
Hawaiian/Pacific Islander	1.01 [0.80 – 1.27]	0.94	0.61 [0.23 – 1.66]	0.34
Other	1.08 [1.03 – 1.13]	<0.01*	0.78 [0.64 – 0.95]	0.01*
B. Multivariable logistic regression model†				
Black	0.89 [0.84 – 0.92]	<0.01*	0.59 [0.49 – 0.71]	<0.01*
Asian	1.11 [1.00 – 1.23]	0.04*	0.64 [0.40 – 1.03]	0.06
American Indian/Alaskan Native	1.18 [0.98 – 1.42]	0.09	0.41 [0.14 – 1.27]	0.12
Hawaiian/Pacific Islander	1.08 [0.86 –1.36]	0.49	0.46 [0.15 – 1.45]	0.19
Other	1.09 [1.02 – 1.17]	0.02*	1.07 [0.84 –1.37]	0.57
Results are compared to White women and expressed as an odds ratio followed by 95% confidence interval in brackets. *Significance is designated as p<0.05 †Controlling for age, body mass index (BMI), Hispanic ethnicity, comatose state, diagnosis of dementia, recent urinary tract infection, diagnosis of neurogenic bladder, recent surgery, stage 3 or 4 sacral ulcer, life expectancy of less than 6 months, and facility-level indwelling catheterization rate.				

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Pelvic Floor Disorder Assessment of Knowledge and Symptoms: an Educational Intervention for Spanish-Speaking Women (PAKS Study)

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Introduction: Pelvic floor health workshops have previously been shown to be effective in improving postpartum knowledge, performance of pelvic floor muscle exercises, and bowel-specific quality of life.
Objective: The purpose of this study is to determine if an educational workshop on pelvic floor disorders (PFDs) administered via a video intervention will increase Spanish-speaking women's knowledge of PFDs and decrease pelvic floor symptoms post-intervention. We hypothesize that Spanish-speaking women that undergo an informative workshop on PFDs in Spanish are more likely to raise their level of knowledge surrounding PFDs and improve their pelvic floor symptoms.
Methods: We conducted a prospective cohort study on women 18 and older. Women viewed a 20-minute video on PFDs. To assess changes in knowledge, we performed a repeated measures analysis of the mean difference of the scores on the Prolapse and Incontinence Knowledge Questionnaire (PIKQ) at baseline, immediately post-intervention and at 4 weeks post-intervention. To assess changes in pelvic floor symptoms we calculated the mean difference in scores of the Pelvic Floor Distress Inventory-20 (PFDI) at baseline and at 4 weeks post-intervention. Changes in the PIKQ and PFDI scores were compared with the Wilcoxon signed-rank test. The association between the change in scores and participant characteristics were tested with the Wilcoxon rank-sum, Kruskal-Wallis test and Spearman correlation coefficients.
Results: 114 women were enrolled and 104 women completed the intervention and questionnaires. The mean age was 50.0 years (SD 14.5). Baseline mean PIKQ total score was 15.4 (SD 5.6). Baseline mean PIKQ pelvic organ prolapse (POP) subscore was 7.7 (SD 3.0), and mean PIKQ urinary incontinence (UI) subscore was 7.8 (SD 3.0). Immediate post-intervention mean PIKQ total score was 20.3 (SD 5) and 19.0 (4.9) at 4 weeks post-intervention. Immediate post-intervention mean PIKQ POP subscore was 10.3 (SD 2.6) and UI subscore was 10.0 (2.6). At 4 weeks, mean PIKQ POP subscore was 9.6 (SD 2.5) and UI subscore was 9.4 (2.6). The mean difference in PIKQ total, POP and UI subscores, from baseline to immediate post-intervention, showed a significant improvement in all scores (p<0.001). This improvement in scores continued at 4 weeks post-intervention. PFDI scores also showed an improvement in symptoms at 4 weeks, with baseline mean PFDI score of 37.8 (SD 38.9) and decreased to 35.1 (SD 36.4), however this was not significant.
Conclusions: Findings provide evidence to support the feasibility and efficacy of a video-based educational intervention to improve knowledge of pelvic floor disorders in Spanish-speaking women.
Disclosure: No
Images:

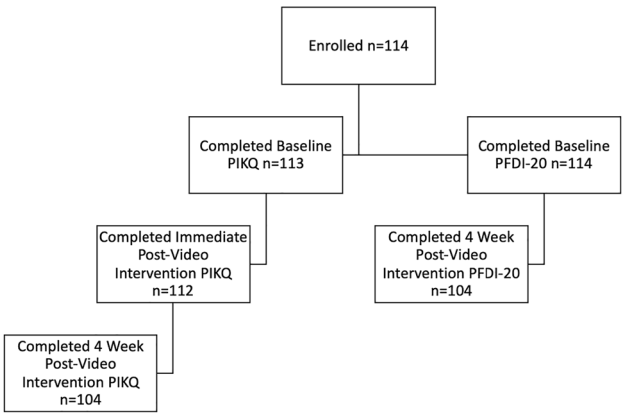

Figure 1. Flow sheet summarizing study time points and assessments given to participants
PIKQ, Prolapse and Incontinence Knowledge Questionnaire; PFDI-20, Pelvic Floor Distress Inventory-20

Table 1: Baseline Characteristics of Study Participants

	Participants (n=114)
Characteristic	
Age, mean (SD)	50.0 (14.5)
Place of Origin/Ethnicity, n (%)	
Dominican Republic	36 (31.6)
El Salvador	30 (26.3)
Mexico	12 (10.5)
Ecuador	11 (9.7)
Honduras	4 (3.5)
Puerto Rico	4 (3.5)
Uruguay	4 (3.5)
Colombia	3 (2.6)
Guatemala	3 (2.6)
Peru	3 (2.6)
United States	2 (1.8)
Cuba	1 (0.9)
Nicaragua	1 (0.9)
Primary Language, n (%)	
Spanish	87 (76.3)
Bilingual (English & Spanish)	27 (23.7)
Education Level, n (%)	
Grade school or less	7 (6.1)
Middle school	7 (6.1)
High school	34 (29.8)
Technical school	2 (1.8)
College	51 (44.7)
Graduate school	13 (11.4)
Previously Seen by a Urogynecologist/Urologist, n (%)	
Yes	22 (19.3)
No	92 (80.7)
Health Insurance, n (%)	
Yes	97 (85.1)
No	17 (14.9)
Employed, n (%)	
Yes	86 (75.4)
No	28 (24.6)

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Urinary Incontinence Prevalence and Care-seeking in a Predominantly Black / African-American Sample of Community-dwelling Women

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2 - Survey of the Health of Wisconsin (SHOW)

Introduction: Despite the fact that race and ethnicity are sociocultural rather than biological constructs, multiple population-based studies report a lower prevalence of urinary incontinence (UI) among African-American or Black women. While African-American / Black women remain under-represented in most population health surveys, our state oversampled African-American / Black residents in 2018-2019 and collected information about UI symptoms and care-seeking as well as other social determinants of health.
Objective: To describe the prevalence of, and factors associated with, UI and UI care-seeking in a population-based sample of predominantly African-American / Black community-dwelling women.
Methods: The Survey of the Health of X is an annual health survey that conducts household interviews of a population-based sample. The 2018 cohort oversampled individuals who identified as Black or African-American race. Demographic and social determinants of health data were ascertained using face-to-face interviews and self-administered questionnaires. Incontinence symptoms and care-seeking history were ascertained via audio computer-assisted self-interview using the Sandvik Severity Index and this dichotomous question: "Have you ever talked to a health care provider, such as a doctor, nurse practitioner, or physician's assistant, about your urine leakage?" Women with a Sandvik Severity Index score greater, or equal to, 1 were categorized as having UI. Descriptive analyses characterized the sample overall and compared women with and without UI. Among women with UI, descriptive analyses identified factors associated with care-seeking; because this sample was smaller, several variables were recoded into fewer groups to comply with privacy protection requirements that all reported cells contain more than 5 participants.
Results: Among 242 female participants in the 2018-2019 SHOX cohort, 232 (96%) provided data about UI and were included in this analysis. The prevalence of UI was 47% (108/232), of whom 53% (n=57) had previously sought care. Among those with UI, 39% experienced symptoms less than monthly, 20% monthly, 22% weekly, and 19% daily. Table 1 describes the sample stratified by urinary continence status. Table 2 characterizes those who had and had not previously sought care. Women with UI were more likely to have increased age, higher body mass index (BMI), hypertension, and depression, and were more likely to be post-menopausal. Women with UI were more likely to have used Medicare insurance in the last year and to need help reading medical instructions sometimes or more frequently. Whereas there was no association between education level and experiencing UI, women with a high school education or less were more likely to report prior UI care-seeking. Women with depression, UI weekly or more frequently, need for help reading medical instructions sometimes or more frequently, and Medicaid insurance were more likely to report prior care-seeking for UI; women with employer or private insurance were less likely to report UI care-seeking.
Conclusions: In this sample of community-dwelling women, most of whom identify as Black or African-American, UI was common and associated with similar factors to those seen in other populations. Prior UI care-seeking was reported by more than half of those with UI and was more common among more vulnerable women and those with more frequent UI symptoms.
Disclosure: No
Images:

Table 1. Characteristics of overall sample, stratified by urinary incontinence (UI) status

Characteristics	All (N = 232)		Women with UI (N = 108)		Women without UI (N = 124)		p-value
	n	% or mean (SD)	n	% or mean (SD)	n	% or mean (SD)	
Age (in years)							**0.0055**
18-39	76	32.8	24	22.2	52	41.9	
40-59	90	38.8	47	43.5	43	34.7	
60-94	66	28.4	37	34.3	29	23.4	
Age (in years) - continuous	232	48.6 (16.4)	108	52.3 (14.4)	124	45.4 (17.5)	**0.0015**
Self-reported race and ethnicity							0.17
Non-Hispanic Black	194	83.6	85	78.7	109	87.9	
Non-Hispanic White	18	7.8	11	10.2	7	5.7	
Other (Hispanic (any race), other race or multiracial)	20	8.6	12	11.1	8	6.5	
Education Level							0.32
High school graduate or equivalent or less	110	47.4	55	50.9	55	44.4	
Some college or more	122	52.6	53	49.1	69	55.6	
Household Income							0.66
Below 100% Federal Poverty Level (FPL)	110	48.9	53	50.5	57	47.5	
Above 100% FPL	115	51.1	52	49.5	63	52.5	
Body Mass Index (BMI) in kg/m²							**0.0076**
<25	27	12.0	10	9.5	17	14.0	
25-30	55	24.3	17	16.2	38	31.4	
>30	144	63.7	78	74.3	66	54.5	
BMI - continuous	226	34.3 (8.9)	105	36.0 (9.2)	121	32.8 (8.4)	**0.0070**
Diabetes							0.11
No	149	64.8	63	58.3	86	70.5	
Pre-Diabetes	40	17.4	24	22.2	16	13.1	
Type 1 or 2 Diabetes	41	17.8	21	19.4	20	16.4	
Hypertension	122	52.8	65	60.2	57	46.3	**0.036**
Depression	56	24.5	34	31.8	22	18.0	**0.016**
Vaginal parity	203	2.8 (2.0)	103	3.0 (2.1)	103	2.7 (1.9)	0.33
Postmenopausal status	107	46.1	58	53.7	49	39.5	**0.031**
Had health insurance in last year	210	90.5	102	94.4	108	87.1	0.057
Type(s) of health insurance used in last year							
Employer, Union, or Private	59	26.8	25	24.3	34	29.1	0.42
Medicare	54	24.6	33	32.0	21	18.0	**0.015**
Medicaid	136	61.8	67	65.1	69	59.0	0.35
Usual place to go when feels sick / needs advice							0.10
Clinic or doctor's office, outpatient hospital unit, community health center	155	66.8	78	72.2	77	62.1	
Hospital emergency room, no usual place, other	77	33.2	30	27.8	47	37.9	
Needs someone to help read medical instructions							**0.033**
Never/Rarely	178	76.7	76	70.4	102	82.3	
Sometimes/Often/Always	54	23.3	32	29.6	22	17.7	
Uses internet for medical advice	108	46.5	57	52.8	51	41.1	0.08

Table 2. Characteristics of women with urinary incontinence (UI) stratified by care-seeking status

Characteristics	Women with UI (N = 108)		Has sought care (N = 57)		Has not sought care (N = 51)		p-value
	n	% or mean (SD)	n	% or mean (SD)	n	% or mean (SD)	
Age (in years)							0.21
18-39	24	22.2	9	15.8	15	29.4	
40-59	47	43.5	28	49.1	19	37.3	
60-94	37	34.3	20	35.1	17	33.3	
Age (in years) - continuous	108	52.3 (14.4)	57	54.0 (13.1)	51	50.3 (15.7)	0.19
Self-reported race							0.31
Non-Hispanic Black	85	78.8	47	82.5	38	74.5	
All Others	23	21.3	10	17.5	13	25.5	
Education Level							**0.021**
High school graduate or equivalent or less	55	50.9	35	61.4	20	39.2	
Some college or more	53	49.1	22	38.6	31	60.8	
Household Income							0.064
Below 100% Federal Poverty Level (FPL)	53	50.5	33	58.9	20	40.8	
Above 100% FPL	52	49.5	23	41.1	29	59.2	
Body Mass Index (BMI) in kg/m^2							0.13
< 30	27	25.7	11	19.6	16	32.6	
≥ 30	78	74.3	45	80.4	33	67.4	
BMI - continuous	105	36.0 (9.2)	56	36.4 (9.3)	49	35.6 (9.2)	0.65
Diabetes							0.36
No	63	58.3	31	54.4	32	62.8	
Pre-Diabetes	24	22.2	12	21.0	12	23.5	
Type 1 or 2 Diabetes	21	19.4	14	34.6	7	13.7	
Hypertension	65	60.2	39	68.4	26	51.0	0.065
Depression	34	31.8	25	44.6	9	17.7	**0.0027**
Vaginal parity	100	3.0 (2.1)	53	3.3 (2.3)	47	2.6 (1.8)	0.071
Postmenopausal status	58	53.7	33	57.9	25	49.0	0.36
UI Frequency							**0.0010**
Monthly or less	63	76.0	25	44.6	38	76.0	
Weekly or daily	43	24.0	31	55.4	12	24.0	
Had health insurance in last year	102	94.4	56	98.2	46	90.2	0.068
Type(s) of health insurance used in last year							
Employer, Union, or Private	25	24.3	8	14.5	17	35.4	**0.014**
Medicare	33	32.0	20	36.4	13	27.1	0.31
Medicaid	67	65.0	42	76.4	25	52.1	**0.0099**
Usual place to go when feels sick / needs advice							0.94
Clinic or doctor's office, outpatient hospital unit, community health center	78	72.2	41	71.9	37	72.5	
Hospital emergency room, no usual place, other	30	27.8	16	28.1	14	27.5	
Needs someone to help read medical instructions							**0.0099**
Never/Rarely	76	70.4	34	59.7	42	82.3	
Sometimes/Often/Always	32	29.6	23	40.3	9	17.7	
Uses internet for medical advice	57	52.8	27	47.4	30	58.8	0.23

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Public Awareness of Obesity and Risk of Pelvic Floor Disorders

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Introduction: Obesity is an established risk factor for pelvic floor disorders (PFDs). Despite evidence demonstrating this correlation, limited information exists about the public awareness of these associations.

Objective: Our primary objective was to assess awareness of the association between obesity and PFDs using body mass index (BMI) cohorts, comparing women with BMI < 30 kg/m2 versus BMI ≥ 30 kg/m2.

Methods: We conducted a prospective cohort study using an anonymous, self-administered survey, offered to all English-speaking women ≥ age 18 years presenting outpatient to the Department of Obstetrics and Gynecology between 3/2021 and 1/2022 at a single institution. The survey included demographics, height and weight self-assessment, personal history of PFDs, and obesity knowledge and its association with PFDs. Our primary outcome was the rate of women correctly identifying that obesity increases the risk of urinary incontinence (UI), fecal incontinence (FI), and pelvic organ prolapse (POP). Logistic regression was completed to evaluate the association between predictor variables and knowledge.

Results: Of 1605 eligible patients, 272 (16.9%) completed the survey. Six were excluded for not providing a height and weight, preventing cohort assignment. Of the 266 surveys analyzed, 159 women (59.8%) had BMI < 30 kg/m2 and 107 (40.2%) had BMI ≥ 30 kg/m2. Compared to the higher BMI cohort, the lower BMI cohort was older (mean age of 54.4 ± 18.3 vs 48.4 ± 17.5 years, p=0.008). Education also differed, with lower rates of college/university in the BMI < 30 kg/m2 group (37.1% vs 49.5%) but higher rates of graduate/professional school (35.2% vs 19.6%), p=0.04. Race, household income, health insurance status, bariatric surgery, or rates of PFDs did not vary between the groups. Both groups had relatively high rates of PFDs, 67.9% (BMI < 30 kg/m2) vs 65.4% (BMI ≥ 30 kg/m2). UI was the most commonly reported PFD. Groups did not vary in their ability to identify obesity as a risk factor for PFDs, although the BMI < 30 kg/m2 group had lower rates of correctly identifying the implications of weight loss on UI than the obese group (27.7% vs 45.8%, p=0.002). The association between obesity and UI was the most common correctly identified PFD association for both groups. When controlling for obesity, race, household income, education, having a PFD, and obesity in logistic regression analysis, obesity remained associated with knowledge about the implications of weight loss on UI (OR 2.5, 95% CI 1.5, 4.4). Highest grade completed was significantly associated with knowledge of the association between obesity and PFDs (OR 1.6, 95% CI 1.1, 2.3) and the implications of weight loss on UI (OR 1.7, 95% CI 1.2, 2.4).

Conclusions: Our findings suggest that obese women may have increased awareness of the potential implications of weight loss on UI, although the groups did not differ in the rates of correct identification of the increased risk of PFDs with obesity. In our population, there was relatively poor knowledge of the implications of obesity and weight loss on PFDs, and therefore opportunities exist for patient education.

Disclosure: No

Images:

Table 1: Demographic Characteristics

	BMI < 30 kg/m^2 (n=159)	BMI ≥ 30 kg/m^2 (n=107)	P value
Mean age (years)	54.4 ± 18.3	48.4 ± 17.5	0.008
Race/Ethnicity			0.41
Caucasian	136 (85.5)	85 (79.4)	
African American	8 (5.0)	7 (6.5)	
Hispanic	6 (3.8)	9 (8.4)	
Asian	5 (3.1)	1 (0.9)	
Other	3 (1.9)	4 (3.7)	
Household income (per year)			0.41
< $25,000	13 (8.2)	15 (14.0)	
≥ $25,000 to < $35,000	12 (7.5)	11 (10.3)	
≥ $35,000 to < $50,000	15 (9.4)	14 (13.1)	
≥ $50,000 to < $75,000	32 (20.1)	20 (18.7)	
≥ $75,000	72 (45.3)	38 (35.5)	
No answer	14 (8.8)	8 (7.5)	
Highest education			0.04
8th grade or less	2 (1.3)	2 (1.9)	
High school/GED	40 (25.2)	27 (25.2)	
Vocational school	1 (0.63)	3 (2.8)	
College/university	59 (37.1)	53 (49.5)	
Graduate or professional school	56 (35.2)	21 (19.6)	
No answer	1 (0.63)	1 (0.9)	
Health insurance (yes)	147 (92.4)	99 (92.5)	0.69
Prior bariatric surgery	4 (2.5)	10 (9.3)	0.14
Experience any PFD	108 (67.9)	70 (65.4)	0.66
UI	86 (54.1)	61 (57.0)	0.58
FI	25 (15.7)	13 (12.1)	0.44
POP	48 (30.2)	27 (25.2)	0.39

Data presented as mean ± standard deviation or n (%) unless otherwise specified

PFD = Pelvic Floor Disorder
UI = Urinary Incontinence
FI = Fecal Incontinence
POP = Pelvic Organ Prolapse

Table 2: Knowledge of Association Between Obesity and Pelvic Floor Disorders (PFDs)

	BMI < 30 kg/m^2 (n=159)	BMI ≥ 30 kg/m^2 (n=107)	P value
Correct all 3 PFDs	44 (27.7)	36 (33.6)	0.32
Correct UI	90 (56.6)	66 (61.7)	0.44
Correct FI/ABL	56 (35.2)	46 (43.0)	0.22
Correct POP	62 (39.0)	53 (49.5)	0.11
Correct weight loss improves UI	44 (27.7)	49 (45.8)	0.002

Data presented as n (%)

PFD = Pelvic Floor Disorder
UI = Urinary Incontinence
FI = Fecal Incontinence
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Barriers And Facilitators of Black and Minority Ethnic Women Attending Follow-up After Anal Sphincter Injury

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3 - Manchester University NHS Foundation Trust

Introduction: Black and Minority Ethnicities (BAME) are disproportionately affected by multiple barriers to health care with documented increase in maternal mortality and morbidity (ref MBBRACE) . An audit in our institution has identified that BAME women are less likely to attend for follow-up after obstetric anal sphincter injury (OASI). The underlying reasons for this are not known but are likely to be multifactorial.
Objective: The aim of this study was to develop and pilot a questionnaire to explore the experience of BAME women sustaining an OASI and factors affecting their attendance for follow-up care.
Methods: The questionnaire was developed with involvement of the Caribbean & African Health Network (CAHN) and BAME women. It was piloted on three groups of women in a large university teaching hospital with over 9,000 deliveries, 40% of which are BAME women. As this was a qualitative study no sample size was calculated. The questionnaire was piloted on three groups of women.W Group 1 were 10 women on the postnatal ward who sustained OASI. Group 2 were 10 women attending the perineal clinic for follow-up care. Group 3: were 9 women who did not attend their follow-up clinic appointment. A thematic analysis of answers was carried out.
Results: Pakistani ethnicity was most common in all three groups (15/29,52%) and English was the most used language in groups 1 and 2(9/11,82%) with 4/9, 44% leaving this question unanswered in group 3. Women's perception of their care in the hospital and at their perineal clinic appointments seemed to vary widely with strong sentiments and responses to their care. The words used by the women are depicted using a Word Cloud in Figure 1. More women in Group 3 felt that their care was affected by their ethnicity(4/9,44%) and the language they spoke (3/9,33%). The majoority of women who did not attend follow-up care were not aware of the type of tear they had(6/9,67%), said this had not been discussed with them(5/9,56%), did not recall seeing a women's health physiotherapist(8/9,89%), receiving information about their tear or were unsure of this(8/9, 89%). More than a third did not recall receiving information about attending the perineal clinic(4/9,44%) with over half(5/9,56%) who did remember this, not attending the appointment.
Conclusions: This study pilots a questionnaire which identified that women who do not attend the perineal clinic report more concerns that their ethnicity impacted their care and recall receiving less information and support. Future research needs to explore this and look at targeting information provision at women who do not appear to be accessing postnatal care.
Disclosure: No
Images:

Figure: Word Cloud of the feelings and comments that women made in the study

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Cognitive Function Following Surgery for Pelvic Organ Prolapse

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Introduction: Women undergoing surgery for pelvic organ prolapse (POP) are older and at high risk for post-operative cognitive dysfunction, a decline in cognition occurring after a surgical procedure.
Objective: We sought to explore the effect of surgery for POP on cognitive function. Our hypothesis was that memory scores would worsen immediately after surgery but recover to baseline at the first post-operative clinic visit.
Methods: We conducted a prospective cohort study of women 60 years and older undergoing surgery for POP. Exclusion criteria included a Mini-Mental State Exam score below 24, non-English speaking, severe visual/auditory disorder, alcoholism or drug dependence. Basic demographic information and medical history were collected. Participants completed a battery of computer-based neurocognitive tests at the pre-operative visit, on post-operative day one (postop visit 1) and at the first post-operative clinic visit (postop visit 2). The battery included four tests assessing various neurocognitive domains: a scene-encoding task (episodic memory), an n-back task (working memory), the balloon analog risk task (BART, assesses risk taking), and the psychomotor vigilance test (PVT, assesses attention). Our primary outcome was performance on the scene-encoding memory task. Three scores were calculated for the scene-encoding task: hit rate (rate of correctly identifying a previously seen image), false alarm rate (rate of incorrectly indicating that an image had been seen previously), and d' (a calculated measure of signal detection accuracy). N-back task accuracy rates were calculated for both 1- and 2-back tasks. BART score was calculated as the average number of pumps for balloons which did not pop. The PVT assesses ability to sustain attention. Outcomes measured are the number of lapses and median response time. We had 90% power to detect a difference of one standard-deviation in the scene-encoding task at an alpha of 0.05. Paired t-test or Wilcoxon signed rank test were used as appropriate to compare preop and postop scores.
Results: We recruited 30 patients with characteristics listed in Table 1. The majority underwent vaginal surgery (52%), followed by robotic (26%) and abdominal (22%). Most were ASA class II (68%) and most were not frail. Mean operative time was 197 minutes. All patients received combination intravenous and inhalation anesthesia. Table 2 lists cognitive performance across visits. Performance on the scene-encoding task as assessed by d' and hit rate worsened at postop visit 1 but recovered by postop visit 2. Hit rate did not change significantly from the preop visit to postop visit 2. Performance on the n-back task and BART did not worsen between the preop visit

and postop visit 2. Performance on the PVT worsened significantly from preop to postop visit 1 but recovered by postop visit 2. Figure 1 shows the trend of performance on the episodic memory test (primary outcome) over all three visits.

Conclusions: Performance on a highly sensitive episodic memory test did not worsen between pre-operative and delayed post-operative assessments in older women undergoing POP surgery. Overall, performance on memory and attention tasks was most affected in the immediate post-operative period but recovered by the delayed post-operative visit.

Disclosure: No

Images:

Table 1: Demographic and clinical characteristics

Age (years)	69.0 (±5.1)
BMI (kg/m²)	27.1 (± 4.6)
Race	**n (%)**
White	26 (86.7%)
Black or African-American	2 (6.7%)
American Indian	1 (3.3%)
Asian	1 (3.3%)
Unknown/Not Reported	1 (3.3%)
Native Hawaiian or Other Pacific Islander	0 (0.0%)
Other	0 (0%)
Education	**n (%)**
Less than high school	0 (0%)
High school/GED	10 (33.3%)
Associate college degree	2 (6.7%)
Four year college degree	9 (30.0%)
Graduate degree	8 (26.7%)
Unknown/Not Reported	1 (3.3%)
MMSE score, median (range)	30 (25-30)
UDI-6[1] score	5.5 (± 3.7)
HADS[2] score	
Depression subscale	1.8 (± 1.9)
Anxiety subscale	3.6 (± 3.3)
Baseline LLFDI[3] score	67.3 (± 6.9)
Fried Frailty Index	**n (%)**
Not frail	28 (93.3%)
Frail	1 (0.03%)
PSQI[4] score	5.6 (± 3.2)
ESS[5] score	5.7 (± 4.0)

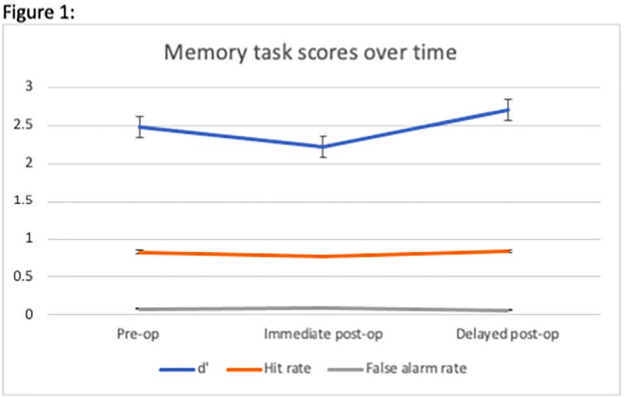
1. Urinary Distress Inventory, Short Form
2. Hospital Anxiety and Depression Scale
3. Late Life Function and Disability Index
4. Pittsburg Sleep Quality Index
5. Epworth Sleepiness Scale

Table 2: Performance on neurocognitive test battery

Test	Neurocognitive Domain	Mean preop visit score	Mean postop visit 1 score	Preop vs. postop visit 1 (p-value)	Mean postop visit 2 score	Preop vs. postop visit 2 (p-value)
Scene encoding task	**Episodic memory**					
Hit rate↑		0.83	0.77	**0.003†**	0.84	0.64†
False alarm rate↓		0.08	0.09	0.188*	0.06	**0.013†**
D' rate↑		2.47	2.22	**0.012***	2.70	**0.035***
N-back	**Working memory**					
1-back accuracy rate↑		0.945	0.937	0.531†	0.954	0.674†
2-back accuracy rate↑		0.927	0.939	0.458†	0.964	**0.024†**
Balloon Analogue Risk Task	**Risk taking**					
Number of adjusted pumps		8.407	8.152	0.541*	8.278	0.539*
Psychomotor Vigilance Test	**Attention**					
Median reaction time (ms)↓		309.96	352.00	**0.0002†**	319.38	0.505*
Number of lapses↓		5.11	10.33	**0.0065†**	3.73	0.416†

Bold values indicate statistically significant differences
↑ Higher score for this outcome indicates better cognitive function in this domain
↓Higher score for this outcome indicates worse cognitive function in this domain
* Paired t-test
† Wilcoxon signed rank test#

Figure 1:



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Perioperative Pain Management with Opioid Analgesics in Vaginal Sacrocolpopexy vs Laparoscopic Sacrocolpopexy

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Introduction: The most common non-pregnancy-related major surgery performed on women in the US is a hysterectomy. Up to 40% of women may experience vaginal vault prolapse after a hysterectomy, entailing the surgical procedure, sacrocolpopexy for correction. Though the use of perioperative pain medications is highly investigated, limited studies have examined the usage of pain medication following vaginal vs laparoscopic sacrocolpopexy, and they have been restricted to smaller sample sizes.

Objective: Our objective was to assess the association of perioperative opioid usage following these minimally invasive sacrocolpopexy surgeries, using a large national claims database.

Methods: A US health research network (the TriNetX Diamond Network) of over 200 million patients, encompassing prescriptions and healthcare encounters, was queried from 2009 to 2022. Perioperative opioid analgesic usage was assessed amongst adult women (18+) with intra-peritoneal or extra-peritoneal vaginal colpopexy (CPT 57283 and 57282, respectively) following vaginal vault prolapse after hysterectomy (ICD-10 N99.3), in comparison to adult women with laparoscopic colpopexy (CPT 57425) following vaginal vault prolapse after hysterectomy. Propensity-matching between the cohorts for age, overweight and obesity (E66), chronic kidney disease (N18), hypertensive disease (I10-I16), ischemic heart disease (I20-I25), liver disease (K70-K77), obstructive sleep apnea (G47.33), and pelvic and perineal pain (R10.2) was conducted excluding those with any prior or concurrent diagnosis of opioid misuse (F11.1) or opioid dependence (F11.2).

Results: 35,612 women underwent vaginal or laparoscopic sacrocolpopexy. 15,866 women underwent vaginal sacrocolpopexy, and an equivalent number of propensity-score matched women underwent laparoscopic sacrocolpopexy (Table 1). 28.12% of women with vaginal sacrocolpopexy were prescribed opioid analgesics within 7 days of surgery, whereas 32.66% of women with laparoscopic sacrocolpopexy were prescribed opioid analgesics within 7 days of surgery (P<0.0001). With both a vaginal and laparoscopic approach, women that were prescribed opioids within 7 days of initial surgery continued to receive opioid prescriptions 9-15 months after surgery at a significantly greater rate compared to those that were never given opioids post-surgery (Risk Ratio: 1.95, 95% CI 1.76-2.17; RR:1.62, 95% CI 1.44-1.81, respectively) (Figure 1). No difference was observed for opioid misuse (F11.1) or opioid dependence (F11.2) within one year from surgery amongst the two groups of women (P=0.84). However, amongst women who received opioids post-surgery, those that had a vaginal sacrocolpopexy had a significantly higher rate of new persistent opioid usage 9-15 months after surgery than those that had

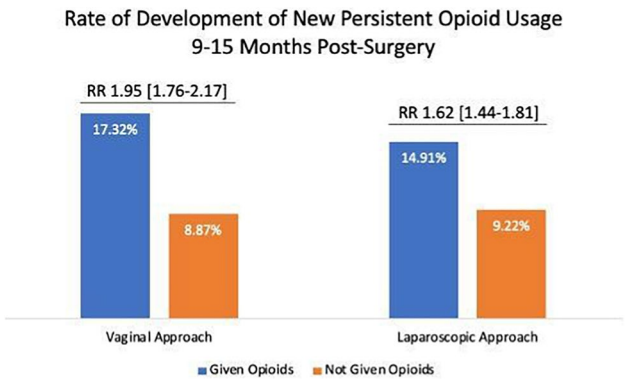
a laparoscopic sacrocolpopexy (RR:1.21, 95% CI 1.10-1.33) (Figure 2). Amongst women who did not receive opioids post-surgery, no difference was observed in new persistent opioid usage 9-15 months after surgery (RR: 1.04, 95% CI 0.96-1.13) (Figure 2).

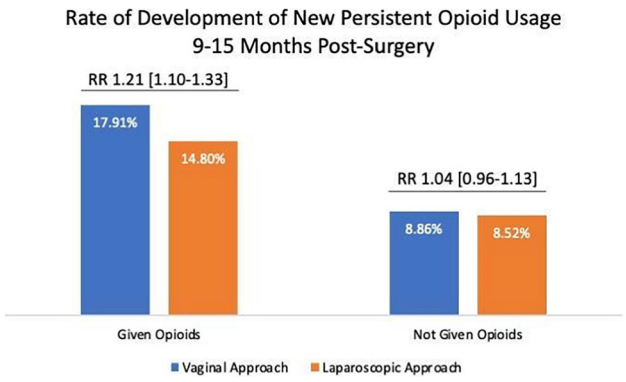
Conclusions: In this large analysis based on US claims, we showed a higher rate of opioid analgesic prescription following laparoscopic sacrocolpopexy vs. vaginal sacrocolpopexy. We also demonstrated that opioid dependence may occur post-surgery if patients are given opioids within 7 days of either surgical approach. Strikingly, we revealed opioid dependence to be more related to the usage of opioid post-surgery rather than the surgical approach taken. Thus, it is crucial for urogynecologists to be aware of their opioid prescription patterns.

Disclosure: No

Images:

	Vaginal Approach	Laparoscopic Approach	P-Value
Women	15866	15866	
Age (years)	63.6 ± 10.3	63.6 ± 10.3	0.91
Overweight and Obesity	16.08%	15.84%	0.56
Chronic Kidney Disease	3.95%	4.20%	0.26
Hypertensive Disease	47.47%	46.75%	0.20
Ischemic Heart Disease	8.95%	9.16%	0.52
Liver Disease	6.14%	6.18%	0.89
Obstructive Sleep Apnea	5.96%	6.14%	0.51
Pelvic and Perineal Pain	15.69%	16.43%	0.07





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Pain after Permanent versus Delayed-Absorbable Monofilament Suture for Vaginal Graft Attachment During Minimally-Invasive Total Hysterectomy and Sacrocolpopexy (PACT) – long-term follow up

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2 - Atrium Health
3 - University of North Carolina
4 - Medical College of Georgia at Augusta University
5 - Atrium Wake Forest Baptist Health

Introduction: Data regarding long-term pain outcomes after prolapse surgery are limited. As sacrocolpopexy is increasingly utilized for primary treatment of pelvic organ prolapse, understanding the relationship between abdominal mesh-augmented prolapse repairs and patient-reported pain outcomes has become increasingly important.

Objective: To evaluate pain in women undergoing minimally-invasive total hysterectomy and sacrocolpopexy (TLH+SCP) with a light-weight polypropylene mesh (Upsylon™) > 2 years after surgery.

Methods: This is a planned secondary-analysis of a 5-site randomized trial comparing permanent (2-0 GoreTex) vs absorbable suture (2-0 PDS) for vaginal attachment of a lightweight polypropylene y-mesh during TLH+SCP in women with stage≥II prolapse. Sociodemographic, exam and pain data were collected at baseline, 1 year and > 2 years after surgery. Our primary outcome was patient reported pain or dyspareunia at > 2 years. Secondary outcomes were associated risk factors for patient reported pain at > 2 years.

Results: Of the 185 subjects eligible for enrollment in the e-PACT study, 106 subjects enrolled (78 in person and 28 via questionnaire only). Of these, 98 subjects (96%) completed either in person examinations or completed study questionnaires regarding pain and are included in this analysis. The median follow-up was 50 months [42, 58]. The mean age±SD was 61±10 years and BMI was 29±6 kg/m2. The majority were White (90%), menopausal (82%) and had Stage III or IV prolapse. Of these participants, 11% reported pain at baseline. Of the sexually active participants (56/98), 25 (45%) reported dyspareunia at baseline. At > 2 years, 27 (28%) reported any pain: 11 (14%) reported dyspareunia on questionnaires, 4 (5%) reported pelvic pain on questionnaires and 11 (14%) of those who had an in-person exam reported pain. Of the 10 participants who reported pain in their lower abdomen or genital area, one reported "moderate" bother while 9 participants reported being only "somewhat" bothered by their pain. Of participants who reported pain or dyspareunia at baseline prior to surgery, 20 (59%) reported resolution of their symptoms at 2-years. Of those who did not report pain or dyspareunia at baseline, 13 (20%) reported new pain at 2-years. Of the 3 women who had pain elicited at the vaginal apex on exam, none reported dyspareunia (2 were not sexually active). No differences were appreciated in most characteristics, including mesh/suture exposure, between subjects who reported pain at 2 years and those who did not (Table 1). The only characteristic associated with any pain at 2 years was a baseline history of pain or dyspareunia (52% vs 28%, p = 0.03). On multiple logistic regression controlling for age and baseline pain or dyspareunia, baseline pain or dyspareunia was associated with a nearly 3-fold increased risk of reporting any pain at 2 years following TLH+SCP (aOR 2.7, 95%CI 1.1-6.9).

Conclusions: The majority of women with pain at baseline, report resolution of pain > 2 years following TLH+SCP; however, 1 in 5 women report de novo pain of some bother. Baseline history of pain or dyspareunia is the only factor associated with an increased likelihood of experiencing pain 2 years following surgery.
Disclosure: Yes, this is sponsored by industry/sponsor: Boston Scientific
Clarification: No industry support in study design or execution
Any of the authors act as a consultant, employee or shareholder of an industry for: Boston Scientific, Current Butler Snow, Ethicon
Images:

Table 1. Characteristics of Cohort

Total Subjects (n = 98)	Any Pain at 2 years (n = 27)	No Pain at 2 years (n = 71)	P value
Age (years)[a]	60 (10)	60 (9)	0.84
Body mass index (kg/m^2)[a]	29 (7)	29 (5)	0.80
Race			0.15
White	22 (82)	66 (93)	
Black	5 (18)	4 (6)	
Other	0 (0)	1 (1)	
Menopause			0.12
Premenopausal	8 (30)	10 (14)	
Postmenopausal	19 (70)	61 (86)	
POPQ baseline[b]			
Aa	2 (0.50, 3)	2 (0, 3)	0.70
Ba	2 (1, 3.5)	2 (0, 4)	0.57
C	0 (1.5, 2)	0 (-3, 3)	0.42
D	-3 (-4.5, -1)	-4 (-5, -0.5)	0.37
Ap	-1 (-1.5, 0)	-1 (-2, 0)	0.22
Bp	-0.50 (-1, 0)	-1 (-2, 0)	0.10
TVL	10 (9, 10)	10 (9, 10)	0.44
GH	5 (4.25, 6.25)	4.5 (4, 5)	0.02
PB	3 (2.5, 3.5)	3 (2, 3)	0.22
GoreTex suture	18 (67)	35 (49)	0.19
Concomitant Surgery			
Cystocele	1 (4)	0 (0)	0.64
Rectocele	14 (52)	31 (44)	0.51
Perineorrhaphy	8 (30)	18 (25)	0.75
Urethropexy	0 (0)	4 (6)	0.46
Sling	10 (37)	35 (49)	0.47
Any pain at baseline	14 (52)	20 (28)	0.03
Dyspareunia at baseline	10 (37)	15 (21)	0.11
Pain at baseline	5 (19)	6 (9)	0.16
Sexually active	18 (67)	38 (57)	0.79
Complications at 1 year			
Any mesh exposure	2 (7)	7 (10)	1.00
Any suture exposure	0 (0)	1 (1)	1.00
Dyspareunia at 1 year	5 (19)	11 (15)	0.51
Pain at 1 year	0 (0)	5 (7)	0.32
Mesh/suture exposure at 2 years	0 (0)	6 (8)	0.18
POPQ Stage at 2 years[c]			0.02
Stage 0	7 (26)	17 (24)	
Stage 1	9 (33)	19 (27)	
Stage 2	6 (22)	11 (16)	
Stage 3	4 (15)	2 (3)	
Stage 4	0 (0)	1 (1)	
Follow up (months)[b]	46 [41, 55]	51 [42, 58]	0.25

Values presented as n(%) unless otherwise noted.
[a] Mean (standard deviation); [b] Median [Interquartile range]; [c] Missing values = 22

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WITHDRAWN - Predictors of Prolonged Admission after Outpatient Female Pelvic Reconstructive Surgery
WITHDRAWN

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Evaluating the Long-Term Impact of Implementing Standardized Postoperative Opioid Prescribing Guidelines Following Pelvic Organ Prolapse Surgery
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1 - Mayo Clinic
2 - MD

Introduction: There is considerable concern regarding the volume of opioid medications prescribed postoperatively, as well as the rate of prescription opioid-related adverse events including persistent opioid use, diversion, overdose, and drug related mortality. We previously implemented a tiered opioid prescribing guideline following pelvic organ prolapse surgery within our surgical division, but the long-term impact on practice patterns is unknown.
Objective: To assess longitudinal prescribing patterns for patients undergoing surgery for pelvic organ prolapse in the 2-year timeframe before and after implementing an evidence based opioid prescribing recommendation and evaluate the impact of these recommendations on institutional practices.
Methods: Prospective data was previously used to create a 3-tiered recommendation for opioid prescribing following pelvic organ prolapse surgery at our institution based on opioid use. The guideline was implemented December 2017. Prescribing patterns including the quantity of opioids prescribed (in oral morphine equivalents [OMEs]) and refill rates were compared for opioid naïve patients undergoing prolapse surgery before (November 2015 through November 2017; N=238) and after (December 2017-December 2019; N=361) guideline implementation. Univariate analysis was performed using Wilcoxon rank sum and chi-squared tests. Cochran- Armitage trend tests were used to test for significance in the change in OMEs prescribed before vs after guideline implementation.
Results: The quantity of opioids prescribed at hospital discharge decreased from a median 225 OMEs (Interquartile range [IQR] 225, 300) before the guideline to 0 OMEs (IQR 0,75) after guideline implementation overall (p=<0.0001) and also within each individual subgroup of prolapse surgery: native tissue vaginal (p<0.0001), robotic sacrocolpopexy (p<0.0001), open sacrocolpopexy (p<0.0001), and colpocleisis (p<0.003). The overall proportion of patients discharged following prolapse surgery without opioids significantly increased after guideline implementation (49.9% after vs 4.2% before; p<0.0001). Despite the significant decrease in opioid prescribing, rate of opioid refills was similar before (2.9%) versus after (6.5%) guideline implementation (p=0.06).
Conclusions: With two years of postimplementation follow-up, the use of procedure-specific, tiered opioid prescribing guidelines at our institution was associated with a significant reduction in opioids prescribed without adversely impacting refill rates. This study further supports the use of evidence-based guidelines for opioid prescribing.
Disclosure: No

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Identifying Key Sexual and Reproductive Outcomes Following Pouch Surgery for Ulcerative Colitis
Shi, J[1]; Cavallaro, P[1]; Kochar, B[1]; Bordeianou, L[1]; Weinstein, M[1]
1 - Massachusetts General Hospital

Introduction: Ulcerative colitis (UC) is an inflammatory bowel disease that often presents in young women of reproductive age. Restorative proctocolectomy with ileal-pouch anal anastomosis (IPAA) is the most commonly performed procedure for patients with UC, with experts advising delays in IPAA creation due to concerns regarding impairment in sexual function and fertility. While functional gastrointestinal outcomes following IPAA been well studied, patient outcomes in the areas of pelvic floor health, sexual function, and fertility are poorly understood.
Objective: Identify sexual function and reproductive outcomes that are key factors in evaluating IPAA function and patient quality of life following surgical intervention for ulcerative colitis.
Methods: This is a targeted analysis of women's health outcomes collected by the "Patient Reported Outcomes After Pouch Surgery (PROPS)" study which sought to establish a broad patient-centered

core outcome set using Delphi consensus methodology incorporating patient, surgeon, and non-surgical clinician input from an international cohort of patients and providers predominantly from North America, Europe, and Australia. All participants were given a questionnaire with 79 items covering a wide range of concerns including general health, defecation, pain, daily activities, social and sexual function with the question stem "In your opinion, how important is this factor for a patient's overall experience of having a pouch?". Responses were given on a 9-point Likert scale with results tabulated as low (1-3), intermediate (4-6), and high (7-9) impact. The responses were also compared between responder types (patient, surgeon, non-surgical clinician) as part of the Delphi consensus methodology.

Results: 150 female patients (Mean age 38.9, Mean years since pouch surgery 10.1 with range 0-38), 67 surgeons, and 56 non-surgical clinicians were included in this study. 92.0% of patients reported overall improvement in the QOL with pouch as compared to active UC. Interestingly, patients were more likely to report sexual function symptoms as lower importance compared to both surgeons and non-surgical clinicians (Figure 1). Patients were also more likely to report low concern regarding conception and delivery compared with providers (Figure 2).

Conclusions: Following ileoanal pouch creation for inflammatory bowel disease, patients were overall more likely to rate both sexual and reproductive concerns as lower importance to their overall experience compared to both surgical and non-surgical clinicians. This may reflect a higher relative internal focus on patients' significant preoperative disability while also arguing against IPAA creation delay in patients of reproductive age. Further study is needed to elucidate the long-term impact of these procedures on women's health.

Disclosure: No

Images:

Table 1: Perceptions of Impact of IPAA on Sexual Function

	Patients (N=150)	Surgeons (N=62)	Non-Surgical Clinicians (N=51)	P-Value
Impact on sexual life				
Low (1-3)	23 (15.8%)	3 (4.8%)	1 (2.0%)	0.02
Intermediate (4-6)	23 (15.8%)	12 (19.4%)	13 (25.5%)	
High (7-9)	100 (68.5%)	47 (75.8%)	37 (72.5%)	
Impact on intimacy				
Low (1-3)	25 (17.1%)	4 (6.5%)	0 (0.0%)	0.002
Intermediate (4-6)	16 (11.0%)	14 (22.6%)	11 (21.6%)	
High (7-9)	105 (71.9%)	44 (71.0%)	40 (78.4%)	
Pain/discomfort when having sex				
Low (1-3)	25 (17.4%)	4 (6.5%)	4 (7.8%)	0.03
Intermediate (4-6)	28 (19.4%)	22 (35.5%)	11 (21.6%)	
High (7-9)	91 (63.2%)	36 (58.1%)	36 (70.6%)	
Impact on ability to have orgasm				
Low (1-3)	33 (23.2%)	4 (6.5%)	4 (7.8%)	0.01
Intermediate (4-6)	31 (21.8%)	19 (30.6%)	12 (23.5%)	
High (7-9)	78 (55.0%)	39 (62.9%)	35 (68.6%)	
Loss of self confidence				
Low (1-3)	20 (13.4%)	3 (4.8%)	3 (5.9%)	0.26
Intermediate (4-6)	29 (19.5%)	11 (17.7%)	9 (17.6%)	
High (7-9)	100 (67.1%)	48 (77.4%)	39 (76.5%)	

Table 2: Perceptions of Impact of IPAA on Reproductive Function

	Patients (N=150)	Surgeons (N=62)	Non-Surgical Clinicians (N=51)	P-Value
Impact on ability to conceive				
Low (1-3)	21 (15.9%)	2 (3.2%)	1 (2.0%)	<0.001
Intermediate (4-6)	13 (9.8%)	18 (29.0%)	7 (13.7%)	
High (7-9)	98 (74.2%)	42 (67.7%)	43 (84.3%)	
Fear regarding need for c-section				
Low (1-3)	38 (28.3%)	13 (21.0%)	4 (7.8%)	0.003
Intermediate (4-6)	44 (32.8%)	33 (53.2%)	29 (56.9%)	
High (7-9)	52 (38.8%)	16 (25.8%)	18 (35.3%)	

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Randomized Trial of Posterior Repair at time of Laparoscopic Sacrocolpopexy to Reduce Obstructed Defecation Symptoms

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Introduction: Laparoscopic sacrocolpopexy (SCP) is a durable and effective treatment option for women with pelvic organ prolapse. Often, a vaginal posterior repair (PR) is performed with this procedure in order to decrease rectovaginal laxity associated with a distal rectocele as well as narrow the genital hiatus. A PR may alleviate obstructed defecation symptoms secondary to stool trapping caused by herniation of the rectum through the posterior vagina. Recently, questions 4, 7, and 8 of the Pelvic Floor Distress Inventory has been investigated as a measure of obstructed defection symptoms. Collectively these questions have been referred to as the PFDI-Obstructed (PFDI-O) score. Current evidence comparing SCP with and without PR has provided mixed results regarding an actual benefit. Thus, performance of PR at time of SCP is determined solely by surgeon preference and not by any standard clinical indication.

Objective: The primary aim of this study was to compare PFDI-O scores in patients undergoing SCP, with and without concomitant PR.

Methods: This was a prospective randomized trial of patients undergoing laparoscopic SCP at a single institution. SCP patients who responded 'moderately' or 'quite a bit' on questions 4, 7, or 8 of the PFDI-20 and had a preoperative POP-Q point Bp $\leq +2$ were randomized to undergo sacrocopopexy (SCP-alone) vs. sacrocopopexy with posterior repair (SCP+PR). Patients undergoing laparoscopic and robot-assisted SCP were included. Surgeons were blinded to participant allocation until completion of the SCP. Our primary outcome was change in PFDI-O score at 3 months after SCP. Secondary outcomes included responses to the Obstructed Defecation Syndrome Score Questionnaire (ODS) questionnaire at the preoperative and 3-month postoperative time points.

Results: In all, 49 participants were enrolled and randomized with 27 in the SCP-alone group and 22 in the SCP+PR group. Participants in the SCP-alone group were slightly older than the SCP+PR group (57 vs 49 years, $p = 0.042$). There were no statistically significant differences in medical comorbidities, parity, or presenting stage of posterior vaginal wall prolapse. Furthermore, preoperative PFDI-O scores between groups did not differ significantly ($p = 0.693$). There was no difference in 3 month postoperative PFDI-O scores adjusting for baseline PFDI-O scores between the comparison groups ($p = 0.866$). Overall, 42 of 49 (86%) participants demonstrated improvement in their PFDI-O scores. Furthermore, the entire cohort (both groups combined) showed improvement with a mean reduction of 4.49 points when preoperative scores were compared to postoperative scores ($p < 0.001$). ODS score improvement, noted in 23 (85%) of the SCP-alone and 18 (82%) of the SCP+PR group, was no different between groups ($p = 0.751$).

Conclusions: Sacrocolpopexy improves obstructed defecation symptoms as measured by PFDI-O and ODS score, regardless of whether concomitant posterior repair is performed.

Disclosure: No

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Comparation Between New and Old Perineal Rupture

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Introduction: Perineal rupture commonly occurs at delivery and can affect perineum, labia, vagina, and cervix. Most laceration heal without long-term

complications, but extensive laceration can cause persistent pain, sexual dysfunction, and embarrassment. Severe perineal rupture should be identified at delivery and immediately repaired. This includes prevention, assessment, and repair of perineal rupture that occurs during delivery. Obstetric injury is the most common cause of sphincter injury and pelvic floor failure resulting in lack of bowel control. Approximately 30% mothers experience urinary incontinence (UI) and 10% anal incontinence (AI). A third/fourth-degree rupture (involving the anal sphincter complex) occurs in 0.5– 2%.

Objective: To report a case of new and old perineal rupture

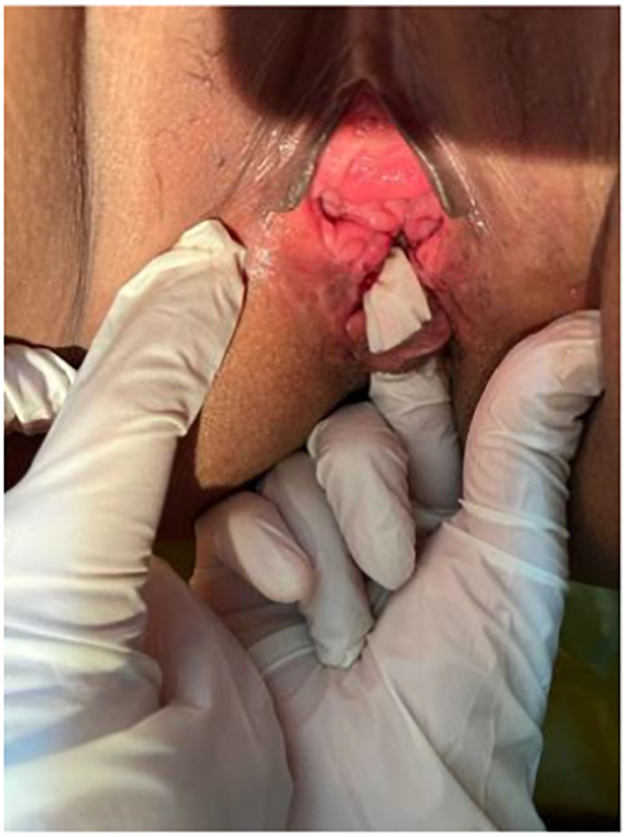
Methods: a case report

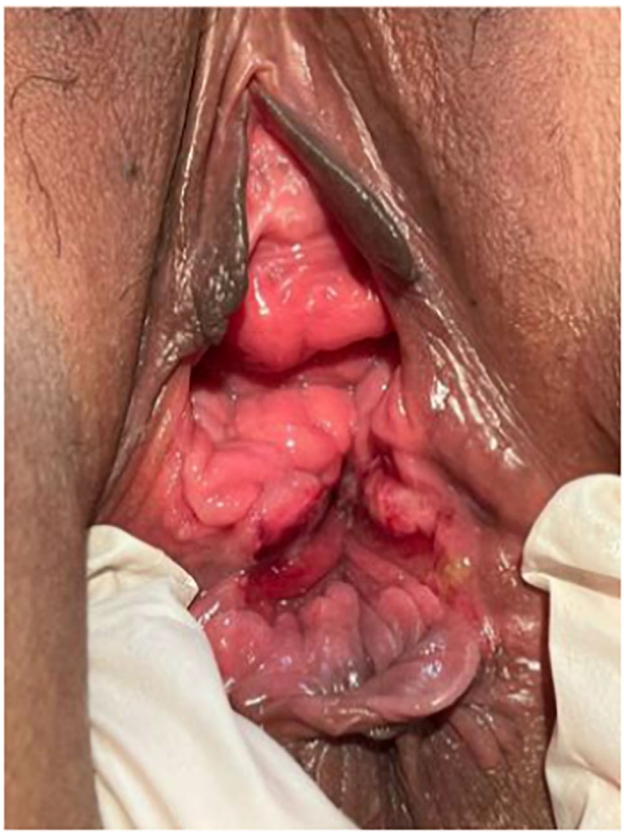
Results: First case, a 25 years old woman diagnosed with total perineal rupture since 6 month after delivery. After delivery, the patient's perineal rupture was sutured, but the wound was opened up. There were no abnormality in blood count. Pill rolling motion test showed external and internal anal sphincter defect. Second case, a 29 years old women diagnosed with P1LI + old total perineal rupture. The patient complained defecation from vagina after vaginal delivery by a traditional birth attendant nine years ago. Physical examination revealed cicatrix and posterior lacerations that extended to the anus and 7 cm uterine sound. Rectal examination and a pill rolling motion found complete perineal defect. A preoperative diagnosis of fourth-degree perineal rupture involving the internal anal sphincter (IAS) and external anal sphincter (EAS) was made and perineorraphy was performed. The procedure was done under spinal anesthesia. The patient was scheduled for transperineal ultrasound (TPU) to evaluate pelvic floor after perineorraphy.

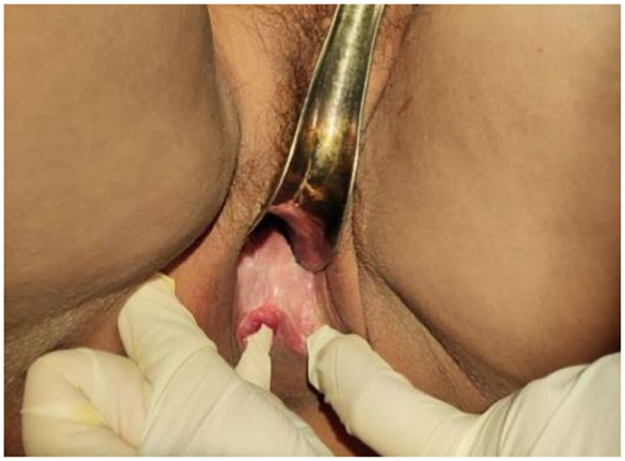
Conclusions: A good insight of perineal and anal sphincter anatomy and adherence to the sound principles is essential in management of perineal rupture. Obstetrical anal sphincter injuries (OASIS) diagnosed properly and repaired in good condition can lead to a good functional outcome. In order to reduce the rate of unknown sphincter lesions, it is essential to improve the skills of the teams in charge of delivery.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Urogynecology division, obgyn dept, Dr. M. Djamil General Hospital

Images:







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WITHDRAWN - Detection of Occult Anal Sphincter Injuries in Primipara by 2D-Transperineal Ultrasound and its Clinical Correlation

WITHDRAWN

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Impact of Levator Ani Muscle and Sacrouterine Ligament Defects on Cervix/ Cuff Position: A Pilot MRI Study

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4 - Hospital in Frýdek-Místek

Introduction: Pelvic organ prolapse (POP) is a common decrease. It decreases quality of life and leads to a high count of surgeries. Muscles and fascial structures of the pelvic floor create very complex multilevel structure. At a normal state, they keep organs in their correct position. The impact of specific structural defects on central structures is not completely described.
Objective: Does the levator ani muscle (LAM) injury have an impact on the location of a cervix/cuff?
Methods: Available MRI scans of women with POP were used for analysis. The LAM injury was quantified by the existing scoring system (0=normal, 1-3minor, 4-6major). (DeLancey, 2007) Levator plate angle was measured. (Hsu, 2006) The presence of sacrouterine ligaments was evaluated as normal/abnormal. The central compartment (cervix/cuff) was characterized by 1/distance of cervix/cuff from S5 vertebra (mm) 2/ the sacrouterine (SU) angle (°) (Figure 1). Both measured at rest and Valsalva. The ANOVA was used for statistical analysis.
Results: The 289 MRI scans were included within a study (mean age: 60,7; 203 after hysterectomy). The LAM injury had significant impact only at Valsalva in both distance (Normal:64 Minor:77 Major:75, p=0,007) and SU angle (Normal:0,5 Minor: -6,5 Major: -5,1, p=0,054). The levator plate angle differed significantly between LAM groups (normal, minor, major). LP angle had an impact on distance of cervix/cuff and SU angle at Valsalva. The quality of SU ligament had an impact on distance and SU angle at Valsalva and rest.
Conclusions: Even though the association at the level of SU ligament is stronger, LAM injury is clinically easier to evaluate and also may have an impact on the position of a cervix/cuff at Valsalva.
Disclosure: No
Images:

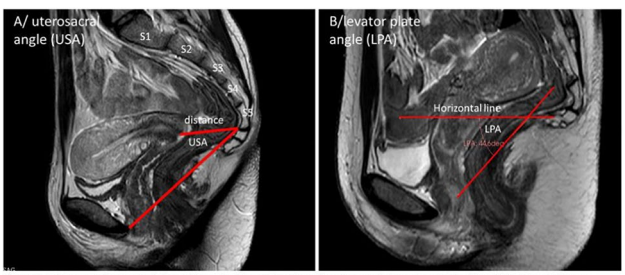

Figure 1: A/ Sacrouterine angle is formed by a line from S5 to the cuff or the cervical canal and a line from S5 to the pubic bone. B/ Levator plate angle is formed by line along with the levator ani muscle and horizontal line.

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Effect of Mid-urethral Sling on Urethral Dynamic Shape and Motion

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Introduction: The mechanism behind the success of a mid-urethral sling in reducing the symptoms of incontinence is assumed to be explained by the hammock theory by many, i.e increased abdominal pressure applied to the bladder base and urethra during a cough would compress the urethra against the sling resulting in urethral closure and continence. However, this hypothesis has not been examined with biomechanical studies.
Objective: The aim of this study was to investigate the effect of retro pubic mid-urethral sling (MUS) on urethral shape and motion using dynamic anterior compartment ultrasound at 2 and 12 months following a sling procedure.
Methods: This is an ongoing prospective cohort study. Women who presented to our tertiary urogynecology clinic with a complaint of stress dominant urinary incontinence and decided to proceed with MUS to treat the condition were recruited to the study. All patients underwent a comprehensive interview including PFDI-20 questionnaire, pelvic exam with POP-Q evaluation, and static and dynamic pelvic floor ultrasounds pre-operatively, and at 2- and 12-months post-operatively . Cystometrogram was performed only at the pre-operative visit. Imaging was obtained using the BK Medical X14L4 12 MHz transducer. The dynamic imaging takes a 5 second video of a mid-sagittal view of the bladder and urethra. The urethral meatus, pubic symphysis, and bladder neck were included landmarks. Patients were asked to perform a squeeze maneuver followed by a strain maneuver. Urethral length, retropubic urethral length, bladder-neck-retropubic angle, bladder-neck-pubic bone angle, urethral-knee swing angle, and urethral anterior-posterior diameter were measured at rest, squeeze and strain. Sling's position relative to urethral meatus was measured. Surgical success was defined as complete or significant improvement of SUI at 2 and 12-month post-operatively. Patients' demographics, symptoms, POP-Q , and changes in dynamic ultrasound measurements were compared between these surgical outcome groups using Fisher's exact or chi-squared test for categorical variables and ANOVA (parametric) or Kruskal-Wallis test (nonparametric) for continuous variables.
Results: A total of 64 participants have been recruited thus far, of which 22 women reached the 2-month follow-up point and were included in this analysis. Mean age was 55.9 ± 13.9 and the majority of participants were Caucasian (86.4%). ~86% subjects underwent concomitant prolapse repair surgeries. All participants reported significant improvement in SUI symptoms. Average self-reported SUI episodes were 2.10 ± 2.34 per day vs 0.06 ± 0.23 per day pre-operatively and 2 months post-operatively, respectively. Dynamic ultrasound measurements are summarized in Table 1 indicating the sling allowed the urethra to swing about the pubic symphysis, but it lessened the extent of the swing proximally and distally.
Conclusions: The preliminary results of this ongoing cohort study show that a properly placed and functional retropubic mid-urethral sling limits the extent of urethral swinging. This is consistent with our previously published work which demonstrated that continence was associated with less urethral swinging motion. In addition, the increase in urethral thickness from rest to strain pre- and post-operatively suggests that the sling is not providing a backstop as described by the hammock theory.
Disclosure: No
Images:

Table 1: Summary of average ultrasound measurement pre- and 2 months post- operatively after MUS procedure

	Preoperative						Postoperative					
	Rest		Squeeze		Strain		Rest		Strain		p-value[1]	p-value[2]
	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD		
Urethral length (cm)	17	4.2 ± 0.4	17	4.4 ± 0.5	12	3.7 ± 0.4	22	4.2 ± 0.5	19	3.7 ± 0.7	0.6177	0.9031
Retropubic urethral length (cm)	17	2.1 ± 0.5	17	2.3 ± 0.7	15	0.7 ± 0.6	22	2.3 ± 0.5	21	1.4 ± 0.8	0.1009	**0.0032**
Bladder neck-retropubic angle (°)	17	46.0 ± 12.8	17	41.9 ± 18.1	15	100.5 ± 19.4	22	41.4 ± 17.4	21	74.9 ± 21.8	0.3651	**<0001**
Bladder neck-pubic bone swing angle (°)	17	70.1 ± 10.8	17	74.3 ± 15.2	15	18.1 ± 16.7	22	71.5 ± 13.0	21	38.0 ± 19.4	0.9292	**<0001**
Urethral knee swing angle (°)	17	40.0 ± 13.1	17		12	55.3 ± 11.6	22	30.8 ± 14.2	21	47.3 ± 11.9	**0.0278**	**0.0158**
A-P urethral thickness at 1cm from meatus (cm)	17	0.9 ± 0.2	17	0.7 ± 0.2	5	1.0 ± 0.2	22	0.9 ± 0.1	18	1.1 ± 0.2	**0.0295**	0.5947
A-P urethral thickness at mid-urethra (cm)	17	0.9 ± 0.2	17	0.8 ± 0.2	11	1.0 ± 0.2	22	0.9 ± 0.2	20	1.2 ± 0.2	0.3219	0.3065
A-P urethral thickness at 0.5 cm from bladder neck (cm)	17	0.9 ± 0.1	17	0.9 ± 0.1	11	1.0 ± 0.1	22	1.0 ± 0.2	19	1.1 ± 0.2	0.8572	0.5178
Sling cross-sectional length (cm)							22	1.0 ± 0.1	21	1.0 ± 0.1		
Mid-sling distance from meatus (cm)							21	1.6 ± 0.4				
Mid-sling pubic bone swing angle (°)							22	11.0 ± 20.4	21	34.0 ± 11.6		

[1] Preoperative Rest vs. Postoperative Rest
[2] Preoperative Valsalva vs. Postoperative Valsalva

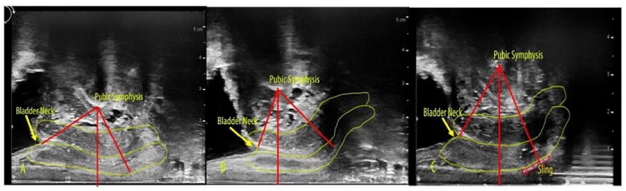

Figure 1: Dynamic anterior compartment ultrasound A) pre-operative ultrasound at rest B) pre-operative ultrasound at strain C) 2-month post-operative ultrasound at strain . Urethral wall is outlined with yellow line. Angles in Red identify bladder neck swing angle (left) and urethral knee swing angle (right).

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Ultrasound Guided Staging and Reversal of Female Genital Mutilation/cutting

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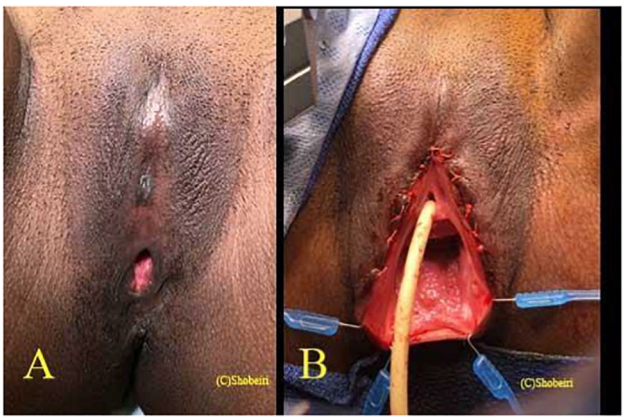
Introduction: Female genital mutilation/cutting (FGM/C) is a procedure that involves the partial or total removal of the external genitalia or injury to the female genital organs for non-medical reasons. Over 200 million females worldwide have been affected by this syndrome. The World Health Organization (WHO) categorizes FGM/C into four main types according to the anatomy involved. While surgical correction has been described with good anatomical results, data regarding imaging modalities to further stage and evaluate the involved anatomic structures is lacking. Additionally, as clitoral engorgement can significantly impact sexual function, its structure and vasculature are areas of critical interest, therefore using Doppler US can be useful for this purpose.
Objective: We present the use of peri- and intraoperative ultrasound imaging for reconstructive surgery following FGM/C for staging and surgical planning. We specifically focus on the clitoral structures and blood flow to evaluate the preoperative dysfunction and predict postoperative function.
Methods: This is a case series of patients with FGM/C who were evaluated and underwent reconstructive surgical management at a single institution between 2018-2021. Ultrasound examination using the Aixplorer® (Supersonic Imagine) and SuperlinerTM probe with Doppler imaging was performed. The electronic medical record was queried for data regarding patient characteristics, examination and ultrasound findings, as well as surgical and postoperative course.
Results: Seven patients that underwent FGM/C are described in this case series. The patients ranged from 27 to 47 years old and had sustained the FGM/C between 3 months to 7 years old. The primary presenting complaints were dyspareunia or apareunia. Out of the 7 patients, 6/7 reported anorgasmia. It was hard to distinguish if the sexual pressure, if any was derived from the clitoral or vaginal stimulation. The FGM/C WHO classifications ranged from Ia to IIIb. Four of the patients had prior vaginal deliveries, and one was delivered only by cesarean sections, two have not been able to have intercourse. Ultrasound examination was utilized before and during surgery to facilitate recognition of the anatomic structures for detailed staging of the FGM/C but also for further personalization and planning of reconstructive methods. Particularly for patients with clitoral involvement, the Doppler probe was helpful to evaluate the blood flow to the clitoris (Figure 1). In one patient, Doppler technology was useful to delineate clitoral tissues from a closely involved periclitoral inclusion cyst, which aided in surgical excision while minimizing vascular or nerve injury to the clitoris. Patients were evaluated 2-6 weeks postoperatively and found to have excellent anatomical restoration of the outer vulva and distal vaginal structures with improvement in sexual functionality and significant alleviation of dyspareunia. None of the patients reported decreased sexual pleasure postoperatively. In all patients discussed, the primary determinant of positive sexual functional outcome was the ability to achieve clitoral orgasm preoperatively.
Conclusions: Ultrasound imaging with Doppler technology can be utilized in surgical planning to facilitate personalized approaches to optimize both anatomical and functional results in cases of genital reconstruction following FGM/C. Additionally, ultrasound findings provide valuable information to the reconstructive surgeon to further improve patient counseling regarding postoperative expectations.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant to MEMIC, COSM, TRACKIMED
Images:



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Phenotypic Characterization of the LAM Injury after Vaginal Delivery

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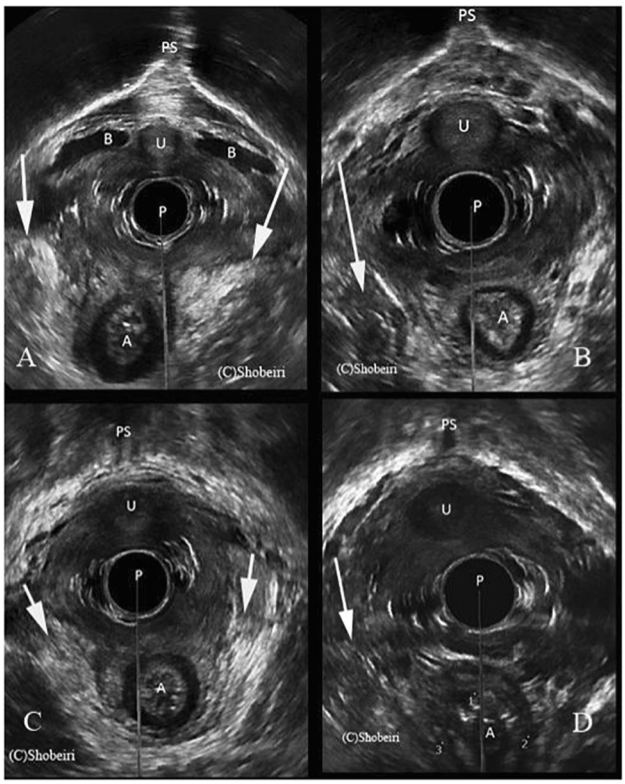
2 - George Mason University
3 - Inova Health System
4 - INOVA Health System

Introduction: Vaginal birth is the primary cause of pelvic floor injuries, including levator ani muscle (LAM) injury, resulting in pelvic floor disorders. Studies have explored the mechanics of vaginal delivery concerning the damage to the pelvic floor muscles, ranging from small hematomas to complete muscle separation where it attaches to the pubic bone. Some of the damage is reversible, as demonstrated using 3D endovaginal ultrasound (EVUS). We hypothesized that the levator ani muscle (LAM) injuries associated with vaginal deliveries have distinct phenotypic characteristics that correlate with the patient's symptoms.
Objective: The study's objective is to describe the LAM damage after vaginal delivery and its correlation with a patient's symptoms.
Methods: The study is a single-center prospective observational study including women who presented to the motheRs' pElviC flOor sUpPort (RECOUP) Clinic and underwent 3D EVUS, by a single observer with over 30 years of experience We used EVUS to accurately diagnose the LAM injury as it is the only point-of-care imaging modality capable of differentiating LAM subdivisions. EVUS is the primary tool in the RECOUP clinic to elucidate the patients' underlying pathology. The target patient population included perineal injury, instrumental delivery, urinary retention, urinary or fecal incontinence, pain, or pelvic pressure. Data collection included baseline characteristics, such as patient age, ethnicity, and background medical/surgical history, as well as validated questionnaire results and physical examination findings, including Pelvic Organ Prolapse Distress Inventory (POPDI), Pelvic Floor Disability Index (PFDI), and Pelvic Organ Prolapse Quantification (POPQ) evaluation. Sonographic pelvic floor measurements and LAM deficiency and avulsion scores were recorded.
Results: A total of 60 women were included in the analysis, with a mean age of 35; 70% were Caucasian, and the mean body mass index of 25. The mean parity was 1.6 with 1.4 vaginal deliveries. 17% had a history of forceps delivery, and 29% had a history of obstetric anal sphincter injury. 29/57 (50.9%) had a right-side injury, including either puborectalis (PR) or pubococcygeus (PC) with 18/57 (32%) and 28/57 (49%) PR and PC injury respectively. 20/57 (35%) patients had a left side injury, with 18/57 (32%) and 16/57 (28%) PR and PC injury respectively. 16/57 (28%) patients had a bilateral injury, while 13/57 (23%) had a right-side injury alone and 4/57 (7%) had left-side injury alone ($P<0.001$). 17/18(94.4%) with PR injury had PC injury as well ($p<0.001$). In Table 2 a comparison between bilateral and unilateral muscle injuries are compared to the patients without any muscle injury. The bilateral group had higher POPDI and PFDI scores, in the PFIQ total score and the section about vaginal symptoms as well as a positive correlation was found between the degree of injury and the POPQ scores.
Conclusions: Phenotypic characterization of the LAM subdivisions injuries after vaginal delivery reveals varied patterns and degrees of persistent LAM injury, which is not consistent with current literature of LAM injury as avulsion or no-avulsion phenomenon. These significant variations in the location and degree of LAM injuries correlate with the physical examination findings and symptoms.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant to MEMIC, COSM, TRACKIMED
Images:



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The Muscular Pelvic Floor Relaxation Line (M line) of Magnetic Resonance Imaging (MRI) at Rest Can be a Predictive Parameter of Pelvic Organ Prolapse

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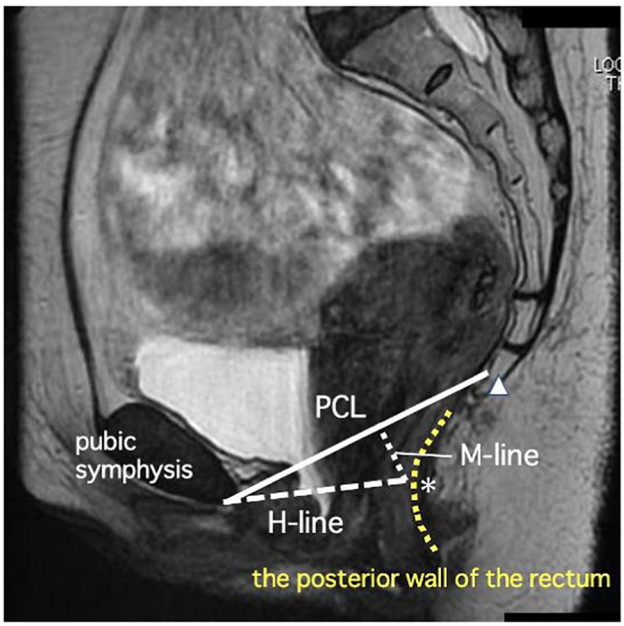
Introduction: It has been established that levator ani muscle (LAM) injury increases the risk of pelvic organ prolapse (POP). Loss of normal muscular support leads to sagging and widening of the urogenital hiatus, predisposing patients to the development of POP. In fact, progressive sagging of LAM is often observed with dynamic magnetic resonance imaging (MRI) during Valsalva maneuver in patients with POP. We hypothesized that there might be potential laxity of LAM in POP patients, which can be confirmed by MRI even in the resting supine position.
Objective: This study aimed to determine the reference line and its cutoff value that can be used as an indicator of POP even in resting state MRI examinations.

Methods: MRIs in the resting position of women with POP (POP group) (n=193) and without POP (control group) (n=193), who had experienced vaginal delivery, were compared retrospectively. POP patients were restricted to POP-Q stage 2 or higher, and group matching was performed for parity. MRI parameters of the pubococcygeal line (PCL), the puborectal hiatus line (H line), and the muscular pelvic floor relaxation line (M line) at rest were measured and compared, respectively. From these data, the cutoff values of the POP group were determined. JMP Pro (ver. 16) was used as the statistical software.
Results: The length [mm (SD)] of PCL, H line, and M line (POP group vs. control group) were 98.7(9.7) vs. 95.7(7.7), p=0.0011 for PCL, 62.1(8.1) vs. 51.2(6.1), p<0.0001 for H-line, and 24.9(7.3) vs. 8.8(6.7), p<0.0001 for M-line, respectively. Comparing the ROC curves for the H line and M line, the AUC of the M line was significantly higher, with an AUC of 0.948 (95% CI; 0.922- 0.966) and a cutoff value of 16.6 mm.
Conclusions: MRI scan in the resting supine position was sufficient to aid in the diagnosis of POP patients, especially the measurement of the M line, which had a cut-off value of 16.6 mm.MRI scan in the resting supine position was sufficient to aid in the diagnosis of POP patients, especially the measurement of the M line, which had a cutoff value of 16.6 mm. The results of this study may help to address the limitations of evaluation in clinical practice, such as inconsistency of physical findings and poor reproducibility, and may be particularly useful in the evaluation of patients who are unable to perform a successful Valsalva or in facilities that do not have the technology and systems to perform dynamic MRI.
Disclosure: No
Images:



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Filling and Voiding Cystometry Values and their Short-term Reproducibility in a Urogynecologic Population
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Introduction: Normal urodynamic study (UDS) filling and voiding parameters and their reproducibility with repeated cystometry studies have been previously described in asymptomatic healthy women (or mixed populations of men and women) and in women with neurologic disease using water-filled catheters, but these are not yet reported using air-filled catheters in a more typical urogynecologic population.
Objective: We aim to describe reference values for filling and voiding cystometry in a urogynecologic population without neurologic disease. We additionally seek to demonstrate the short-term reproducibility of these studies.
Methods: We performed a planned secondary analysis of data from a prospective study of female patients in a urogynecology clinic over 18 years old undergoing UDS for evaluation of urinary incontinence, voiding dysfunction, or assessment of occult incontinence in preparation for prolapse repair surgery. Exclusion criteria included known neurologic disease impacting voiding or continence, active urinary tract infection, prolapse unable to be effectively reduced, pregnancy or breastfeeding, or bladder pain syndrome. After a standard free-flow uroflowmetry and residual collection by catheterization, UDS1 was performed using 7-Fr intravesical and intravaginal air-filled catheters. Filling rate was 50mL/min in a sitting position. Data from filling cystometry included volumes at first sensation, first urge, strong urge, and maximum cystometric capacity, the presence of detrusor overactivity (DO), and assessment of compliance. A pressure-flow micturition study then assessed voided volume (VV), post-void residual (PVR), voiding efficiency [VV/(VV+PVR)], maximum flow rate, maximum detrusor pressure, detrusor pressure at peak flow, presence of electromyogram (EMG) activity during void, and voiding pattern (normal, intermittent, interrupted, and/or prolonged). After 5-10 minutes rest, UDS2 was completed with the same measurements recorded. Due to non-normal distribution of continuous measures, medians (IQR) are reported with comparisons of UDS1 and UDS2 by Wilcoxon rank sum test.
Results: Consecutive UDS1 and UDS2 data were obtained from 63 women. Patient demographics are shown in Table 1; mean(SD) age was 62(11) years. Filling and voiding cystometric data are shown for the initial and repeat studies in Table 2. Volume at first urge changed significantly between UDS1 and UDS2, increasing from 86mL to 124 mL (p<0.001). There were 39 women contributing EMG data for both UDS1 and UDS2, and most demonstrated either active or active + abdominal overflow for UDS1 (10 and 28, respectively) with just 1 non-active/normal; this changed for UDS2 with 5 active, 31 active + abdominal overflow, and 3 non-active/normal (p<0.001). There were otherwise no significant differences in UDS measurements between the initial and repeat studies, including presence/absence of DO.
Conclusions: We present UDS parameters in a urogynecologic population with urinary incontinence and/or reducible prolapse without neurologic disease. These parameters may better represent reference values for patients in a typical urogynecologic practice. There was a slight increase in volume at first urge and a change in EMG activity with repeat UDS-neither likely clinically significant. We otherwise confirmed the short-term reproducibility of UDS with air-filled catheters in women.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Urovant Sciences, LLC
Images:

Table 1: Patient demographics

	N (63)
Age, Mean (SD)	61.5 (11.3)
Race, N (%)	
White	50 (79)
Black	9 (14)
Asian	4 (6)
Other	2 (3)
Hispanic ethnicity, N (%)	7 (11)
Insurance	
Private	37 (59)
Medicare	26 (41)
Self-pay	1 (2)
Current smoker	6 (10)
Prior pregnancy	56 (89)
Prior surgeries	
Surgery for SUI	12 (19)
Surgery for pelvic organ prolapse	7 (11)
Hysterectomy	28 (44)
Diabetes	6 (10)
More than 3 UTIs in past year	6 (10)
Stage of most severely prolapsed compartment	
Stage 0	4 (6)
Stage 1	17 (27)
Stage 2	21 (34)
Stage 3	12 (19)
Stage 4	8 (13)

Data reported as N (%) unless otherwise indicated

Table 2: Standard Values of Filling/Voiding Metrics (UDS1) and their Reproducibility (UDS2)

		UDS 1 (N=63)	UDS 2 (N=63)	p
Filling Cystometry				
Volume at first sensation, mL		18 (9, 44.8)	17 (10.3, 40)	0.966
Volume at first urge to void, mL		86 (42, 173)	124 (72, 199)	**< 0.001**
Volume at strong urge, mL		201 (126, 352)	252 (171, 379)	0.143
Volume at max capacity, mL		395 (316, 435)	345 (268, 472)	0.06
Detrusor overactivity observed				NS
	yes	17 (27)	16 (25)	
	no	46 (73)	47 (75)	
Compliant, yes/no*				NS
	yes	56 (98)	57 (100)	
	no	1 (2)	0 (0)	
Pressure-Flow Micturition				
Voided volume, mL		330 (278, 427)	301 (215, 402)	0.133
Post-void residual, mL		20 (10, 65)	21 (0, 64)	0.269
Voiding efficiency, %		93.2 (81.5, 97)	95.3 (82, 100)	0.47
Pdet max, cm H2O		30 (18.7, 47)	32 (23.8, 46)	0.586
Pdet peak flow, cm H2O		16 (7.5, 25)	14.5 (7.5, 21)	0.284
Maximum flow rate, mL/sec		17.5 (13.4, 12.2)	17.5 (11.7, 23.5)	0.289
Voiding pattern**				NA
	Normal	8 (13)		
	Intermittent	42 (67)		
	Interrupted	33 (52)		
	Prolonged	46 (73)		

Data reported as median (interquartile range) unless otherwise indicated

* The 57 patients with both UDS1 and UDS2 data are presented. Two patients had neither UDS1 nor UDS2 data; 1 patient had UDS1 but not UDS2 data; and 3 patients had UDS2 but not UDS1 data

** Values sum to >100% as patients could be categorized by more than 1 voiding pattern so did not attempt a comparison in UDS2

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Surgical Treatment of Stress Urinary Incontinence and Complications Stratified by Race and Ethnicity

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Introduction: Midurethral sling (MUS) is the gold standard for the surgical treatment of stress urinary incontinence (SUI). Despite this, White and Hispanic women are more likely to undergo MUS than Black and Asian women. In the United States, White women undergo surgical treatment at a rate almost five times higher than Black women, however the perioperative complication rate for Black women is twice that of White women. This highlights our limited understanding of the racial and ethnic differences among treatment and outcomes of SUI,

which has important implications for the provision of more equitable care.

Objective: To evaluate racial and ethnic differences in the surgical treatment of SUI and associated complications.

Methods: This is a cross-sectional study of women undergoing surgical treatment for SUI between 2015 and 2020 using data from the American College of Surgeons National Surgical Quality Improvement Program. We included patients with SUI who underwent certain anti-incontinence procedures: open Marshall-Marchetti-Krantz procedure (MMK) or Burch urethropexy (CPT 51840, 51841), laparoscopic Burch urethropexy (CPT 51990, 51992) and sling (fascia and synthetic mesh CPT 57288). Complications were evaluated individually and with Clavien Dindo classification, and included mesh erosion, sling revision, blood transfusion, thrombosis, urinary tract infection and readmission within 30 days. Logistic regression models controlling for age, comorbidities and concurrent hysterectomy were used to assess associations between race/ethnicity and type of anti-incontinence procedure and 30-day postoperative complications.

Results: A total of 23,193 eligible surgical cases were identified, including 223 (1.0%) open MMK/Burch urethropexy, 366 (1.6%) laparoscopic Burch urethropexy, and 22,604 (97.5%) slings. The population was 59.4% Non-Hispanic White, 11.7% Hispanic, 3.4% Non-Hispanic Black, 2.7% Asian, 0.6% Native Hawaiian or Pacific Islander, 0.6% American Indian or Alaska Native, and 21.6% Unknown. In bivariate analysis, American Indian or Alaska Native women were more likely to have an open MMK/Burch urethropexy compared to White women (2.2% vs 1.0%; p<.0001). Black women were more likely to have an open MMK/ Burch urethropexy compared to White women (1.5% vs 0.6%; p<.0001). Native Hawaiian or Pacific Islander women were more likely to have a laparoscopic Burch urethropexy compared to White women (4.7% vs 1.6%; p<.0001). In multivariate analysis, Black and Hispanic women had lower odds of receiving a sling than White women (OR=0.58 and 0.74; p=0.0068 and 0.0181 respectively). American Indian and Alaska Native women were two times more likely as White women to have surgical complications (OR 2.36, CI 1.29-4.31; p= 0.0052). Three percent of American Indian or Alaska Native women were readmitted compared to 1.4% of White women (p= 0.0528).

Conclusions: In a large, national database, we describe racial and ethnic differences in the treatment of SUI and postoperative complications. Specifically, minority women were more likely to undergo open anti-incontinence procedures and were less likely to undergo sling procedures compared to White women. American Indian or Alaska Native women had higher risk of complications compared to White women. These racial/ethnic differences suggest potential areas of intervention for mitigating health disparities.

Disclosure: No

Images:

Table 1. Patient characteristics by race/ethnicity

	All		White		African American		Hispanic		Asian		American Indian or Alaska Native		Native Hawaiian or Pacific Islander		Unknown		p-value
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
	23193	100.0%	13776	59.4%	793	3.4%	2719	11.7%	623	2.7%	134	0.6%	128	0.6%	5020	21.6%	
Age																	<.0001
18-39	2409	10.4%	1377	10.0%	100	12.6%	337	12.4%	39	6.3%	17	12.7%	16	12.5%	523	10.4%	
40-59	12544	54.1%	7045	51.1%	432	54.5%	1626	59.8%	313	50.2%	76	56.7%	82	64.1%	2970	59.2%	
60-79	7436	32.1%	4817	35.0%	234	29.5%	696	25.6%	241	38.7%	36	26.9%	29	22.7%	1383	27.5%	
80 or older	804	3.5%	537	3.9%	27	3.4%	60	2.2%	30	4.8%	5	3.7%	1	0.8%	144	2.9%	
BMI																	<.0001
Less than 25	4826	20.9%	2968	21.6%	70	8.8%	355	13.1%	239	38.4%	18	13.5%	14	10.9%	1162	23.3%	
25-29.99	7402	32.0%	4330	31.4%	190	24.0%	942	34.7%	248	39.8%	43	32.3%	38	29.7%	1631	32.7%	
30-34.99	5773	25.0%	3366	24.5%	233	29.4%	807	29.8%	95	15.2%	28	21.1%	46	35.9%	1198	24.0%	
35 or higher	5108	22.1%	3094	22.5%	299	37.8%	608	22.4%	41	6.6%	44	33.1%	30	23.4%	992	19.9%	
Current smoker within a year																	<.0001
No	20237	87.3%	11947	86.7%	696	87.8%	2513	92.4%	586	94.1%	108	80.6%	112	87.5%	4275	85.2%	
Yes	2956	12.7%	1829	13.3%	97	12.2%	206	7.6%	37	5.9%	26	19.4%	16	12.5%	745	14.8%	
Diabetes																	<.0001
No	20555	88.6%	12425	90.2%	620	78.2%	2220	81.6%	513	82.3%	112	83.6%	106	82.8%	4559	90.8%	
Yes	2638	11.4%	1351	9.8%	173	21.8%	499	18.4%	110	17.7%	22	16.4%	22	17.2%	461	9.2%	
Concurrent Hysterectomy																	0.0003
None	23077	99.5%	13701	99.5%	789	99.5%	2697	99.2%	617	99.0%	134	100.0%	127	99.2%	5012	99.8%	
Yes	116	0.5%	75	0.5%	4	0.5%	22	0.8%	6	1.0%	0	0.0%	1	0.8%	8	0.2%	
Procedure																	<.0001
MMK/Burch Urethropexy	223	1.0%	80	0.6%	12	1.5%	29	1.1%	0	0.0%	3	2.2%	0	0.0%	99	2.0%	
Laparoscopic Burch Urethropexy	366	1.6%	230	1.7%	16	2.0%	52	1.9%	16	2.6%	2	1.5%	6	4.7%	44	0.9%	
Sling (Fascia or Synthetic)	22604	97.5%	13466	97.7%	765	96.5%	2638	97.0%	607	97.4%	129	96.3%	122	95.3%	4877	97.2%	

Table 2. Adjusted odds ratio of having sling procedure by race/ethnicity

Race/Ethnicity	Adjusted OR	95% CI		p-value
Non-Hispanic White	Ref			
Non-Hispanic Black	0.58	0.39	0.86	0.0068
Hispanic	0.74	0.58	0.95	0.0181
Asian	0.90	0.54	1.50	0.6866
American Indian or Alaska Native	0.57	0.23	1.40	0.218
Native Hawaiian or Pacific Islander	0.45	0.20	1.04	0.0618
Unknown	0.77	0.63	0.95	0.0128

Table 3. Adjusted odds ratio of having any complication by race/ethnicity

Race/Ethnicity	Adjusted OR	95% CI		p-value
Non-Hispanic White	Ref			
Non-Hispanic Black	0.81	0.54	1.21	0.2941
Hispanic	1.03	0.83	1.27	0.8069
Asian	0.73	0.46	1.17	0.1889
American Indian or Alaska Native	2.36	1.29	4.31	0.0052
Native Hawaiian or Pacific Islander	0.60	0.19	1.91	0.3904
Unknown	1.01	0.85	1.19	0.9501

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WITHDRAWN - The Relationship Between Central Obesity verse General Obesity with Lower Urinary Tract Symptoms in Women

WITHDRAWN

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The Role of Macrophages in Apoptosis Surrounding Polypropylene Mesh Fibers

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Introduction: Opponents of polypropylene (PP) mesh suggest that PP degrades in vivo releasing chemicals that can damage surrounding tissues and induce systemic symptoms. This process has been attributed to macrophage production of reactive oxygen species (ROS). However, the presence of macrophages in the area of a mesh is an expected part of the foreign body response.

Objective: We hypothesized that ROS produced by macrophages surrounding PP mesh contribute to adjacent cellular apoptosis via lipid membrane peroxidation and would be limited to the area immediately surrounding mesh fibers. In contrast, we anticipated that a chemical leaching induced by macrophages would lead to broader widespread apoptosis. To test this hypothesis, we quantified macrophages and apoptotic cells and their relative distance from meshes implanted on the abdominal wall vs Sham. We used malondialdehyde (MDA) as a marker of lipid peroxidation.

Methods: 14 female middle-aged rhesus macaques underwent implantation of one of two polypropylene surgical meshes: Gynemesh PS (42g/m2) versus Restorelle (18g/m2). Meshes were implanted into the abdominal wall and mesh-tissue complexes collected 90d later. Sham operated animals served as controls. Biochemical analysis included an assay for malondialdehyde, while immunofluorescence was performed with CD68 (macrophage) and TUNEL (apoptosis). Apoptotic index = apoptotic cells/total cells. Total cell counts, cells labeled as macrophages, apoptotic cells or both were counted and fascia and fiber area were quantified. Proximity to mesh was determined using regions of interest extending in a 350um radius from each cell fiber which included the extent of the visualized local immune response. Kruskal Wallis tests were performed to assess differences between groups with post-hoc rank sum tests using a Bonferroni correction.

Results: The primary site of apoptosis was immediately surrounding the mesh fibers with less in the more distant fascia (p 0.2) which were both significantly higher than Sham (Figure 2). There was a moderate positive correlation between macrophages and apoptotic cells across all samples (Rho=0.48, p=0.032) and in the mesh samples, many of the apoptotic cells were macrophages (sham median 0%, range

0-37%; Restorelle 27.0% [0.2-77%], Gynemesh 39.4% [11.8-80.1%], p 0.05 Restorelle vs Gynemesh). However, after excluding apoptotic macrophages from the analysis the correlation between macrophages and apoptotic cells persisted (Rho 0.53, p 0.05) or apoptotic macrophages (p>0.05). MDA positively correlated with both the total number of macrophages and number of macrophages that were nonapoptotic (Rho = 0.42 and 0.44 respectively, p=0.04, Figure 3).

Conclusions: PP-associated apoptosis occurred primarily in the areas of mesh fibers, supporting the role of macrophages as a driver of lipid peroxidation and apoptosis, likely through the production of ROS. However, MDA did not correlate with number of apoptotic cells, suggesting that not all cells apoptose following membrane peroxidation. The absence of apoptosis >350um from mesh fibers argues against toxic chemicals leaching from PP. Further research into alternative pathways in cellular death are ongoing.

Disclosure: No

Images:

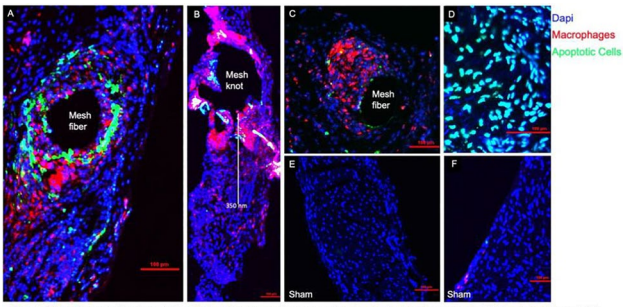

Figure 1. Macrophages (red) and apoptotic cells (green) by immunofluorescence in polypropyelene mesh samples (A, B, C) and sham tissue (E, F). The immune response and apoptotic index decreased precipitously with increasing distance from a mesh fiber (B). Sham tissue showed few (F) to no (E) macrophages and apoptotic cells, compared to the robust response surrounding polypropylene mesh fibers. Positive control for the TUNEL assay (C) was performed using DNAase to induce DNA fragmentation.

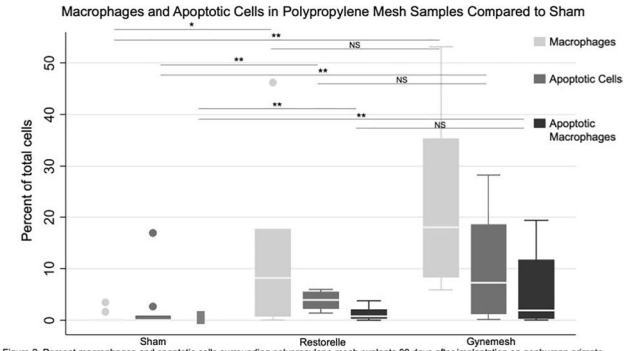

Figure 2. Percent macrophages and apoptotic cells surrounding polypropylene mesh explants 90 days after implantation on nonhuman primate abdominal fascia. *p<0.02, **p<0.01

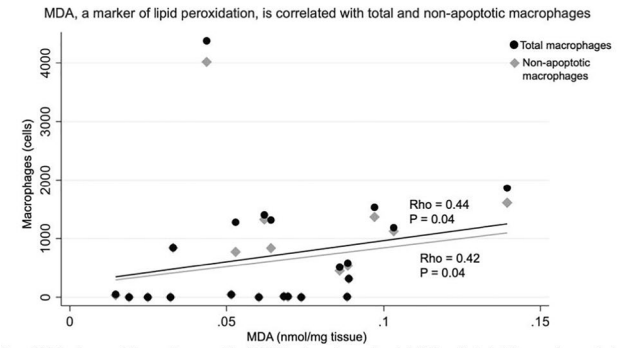

Figure 3. Total and non-apoptotic macrophages correlate with MDA in polypropylene mesh explants 90 days after implantation on nonhuman primate abdominal fascia.

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Impact of Mode of Delivery on Structural and Soluble Components of the Extracellular Matrix in Rat Pelvic Floor Muscles

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Introduction: Intramuscular extracellular matrix (ECM) supports myofibers and muscle stem cells, transmits lateral force, and bears load. Vaginal delivery (VD) is a risk factor for pelvic floor muscle (PFM) dysfunction that leads to PFD decades later, while Cesarean section (CS) confers protection. Tissue-level studies are needed to understand whether changes in PFM ECM that predispose to functional deterioration take place following VD.

Objective: We aimed to determine whether structural and soluble ECM proteins are differentially affected by the mode of delivery.

Methods: Three-months old Sprague-Dawley rats were randomly assigned to VD or CS and housed for 4 or 8 weeks post-delivery (n=9/group/timepoint). For CS, uterine horns were externalized through a midline laparotomy and hysterotomy was performed on the anti-mesenteric side. Pups and placentas were manually extracted. Four-month old non-pregnant (NP) rats served as controls. Animals were euthanized and coccygeus (C), iliocaudalis (ICa) and pubocaudalis (PCa) were harvested and processed for high resolution mass spectroscopy. PFMs were snap frozen, milled, lyophilized, and decellularized for ECM isolation. Analysis was done by liquid chromatography and mass spectroscopy with peptide identification and quantification. Differentially expressed proteins were identified and visualized with Metaboanalyst.

Results: Overall, ECM composition differed between delivery groups as well as between both postpartum groups and NP at both timepoints. Greater differences were observed for soluble compared to structural components (Fig.A). Seven structural proteins were altered in response to both VD and CS in all PFMs, including collagens, fibrinogens, the elastin modulating protein FBLN5 and the laminin-collagen interaction mediating protein NID2. In PCa and C, collagens decreased in both delivery groups by 8wks compared to NP. Post VD, collagens decreased modestly at 4wks, with subsequent dramatic drop at 8wks. In contrast, 4 weeks post CS, collagens decreased substantially relative to NP, with subsequent increase towards NP levels by 8wks. Fibrinogens and NID2 in PCa and C progressive increased relative to NP from 4 to 8wks post both CS and VD. FBLN5 was the highest in NP in PCa and C. It declined 4 weeks after VD, increasing by 8 weeks, but never returning to NP levels. After CS, FBLN5 progressively decreased after delivery compared to NP (Fig.B). Similar trends were observed in ICa. For soluble ECM proteins see Fig.C. Interestingly, overall proteomic composition in early postpartum (CS4, VD4) differed from late postpartum (CS8, VD8) period. After CS, the proteomic profiles of PFMs at 8wks more closely approximated the NP state than at 4 weeks. The reverse was seen after VD, with further departure from the NP state at 8-week time point compared to the 4-week one.

Conclusions: Specific proteomic signatures are observed in structural and soluble ECM components in response to delivery and even after 8 weeks did not return to NP state. Collagens and fibrinogens were decreased independent of delivery mode whereas ECM affiliated proteins, proteoglycans and DAMPs were differently altered by delivery mode. Overall, proteomic profiles suggest after CS PFMs trend toward the NP state while after VD they continue to diverge consistent with insidious decline in PFM function.

Disclosure: No

Images:

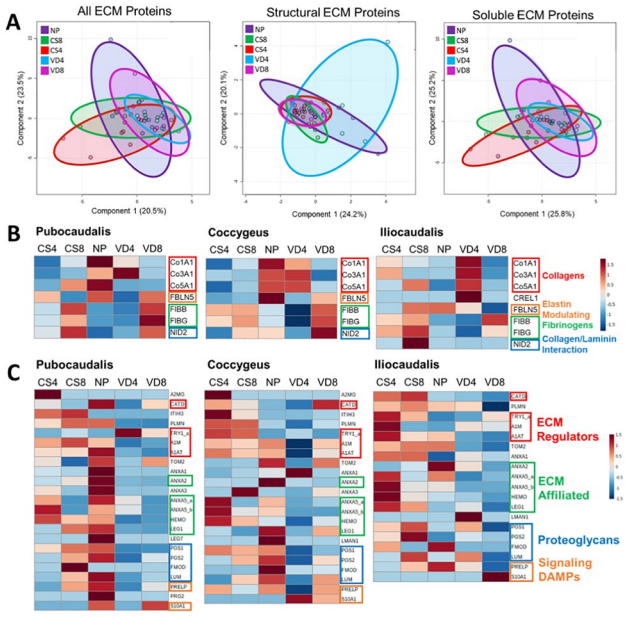

Figure. Partial least squares discriminant analysis of all PFMs intramuscular extracellular matrix (ECM). A. Separation between samples from animals in non-pregnant (NP, purple), cesarean section after 4 (CS4, red) and 8 weeks (CS8, green) and after vaginal delivery at 4 (V4, blue) and 8 weeks (VD8, pink). (MP, green), late pregnant (LP, red) and postpartum (PP, blue) states for all ECM (left panel), structural ECM (middle panel), and soluble ECM (right panel). These separations represent significant differences in ECM composition between the delivery states. Greater separation is seen between states for soluble ECM than structural ECM indicating greater proteomic differences in soluble ECM between states. The greatest variability between states is represented by component 1 which accounted for 20.5% of variability for all ECM, 24.2% of variability for structural ECM, and 25.8% of variability for soluble ECM. B. Hierarchical heat map of structural ECM proteins showing temporal and relative intensity alterations of differentially expressed collagens (red), elastin modulating proteins (orange), fibrinogens (green), and collagen-laminin interaction proteins (blue) between states in individual components of the pelvic floor. C. Hierarchical heat map of soluble ECM proteins showing temporal and relative intensity alterations of differentially expressed ECM regulators (red), ECM affiliated proteins (green), proteoglycans (blue), and signaling damage-associated molecular patterns (orange) between states in individual components of the pelvic floor. Names of the genes that code for the differentially expressed rat proteins detected in PFMs were obtained from the Rat Genome.

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The Impact of Microenvironmental and Pregnancy-associated Systemic Factors on Rat Muscle Progenitors

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1 - UCSD

Introduction: Pelvic floor muscle (PFM) dysfunction, consequent to birth injury, is a major risk factor for PFD. Rational design of preventative and reparative therapies is contingent upon a thorough understanding of the PFMs' adaptive and regenerative properties. The above necessitates the use of preclinical models, such as rat - previously validated for the studies of human PFMs. Skeletal muscle plasticity and repair is influenced by specific cues contained in its extracellular matrix (ECM).
Objective: We aimed to test the hypothesis that the survival and function of rat muscle progenitors will be superior in the presence of tissue-specific skeletal muscle ECM (ECMSKM) compared to non-specific ECM. The systemic environment also strongly influences progenitors in limb muscles. Thus, we aimed to determine whether variable systemic factors present during pregnancy influence muscle progenitors' fate.
Methods: To assess the impact of tissue-specific and non-specific microenvironments, ECMSKM, cardiac ECM (ECMCARD), and collagen (COL) were used to encapsulate rat skeletal myoblasts (L6 (ATCC); 25,000cells/10µL). The encapsulated cells were incubated for 1 hour until gelation on chamber slides. The resultant 3D constructs supplemented with standard growth media. After 1, 3 or 5 days, EdU (5-ethynyl-2'-deoxyuridine) was added 4hrs before fixation in 4% PFA. Fixed constructs were placed into freezing medium for 24hrs at 4°C, snap-frozen, cryo-sectioned (7µm), and stained with DAPI. EdU+ cells were identified using Click-iT™. For the second objective, 3-month old non-pregnant, mid-pregnant and late-pregnant Sprague-Dawley rats were euthanized (N=3/group) and serum was collected. Muscle progenitors were encapsulated in ECM-SKM supplemented with DMEM with 10% of either non-pregnant, mid-pregnant or late-pregnant serum. After 3 days, all constructs were processed as described above. Sections were imaged with Keyence fluorescent microscope and ImageJ was used for quantification. Data were analyzed using two- and one-way ANOVAs, followed by Tukey's pairwise comparisons.
Results: The total number of live cells was significantly higher at all time points when muscle progenitors were encapsulated in ECMSKM (Fig.1). In fact, none of the cells survived beyond Day1 in ECMCARD. Cellular proliferation was similar between ECM-SKM and ECMCARD constructs on Day1, beyond which only muscle progenitors encapsulated in ECMSKM proliferated (Fig.1). COL inhibited cell proliferation at all time points. Given these results, ECMSKM was selected to test the impact of systemic factors on cell fate. Neither the total cell number nor the proportion of EdU+ cells differed in response to non-pregnant vs mid-pregnant serum (Fig.2). However, the exposure to late-pregnant serum resulted in significant decline in the number of live cells and reduction of cells' proliferation compared to cells exposed to non-pregnant or mid-pregnant serum (Fig.2)
Conclusions: These data suggest that the complex microenvironment of ECMSKM, determined by multiple ECM proteins and various growth factor binding sites, is important for the viability and proliferative capacity of muscle progenitors, underscoring the importance of tissue-specificity in regenerative approaches. Secondly, our intriguing novel results reveal that systemic factors associated with late-pregnancy impair muscle progenitor viability and proliferation. Future studies will focus on identifying specific biologically relevant factors that likely impact muscle plasticity and regeneration.
Disclosure: No
Images:

Figure 1. (**A**) Representative images of viable rat muscle progenitor cells, identified by DAPI nuclear stain, and proliferating EdU⁺ cells, identified using Click-iT™, encapsulated in tissue-specific skeletal muscle ECM (ECM_{SKM}). (**B**) Quantification of the total number of muscle progenitors encapsulated in tissue-specific ECM_{SKM}, and non-specific cardiac ECM (ECM_{CARD}) and collagen for 1, 3, or 5 days, demonstrating the importance of tissue-specific microenvironment for cell viability. (**C**) Quantification of the proportion of proliferating EdU⁺ muscle progenitors encapsulated in tissue-specific ECM_{SKM}, and non-specific cardiac ECM (ECM_{CARD}) and collagen for 1, 3, or 5 days, underscoring the importance of tissue-specific microenvironment for cell proliferative function. P-Values derived from 2-way Analysis of Variance (ANOVA), followed by Tukey's pairwise comparisons. *P<0.01; **P<0.001; ***P<0.0001

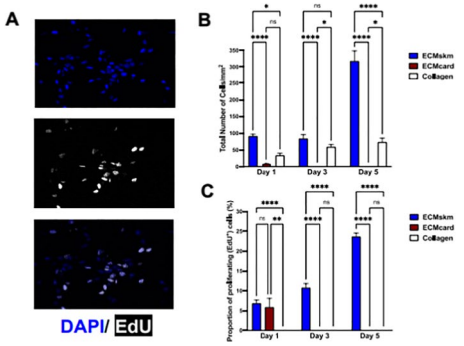
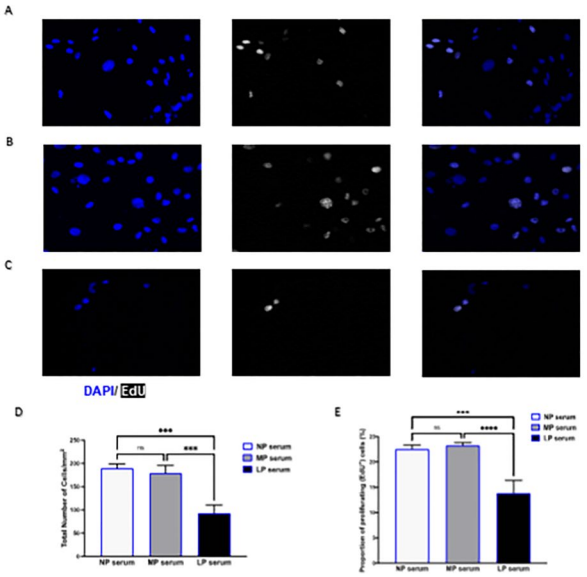


Figure 2. (**A-C**) Representative images of viable rat muscle progenitor cells, identified by DAPI nuclear stain, and proliferating EdU+ cells, identified using Click-iT™, encapsulated in tissue-specific skeletal muscle ECM (ECM_{SKM}) in media supplemented with (**A**) non-pregnant (**B**) mid-pregnant and (**C**) late-pregnant rat serum. (**D**) Quantification of the total number of muscle progenitors encapsulated in tissue-specific ECM_{SKM} in media on Day 3 supplemented with non-pregnant, mid-pregnant and late pregnant rat serum. (**E**) Quantification of proportion of proliferating EdU+ muscle progenitors encapsulated in tissue-specific ECM_{SKM} in media on Day 3 supplemented with non-pregnant, mid-pregnant and late pregnant rat serum. P-Values derived from 1-way Analysis of Variance (ANOVA), followed by Tukey's pairwise comparisons. ***P<0.0001



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Efficacy of Vaginal Estrogen in the Prevention of Recurrent Urinary Tract Infection in Hypoestrogenic Women

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Introduction: Vaginal estrogen is considered the standard of care to prevent recurrent urinary tract infection (UTI) in hypoestrogenic women. However, the literature supporting its use is limited to small clinical trials with narrow generalizability.
Objective: The primary objective of this study was to assess the association between vaginal estrogen use and the frequency of culture-proven UTIs over one year following prescription in a diverse population of hypoestrogenic women. Secondary objectives included evaluation of predictors of post-prescription UTI frequency and patient adherence.
Methods: This multicenter, retrospective cohort study included women who received a new prescription of vaginal estrogen for the indication of recurrent UTI from January 1, 2009 through December 31, 2019. Patients were confirmed to have filled this index prescription and continued care within the health maintenance organization for one year after the date of prescription. Recurrent UTI was defined as three or greater culture-proven UTIs at least two weeks apart in the year preceding vaginal estrogen prescription. Exclusion criteria included anatomic abnormalities of the genitourinary system, vesicoureteral reflux, genitourinary malignancy, mesh erosion into the genitourinary tract, and renal abscess. Data on patient demographics, medical comorbidities, and surgical history were collected. Adherence was captured through refill data after the index prescription. Low adherence was defined as no further refills; moderate adherence was defined as one additional refill; high adherence was defined as two or more refills. All data were abstracted from the electronic medical record using the pharmacy database and diagnosis codes. A paired t-test was used to compare pre- and post-prescription UTI frequency. Multivariate negative binomial and logistic regression were used to evaluate predictors of post-prescription UTI and patient adherence, respectively.
Results: The cohort included 5,638 women with mean (SD) age of 70.4 (11.9) years, body mass index of 28.5 (6.3) kg/m2, and baseline UTI frequency of 3.9 (1.3). Most were white (59.9%) or Hispanic (29.7%) and postmenopausal (93.4%). Mean UTI frequency detected in the year following index prescription decreased to 1.8 (Table 1, P<0.001), a 51.9% reduction. During the 12-month period after index prescription, 55.3% of patients experienced one or fewer UTIs, and 31.4% experienced no UTIs. Significant predictors of post-prescription UTI (Table 2) included: age 75-84 (incident rate ratio 1.24; 95% CI 1.05-1.46) and 85 plus years (1.41; 1.17-1.68), baseline UTI frequency (1.22; 1.19-1.24), urinary incontinence (1.14; 1.07-1.21), urinary retention (1.21; 1.10-1.33), diabetes mellitus (1.14; 1.07-1.21), and moderate (1.32; 1.23-1.42) or high adherence (1.33; 1.24-1.42). Highly-adherent patients demonstrated more frequent post-prescription UTIs than low-adherence patients (Figure 1; 2.2 versus 1.6, P<0.0001). The only significant predictor of moderate or high adherence was age 65-74 years (odds ratio 1.67; 95% CI 1.16-2.39).
Conclusions: UTI frequency decreases by approximately 52% in hypoestrogenic women who are prescribed vaginal estrogen. Baseline UTI frequency, increasing age, urinary incontinence or retention, and diabetes mellitus are significant predictors of UTI frequency over the 12 months following vaginal estrogen prescription. The paradoxical finding that women with moderate and high adherence experienced the lowest-magnitude reduction in UTI frequency may represent unobserved selection, such as the relative severity of underlying medical conditions.
Disclosure: No
Images:

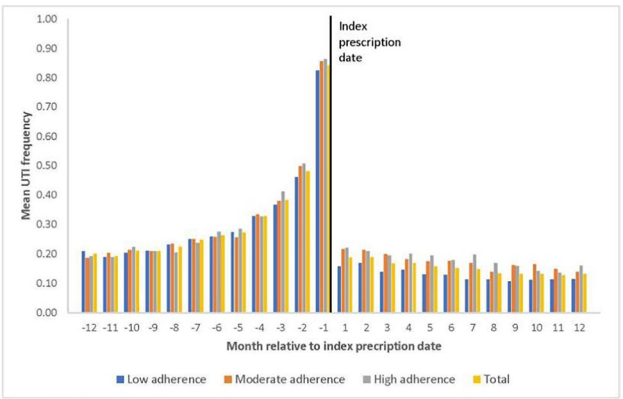

Figure 1: Mean UTI frequency in 12 months before and after vaginal estrogen prescription. *UTI*, urinary tract infection. *Low adherence* defined as no further refills after the index vaginal estrogen prescription. *Moderate adherence* defined as 1 refill after index prescription. *High adherence* defined as ≥2 refills after index prescription.

Sample	N	Mean UTI frequency pre-prescription	Mean UTI frequency post-prescription	Mean decrease in UTI frequency (%)	95% CI		P-value
Total cohort	5,638	3.9	1.8	2.0 (51.9)	2.0	2.1	< 0.0001
Low adherence	2,940	3.8	1.6	2.3 (59.4)	2.2	2.3	< 0.0001
Moderate adherence	1,226	3.9	2.1	1.8 (45.9)	1.7	1.9	< 0.0001
High adherence	1,472	3.9	2.2	1.8 (45.1)	1.6	1.9	< 0.0001

Table 1: Mean decrease in UTI frequency after vaginal estrogen prescription, stratified by adherence level. *UTI*, urinary tract infection. *N*, sample size. *CI*, confidence interval. Pre-prescription refers to the 12-month period *before* vaginal estrogen was first prescribed. Post-prescription refers to the 12-month period *after* vaginal estrogen was first prescribed. Paired *t*-test used to compare number of UTIs in 12 months preceding and following vaginal estrogen prescription.

Covariate	Incident Rate Ratio	95% CI		p-value
Adherence group				
Low adherence	ref	ref	ref	ref
Moderate adherence	1.32	1.23	1.42	< 0.0001
High adherence	1.33	1.24	1.42	< 0.0001
Baseline number of UTIs	1.22	1.19	1.24	< 0.0001
Age (at index prescription date)				
< 55	ref	ref	ref	ref
55-64	1.15	0.98	1.35	0.09
65-74	1.20	1.02	1.41	0.03
75-84	1.24	1.05	1.46	0.01
85+	1.41	1.17	1.68	0.0002
Race/ethnicity (self-reported)				
White	ref	ref	ref	ref
Asian/Pacific Islander	0.91	0.79	1.05	0.19
Black	0.92	0.79	1.07	0.26
Hispanic	0.99	0.93	1.06	0.78
BMI				
18.5 - 24.9	ref	ref	ref	ref
< 18.5	0.98	0.77	1.25	0.85
25 - 29.9	1.02	0.95	1.10	0.55
≥ 30	1.10	1.03	1.19	0.01
Parity category				
0	ref	ref	ref	ref
1 - 2	1.05	0.91	1.22	0.47
≥ 3	1.11	0.96	1.28	0.15
Marital status				
Married or domestic partnership	ref	ref	ref	ref
Divorced/separated	1.02	0.94	1.11	0.66
Single	1.01	0.90	1.13	0.89
Widowed	1.01	0.94	1.09	0.72
Postmenopausal*	1.10	0.91	1.33	0.33
Pelvic Organ Prolapse*	0.98	0.90	1.08	0.73
Prior Pelvic Reconstructive Surgery*	0.82	0.68	0.98	0.03
Urinary Incontinence*	1.14	1.07	1.21	< 0.0001
Urinary Retention*	1.21	1.10	1.33	0.0001
Systemic Estrogen Therapy*	0.97	0.85	1.10	0.60
History of Breast Cancer*	1.22	1.03	1.43	0.02
Diabetes Mellitus*	1.14	1.07	1.21	< 0.0001
Tobacco Use*	1.04	0.86	1.25	0.69

Table 2: Predictors of UTI frequency after index vaginal estrogen prescription. *UTI*, urinary tract infection. *CI*, confidence interval. *Ref*, reference level. *BMI*, body mass index. One patient excluded from analysis due to missing BMI data. *Reference level for all binary variables was by default the negative value. Multivariate negative binomial regression used to analyze covariates as predictors of number of post-prescription UTIs.

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Sharing is Caring: Data Availability in Urobiome Research

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Introduction: Over the past decade, complementary sequence-based and culture-based approaches have provided clear, reproducible evidence that the urinary bladder has a microbial community (urobiome) that includes bacteria, fungi and viruses. Urobiome communities appear to be associated with several urological disorders ranging from kidney disease to overactive bladder, urinary incontinence, and bladder cancers. While individual studies have generated our current knowledge about the urobiome, more value can arise from data sharing and reuse. Reuse and secondary analyses of existing data can lead to new insights, particularly meta-analyses that combine data across studies. However, for data to be reused, it needs to be Findable, Accessible, Interoperable and Reusable (FAIR).
Objective: To identify how much of existing urobiome research is FAIR, with the ultimate goal of determining areas in need of improvement.
Methods: We performed a literature review on PubMed with the key terms "urinary microbiome" or "bladder microbiome" on August 9th 2021. Primary research articles were evaluated by trained researchers to confirm that they contained sequencing data about the human urobiome. Remaining articles were reviewed in depth to determine if the data were findable and accessible. We further evaluated the metadata (i.e., clinical and technical descriptors that are submitted with sequencing files to describe the samples the data arose from) for 20 studies available through the NIH Short Read Archive (SRA) for interoperability (common terms and structured terminology).
Results: Our literature search returned 73 primary research articles about the human urobiome. Seven articles were inaccessible and not evaluated in detail. Of the remaining 66 research articles, 40 (60.1%, Figure 1) reported that data were publicly available without needing to submit a request to the authors. Data locations ranged from being provided as supplementary material, hosted on personal web repositories such as github, or present on large-scale repositories such as the SRA. The SRA was the most frequently used repository, with data from 27 (67.5%) of studies. Additional evaluation of metadata when also submitted on the SRA (available for 20/27 studies) showed few attributes (e.g., column names) being shared across studies. In total, there were 98 unique data attributes. No attribute was used consistently across all studies. Only 17 (17.3%) of the unique attributes were used across at least 3 studies. Three attributes (host, geographic location, and sample collection date) that are generally required to upload sequences to SRA were used across 13 studies (Figure 2). Several attributes describe similar characteristics. For example, urine_collec_meth, urine_collect_method, and urine collection method, and sample collection device or method, are attributes identified across several studies, all of which describe how the urine was collected for samples.
Conclusions: Urobiome research has been substantially increasing since 2012. While the majority of urobiome research has been made publicly available, there are several inconsistencies that will hamper data reuse, such as the lack of consistent metadata attributes across studies. Since urobiome research is growing, it is an ideal time to build consensus, define structured terminology, and train urobiome researchers in FAIR data practices and available resources.
Disclosure: No
Images:

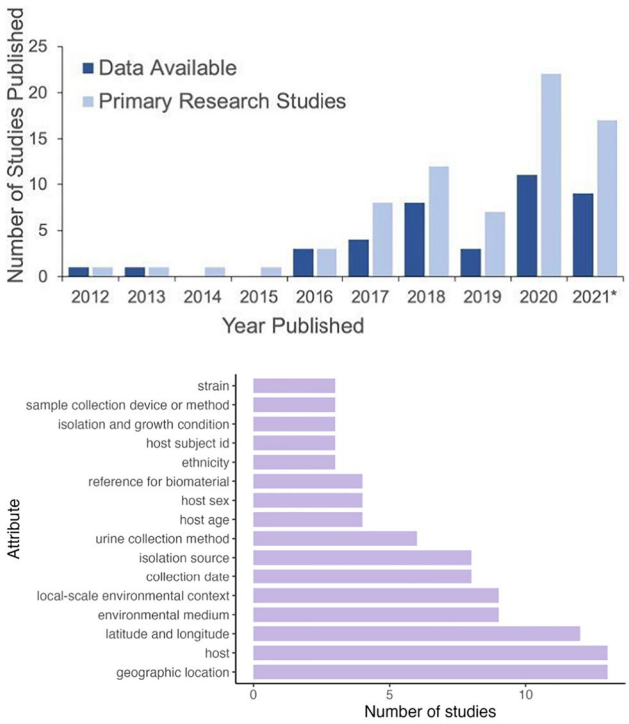

Figure 2. Metadata attributes reported in a subset of 20 urobiome research studies with data available in the NIH Short Read Archive (SRA). No attributes were shared across all studies, and only 17 attributes were reported in at least 3 studies.

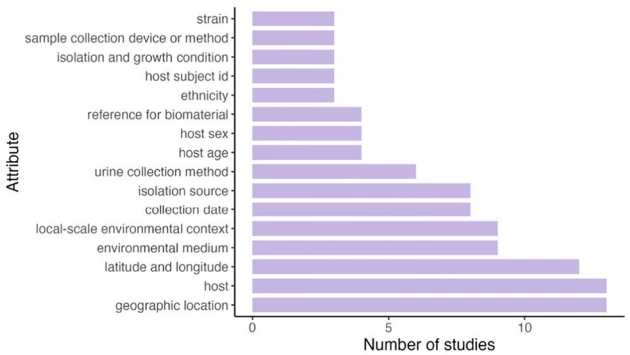

Figure 2. Metadata attributes reported in a subset of 20 urobiome research studies with data available in the NIH Short Read Archive (SRA). No attributes were shared across all studies, and only 17 attributes were reported in at least 3 studies.

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Macrophage Transcriptomics in Response to a Vaginal Mesh: Normoglycemic vs. Hyperglycemic Conditions

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Introduction: Women with diabetes have an increased risk in developing mesh-related complications (e.g., mesh exposure through vaginal epithelium) following the implantation of urogynecologic meshes, the etiology of which remains to be defined. We previously showed that diabetes induced increased inflammation at mesh-tissue interface with increased foreign body granuloma and giant cells, which was closely associated with macrophage dysfunction.
Objective: To define the mechanism underlying the macrophage dysfunction with an in-depth analysis of macrophage transcriptomics in response to a vaginally implanted mesh under normoglycemic vs. hyperglycemic conditions.
Methods: Diabetes was induced in middle-aged female Wistar rats (9-12 months, 300–450g) with streptozotocin. After the development of diabetes for 2 weeks, as confirmed by constant polydipsia, polyuria, and hyperglycemia (≥ 300 mg/dL), a polypropylene mesh was implanted on the anterior and posterior vagina via lumbo-sacrocolpopexy following bilateral ovariectomy and supracervical hysterectomy for 3- (very early), 7- (early) and 42-days (late). Normoglycemic rats underwent the same procedures (n=5 for each time point in each group). Single cell suspension was prepared from mesh-grafted vagina using enzymic digestion for fluorescence-activated cell sorting. Macrophages (CD11b+CD86+CD163+CD172a+) were sorted following a gating strategy sequentially identifying CD45+ (pan-marker of immune cells) and non-lymphocytes/NK cells (CD3-CD45R-CD161a-). Total RNA was extracted using Qiagen's RNeasy Plus Micro kit followed by library preparation with Takara SMART-Seq Stranded kit. Sequencing was performed on an Illumina Next-Seq 2000. Data were analyzed with CLC Genomics Workbench 22 (Qiagen). Differential expressions with absolute fold change > 2 and false discovery rate < 0.05 were accepted as significant differences between groups and imported to IPA (Qiagen) for pathway analysis.
Results: In total, 22081 RNAs in macrophages were successfully mapped to rat genome (Ensembl) following trimming and quality checks. In both normoglycemic and diabetic groups, the most significant change of macrophage transcriptome occurred at 7 days with 1058 and 1240 genes differentially expressed relative to 3 days, respectively, whereas there were less changes occurred at 42 days (541 and 659 genes differentially expressed relative to 7 days). In the normoglycemic groups, macrophages at 7 days began to downregulate the expression of proinflammatory genes in response to acute injuries including IL-1a, IL-1b, IL-6, CXCL1-3, S100a8 and S100a9. Simultaneously, the expression of genes involved in fibrogenesis were upregulated, including Col1a, Col3a and TGFbr1. At 42 days, CXCL3, S100a8 and S100a9 were further downregulated with a downregulation of Col1a, Col3a, indicating an attenuation of both inflammatory and fibrotic responses. When compared to the normoglycemic groups, macrophages in the diabetic groups demonstrated significant differences in gene expression at late (42 days) but not early stages (3 and 7 days) (Figure). There were 432 differentially expressed genes in the diabetic vs. normoglycemic groups at 42 days with increased expression of proinflammatory genes S100a8 and S100a9, and pre-fibrotic genes including Col1a, Col3a, Col6a1, and Col6a2.
Conclusions: Longer duration of diabetes alters macrophage transcriptome in response to mesh implanted upon vagina, which may underlie the macrophage dysfunction in the regulation of inflammation and fibrogenesis. Future studies on diabetes-induced epigenomic modifications and macrophage-based therapies are warranted.
Disclosure: No
Images:

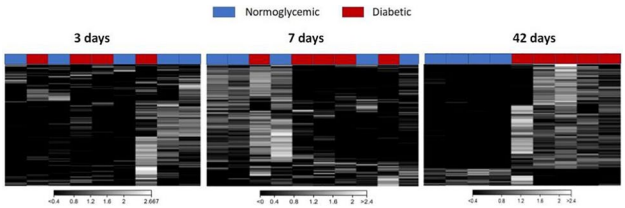

Figure. Heat maps showing differential expression of genes in macrophages at mesh-implanted vagina at 3-, 7-, and 42-days post-surgery. Significant changes were found at 42 days.

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Changes in the Urogenital Microbiomes Follow Midurethral Sling Surgery for Stress Urinary Incontinence

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Introduction: Midurethral sling (MUS) procedures have become increasingly popular as the treatment choice for stress urinary incontinence ()SUI. Some evidence suggests that MUS might lead to new-onset or worsening urinary urgency or urgency urinary incontinence (UUI), and overactive bladder (OAB) symptoms following MUS are as high as 30%. OAB and UUI are usually attributed to abnormalities in detrusor neuromuscular function and signaling but the exact cause of OAB is likely more complex. Growing evidence suggests that the female urinary microbiota may be associated with lower urinary tract symptomatology and play a role in certain urinary disorders such as OAB and UUI.
Objective: The study objective was to evaluate the effect of MUS on the urinary and vaginal microbiomes.
Methods: This was a prospective observational cohort study of women planning to undergo MUS surgery for the treatment of SUI that took place from June 2019 through August of 2020. Urinary and vaginal samples were collected on the day of surgery and at 2-and 6-weeks postoperatively. Participants also filled out Pelvic Floor Distress Inventory (PFDI-20) and Overactive Bladder Questionnaire Short Form (OABq-SF) surveys at each visit. The urine and vaginal swabs were sent for 16S rRNA amplicon sequencing of the V4 region with Illumina Miseq along with extraction blanks and a mock microbial dilution series. Raw reads were processed with DADA2 to generate amplicon sequence variants (ASVs). Taxonomy was assigned with BLCA using the 16S Microbial NCBI database. The number of observed genera, Shannon, inverse Simpson, and Pielou indices were used to assess alpha diversity of the urobiome and vaginal microbiome. We assessed

change in median values using paired Wilcoxon rank sum test between visits.

Results: Nineteen women undergoing MUS were enrolled in the study with an average age of 56.1 ± 11.4 years. Most women were postmenopausal (73.7%) and had history of prior hysterectomy (52.6%). PFDI-20 scores decreased over time by 7.10 points ($p<0.001$). OAB symptom bother decreased and health-related quality of life improved over time by 16.4 and 18.3 points, respectively ($p<0.001$). The vaginal microbiome demonstrated increases in the Inverse Simpson, Shannon, and Pielou indices from baseline to 2-weeks followed by a decrease from 2-to 6-weeks, although this was not statistically significant, likely due to high variability in the alpha diversity measures of the vaginal microbiome among subjects in this study (Fig. 1). These temporal change patterns do not appear to be mirrored in the urinary microbiome (Fig. 2). We did not observe similar trends in the median number of observed genera. In the vaginal microbiome, Staphylococcus, Dialister, and Peptoniphilus were decreased significantly from baseline to 6-weeks. This change was not mirrored in the urinary microbiome.

Conclusions: The vaginal and urinary microbiomes exhibit changes at 2-and 6-weeks post-operatively following MUS surgery. Three vaginal bacteria were significantly decreased. While we noted an initial increase followed by decrease in alpha diversity measures in the vaginal microbiome, none were significant, likely because of low sample size and high variability of the vaginal microbiome in our cohort. Interestingly, we did not observe similar changes in the urinary microbiome.

Disclosure: No

Images:

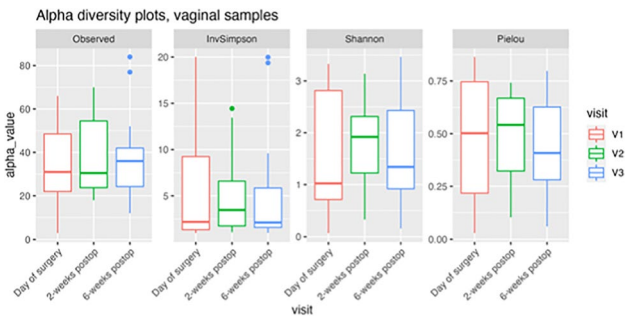

Figure 1. Changes to the vaginal microbiome following MUS Surgery. The Inverse Simpson, Shannon, and Pielou indices increase from day of surgery to 2-weeks postoperatively (p=0.85, p=0.70, p=0.92 respectively) and then decrease from 2-weeks to 6-weeks postoperatively (p=0.76, p=0.76, p=0.76 respectively). The number of observed genera decreases from baseline to 2-weeks (p=0.49) and increases from 2-weeks to 6-weeks postoperatively (p=0.97).

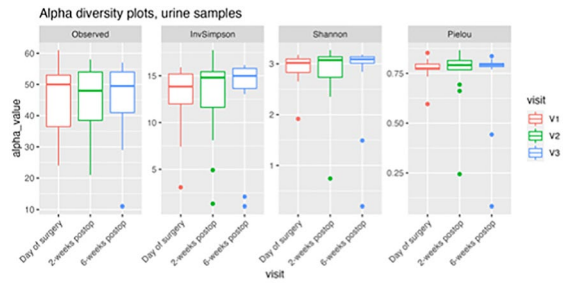

Figure 2. Changes to the urinary microbiome following MUS Surgery. The median number of observed genera decreases from day of surgery to 2-weeks postoperatively (p=0.61) and increases from 2-weeks to 6-weeks postoperatively (p=0.65). The Inverse Simpson, Shannon, and Pielou indices increase from day of surgery to 2- weeks postoperatively (p=0.71, p=0.72, p=1, respectively) and again from 2-weeks to 6-weeks postoperatively (p=0.64, p=0.64, p=0.28, respectively).

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Bacterial Persistence as a Potential Mechanism of Recurrent UTI in a Urogynecologic Population

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2 - Emory University School of Graduate Studies
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Introduction: Up to 50% of women are diagnosed with a urinary tract infection (UTI) in their lifetime.1 Approximately 20-44% of women will go on to develop recurrent UTIs (rUTI), with postmenopausal women disproportionately affected.2 It is unknown if rUTIs are as a result of bacterial resistance or persistence. Persistence occurs when bacteria become metabolically inactive in response to bacterial cell stress, allowing them to survive antibiotic treatment.3-6 These bacteria are called persisters.

Objective: Our team has a biobank of 90 clinically-sourced specimens from postmenopausal women. This study aims to characterize each specimen's antibiotic susceptibility profile and phenotype to determine the prevalence of the persistence in vitro for uropathogens. The findings from this research will contribute to bridging the gap in our clinical armamentarium to treat recurrent infections.

Methods: Urine was obtained as part of an IRB approved study to identify mechanisms of rUTI. Uropathogens from 89 postmenopausal women with isolated and rUTI were collected. The minimum inhibitory concentration (MIC) of Nitrofurantoin, Trimethoprim-Sulfamethoxazole (TMP-SMX), Ofloxacin, and Fosfomycin for each isolate was collected according to the standard CLSI Method for broth microtiter dilution.7 Isolates were cultured, treated with ofloxacin at the MIC, washed, and resuspended in phosphate-buffered saline to generate persisters. The culture was aliquoted for antibiotic treatment at the MIC for each antibiotic and vehicle control (DMSO or Water). To quantify the bacterial growth, 10µL of each dilution was spotted onto agar plates in quadruplicate to determine CFU/mL.8 The same quantification method was performed 24 hours post-treatment after washing each culture in PBS.8 The data was analyzed for significance ($p<0.01$) between the vehicle treated persister culture and the antibiotic treatments using a one-way ANOVA followed by a Sidak test in Prism 9.0.

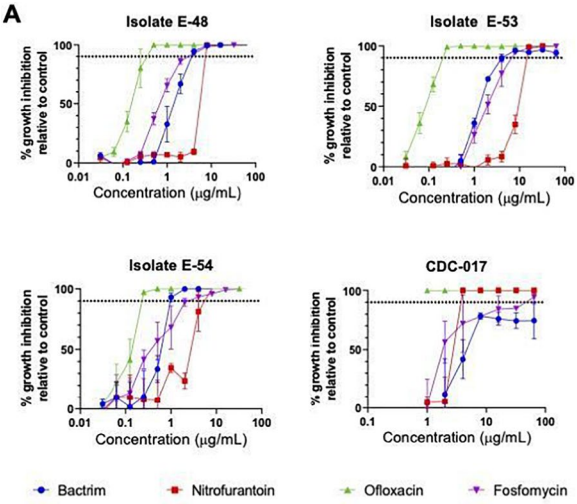
Results: Ninety-five uropathogen strains were isolated from postmenopausal women with culture-proven UTI; the majority of which were E. coli. We have characterized the susceptibility profiles for three strains and a laboratory strain (Figure 1). Isolate E-48 demonstrated a persister phenotype after 24 hours of treatment (Figure 2). After antibiotic treatment, there was bacterial growth that exceeded the pre-treatment sample in the post-treatment isolates confirming we generated the persistence phenotype. There was statistical significance between the post-treatment samples and the vehicle control ($p<0.01$).

Conclusions: In our study we demonstrate that current first-line UTI antibiotics may not eradicate E. coli persisters. The MIC of Nitrofurantoin and TMP-SMX were used to inhibit bacterial growth. We were able to show bacterial growth persisted despite antibiotic treatment as bacteria entered a metabolically dormant state to ensure their survival. Once the antibiotic was removed, bacterial growth recurred. Bacterial persisters may play a significant role in infection recurrence. There is ongoing research testing each first-line antibiotic for their potential to generate persister cultures.

Disclosure: No

Images:

A



B

	Bactrim	Nitrofurantoin	Ofloxacin	Fosfomycin
Isolate E-48	4	8	0.5	4
Isolate E-53	8	16	0.25	2
Isolate E-54	1	8	0.25	4
CDC017	64	4	0.125	1

Figure 1. (A) Graphs depict growth of bacterial cultures based on optical density, plotted as a percentage of the vehicle (DMSO) control. The dotted line at 90% represents the MIC cutoff. The MIC was performed to determine the antibiotic concentration at which little to no bacterial growth would occur. (B) The minimum inhibitory concentration (MIC) is reported for each isolate (µg/mL).

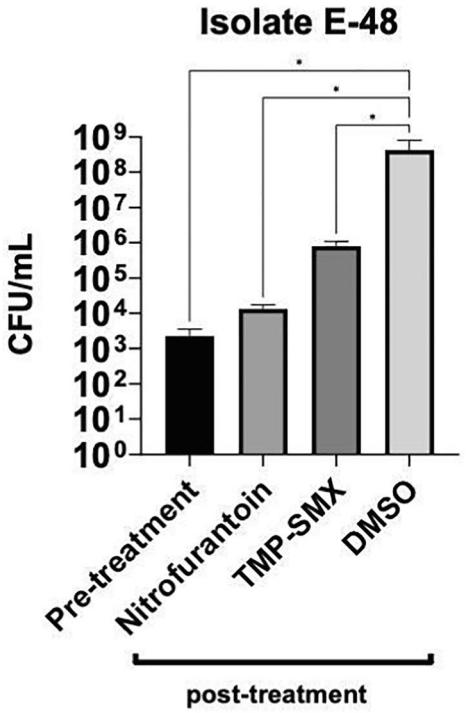


Figure 2. Graph depicting antibiotic activity against UTI persister isolate E-48. Pre-treament sample is defined as bacterial culture without antibiotic exposure. Post-treament refers to bacterial culture treated with antibiotics. Bacterial growth from the post-treatment samples exceeded the pre-treatment sample confirming the presence of the persistence phenotype. Significant bacterial growth also noted with vehicle control (DMSO).

*** denotes statistical significance, (p<0.01)**

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Pelvic Floor Muscle Shape is Associated with Anatomic Recurrence After Apical Prolapse Repair

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Introduction: The pelvic floor muscles (PFM) are critical in providing vaginal support. Structural PFM defects have been associated with increased risk of anatomic recurrence after prolapse surgery. Comprehensive descriptions of PFM shape and how shape relates to anatomic recurrence after prolapse surgery are lacking but imperative for improving surgical outcomes.
Objective: To identify shape differences of the PFMs at rest and maximal strain between women with and without anatomic recurrence after vaginal hysterectomy with uterosacral ligament suspension (native tissue repair, NTR) vs transvaginal mesh (VM) hysteropexy for uterovaginal prolapse. We hypothesized that PFM shape significantly differs by surgery, anatomic outcome, and maneuver.
Methods: This was a secondary analysis of a prospective study in which 88 women treated surgically for uterovaginal prolapse (43 NTR, 45 VM hysteropexy) underwent pelvic MRI at rest and maximal strain 30-42 months postoperatively or earlier for patients who desired reoperation prior to 30 months. Anatomic recurrence was defined as prolapse beyond the hymen with strain on MRI. In the true midsagittal plane, the PFM complex was traced from the inferior pubic bone to the tip of the coccyx to generate a 2D curve aligned and normalized by the pubococcygeal line. After establishing corresponding points between all PFM shapes, a Principal Component Analysis (PCA) was performed. Significant modes of variation that explained shape variability greater than noise were identified using a Monte Carlo analysis. PCA scores, the projection of curve coordinates onto eigenvectors, were evaluated using a Three-Way Mixed

MANOVA to determine the effects of surgery (NTR vs VM hysteropexy), anatomic outcome (success vs recurrence), and maneuver (rest vs strain) on PFM shape.

Results: Of the 88 women analyzed, 24 (56%) NTR and 13 (29%) VM hysteropexy had anatomic recurrence. Six significant modes of shape variation were identified. Multivariate analysis showed significant two-way interaction between anatomic outcome and maneuver on PFM shape (p=0.002) which was also present in Modes 1 (p=0.025), 2 (p=0.036), and 3 (p=0.002) (Figure 1). Mode 1 described levator plate relaxation (straightening) and perineal body/anal sphincter descent. Mode 2 described anterior distension/deviation of level III support/levator plate. Mode 3 described anterior distension of level III support and straightening of the perineal body/anal sphincter during maximal straining. For Mode 1, the levator plate was straighter and the perineal body/anal sphincter were more inferior at strain in the recurrence group vs the success group (p=0.009) (Figure 2a). For Mode 2, there was more anterior distension/deviation of level III support from rest to strain in recurrences (p=0.005), whereas PFM shape did not differ by maneuver in successes (p=0.887) (Figure 2b). For Mode 3, there was anterior distension of level III support and straightening of the perineal body/anal sphincter during maximal straining in both groups (Figure 2c).

Conclusions: Hyper-relaxation of the levator plate, descent/hypermobility and straightening of the perineal body/anal sphincter, and anterior distension of level III support during maximal straining were associated with anatomic recurrence after prolapse surgery (Figure 3). These PFM shape characteristics are consistent with defective muscular support and warrant prospective studies to investigate their mechanistic role in anatomic recurrence.

Disclosure: Yes, this is sponsored by industry/sponsor: Boston Scientific
Clarification: Industry funding only - investigator initiated and executed study

Images:

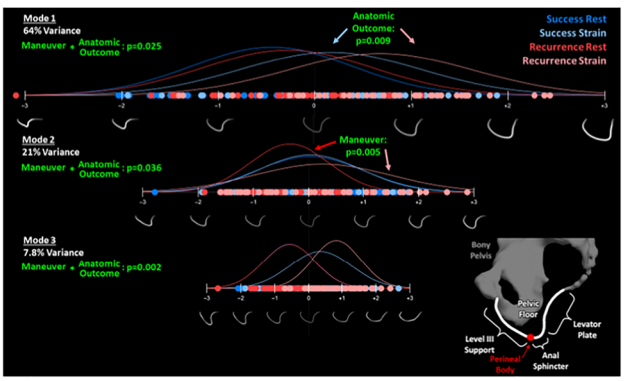

Figure 1. Visualization of the first three significant modes of variation where each point represents the principal component score of a subject that lies on each eigenvector (line segment) and the normal curves describe the distribution for each group based on anatomic outcome (success, recurrence) and maneuver (rest, strain). The mean and +/- 3 standard deviations of the PFM shape for each mode is depicted and color mapped based on the distance from each curve point to its corresponding point on the mean shape, where whiter colors signify more deviation from the mean. The percent variance explained by each mode and univariate analyses results are shown in white and green text, respectively. An anatomic reference of the components of the PFMs with respect to the bony pelvis is given in the bottom right figure.

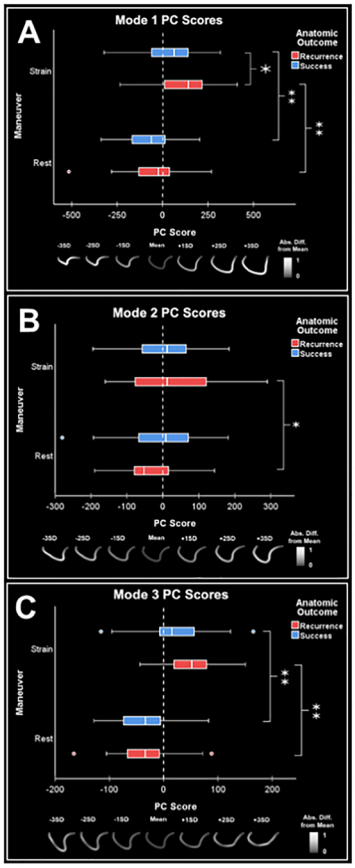

Figure 2. Box plot of the principal component (PC) scores for (**A**) Mode 1, (**B**) Mode 2, and (**C**) Mode 3 where differences by anatomic outcome and maneuver are shown along with their associated PFM shape (+/- 3 standard deviations) color mapped by the absolute distance from the mean shape, where whiter colors signify more deviation from the mean. * p<0.01; **p<0.001

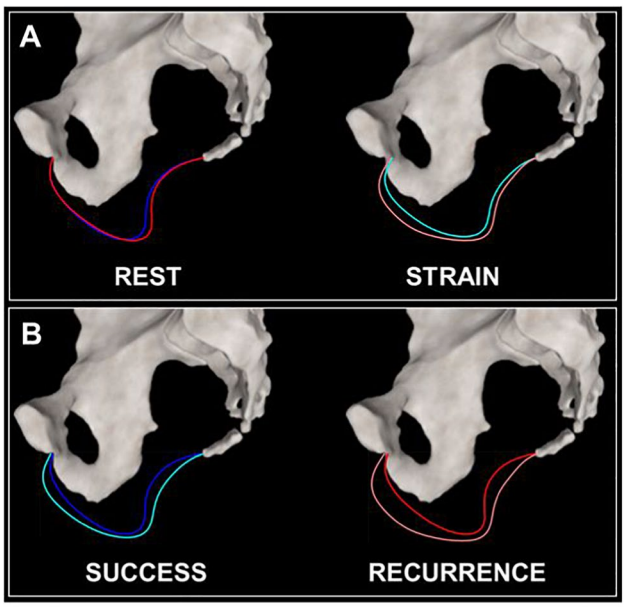

Figure 3. (**A**) Comparison of mean PFM shape between the success (dark/light blue) vs recurrence (dark/light red) groups at rest (**left**) and strain (**right**). While PFM shape was similar at rest between groups, the levator plate was straighter (more relaxed) and level III support was bulging (distending) more anteriorly in the recurrence group vs the success group at strain. (**B**) Comparison of mean PFM shape between rest (darker blue/red) vs strain (lighter blue/red) in the success (**left**) and recurrence (**right**) groups. There was a greater change in PFM shape from rest to strain in the recurrence group vs the success group, where there was notably more levator plate relaxation, anterior distension of level III support, and straightening/descent of the perineal body and anal sphincter in the recurrence group vs the success group.

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Host Response to a Urogynecologic Mesh: A Time-course Study

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Introduction: Urogynecologic meshes are used to augment surgical repairs of pelvic floor disorders such as urinary incontinence and pelvic organ prolapse. However, mesh complications including mesh exposure through the vaginal epithelium and chronic pain, hamper the application. A better understanding of host response to a vaginally implanted mesh is key to improve the practice.
Objective: To investigate the time course of host response to a polypropylene mesh implanted via sacrocolpopexy in a rat model.
Methods: Forty-three middle-aged (9 – 12 months) female Wistar rats were used. An ultra-lightweight, large pore polypropylene mesh was implanted on the anterior and posterior vagina via sacrocolpopexy without tensioning following supracervical hysterectomy and bilateral ovariectomy (n=25). Sham-operated controls underwent the same procedures without mesh (n=18). Vaginal tissues were collected at very early (3 days), early (7 days) and late (42 days) stages post-surgery. Inflammation at mesh fiber-tissue interface was quantified using three indexes: overall inflammation (OI), granuloma, and foreign body giant cells (FBGC) in tissue sections stained with hematoxylin & eosin or Masson's trichrome methods. Mixed effect models were used to determine the impact of mesh load on the inflammation. Single cell suspension was obtained from mesh-grafted tissues followed by flow cytometry analysis of immune cell populations. Total protein was extracted from the tissue followed by multiplex assay of 22 cytokines/chemokines. Statistical significance was set at $p<0.05$.
Results: Relative to Sham, mesh induced inflammatory response in the vagina, which was diffused at 3 days but confined to mesh fibers with the formation of encapsulated foreign body granuloma and FBGCs at 7- and 42-days. OI, granuloma and FBGC counts were all positively correlated to mesh load independently (all $p < 0.001$, Figure 1). With the impact of mesh load adjusted, both OI and granuloma showed significant decrease at 42 days when compared to 7 days (p=0.005, 0.006) while the number of FBGCs was not different (p=0.22). In the mesh-grafted vagina, median % of CD45+ immune cells peaked at 7 days (53%) and decreased at 42 days (25%), which remained higher than 3 days (11%) (all $p<0.05$). The fraction of macrophages tended to decrease while that of lymphocytes tended to increase with time. The fraction of granulocytes remained relatively stable at the 3 time points (Figure 2). Twelve immune mediators were detected, including G-CSF, IFNϒ, IL-1α, IL-1β, GROα, MIP-2, IP-10, MCP-1, MIP-1α, RANTES, MCP-3, and eotaxin. Relative to Sham, mesh induced a significant increase of IFNϒ at 3 days and increases of eotaxin, IP-10, MCP-1 and MCP-3 at 7 days (all $p<0.05$). The increase of these factors was mostly diminished at the late stage (42 days) except MCP-1 and MIP-1α which remained elevated by 8 folds and 13.4 folds (both $p<0.001$) (Figure 3).
Conclusions: Polypropylene mesh-associated inflammation increases with mesh load. While it decreases over time, the inflammation sustains with a long-term increase of immune cells in the vagina, which is likely associated with an increase of proinflammatory chemokines MCP-1 and MIP-1α. Strategies to decrease mesh load and attenuate these proinflammatory chemokines are promising to improve mesh outcomes.
Disclosure: No
Images:

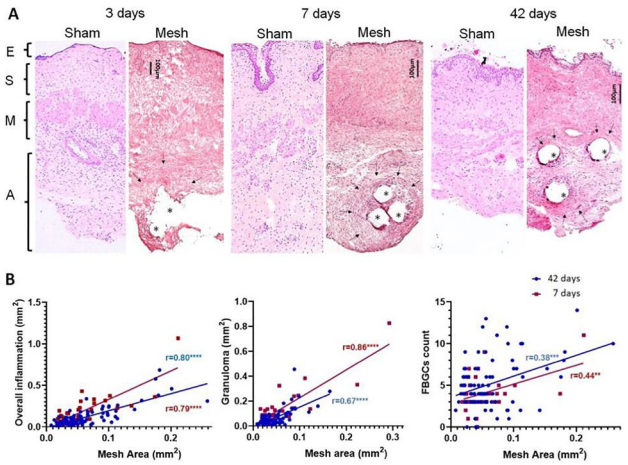

Figure 1: A) Hematoxylin & eosin images of cross-sectional vaginal wall with (mesh) or without mesh implantation (Sham) at 3-, 7- and 42-days post-surgery. Images were taken at 10 x magnification. Arrows indicates the mesh fiber-associated inflammation; for each image from top to bottom, E = epithelium, S = sub-epithelium, M = muscularis, A = adventitia, * = mesh fiber. B) Positive correlations between inflammatory indices and mesh load at 7- and 42-days post-surgery with Pearson's r and regression lines. ** p<0.01, *** p<0.001, **** p<0.0001.

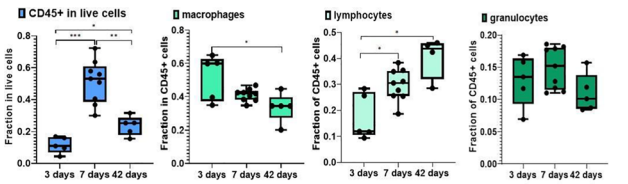

Figure 2: Immune cell populations including CD45+ cells, macrophages, lymphocytes and granulocytes in the vagina at 3-, 7- and 42 days following mesh implantation. Data were shown by box-whiskers plots with medians, minimal and maximal values, and points representing individual samples. * p<0.05; ** p<0.01; *** p<0.001.

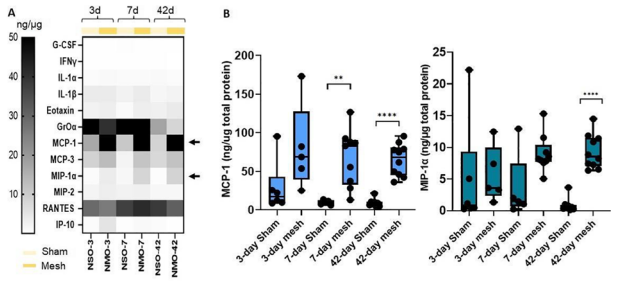

Figure 3: A) Profiles of cytokines and chemokines in vaginal tissues with (mesh) or without (Sham) mesh implantation at 3-, 7- and 42-days post-surgery. Median values were used to construct the heat map. Arrows point to factors depicted in detail in B). NSO = Normoglycemic Sham; NMO = Normoglycemic with mesh; B) Levels of MCP-1 and MIP-1α in Sham and mesh-implanted groups at 3-, 7- and 42-days post surgery. Data were shown by box-whiskers plots with medians, minimal and maximal values, and points representing individual samples. ** p<0.01, **** p<0.0001.

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Genetic Risk Factors for Paediatric and Adult UTI: Systematic Review and Meta-analysis

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Introduction: The lifetime risk of UTI is known from twin studies to be highly heritable. Associations have also been observed across the life course from paediatric UTI to recurrent UTI in adulthood, suggesting lifelong susceptibility factors. Candidate gene studies and genome-wide association studies have tested for genetic associations of UTI, but no contemporary systematic synthesis of studies is available.
Objective: We conducted a systematic review to assess putative associations between polymorphisms in any gene and UTI in adults or children. We aimed to identify all genetic polymorphisms tested for an association with UTI, and to assess the strength, consistency, and risk of bias among reported associations.
Methods: PubMed, HuGE Navigator and Embase were searched from Jan 1, 2005 to Sep 1, 2021, using a combination of genetic and phenotype key words, including "urinary tract infection," "bacteriuria," "pyelonephritis," "cystitis," "single nucleotide polymorphism," and "genetic". Data were extracted in duplicate. Authors were contacted for clarifications when needed. Fixed and random effects meta-analyses were conducted using co-dominant models of inheritance in metan. The interim Venice criteria were used to assess the credibility of pooled associations.
Results: After removing duplicates 1283 study reports were screened, with 86 selected for full-text review, 42 were included in the analysis (18 adult papers and 24 paediatric papers). A single genome association study using 23andMe data (n=78,478) has reported two genome wide significant SNPs: rs2976388 close to JRK-[]-PSCA and rs146906133 close to FRMD5, but no external replication is available. All other included studies were candidate gene studies, with the possible meta-analyses summarised in Table 1 (paediatric samples) and Table 2 (adult samples). Many other putative significant findings have been reported in a single paper, but without replication. These meta-analyses demonstrated significant pooled associations for paediatric UTI with variation in ACE, CXCR1, IL8, TGF, TLR4, VDR and VEGF all of which have plausible roles in the pathogenesis of UTI. These meta-analyses also demonstrated a significant pooled association for adult UTI with variation in CXCR1. All significant pooled associations were graded as providing at most weak epidemiological credibility, because of small sample sizes, high heterogeneity between studies and high risk of bias from potential genotyping errors or case identification.
Conclusions: This systematic review provides a current synthesis of what is known about the genetic architecture of UTI in childhood and adulthood, and should provide important information for researchers planning or analyzing future genetic association studies. Although, overall, the credibility of pooled associations was weak, the consistency of findings for the rs2234671 SNP of CXCR1 in both paediatric and adult populations points to a gene with a key role in the pathogenesis of UTI.
Disclosure: No
Images:

Gene	SNP identifier	n studies	n participants	Pooled OR	95% CI	p	I^2 (%)	Venice Grade
ACE	rs4646994	3	860	15.98	4.1-62.3	0.001	98.1	weak
CXCR1	rs2234671	3	1247	0.69	0.49-0.98	0.04	14.2	weak
IL6	rs1800795	2	543	0.90	0.66-1.25	0.53	0	-
IL8	rs4073	2	925	0.74	0.61-0.89	0.002	93.9	weak
TGF	rs1800468	2	572	1.45	1.01-2.08	0.04	0	weak
TGF	rs1800469	2	572	1.18	0.89-2.53	0.24	93.4	-
TGF	rs1982073	2	572	1.14	0.88-1.48	0.31	0	-
TLR4	rs4986790	4	1283	0.56	0.37-0.83	0.005	23.2	weak
TLR4	rs4986791	3	1008	0.97	0.17-5.62	0.97	81.5	-
VDR	rs2228570	2	317	0.70	0.50-0.97	0.032	86.3	weak
VDR	rs731236	2	317	0.86	0.62-1.18	0.346	0	-
VDR	rs1544410	2	317	0.72	0.53-0.99	0.042	81.7	weak
VDR	rs7975232	2	317	1.34	0.97-1.84	0.076	96.0	weak
VEGF	rs833061	3	676	8.98	2.58-31.2	0.001	97.0	weak
VEGF	rs2010963	2	453	11.53	5.0-26.6	0.001	91.2	weak

Table 1: Pooled associations for paediatric UTI

Gene	SNP identifier	n studies	n participants	Pooled OR	95% CI	p	I^2 (%)	Venice Grade
ACE	rs5744168	2	1962	0.14	0.09-0.20	0.001	70.6	weak
CXCR1	rs2234671	2	566	0.51	0.30-0.86	0.01	89.7	weak
IL8	rs4073	2	1389	1.09	0.93-1.27	0.28	84.9	-
TIRAP	rs8177374	3	2838	1.01	0.85-1.22	0.85	0	-
TLR5	rs5744168	2	1992	1.08	0.83-1.40	0.55	88.4	-
TLR4	rs4986790	4	2006	0.95	0.58-1.54	0.82	65.5	-
TLR4	rs4986791	3	1642	1.25	0.95-1.64	0.11	0	-
TLR2	rs5743708	2	2002	1.12	0.77-1.65	0.53	0	-
TLR1	rs5743618	2	1900	1.10	0.96-1.26	0.15	0	-

Table 2: Pooled associations for adult UTI

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In Vitro Response of Human Buccal Epithelial Cells to a Multiphasic Bladder Patch

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Introduction: Replacing bladder tissue with a functional equivalent remains one of the most challenging problems for conditions such as iatrogenic injuries, trauma, or fistula in reconstructive urology. Conventional bladder reconstruction utilizing gastrointestinal (GIS) segments is the most frequently employed therapeutic strategy and is related to a series of complications due to incompatibility of GIS with urine. Various tissue-engineered scaffolds have been studied as bladder patches for bladder reconstruction. Synthetic polymer materials are generally preferred because they are relatively easy to manufacture, and biocompatibility has been studied in detail. Among the polymers examined for tissue engineering, polycaprolactone (PCL) exhibits ideal biocompatibility for bladder augmentation, and its degradation products have minimal toxicity in vivo. While PCL represents an excellent base material as a template for infiltrating tissue, it does not provide biochemical cues to guide cell differentiation. Utilization of naturally derived biomaterials such as amnion and collagen can provide biochemical cues for cell attachment, growth, and proliferation. Additionally, oral epithelial cells represent a viable source of cells for clinical applications as they can be collected from small biopsies and expanded for tissue regeneration.
Objective: Our study objective was to develop a bioengineered regenerative cell-seeded multiphasic bladder patch for bladder reconstruction.
Methods: Human oral epithelial cells were harvested from buccal grafts under an IRB-approved protocol, and their phenotype was assessed by immunocytochemistry using a fluorophore-conjugated antibody against CK3/2p. Electrochemically compacted collagen sheets were fabricated using planar electrodes and then crosslinked using genipin. The human amniotic membrane was isolated from the placenta and adhered to a genipin crosslinked collagen sheet/PCL using the gluing solution (Fig.1). The morphology and composition of the surface layer were evaluated by scanning electron microscopy (SEM). PCL was laser cut using an Epilog laser system. The amnion section of bladder patch was seeded with human oral epithelial cells and cultured for three days following sterilization. Seeded collagen sheets were evaluated for proliferation using MTT assay. Western blot for CK3/2p was performed on cells seeded on bladder patch to determine their phenotype at 72 hours.
Results: Human epithelial cells stained positive for CK3/2p (Fig.2A). SEM showed a connection between layers within composite bladder patch (Fig.2B). Epithelial cells exhibited increased cell proliferation when seeded on bladder patch compared to epithelial cells that are seeded on the culture plate ($p<0.05$) (Fig.2C). Protein expression highlighted the presence of CK3/2p at 72 hours following seeding on a bladder patch (Fig.2D).

Conclusions: Multiphasic bladder patch supports sufficient epithelial cell attachment and survival suitable for implantation. Protein expression results suggest that a multiphasic bladder patch sustains the epithelial cell phenotype and increases the proliferation rate. The proposed bioengineered bladder patch is highly novel, can be utilized in conjunction with epithelial cells and has tremendous potential for regenerative medicine-based repair of bladder tissue. We are in the process of testing this patch for biocompatibility and mechanical properties in animal studies for long-term safety in vivo.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: CollaMedix
Images:

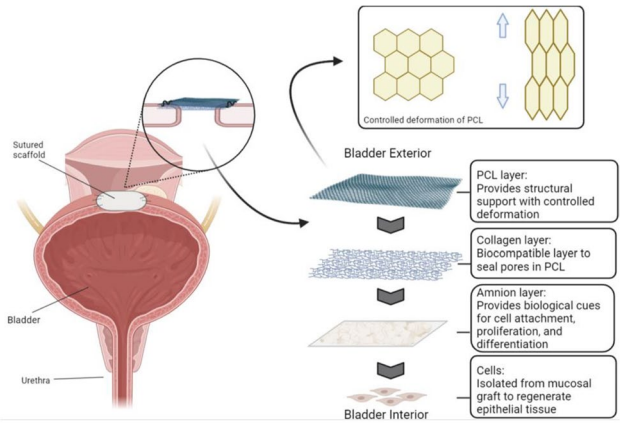

Figure 1. A schematic depiction of bioengineered scaffold for bladder regeneration. Cells were seeded on amnion section of bladder patch. Images were made in Biorender.

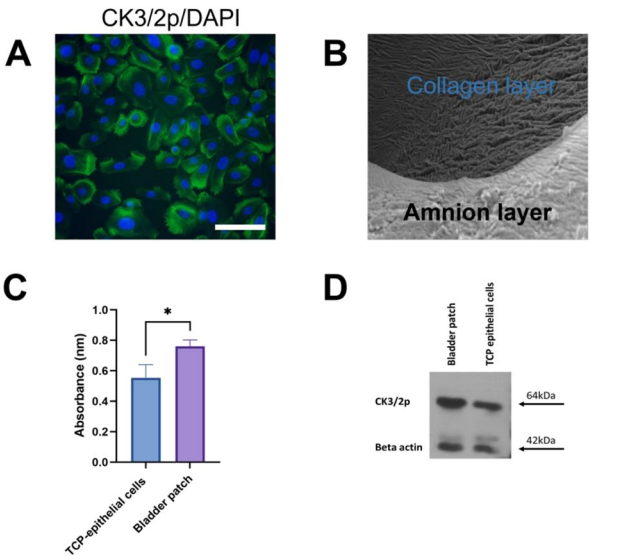

Figure 2. A) Representative immunofluorescent images of human oral epithelial cells CK3/2p (green)/DAPI (blue). Scale bar is 100 µm. B) SEM shows adhesion between collagen sheet and amnion. C) MTT proliferation assay of cells seeded on bladder patch. TCP-tissue culture plate D) Western Blot images of cells were seeded on amnion portion of bladder patch.

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Use of the Senolytics Dasatinib and Quercetin for Amelioration of Pelvic Organ Prolapse in a Mouse Animal Model
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Introduction: The use of senolytic agents has the potential to target age-related pathology associated with cellular senescence and has demonstrated reduction of senescent cell activity in several disease processes.
Objective: To utilize a mouse model of pelvic organ prolapse, Fibulin-5 knockout (Fbln-5-/-) mice, to assess the ability of the Dasatinib and Quercetin (D+Q) drug combination to prevent development of pelvic organ prolapse.
Methods: Four-week-old female Fbln5-/- mice (n=9) and wild-type (WT) mice (n=27) were assigned to either a control group (vehicle injection) or treatment group (D= 5mg/kg, Q=50mg/kg), and oral gavage injections were administered at 4, 5, 6, 7 and 8 weeks of life. Mouse pelvic organ prolapse quantification system (MOPQ) measurements were obtained weekly. Vaginal tissue was harvested at 10, 12 and 20 weeks. Tissue analysis included immunostaining and cytokine analysis. ANOVA and t-test as appropriate with post hoc testing was used for statistical analysis. Quantitative data is presented as mean ± standard error of the mean.
Results: Perineal bulge and perineal body length, as measured by MOPQ, did not differ significantly between control and treatment groups in Fbln5-/- or WT mice at 10, 12, or 20 weeks. Immunofluorescence demonstrated significantly decreased expression of senescence markers p16 and p53 at 20 weeks within the Fbln5-/- D+Q treatment group compared to the Fbln5-/- control group (10.53% vs 29.54%, p=0.021 and 3.55% vs 22.58%, p=0.047, respectively) (Figure). No differences were noted at 10 or 12 weeks in Fbln5-/- mice, or within the WT groups at 20 weeks. Cytokine analysis at 10 weeks showed Fbln 5 -/- mice treated with D+Q had decreased expression of macrophage inflammatory protein-3 (4.4pg/mL ± 0.3 vs 6.4pg/mL ± 0.2, p=0.0018) compared to Fbln 5 -/- mice that received vehicle injections. Increased expression of tumor necrosis factor-alpha (4.1pg/mL ± 0.4 vs 3.2pg/mL ± 0.2, p=0.007), C-C motif chemokine 11 (977.0pg/mL ± 141.0 vs 32.2pg/mL ± 1.5, p<0.0001) and macrophage inflammatory protein-1 alpha (2.8pg/mL ± 0.4 vs 0.9pg/mL ± 0.1, p=0.044) was seen in Fbln 5 -/- mice after treatment with D+Q compared to vehicle injections. At 20 weeks, expression of macrophage inflammatory protein-3 was higher in the Fbln 5 -/- D+Q treatment group compared to the control group (7.3pg/mL ± 0.2 vs 4.4pg/mL ± 0.5, p<0.0001). There were no differences in cytokine expression between the WT groups.
Conclusions: In this study, use of serial D+Q injections did not result in significant differences in prolapse development but did demonstrate decreased expression of markers of cellular senescence in Fbln5-/- mice. These results suggest senolytic agents may play a role in mitigating the contribution of cellular senescence to tissue dysfunction associated with pelvic organ prolapse. Further studies are needed to confirm ideal timing, dosage, and route for the use of senolytics in the prevention and treatment of pelvic organ prolapse.
Disclosure: No
Images:

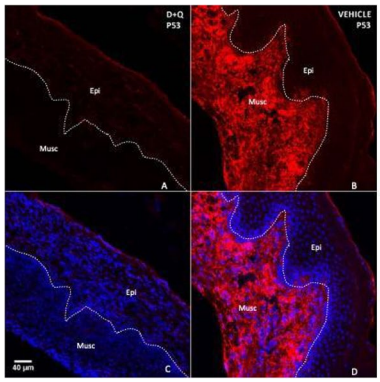
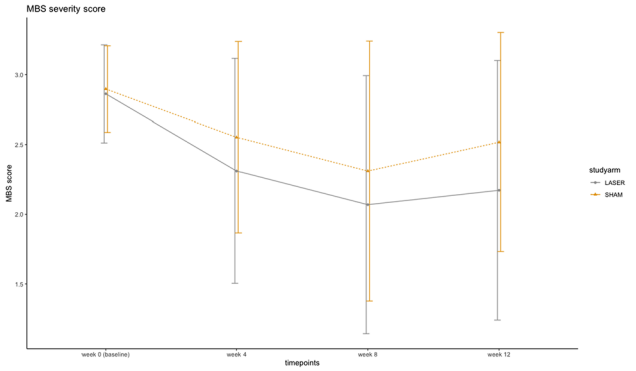


Figure. Effect of Dasatinib and Quercetin injections on the expression of p53 in the wall of the vaginal stroma of Fibulin-5 knockout (Fbln $5^{-/-}$) mice at 20 weeks. Representative tissue sections from Fbln $5^{-/-}$ mice in the treatment group (Panel A) and Fbln $5^{-/-}$ mice in the control group (Panel B) mice demonstrate differences in p53 expression. Panels C and D display corresponding DAPI staining to label cellular nuclei for anatomical reference. Epi= epithelium, Musc= muscularis. 20X magnification



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Laser versus Sham for Genitourinary Syndrome of Menopause: A Randomized Trial

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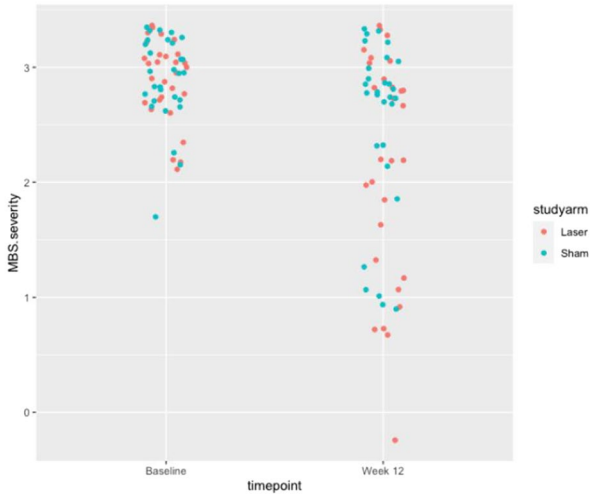
Introduction: CO2 laser treatment is increasingly being used to treat genitourinary syndrome of menopause. However, there is a paucity of high-quality evidence on its safety and long-term efficacy.
Objective: Therefore, we explored whether CO2 laser treatment was more effective than placebo in relieving the MBS of GSM at three months and 18 months after therapy initiation.
Methods: A single center, randomized, sham controlled, double-blind trial, including 60 women with moderate to severe genitourinary syndrome of menopause symptoms. Outcomes were assessed at 12 weeks and 18 months from start of treatment. The primary outcome was the change in severity of the most bothersome symptom 12 weeks from start of therapy. Secondary outcomes were subjective and objective measures assessing the short-term effect and the longevity of treatment effect, and adverse events.
Results: The most bothersome symptom severity score decreased from 2.86 ± 0.35 to 2.17 ± 0.93 (-23.6% [95% CI, -36.1 to -11.1]) in women treated with laser as compared to 2.90 ± 0.31 to 2.52 ± 0.78 (-13.2% [95% CI, -22.7 to -3.73]) in those receiving the sham procedure ($p = 0.13$). Also, 41.3% of women receiving laser rated their improvement as "better" or "much better" compared to 34.5% in the sham group. There were neither obvious differences in change from baseline for any other subjective and objective secondary outcomes. There were no serious adverse events on the short and longer term.
Conclusions: The treatment response 12 weeks after laser therapy for genitourinary syndrome of menopause was not different from that of sham. There were no obvious differences for any of other subjective or objective short- and long-term outcomes. Laser treatment was safe.
Disclosure: No
Images:

Scatter plot of individual data points for the primary outcome (MBS severity).



Comparison of the participants' impression of improvement between the laser and sham groups at 12-week follow-up.

	Laser group (n=29)	Sham group (n=29)
Better or much better	12 (41.3%)	10 (34.5%)
No change or (much) worse	17 (58.6%)	19 (65.5%)

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Sleep Disorders Are Associated with Female Sexual Desire and Genital Response - A U.S. Claims Database Analysis

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Introduction: The role of sleep disturbances in female sexual health has been largely overlooked. Though some studies have demonstrated associations between insufficient sleep and/or disrupted sleep due to sleep disorders and female sexual function and/or female libido, most of these studies have been limited by sample size, the presence of confounding factors, and/or performed at single institutions.
Objective: Our objective was to assess the association of various sleep disorders with hypoactive sexual desire disorder (HSDD), female orgasmic disorder (FOD), and female sexual arousal disorder (FSAD) using a large claims database.

Methods: A US health research network (the TriNetX Diamond Network) of over 200 million patients, encompassing prescriptions and healthcare encounters, was queried from 2009 to 2022. Amongst adult women free of antidepressants and antipsychotics, insomnia (ICD-10 G47.0), obstructive sleep apnea (G47.33), and circadian rhythm sleep disorder (G47.2) were each independently assessed to determine the association with hypoactive sexual desire disorder (F52.0), female orgasmic disorder (F52.31), and female sexual arousal disorder (F52.22). A propensity-score matched control cohort for age, obesity, hyperlipidemia, diabetes mellitus, hypertensive disease, ischemic heart disease, and surgical procedures on the female genital system was generated, excluding those with any sleep disorders (G47 & F51), sleep deprivation (Z72.820), morbid obesity with alveolar hypoventilation (E66.2), antidepressants, or antipsychotics.
Results: 2,854,189 women with insomnia, 2,526,416 women with sleep apnea, and 69,615 women with a circadian rhythm sleep disorder were identified with an equivalent number of propensity-score matched control women. (Table 1) Women with insomnia had higher rates of hypoactive sexual desire disorder (OR 2.90 [2.63, 3.19]), female orgasmic disorder (OR 2.40 [2.06, 2.81]), and female sexual arousal disorder (OR 2.35 [1.84, 3.00]) compared to matched controls. Those with obstructive sleep apnea were also more likely to have hypoactive sexual desire disorder (OR 1.26 [1.11, 1.42]) and female orgasmic disorder (OR 1.40 [1.16, 1.69]), but had only slightly higher rates of female sexual arousal disorder (OR 1.25 [0.92, 1.68]) compared to matched controls. Finally, women with circadian rhythm dysfunction had no significant association with HSDD (OR 1.73 [0.92,3.27]), FOD (OR 1.4 [0.62, 3.15]), or FSAD (OR 1 [0.42, 2.40]) compared to matched controls.
Conclusions: In this large analysis based on US claims, we showed sleep disorders, especially insomnia, to be strongly associated with female HSDD, FOD, and FSAD. Although our study population is large, the incidences of HSDD, FOD, and FSAD are relatively low, and therefore, our rate estimates may be imprecise. Nevertheless, it is crucial for urologists and gynecologists to screen for poor sleep when conducting a thorough work-up for female sexual desire and genital response, to catch these underlying diseases in order to provide patients with the optimal treatment for complete health.
Disclosure: No
Images:

	Insomnia		Obstructive Sleep Apnea		Circadian Rhythm Sleep Disorder	
	Sleep Disorder	**Matched Cohort**	**Sleep Disorder**	**Matched Cohort**	**Sleep Disorder**	**Matched Cohort**
Included Women	2,854,189	2,854,189	2,526,416	2,526,416	69,615	69,615
Hypoactive Sexual Desire Disorder (F52.0)	0.056%	0.019%	0.022%	0.018%	0.037%	0.022%
Odds Ratio (95% Confidence Interval)	2.90 [2.63, 3.19]		1.26 [1.11, 1.42]		1.73 [0.92,3.27]	
Female Orgasmic Disorder (F52.31)	0.019%	0.008%	0.011%	0.008%	0.02%	0.014%
Odds Ratio (95% Confidence Interval)	2.40 [2.06, 2.81]		1.40 [1.16, 1.69]		1.4 [0.62, 3.15]	
Female Sexual Arousal Disorder (F52.22)	0.008%	0.003%	0.004%	0.003%	0.014%	0.014%
Odds Ratio (95% Confidence Interval)	2.35 [1.84, 3.00]		1.25 [0.92, 1.68]		1 [0.42, 2.40]	
Average Age	62.2 ± 18.2	62.3 ± 18.3	63.7 ± 15.4	63.7 ± 16.2	53.1 ± 18.5	53.1 ± 18.5
Obesity	18.68%	18.51%	31.32%	31.22%	27.72%	27.72%
Hyperlipidemia	41.30%	41.57%	41.55%	41.08%	31.19%	31.19%
Diabetes Mellitus	17.41%	17.41%	27.46%	27.28%	15.21%	15.21%
Hypertensive Disease	45.12%	45.91%	50.98%	50.44%	34.40%	34.40%
Ischemic Heart Disease	9.82%	10.02%	11.75%	11.26%	6.88%	6.88%
Surgical Procedures on Genitals	5.58%	5.63%	5.90%	5.76%	8.25%	8.25%

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Clitoral Adhesions and Pelvic Floor Symptoms: Are they Related?
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Introduction: Clitoral pathology is an understudied area as it pertains to sexual health, vulvodynia and pelvic floor dysfunction. The clitoris is innervated by the dorsal branch of the pudendal nerve and fascial connections have recently been shown to extend up to the anterior abdominal wall. Implantable neurostimulation of the dorsal nerve improved overactive bladder symptoms. Pathology of the clitoris and clitoral hood may lead to symptoms such as pain, anorgasmia, PGAD, arousal disorders and urinary symptoms. While clitoral adhesions (CA) have been previously described as having an incidence of 23%, little is known about the clinical significance and the improvement after lysis of adhesion procedure.
Objective: To characterise the women population that presents with CA in the pelvic floor clinic and describe related symptoms
Methods: A retrospective analysis was performed between June 2021 and January 2022. All the patients were examined by one FPMRS trained staff, and clitoral adhesions were diagnosed when there was no corona visualization and then classified as mild (>75% glans visualization), moderate (25-75%) or severe (<25%). The visible area of the glans was calculated by measuring in mm cefalo-caudal and lateral directions. CA lysis was offered after three weeks of BID clobetasol. The lysis was performed under topical anesthesia using blunt instruments until complete lysis was achieved or until the patient requested to stop the procedure due to discomfort. 4 patients with complete clitoral phimosis had lysis performed in the OR. The visible area was measured after lysis. Paired T-Test analysis was performed to compare pre and post lysis areas. Follow up was planned for 1 and 3 months.
Results: 44 women were found to have clitoral adhesions; the average age was 47 (range 19-83). 22 women were premenopausal. Clitoral adhesions were classified as mild (11), moderate (18) and severe (8). The symptoms were Bulge/SUI (48%), Voiding Dysfunction (42%), Vulvodynia (42%), Sexual Dysfunction (12%), Bladder Pain (17%), Overactive Bladder(42%), Anorgasmia (40%). There was 1 asymptomatic woman. The average visible area at baseline was 16.5mm2 (range 4-56). 19 patients underwent lysis, which was complete in 15, partial in 2, and not possible in 2. Visual Analog Scale of pain during lysis was 5 out of 10. The average area visible of the glans after lysis was 85.5mm2 (range 35-132). Paired T-Test showed a p-value < 0.001 pre vs post lysis visible area. 8 had follow-up visits after lysis, 5 patients had a partial improvement and 1 had a total improvement in symptoms as shown in table 1.
Conclusions: There is little information about the impact of clitoral adhesions on women's quality of life, including sexual function or other pelvic floor symptomatology. The visible area increased significantly after lysis and could be related to symptom improvement. However, these symptoms are extremely subjective and need stronger instruments to be measured. Detailed prospective studies including RCT vs sham procedure are needed to confirm our findings and to understand the possible physiopathology of this condition.
Disclosure: No
Images:

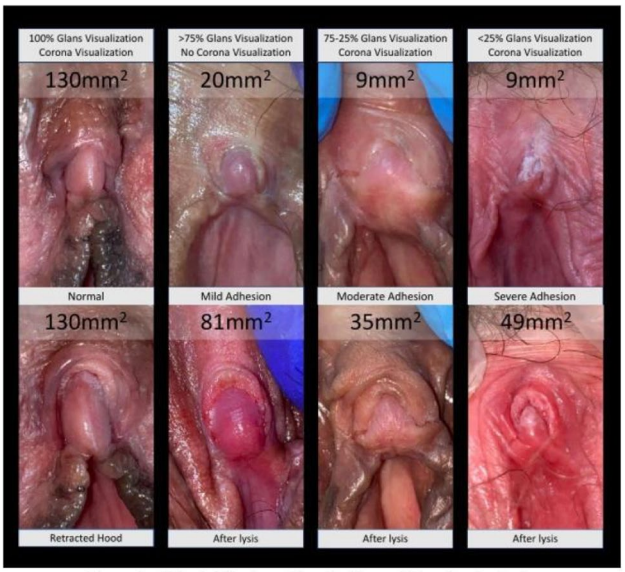

Figure 1: Clitoral Adhesions Classification and Results after lysis.

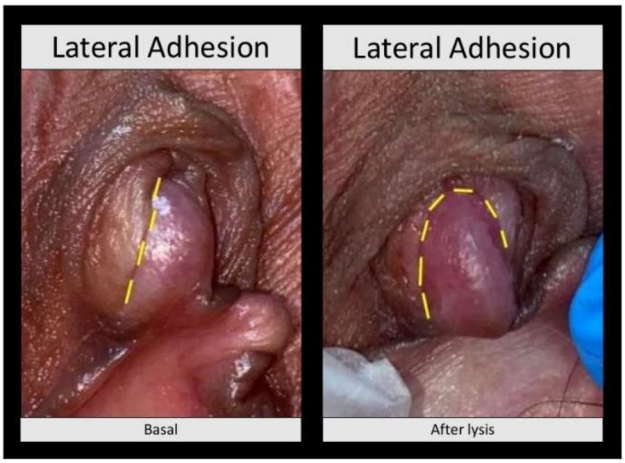

Figure 2: Lateral adhesion before and after lysis

Patient	Change	Symptoms Improvement
1	Partial Improvement	Filling symptoms
2	Partial Improvement	Filling and Voiding symptoms
3	Not described	N/A
4	Partial Improvement	Bladder pain Symptoms
5	Partial Improvement	Filling and voiding symptoms
6	Partial Improvement	Voiding symptoms
7	Total Improvement	Voiding symptoms
8	Not described	N/A

Table 1: Change in symptoms after lysis

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The Correlation of Genital Hiatus Measurement with Pelvic Floor Symptoms and Sexual Function in Sexually Active Women without Advanced Pelvic Organ Prolapse

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Introduction: The relationship of measurements of the genital hiatus (Gh) with sexual function is still not clear, and there are limited studies investigating the effects of Gh measurement on sexual function and pelvic floor symptoms in the literature (1,2). However, in these studies, women with advanced-stage prolapse that may adversely affect sexual functions were not excluded.
Objective: We aimed to evaluate the relationship of Gh measurement with pelvic floor symptoms and sexual function in sexually active women without advanced pelvic organ prolapse.
Methods: Records of women who were referred to the urogynecology unit with symptoms of pelvic floor dysfunction (lower urinary tract symptoms and pelvic organ prolapse) were reviewed retrospectively. A total of 1131 sexually active women with POPQ examinations were reviewed for the study. After excluding women with advanced pelvic organ prolapse (any point that does not protrude from the hymen), 624 women were considered for final analysis. All women underwent a standardized history and physical examination, which included a POPQ examination, described by the International Continence Society (ICS) (3). Pelvic floor symptoms were evaluated in all women with the Turkish validated Pelvic Floor Distress Inventory (PFDI-20), Overactive Bladder Awareness Tool Version-8 (OAB-V8), Incontinence Impact Questionnaire (IIQ-7) and Incontinence Severity Index (ISI), and sexual function was evaluated with the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire-12 (PISQ-12), which were all self-administered and fulfilled.
Results: Baseline characteristics and demographics of women are presented in table 1. Mean age was 53.2±10.8 years and mean body mass index was 30.3±6.1 kg/m2; 3% of the women were nulligravid, 4% were nulliparous and 58% were postmenopausal (Table 1). Genital hiatus measurement was significantly higher in women who delivered vaginally ($p<0.001$), in women complaining of "loss of sexual desire" ($p=0.21$), "feeling vaginal laxity" ($p=0.001$) and "aerovagina" ($p=0.018$), and in women with a positive cough stress test and urethral hypermobility ($p<0.001$) (Table 2). Statistically significant correlation coefficients between the Gh with patient reported outcomes and clinical findings are summarized in table 3. The Gh measurement showed a significant weak negative correlation with pelvic floor muscle strength ($p=0.026$) and age ($p=0.001$), and a significant weak positive correlation with parity ($p<0.001$), body mass index ($p<0.001$), UDI-6 stress subscale score ($p=0.031$), and incontinence severity index ($p<0.041$). When the correlation analysis was performed on the basis of individual questions of all validated questionnaires, the Gh measurement showed a significant weak positive correlation with the third, tenth and eighteenth questions of PFDI-20 (feeling of vaginal bulge, involuntary loss of loose-liquid stool, and involuntary loss of urine in drops, respectively) ($p=0.041$, $p=0.049$, 0.046, respectively), the fourth question of OAB-V8 (accidental loss of small amounts of urine) ($p=0.003$) and the first question of PISQ-12 (frequency of sexual desire) ($p=0.031$). Finally, Gh measurement showed a significant weak negative correlation with the sixth question of the PISQ-12 (coital incontinence) ($p=0.012$). The correlation coefficients and their significance were calculated using the Spearman test.
Conclusions: Higher measurements of the Gh seem to be associated with worse sexual functions as well as worse urinary and anogenital functions.
Disclosure: No
Images:

Table 1: Demographics of all women (n=624).

Age (years)	
Mean ± SD	*53.2 ± 10.8*
Median (range)	*52.0 (21 – 90)*
Body mass index (kg/m²)	
Mean ± SD	*30.3 ± 6.1*
Median (range)	*30 (20 – 90)*
Parity	
Mean ± SD	*2.8 ± 1.6*
Median (range)	*2 (1 – 13)*
Nulligravid women	
N (%)	*19 (3)*
Nulliparous women	
N (%)	*27 (4)*
Maximum birth weight (kg)	
Mean ± SD	3.5 ± 0.6
Median (range)	3.5 (1.3 – 6.0)
Post-menopause, n (%)	
N (%)	*362 (58)*
Smoking, n (%)	
N (%)	*118 (19)*
Pelvic floor muscle strength (MOS)	
Mean ± SD	2.5 ± 1.0
Median (range)	*3 (0 – 5)*

MOS: Modified Oxford Scale

Table 2: Differences of genital hiatus measurement in terms of sexual symptoms and clinical findings.

Clinical findings	Genital hiatus, mean±SD (mm)	*p*
Delivery mode		
C/S (n=51)	2.71±0.75	<0.001
NVD (n=546)	3.28±0.83	
Loss of sexual desire		
No (n=325)	3.1±0.83	0.021
Yes (n=299)	3.2±0.89	
Feeling vaginal laxity		
No (n=461)	3.12±0.87	0.001
Yes (n=163)	3.38±0.82	
Aerovagina complaint		
No (n=451)	3.14±0.86	0.018
Yes (n=173)	3.32±0.84	
Cough stress test		
Negative (n=278)	3.05±0.89	<0.001
Positive (n=346)	3.30±0.82	
Q-tip test		
Negative (n=221)	2.94±0.82	<0.001
Positive (n=403)	3.3±0.86	

Table 3: The statistically significant correlation coefficients between genital hiatus with patient reported outcomes and clinical findings.

Patient reported outcomes	Genital hiatus	
	Correlation Coefficient	*p*
Age	-0.129	0.001
Parity	0.147	<0.001
Body mass index	0.169	<0.001
Pelvic floor muscle strength (MOS)	-0.089	0.026
PFDI Q3	0.085	0.041
PFDI Q10	0.081	0.049
PFDI Q18	0.083	0.046
UDI-6 Stress subscale	0.090	0.031
OAB-V8 Q4	0.125	0.003
ISI	0.089	0.041
PISQ Q1	0.106	0.031
PISQ Q6	-0.124	0.012

MOS: Modified Oxford Scale, PFDI: The Pelvic Floor Distress Inventory, UDI: Urinary Distress Inventory, OAB V8: Overactive Bladder Awareness Tool Version-8, ISI: Incontinence Severity Index, PISQ: Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire.

PFDI Q3: Do you usually have a bulge or something falling out that you can see or fell in the vaginal area? (0=not present, 1=not at all, 2 = somewhat, 3 = moderately, 4=quite a bit)

PFDI Q10: Do you usually lose stool beyond your control if you stool is loose or liquid? (0=not present, 1=not at all, 2 = somewhat, 3 = moderately, 4=quite a bit)

PFDI Q18: Do you usually experience small amounts of urine leakage (that is, drops)? (0=not present, 1=not at all, 2 = somewhat, 3 = moderately, 4=quite a bit)

OAB-V8 Q4: Accidental loss of small amounts of urine? (0=not at all, 1= a little bit, 2= somewhat, 3= quite a bit, 4= a great deal, 5= a very great deal)

PISQ Q1: How frequently do you feel sexual desire? This feeling may include wanting to have sex, planning to have sex, feeling frustrated due to lack of sex, etc. (4= always, 3= usually, 2= sometimes, 1= seldom, 0= never)

PISQ Q6: Are you incontinent (leak urine) with sexual activity? (0= always, 1= usually, 2= sometimes, 3= seldom, 4= never)

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A Pilot Study of Home-Based Pelvic Muscle Training for Vaginal Symptoms Among Survivors of Breast Cancer

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2 - Renovia Inc.
3 - Medstar/Georgetown University School of Medicine

Introduction: Approximately 60% of breast cancer survivors experience vaginal dryness, irritation, pruritus, and dyspareunia; this is 20% higher than age matched, postmenopausal women who do not have a history of breast cancer. Despite a growing body of literature regarding the safety of vaginal estrogen use in women with a history of breast cancer, many women do not feel comfortable using hormones. Pelvic floor physical therapy has been shown to improve vaginal health and the symptoms of vulvovaginal atrophy including vaginal dryness, dyspareunia, and overall quality of sexual life in women. Nonetheless, many barriers exist to accessing pelvic floor therapy, and adherence over the course of treatment is low.

Objective: The primary aim of this prospective pilot study was to evaluate if a self-directed, at-home pelvic floor training device can improve sexual symptoms due to vulvovaginal atrophy among women who are survivors of breast cancer.

Methods: This prospective pilot cohort study was approved by our institution's IRB. Women were eligible to enroll if they had a diagnosis of breast cancer, had an insertive partner, and experience symptoms of vaginal dryness. There were not eligible to participate if they were using local or systemic hormone replacement therapy, were actively undergoing pelvic floor physical therapy, had a chronic pain syndrome, their vaginal symptoms were attributed to a vulvar dermatologic condition, or had a history of pelvic radiation. Women were not excluded if they were taking a SERM or AI. Women were instructed on correct use of the Leva pelvic health system. Women were asked to complete the Female Sexual Function Index (FSFI), Pelvic Floor Distress Inventory 20 (PFDI-20), and WHO Disability Assessment Schedule (WHO DAS) at baseline, 6, and 12 weeks. The goal was to enroll 20 women in the study.

Results: Twenty-six women were approached for enrollment in the study, and 13 women enrolled in the study. The mean age of participants was 62.4 years (SD 9.1). Mean BMI was 25.3 (SD 3.5). Mean parity was 2.3 (SD 1.1). The majority of women in the study were white. Most women were diagnosed with stage II breast cancer or less. The mean time since diagnosis was 4.7 years (SD 5.3). Eleven of the women were on an aromatase inhibitor at the time of enrollment. Mean baseline FSFI score was 16.6 (SD 7.5) and mean baseline PFDI-20 composite score was 79.2 (SD 55.0). On intention to treat analysis, there was no change in mean FSFI composite or subscores, PFDI-20 composite and subscores, and WHO DAS scores from baseline compared to 6 weeks and 12 weeks. These findings were seen on per protocol analysis. Most patients felt minimally improved at 6 and 12 weeks and minimally satisfied with treatment at 6 and 12 weeks.

Conclusions: While pelvic floor physical therapy has been shown to improve vaginal symptoms, we were unable to replicate these findings using a self-directed, at-home pelvic floor training device. Further research is needed to develop non-hormonal treatment options for vaginal symptoms among breast cancer survivors.

Disclosure: Yes, this is sponsored by industry/sponsor: Renovia Inc.
Clarification: Industry funding only - investigator initiated and executed study
Any of the authors act as a consultant, employee or shareholder of an industry for: Renovia Inc.

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WITHDRAWN - Development and Integration of a Modified Mindfulness Curriculum Designed to Optimize Resident Surgical Performance: Mindfulness Integration in Surgical Training (MIST)

WITHDRAWN

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An Innovative Three-Dimensional Pelvic Model For Improving Education on Pelvic Organ Prolapse and the Pelvic Organ Prolapse-Quantification System

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1 - Northwell Health

Introduction: Pelvic organ prolapse (POP) impacts millions of women globally and has a substantial impact on women's productivity and quality of life. Still, medical students and junior obstetrics and gynecology residents gain minimal exposure to POP, if at all. Modeling and simulation have been shown to positively impact medical education and may be potential solutions for this knowledge gap.

Objective: Our goal for this project was to enhance medical student and resident education and promote exposure to POP early in training by creating a realistic three-dimensional pelvic teaching model.

Methods: We collaborated with engineers from our institution's 3D Design and Innovation Center to create a model that would demonstrate different types and degrees of POP. A didactic learning session using the model was then developed with a pre-post test design to assess for change in learner understanding of POP and use of the Pelvic Organ Prolapse-Quantification (POP-Q) system. The Institution's Human Research Protection Program classified this as a quality improvement project that did not require Institutional Review Board approval as it was not considered human subjects research. Data was analyzed using the Wilcoxon signed-rank test with significance set at a p-value of 0.05.

Results: Table 1 describes participant demographics and prior experience. Eighteen learners completed the session including the pre- and post-test. Eight participants were 3rd or 4th year medical students, and 10 were obstetrics and gynecology residents. Most participants had interacted with specialists in Urogynecology and had seen at least one patient with POP (n=15), however fewer participants had received prior education on POP and the POP-Q exam (n=9), witnessed or performed a POP-Q exam (n=10, n=6), or participated in POP surgeries (n=11); and the majority of those who had were senior residents. Table 2 demonstrates participant answers to the pre-test and post-test surveys. Participants were asked to rank statements from 1 to 5 with 5 denoting strongly agree and complete an 8-question knowledge assessment. Pre- and post-test answers were then compared. Learner comfort with identifying POP and understanding the POP-Q system both doubled from 2 to 4 (p=0.003, p=0.002) and perceived ability to perform and teach a POP-Q exam tripled from 1 to 3 and 1 to 2.5, respectively (p=0.002, p=0.001). Interest in managing patients with POP remained at a median of 3 however participant interest was increased overall (p=0.011). Most participants agreed or strongly agreed that the model made the field of Urogynecology more interesting (n=13). Median score on an 8-question POP-Q knowledge assessment that we designed increased by 25% from 5 to 7 (p=0.001). Learners rated the model as a highly effective teaching tool and the preferred learning modality over practicing on a patient, drawings, and lecture only.

Conclusions: Use of a 3-D pelvic model significantly increased medical student and resident comfort and understanding of POP and the POP-Q system, was the preferred learning modality, and increased learner interest in Urogynecology. Medical schools and residency programs could consider using models during the obstetrics and gynecology clerkship and didactic sessions to offer learners early exposure to POP.

Disclosure: No

Images:

Table 1. Participant Demographics and Prior Experience

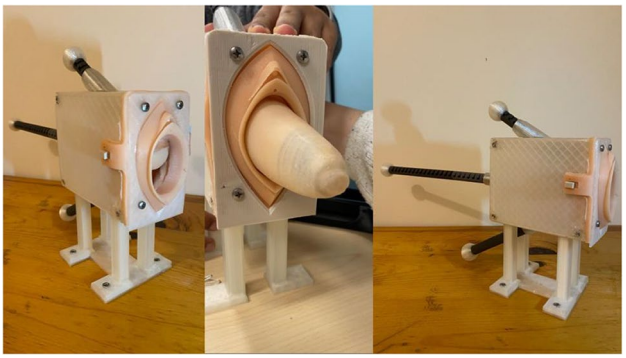
Survey Question	Results (n = 18)	
Age (years)	26.5 ± 0.71	
Gender	Female	15 (83.3)
	Male	3 (16.7)
Medical students by year of training (n = 8)	Year 3	7 (38.9)
	Year 4	1 (5.6)
Residents by year of training (n = 10)	PGY1	1 (5.6)
	PGY2	3 (16.7)
	PGY3	3 (16.7)
	PGY4	3 (16.7)
Desired residency if medical student	OBGYN	4
	Anesthesia	1
	Radiology	1
	PM&R	1
	Undecided	1
I have received prior education on POP and the POP-Q Exam	No	9 (50)
	Yes	9 (50) *
I have interacted with specialists in Female Pelvic Medicine and Reconstructive Surgery (Urogynecology)	No	3 (16.7)
	Yes	15 (83.3) *
Number of patients that you have seen with pelvic organ prolapse (POP)	0	3 (16.7)
	1-5	7 (38.9)
	6-10	2 (11.1)
	11+	6 (33.3) *
Number of POP-Q exams witnessed	0	8 (44.4)
	1-5	2 (11.1)
	6-10	1 (5.6)
	11+	7 (38.9) *
Number of POP-Q exams performed	0	12 (66.7)
	1-5	0
	6-10	3 (16.7) *
	11+	3 (16.7) *
Number of prolapse surgeries participated in in the last year	0	7 (38.9)
	1-5	5 (27.8)
	6-10	0
	11+	6 (33.3) *

Results are shown as number (percentage)
** Denotes where senior (3rd and 4th year) residents were categorized*

Table 2. Participant Answers to Pre-Test and Post-Test Surveys

Question		Pre-Test	Post-Test	P
1. I feel comfortable identifying patients with pelvic organ prolapse (1-5)		2 [1.25-4]	4 [4-4.75]	**0.003**
2. I am interested in managing patients with POP (1-5)		3 [2-3]	3 [2.25-4]	**0.011**
3. I understand the POP-Q exam (1-5)		2 [1-3]	4 [3-4]	**0.002**
4. I could perform a POP-Q exam (1-5)		1 [1-2]	3 [2-4]	**0.002**
5. I could teach a POP-Q exam (1-5)		1 [1-2.75]	2.5 [2-3]	**0.001**
6. My preference for learning about pelvic organ prolapse would be (rank 1-4 in order of preference):	Practice on Patient:	2	2	
	Lecture:	4	4	
	Pelvic model:	1	1	
	Drawings:	3	2.5	
7. The dynamic pelvic model is an effective teaching tool for learning about the POP-Q exam (1-5)		x	5	
8. The dynamic pelvic model is useful to understand the three-dimensionality of POP (1-5)		x	5	
9. The dynamic pelvic model makes the field or Urogynecology more interesting to me (1-5)		x	4.5	
Answers correct for knowledge assessment (8 questions)		5 [3-6.75]	7 [6-8]	**0.001**

- Results are shown as a median and [interquartile range]
- P-values were obtained using the Wilcoxon signed-rank test. Significance was set at a p-value less than 0.05.
- For questions 1 through 5, participants could choose an answer from 1 (strongly disagree) to 5 (strongly agree)
- For question 6, participants were asked to rank learning modality in order of preference from 1 (preferred) to 4 (not preferred)
- Answers to questions 1, 2, 3, 4, 5 and to the knowledge assessment were significantly different from the pre-test to the post-test



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Telehealth Access in a Multi-lingual, Urogynecology Population

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2 - The Lang Center for Research and Education

Introduction: The Covid 19 pandemic led to a rapid adoption of telehealth. But challenges include technology literacy1 and access to technology(i.e. smartphones) 2. Since our institution's implementation of the Epic Systems (Verona, WI) electronic health record, Epic MyChart (EPIC) is the patient-facing, mobile portal application. It is the primary mode for televideo visits (televisit) endorsed by the institution. However, the platform is in English, requires downloads and passwords, site navigation, and requires over 20 clicks to setup. In a non-English speaking (55%), and digital elderly (50+yrs old)3 patient population, this may be difficult. Doximity (Doximity, Inc, San Francisco, CA) is a text message based application without passwords and takes 4 clicks to start a televisit. This population successfully utilized Doximity for 76% of the televisits prior to EPIC.
Objective: This quality improvement project is to assess the type of application needed for a televisit. If an EPIC televisit does not connect, then a Doximity televisit text was sent to the patient's cell phone. If this is not successful, it is then converted to a phone visit. The secondary purpose is to assess for factors that would predict who would be successful utilizing EPIC for their televisit.
Methods: All televisits scheduled from August 1-Dec 31, 2021 was deidentified to create the dataset. Abstracted data include televisit application, age, language, the need for login help, and zip code. Statistical analysis is conducted using SAS Studio Software. Descriptive statistics are used to summarize patient and visit data. Logistic regression is utilized for binary outcomes. Chi-square, and Fischer's used for categorical variables.
Results: See Table 1. 93% (n=208) of the scheduled televisits (n=224) were completed. No login help was needed for 27% of scheduled televisits via EPIC (average age(age): 50 years old (yo), 87% speaking English), with an additional 24% via Doximity (age: 60yo, 67% speaking English). Login help was needed for a smaller proportion of Doximity visits (29%; age 69yo, 41% speak English) compared to EPIC (35%; age: 68yo, 36% speak English). If Doximity was still unable to connect, a phone visits was initiated 17% of the time (age: 71 yo, 24% speaking English). Factors for independent televisits include EPIC (p =55yo (OR 0.089, p<0.0001) are associated with a decreased likelihood that a patient will access an EPIC televisit without help.
Conclusions: In this non-English speaking and older patient population, only a minority of telehealth visits are accessible via EPIC. Despite selecting out younger and English speaking patients, due to the step-wise utilization of the televisit applications (EPIC, then Doximity), older (average 60 yo) and non-English speaking patients are able to independently login for a Doximity telehealth visit. These factors decrease access to care when only utilizing the EPIC application. To improve health equity and minimize barriers for care, a televisit application's ease of use, needs to be considered when deciding on which televisit application should be utilized by an institution. And a choice of televisit applications should be offered for access to care.
Disclosure: No
Images:

TABLE 1

Type of televisit:	EPIC: no help (n=61)	Doximity: no help (n=54)	EPIC: need help (n=33)	Doximity: need help (n=22)	Phone (n=38)	No-show (n=16)	
% of all scheduled telehealth visits	27%	24%	15%	10%	17%	7%	
						Available but tech issues or needs help	no attempt at login
						3.5% (n=8)	3.5% (n=8)
Demographics:							
Age (average) in years	50	60	68	69	71	70	47
% English speaking	87%	67%	36%	41%	24%	0%	75%

Table 2:

Factors that predict independent televisits.

	EPIC			DOXIMITY		
Variable	**Odds Ratio**	**p-value**	**Confidence Interval**	**Odds Ratio**	**p-value**	**Confidence Interval**
Non-English Language	0.399	**0.001**	0.231-0.691	0.917	0.3711	0.739-1.138
Age	0.912	**<0.0001**	0.883-0.941	0.991	0.4189	0.969-1.013
Age >= 55 yrs old	0.089	**<0.0001**	0.042-0.187	1.411	0.3396	0.696-2.859

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The Doctor Will "See" You Now: A Qualitative Analysis of Patient Perception of Telemedicine in FPMRS

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Introduction: A shift in the practice of medicine to include telemedicine modalities has been gaining momentum, being accelerated even further by the current pandemic. There is a paucity of data regarding patient-perceived barriers to telemedicine in urogynecology patients, a unique and complex population, In a previous study at our institution, we found that conversion to telemedicine in FPMRS during the first 11 weeks of the COVID-19 related shut-down was very low.
Objective: The aim of this study is to understand patient-perceived barriers to telemedicine and examine why some patients did not convert to telemedicine.

Methods: This was a qualitative study using both a questionnaire and one-on-one semi-structured interviews with patients from our institution's urogynecology practice who were scheduled for appointments from March 17th through June 9th, 2020, a time period when our office was closed to meet social distancing guidelines. Informed consent was obtained verbally and interpretation services were used when necessary. All interviews were recorded, transcribed, and coded by two readers. The data was analyzed in a 3-phase coding process and the manifest context analysis method was used to analyze, summarize and refine interview data. Inductive codes were then applied to text fragments. A codebook was developed through serial discussions and triangulated amongst the research team. The codebook was saturated at 30 interviews and the final six interviews were cross-referenced to confirm findings.
Results: 36 interviews were conducted. Participants represented a wide age range (39 to 75 years), with 30.6% of participants ranging in age between 45 and 54 years. 66.7% of patients stated English was their preferred language. While some patients (25%) recalled being offered a virtual visit, others reported that this option was not offered (44.4%) or were unsure (19.4%). The majority of participants reported having a smartphone (97.2%). Codes from interviews were organized into four categories (Table 1). Three themes were identified: (1) Patients seemed amenable to telemedicine, yet there was reservation about the use of this modality for FPMRS specific patients. The participants felt concerned with the inability for physicians to examine them, and seemed to equate physical evaluation and diagnostic testing with an optimal experience. (2) The majority of participants felt comfortable using the technology and had minimal concerns regarding costs of cellular data or access to internet connectivity. Although some participants voiced reservations with this technological advancement, most seemed agreeable to using telemedicine in some capacity in the future. (3) There was a willingness to forgo certain comforts of in-person visits, in order to preserve safety, especially given simplicity and ease of accessibility. However, the overarching perception was that telemedicine could lend itself to be more impersonal, and should be used for more straightforward and follow-up visits.
Conclusions: While there are certain challenges to incorporating telemedicine into urogynecology practice, many of our patients felt that tele-visits were practical and helpful. However, the concern for loss of human touch and testing obviates that the desire for in-person visits remains. Further patient education and development of systems to streamline telemedicine practices will help those who remain hesitant.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Johnson and Johnson, Provepharm, Inc.
Images:

Table 1: Categories of codes and exemplary quotes

Category	Codes	Description of category	Exemplar Quotes
Context of specialty	• Adequacy of assessment • Gathering data points perceived synonymous with diagnostic acumen • Lack of reassurance • Loss of provider-patient connection • Importance of human touch • Intimacy	The nature of urogynecology, including the physical exam, testing, and intimate nature of many of the clinical issues influence the patient's desire to engage with telemedicine. Many patients' perceptions of the conventional human touch and face-to-face interactions impact their engagement and may cause skepticism.	"Urogynecology, that's something that the doctor really has to see you in-person because it's internal really. You can't do an internal over the telephone, it's basically impossible." "No one's touching, feeling looking, measuring. In this particular circumstance, you're looking for how far the uterus has dropped, you're feeling for where the bladder is, but you can't have any of that in a virtual visit. There's no way in a virtual visit that the doctor will schedule you for surgery."
Connectivity through communication	• Execution issues • Inadequate privacy • Logistical barriers • Diminished distractions • Interest in advancement	It was apparent that there were dichotomous views on how patients were able to connect with providers through telehealth. One cohort strongly indicated that this was less private and more disconnected modality. Others felt that there was an improved ability for keen focus. However, many who did not feel adept at using technology, were still interested in learning how to utilize this option.	"I feel like it is actually more focused and attentive care via telehealth. There is a lot more eye contact and general attention than I have experienced in person appointments where the doctor is sideways to you, inputting a bunch of stuff in the computer while you talk." "I was not so happy about it. It seemed a little impersonal and also I felt like I was being cheated a little bit." "We're living in very technological times-people should have options, you know, whatever works for them."
Convenience of technology	• Ease of use • Comfort through simplicity • Cost effective • Device proficiency • Novelty	The ability to connect via telephone or video modalities outside of the traditional office setting was novel for many patients. For some patients, this was convenient, due to not requiring travel or comfort of use with many pre-existing platforms. Others felt that telemedicine was discriminatory towards those individuals who felt less comfortable using technological devices. There was a common theme that patients felt less involved visits were much better suited for telemedicine.	"I'm very comfortable because [of my] high degree of proficiency of using different devices, different platforms. So, very high degree of comfort because [of] my everyday use of technology." "So I get that the world is changing and everything is more computerized but you still have a huge population that you can't write off, that this doesn't always work for them. I think you also have to take into consideration the audience you're dealing with." "So it works for me telehealth, I don't have to rush getting into the car, go through traffic. Sometimes, I can even do it in my lunch time instead of taking half day off or something like that. I can do it during lunch time and the appointment is quick."
Environmental impact	• Conditional satisfaction • Safety from unwanted exposure • Attention to urgent concern • Accessibility • Break from status quo	Participants felt that depending on certain circumstances, tele-visits were or were not appropriate. For many, they felt that telemedicine could improve access and be utilized for urgent issues.	"I was not raised this way, this was not the way I was raised. For me, it's doctor in the flesh, you know. Even though it's a fabulous, fabulous thing I think for rural health issues and for working with patients that cannot get access." "No, I would say it was fine because I was in a situation where I knew I couldn't go to the hospital because of Covid. You know…I should say Covid had just locked down everything. So, I was fine with the telemed visit." "I will insist going in person unless it's absolutely impossible where I can't get there because we've had like Hurricane Ida or the doc can't get there, I'm not crazy about having interactions when there is a problem with the doctor on these technologies, not because I don't know how to use them, not because I don't like technology, it's because you're talking about short cutting or short changing the diagnostic process. "

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Patient Perspectives Associated With The Incorporation of Telehealth in Pelvic Floor Physical Therapy Regimens
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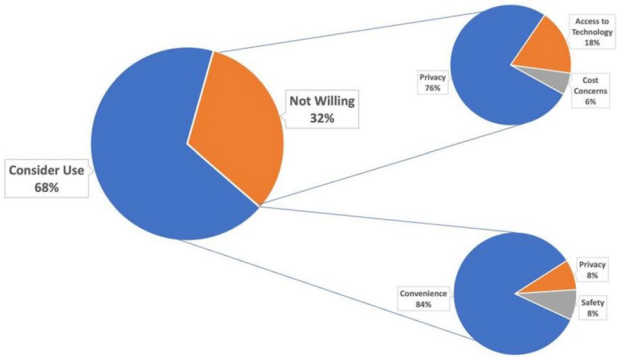
Introduction: A beneficial outcome of the pandemic has been the validation of telehealth's versatility and ability to facilitate proficient patient care across medical specialties. This uptake occurred due to restrictions of in-person visits, with the service offerings gradually expanding as providers attempted to maintain care over the past two years. As the access to pelvic floor physical therapy (PFPT) was similarly curtailed, integration of telehealth in such a modality of care became a legitimate consideration. New deterrents such as logistics (scheduling) and medical apprehensions (fear of illness) added challenges to the traditional accessibility barriers of time and transportation.
Objective: The purpose of this study was to determine the willingness of patients to consider telehealth as a means of seeking PFPT care while determining the promoters and deterrents for the deployment of this technology in this treatment modality.
Methods: This is a cross-sectional study of patients, over 18 years of age, at a multidisciplinary pelvic health service in an academic medical center in Northwest Ohio. The data collection occurred over six months in the latter half of 2021. The 21-question survey was based on patient requests, needs, and concerns obtained through a focus group guided by published literature. Questions addressed the patients' willingness to leverage telehealth for PFPT care while soliciting the promoters and deterrents of use and the associated rationale.
Results: The survey was completed by 210 patients (Response rate 70%, 300 surveys offered). The majority of patients (n=60, 29%) were between 26-35 years old, with the age range of participants being 18 to 80. Forty percent (n=83) of those completing the survey were approached after their first PFPT visit. Of those amenable to integrating telehealth into their PFPT therapeutic regimen (n=142, 68%), interest was driven by convenience (78%) (Figure 1). When assessing a lack of interest in such a modality, privacy concerns were the principal reason for hesitation (n=52, 76%). Up to 80% (n=169) preferred to establish care through in-person visits prior to initiating PFPT regimens remotely, as the intravaginal assessment component for planning personalized therapeutic regimens would be lost. Only 41% (n=87) believed adequate pelvic pain management and improved pelvic tone outcomes could be equivalent to in-person progress. Of the 210 patients, 56% (n=123) suggested that incorporating telehealth would negatively impact engagement while reducing compliance and adherence to pelvic floor home exercise programs.
Conclusions: Offering patients in-person visits or hybrid alternatives may be optimal for improving adherence to therapeutic regimens if access to care is the primary barrier. Since receptivity to telehealth was intermediate in our survey, identifying methodology to mitigate privacy concerns and demonstrate long-term outcomes may help increase the acceptance of integration of this technology into pelvic therapeutic management.
Disclosure: No
Images:

Figure 1. Rates And Reasons For Potential Consideration Or Rejection Of Telehealth In PFPT Care



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Deep Learning and Ultrasound Image Based Pelvic Floor Organ Segmentation

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5 - Biomedical Engineering Department, Peking University

Introduction: Ultrasound imaging is one of the most commonly used clinical methods to examine the female pelvic floor. When ultrasound is used for clinical diagnosis, it often requires the segmentation of organs in the ultrasound image, which traditionally requires manual labelling by the physician, which is time-consuming and laborious. The use of deep learning, an artificial intelligence method, to automate this process could be helpful in the future for clinical gynecologic ultrasound examinations. The automation of pelvic floor ultrasound image segmentation can reduce the workload of physicians and is important for achieving efficient diagnosis of pelvic floor disorders.
Objective: We aimed automate the segmentation of the major pelvic floor organs, bladder, uterus and rectum, in ultrasound mode by using a deep learning model and demonstrate the pilot results.
Methods: We adopted a U-Net network structure (Fig.1) to implement the segmentation process. The U-Net architecture consists of a down-sampling path (also called encoder) to capture the image features, and an up-sampling path (also called decoder) to generate the segmentation map. A total of 371 ultrasound images were used in this study. The labeled image data (ground truth) were divided into training, validation, and test sets by patients in a 3:1:1ratio. To reduce the impact of the small dataset, we first pre-trained the segmentation model on an open-source breast ultrasound dataset containing 780 breast cancer images. Then, we transferred the pre-trained model to our dataset. During the training process, we also used the data augmentation methods (i.e., random rotation, random translation, random zoom) to make the model learn more useful knowledge. Our deep learning model was trained using an Nvidia Titan RTX GPU. The model was trained for 200 epochs using Keras framework. DSC (Dice Similarity Coefficient) was used to evaluate the quantitative performance of the deep learning model.

Results: As shown in Fig.2, the deep learning model can predict the relative positions of organs with clear boundaries in test ultrasound images. For organs with blurred boundaries, such as some uterus and rectum in the test set, the results still need further improvement. Compared with the ground truth images, DSC score on the test set is 0.8656.
Conclusions: In this work, a deep learning method was proposed in order to achieve automatic segmentation of the pelvic floor organs using ultrasound images. It was demonstrated to be feasible and could facilitate the diagnosis of pelvic floor disorders and reduce the workload of clinicians.
Disclosure: No
Images:

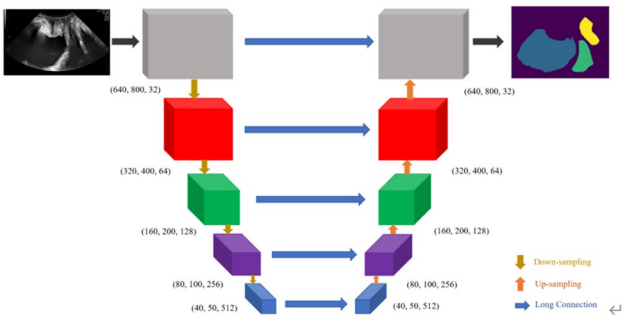

Fig.1 The deep learning model structure used in this work. The input in the left is an ultrasound image and the output in the right is the segmentation map with bladder in blue, uterus in green, and rectum in yellow.

Fig.2 A sample of segmentation results. (a) An ultrasound image for testing; (b) the ground truth image with bladder annotated; (c) the model output with bladder segmented.

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The Missing Link in Gynecologic Global Health Initiatives

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3 - Yale New Haven Hospital
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5 - MedStar Health
6 - UNIBE Univesidad Iberamericana
7 - University of Michigan
8 - Johns Hopkins Medicine

Introduction: Global Health (GH) and Global Health Education (GHEd) initiatives are commonly utilized to address global inequities in the evaluation and management of benign gynecologic disease, yet there are few published outcome data related to these programs' structure, effectiveness and challenges.
Objective: To perform a web-based narrative review of current GH and GHEd models in order to describe and categorize GH initiatives in the field of gynecology, and to review previously existing GH guidelines

and training frameworks to assess potential successes and challenges in the identified models.

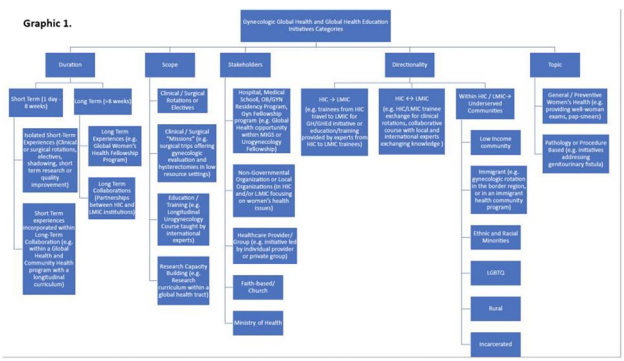
Methods: Investigators conducted a web-based narrative review of existing gynecologic GH and GHEd initiatives. PubMed was used to identify peer-reviewed articles, and Google was used to identify non-peer reviewed sources (websites, newspaper articles, social media and blog posts). Investigators then qualitatively categorized and subcategorized models based on defining features identified in the initiative descriptions. In an effort to assess the potential successes and challenges of each sub-categorized GH model, further narrative review of published GH and GHEd frameworks was conducted. The sub-categorized initiatives were then evaluated according to the ethical principles and educational competencies established by the Working Group on Ethics Guidelines for Global Health Training (WEIGHT), and the Association of Professors of Gynecology and Obstetrics Global Women's Health Educational Objectives.

Results: A wide variety of gynecologic GH and GHEd initiatives were identified, largely in non-peer reviewed sources (27% peer-reviewed versus 73% non-peer reviewed, out of 33 sources). Initiatives were categorized into short-term (lasting 1 day-8 weeks) and long-term models (lasting >8 weeks), as previously defined by GH literature. Initiatives were then further subcategorized based on: scope including clinical/surgical rotations versus "mission trips" versus education, training and capacity building initiatives; stakeholders involved including universities and hospitals versus faith-based organizations versus ministries of health or local community leaders; topics covered including general women's health versus specific pathology such as genitourinary fistula; directionality including projects led by High-Income Countries (HICs) to Low-Middle Income Countries (LMICs) versus projects within HICs or LMICs versus collaborative partnerships. Findings are represented in Graphic 1. Less than 15% of programs had detailed reporting on their structure and outcomes. Although some general initiative successes and challenges were identified and described in Graphic 2, it was not possible to assign these to each model due to paucity of consistent reporting.

Conclusions: Although a large number of gynecologic GH/GHEd initiatives were identified through this review, there was a paucity of peer-reviewed articles. Most program descriptions lacked key details about program structure, objectives and outcomes, which made an analysis of GH models successes and challenges difficult. Our findings demonstrate the need for further academic investigation to examine existing gynecologic GH/GHEd initiatives, evaluate their structure and outcomes, and gain an understanding of missing global gynecologic health needs. As GH equity efforts increase and diversify, there is a need to establish a standardized classification system for accepted program models, and provide ethical guidelines for the development and implementation of such programs to address global gynecologic health disparities.

Disclosure: No

Images:



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WITHDRAWN - Electromagnetic Stimulation Therapy to Improve Post-partum Stress Urinary Incontinence: A Randomized Trial

WITHDRAWN

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Retrospective Analysis of the Use of Peri-urethral Bulking Injection at the Time of Pelvic Floor Repair in Women with Pelvic Organ Prolapse and Urodynamic Stress Incontinence

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Introduction: Pelvic organ prolapse (POP) and stress urinary incontinence (SUI) are common conditions that are likely to share an aetiology [1- 3]. There are two schools of thought for the management of women with both POP and SUI: a) to perform a pelvic floor repair and a SUI procedure in a one-step procedure, b) to perform pelvic floor repair surgery first followed by continence surgery in a two-step approach. The combined approach stems from the days when women were offered surgery for POP with insertion of a mid-urethral synthetic sling [4], reducing anaesthetics, admissions to hospital, and post-operative recovery time. Raised awareness of complications associated with mesh in the UK has led to a pause in TVT procedures. The use of polyacrylamide hydrogel (PAGH) peri-urethral bulking was offered as an alternative to women attending our unit seeking concomitant surgery and an alternative to mesh.

Objective: To look at outcome and safety of the use of PAGH peri-urethral bulking performed at the time of pelvic floor repair in women with POP and urodynamic stress incontinence (USI).

Methods: All women having a urogynaecological procedure at our unit are consented to take part in the British Society of Urogynaecology (BSUG) National Database. As part of the recruitment process women are asked to complete validated questionnaires about their urinary symptoms ICIQ-urinary incontinence short form (ICIQ-UI SF) and their vaginal symptoms ICIQ-vaginal symptoms (ICIQ-VS). These validated questionnaires were completed by the control and study groups pre-and post-operatively and the scores were analysed retrospectively. We compared the symptoms scores of twenty-six women having peri-urethral bulking for treatment of USI only (control group) with twenty-five women undergoing concomitant pelvic floor repair (table 1) and peri-urethral bulking injections (study group) for USI and POP. Surgery was performed by two sub-specialists in urogynaecology, and all women in the study group were admitted overnight with a vaginal pack, a size 12F and underwent a TWOC the following morning.

Results: All women in the control group scored 0 in the ICIQ-VS questionnaire. Women in the study group had an average improvement in vaginal symptom scores of 13.1. Both groups showed overall improvement in continence scores with the average improvement in the study group being 7.24 and in the control group being 4.73. Statistical analysis showed that the difference in ICIQ-UI SF scores between the two groups were not statistically significant ($p = 0.059$). Using the global impression questionnaire, 80% of women from the study group and 65.4% in the control group reported improvement in their incontinence symptoms (see figure 1, 2). Women in the study group were admitted to hospital for an average of 1.6 days. Four women

(16%) failed the next day TWOC which they subsequently passed at day 3 follow up. One of these patients had a post-operative haematoma following pelvic floor surgery which was managed conservatively.

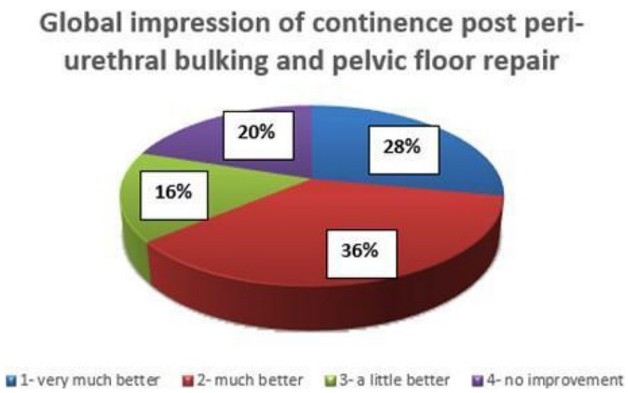
Conclusions: Our study suggests that pelvic floor repair with peri-urethral bulking is a safe option for the concomitant management of POP and USI and has comparable results to peri-urethral bulking for USI alone.

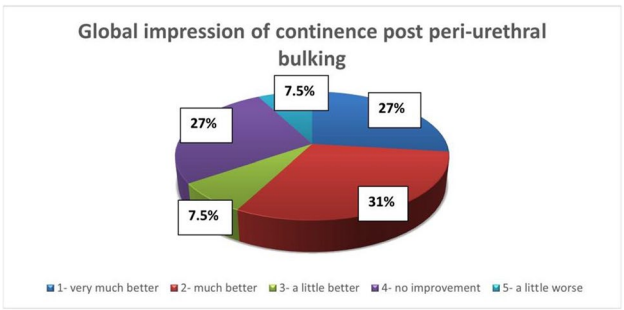
Disclosure: No

Images:

Type of Pelvic Floor Repair:	**Number of Patients:**
Anterior repair	7
Posterior repair	4
*Anterior and Posterior repair**	5
*Anterior repair and vaginal hysterectomy**	3
Posterior repair and vaginal hysterectomy	1
Laparoscopic sacrohysteropexy	1
*Sacrospinous ligament fixation**	2
*Vaginal hysterectomy, anterior repair, posterior repair, and sacrospinous ligament fixation**	1
Sacrohysteropexy, anterior repair, posterior repair	1

**Pelvic floor repair operations of the 4 women that failed trial without catheter the next day. Passed TWOC on day 3.*





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Surgical Treatment of Stress Urinary Incontinence: Comparison of Robotic Assisted Burch Urethropexy with Retropubic Midurethral Sling

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Introduction: Synthetic midurethral slings (MUS) and robotic assisted Burch urethropexies (RA-Burch) are common surgical treatment options for stress urinary incontinence (SUI). Little data exists comparing these two retropubic approaches on SUI.

Objective: To compare the proportion of patients with subjective cure after RA-Burch to transvaginal MUS performed at an academic medical center. Secondary outcomes included OR time, EBL, postoperative complications, de novo urge urinary incontinence (UUI), reoperation for SUI, postoperative voiding dysfunction, and mesh complications.

Methods: This retrospective cohort study of RA-Burch and MUS procedures included all women who underwent RA-Burch at our institution between 1/1/2016 and 12/31/2020. They were then matched 1:4 with MUS procedures by calendar date. Demographics, medical history, preoperative symptoms and exams, intraoperative information, postoperative complications and symptoms, and follow-up were recorded. The primary outcome was the proportion of patients with subjective cure after RA-Burch compared to MUS. Subjective cure was defined as reporting no symptoms of SUI at longest follow up. Chi-square, Fisher's exact, Mann Whitney U tests, ANOVA and logistic regression were used in analysis.

Results: The overall cohort of 235 subjects included 47 RA-Burch cases matched with 188 MUS cases. Patients who underwent RA-Burch were younger and had lower BMIs compared to MUS (44 [37-49] vs. 55 [45-64.8] years, p 0.05).(Table 1) Patients were more likely to have concomitant procedures, including hysterectomy and paravaginal repair, in the RA-Burch group vs. MUS (32 (68.1%) vs. 48 (25.5%), p<0.01).(Table 2) There was no difference in subjective cure at longest follow up in the RA-Burch cohort compared to the MUS group (39 (83.0%) vs. 160 (85.1%), p=0.76). Median follow-up was longer in the RA-Burch group than the MUS group (654 [88-1485] vs. 239 [42-636] days, p<0.01). There was no difference in early postoperative complications between RA-Burch and MUS (14 (29.8%) vs. 48 (26.1), p=0.58), additional treatments for persistent SUI (4 (8.5%) vs. 10 (5.4%), p=0.49), or new UUI at longest follow up (6 (12.8%) vs. 19 (10.3%), p=0.64). (Table 2) Both groups experienced postoperative urinary retention at a similar rate (19.1% vs. 19.5%, p=0.99), although 4 (2.1%) MUS patients required sling lysis to improve their retention. One patient (0.5%) in the MUS group experienced a mesh exposure. Patients undergoing RA-Burch had significantly longer OR times compared to MUS when no concomitant procedure was performed (83 vs. 33 minutes, p<0.01). There was no difference in EBL between the two groups. (Table 2) There was no difference in SUI recurrence when controlling for surgery type, prior SUI surgery, anterior prolapse, and concomitant procedures.(Table 3)

Conclusions: There was no difference in the subjective cure of SUI symptoms at longest follow-up between RA-Burch and MUS procedures. There were similar rates of reoperation for SUI and new symptoms of UUI among the groups. This study suggests that RA-Burch and MUS may be equally efficacious for patients with symptoms of SUI desiring surgical management.

Disclosure: No

Images:

Table 1: Comparison of Surgical Modalities - Preoperative Variables*

Variable	RA-Burch (n=47)	MUS (n=188)	P-value
Demographic variables			
Age (years)	44 [37-49]	55 [45-64.8]	<.01
BMI (kg/m2)	27.1 [23.9-30]	29.3 [25.5-34.4]	<.05
Gravidity	4 [3-5]	4 [3-5]	.05
Parity	4 [3-4]	3 [3-4]	.38
Vaginal Deliveries	3 [3-4]	3 [3-4]	.42
Cesarean Deliveries	1 [1-1]	1 [1-1]	.65
Hypertension	7 (14.9)	66 (35.1)	<.05
Tobacco use			<.05
Current	11 (23.4)	22 (11.7)	
Never	27 (57.4)	101 (53.7)	
Former	9 (19.1)	65 (34.6)	
Clinical variables			
Preoperative			
Prior hysterectomy	10 (21.3)	80 (42.6)	<.05
Prior SUI surgery	7 (14.9)	22 (11.7)	.55
Type of incontinence			.40
Stress	16 (34)	70 (37.4)	
Urge	0 (0)	0 (0)	
Mixed	31 (66)	117 (62.6)	
POP-Q	N=25 (53.2)	N=117 (62.2)	0.28
Anterior	25 (100)	80 (68.4)	<.01
Apical	12 (48)	65 (55.6)	.49
Posterior	16 (64)	82 (70.1)	.55
Preoperative hypermobility	31 (83.8)	47 (67.1)	.07
Preoperative EBCST positive	5 (10.6)	77 (60.6)	<.05
Preop cystometrics	N=13 (27.7)	N=88 (46.8)	<.05
Detrusor overactivity present	5 (38.5)	15 (17.0)	.12
Max capacity	300 [290-390]	300 [250-300]	.06
Leak at Max capacity	9 (69.2)	82 (93.2)	<.05

*Data presented as N(%) or median [IQR].
Abbreviations: stress urinary incontinence (SUI), pelvic organ prolapse quantification system (POP-Q), empty bladder cough stress test (EBCST)

Table 2: Comparison of Surgical Modalities – Intraoperative and Postoperative Variables*

Variable	RA-Burch (n=47)	MUS (n=188)	P-value
Intraoperative			
Concomitant procedure	32 (68.1)	48 (25.5)	<.01
Hysterectomy	18 (38.3)	22 (11.7)	<.01
TVH	0 (0)	8 (4.3)	
TLH	0 (0)	3 (1.6)	
Isc SCH	0 (0)	2 (1.1)	
RA-TLH	17 (36.2)	4 (2.1)	
RA-SCH	1 (5.6)	5 (2.7)	
Apical suspension	4 (8.5)	20 (10.6)	.66
Sacrocolpopexy	1 (2.1)	10 (5.3)	
USLS	3 (6.4)	9 (4.8)	
SSLS	0 (0)	1 (0.5)	
Paravaginal repair	17 (36.2)	0 (0)	<.01
Time in operating room (min)	114 [89-136]	36 [27-55.8]	<.01
EBL (mL)	30 [25-45]	25 [15-50]	.11
Intraoperative complication	1 (2.1)	6 (3.2)	.99
Postoperative+			
Early postoperative complication	14 (29.8)	48 (26.1)	.58
Urinary retention	9 (19.1)	36 (19.5)	1.00
UTI	4 (8.5)	11 (6.1)	.74
Wound infection	0 (0)	1 (0.5)	.99
Hematoma	0 (0)	2 (1.1)	. 99
Other	2 (4.3)	2 (1.1)	. 99
Longest follow up (days)	654 [88-1485]	239 [42-636]	<.01
SUI recurrence			
At postop visit	5 (10.6)	25 (13.5)	.63
At longest follow up	8 (17.0)	28 (15.2)	.76
Any retreatment?	4 (8.5)	10 (5.4)	.49
Retention requiring mesh lysis	n/a	4 (2.1)	
Mesh exposure	n/a	1 (0.5)	
Urethral bulking agent for SUI	2 (4.2)	4 (2.2)	.63
Placement of MUS	1 (2.1)	4 (2.2)	. 99
New UUI			
At postop visit	2 (4.3)	19 (10.3)	.26
At longest follow up	6 (12.8)	19 (10.3)	.64

* Data presented as N(%) or median [IQR].
+ 47 patients in the RA-Burch group and 184 patients in the MUS group had postoperative data available
Abbreviations: total vaginal hysterectomy (TVH), total laparoscopic hysterectomy (TLH), laparoscopic supracervical hysterectomy (Isc SCH), robotic-assisted total laparoscopic hysterectomy (RA-TLH), robotic-assisted laparoscopic supracervical hysterectomy (RA-SCH), uterosacral ligament suspension (USLS), sacrospinous ligament suspension (SSLS), estimated blood loss (EBL), urinary tract infection (UTI), stress urinary incontinence (SUI), urge urinary incontinence (UUI), overactive bladder (OAB), not applicable (n/a)

Table 3: Logistic Regression of Variables Associated with Stress Urinary Incontinence Recurrence at Longest Follow Up

Variable	Adjusted Odds Ratio	P-value	CI (95%)
Surgery Type	1.09	.85	(.431, 2.777)
Prior Stress Urinary Incontinence surgery	2.16	.12	(.824, 5.636)
Anterior prolapse	1.59	.26	(.713, 3.547)
Concomitant procedures	.91	.83	(.378, 2.193)

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Efficacy of Sacral Nerve Stimulation for Female Fecal and Urinary Incontinence in Patients over age 70

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Introduction: Sacral nerve stimulation (SNS) has been shown to be a safe and effective treatment for those who do not respond to behavioral or medical therapies. Given the rapidly aging population, effective strategies to treat urinary and fecal incontinence is of growing importance. Prior studies on the impact of age on SNS outcomes yielded mixed results.
Objective: To identify differences in the efficacy of SNS for female urinary and fecal incontinence between patients younger than 70-years compared to patients 70-years or older.
Methods: This was a single-center retrospective cohort study comparing the efficacy of SNS on fecal and urinary incontinence between patient cohorts based on age at time of SNS device placement. Included patients had undergone SNS device placement for urinary and/or fecal incontinence. The primary outcome was efficacy as measured by percent improvement in the frequency of incontinence episodes. Frequency of urinary incontinence episodes per day and fecal incontinence episodes per week were recorded at each visit. All available follow-up data for devices placed during the study period of January 2016 – December 2021 were included in the data collection. Data were analyzed using the student's t-test, chi-squared test, and logistic regression.
Results: There were 43 patients in the younger cohort (less than 70-years old) and 37 patients in the older cohort (70-years or older). Patients in the older cohort were more likely to be white (81% v. 51%, p<0.005) and have hypertension (30% v. 21%, p<0.003). Patients under 70-years old were more likely to be obese (Body Mass Index 35.4 v. 29.1, p<.0001). Median length of follow-up was 8 months (IQR17) for all patients and did not differ by age cohort (p=0.17). Before SNS treatment, 91% of patients reported urinary incontinence with a median frequency of 2 (IQR 4, average 3.9) episodes per day and 3 (IQR 6, average 5.0) episodes per day in the younger and older cohorts, respectively (p=0.17). After SNS treatment, the frequency of urinary incontinence decreased by 88 □ 23.4% in the younger cohort and 78.7 □ 26.9% in the older cohort (p=0.13). Before SNS treatment, 49% of patients reported fecal incontinence with a median frequency of 0 (IQR 3, average 4.4) episodes per week and 2 (IQR 3, average 3.4) episodes per week in the younger and older cohorts, respectively (p=0.27). After SNS treatment, the frequency of fecal incontinence decreased by 94.5 □ 9.5% in both the younger cohort and older cohorts (p=0.99).
Conclusions: Sacral nerve stimulation for the treatment of urinary and/or fecal incontinence is a highly effective treatment modality. The mean reduction in incontinence episodes did not significantly differ for either

fecal or urinary incontinence between those aged younger than 70 and those 70 years and older.
Disclosure: No

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Web-based Yoga-Pilates Reduces Stress Urinary Incontinence

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Introduction: Stress urinary incontinence (SUI) occurs in part due to a weakened urethral rhabdosphincter. Yoga and Pilates are low-impact workouts that use bodyweight as resistance, and limited evidence shows these exercises improve pelvic muscle strength and decrease incontinence episodes.
Objective: The study objective was to evaluate the effect of an 8-week web-based yoga-Pilates exercise program on SUI severity as measured by the International Consultation on Incontinence Questionnaire - Urinary Incontinence Short Form (ICIQ-UI SF) and secondarily to evaluate the potential mechanism of action for yoga-Pilates through ultrasound measurement of the urethral rhabdosphincter cross-sectional area (CSA). We hypothesized that yoga-Pilates would decrease SUI severity and cause hypertrophy of the urethral rhabdosphincter.
Methods: This was a prospective interventional cohort study from November 2020 through September 2021. The intervention was an 8-week home yoga-Pilates web-based video that tracked and prompted participation. Participants with SUI underwent in-person visits pre/post-intervention during which they completed quality of life and severity surveys and underwent pelvic exam, including POP-Q, cough stress test, Brink pelvic floor strength score, and resting 3-dimensional transperineal ultrasound [1]. Ultrasound images were masked and measured post-collection. The rhabdosphincter is located in the middle third of the urethra, so 5 CSA measurements were taken: at the midpoint and then at 2.5 mm and 5mm cranial and caudal from the midpoint [1]. The urethral CSA was determined by subtracting luminal/submucosal area from total urethral area (Figure 1). Pre/post 24-hour voiding diaries and an automated video viewing log were also collected. The study was powered to detect a mean change of 2.0 ± 4.0 ICIQ UI-SF score units and a mean CSA increase of 0.25 ± 0.6 cm2 with 48 compliant participants. All pre/post- intervention changes were analyzed using paired t-tests with a null change of zero.
Results: 78 women, ages 46.6 + 10.4 years, enrolled. 60 women completed the study. The cohort was predominantly premenopausal (67%), vaginally parous (65%), and had done yoga (76%) and/or Pilates (44%) in the past. 73% of the completers performed the exercises at least 3x/week. The ICIQ-UI SF score improved from 9.5 (95% CI 8.7-10.4) to 7.1 (95% CI 6.3-7.9) post-intervention (p<0.001). The number of incontinence episodes decreased post-intervention from 1 (IQR 1-3) to 1 (IQR 0-1) (p<0.001). The Brink score also improved from 7.1 (95% CI 6.6-7.7) to 7.7 (95% CI 7.2-8.2) (p=0.013). Participants were very satisfied with the online exercises. The majority (83%) of completers also reported they were “a little better”, “much better”, or “very much better” on patient global impression of improvement. There were no significant changes in urethral measurements from pre- to post-intervention.
Conclusions: Although there were no changes in the urethral rhabdosphincter, this web-based yoga-Pilates exercise program improved symptoms of SUI and decreased number of incontinence episodes in women with SUI over 8 weeks. Web-based yoga-Pilates offers women with SUI a nonsurgical treatment that can be performed at home, which is beneficial in the ongoing COVID-19 pandemic.
Disclosure: No
Images:

Figure 1: Urethral cross-sectional area on transperineal ultrasound

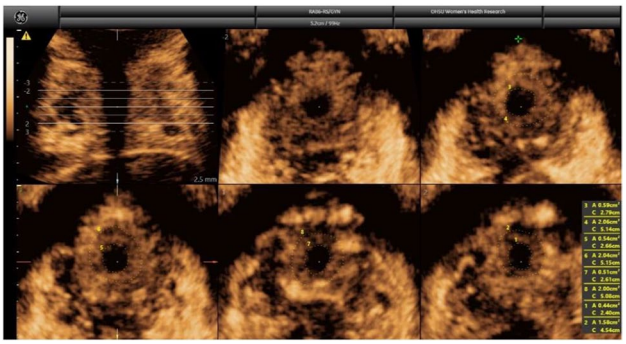

Table 1: Quality of life (QoL) measures and the changes post-intervention among participants completing the study (n = 60). Data are mean (95% confidence interval) or median [interquartile range].

QoL measure	Pre-intervention	Post-intervention	Difference	p-value
Incontinence episodes	1 [1 – 3]	1 [0 – 1]	-1 [-2 – 0]	< 0.001
ICIQ-SF score	9.5 (8.7-10.4)	7.1 (6.3-7.9)	-2.4 (-3.2 – -1.6)	< 0.001
FGSIS- score	14.6 (13.8-15.4)	14.2 (13.4-15.0)	0.5 (-0.9 - 0.0)	0.043
Brink score	7.1 (6.6-7.7)	7.7 (7.2-8.2)	0.6 (0.1-1.0)	0.013
POP-Q stage	1.3 (1.1-1.5)	1.3 (1.1-1.5)	-0.1 (-0.2-0.1)	0.616

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1. McLean L, Varette K, Gentilcore-Saulnier E, Harvey MA, Baker K, Sauerbrei E. Pelvic floor muscle training in women with stress urinary incontinence causes hypertrophy of the urethral sphincters and reduces bladder neck mobility during coughing. *Neurourol Urodyn.* 2013;32(8):1096-1102.

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Autologous Fascial Slings: Often Discussed, but Rarely Utilized – a Population-Based Assessment of California Statewide Data 2013-2018

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Introduction: Autologous fascial slings (AFS) are a valuable surgical option for the treatment of female stress urinary incontinence (SUI). In light of the Food and Drug Administration’s advisory notifications, we hypothesized that there may be resurgence of AFS over synthetic slings.
Objective: We sought to quantify the utilization of AFS performed in a large population-based cohort.
Methods: All women undergoing a sling procedure for SUI in California between January 1, 2013 through December 31, 2018 were identified using the Office of Statewide Health Planning and Development data sets (CPT 57288). AFS cases were identified by the presence of a fascial harvest code (rectus or fascia lata, CPT 20920, 20922, 15769, 29022, 20926, 15770, 15760). Patient demographics and the surgical facility was identified.
Results: A total of 45,919 slings were placed in 41,374 unique women (mean age 56.5 years). Overall, 404 (0.9%) were AFS and of these, 132 were predated by at least one prior sling placement (32.7%). A total of 1,201 synthetic sling cases were predated by a prior sling placement. Overall, 40,104, 1,181, 83, three and two women underwent one, two, three, four and five sling placements, respectively. There were 299 unique facilities where slings were placed, however fascial slings were only placed at 35 unique sites. Of the 404 fascial slings placed, 311 were placed at three unique academic centers.

Conclusions: Though critical in the armamentarium of surgical treatment of female SUI, AFS are rarely performed. Although the authors acknowledge that some fascial sling cases may not have been captured due to the lack of a fascial harvest code, our reported rates here are actually consistent with the limited literature on the topic (1). Further, our results demonstrating performance of AFS concentrated to a small cadre of academic centers continues to support our findings. With the limited number of centers where this procedure is performed, our data portends the likely importance of referral to a tertiary center for placement of autologous fascial slings, if indicated. 1. James MB, et al. Sling Procedures for the Treatment of Stress Urinary Incontinence: Comparison of National Practice Patterns between Urologists and Gynecologists. J Urol. 2017 Dec;198(6):1386-1391.
Disclosure: No

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Cost-effectiveness of Bulk Injection Therapy Polydimethylsiloxane-Urolastic Compared to Mid-urethral Sling Surgery for Stress Urinary Incontinence

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Introduction: With a growing and aging population and an expected increase of 47.5% with regards to stress urinary incontinence (SUI) surgery in 2050, SUI is heading for a major public health issue accompanied by a significant economic burden. Mid-urethral sling (MUS) surgery is proposed as a viable surgical option. Bulk injection therapy Polydimethylsiloxane Urolastic (PDMS-U) is a non-absorbing bulking agent that does not require hospital admission, anesthesia and multiple re-injections. Therefore, if cure rates of PDMS-U would be non-inferior to MUS-surgery, it is assumable that PDMS-U is a more cost-effective treatment option.
Objective: To investigate the cost-effectiveness of bulkinjection therapy PDMS-U compared to mid-urethral sling (MUS) surgery for SUI.
Methods: We performed an international, multicentre, prospective, two-armed cohort study comparing mid-urethral sling surgery and PDMS-U with a two year follow-up. Time horizon of the cost-effectiveness analysis was 12 months. Female patients with moderate to severe SUI and a positive result on the standardized cough stress test (CST) were included. Exclusion criteria were: predominating urge incontinence, genital prolapse with a POP-Q score of point Aa or Ba >/=0, pregnancy or intended to become pregnant during study, untreated urinary tract infection, bladder capacity of 150ml, urinary flow of <15ml/sec, not capable of giving informed consent. Primary outcome was subjective cure ('very much better' and 'much better' on the Patients Global Impression of Improvement(PGI-I)). Secondary outcomes were: objective cure (negative cough stress test), adverse events and re-interventions. Cost-effectiveness outcomes were: total costs (intervention and hospital admission, adverse events, re-interventions, additional visits, productivity loss), quality-adjusted life year (QALY) using IIQ7-scores (Incontinence Impact Questionnaire) and EQ5D5L, incremental cost-effectiveness ratio (ICER) and monetary benefit (adjusted for baseline confounders). Costs were expressed in 2021 Euros.
Results: 131 PDMS-U and 153 MUS-surgery patients were treated. The PDMS-U group was older, had significant more severe SUI at the Sandvik severity scale, had more mixed urinary incontinence and a higher number of previous surgical treatment for SUI. Subjective and objective cure rates for MUS-surgery and PDMS-U were respectively: 101/112 (90%) versus 40/87 (46%), OR was 5.9 (adjusted for age, BMI, severity and type of urinary incontinence), 98/109 (90%), 98/109 (90%) versus 58/92 (63%), adjusted OR 4.4. Average total costs for PDMS-U and MUS-surgery were €3567 and €6688, mean difference €3120. ICER for MUS-surgery was €15.598 per IIQ QALY and €37.408 per EQ5D5L QALY. CEA plane showed that MUS-surgery was more effective and more expensive. With a willingness to pay (WTP) of €25.000, MUS has a 91% chance of being cost-effective with respect to disease specific QOL (IIQ), while PDMS-U yielded a higher net benefit with respect to generic QOL (EQ5D5L).
Conclusions: MUS-surgery was more expensive and more effective than bulk injection PDMS-U. With a WTP of €25.000 for one IIQ QALY, MUS-surgery had a probability of 91% to be cost-effective. With EQ5D5L the WTP for MUS-surgery would have to be over €100.000 to have similar probabilities to be cost-effective. Subjective and objective cure rates of PDMS-U were inferior to MUS-surgery.
Disclosure: Yes, this is sponsored by industry/sponsor: Urogyn BV Clarification: Industry funding only - investigator initiated and executed study
Images:

Table 3. Costs per treatment

Cost item	Mean (95% CI) total costs, €		
Medical costs	PDMS-U	MUS-surgery	Mean difference 95% CI
Intervention and hospital admission	1300 (1295 to 1305)	1447 (1393 to 1502)	95 to 203
Adverse events	58 (-3 to 107)	8 (1 to 14)	-108 to -8
Re-intervention	265 (109 to 420)	21 (7 to 34)	-418 to -112
Additional visits	26 (15 to 36)	19 (7 to 32)	-22 tot 10
Non-medical costs			
Productivity loss; paid work	1196 (796 to 1595)	4767 (4128 to 5406)	2834 to 4309
Productivity loss; unpaid work	730 (580 to 881)	426 (278 to 574)	2158 to 3699
Productivity loss; paid work – sensitivity analysis	975 (589 to 1362)	3913 (3219 to 4606)	-509 to -98
Productivity loss; unpaid work – sensitivity analysis	582 (425 to 739)	271 (138 to 404)	-511 to -109
Total costs	3567 (3168 to 4017)	6688 (6129 to 7283)	3567 (3168 to 4017)

PDMS-U: polydimethylsiloxane-Urolastic; MUS: mid-urethral sling surgery; CI: confidence interval

Figure 1A. Cost-effectiveness plane based on IIQ

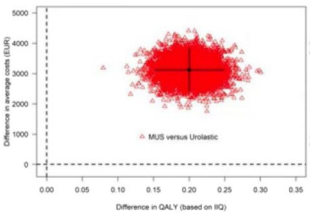
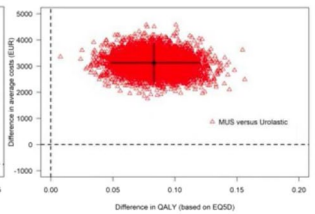
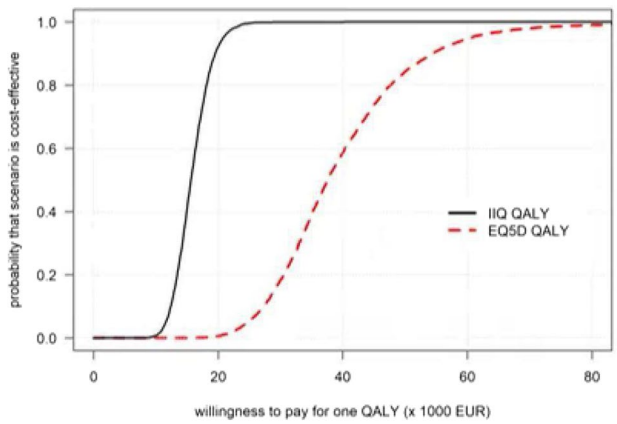


Figure 1B. Cost-effectiveness plane based on EQ5D5L



This plane shows differences in costs and IIQ QALYs (Figure 2A) and EQ5D5L QALY's (Figure 2B) of bootstrap samples. All bootstrap samples are situated in the north-east of the plane, meaning mid-urethral sling surgery is more effective and more expensive compared to polydimethylsiloxane Urolastic.

Figure 2. Cost-effectiveness acceptability curve



This curve shows the proportion of bootstrap samples (y-axis) that were found cost-effective when compared to a range of threshold monetary values (x-axis).

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National Trends in Anticholinergic Prescriptions for Overactive Bladder

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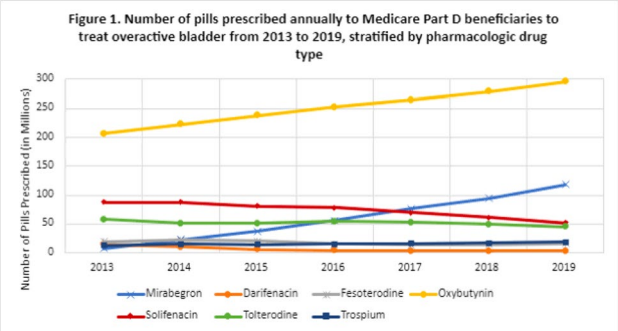
Introduction: Pharmacologic therapy for overactive bladder (OAB) involves the use of an anticholinergic or beta-3 agonist. Despite the common use of anticholinergics for management of OAB, there is growing concern for the increased risk of cognitive impairment and dementia, particularly with cumulative dosing or prolonged exposure. In fact, there is an estimated relative risk of 1.46 for dementia with greater than 3 months of use.
Objective: To describe national and regional trends in prescribing practices for overactive bladder.
Methods: The United States Centers for Medicare and Medicaid Services annually publishes Medicare Provider Utilization and Payment Data, which includes information on prescription drugs provided to Medicare beneficiaries enrolled in Part D. The dataset includes the number of unique Part D beneficiaries with at least one claim for a drug and the aggregate number of days supply that was dispensed. We used data from 2013-2019 to assess geographic trends in prescribing practice based on the United States Census Bureau Regions and Divisions. Data are presented as proportions.
Results: From 2013 to 2019, Medicare Part D beneficiaries received 3.3 billion pills for treatment of OAB. The number of anticholinergic and beta-3 agonist pills prescribed for OAB increased annually from 406 million in 2013 to 549 million in 2019, corresponding to a 5.0% annual increase. The majority of pills prescribed were anticholinergics, which accounted for 87.6% of all prescriptions for OAB. The number of anticholinergic pills prescribed increased by 33 million from 2013 to 2019, corresponding to an increase of 8.3%. While substantially more anticholinergics were prescribed, the number of beta-3 agonist pills prescribed increased by 110 million from 2013 to 2019, corresponding to nearly a 15-fold increase. Prescriptions for mirabegron, oxybutynin, and trospium increased annually from 2013 to 2019, while prescriptions for the other anticholinergics declined (Figure 1). The number of Medicare Part D beneficiaries filling these prescriptions increased by 514 thousand, corresponding to a 23% increase in the number of patients receiving pharmacologic treatment for OAB. There were substantial regional differences in prescribing practices and beneficiaries (Table 1). The West South Central, South Atlantic and Mid-Atlantic were all more likely to receive a beta-3 agonist, while beneficiaries in Central East North, Mountain and Central West North were less likely to receive a beta-3 agonist. For example, beneficiaries receiving pharmacologic therapy for OAB are 51% more likely to receive a beta-3 agonist in the South Atlantic compared to the East North Central. State differences in 2019 are shown in Figure 2.
Conclusions: From 2013 to 2019, the number of pills prescribed to treat OAB and the number of patients receiving these prescriptions increased. The substantial rise in beta-3 agonist prescriptions is encouraging; however, anticholinergic medications still accounted for the majority of prescriptions filled by Medicare Part D beneficiaries. The growing body of evidence regarding the risks of anticholinergic medications should cause pause for prescribers, especially among elderly patients. Regional differences suggest that targeted provider education may be needed in certain states that disproportionally prescribe anticholinergics.
Disclosure: No
Images:



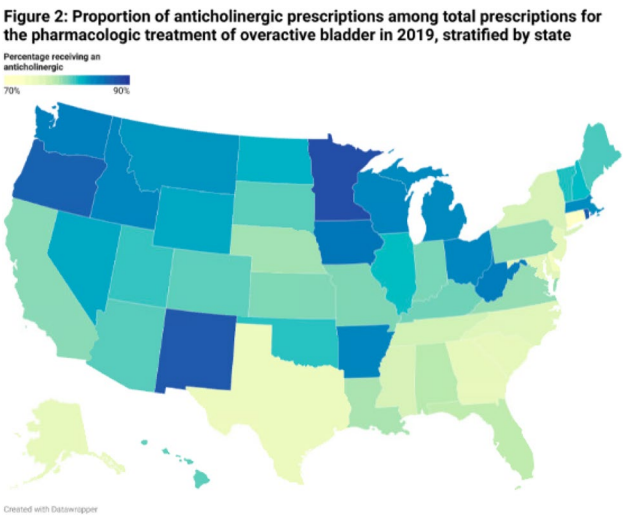


Table 1: Percent of beneficiaries receiving a beta-3 agonist to treat overactive bladder stratified by region from 2013 to 2019

Region	Overall	2013	2014	2015	2016	2017	2018	2019
Northeast								
New England	12	3	6	9	12	15	17	20
Middle Atlantic	15	4	8	11	14	18	21	23
South								
South Atlantic	15	4	9	12	15	19	21	23
East South Central	13	3	7	9	13	17	20	22
West South Central	15	4	8	11	14	19	22	23
Midwest								
East North Central	10	2	5	7	10	13	15	17
West North Central	11	2	5	8	10	14	16	18
West								
Pacific	11	2	4	7	10	14	17	19
Mountain	11	3	5	8	10	13	16	18

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Trends in Performance of Anti-incontinence Treatment at the Time of Pelvic Organ Prolapse Repair from 2011-2019

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Introduction: Concomitant anti-incontinence procedures at the time of pelvic organ prolapse (POP) repair are frequently performed but are associated with an increased risk of adverse outcomes. Moreover, mesh

midurethral slings have been subject to changing patient and provider perceptions given an evolving regulatory framework.

Objective: The aim of this study was to describe recent trends in performance of concomitant stress urinary incontinence (SUI) treatment with surgery for POP.

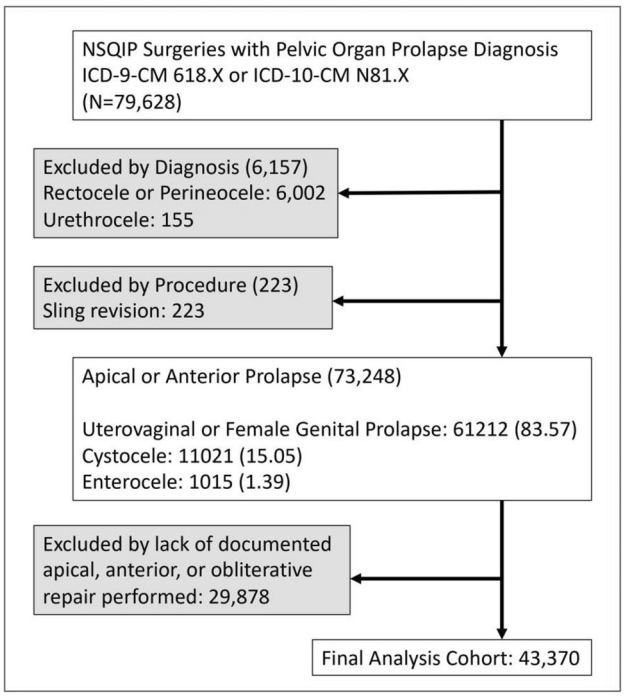
Methods: Surgeries with a primary diagnosis of POP were identified from the 2011-2019 National Surgical Quality Improvement Program Database and performance of a prolapse repair was ascertained by Current Procedural Terminology code. The primary outcome was concomitant SUI treatment, and the rate and type of treatment was calculated per quarter. An autoregressive interrupted time series regression estimated temporal trends and assessed for a change in trend associated with three consequential events: the FDA's requirement for postmarketing studies from manufacturers of vaginal mesh in January 2012 ("postmarketing studies"), publication of the Outcomes following Vaginal Prolapse Repair and Midurethral Sling ("OPUS") trial in June 2012, and the FDA's labeling of vaginal mesh as a high-risk device in January 2016 ("reclassification").

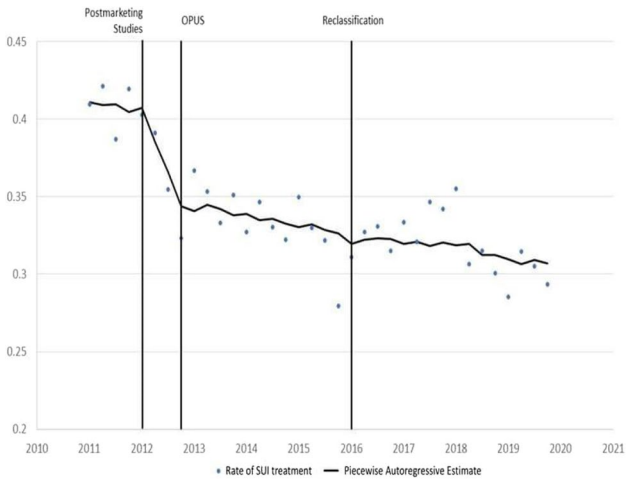
Results: 43,370 eligible cases were identified (Figure 1). While the rate of SUI treatment during POP surgery decreased from 46.1% to 35.7% across the analysis period, the trend was not uniform (Figure 2). The rate of concomitant SUI treatment per quarter showed no significant trend prior to postmarketing studies (-0.2%, 95% CI -0.8, 1.1). After postmarketing studies, a downward deflection of -2.0% per quarter was observed (95% CI -3.6, -0.4). Conversely, following OPUS, we observed a flattening, with no further significant change (-0.2%, 95% CI -0.8, 0.4). No change in trend was identified related to the FDA reclassification (P=0.9). Assessing types of SUI procedures performed, midurethral or bladder neck slings constituted most of these procedures, increasing from 95.8% to 96.2% between 2011 and 2019 (P=0.03).

Conclusions: Following the FDA's warning and order for postmarketing studies from mesh manufacturers, rates of concomitant SUI treatment at the time of surgery for POP significantly decreased. However, performance of SUI procedures stabilized following publication of the OPUS trial at around 35% and did not change in response to subsequent regulatory changes.

Disclosure: No

Images:





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How Painful is Outpatient Cystoscopic Intradetrusor Botox Injections?

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2 - Cwm Taf UHB

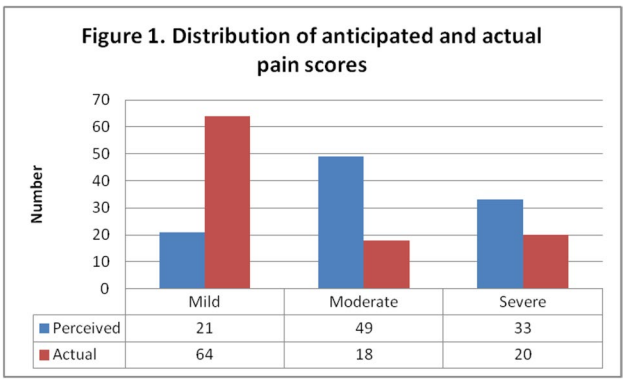
Introduction: Studies have previously shown that patients who undergo cystourethroscopy consistently anticipate higher degrees of discomfort than they actually perceive during the procedure1,2. Cystoscopic Botox injections are now common place outpatient or office based procedure for the management of refractory overactive bladder symptoms. This is usually performed with local anaesthesia and preemptive oral analgesia. We wished to see if these previous findings were replicated in a therapeutic outpatient cystoscopc procedure.

Objective: The purpose of our review was to analyse how painful the procedure was likely to be and if there was a difference in the anticipated and actual pain scores before and after the procedure

Methods: We analysed the outcome of pain scores using a visual analogue scale between 0-10 to assess the severity of pain for 102 consecutive patients undergoing cystoscopic intradetrusor Botox injections for refractory overactive bladder symptoms between 2018-2020. The dose of Botox-A (Allergan) was 100-200IU depending on dose requirements, injected into 10-20 sites using a flexible cystoscope. All patients had been discussed a multidisciplinary team meeting as per NICE guidelines (UK) and they had completed medical and conservative treatment options before considering treatment. All patients had been taught intermittent self catherisation or in the rare occasion that this was not feasible they would have agreed to accept an indwelling catheter if the need arose. The pain scores were recorded in the operation note for each patient. All patients were recommended to take Paracetamol and/or nonsteroidal an hour before attending where appropriate. Instillagel was used at the insertion of the flexible cystoscopy.

Results: The mean anticipated pain score appeared to be statistically significantly higher than the anticipated pain score [5.4 vs 3.8; $p < 0.05$ Paired t test]. The change in pain scores when grouped into mild (0-3), moderate (4-6) and severe (7-10) are depicted in Fig. 1 This suggests a normal distribution when it comes to assessing pain prior to cystoscopic botox however there was a skew to the left towards a lower actual pain score following the completion of the procedure. The mean pain scores were no different regardless of the number of injections [Anticipated; 5.97 vs 5.91 (10 vs 20 sites); Actual 4.24 vs 4.8 (10 vs 20 sites]

Conclusions: Patients found the procedure less/as painful in 80% of this cohort. The number of injection sites did not reduce the pain scores. This data aids counselling and informing patients undergoing cystoscopic botox. More work on the use of a 'vocal local' and other distraction techniques would be worth considering in future studies.
References: 1. Ellerkmann RM, Dunn JS, McBride AW, Kummer LG, Melick CF, Bent AE, Blomquist JL. A comparison of anticipated pain before and pain rating after the procedure in patients who undergo cystourethroscopy. Am J Obstet Gynecol. 2003 Jul;189(1):66-9. 2. Ellerkmann RM, McBride AW, Dunn JS, Bent AE, Blomquist JL, Kummer LG, Melick CF. A comparison of anticipatory and postprocedure pain perception in patients who undergo urodynamic procedures. Am J Obstet Gynecol. 2004 Apr;190(4):1034-8.
Disclosure: No
Images:



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Review of MDT Approach to Maternity Bladder Care and Postnatal Urinary Retention

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Introduction: Postdelivery bladder retention is an uncommon but distressing condition that affects some women in a difficult time in life. It is a preventable and manageable condition although it has an impact on the quality of life. This study aims at reducing this burden of postnatal urinary problems and propagate an effective and patient friendly way of management.
Objective: 1) Retrospective review of MDT management of Post natal retention cases for one year 2) Ongoing audit of Maternity Bladder Care guideline
Methods: Retrospective notes review of all postnatal retention cases referred to Bladder and bowel Nursing Service over one year. Ongoing audit and run chart of local Maternity Bladder Care guideline as part of a Quality improvement project.
Results: The health board Maternity Bladder Care guideline has been continually audited for compliance since 2018 as an ongoing Quality improvement project.(presented at IUGA 2018) 1) All cases of postnatal retention are discharged with indwelling flip flow catheter for trial of catheter removal in the community at the patient's convenience, usually 7-14 days after delivery. Between Oct'19 and Oct '20, 25 cases (0.49% of total deliveries) were referred, of which 20% had Emergency sections and 26% had instrumental deliveries (double the background rate of these two modes of delivery). Support from Community team was provided for an average 25 days with 16 patients requiring self catheterization and 1 referred to urology. 2) Continued adherance to the guideline is monitored by a monthly run chart. Results in February 2021 showed 100% antenatal screening, 76% adequate intrapartum care (void every 4-6 hours) and 88% postnatal void management (measured and documented void in 6 hours). Over the last 3 months, these results show improvement to 100% in all three areas. 3) Survey among other health boards in Wales, conducted to benchmark this practice, showed 71% of the responses used a maternity bladder care guideline. 76% responses suggested trial without catheter took place on the postnatal ward as an inpatient.
Conclusions: Continuing education of wider MDT as part of the QuIP has resulted in improved results from the audit. It is now a part of the induction for new doctors and midwives. Community management of PN retention encourages earlier discharge of these patients. TWOC is conducted at a convenient time, in a comfortable environment at the patient's home. This strategy has shown anecdotal evidence of a positive impact on patient experience. Recommendation is to get formal patient feedback and present in the next meeting.
Disclosure: No

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Retrospective Analysis For The Outcome of Autologous Fascial Sling Procedures at the Urogynaecology Unit in East Sussex Healthcare NHS Trust

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1 - East Sussex Healthcare NHS Trust
2 - East Sussex Healthcare Trust

Introduction: Pubovaginal sling is a procedure used to manage stress urinary incontinence (SUI), which is an underdiagnosed and underreported medical problem. (1) Stress urinary incontinence (SUI) affects 15-60% of women. More than one-fourth of nulliparous young college athletes experience SUI when participating in sports. An estimated 50-70% of women with urinary incontinence fail to seek medical evaluation and treatment. Following the NHS England implementation of high vigilance status on the Mesh Slings on July 2018, the use of Autologous sling has increased from 0.6% to 11.2% (2).
Objective: To study the long-term outcome of Autologous midurethral fascial sling procedures for management of stress urinary incontinence (SUI) with or without concomitant prolapse repair.
Methods: We studied the long term outcome of 60 cases of Autologus Midurethral Fascial Sling procedures with or without concomitant prolapse repair. Data were collected using the electronic patient information system and BSUG database . Postoperative follow up was done at 12 months using telephone follow up consultation. The primary outcome was effectiveness in reducing urinary leakage episodes and secondary outcomes were patient satisfaction and complications at 1-year follow up.
Results: The mean age for the group was 56.8 (25-82) years, mean BMI was 30 (20-39.7) and Mean parity 2.49 (0-5). In 80% of the cases AFS was performed as a primary procedure and 20.3% of cases were mixed incontinence as diagnosed by the Bladder pressure flow study. Nearly 16.7% of the secondary group had mixed incontinence, 10.4% of the primary group had mixed incontinence. At one year, an overall improvement of 88% was found in all the cases, 87 % of the primary incontinence patient showed either cure or improvement of incontinence episodes meanwhile only 62.5% of secondary SI patients showed some improvement. As a secondary outcome, the mean improvement of the ICIQ UI and ICIQ QOL score of 80 % or greater was reached in 81% of the patients with primary SUI and 47% of patient with secondary SUI. The ISC rate (intermittent self catheterisation) was 6.3% in primary cases and 16.7% in the secondary cases. Two cases had severe bleeding episodes necessitating blood transfusion and one case had a bladder injury that was recognized and repaired during the surgery.

Conclusions: AFS remains a valuable surgical option for both primary and recurrent SUI in women showing high cure rates and low complications in the long-term. References 1 Kretschmer A, Hübner W, Sandhu JS, Bauer RM. Evaluation and Management of Postprostatectomy Incontinence: A Systematic Review of Current Literature. Eur Urol Focus. 2016 Aug. 2 (3):245-259. 2 BSUG national database incontinence Audit 2019
Disclosure: No

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Patterns of Partial Levator Trauma

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2 - Western Sydney University

Introduction: Levator ani avulsion is a major etiological factor in pelvic organ prolapse (POP). Partial trauma is common and there seem to be distinct patterns.
Objective: To identify patients with predominantly proximal and predominantly distal levator trauma, and investigate associations with symptoms and signs of pelvic floor dysfunction.
Methods: This was a retrospective study of women attending a tertiary urogynecology unit for symptoms of pelvic floor dysfunction between 1/12 and 12/21. All underwent a history, clinical POPQ examination and tomographic ultrasound imaging (TUI) of the pelvic floor for the assessment of both levator ani and anal canal as standardised by IUGA. Trauma to the levator ani was diagnosed by postprocessing of saved ultrasound volume data to assess six tomographic slices bilaterally, resulting in a TUI score of 0-12. After identifying those with complete uni- or bilateral trauma, those with abnormal TUI slices (that is, TUI scores between 1 and 10) were then classified as predominantly proximal (slices 6-8) or predominantly distal (slices 3-5) trauma; see Fig. 1. Women with full avulsion and those with a score of 0 constituted control groups. These four groups were tested for associations with symptoms of urinary incontinence and prolapse.
Results: 4029 women were seen during the inclusion period, of which 3896 had complete data sets. Mean age at assessment was 58 (range, 17-95) years, mean BMI was 29 (15-65). 2825 (73%) presented with stress urinary incontinence, 2810 (72%) with urgency urinary incontinence and 2035 (52%) with symptoms of prolapse. On clinical examination, 2330 (60%) had a Ba of -1 or higher, in 995 C was -4 or higher, and in 1925 women Bp was -1 or higher. On imaging, 1432 had a significant cystocele, 993 significant uterine descent and 1428 significant rectal descent on ultrasound. Hiatal area on Valsalva was 29 cm2 on average (range, 5-69 cm2). Of those 3896 women, 930 (24%) were diagnosed with a full avulsion, 2173 (56%) were normal, and 793 (20%) had partial trauma. Of those, 239 were distal- predominant while 524 were proximal predominant. In 30 cases the location of partial trauma was balanced; these were omitted from the analysis, leaving 3866. Table 1 shows associations between no, proximal and distal partial trauma on the one hand and symptoms and signs of pelvic floor dysfunction. As TUI scores were higher in proximal partial trauma (mean 3.94 vs 1.97, P=0.001), we included TUI scores in regression modelling for differences in signs and symptoms between the two partial trauma groups. The difference between those groups remained significant for symptoms of prolapse (P= 0.03) cystocele descent on US (P=0.023) and POP-Q variable C (P= 0.049) when TUI score was included in the model.
Conclusions: While partial trauma seems to be more relevant for symptoms and signs of prolapse when it occurs in the upper reaches of the levator plate, this effect may be clinically irrelevant compared to the much greater effect of complete avulsion.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Materna Medical, GE Medical, Mindray Images:

	No trauma	Distal trauma	Proximal trauma	Full avulsion
	n= 2173	n=239	n=524	n=930
SUI (yes/no)	75.5%	72.8%	70.8%	66.9%
UUI (yes/no)	73.2%	73.6%	75.4%	68.4%
Sy of prolapse	43.3%	**112/239 (47%)**	**301/524 (57%)**	71.6%
Ba (cm)	-1.07 (SD 1.6)	**-0.88 (SD 1.5)**	**-0.5 (SD 1.69)**	0.06 (SD 1.85
C (cm)	-4.8 (SD 2.68)	**-4.83 (SD 2.09)**	**-4.33 (SD 2.6)**	-3.17 (SD 3.39)
Bp (cm)	-1.22 (SD1.45)	**-1.2 (SD 1.33)**	**-0.97 (SD 1.45)**	-0.74 (SD 1.54)
Gh+Pb (cm)	7.38 (SD 1.37)	**7.51 (SD 1.32)**	**7.86 (SD 1.36)**	8.45 (SD 1.47)
Cystocele on US (cm)	-1.9 (SD 18.1)	**-4.4 (SD 18.4)**	**-9.96 (SD 17.8)**	-15.08 (19.23)
uterine descent on US (cm)	6.9 (SD 21.2)	**7.5 (SD 20.4)**	**1.57 (20.5)**	-4.38 (23.05)
rectal descent on prolapse (cm)	-6.73 (SD16.3)	-8.5 (SD 15.09)	-10.38 (SD 14.78)	-12.63 (SD 15.1)
hiatal area on Valsalva (cm2)	25.16 (SD 8.84)	**27.47 (SD 8.93)**	**30.05 (SD 8.86)**	35.17 (SD 9.62)

Table 1: Associations between no, proximal and distal partial trauma on the one hand and symptoms and signs of pelvic floor dysfunction on the other hand. Bold figures indicate significant differences between distal and proximal trauma on univariate analysis.

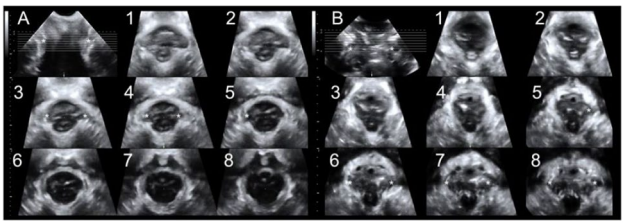

Figure: Partial trauma imaged using translabial tomographic 4D ultrasound. In panel A there is a distal- predominant partial trauma (TUI Score 5) in slices 3-5, in panel B the partial trauma (Score 7) is proximal- predominant (slices 5-8). Slices 1 and 2 are not scored due to the high prevalence of false- positives in those slices.

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Arrangement of the Muscle Bundles of the Levator Ani Muscle in Female

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2 - Departoment of Clinical anatomy, Tokyo Medical and Dental University

Introduction: The levator ani muscles are generally classified as the puborectalis, the coccygeus, and the iliococcygeus muscle. The puborectalis muscle, in particular, is often described as a structure that originates from the pubic bone, travels behind the rectum, and supports the pelvic organs. However, anatomically, the boundaries of the levator ani muscles are not clear, and the composition and attachment sites of these muscle bundles are also not clear. Our previous study found that the anterior and posterior bundles of the levator ani muscle originate from the pubic bone and form a sling around the anal canal. On the other hand, there is no detailed report on the distribution and composition of the muscle bundles directly attached to the rectal wall among the levator ani muscles.
Objective: To clarify the arrangement of muscle bundles in the female levator ani levator muscle.
Methods: Seven pelvises and eight 16 hemipelvises were obtained from female cadavers (mean 84y/o). Pelvic organs other than the lower rectum were removed. The levator ani muscles were observed superiorly, anteriorly, and laterally.

Results: The muscle bundles of the levator ani muscle can be classified into five categories according to their origin and termination: 1) the part originating in the pubic bone and going around the anterior part of the rectum, 2) the part originating in the pubic bone and attaching directly on the rectal wall, 3) the part originating in the pubic bone and surrounding the posterior part of the rectum, 4) the part originating in the tendinous arch of the levator ani muscle and attaching directly on the rectal wall, and 5) the part originating in the tendinous arch of the levator ani muscle and going around the posterior part of the rectum. 1) was fused with the external anal sphincter as the anterior bundle, and contributed to the formation of the sling surronding the anal canal. The muscle bundle originating from the pubic bone was thicker than those originating from the tendinous arch, and the fiber bundle of 2) was located in the shallow layer of the levator ani muscle. The origin of the fiber bundle that attaches at the rectal wall was distributed posterior to the origin of the fiber bundle that surrounds the rectum.
Conclusions: Based on the findings of the present study, the levator ani muscles can be divided into five groups according to their origin and termination. Further functional analyses of the levator ani muscles should be necessary.
Disclosure: No

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Tomographic Trauma Score versus Avulsion Categories in the Prediction of Prolapse

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Introduction: Pelvic floor trauma sustained at the time of vaginal birth is a major etiological factor for pelvic organ prolapse (POP).[1] This effect is likely mediated by an increase in hiatal distensibility, and for partial avulsion this seems to be the only pathophysiological pathway. [2] However, it is unclear as to whether complete avulsion in itself has an additional effect due to it being a marker of other trauma, e.g. to fascial structures.
Objective: To compare the performance of avulsion categories to tomographic trauma score (TTS) in the prediction of symptoms and signs of pelvic organ prolapse.
Methods: This was a retrospective study of 4029 women attending a tertiary urogynecology unit between 1/12 and 12/21. All underwent a history, clinical POPQ examination and imaging of the pelvic floor as standardised by IUGA.[3] Stored volume data were analysed at a later date to score levator trauma in six tomographic slices bilaterally, resulting in a tomographic trauma score (TTS) of 0-12, blinded against all other data. Levator trauma was defined as a full unilateral or bilateral avulsion, or as partial trauma (any TTS over 0 without complete avulsion).[2] The TTS was then compared to avulsion categories for its predictive power for symptoms and objective measures of POP. Multivariable logistic regression (for prolapse symptoms) and linear regression (for all other outcomes) were used to assess the independent effect of TTS and avulsion categories on each of the outcomes. A subgroup analysis was carried out for TTS scores between 6 and 10 to assess whether avulsion categories modified the effect of TTS score on outcomes using an interaction variable.
Results: 4029 women were seen during the inclusion period. In 133 women tomographic analysis was unavailable, leaving 3896 complete data sets. Mean age at assessment was 58 (17-95) years, mean BMI was 29 (15-65). 2825 (73%) presented with stress urinary incontinence, 2810 (72%) with urgency urinary incontinence and 2035 (52%) with symptoms of prolapse. On clinical examination, 2561 (66%) had a Ba of -1 or higher, in 1106 women (28%) C was -4 or higher, and in 2109 women (54%) Bp was -1 or higher. Gh+Pb was 7.7 on average (range, 3-17). On imaging, 1595 had a significant cystocele, 1102 significant uterine descent and 1621 significant rectal descent. The mean tomographic trauma score (TTS) was 2.8 (0-12); there were 792 women with partial (20%), 568 (15%) with unilateral and 363 (9%) with bilateral avulsions. All three forms of levator trauma were associated with symptoms and signs of prolapse (see Table 1). Unilateral avulsion had an increased effect on prolapse symptoms compared to no avulsion (OR = 1.62 (1.07, 2.45, p = 0.02)) after accounting for TTS. There were no significant interaction effects between TTS and avulsion category in those with a TTS of 6-10.
Conclusions: We have found only very limited evidence of any effect of avulsion category on objective measures of POP beyond that which is expressed by the tomographic trauma score, which shows near- linear relationships with most examined measures of prolapse. In other words, there is no threshold effect. We suggest to report trauma score (0-12) in addition to 'partial', 'unilateral' or 'bilateral avulsion' in order to optimise reporting of pelvic floor trauma. References: 1. Int Urogynecol J 2021;32: 1623-; 2. Abstract 006, IUGA 2021; 3. Int Urogynecol J 2011;22:609-
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Materna Medical, GE Medical, Mindray
Images:

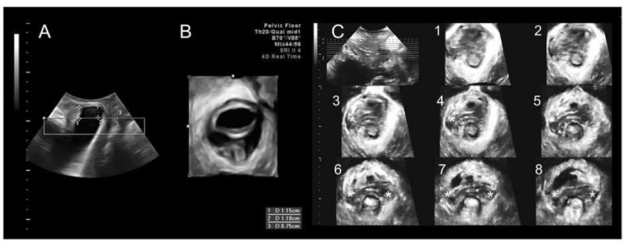

Figure 1: Patient with cystocele as seen in the midsagittal plane (A), moderate hiatal ballooning (B) and complete right- sided as well as partial left-sided avulsion with trauma evident in all slices and a TTS of 9.

	No avulsion	Partial avulsion	Unilateral avulsion	Bilateral avulsion
	n= 2173	n=792	n=568	n=363
Symptoms of prolapse	43.3%	54.4%	68.6%	76%
Ba (cm)	-1.1 (SD 1.6)	-0.6 (SD 1.6)	-0.1 (SD 1.8)	0.3 (SD 1.9)
C (cm)	-4.8 (SD 2.7)	-4.4 (SD 2.6)	-3.5 (SD 3.2)	-2.6 (SD 3.6)
Bp (cm)	-1.2 (SD 1.4)	-1.0 (SD 1.4)	-0.7 (SD 1.5)	-0.8 (SD 1.5)
Gh+Pb (cm)	7.4 (SD 1.4)	7.8 (SD 1.4)	8.2 (SD 1.4)	8.8 (SD 1.5)
Bladder descent on US (cm)	-1.9 (SD 18.1)	-8.1 (SD 18.1)	-12.5 (SD 19.1)	-19.1 (SD 18.8)
uterine descent on US (cm)	6.9 (SD 21.2)	3.2 (SD 20.5)	-2.5 (SD 22.9)	-6.9 (SD 23.1)
rectal descent on prolapse (cm)	-6.7 (SD16.3)	-9.7 (SD 15)	-12 (SD 15.2)	-13.7 (SD 14.9)
hiatal area on Valsalva (cm2)	25.2 (SD 8.8)	29.3 (SD 9)	33.4 (SD 9.1)	38 (SD 9.8)

Table 1: Associations between no, partial, unilateral and bilateral avulsion on the one hand and symptoms and signs of pelvic organ prolapse on the other hand.

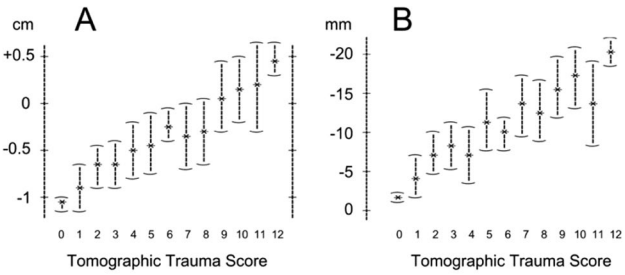

Figure 2: Ba (A) and bladder descent (B) on ultrasound against TUI score

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Foley Balloon Pull Test of Pelvic Floor Muscle Strength

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1 - Cooper University Hospital

Introduction: Pelvic Floor Muscle (PFM) training by a physical therapist has shown efficacy in treating the symptoms of pelvic floor dysfunction. There is no gold standard of PFM strength testing and most practitioners rely on the subjective modified Oxford Muscle Grading Scale (OMGS). Currently available methods for PFM strength testing are limited by their subjective nature, prohibitive cost, training burden, and lack of validation or research.

Objective: This project aims to validate a widely accessible method for objective PFM strength testing using a 30 ml Foley catheter balloon filled with fluid and a digital trigger pull gauge: the Foley Balloon Pull Test (FBPT). This method is closely modeled after a validated method using a proprietary spherical pessary connected to a digital tensiometer. The pessary is no longer available and the tensiometer is prohibitively expensive. The objective is to compare the OMGS to the PFM strength scores obtained with the FBPT. Measures of PFM strength using the FBPT will also be compared to symptoms of prolapse and incontinence to assess for possible correlations.

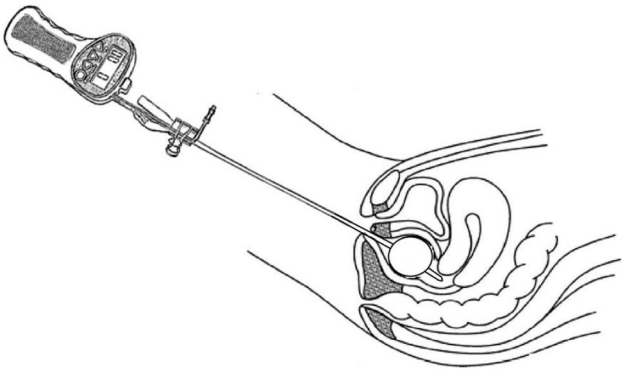
Methods: This study involved patients currently undergoing pelvic floor strength assessments as part of their physical therapy or Urogynecology visits. All participants completed the validated Pelvic Floor Distress Inventory short form questionnaire and underwent PFM strength testing with the OMGS. The FBPT was then used to obtain 3 measures at rest and 3 measures during a Kegel exercise, where the maximum gauge reading was recorded in grams. The primary endpoint was the association between the OMGS and the FBPT strength scores. The secondary endpoint was the correlation of urinary incontinence or prolapse symptoms to the recorded PFM strength. Safety endpoints assessed included vaginal discomfort or injury. We hypothesized that the FBPT would demonstrate sufficient agreement with the OMGS.

Results: Twenty-four women underwent a total of 172 FBPT measurements (71 at rest, 70 Kegel). There were no adverse events. Results demonstrated an average resting pull force of 465g (IQR 326g-632g) and an average Kegel pull force of 817g (IQR 427g-1078g). Reliability of the measurements was highly correlated, with intraclass correlation coefficients >0.95. Regression analysis was performed comparing OMGS scores with different FBPT parameters in an attempt to identify the most meaningful correlation. All three tested correlations with OMGS reached statistical significance: OMGS and Kegel Average p=0.011 R^2 .26, OMGS and the ratio of Kegel Average/Rest Average p=0.002 R^2 .37, OMGS and the difference of Kegel Average - Rest Average p=0.002 R^2 .34. Similarly, regression analysis was also performed on PFDI totals and sub scores. The ratio of Kegel Average/Rest Average correlated with PFDI total p=.030 and with UDI-6 p=0.018. The difference of Kegel Average -Rest Average correlated with PFDI total p=.047.

Conclusions: Foley balloon pull testing of PFM strength is an internally reliable, inexpensive, simple method of PFM strength testing, that is well tolerated by patients. However, additional study is required to standardize scoring and assess external validation.

Disclosure: No

Images:



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Educating Women about Pelvic Floor Disorders during Pregnancy From the 1st to the "4th trimester"

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Introduction: Pregnancy and childbirth are significant risk factors for developing pelvic floor disorders (PFDs). These risks extend into the postpartum period ("4th trimester") and are often overlooked by physicians and patients. Knowledge of PFDs among women of childbearing age is lacking and presents an opportunity for improving patient education.

Objective: To compare the effect of two educational tools (written handout vs interactive workshop) on knowledge of PFDs during pregnancy as measured by the Prolapse and Incontinence Knowledge Questionnaire (PIKQ).

Methods: This was a randomized controlled trial of pregnant patients aged ≥ 18 years recruited in the 2nd or 3rd trimester. Patients were randomized to receive either written handouts only or written handouts in addition to attending a virtual, interactive workshop led by a pelvic floor physical therapist. The educational materials focused on PFDs, risk factors, and prevention strategies. The handouts were created in collaboration with specialists in healthcare communications. The primary outcome was patient knowledge as measured by PIKQ score. The secondary outcome was Pelvic Floor Distress Inventory (PFDI-20) score. Questionnaires were assessed at recruitment and again at 6 weeks postpartum. To identify the differences, Wilcoxon test was used for continuous variables (Median, & Interquartile range [IQR]), and Fisher exact test for categorical variables. Quantile regression models adjusted for demographics was used to identify the differences amongst the score.

Results: Between August 2020 and February 2021, 160 patients were screened, 120 patients were recruited with 61 randomized to the workshop group and 59 to the written group. Baseline characteristics (Table 1) were similar among groups with a median age of 32 years, the majority had a college education or higher, and an annual household income > $100,000. Patients were recruited in the mid 2nd trimester and delivered at term. There were no significant differences in the median PIKQ score change between the workshop and the written group [3; IQR (1-4.5) vs 4; IQR (1-7); p=0.37] (Table 2). Quantile regression

analysis showed that median post-education PIKQ scores were higher in both workshop [21; IQR (17 – 22) Vs 17; IQR (13 – 20); p=0.011] and written [21; IQR (19 – 23) vs 17 IQR; (14 – 22); p<0.001] groups compared to pre-education PIKQ scores, with an estimate (Δβ) of 0.63; 95% confidence interval (CI) [0.13 – 1.24] for workshop and Δβ of 0.86; 95% CI [0.52 – 1.34] for written group (Table 3). PFDI-20 scores were overall low within this population with similar scores between groups both at baseline (p=0.78) and at their postpartum follow up (p=0.82).

Conclusions: Even within a highly educated patient population with high baseline PIKQ scores, both groups showed a significant improvement in knowledge of PFDs. These results suggest that a hands-off intervention, such as giving patients written handouts, increases patient knowledge of PFDs. Future studies should focus on optimizing patient educational materials based on patient-centered feedback, social media messaging, and expanding access to a wider demographic, such as non-English speaking patients.

Disclosure: No

Images:

Table 1: Demographics

Variables	Workshop N=59	Written N= 61	P-value
Age (Median, IQR)	32.00 (29.50 - 35.00)	32.00 (30.00 - 37.00)	0.52
Gravida (Median, IQR)	1.00 (1.00 - 2.50)	2.00 (1.00 - 3.00)	0.26
Para (Median, IQR)	1.00 (1.00 - 2.00)	1.00 (1.00 - 2.00)	0.36
Pre-pregnancy BMI (Median, IQR)	25.50 (22.65 - 30.35)	27.10 (24.10 - 30.90)	0.20
Recruitment Weeks (Median, IQR)	19.00 (15.00 - 23.50)	18.00 (15.00 - 23.00)	0.95
Delivery Weeks (Median, IQR)	39.00 (38.00 - 39.00)	38.50 (37.00 - 39.00)	0.15
Married (N, %)	50 (84.75)	47 (77.05)	0.36
Household Income (N, %)			
< 10,000	5 (8.47)	1 (1.64)	0.11
10,000 – 49,999	5 (8.47)	6 (9.84)	1.00
50,000 – 100,000	13 (22.03)	16 (26.23)	0.67
>100,000	36 (61.02)	38 (62.30)	1.0
Education (N, %)			
High School	7 (11.86)	3 (4.92)	0.20
College	25 (42.37)	32 (52.46)	0.28
Graduate School	27 (45.76)	26 (42.62)	0.85
Race (N, %)			
White	32 (54.24)	28 (45.90)	0.47
Hispanic	13 (22.03)	20 (32.79)	0.22
Black	7 (11.86)	8 (13.11)	1.0
Asian	7 (11.86)	4 (6.56)	0.36
Other	0 (0.00)	1 (1.64)	1.0
Urogyn/Urology (N, %)	5 (8.47)	7 (11.48)	0.76
Leakage History (N, %)	15 (25.42)	23 (37.70)	0.17
Prolapse History (N, %)	2 (3.39)	2 (3.28)	1.0
Prolapse Treatment (N, %)	1 (1.69)	1 (1.64)	1.0
Completed Follow Up (N, %)	52 (88.14)	51 (83.61)	0.60
Baseline PFDI-20 (Median, IQR)	36.47 (17.71 - 62.50)	29.17 (12.50 - 64.58)	0.78

PFDI-20: Pelvic Floor Distress Inventory, IQR: Interquartile Range

Table 2: PIKQ Pre-Education versus Post-Education Scores

Variables	Workshop (Median, IQR) N=59	Written (Median, IQR) N= 61	P-value
Pre PIKQ Total Score	17.00 (13.00 – 20.00)	17.00 (14.00 – 22.00)	0.52
Pre UI subscale score	10.00 (9.00 – 11.00)	10.00 (9.00 – 11.00)	0.73
Pre POP subscale score	7.00 (5.00 – 9.50)	8.00 (6.00 – 10.00)	0.30
Post PIKQ Total	21.00 (17.00 – 22.00)	21.00 (19.00 – 23.00)	0.20
Post UI subscale score	11.00 (9.75 – 12.00)	11.00 (10.00 – 12.00)	0.21
Post POP subscale score	9.50 (8.00 – 11.00)	10.00 (8.50 – 11.50)	0.22
	N=47	**N=43**	
Change in PIKQ	3.00 (1.00 - 4.50)	4.00 (1.00 - 7.00)	0.37

PIKQ: Prolapse and Incontinence Knowledge Questionnaire, IQR: Interquartile Range

Table 3: Multivariable Pre Vs. Post PIKQ - Quantile Regression

Variable	Estimate-Median Δβ (95% CI)	P Value
Workshop Outcome = Pre PIKQ		
Post PIKQ	0.63 [0.13 – 1.24]	0.011
Written Group Outcome= Pre PIKQ		
Post PIKQ	0.86 [0.52 – 1.34]	<0.001

PIKQ: Prolapse and Incontinence Knowledge Questionnaire, CI: confidence interval

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Understanding Patient's Preferences of Pelvic Floor Disorder Educational Tools During Pregnancy

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Introduction: Childbirth is the most significant risk factor for women developing pelvic floor disorders (PFDs). Educational tools aimed toward women of childbearing age are lacking, and few studies have focused on patients' preferences around educational tools.

Objective: To understand new mothers' preferences around educational tools intended to inform them about PFDs, pelvic floor specialists, and pelvic floor exercises.

Methods: This study involved quantitative and qualitative data collection methods via one-on-one phone interviews. The participants were selected from subjects previously enrolled in an educational randomized study and patient were allocated to receive written educational materials on PFDs or attend a virtual interactive workshop led by a pelvic floor physical therapist. Participants were called after completion of the study to uncover patients' perceived weaknesses and strengths of the educational tools.

Results: Thirty-four patients with a median age of 33 years and a median number of 1 child were interviewed. Racial demographics were as follows: 22 White (69%), 5 Asian (16%), 4 Hispanic (13%), and 1 Black (3%). 41% preferred the written materials while 59% preferred the interactive online workshop. The reason for preferring written materials was the ability to review the material at their own pace and being allowed more time to engage with the information. The reason for preferring the workshop were the ability to ask questions allowing for probing further into the topic than was allowed with the written materials. When participants were asked what they thought was the most important information they received from either the written or workshop materials, consistent themes emerged. Participants answered in one of three ways: 1) they became more aware of what PFDs are and what causes them, 2) they were more likely to discuss PFDs with their obstetrician and consider seeking care with a pelvic floor specialist, and 3) they felt relieved that PFDs were described to them as treatable conditions were they to develop them in the future.

Conclusions: This study's findings show that educational materials geared toward this patient population, whether written or an interactive workshop, provide patients with an opportunity to educate themselves on the risk of developing PFDs and inform them of the option to seek care from a pelvic floor specialist, if indicated. Preference of written materials to a workshop were split (41% vs 59%) and there are different benefits to each modality. Futures studies will focus on expanding understanding of patient's preferences on educational materials content and how they are delivered to create the most effective patient education content.

Disclosure: No

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The Preliminary Analysis of the Mothers' Pelvic Floor Support (RECOUP) Clinic Experience

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Introduction: The Mothers' Pelvic Floor Support (RECOUP) Clinic is a specialized clinic that is dedicated to the diagnosis and management of women with various pelvic floor disorders, especially those acquired after delivery. The diagnosis and treatment of these pelvic floor disorders can be challenging for both general obstetricians and patients because of multiple management options including medical management, physical therapy, and surgical intervention.
Objective: The goal of our study is to describe the presentation, management, and outcomes of patients with pelvic floor disorders who presented postpartum to our clinic.
Methods: The study is a single-center retrospective observational study including women who presented to the new motheRs pElviC flOor sUpPort (RECOUP) Clinic. The target patient population for the clinic includes those who had a perineal injury, instrumental delivery, urinary retention, urinary or fecal incontinence, pain, or pelvic pressure associated with a recent delivery. We collected information regarding the patients' main chief complaints, findings on initial physical exams and on 3D endovaginal ultrasounds, management plans, and findings on follow up physical exams and 3D ultrasounds. Patient characteristics included race, parity, medical problems, response to questionnaires (POPDI, CRADI, UDI, PFDI, PFIQ) and POPQ results, US characteristics from their first visit to the clinic, proposed intervention for each patient (conservative including pessary and physical therapy vs. surgical intervention), outcome (resolution vs persistence of symptoms) as well as sonographic measurements from their follow-up visit.
Results: There were 60 patients seen in our perineal clinic during our study period of 2019 – 2021. The majority of our patients were of Caucasian ethnicity (42 patients; 70%), The average age of the patients was 34.72 (± 5.90) and the average BMI was 25.06. The mean parity was 1.59. 10 patients (16.7%) had a history of instrumental delivery, and 17 patients (28.3%) had a history of OASIS. Most (46 patients, 76.7%) did not have any background morbidities, nor past surgeries xx/ (X%) . the most common presenting symptom at the time of their first visit was vaginal pressure and bulge sensation in the vaginal area. 33.3% underwent physical therapy management, 19.4% had pessary placement, 41.7% underwent surgical management, and 58.7% had conservative management. After undergoing management, 84% of patients had symptom resolution whereas the other 16% had persisting symptoms. Most of the patients who had resolution of symptoms had undergone expectant management (92.9%).
Conclusions: The motheRs' pElviC flOor sUpPort (RECOUP) Clinic is essential in providing complete and efficient assessment, diagnosis, and management of postpartum patients with pelvic floor disorders. It should be regularly implemented in the care of pregnant patients to provide better care and counseling regarding pelvic floor disorders postpartum.
Disclosure: No
Images:

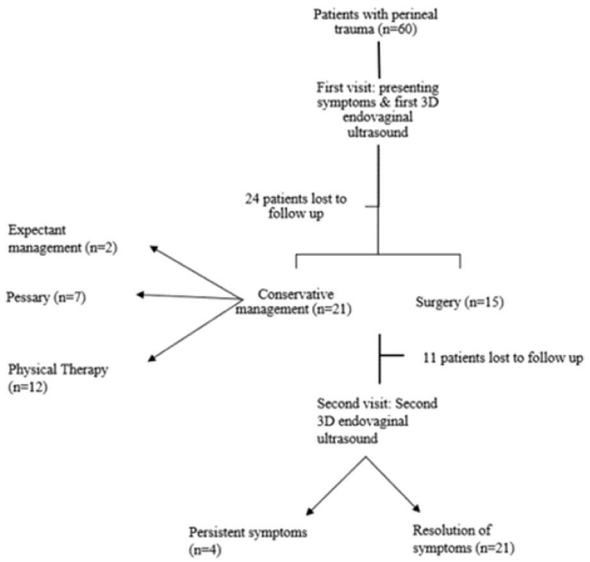

Figure 1: Perineal Clinic Algorithm

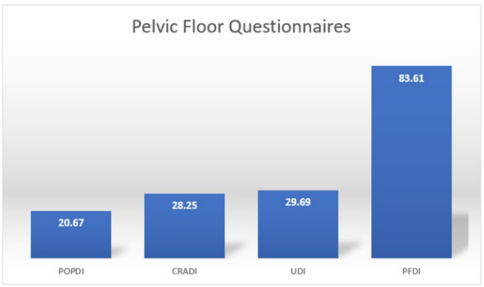

Figure 2: Mean response of patients to the pelvic floor questionnaires used at their first perineal clinic visit

POPDI: Pelvic Organ Prolapse Distress Inventory, CRADI: Colorectal Anal Distress Inventory, UDI: Urinary Distress Inventory, PFDI: Pelvic Floor Disability Index

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Empty Perineum Syndrome, An Elusive Condition: A Retrospective Cohort study

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Introduction: Pelvic floor dysfunction is a disturbing and frequently progressive condition that includes pelvic organ prolapse (POP), urinary (UI), and fecal incontinence (FI). One structure that supports the pelvic floor is the perineal body (PB). This

complex structure encompasses the muscles and ligaments of the pelvic floor in the area between the vaginal introitus and the anus. Vaginal delivery may result in perineal trauma and inappropriate recognition and correction of a perineal laceration that may result in long-term complications with quality of life consequences. Usually, perineal injuries' postoperative identification and correction are limited to obvious 3rd and 4th-degree lacerations or inappropriate laceration healing. To limit perineal damage the obstetricians have eliminated routine episiotomies and employ massage and stretching techniques that leave the perineal skin intact. Sometimes the underlying structures are separated without apparent skin tears creating an "empty perineum" that appears normal but does not function as intended. Besides FI or defecatory dysfunction, the patients may present with symptoms such as perineal pressure, splinting during bowel movements, and loss of vulvar tone.

Objective: We hypothesized that many patients with postpartum defecatory symptoms present with seemingly intact perineum that lacks supportive structures.

Methods: We conducted a retrospective cohort study from 2016-2021 of the patients presenting to the motheRs' pElviC flOor sUpPort (RECOUP) Clinic. Demographic, urogynecological, and Ultrasound data were collected and statistically analyzed

Results: 102 consecutive patients were evaluated in our RECOUP clinic and 60 underwent 3D endo-vaginal ultrasound (EVUS). We identified the patients that underwent postpartum perineal reconstruction due to defecatory dysfunction. A total of 14 patients met the criteria, and five had presented with Empty Perineum Syndrome (EPS). Nine patients who had intact perineum at presentation were defined as perineoplasty group (PP). As a control group, we had a group of nulliparous patients. We compared demographic, sonographic, and POPQ measurements of the three groups (Table1). The EPS and PP groups showed statistically significant differences in BMI score only (28.59±6.18 vs. 23.42±2.35 (P-value = 0.04)). For POPQ score assessment (Fig 1), there was a statistically significant difference between the EPS and PP groups and the control group for the Posterior Compartment (AP/BP), Genital Hiatus (GH), and PB measurements: Ap: EPS (-0.50±0.57), PP (-1.14±0.69), control group (-2.05±0.21) Bp: EPS (-0.75±0.50), PP (3.07±0.84), control group (-2.59±0.50) GH: EPS (2.75±0.50), PP (-1.71±0.95), control group (2.00±0.00) PB: EPS (1.25±0.50), PP (1.25±0.50) control group (2.05±0.21) All the parameters had P-value <0.01. EVUS (Fig 2), included the levator ani muscle (LAM), external and internal anal sphincter integrity, the minimal levator hiatus (MLH), and the levator plate descent angle (LPDA). There were no statistically significant differences between the groups, but a trend when we compared the MLH and LPDA between the three groups: MLH: EPS (12.24±1.52), PP (11.60±2.57), control group (2.05±0.21), P-value=0.09 LPDA: EPS (-6.24±6.94), PP (-6.42±6.96), control group (-12.45±8.83), P-value=0.1

Conclusions: Empty perineum syndrome is an unrecognized condition. The "EPS" is a distinct entity and larger studies are needed to estimate the prevalence and characteristics of those patients in postpartum clinics.

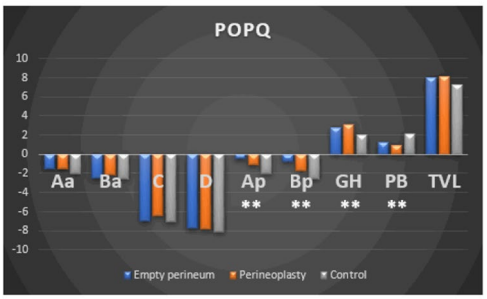
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant of MEMIC, COSM, TRACKIMED

Images:

Table 1: Demographic, POPQ and Sonographic data of the three groups, P value <0.01 is bolded

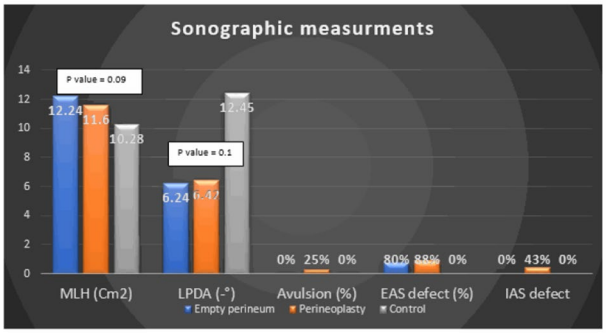
		Empty perineum syndrome (EPS) n=5	Perineoplasty (PP) n=8	Control (Nulliparous) n=22	P value
Ethnicity	Caucasian (%)	3 (60)	5 (62.5)	20 (90.9)	
	Age	40±8.51	32.89±3.06	43.45±18.39	0.22
	BMI	28.59±6.18	23.42±2.35	26.75±7.26	0.28
	Parity	**2.40±0.89**	**2.00±0.71**	**0.00±0.00**	**<0.001**
Mode of delivery	Vacuum delivery (%)	1 (20)	1 (11.1)		
	Forceps (%)	2 (40)	2 (22.2)		
POP Q	Aa	-1.50±0.57	-1.57±0.53	-2.05±0.21	0.01
	Ba	-2.50±0.57	-2.14±0.69	-2.59±0.50	0.19
	C	-7.00±0,00	-6.43±1.13	-7.05±1.65	0.63
	D	-7.75±0.50	-7.85±0.90	-8.14±0.35	0.25
	Ap	**-0.50±0.57**	**-1.14±0.69**	**-2.05±0.21**	**<0.001**
	Bp	**-0.75±0.50**	**-1.71±0.95**	**-2.59±0.50**	**<0.001**
	GH	**2.75±0.50**	**3.07±0.84**	**2.00±0.00**	**<0.001**
	PB	**1.25±0.50**	**0.95±0.75**	**2.05±0.21**	**<0.001**
	TVL	8.00±0.00	8.14±0.38	7.20±3.57	0.72
Sonographic measurements	Minimal Levator Hiatus (MLH)	12.24±1.52	11.60±2.57	10.28±1.88	0.09
	Levator Plate Decent Angle (LPDA)	-6.24±6.94	-6.42±6.96	-12.45±8.83	0.11
	Urethral Length	38.12±6.45	32.34±5.85	33.75±4.19	0.13

Fig 1: The figure represents the POPQ values of the three groups: the blue columns represent the EPS group; the red columns represent the perineoplasty group and the green column represent the control group.



** P value <0.01

Fig 2: The figure represents the 3D endovaginal and endoanal US parameters of the three groups: the blue columns represent the EPS group, the red columns represent the perineoplasty group and the red columns the control group



*MLH – Minimal Levator Hiatus; LPDA – Levator Plate Descent Angle; Avulsion – separation of the levator muscles from their insertion to the pubic bone; EAS – External Anal Sphincter; IAS – Internal Anal Sphincter

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Centering Group Treatment for Women with Interstitial Cystitis/ Bladder Pain Syndrome: A qualitative Analysis

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Introduction: Women with interstitial cystitis/bladder pain syndrome (ICBPS) feel isolated and face complex treatment decisions, compounding the difficulty of navigating the disease and medical treatment. Centering models of group medical visits have been successful in other spheres such as obstetrical and cancer care, but have not been attempted or reported in ICBPS therapy.
Objective: We sought to explore themes in advantages, limitations, barriers, and suggestions for the application of a Centering model in the care of women with ICBPS.
Methods: As part of a larger mixed-methods study, we performed a qualitative study of experiences among adult women with ICBPS participating (Centering patients) or not participating (control patients) in ICBPS Centering visits offered by our subspecialty pelvic floor disorders clinics. Patients who attended at least three Centering visits were invited to participate in a focus group about the benefits, weaknesses, barriers to participation, and suggestions for ICBPS Centering. We interviewed control patients to investigate the barriers to joining and what, if anything, appealed to them about Centering. Finally, we collected written commentary from those who attended Centering meetings in post-Centering evaluations.
Results: There were 45 participants in the larger study (20 IC Centering participants and 25 control participants) with an average age of 52 ± 17 years, with 56.8% being Caucasian and non-Hispanic and the remainder identifying as Hispanic and/or Native American. Within this population, we conducted four control patient individual interviews, had one focus group consisting of 5 Centering patients, and collected comments from 11 Centering participants post-treatment. Emergent themes of interest for this commentary include Motivations and Barriers to Joining, Cost, Leadership, Connecting with Others, Diversity, Learning, Alternative Treatments, and Areas for Improvement. Regardless of participation in Centering, patients noted self-care and alternative treatments were important, communication and sharing with other women with ICBPS or other supports in their life were important, and that these ICBPS participants were plagued by feelings of isolation and discouraged by their healthcare experiences (Table). Women in Centering noted the biggest advantages of Centering were sharing with and learning from one another, the creation of a safe space that was diverse and welcoming, and the feeling that Centering was more of a support group than a medical visit. Women noted barriers to Centering included cost, logistical issues like time and format, and personality barriers to interacting with a group.
Conclusions: Women have diverse needs and desires for ICBPS treatment, but those who attended Centering group visits for ICBPS treatment found many advantages, most notably a sense of learning and community that opened them to a wider variety of support systems and treatment options.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: RBI Medical
Images:

Table: Themes and exemplary quotes regarding the application of Centering model of care in women with interstitial cystitis/bladder pain syndrome (ICBPS)

Themes	Example Quotes
Motivations for Joining	**Centering Participants:** "So I was excited at another option for being able to manage my pain besides just drugs being thrown at me all the time." "I was happy also to hear about the group because you don't run into a lot of people who have this." "It seemed to be structured that if for any reason you didn't feel comfortable, you could leave. And there was no scary commitment or anything like that to get started. So, yeah, I didn't have any worries about joining."
Barriers to Joining	**Centering Participants** "I ended up having to go back to on-site work right in the middle of that. And I'm not allowed to use Zoom on my work computer. So I couldn't participate." "I think that even though I like seeing people in-person, and I am a people person. I love people, but I'm really intrigued by this whole Zoom thing because I'm like, 'Oh, this opens up a whole new world for me,' because, for me, leaving the house, it is hard." "I just have a really crazy life. I have five kids I'm still raising…It's no hesitation as far as getting together and doing that kind of thing. It's just making the time to do it." "I was actually scared when I first heard about it. I didn't know what to expect, and, usually, when you hear a support group, the first thing that comes to my mind is people who are grieving. And I had just got diagnosed, and I was worried at the thought that I needed a support group to get through this…Now, I'm not scared at all, and I am beyond grateful for it. But I definitely think there's the stigma." **Control Group:** "I would have loved to have gone. They did it on a day that I'm working, and when I'm working, I don't even get a lunch break." "But the timing wasn't right for us as far as me traveling back and forth to the site that the group sessions would be at. And at the time, our family had one car, one vehicle for all of us to use. I home school my children, and so my day is full often with that. And then thirdly, the pandemic was starting to come into play." "I think it's a good group for people that like to be in group and like to share with others, which, I'm not that person that I like to share a lot with other people."
Cost	**Centering Participants:** "I'm just lucky right now because I have two insurances. But if I had to pay a copay, I couldn't afford it. And the benefit so much more outweighs anything…what I felt like it did is it decreases visits to the physician, which the insurance does have to pay…. they're billing women who really can't afford a copay because either they're young, or they have five kids, or we're on a sort of a budget. I just thought that was really crushing." "People aren't going to come if they're going to be billed." "It's like we're sharing, and we're supporting each other. We shouldn't have to pay because no other support groups do that. …it's like a big black mark on top of something that was really beautiful."
Leadership	**Centering Participants:** "I found her to be incredibly supportive, and she has a lot of equanimity for everybody. And she's able toget down on everyone's level, adjust, adapt, …she makes you feel like you're just like everyone else, and there's not a problem." "I never thought of [her] like I was seeing a provider. I saw her as leading the group and giving it some structure and direction." "I really felt that from all of you that there was a positive outlook and optimistic outlook. Nobody seemed to be angry and depressed and real downers. And I always came away from the meetings feeling that way. And [the leader], of course, reinforced that."
Connecting with Others	**Centering Participants:** "There was, for me, so much power in being in a group with other women who have the same thing…there's just a lot of power to sitting here and knowing that they understand…therapy is a good thing. Going to the physician is a good thing, but it's nothing like sitting with a group of other women that experience what you're experiencing… It lights me up inside when I sit down and I see the other women on the screen. And I don't really know what to call that because it's beyond a support group." "I think being in this group helped me open up with people I needed to be honest with… If I kept this to myself, I would have been in an even darker spot. So I think coming to a group like this and being able to open up and talk about things that I didn't think anyone would relate to, and then all of a sudden everyone is agreeing and adding on, it's such a safe place. And it helped me grow the courage to talk about this stuff with people around me. And I created my own support group outside of this support group." "Helps to talk with others experiencing the same problems that you have. Helps to hear what is helping others."
Diversity	**Centering Participants:**

	"This is a group of amazing women from ALL backgrounds and all ages just supporting each other wherever we are at. There is no judgement only welcoming acceptance." "I was going to say that I really like the age differences. I really like that there's young all the way up to older because I feel like it kind of gives you the sense that anybody can go through this, that it is a very unique condition, that it's not specific to any age." "I think as much as it is diverse, I think it still would have been nice to have a little bit more… being on the younger side of the group, it would have been nice to see people who can relate a little more to the things I'm going through…seeing different people of different races, ethnicities, all that, that really it's comforting to know… it's not our fault. This could happen to anyone."
Learning	**Centering Participants:** "I still respect every doctor and nurse like most. But I think this group has just shown me that not everything is by the book. They know everything textbook, that kind of thing. But at the end of the day, I know my body, and these people know their bodies, and maybe something that works for them will work for us." "I've been really going the direction of seeing a private therapist and working on my stress levels and my parasympathetic nervous system, learning about all of those things. And I have recognized the value in using your mind to be able to work with your pain because we can't fully make pain go away. If doctors could do that, that'd be amazing. But we can't do that. So I was excited at another option for being able to manage my pain besides just drugs being thrown at me all the time." "You're going to come away with other ways to control this because, as someone pointed out…you can't be going to the doctor every time this comes up because there's not really that much they can do that isn't extreme, so. And those doctors, generally, aren't suffering from this. So these women here are a much better source of information and ultimately treatment…We learn from each other for what works. And it's that kind of a condition because so much of it is lifestyle; what you eat and drink and do and don't do and all that kind of stuff. So everything I've learned to control this, I have learned from other people, mainly from this group."
Alternative Treatments	**Centering Participants:** "We were going through the meditations book, and I had never been really much into meditation. I mean, I had always been kind of interested by it but had never done it. And I now do it every day. I do those meditations all the time, and they really helped me a lot." "The first session I went to, someone was saying, before we got started… 'Oh, I need to go make my Marshmallow root tea.' And so, I went and I got Marshmallow root tea. And in fact, I'm drinking some right now. It's the greatest thing." "It was kind of acknowledging the pain and accepting the pain and then relaxing into it almost and getting rid of that secondary, which I found earth shattering for me. That whole idea of the primary and secondary, the pain and the fear of the pain, letting that fear go. Yes. So that was really useful." **Control Group:** "We talked about doing one thing for yourself, so I do sit-ups every night before I go to bed, which helps me a lot." "Given the realm of treatments that were shared with me, I chose to go with changing my diet, exercise, and using hydrocortisone as needed for the spasms., and also trying to lighten my stress load was very significant in lessening my symptoms."
Areas for Improvement	**Centering Participants:** "I really wanted to meet you guys in person. I really wanted to talk to you in-person. And that would have added a wonderful dimension to it." "I'm not allowed to use Zoom on my work computer. So I couldn't participate. And I was hoping that maybe we would go to in-person meetings, which is actually easier for me to do, to leave the office, than to try to do Zoom." "There wasn't enough chatting that would happen… At the same time, since I live in Santa Fe, I was so glad that it could be online and that I was able with work and everything to hop on. it was good because it was accessible. But it would have been great to have at least some in-person sessions or something, maybe like a mixture."

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Correlation of Pelvic Floor Myofascial Trigger Points and Pelvic Floor Symptoms in Women Visiting the Urogynecological Outpatient Clinic: A Cross-sectional Study

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Introduction: Chronic pelvic pain affects a significant number of women, with a prevalence, which is described to be between 5,7% and 26,6% worldwide. Although the etiology of chronic pelvic pain is mostly multifactorial, one source of pain seems to be the presence of myofascial trigger points, which, however, are often overlooked or ignored. There is evidence, that women with pelvic floor symptoms often experience pain and have positive trigger points upon pelvic floor examination. However, the correlation of these findings has not yet been systematically examined and sufficiently understood.
Objective: To examine the correlation between myofascial trigger points and pelvic floor symptoms using a standardized pelvic floor examination method and a validated pelvic floor questionnaire.
Methods: The study was performed in the outpatient urogynecological department of our clinic. Study participants underwent a standardized physical examination assessing myofascial trigger points in different muscle groups including pubococcygeous, iliococcygesous, obturator as well as at the bladder base. In addition, pelvic floor muscle tone was assessed. Participants also filled out the standardized German version of the Australian pelvic floor questionnaire, which consists of a total of 43 questions regarding bladder-, bowel- and sexual function as well as prolapse symptoms. The questionnaire provides a scoring system for each category (0-10) as well as a total score (0-40). Demographic data was retrieved from the patients' medical records. Statistical analysis was performed using the Mann-Whitney-U test and chi-squared or exact Fisher's test. All evaluations were done using the statistical software R.
Results: A total of 110 women were included in the study. Mean age was 55.9 (SD ± 17) years. Pelvic floor muscle tone was assessed as normal in 71 (64.5%) and high in 39 (35.5%) of the participants. The mean score of the pelvic floor questionnaire was 8.23 (SD ± 3.94). The overall questionnaire score showed a significant correlation with pain at all muscle groups (except bladder base). All four domain scores (bladder, bowel, prolapse and sexual function) were significant correlated with painful trigger points in different muscle groups. Age was not significantly correlated with pain or pelvic floor symptoms, except from sexual function, where the correlation was negative ($p<0.001$). A significant correlation could also be found between high pelvic floor muscle tone and the overall questionnaire score ($p<0.001$) as well as the bladder function score ($p<0.001$) and various pain scores of the different groups. Table 1 shows an overview of the most important findings.
Conclusions: The existence of myofascial pelvic floor trigger points seems to be reflective of pelvic floor symptoms, as assessed with a standardized pelvic floor questionnaire. Further research in order to examine and understand the mechanism of this correlation may help in the diagnosis and also offer more effective therapeutic options.
Disclosure: No
Images:

	Questionnaire domain scores				
	Bladder	**Bowel**	**Prolapse**	**Sexual**	**Overall Score**
Myofascial pain location					
- **Pubococcygeous R**	0.03	0.004	0.003	<0.001	<0.001
- **Pubococcygeous L**	0.08	0.17	0.60	0.006	0.006
- **Iliococcygeous R**	0.23	0.28	0.04	0.21	0.01
- **Iliococcygeous L**	0.18	0.50	0.08	0.11	0.03
- **Obturatorius R**	0.03	0.10	0.07	<0.001	<0.001
- **Obturatorius L**	0.03	0.087	0.02	0.009	<0.001
- **Bladder**	0.40	0.22	0.27	0.06	0.08
High tone pelvic floor	<0.001	0.001	0.016	0.002	<0.001

Table 1

P values of the correlations between myofascial pain locations and questionnaire scores *(Spearman's rank correlation, p values correspond to Mann-Whitney-U tests and chi-squared or exact Fisher test when the expected frequency is less than 5)*

R: right, L: left

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Light Emitting Diode (LED) Therapy to Treat Genital Atrophy in Postmenopause: In Preliminary Study

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Introduction: In urogynecologic fields, genital atrophy is a common health problem in postmenopausal women. It can cause many symptoms as itching, dryness, pain or dyspareunia, etc. It makes to deteriorate the quality of life and to affect a negative effect on female sexual function. Postmenopause induces the collagen loss. The deficit of collagen density makes genital atrophy.
Objective: This study aims to evaluate the change of genital atrophy using Light emitting diode (LED) therapy in mouses as a preclinical study.
Methods: We performed a prospective evaluation of 20 postmenopausal mouses (control group; n=10, LED group; n=10) which were undergone bilateral ovariectomy from July 2021 to September 2021. We used to the mixed wavelengths of three types as the 460-nm LED (blue), the 592-nm LED (amber), the 630-nm LED (red). Each mouse

got LED device (Bellalux, Linkoptics, Gwangu, Korea) on its buttock for 20 minutes for 4 weeks . We got the 1*1cm tissue on both buttock and analyzed to immunohistochemistry analysis using Masson trichrome (MT), hematoxylin and eosin (H&E), smooth muscle antibody (SMA) and vimentin stain. The study protocol was approved by the experimental animal institutional review board under registration number CKU-02-2021-004. Data were analyzed using SPSS software (version 22; IBM Corp., Armonk, NY, USA). Statistical significance was considered as P< 0.05). The paired t-test analysis was analyzed to compare between no LED group and LED therapy group for 4 weeks after LED treatment.

Results: We compared to the collagen density and the fibroblast count between no LED group (n=9) and LED therapy group (n=9) for 4 weeks after LED treatment. The mouses of treatment group were treated on LED devices on its buttock for 20 minutes for 4 weeks. On MT stain, mean scale of no therapy group was 127.28 +/- 5.03 to be increased to 102.06 +/- 6.94 of the LED therapy group (p<0.05). The scale range on MT stain is from 0 to 250; 0 scale means the thickest density of collagen. We check the fibroblast count by eyeball evaluation in each section. The fibroblast count was increased from 51.19 +/- 14.71 (control group) to 80.22 +/- 31.28 (LED therapy group) after treatment (p<0.05).

Conclusions: LED therapy improved to collagen regeneration in mouse model. Postmenopausal atrophy is caused by collagen loss. It is expected that genital atrophy would opt for adequate treatment to restore in urogynecologic function and anatomical structure. In the absence of clinical data on postmenopausal women, this provides evidence for a future approach.

Disclosure: No

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"You're Not the Only One": Feelings of Isolation in the Treatment of Chronic Pelvic Pain

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Introduction: Women with chronic pelvic pain (CPP) face complex healthcare journeys, further complicated by perceived lack of support and a sense of not being heard or believed by others. However, this additional psychological burden of CPP has not been explored from the patient perspective.

Objective: We gathered stakeholder perspectives from patients, community health workers (CHWs), and medical providers on the impact of CPP and its treatment on patients' emotional health and their perceptions of support. We were interested in perspectives on various components of women's healthcare journeys related to suffering and treatment of CPP, including perspectives on isolation and loneliness.

Methods: This was an iterative, qualitative study conducted in two phases. Using discussion guides, we conducted discussion groups with three types of stakeholders (women experiencing CPP, CHWs, and providers), and individual interviews with women experiencing CPP. Results from a first phase of group discussions and interviews were incorporated into discussion guides used in phase 2 to make them more relevant to and expand upon emerging concepts. Patient participants also completed validated questionnaires. De-identified transcripts were coded with NVivo software.

Results: We conducted three discussion groups (2 English; 1 Spanish) and 29 individual interviews (26 English; 3 Spanish) with CPP patients, three discussion groups with CHWs (1 English; 2 Spanish), and two discussion groups with providers (English). The mean age of patients was 40 ± 12 years, their mean pain score was 4.2 ± 2.9 on a 10- point scale, and 14/47 (28%) reported recent opioid use. We achieved thematic saturation both in the overall study objectives and the impact of CPP and its treatment on the perceptions of emotional and social support. Stakeholders expressed that having and treating CPP is incredibly isolating, and the loneliness and sadness from the disease are compounded by emotional, financial, and logistical barriers to care (Table). Stakeholders reported that talking about CPP, both with healthcare providers and with people close to them, is very challenging, and that they fear being scorned or not believed. However, stakeholders, including healthcare providers and CHWs, emphasized a strong desire to share, support, and validate CPP experiences. Patients noted that interaction with other women with CPP, particularly in a setting meant to draw out their experiences such as the conversations within the study's discussion groups, were therapeutic to alleviate this isolation and difficulty sharing their experience.

Conclusions: These findings support the move toward patient-centered care, particularly the acknowledgement that every woman experiences pain in a singular way. The need for social support was identified as key, both in terms of validation of pain from providers as well as from others diagnosed with CPP. There is an urgent need to integrate validation and support into CPP care and develop and disseminate healthcare and community resources to combat feelings of isolation in patients with CPP.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: RBI Medical (author KM)

Images:

Stakeholder	Theme	Quote
Patients	Isolation	"Sometimes at the beginning I felt I was the only one, but apparently I am not and it's horrible."
		" I cried when I read all of the stories. And at first I was like, " Maybe it is a coincidence." I read blogs… And then I was like… "Oh my gosh, I know what I have."
		" I really don't talk to my friends or co-workers or anyone about this. It doesn't feel like something I can talk about with people… It's been hard to learn about other people's experiences."
	Support from others	"Its nice just to speak to others that are experiencing what I am, because sometimes you think that it is just you and I wish this on no one."
		And I guess it helped knowing that other people live in chronic pain, but overall, for me to have to drive with an ice pack in my hoo-ha is not a normal way to live."
		"It was just really awesome to know that other people are experiencing the same things."
	Monetary Barriers to Care	" It is sad that many women are going through this and that they do not have medical service and they have to put up with this hell of their life every day, simply because there is no money for them to be treated."
	Want to let others know they are not alone	" I just want to be able to share my experience to let somebody know that they're not alone in their journey."
CHW Focus Groups	Have pain themselves and want to support others	"Well I thought I was the only person who went through all of this, and I am seeing that no, I'm not alone, Thank God. … I am a CHW and I plan to dedicate my life to helping women with these conditions. I was trying to figure out where talks are or something regarding how to get involved."
	Lack of Information in Communities	" I think there should be a little more information. I believe that having [sic] workshops where we could talk about this… could open possibilities. "
		"And maybe when the information of someone you trust, and who you believe, is a women… it reaches your neighbor, your sister and reaches the community. We are the people who can make change."
	Assumption that pain is normal	"Since its already a sensitive topic, women don't really discuss their issues with other people, not even with their doctors because they assume its probably normal."
Provider Focus Groups	Validation as a Provider	"Validating is super important in providing that safe space for them and getting [patients] to feel less frustrated."
		" I think that sometimes just having someone listen to you… validating that they really do have pain, I think that can be helpful for some."
	Emphasis on partnership	"So, building that sense of partnership that I am not going to give up, were just going to keep working is as important as making them feel heard and provides reassurance as well."

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Stakeholder Perspectives on Complementary and Alternative Medicine in the Treatment of Chronic Pelvic Pain: A Qualitative Study

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Introduction: Women with chronic pelvic pain (CPP) face complex healthcare journeys, further complicated by a wide variety of available treatments from a wide variety of possible practitioners. It is known that women with CPP are interested in complementary and alternative medicine (CAM) options for treatment, but there is little information on how women consider these treatments as part of their care and what motivates them to consider or use them.
Objective: We gathered stakeholder perspectives from patients, community health workers (CHWs), and medical providers on treatment for CPP with CAM. We were interested in understanding various components of women's healthcare journeys, including their perspectives related to CAM.
Methods: This was an iterative, qualitative study. We conducted three types of discussion groups (women experiencing CPP, CHWs, and providers), and interviews with individual women experiencing CPP. Results from a first phase of group discussions and interviews were incorporated into questions used in phase 2 to make them more relevant to and expand upon emerging concepts. Patient participants also completed validated questionnaires. De-identified transcripts were coded with NVivo software.
Results: We conducted three discussion groups (2 English; 1 Spanish) and 29 individual interviews (26 English; 3 Spanish) with CPP patients, three discussion groups with CHWs (1 English; 2 Spanish), and two discussion groups with providers. The mean age of patient participants was 40 ± 12 years, mean pain score was 4.2 ± 2.9 on a 10- point scale, and 14/47 (28%) reported recent opioid use. Thematic saturation was achieved both in the overall study objectives and regarding CAM treatments for CPP. Treatments that stakeholders considered to be CAM and were discussed included herbal remedies, yoga, acupuncture, meditation, dietary lifestyles, cannabinoid products, hydrotherapy, and temperature (heat/cold) treatments. Motivations toward CAM treatments of CPP that were highly emphasized included cultural aversion to western medicine, perception of need to treat the body as a whole, reliance on family remedies, and openness to CAM due to failure or inconvenience of other therapies (Table). Different types of stakeholders (patients, CHWs, and providers) had varying ideas for why CAM might be useful for CPP treatment, but stakeholders agree that CAM is an important component of CPP care and should be offered, studied, and accessible.
Conclusions: CPP stakeholders from the culturally diverse population in this qualitative study report that they recommend or are interested in CAM for CPP treatment for a variety of reasons, but are united in expressing that this is an important aspect of CPP care. This emphasizes the need for more evidence based and collaborative approaches with CAM to provide more holistic and encompassing care to patients suffering from chronic pelvic pain.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: RBI Medical (author KM)
Images:

Stakeholder	Themes	Quotes
Patients	Cultural Remedies	"They pretty much start with self-medication, going and getting over-the-counter medications and herbal teas like that. That's pretty much where we start."
		"As a cultural behavior, we start using our behavioral remedies first... We leave the provider step last, at the end of the road"
	Preference for Natural Solutions	" I always prefer something more natural... and if the natural things don't work anymore then I try other things like medicines."
		"I would rather do things in a more natural way, I guess. But I mean if it's medically necessary than that is what it is."
CHWs Focus Groups	Concern for medical bills	"So I think in our communities, we always seek that kind of help first, because we know that if we go to the doctor that going to mean big bills that nobody wants to have... So that's why people use the alternative ways to try to heal whatever discomfort they have before going to the doctor."
	Concern about addiction	" I think people in the community are more willing to try the natural because they are used to the natural ways rather than opiates... But they have heard, "Oh, so-and-so took this and they got addicted." And the word goes around the community. If it is a positive or negative experience it is going to go around."
	Convenience of CAM	"If they can take a tea or have a nice bath, they can do this in their home at any time versus having to go somewhere for services."
	The body as a whole	"Sometimes I think our care specialists are just focusing on their specialty instead of taking into account everything the patient is talking to them about."
Providers	Collaborative Approach with CAM	" I do like to work a lot with the alternative and complementary therapies. I think that they all are very valuable in the collaborative approach."
		"My advice would be a holistic, natural combination with the western medical system so the aspects of care supporting women suffering become stronger."

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Differences in Vulvar Pain Perception Between Women with and without Provoked Vestibulodynia Assessed Using the V-QueST Device
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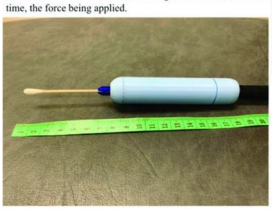
Introduction: Provoked Vestibulodynia (PVD) may reflect sensitization of nociceptive pathways, presenting as allodynia (pain from non-noxious stimuli), hyperalgesia (lower thresholds for pain sensitivity and tolerance) and wind-up (temporal summation of pain (TS)). While the cotton swab test is recommended for the assessment of pain sensitivity in PVD, it is poorly controlled. The Tampon Test is recommended to quantify vulvar pain1 but is non-specific. The V-QueST (Figure 1a) produces reliable measures of PPT at the vulvar vestibule2 and may be useful in evaluating PPT and TS among women with PVD. The aim of this study was to evaluate whether there is observable hyperalgesia and wind-up among women with PVD when assessed using the V-QueST.

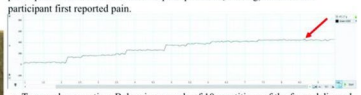
Objective: 1. To investigate differences in PPT (g) and TS at the vulvar vestibule among women with PVD, PVD with concurrent vaginismus (PVD+VAG) and controls (CON) and 2. To determine if pain assessments using PPT and TS are related to each other and to pain reported on the Tampon Test.
Methods: Participants over 18 years of age were recruited from the local community. According to Friedrich's criteria3, women were classified as having PVD or not (CON), and the presence of VAG was recorded. Exclusion criteria were pregnancy, menopause, and other gynecologic conditions (e.g., pelvic organ prolapse, urinary incontinence, infection, etc.). Pain was evaluated through PPT (the force (in grams) at which women first reported pain when the V-QueST was applied at the 6 o'clock position of the vestibule (Figure 1b)), TS (the difference in pain reported between the first and tenth application of the PPT force at the same site; Figure 1c), and the Tampon Test. For the Tampon Test and TS, a numeric rating scale (NRS) (0=no pain at all; 10 =worst pain imaginable) was used. Separate one-way analyses of variance models and Tukey's post-hoc comparisons were used to evaluate group differences in each primary outcome. Linear regression analyses modelled pairwise relationships among the PPT, TS and Tampon Test including group as a moderator. Since group was not a significant moderator, the pairwise relationships among the three outcomes were described using Pearson's correlation coefficients. α=0.05 was used for all tests.
Results: Sixty-six women participated (40 CON, 21 PVD, 5 PVD+VAG); no differences in demographics were observed among the groups (Table 1). PPTs were lower and NRS ratings on the Tampon Test were higher in the PVD and PVD+VAG groups compared to CON; these outcomes were not different between PVD and PVD+VAG (Table 2) however, the PVD+VAG group was small and thus this finding is inconclusive. TS was not observed in any group. The PPT and Tampon Test were moderately correlated (r= -0.528, p=0.000); TS was not correlated with the Tampon Test (r= 0.046, p=0.715) nor with the PPT (r=0.225 p=0.069).
Conclusions: Women with PVD present with hyperalgesia (lower PPT and higher pain on the Tampon Test) compared with CON, but with no evidence of wind-up (TS). PPT provides related but different information from the Tampon Test on the pain perceived by women with PVD.
Disclosure: No
Images:

Figure 1. Vulvar-QUantitativE Sensory Testing device and measures of pressure pain threshold and temporal summation.

a. The V-QueST engages a cotton swab into a collet. When the tip of the cotton swab is pressed, it compresses a spring interfaced with a force sensor, allowing the user to see, in real time, the force being applied.



b. Force vs time trace for a single trial establishing pressure pain threshold in one participant. The red arrow shows the peak pressure (451.27g) at which the participant first reported pain.



c. Temporal summation. Below is a sample of 10 repetitions of the force delivered at the vulvar vestibule during assessment of temporal summation for the same participant as in Figure 2. The horizontal line indicates the target force of 451.27g, which was the participant's pressure pain threshold.

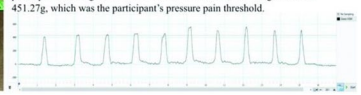


Table 1. Demographic data

Descriptive data	PVD (n=21)	PVD +VAG (n=5)	CON (n=40)
Age (years) – Mean ±SD	25±4	24±6	28 ±6
BMI (kg/cm²) – Mean ±SD	23.4 ±4.6	24.1±3	24.1 ±4.8
Parity – n (%)			
Nulliparous	21 (100)	5 (100)	35 (87.5)
Parous	0 (0)	0 (0)	5 (12.5)
PFM strength (/5) – Mean ±SD	2 ±1	2 ±0	3 ±1

Abbreviations: PVD – provoked vestibulodynia; VAG – vaginismus; SD – standard deviation; n – absolute frequency; % –normalized frequency; BMI – Body mass index; PFM – Pelvic floor muscle. PFM strength was measured via intravaginal palpation using the Modified Oxford Scale (MOS).

Table 2. Primary outcomes

Main Outcomes	PVD (n=21)	PVD +VAG (n=5)	CON (n=40)
Tampon Test (0 to 10) – Mean ±SD	3.5 ±1.7	3.3 ±2.5	0.7 ±0.9
PPT (g) – Mean ±SD	126.1 ±67.2	105.8 ±80.7	375.2 ±142
TS – Mean ±SD	0.3 ±1.4	-0.7 ±1.6	0.4 ±1.8

Abbreviations: PVD – provoked vestibulodynia; VAG – vaginismus; NRS – numerical rating scale; PPT – Pressure Pain Threshold; g – grams; TS – Temporal summation of pain; SD – standard deviation.

Table 1 Maternal baseline characteristics

Characteristic	UTI (N=41)	Negative culture (N=224)	Total (N=265)	p value
Age (Years)	26.44 (4.79)	26.85 (4.70)	26.78 (4.71)	0.60[1]
Duration of hospitalization (Days)	6.23 (8.63)	4.35 (2.14)	4.64 (3.98)	0.17[3]
Primiparous	34 (81%)	142 (63.4)	176 (66.2)	0.02[2]
Gestational week	39.2 (1.96)	39.1 (1.62)	39.15 (1.68)	0.30[1]
Obesity	6 (14.3%)	21 (9.4%)	27 (10.2%)	0.33[2]
Singleton	41 (97.6%)	221 (98.7%)	262 (98.5%)	0.61[2]
UTI during pregnancy	7 (16.7%)	33 (14.7%)	40 (15.0%)	0.75[2]
Past retention of urine	1 (2.4%)	8 (3.6%)	9 (3.4%)	0.70[2]
Smoking	2 (4.8%)	9 (4.0%)	11 (4.1%)	0.82[2]
Gestational Hypertension disorder	1 (2.4%)	13 (5.9%)	14 (5.3%)	0.36[2]
Pre-gestational DM	1 (2.4%)	4 (1.8%)	5 (1.9%)	0.79[2]
Gestational DM	6 (14.3%)	25 (11.2%)	31 (11.7%)	0.56[2]

Data are presented as mean (SD) or n (%)
1. Student's t-test
2. Pearson's Chi-squared test
3. Welch Two Sample t-test

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Urinary Tract Infection Among Women with Postpartum Urinary Retention: Prevalence and Risk Factors

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Introduction: Postpartum urinary retention (PPUR) is an obstetric complication effecting approximately 5% of deliveries, due to various definitions. Risk factors for overt PPUR are epidural analgesia, instrumental delivery, episiotomy, perineal tear and hematoma. Women who develop PPUR require intermittent or continuous catheterization of the urinary bladder that may increase the risk for urinary tract infection (UTI). The incidence of postpartum UTI in parturients with urinary continence is 4.6% following Caesarean delivery and 3.5% after vaginal delivery. Data regarding the rate of UTI in women with PPUR is lacking. Extrapolation from reports of women with urinary retention after pelvic reconstructive surgery suggest that the incidence of UTI was 17% in asymptomatic women and increases up to 50% in symptomatic women.
Objective: To date, no study has described the incidence of UTI among women with PPUR. We aimed to determine the prevalence and risk factors for UTI and to identify the causative microorganisms among women with PPUR.
Methods: A retrospective population-based cohort study conducted at a university-affiliated tertiary-center, with 3,500 deliveries annually. Data was collected between 2013 and September 2021. All women with overt PPUR, defined by the need for urinary bladder catheterization six hours after delivery, were included. Women with pre-existing medical conditions associated with potential urinary retention prior to pregnancy (Recurrent UTI or Pyelonephritis during gestation, urinary tract anomaly, chronic urinary retention prior to pregnancy or long-standing diabetes mellitus) and those with missing data regarding their urine culture or invalidated cultures were excluded. To compare between

the UTI and the non-UTI groups, the Student's t -test was used for continuous variables, and chi-squared test or Fisher's test was used to compare the categorical parameters.

Results: The study cohort included 336 women. 71 women were excluded from the final analysis because of missing data from their urine culture or invalidated cultures, and 265 were included in the final analysis. The rate of UTI among women with PPUR was 15.47% (41/265). The most common isolated pathogen was Escherichia coli (19.5%). Two factors differed significantly between women with PPUR who had UTI and those without it: first, the median number of catheterizations needed until resolution of the urinary retention (median 2 range 1-5 vs. median 1 range 1-12, $p<0.001$, respectively), and second, the higher rate of primiparous in the UTI group (81% vs. 63.4%, $p=0.027$).

Conclusions: The risk for positive-culture is high among women with postpartum urinary retention. This emphasizes the importance in the common standard of care involving taking a urine culture among these women. Women with positive cultures needed more catheterizations after delivery until full resolution of the urinary retention. This group also had higher rate of primiparous. The study is unique because it is the first to address the rate of UTI among women with PPUR. This variable has not been described as a risk factor for PPUR. The findings may help to guide clinicians treating women with PPUR and also may affect health care costs.

Disclosure: No

Images:

Table 1 Maternal baseline characteristics

Characteristic	UTI (N=41)	Negative culture (N=224)	Total (N=265)	p value
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Primiparous	34 (81%)	142 (63.4)	176 (66.2)	0.02[2]
Gestational week	39.2 (1.96)	39.1 (1.62)	39.15 (1.68)	0.30[1]
Obesity	6 (14.3%)	21 (9.4%)	27 (10.2%)	0.33[2]
Singleton	41 (97.6%)	221 (98.7%)	262 (98.5%)	0.61[2]
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Smoking	2 (4.8%)	9 (4.0%)	11 (4.1%)	0.82[2]
Gestational Hypertension disorder	1 (2.4%)	13 (5.9%)	14 (5.3%)	0.36[2]
Pre-gestational DM	1 (2.4%)	4 (1.8%)	5 (1.9%)	0.79[2]
Gestational DM	6 (14.3%)	25 (11.2%)	31 (11.7%)	0.56[2]

Data are presented as mean (SD) or n (%)
1. Student's t-test
2. Pearson's Chi-squared test
3. Welch Two Sample t-test

Table 2 Intrapartum data

Characteristic	UTI (N=41)	Negative culture (N=224)	Total (N=265)	p value
Intrapartum fever	3 (7.1%)	14 (6.3%)	17 (6.5%)	0.85[2]
Vaginal Delivery	30 (71.4%)	169 (75.4%)	199 (74.8%)	0.85[2]
Vacuum Delivery	10 (23.8%)	40 (17.9%)	50 (18.8%)	0.37[2]
Caesarean Delivery	3 (7.1%)	15 (6.7%)	18 (6.8%)	0.92[2]
Regional Anesthesia	34 (81.0%)	169 (75.4%)	203 (76.3%)	0.46[2]
Revision of uterine cavity	3 (7.1%)	18 (8.0%)	21 (7.9%)	0.84[2]
Perineal tear	15 (35.7%)	104 (46.4%)	119 (44.7%)	0.20[2]
Degree of perineal tear				
0	29 (69.0%)	123 (54.9%)	152 (57.1%)	0.28[2]
1	3 (7.1%)	20 (8.9%)	23 (8.6%)	
2	10 (23.8%)	72 (32.1%)	82 (30.8%)	
3	0 (0.0%)	9 (4.0%)	9 (3.4%)	
Episiotomy	20 (47.6%)	74 (33.0%)	94 (35.3%)	0.07[2]

Data are presented as n (%)
1. Student's t-test
2. Pearson's Chi-squared test

Table 3 Catheterizations of the two groups

	UTI (N=41)	Negative culture (N=224)	Total (N=265)	p value
Urine catheterizations during labor	40 (95.2%)	182 (82.7%)	222 (84.7%)	0.12[2]
Number of catheterizations during labor	3 (0.0 - 10.0)	2 (0.0 - 11.0)	2 (0.0 - 11.0)	0.1172[1]
Total amount of urine during labor (ml)	650 (100.0 - 2900.0)	800 (40.0 - 5300.0)	750 (40.0 - 530.0)	0.13[4]
Volume of urine during the retention (first catheterizations, ml)	700 (100.0 - 1800.0)	700 (100.0 - 2000.0)	700 (100.0 - 2000.0)	0.48[1]
Number of catheterizations prior to resolution	2 (1.0 - 5.0)	1 (1.0 - 12.0)	1 (1.0 - 12.0)	< 0.001[1]

Data are presented as median (range) or n (%)
Student's t-test
Pearson's Chi-squared test
Welch Two Sample t-test
Mann-Whitney U Test

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Identifying Real-World Practice Patterns in Second-Line Treatments for Patients With Overactive Bladder Receiving Navigated or Routine Care From a US National Retrospective Database Study

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Introduction: Overactive bladder (OAB) is a condition based on the development of symptoms of urgency, usually with frequency and nocturia, with or without urge urinary incontinence. Real-world utilization data of second-line pharmacological treatments for OAB and the impact of navigated care through the OAB treatment pathway are limited.
Objective: To describe real-world utilization patterns of second-line pharmacological treatments for OAB stratified by those who did or did not receive navigated care.
Methods: Patients with OAB were randomly and retrospectively identified using the ninth and tenth revisions of the International Classification of Diseases, Clinical Modification and procedure codes from the Precision Point Specialty Analytics Portal for OAB database. This database contains the electronic medical record data for >90 US community-based urology practices for ≈2.4 million OAB patients. Eligible patients were ≥18 years of age, newly diagnosed and treated for OAB between January 1, 2015, and December 31, 2019, and had ≥2 OAB visits ≥30 days apart. A treatment navigator was identified as a health professional focused on individualized patient-centered care by assisting in the guidance of the patient through the OAB clinical pathway. Use of second-line treatment medications during the study period was collected. The date of discontinuation of initial second-line treatment, identified by a physician or navigator, began when a different OAB treatment was used without continuing the prior treatment. A switch in second-line treatment was defined as starting a new treatment within 30 days of discontinuing initial second-line treatment. Proportions were compared using chi-squared tests. Time-to-event data were compared using log-rank tests.
Results: Of 190,697 patients who met all inclusion criteria, 9000 were randomly selected. Overall, 95.8% (n=8623) of patients received second-line treatment of which 56.2% received an anticholinergic and 41.7% received a beta-3 agonist. Of those patients receiving second-line treatment, 60.2% received 1 medication, 27.3% received 2 medications, and 12.6% received 3+ medications. 9% of patients receiving second-line treatment switched treatment within 30 days with no difference between the navigated or non-navigated patients. Of all patients starting a second-line treatment, 70.2% (n=6051/8623) discontinued treatment during the study timeframe. Of patients who discontinued their initial second-line treatment, 59.1% discontinued anticholinergics and 39.1% discontinued beta-3 agonists. 62.5% of the patients who discontinued had navigated care compared with 71.3% who were not under navigated care (P<0.001). Discontinuations were lower in patients who received navigated care and follow-up visits (61.4% of patients) compared with navigated patients who did not have follow-up visits (71.1% of patients, P=0.042).
Conclusions: The present analysis suggests that navigator-based care can decrease discontinuation of second-line treatment for OAB, which may ultimately improve OAB symptom control.

Disclosure: Yes, this is sponsored by industry/sponsor: Allergan (prior to its acquisition by AbbVie)
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: AbbVie

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Primary Care Perceptions on the Diagnosis and Management of Recurrent UTI: Barriers to Guideline-Driven Care

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Introduction: Urinary tract infections (UTI) affect approximately 60% of all women, 20-40% of whom will develop recurrent UTIs (rUTI).1 Evidence-based guidelines from multiple international societies have established consensus pathways for the evaluation and management of these conditions. These approaches encourage comprehensive diagnostic evaluation, individualized patient care, and antibiotic stewardship. Numerous recent claims-based analyses, however, have demonstrated that these guidelines have not been widely adopted, with fewer than half of UTI episodes being evaluated with urine testing, antibiotics frequently prescribed for negative cultures, and inappropriate antibiotic agent selection or duration.2,3,4 As this data is primarily retrospective, little is understood of the barriers to providing guidelines-based care that primary care providers (PCPs) experience.
Objective: To examine the practice patterns governing the management of UTI/rUTI, referral to specialists, and patient counseling and education in a primary care setting.
Methods: Seventeen primary care providers (PCPs) across a tertiary healthcare center were interviewed using a semi-structured template of questions. Participants were asked questions related to management of first and recurrent presentations of cystitis, decision to refer to subspecialty care for rUTIs, and resources available to them for guidance on appropriate management strategies (Table 1). Grounded theory methods were used to analyze interview transcripts and identify preliminary and major themes.
Results: Sixteen physicians and one nurse practitioner with an average of eight years of experience following completion of training were interviewed. While PCPs expressed the desire to obtain urine culture information for all patients with each presentation for UTI symptoms, they felt pressured to make compromises because of patient demands or barriers to care. There was a lower threshold to treat patients empirically if they had a history of recurrent infections, were young and sexually active, or were older. Urinalyses were infrequently considered when interpreting culture data; women were frequently treated in the setting of a negative urinalysis. There was a lack of consensus on use of guidelines for the management of rUTIs; UpToDate® emerged as the primary resource for management strategies. Furthermore, there was a paucity of evidence-based UTI prevention interventions recommended by PCPs. While PCPs felt comfortable continuing maintenance prophylactic antibiotics if initiated by another provider, they rarely felt comfortable initiating therapy without recommendations from a specialist. The number of UTI episodes that should prompt specialist referral varied widely between providers. Almost unanimously, PCPs perceived that all patients with rUTIs required evaluation for anatomic or structural causes of rUTIs, frequently ordering imaging studies prior to consultation. The most common imaging studies were renal ultrasounds and abdominopelvic CT scans.
Conclusions: Poor ease of use of guidelines and low availability of accurate educational materials on the management and treatment of rUTIs was the greatest barrier to appropriate and complete care. Patient difficulty accessing care providers and expectations for presumptive antibiotics also contributed to deviations from

guideline-directed care. Future studies are needed to determine if improved educational materials for patients, simpler management algorithms for physicians, or streamlined electronic health record workflows can improve management of UTIs in the primary care setting.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Willow Innovations, Inc

Images:

Table 1: Semi-structured Interview Sample Questions

Topics	Sample Questions
UTI diagnosis	- What are the symptoms of a UTI? - When a patient calls your office or sends you a message regarding UTI symptoms, what is your next step? How often do you treat empirically over the phone vs. request the patient to submit a urine sample at a lab vs. request them to schedule a clinic visit? - At what point in your work up do you obtain a urine culture? - Do you perform a pelvic exam for patients with UTI complaints? - Do you always obtain a UA with your urine cultures? - Does the UA change your management?
UTI Treatment	- Do you empirically treat new onset UTI symptoms in patients without a history of UTIs? - For a patient with a positive urine culture, what are your first line antibiotics? - If you treat a patient, and they subsequently do not symptomatically improve after the first course of antibiotics, what is your next step in management?
Referral for rUTI	- If you make a referral for rUTI, what do you counsel patients regarding this? - When you make these referrals, do you feel that it is for rUTI or to evaluate for another possible etiology? - When do you decide to refer to urology or urogynecology for rUTIs? What criteria do you use? - What work up do you think the consulting provider needs in order to evaluate the patient?
Patient counseling	- Do you recommend patients to start any UTI prevention strategies? If so, which interventions do you recommend? - Where do you obtain these recommendations? What are your resources?

Table 2: Themes and illustrative quotes pertaining to themes

Themes related to management/prevention of UTIs	Quotes
Intention to obtain urine studies but compromises are made with patients	"If I'm not able to get them to come in, I will usually ask them to get urine collected. It sort of depends on the context and there's a lot of bargaining there. And if it's someone, you know, where I feel bad, they've convinced me that their barriers are super high, sometimes I'll do the lesser of two evils, just send them in a few days of bactrim." "I can't remember the last time I was able to convince a person, a young woman to come into the office for those symptoms."
Lower threshold to treat patients who have a history of rUTI, are young and sexually active, or elderly	"If they're older, had recurrent UTIs before - there's somebody who if we missed a UTI next week, they could be in urosepsis, because they're so old and fragile, then I'll go ahead and start it." "So, you know, a young woman who's had a previous UTI, she comes in because she went with her partner to Las Vegas. They had a lot of sexual intercourse, now she's got her typical symptoms, you know, that patient, I probably just treat empirically."
Treatment in the setting of negative urinalysis	"If the urine dipstick was negative, I would allow that to be a shared decision making. I know that sounds like a cop out answer, but it's the honest truth. And I would tell the patient it's less likely to be a UTI given the fact that it's completely negative, but we can treat it or we can wait for the culture just to make sure." "In fact, I would place more weight on the history than I would on a urinalysis in some circumstances." "If the lady tells me, 'I'm telling you, this is my UTI.' Well, sorry? I've got a negative UA? I'm not going to give you anything? Hell no, I'm not going to do that."
Lack of clear recommendations or use of guidelines for UTI prevention	"Just over the years, or residency or seeing patients and gosh, I mean I don't know I hope it's somewhat based on something from evidence at some point that I heard." "Most of the time I recommend to drink a lot of water and stay well hydrated. Then in younger patients or patients that are sexually active - urinate after sex. Then there are some patients with recurring urinary symptoms that are not necessarily a UTI. I tell them to bathe or wash the area with my soap and water. These are just things that you've picked up through your training and throughout your years of practicing." "I generally just recommend trying to increase their fluids as the main thing, like trying to drink two liters of fluids a day, which I know is hard for some people." "Cleaning from front to back, not from back to front, just in case it is *E. Coli* causing the UTI...We also recommend drinking cranberry juice."
Themes related to referral to subspecialist for rUTIs	**Quotes**
Varied number of UTIs needed for referral	"So there is not like a hard stop number. It sort of just depends on how frequently they're coming in. Like over the course of a whole year, [if] they have three UTIs kind of spaced out, I don't think we really need to send them to gynecology. But if... they're in my office month after month after month after month and we've tried all kinds of stuff and nothing is working and I suspect there's... I don't know, let's say it's anatomical or something, then I would probably err on the side of sending the referral because I'm sort of running out of options myself." "If the patient doesn't want to see a lot of doctors and it's not bothering them, I probably might have a higher threshold to send them. But if there's someone who's very worried about it, I tend to give into that and probably refer them a lot sooner." "Six or more over a period of a year"
Specialty referral needed to evaluate anatomical predispositions for rUTI	"I just want urology to make sure there is no malignancy or something rare like TB. And make sure they are emptying their bladder all the way, etc." "I would need their recommendations from them to continue treating the patients. I would tell them [the patient] to expect further workup as far as imaging or procedures or things like that."

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Do Patient-Specific Characteristics Influence the Duration of Impaired Bladder Emptying After Pelvic Surgery?

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Introduction: There is little data regarding patient-specific factors that impact the time to resolution of impaired bladder emptying after pelvic surgery.

Objective: The objective of this study is to describe patient characteristics associated with increased time to normalization of bladder emptying after pelvic reconstructive surgery.

Methods: Secondary analysis of a prospective cohort of women undergoing outpatient pelvic reconstructive procedures at an academic tertiary referral center September 2018-June 2021. This analysis was limited to participants of the primary trial who had a PVR greater than or equal to 1/2 voided volume in the recovery room and recorded their post-void residual (PVR) and voided volume for all post-operative voids until they had two consecutive PVRs less than 1/2 voided volume without need for surgical re-intervention. Normal bladder emptying was defined as two consecutive PVRs less than 1/2 voided volume. The primary outcome of this secondary analysis was to describe patient characteristics associated with increased time to normal bladder emptying.

Results: This analysis included the 39 participants. Most participants identified as white (37/39, 94.9%). Average age was 52.6 +/-10.9 years, average BMI was 27.7 +/- 4.9 kg/m2, and most participants underwent a surgery that included a midurethral sling (33/39, 84.6%). Mean and median time to return of normal voiding were 14.8 hrs and 8.0 hrs, respectively, by Kaplan-Meier analysis. By 102 hours post-surgery, 39/39 (100%) participants noted normal bladder emptying, with the majority (33/39, 84.6%) noting normalization within 24 hours (Figure 1). Age, BMI, smoking history, and stage of prolapse did not affect time to normal bladder emptying (all p greater than 0.05); but history of overactive bladder (p less than 0.001) and nocturia (p=0.008) were associated with increased time to normal bladder emptying. Some participants (6/39, 15.4%) had intermittent normal PVRs (less than 1/2 voided volume) that were followed by elevated PVRs (greater than 1/2 voided volume) in the post-operative period.

Conclusions: This information suggests that by 24 hours after pelvic reconstructive surgery most patients will have normal bladder emptying. The presence of pre-operative overactive bladder and nocturia are associated with increased time until normalization. Further studies are required to better understand post-operative bladder function.

Disclosure: No

Images:

Figure 1. Participants with impaired post-operative bladder emptying stratified by time to resolution.

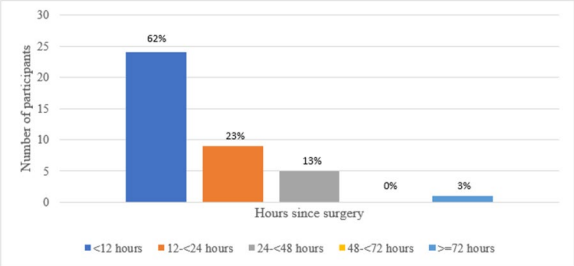

Figure 1 Legend: Post-operative impaired bladder emptying defined as recovery room PVR ≥ ½ voided volume with subsequent documentation of 2 consecutive voids with PVR < ½ voided volume without need for surgical intervention.

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Transversus Abdominis Plane Block in Robotic Sacrocolpopexy Procedures - A Pilot Randomized Controlled Trial (SACROTAP)

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Introduction: Optimal postoperative pain control methodology remains a controversial topic, even in robotic cases where analgesic needs are usually reduced. Transversus abdominis plane (TAP) blocks have been proven effective in various procedures without conclusive evidence regarding sacrocolpopexy.
Objective: The aim of this study was to compare the conventional oral pain medications to the combination of TAP block and conventional oral pain medications in patients undergoing robotic sacrocolpopexy. The primary outcome was the reduction in pain using the numeric rating scale (NRS) among patient groups. The secondary outcome was the change in narcotic analgesic use postoperatively.
Methods: We conducted a prospective double blind, pilot randomized controlled trial of women undergoing robotic sacrocolpopexy at a university academic center, with and without supracervical hysterectomy, with 20 patients enrolled in each arm. Patients were excluded if they had prior pelvic or abdominal surgery within 3 months prior to enrollment. Surgical technique, port placement, and pain management regimens were standardized for all patients. Analysis was on an intention to treat basis. Means were compared using Student's t-test. Nominal data were compared using Fisher's Exact Test. A p value < .05 was considered significant.
Results: A total of 48 women were approached to participate in the study, 40 women provided consent (20 per study arm), and completed the 7-day follow up. The demographic characteristics were similar for both groups, including number of hysterectomies. Patients receiving a TAP block had a lower NRS pain score at 4 hours post-op (4.95 ±0.76 vs 5.50 ±0.61, p=0.02), 7 days post-op (2.20 ±1.11 vs 3.15 ±1.04, p=0.008), and lower cumulative NRS pain scores at 48 hours post-op (14.90 ±2.2 vs 16.60 ±2.04, p=0.02) and 7 days post-op (17.10 ±2.63 vs 19.75 ±2.65, p=0.003). Patients in the intervention group also had a lower cumulative morphine milli-equivalents (mEQ) at 7 days post-op (17.25 ±10.7 vs 29.25 ±14.53, p=0.005). No significant differences were noted in NRS pain scores in PACU and at 48 hours although the trend was suggestive of reduction in the TAP block arm.
Conclusions: Use of TAP blocks in robotic sacrocolpopexy cases, with or without concurrent hysterectomy, may reduce postoperative pain and narcotic medication used.
Disclosure: No
Images:

Table 1. Demographics

	TAP Mean (SD) N=20	No TAP Mean (SD) N=20	p-value
Patient-Related			
Age	56.35 (11.56)	59.40 (8.62)	0.35
BMI	26.76 (4.0)	28.63 (5.31)	0.218
Vaginal Delivery	17 (85%)	18 (90%)	0.663
Menopause	14 (70%)	13 (65%)	0.736
Prior Abdominal Surgery	8 (40%)	13 (65%)	0.113
Surgery-Related			
Discharged Home With Catheter	3 (15%)	4 (20%)	0.677
Anterior Colporrhaphy	2 (10%)	3 (15%)	0.633
Incontinence procedure	8 (40%)	6 (30%)	0.507
Supracervical Hysterectomy	17 (85%)	16 (80%)	0.667

Table 2. Postoperative Pain and Narcotic Use

	TAP Mean (SD)	No TAP Mean (SD)	p-value
Pain Reported			
NRS pain score in PACU	5.60 (1.046)	6.25 (1.07)	0.06
NRS pain score at 4 hours	4.95 (0.759)	5.50 (0.607)	0.02
NRS pain score at 48 hours	4.35 (0.875)	4.85 (0.813)	0.07
NRS pain score at 7 days	2.20 (1.105)	3.15 (1.040)	0.008
NRS pain score at 48 hours, cumulative+	14.90 (2.198)	16.60 (2.037)	0.02
NRS score at 7 days, cumulative++	17.10 (2.634)	19.75 (2.653)	0.003
Narcotic Needs			
Cumulative morphine mEQ at 48 hours^	11.50 (8.127)	16.75 (9.358)	0.07
Cumulative morphine mEQ at 7 days^^	17.25 (10.696)	29.25 (14.534)	0.005

+ Sum of pain scores from PACU until 48 hrs postop
++ Sum of pain scores from PACU until 7 days postop
^ Total morphine mEQs used by 48 hrs postop
^^ Total morphine mEQs used by 7 days postop

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Sexual Function In Patients Who Undergo Laparoscopic Sacrohysteropexy

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Introduction: Patients with pelvic organ prolapse (POP) often reports on a decrease in sexual function. This may present as a decrease in sexual activity, decrease desire and arousal, dyspareunia and general negative impact on their sexual behavior. For patient who undergoing reconstructive pelvic surgery of any kind, improvement of sexual function is often one of the goals.
Objective: Our aim was to study the impact on sexual function among women with pelvic organ prolapse undergoing laparoscopic sacrohysteropexy (LSH).
Methods: This was a historic cohort study of patients underwent LSH due to stage 3-4 apical compartment prolapse. All patients were operated in our medical center at urogynecological and pelvic surgery division. As part of the routine preoperative and postoperative assessment, patients were asked about their sexual function including sexual activity, improvement in sexual function and dyspareunia before and after surgery. We also used the pelvic organ prolapse/ urinary incontinence sexual questionnaire (PISQ- 12) for assessment.

Results: Out of 270 patients who underwent LSH for apical prolapse repair, 99 (36.5%) reported to be asexually active. Among sexually active patients twenty-two (22.2%) reported sexual function to be negatively affected by their prolapse. Ninety patients have completed PISQ-12 questionnaire, with a mean score of 29.3 ± 6.9. There were eleven cases of major perioperative complications (4.1%). The mean follow-up after surgery was 44.0 ±24 months. Pelvic organ prolapse recurrence occurred in 26 cases (9.5%) One hundred ninety-two reported to be sexually active after surgery (71.1%). One hundred twenty-six (65.6%) reported improvement in their sexual function and 29 patient (11.1%) reported dyspareunia. sixty-nine patient completed PISQ- 12 questionnaire with a mean score of 31.9 ±11.1.

Conclusions: Sexual dysfunction is relatively common among patients encounter for apical prolapse repair. Treating POP with laparoscopic sacrohysteropexy appears to be safe, efficient and with positive effect on patient's sexual function.

Disclosure: No

Images:

Table 1: Patients Background Characteristics

Age (years)	62.1 ±11.9
Body Mass Index (kg/m²)	24.8 ±4.0
Parity	2.4 ±1.2
Significant obstetrical trauma	94 (34.6)
Menopause	184 (67.8)
Comorbidities	204 (75.2)
Sexually active	90 (40.6)
Prior abdominal surgery	145 (53.5)
Prior POP surgery	16 (5.9)
Anterior prolapse stage 3-4	143 (52.7)
Apical prolapse stage 3-4	249 (91.8)
Posterior prolapse stage 3-4	62 (22.8)
Dyspareunia/ other sexual discomfort	22 (22.2)
Preoperative PISQ12 score	29.3 ± 6.9
SUI	116 (42.8)
Dyschezia	84 (30.9)

Data are presented as n (%) or mean ± standard deviation.

SUI- Stress Urinary Incontinence; POP- pelvic organ prolapse.

Table 2: Operative details and perioperative complications up to 4 weeks.

Operative time (minutes)	96.0 ± 0.72
Length of Hospitalization (days)	2.0 ±2.2
Additional procedure	12 (4.4)
Intestinal injury	6 (2.2)
Urinary injury	3 (1.1)
Conversion to laparotomy	1 (0.4)
Vascular injury	1 (0.4)
Any major complication[1]	11 (4.0)

Data are presented as n (%) or mean ± standard deviation or median (range); [1]-"Clavien Dindo classification grade >2".

Table 3: Long-term surgical outcomes.

Mean Follow-up duration (month)	44.0 ±24
Pelvic or lower back pain	13 (4.7)
Mesh exposure	2 (0.7)
De novo SUI	20 (7.3)
Surgery for SUI	25 (9.2)
2nd surgery for POP recurrence	22 (8.1)
De novo constipation	6 (2.2)
Sexually active	192 (70.1)
Improvement in sexually activity	126 (65.6)
Post operative PISQ12 score	31.9 ±11.1
Dyspareunia	29 (10.1)
Prolapse recurrence	26 (9.5)

Data are presented as n (%) or mean ± standard deviation ; SUI- Stress Urinary Incontinence; POP- pelvic organ prolapse.

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The Variation of Chargemaster Price Listings for Urogynecologic Procedures

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Introduction: A 2018 Executive Order calling for price transparency required hospitals to provide chargemasters on their public websites. Chargemasters are detailed lists of standard prices for every billable medical procedure that a hospital provides. In the past, hospitals have used these documents to negotiate billing with third-party payers, such as health insurance companies.
Objective: The goal of the study was to evaluate if significant price variations existed amongst hospitals for common procedures in urogynecology. Procedure prices were determined for each facility from its publicly available hospital chargemaster. Prices were then compared with data on quality, population demographics, and hospital characteristics to determine if any significant relationships existed. Through our investigation, we can evaluate if patients have accessible and relevant information to make informed decisions about their care.
Methods: Chargemasters were obtained between February and April 2020 from hospitals across 5 states, which were chosen to reflect the diversity of health systems in the United States (US). Hospital characteristics and quality metric data were obtained from the Homeland Infrastructure Foundation, US Department of Agriculture and CMS websites. Current Procedural Terminology (CPT) codes and procedure names for 7 common urogynecologic procedures were used to search through each chargemaster and extract price listings. These included diagnostic cystoscopy, cystoscopy with botox, cystoscopy with hydrodistension, colpocleisis, interstim, diverticulectomy and sacrospinous ligament fixation.
Results: 834 chargemasters across 5 US states were identified and downloaded from hospital websites. All hospital characteristics, population demographics and quality metrics data varied significantly across the 5 states. Not all procedures were listed in every chargemaster, ranging from sacrospinous ligament fixation (N=38, 4.6%) to diagnostic cystoscopy (N=648, 77.7%). Mean price listings for most of the procedures differed significantly across the 5 states. This included colpocleisis ($p=0.001$), cystoscopy with botox ($p<0.001$), diagnostic cystoscopy ($p<0.024$), diverticulectomy ($p=0.002$), interstim ($p<0.001$), and sacrospinous ligament fixation ($p<0.001$). Price listings were significantly higher in urban hospitals than rural hospitals for 6 procedures. No significant association was seen with price listing and quality measures for most of the procedures.
Conclusions: This study was a comprehensive evaluation of all available chargemasters from hospitals providing urogynecologic care across five US states. Overall, our findings demonstrate significant differences in charge for several of the urogynecologic procedures investigated. Some of this variation is associated with hospital characteristics such as urban setting. However, surprisingly, price listing was not associated with quality. It continues to be unclear whether there is any correlation between the listed prices and how much a patient actually pays. Further investigation of how chargemaster procedure prices are determined is imperative to allow patients to use this data in a meaningful way.
Disclosure: No
Images:

Table 1: Median Price Listings of Procedures By Five States

Procedures [N, percent]	CA	MA	MS	NY	OH	p-value
Colpocleisis (67, 8.0%)	19100	4271	-	7361.2	761	0.001*
Cystoscopy w/ botox (173, 20.7%)	2945.3	1570	761	1887.6	2547.5	<0.001*
Cystoscopy w/ hydrodistention (339, 40.7%)	1480	1154	2101	1383.5	673.5	0.188
Diagnostic cystoscopy (648, 77.7%)	1138.5	786.6	863.6	998.4	792.8	0.024*
Diverticulectomy (142, 17.2%)	2545.5	1340	1836	1233	1579	0.002*
Interstim (291, 34.9%)	12273.9	6902.4	9599.7	12481.3	5745	<0.001*
Sacrospinous ligament fixation (38, 4.6%)	499	140.6	245.8	8983	354	0.001*

Table 2: Median Price Listings of Procedures By Hospital Quality Star Ratings

Procedures [N, percent]	1	2	3	4	5	p-value
Colpocleisis (67, 8.0%)	5943	1686.8	1557.7	7361.2	2193.1	0.487
Cystoscopy w/ botox (173, 20.7%)	1887.6	1707.8	2295.5	2305.3	3434.5	0.108
Cystoscopy w/ hydrodistention (339, 40.7%)	944.2	1480	1243.1	1452.8	2845.1	0.208
Diagnostic cystoscopy (648, 77.7%)	849.6	758.5	1072.7	1191.5	1776.7	0.019*
Diverticulectomy (142, 17.2%)	4562	1582.7	1779.8	2301	1904	0.384
Interstim (291, 34.9%)	10001.3	10427.6	8725.9	8437.6	6902.4	0.494
Sacrospinous ligament fixation (38, 4.6%)	8983.0	7581.4	444	518	8610	0.067

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Robotic Single Port Sacrocolpopexy Feasibility and Safety: A Single-Institution Case Series

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Introduction: The benefits of a minimally invasive approach in gynecologic surgery have been well established. As technology has progressed, surgeons have consistently looked for further ways to decrease incision number and size while not compromising surgical dexterity or outcomes. To this end, robotic and single site approaches have gained popularity. The single port robotic system [SP1098 da Vinci Surgical SystemTM] is currently the only single port robot device commercially available. Its use in urologic procedures and otolaryngology was FDA approved in 2019, but there is currently no FDA approval for gynecologic surgery as there is limited data evaluating feasibility and outcomes with use of the single port robot in gynecologic surgery.
Objective: The objective of this study was to evaluate feasibility and surgical outcomes for the use of the single port robot system in Urogynecology, and specifically for sacrocolpopexy.
Methods: At an academic medical center, a total of 16 cases of sacrocolpopexy were performed. No cases required conversion to additional laparoscopic ports or laparotomy. IRB exemption was obtained, and outcomes were recorded via retrospective chart review.

Results: Demographics and clinical characteristics of our patient population can be seen in Table 1. All patients had a concomitant procedure. Procedures included hysterectomy (total or supracervical), posterior repair, retropubic sling, salpingectomy, and/or oophorectomy (Table 1). Average EBL was 73mL (range 50-300mL). All patients underwent concomitant cystoscopy. Average operative time was 3 hours, 3 minutes (range 2 hours, 6 minutes - 4 hours, 55 minutes). Average length of hospital stay was 12 hours, 47 minutes. Two patients were admitted overnight; the remainder were discharged home on the day of surgery. Five patients (31.3%) required a Foley catheter at time of discharge for urinary retention. There were 8 total adverse events in six patients as defined by the Clavien Dindo scale within the first 30 days after surgery. The highest-grade adverse event was a Clavien Dindo Grade I. The adverse events that occurred were discharge home with Foley catheter, overnight admission (2 patients), single event of ureteral stent placement, and a single event of candidal vaginitis. The most common post-operative adverse event was the need for a Foley catheter at time of discharge. No patients required conversion to multi-port laparoscopy or laparotomy, readmission, or reoperation within 30 days of surgery.

Conclusions: In this case series, our experience with the single port robotic platform demonstrates the feasibility and safety of this approach for urogynecologic procedures. Larger studies are indicated to better understand post-operative outcomes, and to compare this approach with traditional robotic and laparoscopic approaches.

Disclosure: No

Images:

Table 1: Patient demographics and clinical characteristics

	Mean (Range or %) n = 16
Age (Years)	62 (39-77)
Race	
Caucasian	12 (75%)
Hispanic	1 (6.25%)
Chose Not to Disclose	2 (12.5%)
BMI	25 (21.4-31.3)
Prior Abdominal Surgery (# per pt)	1 (0-4)
Prior Hysterectomy (#of pts)	6 (37.5%)
Preop POPQ Stage	3 (2-4)
Concomitant Procedures	
Hysterectomy (Total or Supracervical)	9 (56.3%)
Bilateral Salpingectomy	5 (31.3%)
Oophorectomy (Uni- and Bilateral)	6 (37.5%)
Retropubic Midurethral Sling	9 (56.3%)
Posterior Repair	9 (56.3%)
Ureteral Stent	1 (6.3%)
Cystoscopy	16 (100%)

Table 2: Clinical Outcomes

	Mean (Range or %)
Incision to Close Time (hours: minutes)	3:03 (2:06-4:55)
Estimated Blood Loss (mL)	73 (50-300)
Length of Stay (hours)	13 (8-29)
Adverse Events	
Discharge with Foley	5 (31.3%)
Reoperation within 30 days	0 (0.0%)
Conversion (to Multi-port or Laparotomy)	0 (0.0%)
Overnight Admission	2 (12.5%)
Ureteral Stent Placement	1 (6.3%)

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Laparoscopic and Vaginal Hysterectomy Operating Room Supply Costs: Experience at an Ambulatory Surgery Center

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Introduction: The operating room (OR) is the most costly service in a hospital setting, with supply costs accounting for roughly 10% of total OR costs. Despite this, surgeons are seldom given feedback on their individual costs, and surveys show that the majority of surgeons rate their cost awareness as poor. Disclosing an individual surgeon's costs has been associated with significantly reduced operating room supply costs in hospital ORs. Prior studies have not evaluated female pelvic medicine and reconstructive surgeons' (FPMRS) nor minimally invasive gynecologic surgeons' (MIGS) supply costs in ambulatory surgery centers (ASC).

Objective: To analyze the supply costs of FPMRS and MIGS performing vaginal and laparoscopic hysterectomies at an ASC and develop a cost disclosure scorecard.

Methods: Six academic surgeons from two divisions who operate at an ASC were recruited and consented to participate in this study. The cohort included four FPMRS and two MIGS surgeons who perform total vaginal hysterectomy (TVH) and total laparoscopic hysterectomy (TLH) procedures, respectively. OR supply costs were queried retrospectively for TVH and TLH occurring between July 1st, 2020, and June 30th, 2021. The primary outcomes of interest were the individual surgeon and division mean supply cost per case. Cost data were analyzed in aggregate and by subcategories including electrosurgical devices, general, drapes/dressings/gloves, medications, and suture. Supply utilization was presented as the frequency of use for an individual surgeon versus the rest of the division. All costs are reported in United States dollars. The study was granted Institutional Review Board approval.

Results: Thirty-one patients underwent TVH (n=22) and TLH (n=9) during the study period and were included in the study. Mean supply

cost was $316.64 (range 241.50 – 374.65) for TVH and $1622.84 (1450.35 – 1795.32) for TLH. The most expensive categories for TVH were general (e.g. tubing, positioning pads, retractors, etc.) and drape/dressing/glove and for TLH electrosurgical equipment and general. For TVH, the most expensive line items were a surgical illumination/suction/irrigation device ($122), a cystoscopy supply pack ($54), and a retractor kit ($53). Individual FPMRS used all of these items in between 0-100% of cases. For TLH, the most expensive line items were an electrosurgical L-hook ($649), a cordless ultrasonic dissection instrument ($408), and a contained extraction system ($325); MIGS used these items 38-100%, 63-100%, 0-63% of surgeries, respectively.
Conclusions: This is the first study to report OR supply costs of academic FMPRS and MIGS surgeons performing hysterectomies at an ASC. Large supply utilization and cost variability exists among FMPRS and MIGS surgeons performing TVH and TLH, respectively. Additionally, the overall supply costs of TVH were less than that of TLH. Disclosing differences in supply costs and usage directly to surgeons may represent a means of reducing overall costs in the operating room.
Disclosure: No
Images:

	Total Vaginal Hysterectomy				Total Laparoscopic Hysterectomy	
	Surgeon 1	Surgeon 2	Surgeon 3	Surgeon 4	Surgeon 5	Surgeon 6
Electrosurgical	N/A	N/A	N/A	N/A	$ 1,057.00	$ 498.38
General	$ 286.33	$ 206.90	$ 74.40	$ 195.29	$ 595.98	$ 824.33
Drape, Dressing, Glove	$ 47.83	$ 96.29	$ 105.85	$ 41.77	$ 89.27	$ 96.37
Medicine	$ 2.10	$ 11.63	$ 4.60	$ 2.10	$ 2.55	$ 2.01
Suture	$ 38.39	$ 55.91	$ 56.65	$ 40.52	$ 50.52	$ 29.26
Total	$ 374.65	$ 370.73	$ 241.50	$ 279.67	$ 1,795.32	$ 1,450.35

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Usefulness of the Method of Adjusting Mesh Tension through Cystoscopy during Laparoscopic Sacrocolpopexy: Evaluation of Outcomes 1 year Postoperatively
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Introduction: De novo stress urinary incontinence (SUI) is a potential complication that may occur in women following laparoscopic sacrocolpopexy (LSC). Applying undue pressure on the LSC mesh toward the sacrum may cause excessive straightening (de-kinking) of the bladder neck and proximal urethra, subsequently increasing the SUI. As no objective indicators have been identified, excessive traction pressure may be inadvertently applied on the LSC mesh to achieve sufficient prolapse repair. Kato et al. reported a cystoscopic finding of a cord-like appearance in the center of the bladder trigone and posterior wall of the bladder, named the "Central Road" (CR), in a woman with severe SUI following LSC. Thereafter, the cystoscopic finding of CR due to excessive traction on the mesh arm during LSC was reported. Additionally, the method of mesh tension adjustment using a cystoscope was proposed to avoid the appearance of CR, resulting in no development of de novo SUI in 7 patients who had no SUI preoperatively, and no subjective recurrence in 20 patients 6 months postoperatively.
Objective:We investigated the outcomes of this adjustment method with more cases and longer-term follow-up to promote better repair of pelvic organ prolapse (POP) and prevent de novo SUI.
Methods: The bladder wall was observed using a cystoscope when various traction pressures were applied by pulling the mesh arm with forceps before fixation to the promontory during LSC. Adjustment was performed in 35 patients at our center from July 2019 to January 2021, and postoperative outcomes of POP repair and development of de novo SUI were evaluated. Twenty-seven patients with stage 3 POP and 8 patients with stage 4 POP were included. During mesh attachment, transvaginal examination was performed concurrently to confirm apex elevation. Even if there was insufficient anterior vaginal wall elevation, point Aa above -1 cm from the hymen was acceptable. Prolapse recurrence was defined as retreatment (pessary use or surgery) or diagnosis of Pelvic Organ Prolapse Quantification (POP-Q) stage $\geq$ 2 prolapse.
Results: Cystoscopic findings of CR were observed in all cases when excessive traction was applied on the mesh arm. Twelve months after LSC, anterior wall recurrence was diagnosed in 11 patients (beyond the hymen in 3) with few symptoms and no recurrence at the apex (point C $\geq$ -3 cm). Among the 35 patients, 13 had no preoperative SUI or negative stress test result. Postoperative de novo SUI did not occur in any of these 13 patients.
Conclusions: Although the number of cases was small, this adjustment method might be useful for the prevention of de novo SUI and achievement of sufficient prolapse repair. The recurrence rate of the anterior wall, 1 year postoperatively, was high as excessive elevation of the anterior wall had been avoided. However, there was no severe recurrence leading to burden on the patient. A modest elevation of the anterior wall may contribute to the prevention of de novo SUI and improvement of QOL.
Disclosure: No

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Pudendal Block Analgesia with Vaginal Surgery: A Randomized, Double-blind, Placebo Controlled Trial
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3 - University Hospitals
4 - MetroHealth Medical Center

Introduction: Effective opioid-sparing postoperative analgesia often requires a multimodal approach, and regional nerve blocks may be one way to decrease opioid use following surgery.
Objective: To determine whether a pudendal nerve block at the time of vaginal surgery is associated with improved postoperative pain control and decreased opioid consumption compared to a placebo sham injection in patients undergoing vaginal surgery.
Methods: In this randomized, double-blind, placebo controlled trial, we enrolled women undergoing benign vaginal surgery performed by three urogynecology providers at a single academic institution. Exclusion criteria included patients with a diagnosis of chronic pelvic pain, inability to receive non-narcotic analgesia, or any concurrent abdominal procedure. Patients were randomized to receive a transvaginal bilateral pudendal nerve block (9mL 0.25% bupivacaine + 1mL 40mg/mL triamcinolone) or a sham injection (10mL normal saline) at the

conclusion of surgery while under anesthesia. Primary endpoints were visual analog pain scores (VAS) and postoperative opioid requirement, measured in the post-anesthesia recovery unit (PACU) and on postoperative days (POD) 1 and 4. A power calculation determined 60 patients were required to show a mean difference of 20mm on a 100mm VAS. Opioid administration was standardized as morphine milligram equivalents (MME). VAS scores and opioid usage were compared using Wilcoxon rank sum analysis.
Results: We randomized 71 patients: 36 pudendal block and 35 sham injection. The study groups were well matched with no differences in baseline characteristics or type of surgery performed. Pelvic organ prolapse repairs were the most common procedures (n=63, 87.5%). There was no difference in anesthetic dose or operative time between groups. Pain scores were equivalent between groups in the PACU (mean VAS 53.1 block vs 56.4 sham, p=0.517) and on POD 4 (mean VAS 26.7 block vs 35.5 sham, p=0.131). On POD 1, the intervention group did report less pain than the sham group (mean VAS 29.2 vs 42.5, p=0.047). Patients who received a pudendal block took fewer opioid medications than those in the placebo group at all time points, but this difference did not meet statistical significance (PACU 5 vs 7.8 MME, POD1 7.5 vs 11.25 MME, POD4 7.5 vs 21.25 MME, all p>0.05).
Conclusions: Pudendal nerve blocks at the time of vaginal surgery help with pain control in the immediate postoperative period and may be an additional tool for non-narcotic postoperative pain control.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Coloplast, Renalis

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Universal Transcatheter Cystoscopy at the Time of Hysterectomy: A Novel Urinary Access System
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Introduction: Hysterectomy is the second most frequently performed surgical procedure in women. The reproductive and urinary tracts in women are in close proximity anatomically, increasing the likelihood of a urinary tract injury at the time of hysterectomy. Routine cystoscopy aids in identification of urinary tract injuries. However, in order to perform a traditional cystoscopy, the transurethral Foley catheter needs to be removed. This manipulation of the catheter may increase the risk of developing a postoperative urinary tract infection. A novel urinary access system, CystoSureTM, is a FDA class II 510(k) cleared device, which limits urethral manipulation by allowing cystoscopy to be performed through the catheter versus requiring catheter removal.
Objective: To evaluate the impact of a novel urinary access system (CystoSure TM) on postoperative urinary tract infection rates. We hypothesize that CystoSureTM will have a significant reduction in the rate of postoperative urinary tract infections compared to traditional rigid cystoscopy when performed at the conclusion of a hysterectomy.
Methods: This was a single-blinded, randomized control trial of women at a single institution undergoing cystoscopy at the conclusion of hysterectomy for either benign or malignant indications. Women were randomized to undergo cystoscopy with either a CystoSureTM catheter or traditional rigid cystoscopy. The primary outcome was postoperative urinary tract infections within four weeks. Secondary outcomes were total surgical length, ability to detect urinary tract injuries, and the rate of urinary retention following surgery. After conducting a sample size calculation to detect 80 percent power, a total of 364 patients (182 patients in each group) would be needed to detect a 75% reduction in postoperative urinary tract infections from 9% to 2.25%. The primary outcome was analyzed with a Fisher's exact test and the secondary outcomes were analyzed with either a two-sample t-test, Fisher's exact test, or two-proportions test as appropriate.
Results: Two-hundred twenty-four women were randomized to the study: 114 patients underwent cystoscopy through the CystoSureTM catheter and 110 patients had rigid cystoscopy. There was no difference between groups for postoperative urinary tract infections (CystoSureTM, n=9 [8.1%]; rigid cystoscope, n=5 [4.6%], P=0.29). Total surgical time did not differ between groups (CystoSureTM, 175.0 minutes vs rigid cystoscope, 168.4 minutes, P= 0.27), nor was there a statistical difference in urinary tract injuries identification (CystoSureTM n=1 [0.9%] vs n=2 [1.85%], P=0.620. Urinary retention rates did not differ (CystoSureTM 36.9% vs rigid cystoscope 39.8%, P= 0.66).
Conclusions: Utilization of a novel urinary access system for intraoperative cystoscopy at the conclusion of hysterectomy did not result in a reduction in urinary tract infection rates. We suspect this reflects the inability to reach our sample size target. Reassuringly, however, it did not prolong surgical length or postoperative urinary retention rates, and did not negatively impact the detection rate of urinary tract injuries. CystoSureTM provides the surgeon a viable alternative to traditional cystoscopy.
Disclosure: No

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General Anesthesia vs. Regional Anesthesia in Patients Undergoing Obliterative Vaginal Procedures for Pelvic Organ Prolapse
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Introduction: Rates of surgical correction of uterovaginal prolapse increase with age (up to 21/10,000 perimenopausal and 31/10,000 postmenopausal women). Regional anesthesia (RA) may be a safer alternative to general anesthesia (GA) for patients. However, previous studies have suggested equivalence between the two when comparing pain, nausea, quality of life, functional outcomes, and length of stay in patients undergoing vaginal surgery for pelvic organ prolapse (POP).
Objective: To compare 30-day postoperative adverse events in patients receiving GA versus RA for obliterative vaginal surgery for POP. Secondary outcomes include operative times, hospital length of stay, readmission and reoperation.
Methods: Obliterative vaginal procedures performed between 2010 and 2020 were identified in the American College of Surgeons - National Surgical Quality Improvement Program (NSQIP) database using Current Procedural Terminology codes. Each case was then categorized into "General" or "Regional" anesthesia groups. The "Regional" (RA) group included patients who were listed as receiving epidural, spinal, or regional anesthesia. Baseline and perioperative outcomes were then extracted and analyzed. Post-operative adverse events were classified in to "non-serious adverse events" (superficial wound infection and urinary tract infection) and "serious adverse events" (deep wound infection, organ space infection, pulmonary embolism, blood transfusion, deep vein thrombosis, sepsis). Rates of reoperation, 30-day readmission, operative time, and length of stay were also determined. A composite adverse outcome was calculated and included any of the following: any non-serious or serious adverse event, any 30-day readmission, or any reoperation. Fisher's exact and Mann-Whitney U tests were performed and p-values were calculated. A propensity score weighted analysis was performed of perioperative outcomes to obtain causal estimates of the regional anesthesia effects.
Results: The cohort included 8,077 patients with obliterative vaginal surgery, of which 7,647 (95%) received GA and 430 (5%) received RA.

Patients who underwent RA were noted to be older (90% vs 54% older than 70 years, p<0.01), have higher rates of hypertension (71% vs. 57%, p <0.01) and more likely to be operated on by Gynecology (91% vs 62%, p<0.01). There were also statistically significant differences in race, body mass index, smoking status, and lung disease between the two groups (Table 1). When comparing outcomes, operative times were shorter (98 vs. 149 minutes, p<0.01), and readmission (5% vs 8%, p<0.01) and reoperation rates (1% vs 4%, p<0.01) were significantly lower in the group that underwent surgery under RA (Table 2). There was a lower rate of composite adverse outcomes (10% RA vs 26% GA, p<0.01) and length of stay was also shorter in patients receiving RA (71% discharged in ≤ 1 day compared with 54% in GA group, p<0.01) (Table 2). These differences remained statistically significant under the propensity score weighted analysis (Table 3).

Conclusions: Length of stay, operative times, rates of serious and non-serious adverse events, reoperation, and 30-day readmission were all lower in patients who received RA for obliterative vaginal procedures when compared with GA.

Disclosure: No

Images:

Tables

Table 1: Characteristics of women undergoing obliterative surgery

Characteristic	General anesthesia N=7647 (95%)	Regional anesthesia N=430 (5%)	P-value
Age			
• ≤ 50	957 (13%)	5 (1%)	< 0.001
• 51-60	925 (12%)	7 (2%)	
• 61-70	1646 (22%)	32 (7%)	
• 71-80	2574 (34%)	184 (43%)	
• 81+	1545 (20%)	202 (47%)	
Race			
• White	5640 (74%)	216 (50%)	< 0.001
• Non-White	2007 (26%)	214 (50%)	
BMI			
• ≤ 18.5	195 (3%)	7 (2%)	< 0.001
• 18.5-24.9	2551 (34%)	161 (38%)	
• 25-29.9	2594 (34%)	174 (41%)	
• 30-39.9	1934 (25%)	77 (18%)	
• ≥ 40	323 (4%) [50 missing]	9 (2%) [2 missing]	
Current smoker	836 (11%)	6 (1%)	< 0.001
Dyspnea	405 (5%)	22 (5%)	1.00
Chronic lung disease	288 (4%)	25 (6%)	0.039
Hypertension	4345 (57%)	304 (71%)	< 0.001
Diabetes	1227 (16%)	81 (19%)	0.14
Known bleeding disorder	185 (2%)	6 (1%)	0.25
Surgical specialty performing procedure			
• Gynecology	4750 (62%)	392 (91%)	< 0.001
• General	1938 (25%)	18 (4%)	
• Urology	857 (11%)	17 (4%)	
• Other	102 (1%)	3 (1%)	
Concurrent CPT codes	921 (12%)	62 (14%)	< 0.001
• 0	1744 (23%)	122 (28%)	
• 1	3211 (42%)	208 (48%)	
• 2-3	1469 (19%)	37 (9%)	
• 4-6	302 (4%)	1 (0%)	
• ≥7			
ASA Class			
• 1	164 (2%)	5 (1%)	0.31
• 2	3218 (42%)	179 (42%)	
• 3	3991 (52%)	225 (52%)	
• 4	262 (3%)	21 (5%)	
• 5	2 (0%) [10 missing]	0 (0%)	

Table 2: Perioperative outcomes of General vs regional anesthesia

Outcome	General anesthesia N=7647 (95%)	Regional anesthesia N=430 (5%)	P-value
Composite outcome*	2001 (26%)	43 (10%)	< 0.001
Non-serious adverse events: • Superficial wound infection • Urinary tract infection	592 (7%)	17 (4%)	0.003
Serious adverse events: • Deep wound infection, • Organ space infection, • Pulmonary embolism, • Blood transfusion, • Deep vein thrombosis, • Sepsis	1397 (18%)	19 (4%)	< 0.001
30-day Reoperation	318 (4%)	4 (1%)	< 0.001
30-day readmission	603 (8%) [333 missing]	19 (5%) [18 missing]	0.007
Operative time (min) (median [IQR])	149 [90 – 281] [4 missing]	98 [73 – 132]	< 0.001**
Length of hospital stay (days) (median [IQR])	1 [1 – 6] [35 missing]	1 [1 – 2]	< 0.001**
Length of hospital stay			
• 0 days	1433 (19%)	71 (17%)	< 0.001
• 1 day	2659 (35%)	233 (54%)	
• 2 days	557 (7%)	84 (20%)	
• 3-7 days	1617 (21%)	35 (8%)	
• 8 or more days	1346 (18%) [35 missing]	7 (2%)	

All values listed as N (%) unless otherwise specified

*Composite outcome is any of the following: any non-serious adverse event, any serious adverse event, any 30-day readmission, or any reoperation in the individual patient

**Mann-Whitney U test

	Table 3: Propensity Score Weighted Analysis of Perioperative outcomes of General vs regional anesthesia			
Outcome	General	Regional	Odds Ratio (95% CI)	P-value
Composite outcome*	14%	10%	0.68 (0.48 – 0.95)	0.026
Non-serious adverse events: • Superficial wound infection • Urinary tract infection	5%	4%	0.83 (0.50 – 1.40)	0.49
Serious adverse events: • Deep wound infection, • Organ space infection, • Pulmonary embolism, • Blood transfusion, • Deep vein thrombosis, • Sepsis	7%	5%	0.61 (0.38 – 0.99)	0.045
Reoperation	2%	1%	0.42 (0.15 – 1.17)	0.10
30-day readmission	5%	5%	0.90 (0.54 – 1.51)	0.69
Operative time (min) (median [IQR])	108 [75 – 155]	98 [73 – 132]		< .001**
Length of hospital stay (days) (median [IQR])	1 [1 – 2]	1 [1 – 2]		0.08**
Length of hospital stay • 0 days • 1 day • 2 days • 3-7 days • 8 or more days	23% 51% 11% 10% 5%	17% 54% 20% 8% 2%		< .001
	All values listed as N (%) unless otherwise specified *Composite outcome is any of the following: any non-serious adverse event, any serious adverse event, any 30-day readmission, or any reoperation in the individual patient ** (Propensity score-weighted) Mann-Whitney U test			

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Narrowing Inequity Gap on Women Undergoing Hysterectomy: ERAS Home Delivery Kit

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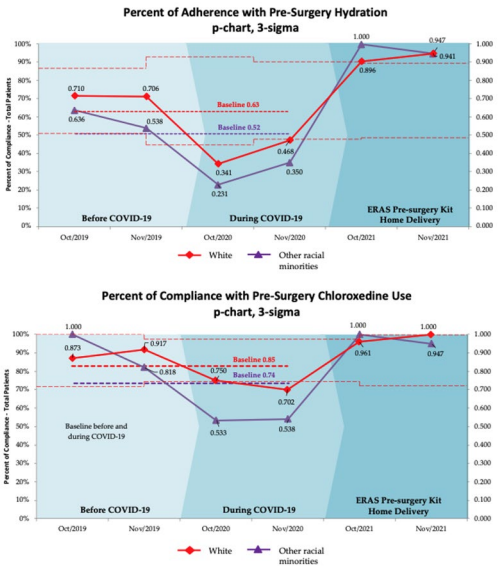
Introduction: The enhanced recovery after surgery (ERAS) pathway comprises a series of evidence-based interventions accelerating recovery after surgery. COVID-19 disrupted perioperative processes, and vulnerable populations were at exceptionally high risk.
Objective: To facilitate and improve adherence to preoperative ERAS pathways, preoperative chlorhexidine (CHG) and prenutritional drinks were mailed directly to patients (ERAS kit). We hypothesized that shipping kits direct to women undergoing gynecological surgery would increase adherence and provide more equitable care.
Methods: This study is a retrospective cohort study of all adult cisgender female patients undergoing gynecological surgery at a large tertiary hospital from October to November of 2021. Adherence and access to the pathway at the time of surgery were compared between White patients and other racial minority groups in October and November 2019, 2020, and 2021 (before COVID-19, during COVID-19, and intervention period). Patient demographics were described using frequency and percent for categorical variables and mean and standard deviation for continuous variables. SPC 3-sigma p-charts were used to evaluate changes in the utilization of pre-surgical ERAS interventions.
Results: Compared to White patients, women from racial minority groups undergoing hysterectomy were less likely to adhere to ERAS pre-surgical interventions such as pre-surgery carbohydrate hydration (20.9 vs. 42.9%, p=0.005) or use the preoperative CHG soap (60.4% vs. 77.6%, p=0185). From October 1st to November 30th of 2021, a total of 127 patients that had a hysterectomy received an ERAS pre-surgery kit at home. White patients had a 91.9% adherence to pre-surgical nutrition, while other racial minority groups had 96.4% adherence (p=0.713). During the study period, White patients had 98.0% adherence to the CHG portion of the pathway, and other racial minorities groups had 96.3% (p=0.188).
Conclusions: t baseline, non-White patients undergoing hysterectomy were less likely to adhere to ERAS pre-surgical interventions such as pre-surgery carbohydrate hydration and CHG use. Delivering ERAS pre-surgical kits directly to the patients' homes is associated with large increases in utilization of the ERAS pathway among both White patients and patients of color.
Disclosure: No
Images:

Figure 1. Racial comparison of CHG and pre-surgical carbohydrate drink before and during COVID-19 of patients undergoing hysterectomy.



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Perioperative Outcomes Following Combined Gender-affirming Vaginectomy and Hysterectomy Compared to Vaginectomy Only

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Introduction: Gender-affirming hysterectomy is an integral part of the gender transition of many transmasculine and gender-nonbinary people. Although concurrent vaginectomy is not a routine part of a gender-affirming hysterectomy, some desire to obliterate the vaginal canal with or without a plan for phalloplasty.
Objective: This study aims to investigate clinical characteristics and 30-day perioperative outcomes among those undergoing gender-affirming vaginectomy with or without concurrent minimally invasive hysterectomy.
Methods: We conducted a cohort study of the patients who underwent gender-affirming vaginectomy with or without concurrent minimally invasive hysterectomy at an academic transgender health program between January 2019 and December 2021. Patients undergoing concurrent urethral lengthening were included in the cohort; however, only

the intraoperative data from the vaginectomy portion was recorded for the analysis. We collected basic demographic and perioperative data from the electronic medical record. Subgroup comparisons between vaginectomy-only and vaginectomy with concurrent hysterectomy group used chi-square, t-tests, or Whitney-Mann U as indicated. All analyses were performed using the STATA□ software.

Results: Thirty-five patients were included for the final analyses. Fifteen patients underwent minimally invasive hysterectomy with concurrent transperineal vaginectomy, and twenty patients underwent vaginectomy only. All vaginectomy patients have undergone prior total hysterectomy. The two groups were comparable in respect to mean age (32.5 years, SD 11.9 years), body mass index (28.6 kg/m2, SD 5.8), parity, ASA, and smoking history (all p>0.05). All vaginectomies were completed via transperineal approach with one vaginectomy with hysterectomy patient having a combined robotic upper vaginectomy. Six vaginectomies were performed with concurrent urethral lengthening. Basic clinical characteristics and 30-days perioperative outcomes are summarized in Table 1. There was no difference in age, body mass index, parity, or the length of hormone therapy use between the two groups. Although estimated blood loss was significantly lower in the vaginectomy-only group (p=0.026), there was no difference in the procedure length, length of stay, or post-void voiding trial result (all p>0.05). Within 30-days postoperative period, no patients had critical perioperative events such as deep venous thrombosis, pulmonary embolism, myocardial infarction, or hemorrhage requiring intraoperative blood transfusion. Additionally, there was no difference in the number of emergency department visits or readmission rates (all p>0.05).

Conclusions: In this cohort of patients undergoing minimally invasive gender-affirming vaginectomy group, the addition of concurrent hysterectomy had minimal added morbidity. The ability to offer the combined procedure may provide an opportunity to reduce the number of staged procedures and for some patients to address gender dysphoria associated with the presence of the vaginal canal.

Disclosure: No

Images:

Table 1: Basic clinical characteristics and 30-day perioperative outcomes.

	Hysterectomy and Vaginectomy (N=15)	Vaginectomy only (N=20)	p-value
Age (years)	30.2 (14.3)	34.2 (9.7)	0.33
BMI (kg/m^2)	26.6 (3.9)	30.1 (6.6)	0.08
Parity	0 (0)	0.1(0.6)	0.39
Years on HT	4.8 (2.8)	7.8 (6.9)	0.13
EBL (ml)	216.0 (140.9)	122.0 (98.4)	**0.03**
Length of procedure (min)	160.2 (23.6)	126.2 (75.4)	0.10
Length of stay (days)	0.1 (0.3)	0.4 (0.9)	0.23
Prolonged postoperative catheterization	10 (66.7%)	6 (42.8%)*	0.19
ED visits	2 (13%)	1 (5%)	0.48

BMI: Body Mass Index; HRT: Hormone therapy; EBL: Estimated blood loss; ED: Emergency Department
Continuous variables are presented using mean (SD); Categorical variables are presented using the count (%)
*Patients undergoing concurrent urethral lengthening (N=6) were excluded from the analysis.

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Comparing Hypothermia in Vaginal and Laparoscopic Hysterectomy – A Retrospective Study

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Introduction: Multiple national organizations, including the American College of Obstetricians and Gynecologists, recommend enhanced recovery protocols to improve patient safety. One guiding principle of these pathways is to "maintain normal physiology in the peri-operative period" 1. Because cellular functions are influenced by temperature, maintenance of normothermia is a critical component of enhanced recovery. Peri-operative hypothermia, generally defined as a body temperature <36°C, is a modifiable risk factor for surgical site infections (SSI) 2,3, and has been reported to occur with induction of anesthesia in 94% of laparoscopic gynecologic cases 4. To date, there is limited data available comparing route of hysterectomy as a risk factor for hypothermia.

Objective: The primary objective of this study is to compare the incidence and duration of hypothermia between vaginal (VH) and laparoscopic (LH) hysterectomy performed for benign indications.

Methods: This is a retrospective cohort study of consecutive patients undergoing vaginal or laparoscopic hysterectomy from November 2017 to May 2021 at an academic medical center. Patients were excluded from the study if they were age <18 years old or if the indication for their surgery was malignancy. Demographics, body temperature measurements, estimated blood loss, and post-operative complications such as surgical site infection or readmission were collected. The primary outcome of this study was the incidence of hypothermia (temperature <36°C during surgery), and the secondary outcomes were duration of hypothermia and complication rates. Bivariate analysis was done using Chi square, Fisher's exact test, or two-sample t test. Multivariate logistic regression was fitted for binary hypothermia and multivariate linear regression was used to analyze hypothermia duration.

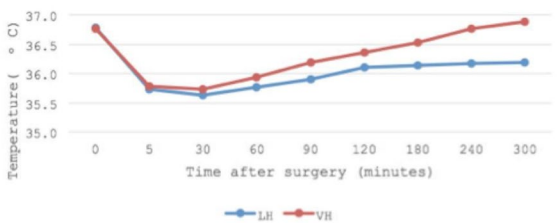
Results: Between November 2017 and May 2021, 250 (122 VH, 128 LH) patients underwent hysterectomy for benign indications. The groups were comparable for race, smoking status, pre-operative temperature, and BMI. Patients in the VH group had more risk factors for hypothermia including age > 65 ($p < 0.001$) and more likely to have hypertension, diabetes, or immunosuppression ($p < 0.005$). No significant difference in incidence of hypothermia between groups was noted in bivariate analysis (LH 82.0%, VH 73.8%, $p = 0.115$). However, in logistic regression adjusting for age, BMI, and length of surgery, patients who underwent LH had higher odds of experiencing hypothermia than VH (aOR = 2.93 95% C.I. 1.39, 6.17, $p = 0.005$). Additionally, in both bivariate and multivariate analysis, VH patients experiencing hypothermia had a 50.5 minute faster return to normothermia than LH patients ($p < 0.001$)(figure 1). There was no difference in post-operative complication rates ($p = 0.635$).

Conclusions: Hypothermia secondary to administration of anesthesia during hysterectomy is a common occurrence. These findings suggest vaginal route of hysterectomy may be protective against hypothermia and results in a faster intra-operative return to normothermia compared to laparoscopic hysterectomy. This may be attributable to the absence of heat loss through gas exchange, less body surface area exposure, and generally shorter time spent positioning during vaginal surgery. Given the high incidence of hypothermia, consideration should be given to optimizing normothermia throughout the surgical process including potential consideration regarding route of surgery.

Disclosure: No

Images:

Figure 1. Trend of temperature in patients undergoing vaginal hysterectomy (VH) and laparoscopic hysterectomy (LH)



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Short-term Outcomes and Costs Following Vaginal vs Laparoscopic Hysterectomy during Concurrent Laparoscopic Sacrocolpopexy for Pelvic Organ Prolapse

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Introduction: Hysterectomy is frequently performed concurrently with laparoscopic sacrocolpopexy (SCP) for pelvic organ prolapse (POP), either vaginally (VH) or laparoscopically (LH; with or without robotic assistance). Data regarding choice and outcomes of hysterectomy approach are limited. We hypothesized that hysterectomy approach may impact hospital costs and mesh complication rates.
Objective: To compare the costs and complications following VH or LH during concurrent SCP.
Methods: We retrospectively reviewed SCP with concurrent VH or LH at our institution performed by two different urogynecologists. Patients without a minimum of 1 month follow up were excluded. We evaluated demographics, operative details, direct costs, and short-term outcomes.
Results: From 2014-2021, 86 LH and 47 VH with concurrent SCP were performed with median follow up of 13.7 and 1.9 months, respectively. There were no differences in age, pre-op BMI, ASA score, or POP stage between the groups (p>0.05). Mean vaginal parity was greater in women undergoing VH (2.7) than LH (2.0) (p=0.01). There was no difference in the frequency of concurrent mid-urethral sling, anterior repair, or posterior repair (p>0.05). Operative time similarly did not vary significantly between hysterectomy types (p>0.05). Frequency of intra-operative complications, 30-day complications, readmissions, or emergency room visits were similar (p>0.05). Mean length of hospital stay was higher in LH (1.0 days) than VH (0.6 days) (p=0.0003). A total of 8 (6%) mesh-related complications occurred, all of which were exposures and noted within the minimum follow up period. They were all managed conservatively with vaginal estrogen usage. The frequency of mesh exposures did not vary between LH (5.8%) or VH (6.5%) (p>0.05). Anatomic success, defined by no recurrent prolapse beyond the hymen, was achieved in all but two women at the most recent follow up and did not vary between hysterectomy types (p>0.05). The direct hospital cost of the visit encounter was lower in LH ($11,840) than VH ($12,949) (p=0.0098).
Conclusions: Although our conclusions are limited by metachronous patient cohorts, both VH and LH are reasonable approaches during concurrent SCP for POP with similar complication rates, mesh exposure rates, and short-term success rates. Hospital cost was slightly higher with VH. Given this, surgeon comfort and preference with hysterectomy approach should be prioritized.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Grant support and consultant from Boston Scientific; expert witness Johnson & Johnson
Images:

Variable	Laparoscopic Hysterectomy	Vaginal Hysterectomy	p-value
N	86	47	
Age (years)	54.8	52.9	0.3002
Parity (vaginal)	2.0	2.7	0.0119
Mean body mass index (kg/m2)	28.1	27.3	0.4743
Mean pelvic organ prolapse stage	2.7	2.7	0.8201
Mean American Society of Anesthesiologists score	2.1	2.0	0.5811
Mean operative time (minutes)	258.3	247.6	0.5221
Mean length of stay (days)	1.0	0.6	0.0003
Anatomic success (%)	98%	100%	0.2893
Mean follow up (months)	18.2	2.9	0.0001
Mean direct costs ($)	$11,839.87	$12,948.85	0.0098

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Role of Hemoglobin A1c on Perioperative Complications after Hysterectomy for Benign Indications

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Introduction: It is well-established that hyperglycemia is associated with increased rates of delayed wound healing, infection, neurologic injuries, and postoperative mortality. Several studies have investigated the association between glucose measurements and hemoglobin A1c on surgical complications; however, there is limited data specifically investigating this association in gynecologic surgery.
Objective: The purpose of the study is to determine if there is a threshold hemoglobin A1c value at which the risk of perioperative complications increases.
Methods: This was a retrospective cohort study of 211 female patients with recorded hemoglobin A1c values who underwent a benign gynecologic procedure at a single institution from January 1, 2011 to March 21, 2020. Demographics, preoperative hemoglobin A1c, immediate preoperative glucose measurements, and postoperative complications within 60 days were collected. Hysterectomies done after cesarean delivery and for oncologic indications were excluded. Comparison of hemoglobin A1c across categorical variables were made using Kruskal-Wallis tests. Continuous variables were made using Spearman rank correlations. The primary outcome of composite postoperative complications was compared using chi-squared and Kruskal-Wallis tests.
Results: 211 female patients with recorded hemoglobin A1c values who had a benign hysterectomy (79% abdominal, 21% vaginal) were analyzed. Of these patients, the median hemoglobin A1c value was 5.9%, ranging from 4.4% - 13.2%. Median age was 49 years and BMI 35.6. About 53% (n =111) of patients had a known diagnosis of diabetes mellitus (DM). Neither a diagnosis of DM nor hemoglobin A1c values were correlated with an increased risk of composite postoperative complications. This lack of correlation persisted even for the top 20% of A1c values, with only 12% (n = 25) of subjects with an A1c >8%. However, increased hemoglobin A1c was associated with wound infection (p = 0.006; median A1c 6.7%) or breakdown (p = 0.002; median A1c 6.8%). Similarly, increased preoperative glucose was associated with wound breakdown (p = 0.06; median glucose value = 145).
Conclusions: This study did not show a significant association between hemoglobin A1c or preoperative glucose values and postoperative outcomes complications in benign hysterectomies. An elevated hemoglobin A1c value was associated with wound infection and breakdown, and preoperative glucose was associated with wound breakdown. These results do not indicate an A1c value above which the risk of perioperative complications increased significantly. Further research with larger sample sizes and a larger proportion of patients with elevated A1c values may provide additional insight.
Disclosure: No

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Tobacco Use and Apical Prolapse Repair: How Does Route of Surgery and Concurrent Use of Mesh Impact Postoperative Complications?

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Introduction: Tobacco smoking is a risk factor for adverse surgical outcomes and is associated with increased post-operative pain following pelvic organ prolapse repair. Few studies have evaluated the association between smoking and post-operative complications after pelvic organ prolapse repair, particularly risks associated with surgical mesh.
Objective: To assess tobacco smoking on risk of postoperative infection, readmission and reoperation after pelvic organ prolapse repair and to asses if risks differ for procedures with and without mesh.
Methods: This was a retrospective cohort of individuals undergoing surgical repair for apical pelvic organ prolapse from 2012-2020 using American College of Surgeons National Surgical Quality Improvement Program data. Procedures were classified as: abdominal repair with or without mesh and minimally invasive repair with or without mesh. Exposure was smoking in the last year. Outcomes were postoperative infection, unplanned readmission, and unplanned reoperation within 30 days. We estimated crude and adjusted risk ratios (aRR) for smoking and postoperative complications using modified Poisson regression, controlling for age, body mass index, and diabetes. Adjustment for race, ethnicity, COPD, HTN requiring medication, and steroid use did not appreciably alter the risk ratio.
Results: We included 57,111 patients, of which 4,957 (8.7%) smoked in the last year (Table 1). In this cohort, a small proportion of patients underwent abdominal apical repair with mesh (6.1%) or without mesh (2.7%); 32.0% had minimally invasive apical repair with mesh and 59.3% minimally invasive repair without mesh. Incidence of infection within 30 days after surgery was 3.3% among individuals who smoked and 1.8% among those who did not, yielding an aRR of 1.6 (95% CI: 1.3-1.9). Individuals who smoked were more likely to have unplanned readmission (aRR: 1.6; 95% CI: 1.3-1.9), readmission likely related to the primary procedure (aRR 1.5; 95% CI: 1.3-1.8), and readmission related to infection (aRR: 1.9; 95% CI: 1.4-2.6). Smoking was not associated with increased risk of unplanned reoperation (Table 2). The sample size of abdominal procedures provided insufficient power for stratified analyses. Among patients who had a minimally invasive apical repair with mesh, infection risk was 3.3% for those who smoked and 1.6% for those who did not, yielding an aRR of 1.8 (95% CI: 1.3-2.4). For minimally invasive repair without mesh, infection risk was 2.7% for those who smoked and 1.7% for those who did not (aRR: 1.3; 95% CI: 1.1-1.7). aRRs for smoking and unplanned readmission, as well as unplanned readmission likely related to the primary procedure, were similar for procedures with and without mesh. Smoking was associated with higher risk of unplanned readmission for infection in minimally invasive procedures with mesh (aRR: 2.5; 95% CI: 1.5-4.2) than those without mesh (aRR: 1.5; 95% CI: 1.0-2.4). Smoking was not associated with unplanned reoperation, regardless of mesh.
Conclusions: Tobacco smoking increased risk of infection and unplanned readmission in patients undergoing apical repair for pelvic organ prolapse but did not increase reoperation risk. While the results suggest risk of infection associated with smoking may be higher for minimally invasive procedures with mesh than without mesh, the overall incidence of infection was low, suggesting that surgical mesh may be used safely in this population with proper counseling.
Disclosure: No
Images:

Table 1: Baseline patient characteristics among individuals who underwent apical prolapse repair, stratified by smoking status in the last year (n=57,111)

Baseline Patient Characteristic	Full cohort n=57,111	Smoking in last year	
		Yes n=4,957	No n=52,154
Age, years—mean (SD)	60.8 (13.0)	52.9 (12.8)	61.6 (12.8)
Age			
<50 years	12366 (21.6)	2054 (41.4)	10312 (19.8)
50 to 70 years	28854 (50.5)	2383 (48)	26471 (50.8)
≥70 years	15891 (27.8)	520 (10.5)	15371 (29.5)
Body mass index—mean (SD)	28.6 (5.8)	29.0 (6.2)	28.5 (5.8)
Race and ethnicity			
Non-Hispanic White	38413 (67.3)	3484 (70.3)	34929 (67)
Non-Hispanic Black	3177 (5.6)	363 (7.32)	2814 (5.4)
Non-Hispanic Asian	1600 (2.8)	47 (0.95)	1553 (2.98)
Hispanic	5785 (10.1)	368 (7.3)	5417 (10.4)
Non-Hispanic American Indian/Alaskan Native/Native Hawaiian/Other Pacific Islander	607 (1.1)	99 (2)	508 (0.97)
Unknown/not reported	7529 (13.2)	596 (12.0)	6933 (13.3)
Comorbidities			
Obesity (body mass index >30)	19151 (33.5)	1826 (36.8)	17325 (33.2)
Diabetes mellitus	6531 (11.4)	447 (9)	6084 (11.7)
Hypertension requiring medication	23125 (40.5)	1574 (31.8)	21551 (41.3)
Functional health status prior to surgery			
Independent	56573 (99.1)	4904 (98.9)	51669 (99.1)
Partially dependent	229 (0.4)	18 (0.36)	211 (0.4)
Totally dependent	22 (0.04)	4 (0.08)	18 (0.03)
Unknown	287 (0.5)	31 (0.63)	256 (0.49)
Severe chronic obstructive pulmonary disease	1069 (1.9)	333 (6.7)	736 (1.4)
Steroid use for chronic condition	1149 (2)	91 (1.8)	1058 (2)

*Data presented as mean (standard deviation) and number (percentage)

Table 2: Risk of postoperative complications for individuals who smoked in the last year compared with those who did not among those who underwent apical prolapse repair and stratified by procedures with and without mesh (n=57,111)

Postoperative Complication	Full cohort			Minimally invasive apical repair with mesh			Minimally invasive apical repair without mesh		
	Smoking		Adjusted Risk Ratio (95% CI)*	Smoking		Adjusted Risk Ratio (95% CI)*	Smoking		Adjusted Risk Ratio (95% CI)*
	Yes n=4,957	No n=52,154		Yes n=1,579	No n=16,686		Yes n=2,948	No n=30,900	
Composite infection**	161 (3.3)	927 (1.8)	1.6 (1.3-1.9)	52 (3.3)	266 (1.6)	1.8 (1.3-2.4)	80 (2.7)	523 (1.7)	1.3 (1.1-1.7)
Unplanned readmission	182 (3.7)	1284 (2.5)	1.6 (1.3-1.8)	55 (3.5)	382 (2.3)	1.5 (1.2-2.0)	108 (3.7)	724 (2.3)	1.7 (1.4-2.0)
Unplanned readmission likely related to procedure	162 (3.3)	1122 (2.2)	1.5 (1.3-1.8)	48 (3.0)	342 (2.1)	1.5 (1.1-2.0)	96 (3.3)	616 (2.0)	1.7 (1.3-2.1)
Unplanned readmission for infection	5.2 (1.1)	248 (0.5)	1.9 (1.4-2.6)	20 (1.3)	68 (0.4)	2.5 (1.5-4.2)	24 (0.8)	142 (0.5)	1.5 (1.0-2.4)
Unplanned reoperation	73 (1.5)	754 (1.5)	0.92 (0.73-1.2)	21 (1.3)	215 (1.3)	0.99 (0.63-1.5)	41 (1.4)	456 (1.5)	0.80 (0.58-1.1)

*Adjusted for age, body mass index, and diabetes
**Includes superficial infection, deep incisional, organ/space, wound disruption, sepsis and septic shock
RR (95% CI) indicates risk ratios and 95% confidence intervals

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Comparison of Wound Complications between Women with OASIS repairs with Braided Absorbable vs Chromic Catgut Suture

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Introduction: Obstetric anal sphincter injuries (OASIS) that occur during vaginal delivery carry risk of significant morbidity. The American College of Obstetricians and Gynecologists recommends using 2-0 or 3-0 Polyglactin (a braided absorbable suture) or 3-0 polydioxanone (a monofilament absorbable suture) for the external anal sphincter. However, there is large variation in types of sutures used amongst providers.
Objective: To compare wound complications in patients with OASIS who have had external anal sphincter repairs with chromic catgut suture versus braided absorbable suture. We hypothesized that repair of the external anal sphincter with chromic catgut suture would be associated with increased wound complications.
Methods: This was a retrospective cohort study of all 3rd and 4th degree lacerations from December 2019 through January 2021 at a large, tertiary care medical center. The primary outcome was composite wound complication compared between patients who had repairs with chromic catgut suture

versus braided absorbable suture. We defined composite wound complication as any infection, breakdown, granulation tissue, or abnormal discharge as documented in the medical record through 12 weeks postpartum. Secondary outcomes included dyspareunia, anal incontinence, urinary incontinence and urinary tract infection. Patients were excluded if the delivery documentation did not specify suture type used for repair. T-tests, Mann-Whitney U, Chi square and Fisher's exact were used for statistical analyses (SPSS Version 28). This study was approved by the quality improvement committee.

Results: The cohort consisted of 163 patients who experienced an obstetric anal sphincter injury. Of those, there were 145 (89.0%) 3rd degree lacerations and 18 (11.0%) 4th degree lacerations. The external anal sphincter was repaired using chromic catgut suture in 9.8% (n=16) and with braided absorbable suture in 90.2% (n=147). Demographics and delivery characteristics were similar between suture groups with the exception that those in the chromic catgut suture group had a higher proportion of episiotomy and were more likely to have received an antibiotic within 24 hours after delivery (Table 1). Twenty-six patients (16.0%) experienced a composite wound complication. While there was a greater proportion of composite wound complication in the chromic catgut suture group, this was not statistically significant [25% (n=4) vs. 15% (n=22), p=0.29]. There were no significant differences in secondary outcomes between suture groups (Table 2). On multivariable logistic regression controlling for GBS status, episiotomy, and antibiotics after delivery, chromic catgut suture was not significantly associated with composite wound complication (OR 4.3, 95% CI 0.93-19.8, p=0.06).

Conclusions: There was no statistically significant difference in composite wound complications between chromic catgut and braided absorbable suture for repair of the external anal sphincter at the time of OASIS. However, we are limited by a small sample size and lack of power to detect such a difference. Similar comparative analyses should be performed with a larger sample size.

Disclosure: No

Images:

Table 1: Demographic and Delivery Characteristics (n=163)

	Braided Absorbable (n = 147)	Chromic Catgut (n = 16)	*P-value*
Age, y	29.8 (±4.9)	29.6 (±4.8)	0.84
BMI, kg/m^2	30.8 (±5.5)	32.1 (±5.3)	0.36
Gestational Age, wks	39.1 (1.2)	39.2 (1.3)	0.69
Birthweight, g	3501 (±416)	3622 (622)	0.31
Parity	0 (0-0)	0 (0-0.75)	0.20
Race			0.84
American Indian/Alaska Native	1 (0.6%)	0 (0.0%)	
Asian	22 (15.0%)	1 (6.3%)	
Black	7 (4.8%)	1 (6.3%)	
White	113 (76.9%)	14 (87.5%)	
Unknown/not reported	4 (2.7%)	0 (0.0%)	
Ethnicity			0.22
Hispanic or Latino	2 (1.4%)	1 (6.3%)	
Not Hispanic or Latino	135 (91.8%)	15 (93.8%)	
Unknown/Not reported	10 (6.8%)	0 (0.0%)	
Smoking History			0.89
Current Smoker	7 (4.1%)	1 (6.3%)	
Former Smoker	15 (10.3%)	1 (6.3%)	
Never Smoker	124 (85.5%)	14 (87.5%)	
Diabetes	21 (14.3%)	1 (6.3)	0.48
GBS status			0.06
Negative	112 (76.1%)	9 (56.3%)	
Positive	27 (18.5%)	7 (43.8%)	
Unknown	7 (4.8%)	0 (0.0%)	
Episiotomy	18 (12.5%)	9 (56.3%)	***<.001***
Operative Delivery	50 (34.5%)	5 (31.3%)	1.00
Operative Delivery Type			0.36
Vacuum	25 (50.0%)	4 (80.0%)	
Forceps	25 (50.0%)	1 (20.0%)	
Type of OASIS			0.70
3rd degree	130 (88.4%)	15 (93.8%)	
4th degree	17 (11.6%)	1 (6.3%)	
Antibiotic given within 24 hours after delivery	61 (41.5%)	2 (12.5%)	***0.03***
Discharged on antibiotic	5 (3.4%)	1 (6.3%)	1.00

Data presented as N (%), mean (±standard deviation), median (interquartile range).

Table 2: Primary and Secondary Outcomes (n=163)

	Braided Absorbable (n=147)	Chromic Catgut (n=16)	*P-value*
Composite Wound Complications*	22 (15%)	4 (25%)	0.47
Wound Infections	4 (2.7%)	2 (12.5%)	0.11
Wound Dehiscence	11 (7.5%)	2 (12.5%)	0.62
Wound Granulation Tissue	12 (8.2%)	0 (0%)	0.38
Abnormal Discharge	4 (2.7%)	2 (12.5%)	0.12
Pain or Dyspareunia	19 (12.9%)	3 (18.8%)	0.70
Urinary Incontinence	5 (3.4%)	1 (6.3%)	1.00
Anal Incontinence	8 (5.4%)	1 (6.3%)	1.00
Urinary Tract Infection	2 (1.4%)	2 (12.5%)	0.05

Data presented as N (%).

*Data are not mutually exclusive.

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Complications Following Orchiectomy and Vaginoplasty for Gender Affirmation: An Analysis of Concurrent Versus Separate Procedures Using a National Surgical Database

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Introduction: Feminizing gender-affirming genital surgery commonly involves multiple concurrent or staged procedures to achieve the patient's desired outcome. Among these procedures are orchiectomy and vaginoplasty, each with its own associated surgical risks. Orchiectomy can be performed in isolation, as a bridge to vaginoplasty, or concurrently with vaginoplasty. Prior small, single-center studies on orchiectomy and vaginoplasty have primarily described mid- to long-term complications. There is a paucity of data on immediate postoperative outcomes following orchiectomy and vaginoplasty, particularly concurrent versus separate procedures, to aid preoperative counseling and surgical planning.

Objective: To compare 30-day outcomes following gender-affirming orchiectomy with and without concurrent vaginoplasty as well as vaginoplasty with and without concurrent orchiectomy using the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database.

Methods: We performed a retrospective cohort study of patients undergoing gender-affirming orchiectomy and/or vaginoplasty between 2015 and 2020 in the ACS NSQIP database. Patients were identified using International Classification of Diseases-10 (ICD-10) codes for gender dysphoria and classified into the following groups based on Current Procedural Terminology (CPT) codes: (1) orchiectomy alone, (2) vaginoplasty alone, or (3) concurrent orchiectomy and vaginoplasty (O&V). The primary outcome was composite 30-day outcomes. Secondary outcomes included major complications (deep/organ surgical site infection, sepsis and septic shock, pneumonia, renal failure, myocardial infarction, thromboembolism, and unplanned readmission or reoperation) and minor complications (superficial surgical site infection, urinary tract infection, and blood transfusion). Bivariate comparisons were made using Wilcoxon rank-sum, Chi-squared, and Fisher's exact tests, as appropriate. Multivariable logistic regression was used to assess odds of 30-day complications while adjusting for confounders. A p-value of < 0.05 was considered statistically significant.

Results: Of the 605 orchiectomy and/or vaginoplasty procedures for gender dysphoria performed during the study period, 337 (55.7%) consisted of orchiectomy alone, 104 (17.2%) were vaginoplasty alone, and 164 (27.1%) involved concurrent O&V. Patient demographics are presented in Table 1. On bivariate analysis, concurrent O&V had higher composite (17.7%), major (9.8%), and minor (9.8%) complications compared to orchiectomy alone (5.3% [p<0.01], 4.2% [p=0.01], 1.5% [p<0.01], respectively), and similar composite, major, and minor complications compared to vaginoplasty alone (12.5% [p=0.25], 7.7%

[p=0.66], 5.8% [p=0.36], respectively) (Table 2). On adjusted logistic regression analysis, concurrent O&V was associated with a higher rate of composite (adjusted odds ratio [aOR] 4.21, 95% confidence interval [CI] 2.19-8.10), major (aOR 2.58, 95% CI 1.18-5.63), and minor (aOR 9.02, 95% CI 3.06-26.65) complications compared to orchiectomy alone. Concurrent O&V was associated with similar composite (aOR 2.03, 95% CI 0.95-4.32), major (aOR 2.03, 95% CI 0.77-5.30), and minor (aOR 2.16, 95% CI 0.78-6.00) complications compared to vaginoplasty alone (Table 2).

Conclusions: Among patients undergoing feminizing gender-affirming genital surgery, concurrent orchiectomy and vaginoplasty was associated with an increased odds of 30-day complications compared to orchiectomy alone; similar odds of 30-day compilations were observed compared to vaginoplasty alone. These data can be helpful for preoperative risk counseling, especially among patients desiring orchiectomy and considering concurrent versus staged vaginoplasty.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Cosm Medical, Boston Scientific

Images:

Table 1: Demographics of patients undergoing orchiectomy and/or vaginoplasty, stratified by isolated and concurrent procedures

Demographics	Orchiectomy only (n = 337)	*p*-value	Vaginoplasty only (n = 104)	*p*-value	Concurrent orchiectomy and vaginoplasty (n = 164)
Age (years)	34.0 (27.0-44.0)	0.98	38.5 (29.0-49.0)	0.04	34.0 (27.0-47.0)
Race		<0.01		<0.01	
White	224 (66.5%)		72 (69.2%)		129 (78.7%)
Black	48 (14.2%)		20 (19.2%)		14 (8.5%)
Other *	17 (5.0%)		3 (2.9%)		14 (8.5%)
Unknown	48 (14.2%)		9 (8.7%)		7 (4.3%)
BMI (kg/m^2)		0.22		0.35	
< 30	249 (74.6%)		78 (75.0%)		131 (79.9%)
≥ 30	85 (25.4%)		26 (25.0%)		33 (20.1%)
Diabetes	12 (3.6%)	0.70	6 (5.8%)	0.57	7 (4.3%)
ASA Class		0.04		0.06	
1, 2	302 (89.6%)		92 (88.5%)		156 (95.1%)
≥ 3	35 (10.4%)		12 (11.5%)		8 (4.9%)
Tobacco use within last year	53 (15.7%)	0.02	9 (8.7%)	0.82	13 (7.9%)
COPD	4 (1.2%)	0.31	2 (1.9%)	0.15	0 (0%)
Hypertension	31 (9.2%)	0.64	10 (9.6%)	0.66	13 (7.9%)
Bleeding disorders	3 (0.9%)	0.66	1 (1.0%)	>0.99	2 (1.2%)

* Other includes Asian, Native American, Native Hawaiian and Pacific Islander race.
Continuous outcomes are presented as median (interquartile range). Categorical outcomes are presented as count (%).
P-values compare each individual procedure (orchiectomy only, vaginoplasty only) with the concurrent procedure (O&V) group.
BMI = body mass index; ASA = American Society of Anesthesiology; COPD = chronic obstructive pulmonary disease

Table 2: 30-day perioperative outcomes of patients undergoing orchiectomy and/or vaginoplasty, stratified by isolated and concurrent procedures

Surgical Factors	Orchiectomy only (n = 337)	*p*-value	Adjusted Odds Ratio (95% CI)	Vaginoplasty only (n = 104)	*p*-value	Adjusted Odds Ratio (95% CI)	Concurrent orchiectomy and vaginoplasty (n = 164)
Total Operative Time (minutes)	53 (39-229)	<0.01		224 (90-343)	<0.01		336 (273-396)
Any Complications	18 (5.3%)	<0.01	4.21 (2.19-8.10)	13 (12.5%)	0.26	2.03 (0.95-4.32)	29 (17.7%)
Major Complications	14 (4.2%)	0.01	2.58 (1.18-5.63)	8 (7.7%)	0.66	2.03 (0.77-5.30)	16 (9.8%)
Minor Complications	5 (1.5%)	<0.01	9.02 (3.06-26.65)	6 (5.8%)	0.36	2.16 (0.78-6.00)	16 (9.8%)
Superficial Surgical Site Infection	4 (1.2%)	0.16		3 (2.9%)	>0.99		5 (3.0%)
Deep Surgical Site Infection	2 (0.6%)	>0.99		2 (1.9%)	0.56		1 (0.6%)
Organ/Space Surgical Site Infection	3 (0.9%)	0.55		0 (0%)			0 (0%)
Pneumonia	0 (0%)	0.33		0 (0%)	>0.99		1 (0.6%)
Pulmonary Embolism	0 (0%)			1 (1.0%)	0.39		0 (0%)
Urinary Tract Infection	1 (0.3%)	<0.01		2 (1.9%)	0.49		7 (4.3%)
Bleeding Requiring Transfusion	0 (0%)	<0.01		1 (1.0%)	0.41		5 (3.0%)
Deep Vein Thrombosis / Thrombophlebitis	0 (0%)			1 (1.0%)	0.39		0 (0%)
Sepsis	3 (0.9%)	0.55		0 (0%)			0 (0%)

Continuous outcomes are presented as median (interquartile range). Categorical outcomes are presented as count (%).
P-values compare each individual procedure (orchiectomy only, vaginoplasty only) with the concurrent procedure (O&V) group.

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From OASIS to the OR: Timing of Presentation to a Postpartum Pelvic Floor Specialty Clinic in Women Undergoing Secondary Sphincteroplasty

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Introduction: Recognition of pelvic floor dysfunction within the first month postpartum can facilitate early intervention, such as surgical treatment or pelvic floor physical therapy, which can help reduce long-term sequalae of traumatic birth. Early secondary sphincteroplasty after obstetric anal sphincter injuries (OASIS) within 21 days of delivery has been associated with outcomes comparable to those following a delayed sphincter repair and likely reduce morbidity and psychologic distress in new mothers[1].

Objective: To determine the average time to presentation to our peripartum pelvic floor disorders clinic in women who undergo secondary sphincteroplasty. Secondarily, to characterize the indications for and determine perioperative outcomes of secondary sphincteroplasty. Lastly, to compare outcomes between woman who underwent sphincteroplasty ≤12 weeks versus >12 weeks from OASIS.

Methods: We conducted a case series of women seen in a peripartum pelvic floor disorders clinic for complications of OASIS who ultimately underwent secondary sphincteroplasty between March 2012 and May 2020. Cases were identified using the CPT code 46750 (repair of anal sphincter). Six board-certified urogynecologists performed all procedures using a similar technique. Demographics, clinical and surgical data were abstracted via chart review. Descriptive analyses were used to describe the cohort. Bivariate analyses were used to compare demographics, delivery characteristics and postoperative complications in women who underwent sphincteroplasty ≤12 weeks versus >12 weeks following OASIS.

Results: Forty women were identified with an average age of 29.2 ± 5.3 years and BMI of 25.6 ± 6.2 kg/m2. Most women were primiparous (n=30, 75%). All women delivered vaginally with their most recent delivery: 65% had a spontaneous vaginal delivery (n=26), 20% were vacuum-assisted (n=8), and 15% were forceps-assisted (n=6). Fifty-two percent of women had fourth degree lacerations (n=21). Thirteen percent (n=5) presented with infected repairs while 33% (n=13) had wound breakdown. The average time from OASIS to clinic presentation was 59.3 ± 288.3 days, from presentation to surgery was 31.0 days ± 115.5 days, and from OASIS to surgery was 70.3 ± 297.8 days. The most common indication for secondary sphincteroplasty was chronic sphincter defect with anal incontinence (n=19, 47.5%), followed by wound breakdown with anal incontinence (n=8, 20%). Fifteen percent of women had a 30-day postoperative complication (n=6). When comparing women who underwent secondary sphincteroplasty ≤ 12 weeks versus >12 weeks from OASIS, there were no differences in demographic or obstetrical data or 30-day postoperative complications (Table 1), consistent with prior studies. However, indications were significantly different – compared to sphincteroplasties done >12 weeks after OASIS, those done ≤ 12 weeks were more commonly performed for wound breakdown with/without anal incontinence (68.8% vs 4.2%) and less commonly performed for chronic sphincter defect with anal incontinence (18.8 vs 66.7%).

Conclusions: Average time from OASIS to secondary sphincteroplasty was 10 weeks. Wound breakdown was the indication for surgery in nearly 70% of patients with secondary sphincteroplasty within 12 weeks of OASIS. In our cohort, early secondary sphincteroplasty was not associated with an increased postoperative complication rate. Future studies are needed to compare improvement in bowel symptoms and anal incontinence between women with early and delayed secondary sphincteroplasty. 1. Lewicky-Gaupp C, et al. Early Secondary Repair of Obstetric Anal Sphincter Injury Breakdown: Contemporary Surgical Techniques and Experiences from a Peripartum Subspecialty Clinic. Female Pelvic Med Reconstr Surg. 2021 Feb 1;27(2):e333-e335.

Disclosure: No

Images:

Table 1: Demographic, peripartum, and perioperative variables compared between early sphincteroplasty performed ≤12 weeks from incident injury versus >12 weeks.

	≤12 weeks	>12 weeks	p-value
Patient variables	n=16 (40)	n=24 (60)	
Age at delivery (years)	30 (4.9)	29 (5.6)	0.459
Body mass index (kg/m²)	25.4 (4.0)	25.8 (7.4)	0.861
Primiparous	11 (69)	19 (79)	0.425
Birthweight (g)	3645 (531.0)	3815 (468.4)	0.298
Mode of Delivery			0.589
Spontaneous vaginal delivery	11 (68.8)	15 (62.5)	
Vacuum-assisted vaginal delivery	2 (12.5)	6 (25.0)	
Forceps-assisted vaginal delivery	3 (18.8)	3 (12.5)	
Degree of laceration			0.228
3rd	8 (50.0)	1145.8)	
4th	8 (50.0)	13 (54.2)	
Indication for Secondary Sphincteroplasty			<0.001
Wound breakdown, no AI	4 (25.0)	0 (0.0)	
Wound breakdown w/ AI	7 (43.8)	1 (4.2)	
Chronic sphincter defect w/ AI	3 (18.8)	16 (66.7)	
Fistula w/ chronic sphincter defect	2 (12.5)	5 (20.8)	
Perineal pain, chronic sphincter defect, no AI	0 (0.0)	2 (8.3)	
Postoperative Complications			0.627
No complication	13 (81.3)	21 (87.5)	
Any complication	3 (18.8)	3 (13.0)	
Wound breakdown w/o infection	1 (6.2)	0	
Surgical site infection	1 (6.2)	1 (4.2)	
Fistula	1 (6.2)	0	
Fistula + surgical site infection	0	1 (4.2)	
Severe suture reaction	0	1 (4.2)	

Time from OASIS to presentation	30.2 (18.4)	310.4 (317.5)	<0.001
Time from presentation to OR	13.5 (18.8)	120.3 (216.2)	0.057
Time from OASIS to OR	43.75 (24.5)	430 (401.0)	<0.001

Data are mean (SD) or n (%)

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Analysis of Risk Factors for Large Blood Loss and Transfusion among Benign Gynecologic Cases

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Introduction: Enhanced recovery after surgery (ERAS) and risk-based protocols for surgical patients are helping to minimize unnecessary laboratory work and line insertion. As benign gynecologic surgery shifts to minimally invasive routes, it is important to consider the risk of transfusion in these patients and the need for certain perioperative interventions.
Objective: To determine factors associated with increased blood loss and transfusion during gynecologic surgery for benign indications and explore the utility of concurrent arterial lines (A-lines) and other perioperative measures to accommodate blood loss.
Methods: This was a retrospective chart review of all patients undergoing benign gynecologic procedures at a tertiary medical center in 2019. We excluded women undergoing surgery for suspected malignancy, urgent/emergent surgery, surgery for obstetrical indications, or planned joint cases with other surgical specialties. Patient age, body mass index (BMI), ASA class, and medical history were recorded. Surgical data including estimated blood loss (EBL), IV placement, A-line, preoperative type and screen (T&S), and transfusion receipt were also extracted. Risk factors for high blood loss (EBL >500 mL) and requiring a transfusion intraoperatively or within 6 weeks of surgery were explored with relative risk and Fisher's exact test. Chi-square, t-test, and Mann-Whitney U were utilized as appropriate to compare between patient characteristic cohorts.
Results: There were 975 surgeries included, most performed by a minimally invasive route (59% vaginal, 36% laparoscopic, 4% robotic). Median patient age was 46 (IQR 36-60), and mean EBL was 50 mL (SD 10-100 ml). Average blood loss increased with duration of surgery (p 500 mL (4.6% vs. 1.7%; RR 2.7; 95% CI 1.2 - 6.3; p=0.01). Of 584 patients with preoperative T&S and transfusion outcome data, 24 (4%) got transfusion in the first 6 weeks postoperatively, and preoperative T&S was significantly associated with blood transfusion (RR 8.6; 95% CI 2.0-36.1; p<0.01).
Conclusions: Most benign gynecologic surgeries have minimal blood loss, and gynecologic patients undergoing minimally invasive and/or urogynecology procedures have a low risk of transfusion (<2%). Although providers seem to be applying interventions such as more IV lines, arterial lines, and T&S to higher-risk patients, the minority of patients that have these interventions receive transfusion.
Disclosure
Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant for RBI Medical (Author KM)

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Do Pelvic Floor Disorders Affect "All of Us"?

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Introduction: The "All of Us" research program is an ongoing initiative from the U.S. National Institute of Health (NIH), aiming to collect the largest, most representative health data in the United States. This presents an opportunity for pelvic floor disorders (PFD) research among a potentially racially/ethnically diverse population.
Objective: The present study aims to expand on the understanding PFD prevalence in groups under-represented in prior research.
Methods: PFD symptoms reported include urinary incontinence (UI), fecal incontinence (FI), and pelvic organ prolapse (POP), and medical record data allows review of corresponding to ICD-9 and ICD-10 codes for PFDs. Prevalence was compared across age and race (White, African American, Asian, others) using chi-square tests.
Results: Among 199,669 adult participants who reported female sex at birth, 18,531 (9.3%) reported symptoms of any PFD: 15,689 (7.8%) reported UI, 5024 (2.5%) reported POP, 2682 (1.3%) reported FI (Table 1.). Of women reporting PFDs, 4,351 (23.5%) had multiple (Figure 1.); 2,660 (0.14%) reported UI with simultaneous POP, 1064 (0.06%) reported UI with simultaneous FI, 114 (65, respectively), among white women compared to all other races (p < 0.001). For all other races, approximately 50% of PFDs were reported in the 45-64 age group, with no increase in those > 65 years (Figure 2.)
Conclusions: The prevalence of reported PFDs in this large national sample is lower than in previous studies. Among white females, prevalence increased significantly with age. In contrast, other races showed a peak at 45-64 years. Further study is needed to understand these findings, particularly whether underrepresented minorities with PFDs are accurately represented in this cohort and others.
Disclosure: No
Images:

Table 1. Prevalence of 1 or more reported Pelvic floor disorders (PFDs) by age and race (%) amongst female participants within the "All of Us" cohort

		PFDs N=18,531	No PFDs N=181,138
Age group	18-44 years	2173 (11.7%)	69619 (38.4%)
	45-64 years	7226 (39%)	66321 (36.6%)
	65+ years	9132 (49.3%)	45198 (25%)
Race	White	11258 (60.8%)	96637 (53.3%)
	Black/AA	3077 (16.8%)	36038 (19.9%)
	Asian	238 (1.3%)	6381 (3.5%)
	Other	567 (3.1%	6602 (3.6%)
	None Indicated	3391 (18.3%)	35480 (19.6%)

Figure 1. Reported individual cases of pelvic organ prolapse (POP), urinary incontinence (UI), fecal incontinence (FI), and cases reporting 2 or all 3 of these types of pelvic floor disorders (PFDs) amongst females in the "All of Us" database.

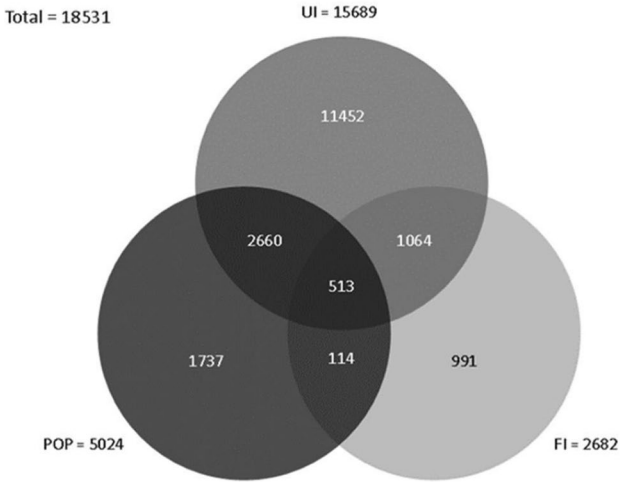
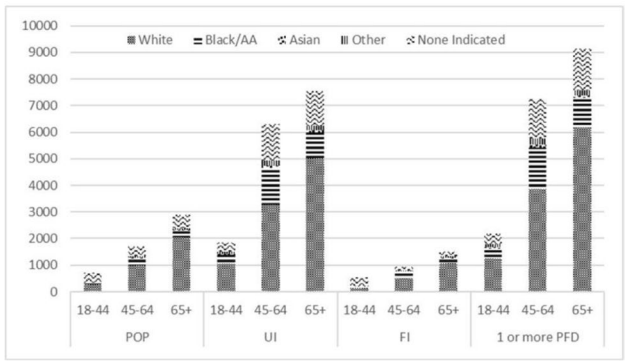


Figure 2. Prevalence of reported subcategories of pelvic floor disorders (PFDs): pelvic organ prolapse (POP), urinary incontinence (UI), fecal incontinence (FI), 1 or more PFDs) amongst female participants in the "All of Us" stratified by race within three age groups.



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The Effect of Preoperative Scopolamine Patch use on Postoperative Urinary Retention in Urogynecologic Surgeries

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Introduction: Post-operative urinary retention is an unfavorable, yet common complication of surgery, particularly in urogynecologic surgeries. Previous studies looking at midurethral sling procedures have shown increased risk of post-operative urinary retention with the use of scopolamine, a prophylactic patch for post-operative nausea and vomiting.

Objective: The aim of study was to determine if the use of pre-operative transdermal scopolamine is associated with an increased risk of post-operative urinary retention across all urogynecologic surgeries.

Methods: This is a retrospective cohort chart review study of women who underwent urogynecologic surgery between January 1, 2018 and December 31, 2020 by trained FMPRS specialists at tertiary care hospital. Patients who received a scopolamine patch versus those who did not were compared across demographic and peri-operative characteristics using Pearson's Chi Squared Test and t-test of Wilcoxon Rank-sum. The primary outcome of interest was the patients' result of their post-operative voiding trial by exposure to scopolamine. P-value <0.05 was considered significant.

Results: A total of 449 women underwent a vaginal or laparoscopic hysterectomy, midurethral sling placement, uterosacral or sacrospinous ligament suspension, sacrocolpopexy, anterior/posterior colporrhaphy, or other surgeries, with 109 of these patients (24.2%) having received transdermal scopolamine. Baseline and perioperative characteristics were similar, however the scopolamine group had a lower median age, lower median pre-operative PVR, and a higher proportion of patients with midurethral sling placement. A significantly higher number of women with pre-operative scopolamine n=50 (45.9%) failed their voiding trial when compared to those without scopolamine n=100 (29.4%), p=0.0016. This yielded a crude odds ratio of 2.03 (95% CI: 1.31 – 3.17). This association remained significant after adjusting for covariates. The adjusted model yielded an odds ratio of 1.77 (95% CI: 1.09-2.87). When comparing the odds of patients failing their voiding trial by surgery type, those whose surgery included a midurethral sling placement had an adjusted odds ratio of 3.14 (95% CI: 2.02 – 4.90) compared to those who did not. However, there was no significant interaction between midurethral sling, scopolamine use, and the outcome of post-operative urinary retention suggesting that although each of these variables independently affect post-operative urinary retention, the risk of post-operative urinary retention in the presence of scopolamine is irrespective of whether or not a midurethral sling is performed at the time of the surgery.

Conclusions

Prophylactic treatment of nausea and vomiting with transdermal scopolamine patch may be associated with increased risk of post-operative urinary retention across different urogynecologic surgeries. This finding can help guide future pharmacologic prescribing practices to ensure the best post-operative outcomes for patients undergoing urogynecologic surgery.

Disclosure: No

Images:

Table. Logistic regression model of the effect of scopolamine on postoperative urinary retention

Variable	Crude OR (95% CI)	Adjusted OR (95% CI)	P value
Scopolamine	2.03 (1.31 – 3.17)	1.77 (1.09 – 2.87)	0.02192
Sling procedure	2.93 (1.94 – 4.39)	3.14 (2.02 – 4.90)	<0.0001
Age	1.02 (1.00 – 1.04)	1.01 (0.99 – 1.03)	0.37113
Parity	0.99 (0.84 – 1.16)	0.98 (0.82 – 1.17)	0.82307
PVR	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)	0.00551
Operative Time	0.99 (0.98 – 0.99)	1.00 (1.00 – 1.00)	0.08717
Alcohol use	1.14 (0.76 – 1.71)	1.01 (0.65 – 1.59)	0.94988

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Updated Projections for Urogynecologic Surgeries in the United States, 2025 - 2060

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Introduction: Accurate assessment of the future burden of urogynecologic surgeries on the health care system is critical, given the rapid population growth of older adults in the United States (US) and the higher prevalence of pelvic floor disorders with increasing age. Prior projections of future demand for stress urinary incontinence (SUI) and prolapse (POP) surgery were based on population estimates from 15 years prior and older data regarding rates of surgery.

Objective: Using the most recent US population projections data, we sought to update the estimated number of women who will undergo surgery for SUI, POP, and either SUI or POP in the United States from 2025 through 2060.

Methods: We used the 2017 National Population Projections from the US Census Bureau. These projections provide age-specific estimates on the number of women in the US from 2025-2060. We used

previously published age-specific rates of surgery for women undergoing SUI only surgery, POP only surgery, and either SUI or POP surgery (e.g., those undergoing SUI only, POP only, or concurrent SUI/POP procedures) from analyses using IBM® MarketScan® Commercial Claims and Encounters and Medicare Supplemental Databases. These rates were applied to the population estimates of women aged 18-89 to determine the projected surgeries from 2025 to 2060 in 5-year increments. We calculated the number of SUI only, POP only and either SUI or POP surgeries with 95% confidence intervals.

Results: From 2025 to 2060, the population of women in the United Sates ages 18-89 is projected to increase from 136,028,622 to 158,529,907, an increase of approximately 17%. For our primary outcome, the total number of SUI only, POP only and either SUI or POP surgeries will increase 18% from 2025 to 2060. The specific estimates were: 319,623 (95%CI: 313,197 - 326,225) in 2025 to 377,339 (95%CI: 369,635 - 385,341) in 2060 for SUI only surgeries; 293,913 (95%CI: 287,423 - 300,238) in 2025 to 347,581 (95%CI: 339,747 - 355,208) in 2060 for POP only surgeries; and 469,460 (95%CI: 461,103 - 477,434) in 2025 and 553,858 (95%CI: 543,820 - 563,439) in 2060 for either SUI or POP surgeries (Table 1).

Conclusions: From 2025-2060, there will be an 18% increase in the projected number of surgeries for SUI and/or POP. Given these projections, our field should be proactive in ensuring enough specialists and fellowship-trained sub-specialists are available to meet the future surgical demands of women suffering from pelvic floor disorders.

Disclosure: No

Images:

Table 1. Projected number of either SUI or POP surgeries from 2025-2060 by age category

Age (y)	2025	2030	2035	2040	2045	2050	2055	2060
18-29	7,577	7,599	7,619	7,713	7,886	7,990	8,034	8,083
30-39	58,329	58,826	58,334	58,942	59,126	59,735	61,235	62,198
40-49	99,115	105,577	110,802	111,965	111,294	112,617	113,118	114,381
50-59	91,166	90,453	94,693	101,082	106,281	107,596	107,175	108,618
60-69	109,365	105,274	99,887	99,574	104,667	112,054	118,144	119,903
70-79	84,708	94,829	100,007	96,923	92,726	93,110	98,573	106,072
80-89	19,200	24,609	29,653	33,604	35,739	34,977	33,979	34,603
Total	469,460	487,166	500,996	509,803	517,719	528,078	540,258	553,858

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Do Women Who Present for Gynecological Care Have Different Anxieties and Goals at the Time of Their Initial Visit?

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Introduction: Women presenting for care to a gynecologic clinic may have varying anxieties and goals. There is a dearth of information available about patient anxieties regarding their upcoming visit and the individual goals patients may have at the initial visit.

Objective: To characterize and compare patient-reported anxieties and goals among women seeking care in urogynecology, general gynecology, pelvic pain, and gynecology oncology clinics.

Methods: All new patients presenting to our tertiary hospital clinics for benign gynecology, chronic pelvic pain, gynecology oncology, and urogynecology were invited to participate. Participants listed their top three visit-related anxieties, and top three visit goals. All responses were independently reviewed and categorized by three authors. The total number of goal and anxiety types were tabulated for each subspecialty and standardized Pearson residuals (z-scores) were used to compare observed versus expected frequencies for each cross tabulation. Demographic data between groups were assessed using ANOVA or Chi-Square test.

Results: 199 women, primarily white (60%), with an average age of 49 (SD=16), were enrolled and analyzed in this study. The cohort had 40 women presenting to benign gynecology, 59 women presenting to chronic pelvic pain, 50 women presenting to gynecology oncology, and 50 women presenting to urogynecology. A total of 368 causes of anxiety and 297 visit goals were submitted. Patient-reported reasons for anxiety were categorized into three categories (% of responses): symptom /diagnosis-related (50%), treatment-related (16%), and personal/exam/provider-related (35%). Patient-reported visit goals were also categorized into three categories: informational seeking/symptoms-related (45%), treatment-related (35%), and lifestyle/patient-provider relations-related (20%). The proportion of anxiety and goal types were different amongst the groups ($p<.001$ and $p=.015$): Urogynecology patients reported fewer treatment-related anxiety than expected by chance alone (8.5% vs 17%; $z = -2.2$, $p=0.03$). Conversely, oncology patients reported more anxiety about treatment (32.5% vs 17%; $z=3.5$, $p <.001$). Urogynecology patients reported more personal/exam/provider-related anxiety (45.5% vs 34%; $z=2.2$, $p=0.03$), whereas oncology had fewer anxieties of that nature (17.5% vs 34%; $z=-2.5$, $p=0.01$). Urogynecology patients reported expected goals of 46% for information-seeking/symptoms and 40% for treatment-related goals. Conversely, pelvic pain patients reported fewer treatment-related goals than expected (24% vs 35.9%; $z=-1.9$, $p=.0.057$) but more information-seeking/ symptoms-related goals than expected (58.7% vs 45.3%; $z=-1.9$, $p=0.057$). Lastly, there was not a significant association between patient anxieties and goals ($p=.07$).

Conclusions: Different patient populations have varying reasons for anxiety and goals for their initial visit with a gynecologist. It is important that these anxieties and goals are elicited and addressed individually. The majority of patient anxieties were related to their symptoms or possible diagnosis. However, only a plurality of patient goals was information-seeking. In general, a relationship between the anxiety the patient reported and the goal for her visit did not exist. Specifically, patients presenting to a Urogynecology clinic experienced more exam/provider-related anxieties than expected. Additionally, these patient goals occurred at an expected frequency and most goals were related to either information-seeking or treatment.

Disclosure: No

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Prevalence and Knowledge of Pelvic Floor Dysfunction in Pregnant Women: A Cross-sectional Study

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Introduction: Pelvic floor dysfunction (PFD) which includes urinary incontinence (UI), fecal incontinence (FI) and pelvic organ prolapse (POP) is common in women. To date, studies that examined PFD symptoms in pregnant women are scarce and the findings are conflicting. In addition, knowledge and awareness regarding PFD symptoms in pregnant women are essential as giving birth is a major risk factor. Among pregnant women in Asian region, less is known about the magnitude of pelvic floor dysfunction and their level of knowledge. Addressing the prevalence and knowledge of pregnant women of these symptoms might help healthcare providers raise the issue of PFD early in pregnancy, provide relevant and reliable information, and offer potentially protective measures.

Objective: 1. To investigate prevalence of urinary incontinence, fecal incontinence and pelvic organ prolapse in pregnant women attending the antenatal clinic and 2. To explore their knowledge regarding pelvic floor dysfunction.

Methods: A cross-sectional survey was conducted at the antenatal clinic of a university hospital. Pregnant women who were in their second or third trimester of pregnancy were invited to participate and a written informed consent was provided. A structured interview was conducted using a standardized questionnaire. It consists of three parts and 44 items. Part 1 contains demographic characteristics and obstetric information (5 items). Part 2 focuses on pelvic floor dysfunction symptoms using validated questionnaires which are 2.1 urinary symptoms using the ICIQ-FLUTS (6 items) 2.2 pelvic organ prolapse symptoms using the ICIQ-VS (2 items), and 2.3 bowel symptoms using ICIQ-B (7 items). Part 3 assesses knowledge of POP and UI using the Prolapse and Incontinence Knowledge Questionnaire or PIKQ (24 items).
Results: A total of 153 participants responded to our survey. The mean maternal age was 34.2 + 3.5 years with the mean body mass index of 25.1 + 3.8 kg/m2. Seventy-three (47.7%) and 80 (52.3%) were in their second and third trimester of pregnancy, respectively. In terms of education level, 49.7% (76/153) received their bachelor degree and 47.2% (72/153) had higher education. Symptoms of stress UI was reported by 65 (42.5%), urgency UI by 17 (11.1%), flatus incontinence by 43 (28.1%) and POP by 2 (1.3%) respondents. UUI rate was significantly higher in the third trimester pregnant women compared to the second trimester group ($p = 0.034$), while prevalence of SUI, flatus incontinence and fecal incontinence were similar ($p > 0.05$). Regarding the PIKQ, the mean knowledge score for POP of all respondents was 7.40 + 2.27, whereas the mean score for UI was 8.76 + 2.00. Pelvic organ prolapse score was evidently impacted by age. Older women (age > 35 years) scored significantly higher than younger women ($p = 0.001$) There was no positive association between the knowledge score for POP and UI and symptoms of PFD, education level, BMI, parity, vaginal delivery and trimester of pregnancy ($p > 0.05$).
Conclusions: Symptoms of PFD were reported in 1.3%-42.5% of second and third trimester pregnant women. Women with and without PFD had a fair level of PFD knowledge. Age was only a significant factor affecting knowledge scores for POP and UI.
Disclosure: No

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BP Connect: Referring Urogynecology Patients with High Blood Pressure for Primary Care Follow-up

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Introduction: Elevated blood pressure (BP) is the leading modifiable risk factor for cardiovascular disease (CVD), the leading cause of death in women. Timely referral to primary care from subspecialty care occurs infrequently. BP Connect, a staff protocol for specialty clinics, almost doubled timely primary care follow-up for rheumatology patients with elevated BP (AOR 1.9, 1.4 – 2.5; from 29% to 42%).
Objective: To evaluate the feasibility and impact of implementing BP Connect in urogynecology and gynecology clinics.
Methods: In two academic urogynecology and gynecology clinics, the BP Connect intervention trained medical assistants and nurses to Check (re-measure) BPs above 140/90, Advise patients of links between BP and CVD, and Connect patients with confirmed high BP for timely primary care follow-up. Implementation included (1) tailored staff engagement focus groups; (2) staff education defining elevated BP (above 140/90) and CVD risk; (3) electronic health record (EHR) alerts prompting staff to re-measure elevated BPs and order timely (within 4 weeks) follow-up for confirmed high BP; (4) staff feedback (monthly audits); and (5) patient education and tools (brochure and BP log). Clinic staff were surveyed pre- and post-implementation about confidence and comfort with BP discussion and referral. Descriptive analyses compared rates of BP re-measurement, offers for and fulfillment of timely primary care follow-up in the 6 months before (08/2020-02/2021) and after (02/2021-08/2021) BP Connect implementation. Multivariable logistic regression, controlling for age, insurance, hypertension, and CVD, evaluated impacts on timely primary care follow-up.
Results: BP was elevated in 676 pre-implementation and 708 post-implementation visits. Table 1 describes demographic and relevant medical history for these patient visits. The only statistically significant difference between the pre- and post-implementation visits was a higher proportion insured by Medicaid during pre-implementation (16% vs. 10%). The rate of BP re-measurement increased from 19% pre- to 75% post-implementation (p less than .0001). During post-implementation, among visits where patients had confirmed high BP, staff provided patient education in 83% and offered referral for primary care follow-up in 60% of instances. Overall, the rate of timely primary care follow-up for high BP increased from 28% before to 48% after implementation (p less than .0001) despite implementation during the COVID pandemic. BP Connect implementation resulted in a 12-fold increase in BP re-measurement among patients with high BP and a 2-fold increase in timely follow-up with primary care (Table 2). Staff confidence to do something about high BP increased from 27 to 67%; comfort discussing high BP with patients increased from 27 to 83%, and comfort coordinating referral to primary care for high BP increased from 9 to 42% (all p less than .05).
Conclusions: BP Connect implementation was feasible in academic urogynecology and gynecology clinics and doubled the likelihood of patients with high BP having timely primary care follow-up without creating undue burden on subspecialty clinics. The impact of BP Connect in urogynecology and gynecology clinics on timely primary care follow-up was almost identical to that seen in the rheumatology clinics where the intervention was initially developed and tested. Future work will examine adaptation and expansion of BP Connect to other specialties and health systems.
Disclosure: No
Images:

Table 1. Sample Description: Characteristics of patient visits pre- and post- *BP Connect* implementation

Characteristic	Pre-implementation (N=676)	Post-implementation (N=708)	p-value
Age in years [mean (SD)]	63.29 (14.94)	64.48 (14.84)	0.136
Primary care provider (PCP) in health system [n (%)]	358 (53.0)	395 (55.8)	0.316
Self-reported race [n (%)]			
African-American / Black	28 (4.1)	42 (5.9)	0.15
Other	40 (5.9)	31 (4.4)	
White	608 (89.9)	635 (89.7)	
Self-reported ethnicity: Hispanic/Latinx [n (%)]	24 (3.6)	13 (1.8)	0.07
Primary language: English [n (%)]	664 (98.2)	692 (97.7)	0.653
Marital Status [n (%)]			0.092
Married/Partnered	422 (62.6)	403 (57.3)	
Separated, Divorced, Widowed	135 (20.0)	172 (24.5)	
Single	117 (17.4)	128 (18.2)	
Medicaid insured [n (%)]	110 (16.3)	77 (10.9)	0.004
Tobacco use [n (%)]			0.449
Never	402 (59.6)	411 (58.1)	
Former	214 (31.7)	244 (34.5)	
Current	59 (8.7)	53 (7.5)	
Body mass index (BMI) in kg/m^2 [mean (SD)]	31.00 (8.36)	30.24 (8.16)	0.089
BMI categories in kg/m^2 [n (%)]			0.125
Underweight (<18.5)	5 (0.7)	6 (0.9)	
Normal weight (18.5-24.9)	164 (24.3)	179 (25.5)	
Overweight (25-29.9)	199 (29.5)	240 (34.2)	
Obese (>=30)	307 (45.5)	276 (39.4)	
Hypertension [n (%)]	403 (59.6)	458 (64.7)	0.059
Cardiovascular disease [n (%)]	150 (22.2)	172 (24.3)	0.388
Emergency room visits in last year [mean (SD)]	5.39 (4.79)	4.92 (4.96)	0.071
PCP visits in last year [mean (SD)]	1.47 (2.18)	1.45 (2.20)	0.885

Table 2. The impact of *BP Connect* implementation of BP re-measurement and timely primary care follow-up

Outcome	Odds Ratio (95% confidence interval)	p-value
BP Re-measurement		
Unadjusted	12.6 (9.6 – 16.6)	<0.0001
Adjusted*	12.9 (9.7 – 17.1	<0.0001
Timely Primary Care Follow-up		
Unadjusted	2.3 (1.7 – 3.3)	<.0001
Adjusted*	2.2 (1.5 – 3.1)	<.0001
*Adjusted models control for age, insurance, hypertension, and cardiovascular disease		

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Obstetrical Anal Sphincter Injury: Interpregnancy Interval and Reported Postpartum Sequelae

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Introduction: Obstetric anal sphincter injuries (OASIs) include third and-fourth degree perineal lacerations and occur in up to 4.4% of vaginal deliveries. Although uncommon, long-term effects can be physically and mentally debilitating. Women with OASI are at higher risk of urinary and fecal incontinence, as well as mood disorders including depression and suicidal ideation. National interpregnancy interval (IPI) data, most recently from 2011, demonstrates that the United States median IPI is 29 months with state IPI levels ranging from 25 to 32 months. Despite diminished quality of life and delayed healing, there is limited information on the IPI among women with OASI.
Objective: Our primary objective was to describe the IPI among women with an OASI. Our secondary objectives were to report postpartum complications and postpartum depression in women who experienced an OASI.
Methods: This was a retrospective cohort study of women at a tertiary academic medical center who experienced a vaginal birth that resulted in an OASI between 2013 and 2015. Electronic medical records were reviewed for patient demographics, obstetric delivery data, and postpartum sequelae that were documented within the first 3 months postpartum. IPI was defined as the time from date of first vaginal delivery to date of conception of the subsequent pregnancy. Date of conception was calculated using the obstetric estimate. Women without subsequent pregnancy were censored at the date of last follow-up. IPI was evaluated using a survival analysis (Kaplan–Meier estimator).
Results: 287 women who experienced OASI met eligibility criteria. The majority of women were white (n=209, 72.8%), non-Hispanic (n=262, 91.3%) and aged 20 to 34 years (n=249, 86.8%). Mean body mass index (BMI) at the time of first delivery was 29.4 kg/m2 (SD □ 5.2) and 99 (39.1%) women were obese. Most women were never smokers (n=218, 76.0%), had an epidural (n=254, 92.0%), did not require a blood transfusion (n=279, 97.9%), did not develop a vaginal hematoma (n=279, 98.9%) and did not have their OASI repaired in the operating room (n=277, 97.2%). IPI data was available for 178 (65%) women, and the median IPI was 26.4 (95% CI: 23.7-29.9) months. The majority of women experienced no reported postpartum laceration complications (n=252, 87.8%), urinary incontinence (n=262, 96.0%), fecal incontinence (n=264, 97.1%), or pelvic organ prolapse (n=270, 99.3%) after their initial delivery. Postpartum depression was rarely reported (n=22, 8.0%).
Conclusions: IPI post-OASI appears to be slightly shorter than the national average. The vast majority of women did not have documented pelvic floor dysfunction at postpartum office appointments in the first three months following delivery. Lack of identified pelvic floor dysfunction in this population differs from the incidence in previously published data and may reflect lack of identification by obstetric providers. As such, results of this study may represent an underestimation of these sequelae and highlight a gap in healthcare that, when addressed, could significantly improve postpartum quality of life.
Disclosure: No

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Retrospective Analysis of Patients with Complex Pelvic Floor Disorders – A Tertiary Hospital Perspective

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2 - Sengkang General Hospital
3 - KK Women's and Children's Hospital

Introduction: Pelvic floor dysfunction is a complex category of conditions involving multiple organ systems and affecting patients' quality of life, with psychosocial and economic implications. Multidisciplinary management through combined pelvic floor clinics is increasingly being adopted as standard of care internationally with benefits such as more thorough symptom treatment, cost savings, and combined surgery streamlining surgical interventions and reducing recovery time. The combined urogynecology-colorectal surgery pelvic floor clinic (PFC) at our tertiary women's hospital was established in September 2020, helping patients reduce visits to hospitals to access care from multiple specialties. All referrals to PFC were made from the general obstetrics, gynecology and urogynecology clinics.
Objective: This audit aims to characterize patients seen in the first 12 months at the PFC. Study goals include symptom cluster identification and review of management strategies against international care standards, improvement of local understanding of complex pelvic floor dysfunction, and guidance of future development of the clinic and ancillary support.
Methods: This is a single-center retrospective audit of medical case records for all patients referred to and seen at the PFC between the 1st of September 2020 and 31st of August 2021. Data was de-identified and aggregated with analysis performed for descriptive and summary statistics. Institutional Review Board approval was obtained with waiver of informed consent.
Results: Sixty-six referrals were made, with 57 patients seen in 11 clinic sessions across the 12-month period (Figure 1). Majority were postmenopausal (56.1%), multiparous (80.7%), and of increased age, with mean age of 57.4 (±17.7) years. The most common referring reasons were fecal or flatus incontinence (52.6%), severe constipation or defecatory dysfunction (21.1%), and rectal prolapse (17.5%). Most (78.9%) were given multiple diagnoses, most commonly fecal incontinence (50.9%). Double incontinence was a common symptom cluster (26.8%), and all patients with pelvic organ prolapse presented concurrently with either a defecatory disorder or urinary incontinence, or both. Chronic symptoms of more than 3 months were reported in 68.4%, with a mean of 29.4 (±51.5) months. Median waiting time was 34 days. 84.1% of patients were seen within 2 months. Almost all patients (94.7%) required further investigations; colonoscopy (50.9%), endoanal ultrasound (42.1%) and anorectal manometry (40.4%). Most (77.2%) were managed conservatively as a first-line treatment plan. Outcomes were favorable for all three patients requiring combined surgical intervention, with no intra-operative and minimal postoperative complications. 22.8% of PFC patients were discharged after initial consult and 87.5% of patients reported symptom improvement by first follow-up.
Conclusions: The demographic profile of patients seen aligns with known risk factors for pelvic floor dysfunction, with a high burden of gastrointestinal symptoms- similar to PFCs worldwide. Current workflow and services are well utilized to address complex patient needs that were previously left untreated, or managed by multiple providers. Waiting times were acceptable by international standards. The conservative approach to management preferred is similar to other global PFCs, with favorable clinical outcomes for patients managed conservatively and surgically. Future studies to analyze PFC patient satisfaction are planned.
Disclosure: No
Images:

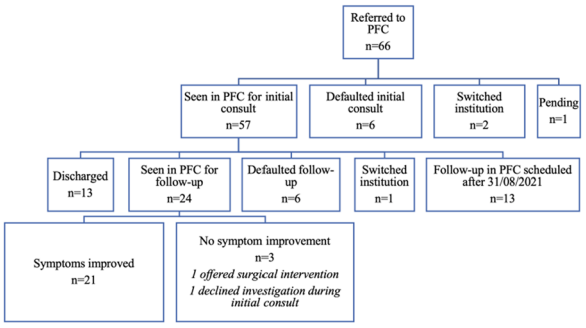

Figure 1. Flowchart of patient visits to the CPFC and outcomes

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Barriers of Care for Women with Pelvic Floor Disorders in the United States Based on Quantitative and Qualitative Data: a Systematic Review

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Introduction: Female pelvic floor disorders (PFD) encompass a wide variety of clinical conditions. The most prevalent disorders include pelvic organ prolapse (POP), urinary incontinence (UI), and fecal incontinence (FI). The proportion of women reporting PFD incrementally increases with age ranging from 9.7% in women aged 20 to 39 years old to 49.7% in women aged 80 or older[1]. Despite the high prevalence of disease and presence of good treatment options, fewer than half of women with significant PFD symptoms seek care[2].
Objective: The main objective of this systematic review was to determine the barriers to care for PFDs of women living in the United States of America and give a broad overview of the literature examining these barriers to care. By identifying current barriers to patient care, providers could then focus on developing solutions to the known barriers.
Methods: This systematic review followed the MOOSE guidelines. An electronic search limited to English language articles with sample population comprising women in the USA from 1946 to September 27, 2020 was performed using the Ovid MEDLINE database. Seven additional studies were located through hand-searching of the reference list of articles. Article eligibility was based on SPIDER framing question. Articles were excluded due to duplications, study population located outside the USA, inclusion of men in study populations, or lack of data on phenomenon of interest. Included articles were independently assessed using the Joanna Briggs Institute Appraisal checklist for qualitative and cross-sectional studies to measure methodological quality (risk of bias). Narrative synthesis was used to present categorized domain themes for barriers to care for PFDs.
Results: A total of 34 articles fulfilled the inclusion criteria [Figure 1]. Barriers were categorized into 3 domains – patient factors, provider factors, and external factors. These factors were then further subdivided into patient (knowledge, attitude, disparities, and help-seeking), provider (knowledge, attitude and practice), and external (cost, insurance, and geography) [Figure 2]. Some commonly identified barriers to care for PFDs included patients not expressing symptoms to providers (help-seeking), patients being unaware that PFDs are treatable conditions (knowledge), and providers feeling that there were too many other issues to address aside from PFD symptoms (attitude) [Figure 3].
Conclusions: This systematic review builds upon previous research by providing a broad overview of the literature examining barriers to care for pelvic floor disorders. The prevalence of barriers varied across different factors, but the most common barriers to care fell into the patient and provider domains. The general challenge of comparing different barriers was that some domains were assessed by many studies while others received little attention. Despite using systematic method study, limitations include higher risk of bias due to incorporating studies considered lower quality. Nonetheless, the results provide insight into what has been assessed in the literature and how common issues that were identified across studies were examined. Future focus should incorporate improved screening practices by providers and better education of patients in what is a normal part of aging and the available therapies for treating pelvic floor disorders.
Disclosure: No
Images:

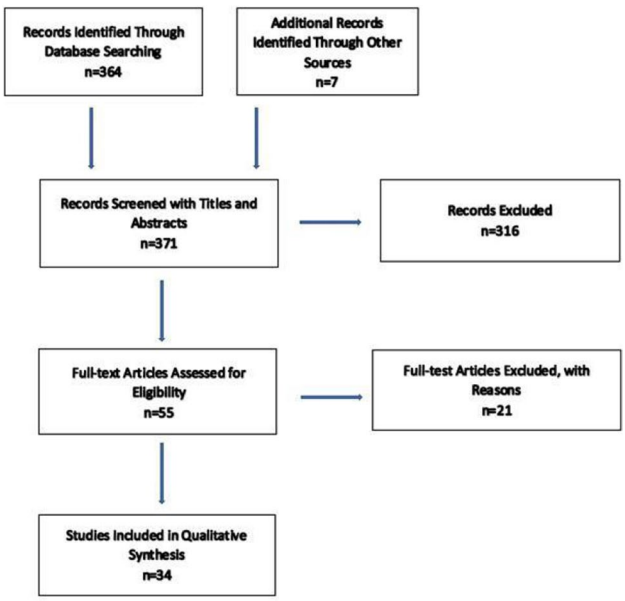

Figure 1: Flow diagram depicting the study selection process

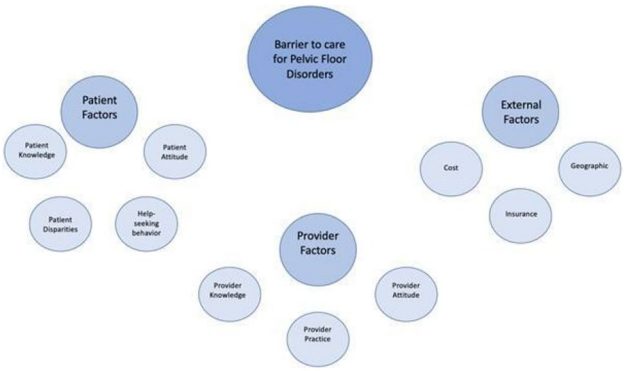

Figure 2: Domains of barriers to care for pelvic floor disorders

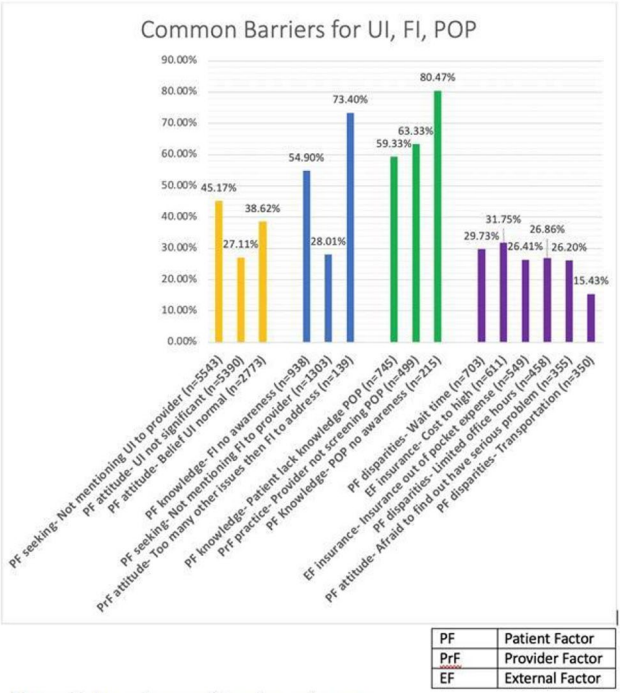

Figure 3: Prevalence of barriers of care

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WITHDRAWN - Understanding Financial Toxicity of Recurrent Urinary Tract Infections

WITHDRAWN

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Translation and Validation of the Malay version of the Pelvic Floor Distress Inventory (M-PFDI-20)

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Introduction: The Pelvic Floor Distress Inventory 20 (PFDI-20) have been shown to be a psychometrically valid and reliable instrument for measuring the extent to which pelvic floor disorders affect the quality of life.
Objective: To translate and validate the PFDI-20 questionnaires to the Malay language
Methods: The PFDI-20 questionnaires have undergone forward and backward translation by two independent translators at each stage. The final preliminary version underwent a face validity test among five subjects and was piloted among 30 subjects before the final version was used in the study. A cross-sectional study was performed among 196 women aged 20 years old and above who understand the Malay language. Women who were pregnant or with no history of sexual intercourse before were excluded. Psychometric properties were examined using principal axis factoring with Promax rotation, Scree plot, construct validity and internal consistency. Test-retest reliability was performed in 31 subjects after four weeks.
Results: A total of 196 women participated in this study. The inter-item correlation for all items was between 0.3 to 0.6 except for nine items, however considering the extraction communalities for all the items are more than 0.3, no items were excluded from the analysis. There was no correlation between factors that exceeded 0.7; hence discriminant validity was achieved, and no multicollinearity was present. Therefore, construct validity was adequate at all correlations between clinical symptoms and subscales in the M-PFDI-20 questionnaires. The internal consistency for M-PFDI-20 was excellent with Cronbach's alpha of 0.906, with the Cronbach's alpha for the subscales Pelvic Organ Prolapse Distress Inventory 6 (POPDI-6), Colorectal-Anal Distress Inventory 8 (CRAD-8), Urinary Distress Inventory 6 (UDI-6) were 0.83, 0.869 and 0.812 respectively. However, the test-retest analysis showed consistently low Cronbach's alpha value for the questionnaires (0.584) and each subscale (range from 0.520 to 0.606). Therefore, the M-PFDI-20 did not show stability over time.
Conclusions: The Malay version of the PFDI-20 is a valid and reliable tool to assess pelvic floor disorder among women; however, it was not stable over time.
Disclosure: No

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Patient Reported Outcomes After Gender Affirming Gynecologic Surgeries

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Introduction: Gender affirming surgeries are increasing alongside the expansion of access and insurance coverage. Gynecologic surgeries for transgender men act as one component of gender-affirming care and includes hysterectomy, vaginectomy with vaginal obliteration, salpingectomy, and oophorectomy. These procedures are often preceded by an extended course of hormone therapy with testosterone, administered either intramuscularly, subcutaneously, or transdermally. This care is regarded as medically necessary for transgender men and is supported by organizations such as American College of Obstetricians and Gynecologists (ACOG) for those with the diagnosis of gender dysphoria. Gender dysphoria refers to discomfort or distress caused by a discrepancy between a person's gender identity and that person's sex assigned at birth, associated gender role and/or primary and secondary sex characteristics.
Objective
We aim to determine post-operative satisfaction and regret in transgender patients who have completed gender affirming gynecologic surgeries.
Methods: 17 transgender males over the age of 18 undergoing female-to-male gender affirmation surgery (hysterectomy, salpingectomy, oophorectomy, and vaginectomy) who presented for pre and post-operative care at an academic institution were included. Retrospective data, including demographic information and baseline symptomatology were collected via surveys, transcribed electronically on a secure HIPPA compliant database. Patients were contacted post-operatively for a subsequent online survey to be completed within a 48-hour time period. Descriptive data analysis was performed using survey questions pertinent to satisfaction and regret of the patients' postoperatively.
Results: Of the 17 patients included, 7 patients were able to be contacted and completed the post-operative study, corresponding with a 41% response rate. When asked how satisfied patients are with surgery, 6/7 (85.7%) responses correlated with the highest rating ("5: Quite a Bit"). Additionally, 6/7 (85.7%) patients were satisfied to the highest rating regarding surgery positively impacting their gender dysphoria diagnosis. All patients report they would undergo surgery again.

When looking at regret, 6/7 (85.7%) of patient had none, with a single patient reporting (2: "not really"). Lastly, 5/7 (71.4%) patients reported plans of additional surgeries to continue the transition. When given the opportunity to respond in an open-ended manner about what patients wish they knew before surgery, responses varied and included poor communication, discrepancy in pain levels, patient safety, financial and medication concerns.

Conclusions: Regret is a major concern regarding the physical transition that transgender patients pursue through their transition. This is especially true with irreversible procedures such as oophorectomies that have long-term effects on the patients' overall health and quality of life. All participants expressed complete satisfaction with little to no regret toward their gender-affirming hysterectomies. They also felt that the surgery positively affected their gender dysphoria diagnosis, demonstrating the value of surgical intervention in their transition. This satisfaction is thought to empower transgender patients to have the desire to pursue subsequent gender affirming surgeries. With future studies on the healthcare experience of transgender men through their transition, we can gain more insight that can tailor patient education resources and accessibility.

Disclosure: No

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The "motheRs' pElviC flOor sUpPort (RECOUP) Clinic" Referral Patterns: The First 100 Patients

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Introduction: Childbirth is generally a celebrated event in a woman's life. It includes many physical, emotional, and societal changes resulting from pregnancy, childbirth, and postpartum. The outfall of delivery has physical and emotional repercussions, which go hand in hand. There is also known psychiatric morbidity accompanying delivery, with postpartum depression affecting 20% of women and many more suffering from postpartum blues and post-traumatic stress disorder. We hypothesized that many physical manifestations of pelvic floor disorders might be masked by the ordinary course of postpartum recovery and not referred out for specialized evaluation. Leveraging our postpartum care, the new motheRs' pElviC flOor sUpPort (RECOUP) Clinic, we explored the referral patterns to this clinic to test our hypothesis.

Objective: The objective of our study was to examine the referral patterns to the "motheRs' pElviC flOor sUpPort (RECOUP) Clinic" in order to facilitate identifying patients that will benefit from specialized postpartum pelvic floor services in the United States.

Methods: The study is a single-center observational study including women who presented to the motheRs' pElviC flOor sUpPort (RECOUP) Clinic. The target patient population for the clinic includes those who had a perineal injury, instrumental delivery, urinary retention, urinary or fecal incontinence, pain, or pelvic pressure associated with a recent delivery.

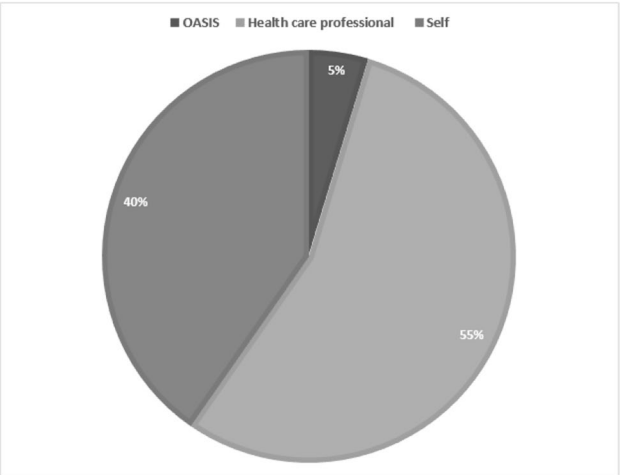
Results: A total of 101 women have been evaluated in the RECOUP Clinic since 2018. Over the years, more and more patients came to be assessed in the clinic, reaching one hundred patients at the beginning of 2022, and only very few presented between 2016-2018. There were several ways the patients found their way to the clinic. 45/101 (45%) were not referred by their obstetricians but found their way to the clinic through word of mouth after searching social media, the internet, and the literature. The physicians referred the patients who complained of fecal or urinary incontinence. A minority of patients were referred after the delivery in cases of anal sphincter tears during delivery 4/101 (4%). The majority of patients, a total of 52/101 (51%) patients were referred by the primary Ob/Gyn or other health care professionals at the patients' request. The distribution is shown in Figure 1.

Conclusions: The majority of women evaluated at motheRs' pElviC flOor sUpPort (RECOUP) Clinic are self-referred or referred upon mother's request. There is opportunity for physician and other providers on the offerings of dedicated clinics for postpartum pelvic floor care. Enhancing the RECOUP clinic services through social media provides an opportunity to reach patients who otherwise will go unserved.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant to MEMIC, COSM, TRACKIMED

Images:

Figure 1- Referral patterns



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Racial Disparities in Compliance of Nursing Pain Reassessment for Urogynecologic Patients at a Large Academic Healthcare Center

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Introduction: Racial disparities are unfortunately deeply engrained in our healthcare system, but there is limited literature identifying these inequalities in the management of Urogynecologic patients. When a patient is admitted to the hospital, most of her time is spent interfacing with nursing staff, and the greatest responsibility of direct care falls on the bedside nurse. This includes reassessment of pain, a metric that can be evaluated for compliance. While it is paramount to continue to examine implicit biases in the clinician-patient relationship, it is also important to recognize disparities and uncover implicit biases that may exist in patient bedside care.

Objective: To assess racial disparities in compliance rates of nursing pain reassessment for Urogynecologic patients in a large academic healthcare center. Secondarily, we aim to identify incongruities in nursing pain reassessment compliance based on patient age, BMI, and insurance type.

Methods: This is a retrospective cohort study of women who were admitted to specific hospital units under the primary care of FPMRS

attendings at our large, academic institution between September 2017 and March 2021. Nursing pain reassessment encounters were identified using the quality improvement database, Tableau, and de-identified patient demographic and hospital encounter information was extracted from the electronic medical record. Institutional IRB approval was obtained. Categorical variables were presented using frequencies (percentages) and assessed with $\chi 2$ tests, with $p<0.05$ denoting statistical significance.

Results: This study includes 1726 nursing encounter records from 203 hospital admissions from 195 patients. Primary analysis revealed 1570 encounters with White patients, 88 with Black patients, and 68 with patients of other racial backgrounds. A sensitivity analysis was performed, excluding encounters with non-White and non-Black patients, and resulting in 1658 nursing encounters from 193 hospital admissions from 186 patients. Noncompliance rates were assessed for each nursing pain reassessment encounter. Nursing noncompliance rates were lower for White patients (10.8%) than Black patients (17.0%) and Other patients (17.6%), but this did not reach statistical significance ($p=0.05$ for primary analysis, $p=0.07$ for sensitivity analysis). Noncompliance rates were higher for patients with BMI≥35.0kg/m2 than any other BMI group, but this was not significant ($p=0.30$, 0.36). Noncompliance rates were higher for the group of patients with private insurance than either the Medicare or Medicaid/other groups, but this also did not achieve statistical significance ($p=0.06$, 0.08).

Conclusions: While this study was unable to detect a statistically significant racial discrepancy in compliance rates of nursing pain reassessment for our Urogynecologic patients, it did reveal a clinically significant discrepancy that would likely be magnified with a larger patient sample. The current state of our healthcare system still warrants investigation and work to eradicate racial, ethnic, socioeconomic, and other disparities patients face. This need exists in Urogynecology as well, with these disparities affecting our patients in every aspect and interface of their care – from making the decision to obtain care to receiving clinical attention during the perioperative period. It is our obligation to seek to actively understand, improve upon, and reevaluate implicit biases to provide an excellent, equal, standard of care for all patients.

Disclosure: No

Images:

Table 1: Primary Analysis of Non-Compliance Rates of Nursing Pain Reassessment Encounters by Patient Race, Age, BMI, and Insurance.

	Compliant (%)	Non-Compliant (%)	p-value for Non-compliance
Race Group			0.05
White (N=1570)	89.2	10.8	
Black (N=88)	83.0	17.0	
Other (N=68)	82.4	17.6	
Total (N=1726)	88.6	11.4	
Age Group			0.30
[20.0,35.0) (N=295)	91.5	8.5	
[35.0,45.0) (N=392)	87.5	12.5	
[45.0,55.0) (N=379)	90.0	10.0	
[55.0,65.0) (N=364)	87.4	12.6	
[65.0,94.1] (N=296)	87.2	12.8	
Total (N=1726)	88.6	11.4	
BMI Group			0.30
[14.3,18.5) (N=40)	97.5	2.5	
[18.5,25.0) (N=522)	89.3	10.7	
[25.0,30.0) (N=313)	88.5	11.5	
[30.0,35.0) (N=470)	88.7	11.3	
[35.0,64.6] (N=356)	86.5	13.5	
Total (N=1701)	88.6	11.4	
Insurance Group			0.06
Private (N=720)	86.7	13.3	
Medicare (N=710)	90.0	10.0	
Medicaid & Other (N=287)	90.9	9.1	
Total (N=1717)	88.8	11.2	

Table 2: Sensitivity Analysis of Non-Compliance Rates of Nursing Pain Reassessment Encounters by Patient Race, Age, BMI, and Insurance.

	Compliant (%)	Non-Compliant (%)	p-value for Non-compliance
Race Group			0.07
White (N=1570)	89.2	10.8	
Black (N=88)	83.0	17.0	
Total (N=1658)	88.9	11.1	
Age Group			0.04
[20.0,35.0) (N=255)	93.7	6.3	
[35.0,45.0) (N=379)	87.1	12.9	
[45.0,55.0) (N=364)	90.4	9.6	
[55.0,65.0) (N=364)	87.4	12.6	
[65.0,94.1] (N=296)	87.2	12.8	
Total (N=1658)	88.9	11.1	
BMI Group			0.36
[14.3,18.5) (N=40)	97.5	2.5	
[18.5,25.0) (N=498)	89.4	10.6	
[25.0,30.0) (N=305)	89.2	10.8	
[30.0,35.0) (N=467)	88.7	11.3	
[35.0,64.6] (N=323)	87.0	13.0	
Total (N=1633)	88.9	11.1	
Insurance Group			0.08
Private (N=692)	87.0	13.0	
Medicare (N=677)	90.4	9.6	
Medicaid & Other (N=280)	90.7	9.3	
Total (N=1649)	89.0	11.0	

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The Incidence of Pelvic and Low Back Pain in Patients with Pelvic Organ Prolapse

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Introduction: Pelvic organ prolapse (POP) is defined as a quality of life condition and clinically requires the patient to have a compliant of a bothersome noticeable vaginal bulge and on physical exam the finding of a vaginal wall or cervix protruding to or beyond the vaginal opening defined as the hymeneal remnants. Currently, there is little data on incidence of pelvic pain in patients with POP and the influence of POP on these symptoms.

Objective: To define the incidence of pelvic and low back pain in patients with pelvic organ prolapse.

Methods: 55 new patients presenting to the urogynecology clinic for evaluation of pelvic organ prolapse were enrolled in an IRB-approved study to determine the symptomatology of pelvic floor disorders including pelvic and low back pain. Subjects were surveyed using a composite of questions from previously validated questionnaires in the urogynecology literature.

Results: 40% of subjects with newly diagnosed POP endorsed the presence of pelvic pain. Among this subset, 68.2% reported that the onset of pelvic pain coincided with the onset of prolapse. Additionally, 77.3% of these subjects reported pelvic pain worsened by their prolapse. Among patients with pelvic pain, 27.3% qualified their pain as severe. 52.7% of subjects endorsed low back pain with 24% reporting a lot of pain; however, only 27.6% reported that onset coincided with the onset of prolapse and similarly, 20.7% responded that their pain was worsened by prolapse.

Conclusions: While POP is traditionally considered a painless condition, a higher proportion of subjects than expected reported the presence of pelvic pain/back pain. Among patients with pelvic pain, the majority experienced symptom onset with the onset of prolapse as well as a worsening of pain with prolapse. The substantial proportion of subjects categorized their pelvic pain as severe. While a large proportion of subjects reported low back pain; a minority correlated

this to their prolapse or described their pain as severe. These findings highlight a higher incidence of pelvic pain than previously described in the literature and challenges the traditional perception of prolapse and suggests that pelvic pain should be discussed with POP patients.
Disclosure: No

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Pelvic Floor Symptoms among Premenopausal Women Presenting for Pelvic Reconstructive Surgery in Democratic Republic of the Congo

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Introduction: Pelvic organ prolapse (POP) may be particularly common in developing countries, owing primarily to high parity. Although Sub-Saharan Africa is a region with high fertility rates (lifetime births per woman), limited information is available about how POP affects the quality of life for this population. Moreover, nearly all studies of POP have focused on postmenopausal women, yet premenopausal women account for a substantial proportion of all prolapse patients in this region.
Objective: To assess pelvic floor symptoms among premenopausal women presenting for POP surgery in Democratic Republic of the Congo (DRC).
Methods: We performed a prospective study of symptomatic premenopausal patients presenting for POP surgery to a large referral hospital for gynecologic care in DRC. POP was assessed using the Pelvic Organ Quantification (POPQ) system. Pelvic floor symptoms were evaluated with the validated French-language Pelvic Floor Distress Index-20 (PFDI-20). The PFDI-20 is the sum of three subscales: the Pelvic Organ Prolapse Distress Inventory 6 (POPDI-6), the Colorectal Anal Distress Inventory 8 (CADI-8), and the Urinary Distress Inventory 6 (UDI-6). Demographic data were extracted from patient intake forms.
Results: A total of 107 patients were recruited from April 2019 to December 2021. Of these, 102 (95.3%) had stage III and 5 (4.7%) had stage IV prolapse. Average age was 34.2 ± 6.7 years; 88 (82.2%) of these women were farmers (Table 1). All patients answered each question in the PFDI-20. Mean PFDI-20 score in this population was 109.8±27.6. The most severe sub-scores were in the Prolapse Distress Inventory 6 (POPDI-6) category: 51.6 ± 20.9 (Table 2). To explore this finding further, we examined details within each sub-score (Table 2): over 80% of the women experienced low abdominal pain (n=88; 82.2%), heaviness or dullness (n=102; 95.3%), bulging or protrusion of the prolapse (n=99; 92.5%), and pain or discomfort in the lower abdomen or genital region (n=87; 81.3%). The score for the Colorectal Anal Distress Inventory 8 (CADI-8) subscale was 24.9 ± 13.6. Over half (n=63; 58.9%) had to splint to defecate, and over two-thirds (n=74; 69.2%) had fecal incontinence with flatus. The score for the Urinary Distress Inventory 6 (UDI-6) was 33.3 ± 11.8. Over half (n=66; 61.7%) reported difficulty emptying completely with voiding, and 47 (43.9%) had to splint to void.
Conclusions: These results emphasize the severity of pelvic floor symptoms among premenopausal women presenting for pelvic reconstructive surgery in sub-Saharan Africa. Most of the women are farmers, typically requiring heavy and prolonged physical exertion, so pelvic floor disabilities may impair their ability to provide for their families. Overall, our findings suggest that earlier and more widely available surgical repairs should be a priority for women with POP in the DRC.
Disclosure: No
Images:

Table 1. Demographics and clinical characteristics.*

	All patients (n=107)
Age, years	34.2 ± 6.7
BMI, kg/m	21.3 ± 2.3
Education level	
No formal education	49 (45.8%)
Primary school	40 (37.4%)
Secondary school	18 (16.8%)
University	0 (0%)
Profession	
Housewife	15 (14.0%)
Student	1 (0.01%)
Civil servant	1 (0.01%)
Farmer	88 (82.2%)
Other	2 (0.02%)
Marital Status	
Single	4 (3.7%)
Married	84 (78.5%)
Divorced	12 (11.2%)
Widowed	7 (6.5%)
Sexually active	37 (34.6%)
Pelvic pain	40 (37.4%)
Duration of prolapse symptoms	
<1yr	2 (1.9%)
1-2yrs	39 (36.4%)
2-5yrs	52 (48.6%)
6-8yrs	9 (8.4%)
>8yrs	5 (4.7%)

*Data are presented as mean ± SD or numbers of women (% of cohort).

Table 2. Scores and symptomatic details from the Pelvic Floor Distress Index (PFDI-20) and its three sub-scales.*

Pelvic floor distress index symptoms	Number of patients who answered yes (%)
Pelvic Organ Prolapse Distress Inventory (POPDI-6)	
Low abdominal pressure	88 (82.2%)
Heaviness or dullness	102 (95.3%)
Bulging or protrusion	99 (92.5%)
Splinting to defecate	63 (58.9%)
Incomplete voiding	61 (57.0%)
Splinting to void	47 (43.9%)
Total sub-score$^{\alpha}$	51.6 ± 20.9
Colorectal Anal Distress Inventory (CRADI-8)	
Straining to defecate	55 (51.4%)
Incomplete emptying	47 (43.9%)
Fecal incontinence, flatus	74 (69.2%)
Fecal incontinence, liquid	25 (23.4%)
Fecal incontinence, solid	17 (15.9%)
Pain with defecation	53 (49.5%)
Fecal urgency	43 (40.1%)
Rectal prolapse	36 (33.6%)
Total sub-score$^{\alpha}$	24.9 ± 13.6
Urinary Distress Inventory (UDI-6)	
Urinary frequency	60 (56.1%)
Urge incontinence	42 (39.3%)
Stress incontinence	52 (48.6%)
Leaks small amounts	57 (53.3%)
Difficulty emptying	66 (61.7%)
Pain or discomfort	87 (81.3%)
Total sub-score$^{\alpha}$	33.3 ± 11.8

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Urinary Tract Infections among Gender Diverse People Assigned Female at Birth on Testosterone

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Introduction: According to the U.S. Transgender Survey, 8% of gender diverse people had a urinary tract infection (UTI) in the past year. Testosterone-induced vaginal atrophy has been theorized to increase UTI risk among gender diverse people in a similar fashion to genitourinary syndrome of menopause. Some experts recommend the use of local estrogen to decrease the risk of UTIs among gender diverse people assigned female at birth on testosterone (hereafter abbreviated as GDT). However, estrogen can trigger gender dysphoria and psychological distress, and no evidence exists to support the relationship between testosterone and UTIs among GDT.
Objective: To compare the rate of UTI among GDT to an age-matched group of cisgender women (CW) and to identify risk factors associated with UTIs within each cohort.
Methods: This is a retrospective cohort study of adults between 01/01/2016 and 12/31/2019 within an integrated healthcare delivery system serving over 4 million members. GDT were included if they had at least 60 days of continuous testosterone use and excluded if they had history of gender-affirming genital surgery, such as urethral lengthening and phalloplasty, which are strongly associated with UTIs. Patients on estrogen during the study period were also excluded. Demographic data were extracted from electronic medical records. GDT were matched 1:1 to CW on age and were followed through 12/31/2020 with censoring at end of testosterone use or membership disenrollment. We compared the rate of UTI (defined by ICD-9/10 diagnosis codes and pharmacy order for antibiotics within 7 days of the diagnosis) between GDT and CW. Unadjusted incidence rate ratios were estimated to evaluate factors associated with UTIs.
Results: We identified 2,401 eligible GDT who were age-matched to 2,401 CW with a median follow-up of 8.9 (IQR 3.6-19.9) months. Mean age was 26.8 (SD 10.8) years. There were differences in race/ethnicity and tobacco use between the GDT and CW cohorts. A total of 165 (6.9%) GDT and 181 (7.5%) CW had at least one UTI during follow-up. The mean rate of UTIs among GDT and CW was 0.092 (SD 0.528) and 0.096 (SD 0.534) per year, respectively (p=0.81) (Table 1). Diabetes mellitus was significantly associated with UTIs in the CW cohort (p=0.044) but not in the GDT cohort (p=0.959) (Table 2).
Conclusions: The rate of UTIs among our young cohort of GDT and age-matched CW were similarly low at roughly 0.1 UTIs per year. Diabetes mellitus was significantly associated with UTIs among CW but not GDT. Since UTIs are most commonly ascending infections exacerbated by glycosuria, we hypothesize that decreased penetrative vaginal intercourse balanced with increased hypoestrogenic susceptibility in GDT may have resulted in UTI rates similar to that in CW. Given the multifactorial nature of UTIs, future studies are needed to investigate both behavioral and medical risk factors that could influence UTIs among gender diverse people.
Disclosure: No
Images:

Table 1. Patient Demographics and Baseline Clinical Characteristics.

Characteristics	Overall N=4,802 (100%)	Gender Diverse People Assigned Female at Birth on Testosterone N=2,401 (50%)	Cisgender Women N=2,401 (50%)	P-Value[1]
Median Months Follow-up (IQR)	8.9 (3.6-19.9)	8.9 (3.6-19.9)	8.9 (3.6-19.9)	--
Mean Urinary Tract Infections per Year	0.094 (0.531)	0.092 (0.528)	0.096 (0.534)	0.807
Age (Years)	26.8 (10.8)	26.8 (10.8)	26.8 (10.8)	--
Race/Ethnicity				**<0.001**
White	2,348 (48.9)	1,420 (59.1)	928 (38.7)	
Hispanic/Latinx	1,022 (21.3)	409 (17.0)	613 (25.5)	
Black	320 (6.7)	157 (6.5)	163 (6.8)	
Asian/Pacific Islander	732 (15.2)	212 (8.8)	520 (21.7)	
Multiracial/Native American	212 (4.4)	123 (5.1)	89 (3.7)	
Unknown/Missing	168 (3.5)	80 (3.3)	88 (3.7)	
Current Tobacco Use	264 (5.5)	192 (8.0)	72 (3.0)	**<0.001**
Diabetes Mellitus	96 (2.0)	51 (2.1)	45 (1.9)	0.536

[1] P-values are reported from t-tests for continuous variables and Pearson Chi-Square tests for categorical variables.

Table 2. Unadjusted Incidence Rate Ratio Estimates for Urinary Tract Infections for Overall Matched Cohort and Stratified by Gender Identity[2].

Characteristics	Overall N=4,802 (100%)		Gender Diverse People Assigned Female at Birth on Testosterone N=2,401 (50%)		Cisgender Women N=2,401 (50%)	
	IRR (95% CI)	P-Value	IRR (95% CI)	P-Value	IRR (95% CI)	P-Value
Gender Diverse People Assigned Female at Birth	0.889	0.339	--	--	--	--
Age at Index (units=5 years)	1.008	0.727	0.998 (0.922, 1.081)	0.968	1.018 (0.940, 1.103)	0.657
Racial/Ethnic Group (reference=White)		0.918		0.492		0.721
Hispanic/Latinx	0.950 (0.711, 1.267)	0.725	1.011 (0.645, 1.585)	0.962	0.864 (0.573, 1.302)	0.484
Black	0.804 (0.482, 1.341)	0.404	0.654 (0.303, 1.415)	0.281	0.912 (0.459, 1.813)	0.792
Asian/Pacific Islander	0.883 (0.612, 1.273)	0.504	1.223 (0.674, 2.219)	0.508	0.707 (0.446, 1.120)	0.139
Multiracial/Native American	0.835 (0.526, 1.324)	0.443	0.475 (0.179, 1.263)	0.136	1.209 (0.544, 2.689)	0.642
Unknown	1.047 (0.487, 2.254)	0.906	1.133 (0.432, 2.974)	0.800	0.940 (0.368, 2.400)	0.897
Current Tobacco User	0.998 (0.620, 1.609)	0.995	0.984 (0.510, 1.899)	0.962	1.138 (0.421, 3.080)	0.799
Diabetes Mellitus	1.746 (1.021, 2.985)	**0.042**	1.028 (0.359, 2.946)	0.959	2.600 (1.024, 6.602)	**0.044**

[2] Unadjusted incidence rate ratios were estimated from a negative binomial regression model with an offset to allow for differential follow-up time.

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Non-home Discharge in Patients Undergoing Pelvic Reconstructive Surgery: A National Analysis

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Introduction: Discharge to home following surgery has been recognized as a determinant of long-term survival and is a common concern in the elderly population. Given the increasingly aging population and high rates of surgery for pelvic organ prolapse, knowledge surrounding non-home discharge in these patients is an important addition to the literature.

Objective: The objective of this study is to determine the incidence and risk factors for non-home discharge in patients undergoing major surgery for pelvic organ prolapse.

Methods: We performed a retrospective cohort study utilizing the American College of Surgeons National Surgical Quality Improvement Program Database from 2010 to 2018. We included patients who underwent sacrocolpopexy, vaginal colpopexy, and colpocleisis. We excluded those with gynecologic malignancy. We compared perioperative characteristics in patients who were discharged home versus those who were discharged to either a rehabilitation facility, acute care facility, or a nursing home. Stepwise backward multivariate logistic regression was then used to control for confounding variables and identify independent predictors of non-home discharge.

Results: A total of 38,012 patients were included in this study. The rate of non-home discharge was 0.5% (209 patients). Patients with non-home discharge were older (71.1 ± 13.7 years vs 60.4 ± 12.8 years, p <0.001) (Figure 1), were more likely to be dependent on another for healthcare needs (5.7% vs 0.4%, p<0.001), had higher ASA class (ASA 3 or greater 52.6% vs 24.8%, p=<0.001) and increased rates of comorbidities including hypertension, diabetes, dyspnea, coagulopathy, congestive heart failure, chronic steroid use, and weight loss (all p<0.05) (Table 1). Patients with non-home discharge were also more likely to undergo colpocleisis as well as an abdominal approach to hysterectomy or sacrocolpopexy, compared to the laparoscopic approach (p<0.05) (Table 1). There were no differences in the rates of vaginal colpopexy. After controlling for confounders, independent predictors of non-home discharge included preoperative weight loss (aOR 5.9, 95%CI 1.3-27.5), dependent healthcare status (aOR 5.0, 95%CI 2.6-9.5), congestive heart failure (aOR 4.2, 95%CI 1.1-15.1), abdominal hysterectomy (aOR 2.3, 95%CI 1.4-3.7), ASA class 3 or greater (aOR 2.0, 95%CI 1.5-2.7), age (aOR 1.1, 95%CI 1.05-1.09), operative time (aOR 1.005, 95%CI 1.003-1.006), laparoscopic hysterectomy (aOR 0.6, 95%CI 0.4-1.0), laparoscopic sacrocolpopexy (aOR 0.5, 95%CI 0.3-0.8), Hispanic ethnicity (aOR 0.5, 95%CI 0.2-0.9), and Asian race (aOR 0.1, 95%CI 0.02-0.9) (Table 2). Additionally, patients with non-home discharge were more likely to experience any postoperative complication (85.6% vs 9.6%, p=<0.001) or death within 30 days of surgery (0.5% vs 0.04%, p=0.002).

Conclusions: In patients undergoing surgery for pelvic organ prolapse, non-home discharge is associated with various indicators of frailty including age, healthcare independence, and certain comorbidities. An open surgical approach increases the risk of non-home discharge, while a laparoscopic approach is associated with lower risk. Patients who experience non-home discharge have an increased risk of mortality within 30 days of surgery.

Disclosure: No

Images:

Table 1: Univariate comparison of home versus non-home discharge

Characteristics	Home DC (n=37,803)	Nonhome DC (n=209)	p
Age, years	60.4 ± 12.8	71.1 ± 13.7	**<0.001**
Race			
White	29,096 (78.0)	155 (74.2)	0.34
Black	2,007 (5.3)	15 (7.2)	0.25
Hispanic	3,573 (9.5)	9 (4.3)	**0.005**
Asian	1,097 (2.9)	1 (0.5)	**0.01**
Unknown	5,176 (13.7)	37 (17.7)	0.1
BMI, kg/m^2	28.4 ± 6.0	28.4 ± 8.3	0.49
Smoker	3,373 (8.9)	10 (4.8)	**0.025**
Diabetes	4,097 (10.8)	33 (15.8)	**0.03**
Dyspnea	1,090 (2.9)	15 (7.2)	**0.002**
COPD	694 (1.8)	6 (2.9)	0.3
Coagulopathy	308 (0.8)	6 (2.9)	**0.011**
Antihypertensives	15,210 (40.2)	130 (62.2)	**<0.001**
CHF	33 (0.09)	3 (1.4)	**<0.001**
Chronic steroid use	734 (1.9)	9 (4.3)	**0.033**
Preoperative renal fail	1 (0.003)	0 (0)	0.91
Preoperative weight loss	36 (0.09)	2 (1.0)	**0.017**
Dependent healthcare needs	156 (0.4)	12 (5.7)	**<0.001**
ASA 3 or greater	9,375 (24.8)	110 (52.6)	**<0.001**
Vaginal hysterectomy	10,728 (28.4)	57 (27.2)	0.72
Abdominal hysterectomy	1,916 (5.1)	23 (11.0)	**<0.001**
Laparoscopic hysterectomy	11,867 (31.4)	24 (11.5)	**<0.001**
Abdominal colpopexy	3,567 (9.4)	33 (15.8)	**0.004**
Laparoscopic colpopexy	12,042 (31.9)	30 (14.4)	**<0.001**
Intraperitoneal colpopexy	11,248 (29.8)	51 (24.4)	0.085
Extraperitoneal colpopexy	9,182 (24.3)	55 (26.3)	0.5
Anterior colporrhaphy	13,443 (35.6)	89 (42.6)	**0.037**
Posterior colporrhaphy	15,462 (40.9)	101 (48.3)	**0.031**
Colpocleisis	2,065 (5.5)	41 (19.6)	**<0.001**
Operative time, minutes	154.0 (98-195)	166.5 (91.5-204)	**0.035**
Length of stay, days	1.3 (1-1)	3.9 (1-4)	**<0.001**

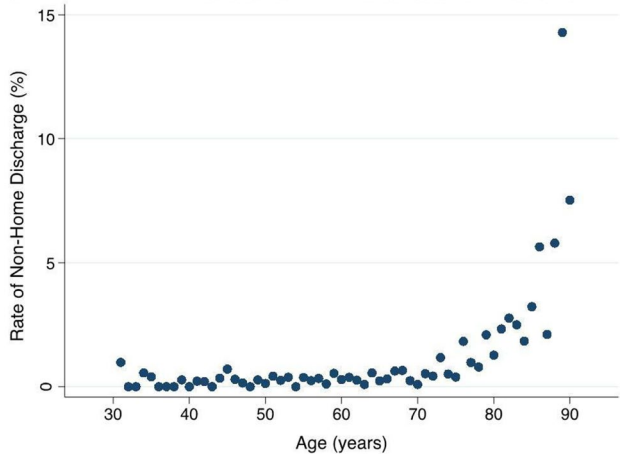
Data in bold indicate statistically significant.
Data in the columns represents mean +/- standard deviation, n(%), or median (interquartile range) as appropriate
Abbreviations: BMI, body mass index; COPD, chronic obstructive pulmonary disease; CHF, congestive heart failure; ASA, American Society of Anesthesiologists Classification

Table 2: Stepwise backward multivariate logistic regression to identify predictors of non-home discharge

Characteristic	aOR	95%CI	p
Preoperative weight loss	5.9	1.3-27.5	0.024
Dependent healthcare needs	5	2.6-9.5	<0.001
CHF	4.2	1.1-15.1	0.03
Abdominal hysterectomy	2.3	1.4-3.7	0.001
ASA 3 or greater	2	1.5-2.7	<0.001
Age	1.1	1.05-1.09	<0.001
Operative time	1	1.003-1.006	<0.001
Laparoscopic hysterectomy	0.6	0.4-1.0	0.048
Laparoscopic colpopexy	0.5	0.3-0.8	0.008
Hispanic race	0.5	0.2-0.9	0.025
Asian race	0.1	0.02-0.9	0.041

Abbreviations: CHF, congestive heart failure; ASA, American Society of Anesthesiologists Classification

Figure 1: Rate of non-home discharge by Age in patients undergoing surgery for pelvic organ prolapse



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Cost Analysis of Minimally-invasive Sacrocolpopexy compared to Native tissue vaginal repair in the era of ERAS

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Introduction: Minimally invasive sacrocolpopexy (SCP) is the gold-standard treatment for patients with apical prolapse and is increasingly used as a primary intervention in women with uterovaginal prolapse. There is a lack of comparative data evaluating costs between SCP versus native tissue vaginal repair in the post-ERAS implementation era.
Objective: The primary aim was to determine the cost difference between performing hysterectomy and minimally-invasive sacrocolpopexy as compared to vaginal hysterectomy with native tissue vaginal repair for uterovaginal prolapse. We hypothesized that minimally-invasive sacral colpopexy has a higher charge when compared to native tissue repair due to a higher cost of supplies.
Methods: This was a retrospective cohort study at a tertiary care center. The electronic medical record system was queried for women who underwent native tissue vaginal repair or minimally invasive SCP with concomitant hysterectomy for uterovaginal prolapse in calendar year 2021 (post-COVID enhanced recovery after surgery implementation). We excluded all patients who had concomitant colorectal procedures and where billing was not complete or re-imbursement was not received. Hospital charges, direct and indirect costs and operating margin (net revenue minus all costs) were obtained from Strata Jazz and were compared using SPSS. Net revenue (reimbursement) was directly obtained from the record as the total payment received by the hospital from the payor.
Results: A total of 82 women were included, (33 SCP (25 robotic and 8 laparoscopic) versus 49 native tissue). Payor mix included 27% Medicare, 5% medicaid, 61% employer-based and 7% private insurance. Demographic and surgical data is presented in Table 1. The mean total charge per case for services was similar between the SCP and the vaginal repair group ($102,060 vs. $97,185, p=0.379). Cost of supplies was more in the SCP group ($4429 vs. $2089, p<0.01), but the cost of operating room time and staff was similar ($7926 vs. $7216, p=0.07). Controlling for same-day discharge, anti-incontinence procedure and smoking status, the direct and indirect costs were also higher in the SCP group ($12,354 vs. $9,305, p<0.01 and $5068 vs. $3696, p<0.01, respectively). Net revenue was overall similar between the vaginal repair group and the SCP group ($22,214 vs. $22,491, p=0.929). The operating margin was higher in the native tissue repair group though statistically insignificant ($8,719 vs. $3,966, p=0.134). Additionally, there were no significant differences in the net revenue between different payors (p=0.8997). Same-day discharge and EBL were similar among both groups with operative time being higher in the SCP group (204 vs. 161, p<0.01).
Conclusions: Vaginal hysterectomy with native tissue repair had lower direct and indirect costs compared to minimally-invasive SCP. However, charges, reimbursement and operating margins were not statistically different between both groups.
Disclosure: No
Images:

Table 1: Demographic and Surgical Characteristics

	Sacrocolpopexy (n=33)	Native Tissue Repair, Vaginal (n=48)	P-Value
Patient Characteristics			
Age*	50.5 ±10.9	61.1 ± 11.1	<0.01
Number of delivered children**	3.00 (2.00-4.00)	2.00 (1.00-3.00)	0.1338
BMI (kg/m²)*	27.0 ± 4.5	28.9 ± 5.4	0.093
Tobacco Use, current	2 (6.1%)	2 (4.2%)	0.753
Ethnicity			0.31
Caucasian	24	40	
African-American	1	4	
Hispanic	5	3	
Asian	2	1	
Other	1	0	
Payor			<0.01
Medicare	1	21	
Medicaid	1	3	
Employer-based	30	19	
Private	1	5	
Diabetes Mellitus	3 (9.1%)	5 (10.4%)	0.844
Prior Surgical History			
Any prior abdominal or pelvic surgery	23 (69.7%)	29 (60.4%)	0.391
Preoperative exam			
Preoperative prolapse stage (I-IV)**	3.00 (2.00-3.00)	2.00 (2.00-3.00)	0.402
Preoperative stress urinary incontinence	23 (69.7%)	28 (58.3%)	0.298
Surgical characteristics			
Operative duration (min)*	204 ± 47	161 ± 34	<0.01
Blood loss (ml)*	100 ± 81	100 ± 110	0.5344
Anterior repair	0 (0%)	20 (41.7%)	<0.01
Posterior repair	22 (66.7%)	42 (87.5%)	0.237
Uterosacral ligament suspension	0 (0%)	46 (95.8%)	<0.01
Sacrospinous ligament suspension	0 (0%)	2 (4.2%)	<0.01
Stress incontinence procedure performed	21 (63.6%)	26 (54.1%)	0.396
Same-day discharge	14 (42.4%)	18 (37.5%)	0.66

*Mean ± Standard Deviation
** Median (range)

Table 2: Cost breakup comparing minimally-invasive SCP with hysterectomy vs. native vaginal repair with hysterectomy (in $)

	Sacrocolpopexy (n=33)	Native Tissue Repair, Vaginal (n=48)	P-Value
Charge**	119863 (114893-131036)	82205 (72995-89864)	<0.01
Net Revenue*	31618 ± 12803	14614 ± 6534	<0.01
Direct Cost*	11980 ± 3359	9286 ± 1760	<0.01
Supplies Cost*	4429 ± 1296	2108 ± 834	<0.01
Operating room Cost*	7926 ± 1803	7216 ±1493	0.06
Indirect Cost*	5068 ± 1047	3685 ± 770	<0.01
Direct Margin*	16837 ± 13524	4665 ± 6737	<0.01
Operating Margin*	11770 ±13613	517 ± 7320	<0.01

*Mean ± Standard Deviation
** Median (range)

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Colpodynamic Imaging: A Novel Three-dimensional Ultrasound-based Assessment of Vaginal Capacity and Distension

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Introduction: Objective, quantitative assessment of vaginal capacity and distension may aid in pessary selection and the design of patient-specific pessaries for women with pelvic organ prolapse (POP). This work presents a novel imaging technique, colpodynamic imaging (CDI), that provides a quantitative evaluation of the vagina under distension. CDI integrates three-dimensional (3D) transintroital ultrasound with a modified urodynamics system to capture vaginal shape, volume, and pressure changes during intravaginal distension with a hypoechoic fluid (e.g., water) (Figure 1).
Objective: To assess the feasibility and preliminary repeatability of CDI.
Methods: Patients using a vaginal pessary for symptomatic POP were recruited for this pilot study. All patients first underwent 3D transperineal ultrasound in the supine position to establish the location of the pubic symphysis, bladder, urethra, rectum, and levator plate. An ultrathin, oversized bag (thermoplastic polyurethane, 0.076 mm wall thickness, Figure 1B) was inserted into the vagina and filled with water through a urodynamics catheter that was part of a modified urodynamics system. A novel bag retention device was placed over the introitus to prevent dislodgement of the bag during filling while providing a window for ultrasound imaging. The total instilled water volume and intravaginal pressure were recorded during filling. At maximum vaginal capacity, indicated by a sensation of vaginal fullness by the patient, 3D transintroital ultrasound of the distended vagina and surrounding pelvic structures was performed. Baseline ultrasound and CDI sequences were performed twice for each patient, two hours apart (Round A and Round B). Using 3D Slicer software, a 3D surface model of the distended vagina was created from each ultrasound scan (Figure 2) and the following measurements were obtained: segmented volume, anterior-posterior diameter, lateral diameter, maximum and minimum diameter, and vaginal length. To assess repeatability between measurements in Round A vs. Round B, the within-subject standard deviation (SD) normalized to the mean was calculated for each measurement.
Results: Sixteen patients with POP completed both rounds of imaging (median age 72 years, range 44-79; median POP quantification stage 2, range 2-3). On 3D transintroital ultrasound, there was sufficient echogenicity of the distended vaginal wall to establish boundaries for 3D surface models of the vagina (Figure 2B-E). The median intravaginal volume and pressure at maximal vaginal capacity were 485 mL and 48 cmH2O, respectively. Between Round A and Round B, normalized within-subject SD was 10% for volume, and 22% for pressure; Bland-Altman plots for individual subjects are shown in Figure 3. The normalized within-subject SD values for vaginal measurements were as follows: anterior posterior diameter (13%), lateral diameter (3%), maximum diameter (11%), minimum diameter (9%), and vaginal length (9%).

Conclusions: This novel 3D ultrasound imaging technique provides a feasible and reproducible method for characterizing vaginal capacity and distension. CDI has the potential to provide quantitative data to inform the design of customized, patient-specific pessaries.
Disclosure: Yes, this is sponsored by industry/sponsor: Cosm Medical Corp.
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: Cosm Medical Corp.
Images:

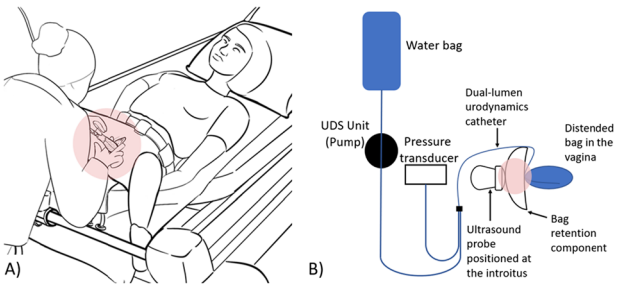

Figure 1. (A) A schematic of a clinician inserting the bag in preparation for the colpodynamic imaging (CDI) exam while the patient is in supine position. (B) A schematic of the 3D ultrasound and modified urodynamics system used to perform CDI. The bag used in this study was designed to be greater than predicted maximal vaginal capacity (maximum volume of 850 mL).

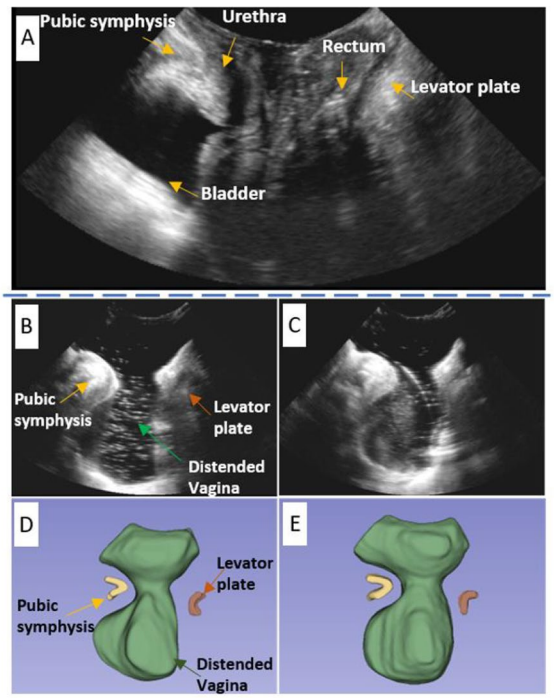

Figure 2. (A) Midsagittal view of a 3D transperineal ultrasound image without vaginal distension (i.e., baseline ultrasound). (B) and (C) the midsagittal CDI images of the distended vagina in Round A and Round B, respectively. The images were captured two hours apart in the same patient. (D) and (E) 3D surface model segmentation of the distended vagina (in green) relative to the pubic symphysis (in yellow) and levator plate (in brown) in Round A and Round B, respectively.

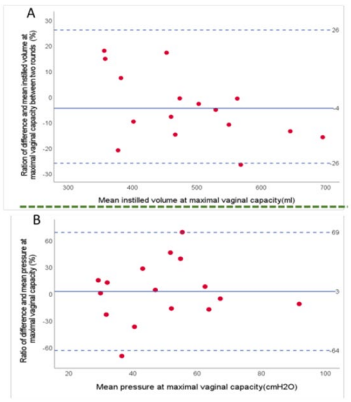

Figure 3. Bland-Altman plots: the ratio of difference and mean (A) instilled volume and (B) pressure at maximal imaging fills for all 16 patients (red dots). Solid line represents mean; upper and lower dashed lines show lower and upper limit of agreement (mean±1.96×SD), respectively.

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Surgical Conversion Rates for the Treatment of Pelvic Organ Prolapse: Do Racial/Ethnic Treatment Disparities Exist in a Hispanic Minority-Majority Population?

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Introduction: Current literature suggests that racial and ethnic disparities exist in surgical treatment rates for patients with pelvic organ prolapse (POP). Though studies do suggest certain sociodemographic characteristics influence receiving surgical treatments, limited literature exists to characterize how race, ethnicity, or primary language can impact a patient's decision or opportunity to undergo surgical treatment for POP. Our tertiary care center provides Urogynecologic care to a unique area of the United States that represents a Hispanic "minority-majority" population. This offers a unique insight to explore predictors of POP surgical conversion rates by patient sociodemographics including race, ethnicity, and primary language spoken.

Objective: We seek to determine if sociodemographic factors including race, ethnicity, and primary language spoken predict receiving surgical treatments for the management of pelvic organ prolapse among a minority-majority Hispanic patient population in a specialized Urogynecologic practice.

Methods: We identified patients who were diagnosed with POP with ICD 10 codes N81.0, N81.10, N81.11, N81.12, N81.2, N81.3, N81.4, N81.5, N81.6, N81.81, N81.82, N81.83, N81.84, N81.85, N81.89, N81.9, and N99.3 at UMH from October 2019 to March 2021 who underwent POP surgery at our Urogyencologic practice at a tertiary care center. Sociodemographic data was collected from the electronic medical records. Clinical covariates were obtained via manual data abstraction. Continuous variables and categorical variables were analyzed using the t test and chi-square test, respectively. For non-parametric data, Wilcoxon rank-sum test was used. A logistic regression model was fitted to identify independent predictors of utilization of surgery. A p-value of <0.05 was considered statistically significant. All analysis was conducted using STATA MP 16.2 (college station, Texas).

Results: Among 495 POP patients over an 18-month period, 81 (16.37%) underwent prolapse surgical repair. Sociodemographic characteristics by surgical conversion rates are displayed in Table 1. Higher age at initial visit showed lower surgical utilization for POP (adjusted OR 0.85[0.73-0.99]). Race, ethnicity, primary language, insurance type, alcohol use, smoking history, BMI, or compartment of prolapse were not predictors of prolapse surgical intervention. Adjusted odds ratios for each covariate are reported in Table 2.

Conclusions: Our analysis suggests that race, ethnicity, and primary language spoken are not significant predictors of undergoing surgical treatment for POP in a tertiary Urogynecologic specialty practice serving a Hispanic minority-majority population. Previously identified barriers to care including minority status and non-English primary language spoken do not appear to exist in our unique population. As expected, older patients were less likely to receive POP surgical repair. Further understanding of the influence of cultural barriers, such as provider language spoken, on patient-provider relationships and the determination to undergo surgical treatment is warranted.

Disclosure: No

Images:

Table 1. Sociodemographic characteristics and surgical conversion rates of women with pelvic organ prolapse

Characteristics	No surgery N (%)	Received surgery N (%)	p-value
Total	414 (83.63)	81 (16.37)	
Age at initial visit, mean (95% CI)	62.95 (61.82 - 64.08)	62.89 (60.41 - 65.37)	0.694
Race			
White	344 (83.7)	67 (16.3)	0.331
Black	48 (88.9)	6 (11.1)	
Other	8 (72.7)	3 (27.3)	
Unknown	14 (73.7)	5 (26.3)	
Ethnicity			
Hispanic	286 (82.0)	63 (18.0)	0.278
Non-Hispanic	117 (88.0)	16 (12.0)	
Unknown	11 (84.6)	2 (15.4)	
Primary Language			
English	196 (85.2)	34 (14.8)	0.376
Spanish	213 (81.9)	47 (18.1)	
Other	5 (100.)	0 (0.0)	
Insurance type			
Medicare/aid	90 (85.7)	15 (14.3)	0.657
Private/commercial	322 (83.0)	66 (17.0)	
Other	2 (100.0)	0 (0.0)	
Body Mass Index (BMI)			

Underweight	3 (100.0)	0 (0.0)	0.146
Normal	108 (84.4)	20 (15.6)	
Overweight	164 (87.2)	24 (12.8)	
Obese	129 (78.7)	35 (21.3)	
Current alcohol use			
Yes	129 (84.3)	24 (15.7)	0.765
No	273 (83.2)	55 (16.8)	
Smoking history			
Never smoker	316 (82.9)	65 (17.1)	0.328
Previous smoker	77 (87.5)	11 (12.5)	
Current smoker	11 (73.3)	4 (26.7)	
Compartment of prolapse			
Anterior	201 (83.4)	40 (16.6)	0.000
Posterior	72 (94.7)	4 (5.3)	
Apical only	45 (67.2)	22 (32.8)	
Anterior and apical	96 (86.5)	15 (13.5)	

Table 2. Multivariate Regression of Surgical Conversion for Patients with Pelvic Organ Prolapse

Characteristic	Adjusted OR	95% CI	p-value
Age at initial visit	0.85	0.73-0.99	**0.046**
Compartment (ref=anterior)			
Posterior	0.17	0.002-9.61	0.387
Apical prolapse alone	**	**	**
Anterior and apical	1.29	0.05-30.64	0.876
Race (ref=White)			
Black	1.55	0.03-78.97	0.828
Primary language (ref=English)			
Spanish	1.37	0.10-18.43	0.814
Insurance (ref=Medicare/aid)			
Commercial/Private	0.06	0.001-3.20	0.168
Ethnicity (ref=non-Hispanic)			
Hispanic	2.79	0.09-84.81	0.556
BMI (ref=Normal)			
Overweight.	0.20	0.004-8.42	0.397
Obese	0.79	0.02-32.40	0.903

** = Insufficient number of data points to accurately predict adjusted odds ratio (OR) in this regression.

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There's No Place Like Home: Same-Day Discharge after Colpocleisis is Safe for Our Medically Frail Patients

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Introduction: By the year 2030, women aged 65 years or older will make up more than 11% of the U.S. population(1). With this rapid demographic growth, the prevalence of Pelvic Organ Prolapse (POP) can be expected to dramatically increase with a corresponding rise in the number of persons seeking surgical treatment for prolapse. Women with advanced prolapse may choose to undergo obliterative vaginal surgery for many reasons, including shorter operative time, lower blood loss, faster recovery, and higher long-term success rate compared to reconstructive vaginal surgery. Obliterative vaginal surgery may also be considered a good option for women who are medically frail with an increased risk of surgical complications. We have traditionally responded to peri-operative medical frailty by increasing length of hospitalization despite the increased risk of deconditioning, nosocomial infection, and isolation from familiar surroundings that can impact cognitive status. Citations: 1. Bureau, US Census. "2017 National Population Projections Tables: Main Series." Census.gov, 8 Oct. 2021, https://www.census.gov/data/tables/2017/demo/popproj/2017-summary-tables.html.
Objective: The objective of this study is to evaluate the safety of Same-Day Discharge (SDD) after obliterative vaginal surgery.
Methods: This is a retrospective review of women who underwent obliterative vaginal surgery for the treatment of pelvic organ prolapse between 5/2015-11/2020 at a single institution across two clinical sites. Cases were identified using CPT codes and verified to be consistent with LeFort colpocleisis (LC) or Total Colpocleisis of the vaginal vault (TC) by chart review. Patient demographics, operative characteristics, medical history, and peri-operative data were extracted from the medical records. Frailty scores were calculated using the NSQIP-FI with a score of 0.18 or higher indicating frailty. Primary outcomes were identified as post-operative complication rate, same-day discharge, and prolapse recurrence. Comparisons were performed using chi-square, Fisher's exact test, Wilcoxon rank test, and odds ratios as appropriate.
Results: 197 patients met inclusion criteria; 99 (50.25%) underwent LC and 98 (49.75%) underwent TC. Concomitant procedures included: 11% midurethral sling, 36% posterior colporrhaphy & perineoplasty, and 1% transurethral bulking agent. 68% of LC patients and 73% of TC patients were discharged home on the day of surgery (p=0.4). An elevated frailty index (FI) was found in 46.2% of all patients: 45 (45.5%) of LC patients and 46 (46.9%) of TC patients. Of those who underwent SDD, 40.3% were frail, whereas, 60.3% of those admitted overnight were frail. There was no significant difference between frail and non-frail patients in 30-day complication rate, readmission, ED evaluation, or death. Further, SDD was inversely associated with older patients (OR 0.927 (95% CI 0.885-0.971)), higher EBL (OR 0.996 (95% CI 0.993-0.999)), and elevated frailty index (OR 0.419 (95% CI 0.223-0.788).
Conclusions: There is no increased risk to patients who undergo SDD after obliterative vaginal surgery when compared to patients that are admitted for inpatient care. Increased peri-operative medical frailty should not exclusively be responded with inpatient hospitalization after colpocleisis.
Disclosure: No

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WITHDRAWN - Outcomes after Sacrocolpopexy with Total versus Supracervical Hysterectomy for Uterovaginal Prolapse

WITHDRAWN

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Efficacy of Sacrospinous Fixation or Uterosacral Ligaments Suspension for Correction of Apical Pelvic Organ Prolapse (Stages III and IV) During Vaginal Hysterectomy: randomized Clinical Trial

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Introduction: Pelvic organ prolapse (POP) is a prevalent condition among women and its incidence increases with the aging of the population.The treatment of the apical compartment is critical to successful repair of severe POP. The two most commonly used techniques for apical corrections, through vaginal procedures, are fixation of the vaginal vault to the sacrospinous ligament and suspension by the uterosacral ligaments. Since the warnings about the adverse effects of surgical correction with polypropylene meshes, pelvic reconstruction surgeries with native tissues have been increasingly used again, and there are still controversies about the ideal technique for correcting the apical effect by vaginal access.
Objective: To evaluate the efficacy and outcomes of surgical treatment of uterine accentuated prolapse by techniques of sacrospinous ligament fixation (SSLF) or uterosacral ligament suspension (USLS), comparing anatomical success rates, subjective cure, improvement in quality-of-life parameters (P-Qol) and adverse events under two definitions: genital prolapse Ba, Bp and C <-1 (stage I) or Ba, Bp and C ≤ 0 (stage II).
Methods: After approved by the Ethics Committee and registered on Clinical Trials (NCT01347021), 51 patients were randomized and divided into two groups: (1) USLS group (N = 26) and (2) SSLF group (N = 25), with follow-up of 6 and 12 months with analysis of the anatomical results (anterior, posterior and apical compartments); quality of life and complications.
Results: The groups were homogeneous considering demographic and clinical parameters. There was significant improvement in the P-Qol and anatomical measurements of all compartments in both groups after 12 months (p <0.001). The rates of anatomical cure in the ULS and SSLF groups, considering stage 1, were 34.6% vs 40% (anterior); 100% both groups (apical) and 73.1% vs 92% (posterior). The rates of adverse outcomes were 42% (N=11) and 36% (N=11), respectively, in the USLS and SSLF groups (p = 0.654) without difference in hemoglobin rates, surgical time, and hospitalization.
Conclusions: High cure rates in all compartments were observed according to anatomical criterion Ba, Bp and C ≤ 0, without difference in quality-of-life parameters and complications either with the USLS or SSLF technique for surgical treatment of accentuated uterine prolapse.
Disclosure: No

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Development and Validation of Machine Learning Algorithms for Predicting Ring Pessary Size in Patients with Pelvic Organ Prolapse

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Introduction: Vaginal pessaries are a cost-effective and low-risk treatment option for patients with symptomatic pelvic organ prolapse (POP). There have been prior attempts to predict pessary size and type based on clinical POP quantification (POP-Q) exam measurements using logistic regression, but pessary fitting remains a trial-and-error process. Machine learning (ML) algorithms, a subset of artificial intelligence, have the potential to generate superior prediction models that, when applied to pessary selection, could reduce the number of fitting attempts and time to effective treatment.
Objective: Our primary objective was to predict the size of ring pessaries worn by patients with POP using ML models. Our secondary objective was to compare the accuracy of the ML models to logistic regression models and occurrence-based random selection.
Methods: Predictive models were developed using combined retrospective and prospective datasets of patients with POP that consistently reported ring pessary size and success following fitting at three clinical sites worldwide (Hong Kong, Canada, and Chile). Patients were included in the analysis if they were successfully fitted with a ring pessary and continued pessary use for at least one year. Our primary outcome was the size of the ring pessary used. The ring pessary diameter was used to group pessaries into 10 discrete sizes (e.g., ring size #1-10), the most common size scale in our cohort. POP-Q exam measurements and ratios between measurements (e.g., genital hiatus/total vaginal length) were used as predictor variables. We developed two ML models using random forest (RF) and extreme gradient boosting (XGboost) algorithms and one traditional statistical model using logistic regression. We also developed a model using occurrence-based random selection (i.e., selecting a pessary size solely based on the known distribution of sizes). The data was randomly split into 70% and 30% for training and testing the ML models, respectively. The accuracy of the models was assessed for one prediction and two predictions.
Results: A total of 694 patients using ring pessaries met inclusion criteria for this study. The distribution of fitted pessary sizes is shown in Figure 1. The RF model had the best accuacary for one and two predictions (33% and 48%, respectively) followed by the XGboost model (30% and 47%, respectively) (Table 1). Both ML models had a higher accuracy for one and two predictions compared to logistic regression (20% and 43%, respectively) and occurrence-based random selection (17% and 41%, respectively). In assessing accuracy after one prediction, logistic regression had only 18% improvement over occurrence-based random selection, whereas RF and XGboost models had 94% and 76% improvement, respectively. All models showed an expected improvement in accuracy with two predictions.
Conclusions: Machine Learning models are more accurate than statistical models and occurrence-based random selection in predicting the size of ring pessaries among pessary users, demonstrating the potential of ML techniques to improve upon empiric pessary selection. Nevertheless, prediction accuracy based solely on POP-Q measurements remains poor. Additional predictors, such as vaginal width or capacity, are likely to improve the predictive ability of ML models.
Disclosure: Yes, this is sponsored by industry/sponsor: Cosm Medical Corp.
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: Cosm Medical
Images:

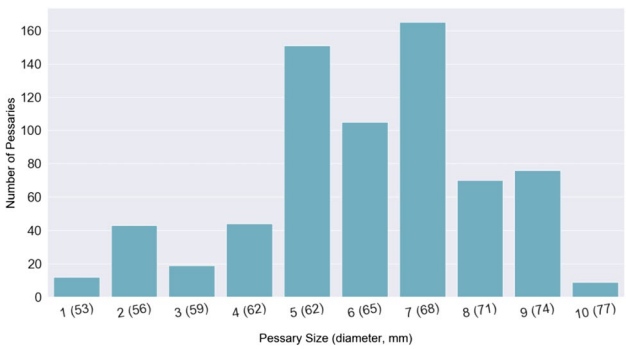

Figure 1: Distribution of ring pessary sizes

Table 1. Accuracy of the prediction models in predicting the ring pessary size

Prediction Model	Model Accuracy, One Prediction	Model Accuracy, Two Predictions
Random Forest	33%	48%
Extreme Gradient Boost	30%	47%
Logistic Regression	20%	43%
Occurrence-based Random Selection	17%	41%

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Prolapse, Pelvic Pain and Pelvic Floor Muscle Dysfunction

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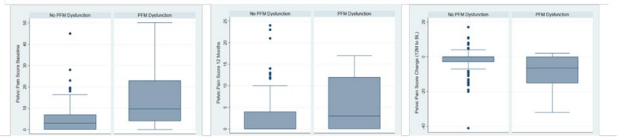
Introduction: Recent studies suggest pelvic pain may occur more often than previously thought in patients with pelvic organ prolapse (POP), and pelvic floor muscle dysfunction (PFMD) may occur in some women with POP. PFMD, a cause of pelvic pain, is understudied, and its associations with POP and POP treatment outcomes are poorly understood.
Objective: Our aims were to characterize pelvic pain in women presenting for POP treatment, determine if pain is associated with PFMD, and to identify whether pelvic pain improves one year after POP treatment in women with and without PFMD. We hypothesized that among treatment-seeking POP patients, those with PFMD are more likely to report pelvic pain and less likely to have pain improve after POP treatment.
Methods: We conducted an ambispective cohort study of women enrolled at one site of a national, multicenter POP treatment registry. Registry data (clinical and patient-reported outcomes) were collected prospectively at baseline and after treatment. Retrospectively, the presence of baseline pain conditions, treatments, and a pelvic floor muscle exam were obtained from the medical record. PFMD was identified if tenderness was reported on a standardized pelvic floor muscle examination performed prior to treatment. The primary outcome was a pelvic pain questionnaire that assessed pain in the past 24 hours in 7 locations (each rated 0-10) in the pelvic region and lower extremities (score range 0-70). Secondary pain outcomes included individual items from the Pelvic Floor Distress Inventory Short Form (PFDI-20; responses dichotomized as at least moderately bothersome or not) and Global Health Scale (GHS; overall body pain, range 0-10). Change in outcome was calculated as 12-month post-treatment minus baseline score. Bivariable within and between group comparisons were performed.
Results: 158 women planning surgery (138) or pessary (20) treatment enrolled. Twenty (12.6%) had PFMD at baseline. Those with PFMD (vs no PFMD) were younger (mean 55.7 vs. 64.5 years), more likely to have prior chronic pain diagnoses and report regular use of pain medication (Table). Women with PFMD vs no PFMD had greater baseline pelvic pain score (median (IQR), 9.7 (4-23) vs. 3 (0-7), p=0.0008); at least moderately bothersome lower abdomen/genital pain (11 (55%) vs. 27 (19.6%), p=0.004); and overall pain (4 (3-6) vs. 2 (0-3), p=0.0002). Pelvic pressure and heaviness did not differ by group (Table). 134 women (116 surgery, 18 pessary) had 12-month post-treatment outcomes. All pain outcomes improved after treatment (Table). Women with PFMD at baseline had greater improvement in pelvic pain score compared to those without PFMD (-6.5 (-15.2-0) vs. 0 (-3-0), respectively, p=0.03; Figure). Post-treatment pelvic pain scores were not significantly different in the PFMD vs no PFMD group (3 (0-12) vs. 0 (0-4), p=0.18). Overall body pain improved slightly after treatment in the no PFMD group but not in the PFMD group.
Conclusions
Patients with POP and PFMD report more pelvic pain than those without PFMD. Contrary to our hypothesis, pelvic pain scores improved in patients with POP and PFMD 12 months after POP treatment. These findings will help surgeons better counsel patients about changes in pain after POP treatment.
Disclosure: No
Images:

Table. Participant baseline characteristics and outcomes in women with prolapse, with and without pelvic floor muscle dysfunction (PFMD).

	Entire Cohort [n=158]	PFMD at baseline [n=20]	No PFMD at baseline [n=138]	p-value
Baseline Characteristics				
Age (yr; mean [SD])	63.4 (11.8)	55.7 (14.2)	64.5 (11.0)	<0.01
Race				0.26
White	147 (93%)	17 (85%)	130 (94.2%)	
Hispanic	6 (3.8%)	2 (10%)	4 (2.9%)	
Black	3 (1.9%)	1 (5%)	2 (1.5%)	
Native American	1 (0.6%)	0 (0%)	1 (0.7%)	
Asian	1 (0.6%)	0 (0%)	1 (0.7%)	
BMI (kg/m²; mean [SD])	28.8 (5.3)	30.8 (6.5)	28.5 (4.9)	0.07
Chronic Pain Diagnosis				
Chronic pelvic pain	8 (5.1%)	4 (20%)	4 (2.9%)	0.01
Fibromyalgia	5 (3.2%)	2 (10%)	3 (2.2%)	0.12
Pain Medication				
Any	67 (42.4%)	13 (65%)	54 (39.1%)	0.03
Opioid	4 (2.5%)	1 (5%)	3 (2.2%)	0.42
NSAID	48 (30.4%)	10 (50%)	38 (27.5%)	0.04
Neuropathic/central-acting	19 (12%)	5 (25%)	14 (10.1%)	0.07
Prior Pelvic Surgery				
Hysterectomy	55 (34.8%)	7 (35%)	48 (34.8%)	0.99
Intestinal/bowel	6 (3.8%)	4 (20%)	2 (1.5%)	<0.01
Prolapse surgery	29 (18.4%)	6 (30%)	23 (16.7%)	0.15
Incontinence surgery	16 (10.1%)	2 (10%)	14 (10.1%)	1.0
POP Stage				0.24
2	74 (46.8%)	13 (65%)	61 (44.2%)	
3	74 (46.8%)	6 (30%)	68 (49.3%)	
4	10 (6.3%)	1 (5%)	9 (6.5%)	
Baseline Outcomes				
Pelvic pain score (median [IQR])	3 (0, 9)	9.7 (4, 23)	3 (0, 7)	<0.01
PFDI-20 #1 "pressure#"	47 (30.3%)	8 (42.1%)	39 (28.7%)	0.23
PFDI-20 #2 "heaviness#"	47 (30.7%)	9 (45.0%)	38 (28.6%)	0.14
PFDI-20 #20 "pain/discomfort#"	38 (24.1%)	11 (55.0%)	27 (19.6%)	<0.01
GHS #7 "pain on average" (median [IQR])	2 (0, 4)	4 (3, 6)	2 (0, 3)	<0.01
12-Month Outcomes				
Change in Pelvic pain score (median [IQR])	0 [-4, 0]**	-6.5 [-15.2, 0]***	0 [-3, 0]***	0.03
PFDI-20 #1 "pressure#"	5 (4.3%)**	1 (7.1%)	4 (3.9%)**	0.48
PFDI-20 #2 "heaviness#"	3 (2.6%)**	0 (0%)	3 (2.9%)**	1.0
PFDI-20 #20 "pain/discomfort#"	3 (2.6%)**	0 (0%)***	3 (2.9%)**	1.0
Change in GHS #7 "pain on average" (median [IQR])	0 [-2, 0]**	0 [-2, 1.5]	0 [-2, 0]**	0.40

Values presented as n (%) unless otherwise stated. SD = standard deviation, BMI = body mass index, NSAID = non-steroidal anti-inflammatory drug, POP = pelvic organ prolapse, IQR = interquartile range, PFDI-20 = Pelvic Floor Distress Inventory Short Form, GHS = Global Health Scale,
Responses dichotomized as at least moderately bothersome or not
** p-value for within group change (compared to baseline) <0.01
*** p-value for within group change (compared to baseline) <0.05

Figure. Boxplots of Pelvic Pain scores (baseline, 12-month after treatment, and change scores (12-month – baseline)) in women with prolapse, with and without baseline pelvic floor muscle (PFM) dysfunction. Pain scores were higher at baseline and improved more after prolapse treatment in women with PFM dysfunction.



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Apical Suspension During Minimally Invasive Hysterectomy: Does Uterine Size Matter?

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Introduction: Risk factors for symptomatic pelvic organ prolapse (POP) include age, parity, vaginal delivery, obesity, and menopausal status. Factors that increase intra-abdominal pressure have been associated with prolapse due to greater load on the pelvic support structures. Apical suspension procedures are performed to restore normal anatomic position and should be performed at the time of minimally invasive hysterectomy (MIH) performed for prolapse. Preoperative pelvic examination includes assessment of uterine size for surgical planning for hysterectomy. Association between uterine weight and concomitant apical suspension during MIH is poorly understood.
Objective: To determine if uterine weight is associated with the likelihood of patients undergoing a concomitant apical suspension procedure at the time of MIH.
Methods: We performed an IRB-approved retrospective cohort study of women who underwent MIH in an academic hospital system from 2014-2021. Patients were identified via CPT codes for MIH: vaginal, laparoscopic-assisted vaginal, and laparoscopic which included robotic. Patients with a gynecologic malignancy were excluded. Patient demographic characteristics and conditions that impact uterine weight and risk of POP were examined. Indications for hysterectomy were

obtained via ICD-10 codes. Uterine weight was obtained from pathology reports. The primary outcome was performance of an apical suspension procedure (sacrocolpopexy, uterosacral ligament suspension, sacrospinous ligament suspension, or McCall culdoplasty) at the time of MIH. Univariable analysis was performed using non-parametric testing when appropriate for demographic and clinical variables. Multivariable regression was used to determine predictors of apical suspension during MIH. Univariable analysis was performed on sub-analysis of ascending uterine weight categories to determine the existence of inflection point in likelihood of concomitant apical suspension. Statistical analyses were performed using STATA v15.0 (College Station, TX).

Results: 2302 patients were identified; 1795 underwent MIH alone [78%] and 507 underwent concomitant apical suspension [22%]. Women of older age, white race, higher parity, and those with POP were more likely to undergo apical suspension during MIH (p <0.001). Black women, obese women, and those who used tobacco were less likely to undergo concomitant apical suspension (p <0.001). Women with leiomyomata, abnormal uterine bleeding, and higher uterine weight were more likely to undergo MIH alone (p <0.001, Table 1). In multivariable regression, menopausal status and parity were correlated with apical suspension during MIH (p<0.001); black race and uterine weight were negatively correlated (p=0.01 and p<0.001, respectively, Table 2). Significant differences existed in the proportion of concomitant apical suspensions across ascending uterine weight categories with greater proportions at lower uterine weights and no suspensions in uteri over 550 grams (p<0.001, Figure 3).

Conclusions: Menopausal and parous women were more likely to undergo concomitant apical suspension at the time of MIH. Black women and those with higher uterine weight were less likely to undergo concomitant apical suspension. Most suspensions were performed in women with smaller uteri and trended down with increasing weight with none performed in uteri over 550 grams. Further study is necessary to determine the nature of the association between increasing uterine weight and lower likelihood of apical suspension during MIH.

Disclosure: No

Images:

Table 1: Demographic characteristics

n = 2302	MIH alone (n = 1795)	MIH with apical suspension† (n=507)	p value*
Age (years), Mean ± SE	48.1 ± 0.24	60.1 ± 0.48	p <0.001
Menopausal (age >51 years), n (%)	554 (30.9)	418 (82.5)	p <0.001
Race			p <0.001
White, n (%)	1157 (68.8)	412(85.7)	
Black, n (%)	441 (26.2)	47 (9.8)	
Other, n (%)	83 (5.0)	22 (4.6)	
Black race, n (%)	441 (26.2)	47 (9.8)	p <0.001
BMI (kg/m^2), Mean ± SE	30.9 ± 0.18	28.0 ± 0.24	p <0.001
Obese (BMI ≥ 30), n (%)	866 (49.0)	142 (28.3)	p <0.001
Parity, Mean ± SE	2.1 ± 0.43	2.6 ± 0.06	p <0.001
Parity >1	831 (89.5)	399 (98.0)	p <0.001
Leiomyomata, n (%)	1048 (58.4)	130 (25.6)	p <0.001
Abnormal uterine bleeding, n (%)	567 (31.6)	5 (1.0)	p <0.001
Prolapse, n (%)	103 (5.7)	485 (95.7)	p <0.001
Tobacco use (current or former), n (%)	673 (38.3)	188 (37.6)	p = 0.77
Uterine weight (grams), Mean ± SE	203.9 ± 4.59	72.7 ± 2.62	p <0.001

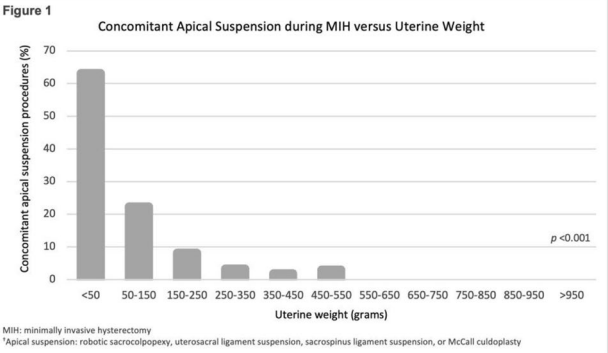
MIH, minimally invasive hysterectomy; SE, standard error; BMI, body mass index
†Apical suspension includes robotic sacrocolpopexy, uterosacral ligament suspension, sacrospinus ligament suspension, or McCall culdoplasty
Statistical analysis calculated by ANOVA
*Pearson's χ^2 test; Fisher's exact test when n < 5

Table 2: Multivariable logistic model of predictors of concomitant apical suspension* during MIH

Variable, n = 2302	β_s	SE	95% CI	p
Menopausal†	4.99†	0.82†	3.62 – 6.90†	<0.001†
Black race	0.55	0.13	0.35 – 0.87	0.01
Parity >1	1.32	0.08	1.12 – 1.49	<0.001
Uterine weight (grams)	0.99	0.00	0.98 – 0.99	<0.001

*Apical suspension includes robotic sacrocolpopexy, uterosacral ligament suspension, sacrospinus ligament suspension, or McCall culdoplasty
MIH, minimally invasive hysterectomy
n = number of MIH; β, regression coefficient; SE, standard error; β_s, standardized regression coefficient
†Menopausal, >51 years of age

Figure 1



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The Burden and Risk factors of Pelvic Organ Prolapse in Two Communities

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Introduction: Pelvic organ prolapse (POP) is reported more in postmenopausal women in high-income countries. Limited data from low- and middle-income countries (LMICs) suggest a higher prevalence of POP among younger women in ages ranging from 25-34 years. Few studies have examined risk factors for the younger age of POP onset in LMICs. We hypothesised that differences in access to water, sanitation, and hygiene (WASH) facilities with a resulting difference in head-load bearing activities may contribute to an earlier age of onset for POP.

Objective: We aim to 1. To determine the prevalence of POP in two rural communities in Ghana 2. To investigate the relationship between POP prevalence socio-economic demographic characteristics, access to W.A.S.H and amount of load-bearing activities

Methods: We conducted a cross-sectional, household-based, survey of non-pregnant adult women in two communities. After stratification at the subdistrict and Community Health Planning and Services level, households were randomly selected using a computer-generated sequence. Following consent, trained community health nurses administered a structured questionnaire (sociodemographic, pregnancy, and obstetric history, PFDI, PFIQ, Department for International Development's water-carrying survey) using Redcap software. We used binary logistic regression to determine risk factors for POP. Statistical significance was set at 95%. Data were analysed using STATA.16.

Results: We surveyed 519 women. The prevalence of POP in the communities was 10.5%(n=27) and 8.5%(n=21) respectively. Both communities had similar sociodemographic and pregnancy characteristics. The mean age and vaginal parity were 40 years and 5.3 respectively. POP was reported to have a negative impact on quality of life amongst 81.5% (n =22) and 87.5%(n=18) of women in communities 1 and 2 respectively. The mean age of onset for POP symptoms was 31.5 (SD 30.5). Women on average completed 5 trips daily (SD 2.3) and spent 28 years of their lives collecting water. Risk factors associated with increased odds of reporting POP included living in community 2 (OR 1.4 p 0.38 CI 0.66-3.02), more days per week spent collecting water (OR 1.4 p 0.10 CI 0.95-1.97), doing manual work (OR 1.8 p 0.42 CI 0.42-8.06), age >50years (OR 3.2 p 0.09 CI 0.83-12.00) and having a family member with POP

symptoms (OR 6.5 p 0.01 CI 2.45-17.49). Risk factors associated with decreased odds of reporting POP included having BMI >25(OR 0.26 p 0.04 CI 0.07-0.92) and collecting water from a source outside one's residence (OR 0.32 p 0.01 CI 0.14-0.77).

Conclusions: Compared to the literature, the prevalence of POP within these communities is higher and affects younger women with lower BMI. Though not statistically significant, these women spend almost a third of their lives carrying water from distant locations such as rivers, tube wells, and boreholes (Fig. 1) The familial association with increased POP may reflect the impact of social determinants of health, social networks on health information, health-seeking behaviour, or inherited tissue disorders. Further work around improving access to WASH, is required to reduce the burden of early onset of POP in younger-aged women in these communities.

Disclosure: No

Images:

Table 1 Differences in Risk Factors Amongst POP Positive(+ve) and POP negative(-ve) Women

p-values calculated using Fisher's exact test

	POP +ve	POP -ve	P value
Prevalence,%(n)	9.3% (48)	90.7% (471)	-
Community 1 2	 27(56) 21(44)	 231(49%) 240(51%)	0.4
Age, mean (SD)	39.0(15.0)	40.2 (15.2)	0.1
BMI, mean (SD)	20.3(2.8)	22.9 (3.1)	0.03
Literacy, n(%) Cannot read at all Able to read only par Able to read the whole	 39(82) 4(8) 5(10)	 371(79) 34(7) 66(14)	0.8
Where is that water source located, n(%) In own dwelling In own yard/plot Elsewhere	 47(10.0) 36(7.6) 388(82.4)	 10(20.8) 3(6.25) 35(81.5)	0.1
What is the main source of drinking water for members of your household? n(%) Piped into yard/plot Public tap/standpipe Tube well or borehole Protected well Unprotected well Rainwater Surface water (river) Sachet water Other	 0(0) 4(8.3) 26(54.2) 0(0) 1(2.08) 0(0) 17 (35.4) 0(0) 0(0)	 18(3.8) 56(11.9) 237(50.3) 3(0.64) 9(1.9) 1(0.2) 141(29.9) 5(1.1) 1(0.21)	0.8
Number of prior pregnancies, mean (SD)	5.5 (3)	5.6(3)	0.6
Age of initiation of water carrying, mean (SD)	8.0 (1.9)	8.2 (2.4)	0.7
Trips per day, mean (SD)	4.7 (1.4)	4.6(1.8)	0.8
Total time spent carrying water/week in minutes (mean)	167519.3	165981.7	0.2
Constipation, n(%) Yes No	 2(4) 46(96)	 3(0.6) 468(99.4)	0.07
Cough, n(%) Yes No	 0(0) 48(100%)	 9(2) 462(98)	0.42

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Impact of Pain Catastrophizing on Pelvic Floor Symptoms and Function In Women Undergoing Pelvic Floor Surgery

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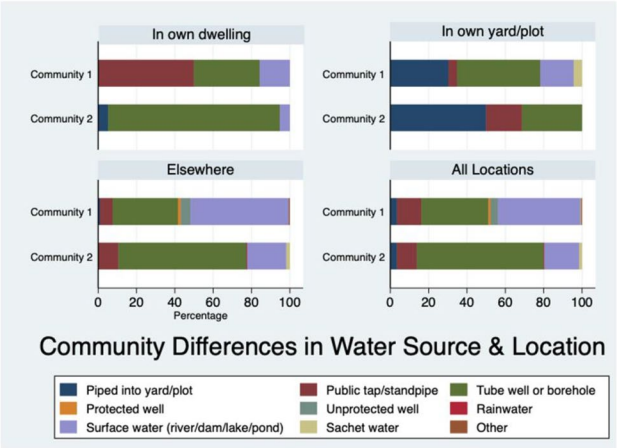
Figure 1. Water Source & Location in both Communities



Introduction: Personality, experience, and medical/psychosocial comorbidities may impact intensity, duration, and management of pain and discomfort. Pain catastrophizing is an important component of the patient experience and is not accurately assessed by a surgeon's clinical judgement alone. Pain catastrophizing has been shown to predict poorer response to treatment of endometriosis and persistent pain as well as reduced quality of life in chronic pain syndromes. Further, it has been shown to affect opioid consumption and pain following orthopedic surgery. However, little is known about the impact of pain catastrophizing on pelvic floor symptom bother and voiding function following urogynecologic surgery. Pain catastrophizing may influence established pelvic floor symptom bother indices and provide another domain which can be evaluated to characterize the patient experience and understand the way individuals perceive and cope with symptom distress at baseline and in the perioperative setting.

Objective: To assess the impact of preoperative pain catastrophizing on preoperative pelvic floor symptom bother as well as postoperative voiding function in women undergoing pelvic floor surgery.

Methods: Women undergoing urogynecologic surgery 03/2020 to 12/2021 were included in this retrospective cohort study. Subjects completed pain catastrophizing scale (PCS, score range 0 to 52) at preoperative visit. Pain catastrophizing was defined as PCS ≥30. Women also completed the Pelvic Floor Impact Questionnaire Short Form (PFIQ-7) as well as the Pelvic Floor Distress Inventory-20 (PFDI-20). Standardized voiding trial (VT) was performed postoperatively where failure was defined as inability to void ≥2/3 of an instilled maximum tolerated volume (≤300mL). Linear regression models were used to assess the association between pain catastrophizing and pelvic floor symptom bother (UIQ, CRAIQ, POPIQ, and PFDI-20), and logistic regression for the association with VT failure. Covariates were selected based on clinical relevance or statistical significance at $p<0.1$ on bivariate analysis. Significance level was set at 0.05.

Results: 320 women were included with mean age 60±12.8 years, 87% White, and mean BMI 29±7kg/m2. 46/320 (14%) had PCS ≥30. Mean PCS in the pain catastrophizing group was 39±5.4 versus 7.7±8.3 in the low PCS group ($p<0.01$). Baseline and perioperative characteristics did not differ between groups except for PCS≥30 group having higher BMI compared to those with low PCS (33.1±12.4 vs 28.7±5.5 ($p<0.01$). Women with PCS≥30 had significantly greater bother measured by the PFDI-20 (154.1±58.1 vs 109.1±62.0, $p<0.01$) as well as all PFIQ-7 subscales (UIQ 66.7 vs 28.6; CRAIQ 33.3 vs 0; POPIQ 69.0 vs 9.5, $p<0.01$; Table 1). These differences exceed the minimal important difference for PFDI-20 and the associations remained significant after controlling for age, race, BMI, tobacco use, diabetes, anxiety, depression, and prolapse stage. The model for UIQ was also controlled for preoperative stress or urgency incontinence (PFDI-20, POPIQ, UIQ;

p<0.01). Failure of postoperative VT did not differ between groups with vs without pain catastrophizing adjusted for the aforementioned covariates (29 vs 29%, aOR 0.78 [95%CI 0.35, 1.74])

Conclusions: Preoperative pain catastrophizing is associated with validated measures of pelvic floor distress and impact but not with immediate postoperative voiding function as assessed by a standardized voiding trial.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Data Safety Monitoring Board - Bluewind, Allergan

Images:

Table 1 - Baseline Clinical Demographic and Surgical Characteristics of Study Populations

Characteristics	Total	PCS≥30	PCS<30	p*
Participants, n (%)	320 (100)	46 (14.4)	274 (85.6)	
Age, mean (SD)	60 (12.8)	59.7 (13.6)	60.1 (12.7)	.8399
BMI, mean (SD)	29.3 (7.1)	33.1 (12.4)	28.7 (5.5)	<.0001
Race, n (%)				.0715
Black or African American	30 (9)	6 (13)	24 (9)	
White	278 (87)	36 (78)	242 (88)	
Other	12 (4)	4 (9)	8 (3)	
Hypertension, n (%)	142 (44)	20 (43)	122 (45)	.8948
Current Smoker, n (%)	36 (11)	9 (20)	27 (10)	.0738
Diabetes Mellitus, n (%)	33 (10)	1 (2)	32 (12)	.0631
Chronic Opioid Use, n (%)	39 (12)	7 (15)	32 (12)	.4729
Anxiety Diagnosis, n (%)	68 (21)	14 (30)	54 (20)	.1202
Depression Diagnosis, n (%)	59 (19)	13 (28)	46 (17)	.0671
Pain Syndrome Diagnosis, n (%)	25 (8)	7 (15)	18 (7)	.0685
UIQ, median [IQR]	33.3 [14.3-61.9]	66.7 [33.3-81]	28.6 [9.5-52.4]	<.0001
CRAIQ, median [IQR]	4.8 [0-28.6]	33.3 [4.8-59.5]	0 [0-23.8]	<.0001
POPIQ, median [IQR]	14.3 [0-47.6]	69 [28.6-81]	9.5 [0-38.1]	<.0001
PFDI, mean (SD)	115.6 (63.4)	154.1 (58.1)	109.1 (62)	<.0001
Vaginal deliveries, median [IQR]	2 [2-3]	2 [2-3]	2 [2-3]	.5150
Prolapse Stage, n (%)				.9956
0-1	83 (26)	12 (27)	71 (26)	
2	100 (32)	15 (33)	85 (31)	
3	88 (28)	12 (27)	76 (28)	
4	45 (14)	6 (13)	39 (14)	
Preoperative PVR, mL, mean (SD)	55.7 (84.8)	38.6 (48.1)	58.1 (88.6)	.1907
SUI Preop, n (%)	217 (68)	27 (59)	190 (69)	.1526
UUI Preop, n (%)	171 (53)	23 (50)	148 (54)	.6135
EBL, mean (SD)	82.9 (59.8)	91.7 (66.5)	81.4 (58.6)	.2790
Operative time, minutes, mean (SD)	101.3 (56)	108.9 (61.5)	100 (55)	.3209
Hysterectomy, n (%)	89 (28)	15 (33)	74 (27)	.3768
Anterior Repair, n (%)	164 (51)	23 (50)	141 (51)	.8546
Posterior Repair, n (%)	196 (61)	26 (57)	170 (62)	.4769
Apical Suspension, n (%)				.7638
No	125 (39)	21 (46)	104 (38)	
Uterosacral ligament suspension	69 (22)	8 (17)	61 (22)	
Sacrospinous ligament suspension	117 (37)	16 (35)	101 (37)	
Sacrocolpopexy	9 (3)	1 (2)	8 (3)	
MUS, n (%)	185 (58)	23 (50)	162 (59)	.2463
Prior MUS surgery, n (%)	42 (13)	9 (20)	33 (12)	.1622
Prior Prolapse Surgery, n (%)	43 (13)	8 (17)	35 (13)	.3602
Prior Hysterectomy, n (%)	147 (46)	19 (41)	128 (47)	.4956
First VT failure, n (%)	89 (29)	12 (29)	77 (29)	.9778

Note: * Chi Square or Fisher's exact test for count data unless otherwise noted, ANOVA F test for Mean (SD) data, Kruskal-Wallis test for Median [IQR] data.

PCS: Pain Catastrophizing Scale; BMI: Body Mass Index; UIQ: Urinary Impact Questionnaire; CRAIQ: Colorectal-Anal Impact Questionnaire; POPIQ: Pelvic Organ Prolapse Impact Questionnaire; PFDI: Pelvic Floor Disability Index; PVR: post void residual; SUI: stress urinary incontinence; UUI: urgency urinary incontinence; EBL: estimated blood loss; MUS: midurethral sling; VT: voiding trial

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Pectineal Colpopexy and Hysteropexy: The First Thirty Cases

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Introduction: Laparoscopic sacral colpopexy produces excellent results for most patients, but some patients have contraindications. Laparoscopic pectineal suspension, or pectopexy, is a new technique for apical prolapse repair that avoids dissection into and placement of mesh in the posterior pelvis. In an RCT, pectopexy produced equivalent results to sacral colpopexy with fewer postoperative bowel symptoms. We introduced pectopexy in our practice two years ago as an alternative for patients with contraindications to sacral colpopexy including pelvic adhesions, colonic disease, high risk of bleeding, and intolerance of steep Trendelenberg position.

Objective: To compare the operative outcomes of the first 30 laparoscopic pectopexies at our institution with our historical data for sacral colpopexy.

Methods: Under an IRB-approved protocol, charts of all patients undergoing pectopexy at our hospital were reviewed. Data including prolapse stage, operative time, complications, and outcomes were extracted. These data were compared with a larger historical data set for sacral colpopexy.

Results: The first 30 cases of pectopexy performed from 2019 through 2021 were reviewed. The average follow up was 45 days. Patient characteristics were similar to the historical sacrocolpopexy cohort (Table 1). Patients had stage II to IV prolapse, predominantly stage III. There were no serious adverse events. There were no cases of objective failure; one patient underwent reoperation for a rectocele that was not thought significant at the time of her original surgery. The overall complication rate including reoperation was similar to historical data (10% vs 14.8%, p=0.418), as were operative times, blood loss, and individual complications (Table 2).

Conclusions: Laparoscopic pectopexy produced similar results to sacral colpopexy in a group of patients with relative contraindications to sacral colpopexy. By adding it to our practice we have been able to offer the excellent outcomes typical of sacral colpopexy to a larger group of patients, and we have been able to avoid converting any laparoscopic operations to laparotomy due to adhesions.

Disclosure: No

Images:

Patient Factor	Laparoscopic Pectopexy (n= 30, 2019-2021) (SD, range)	Laparoscopic Sacrocolpopexy (n=207, 2014-2019) (SD, range)
Average Age (yr)	70 (8.1, 56-86)	64.9 (10.3, 21-92)
BMI	30.8 (6.3, 22-45)	27.9 (4.5,19-37)
Currently Smoking (number of patients, %)	4 (13)	10 (4.8)
Vaginal Deliveries	2.54 (1.6, 0-6)	2.60 (1.5, 0-12)
Prolapse Stage	2.7 (0.46, 2-4)	2.6 (0.66, 1-4)
Race		
Native American	1 (3.33%)	4 (1.93%)
African American	0 (0%)	4 (1.93%)
Caucasian	23 (76.67%)	149(67.63%)
More than 1 race	1 (3.33%)	14 (6.76%)
Other	2 (6.67%)	7 (3.38%)
Unknown or missing	3 (10%)	5 (2.42%)
Ethnicity		
Hispanic	8 (26.67%)	58 (28.0)
Not Hispanic	21 (70.0%)	111 (52.6%)
Not Listed	1 (3.33%)	0 (0%)

Table 1: Patient Characteristics

Complications	Laparoscopic Pectopexy (n=30)	Laparoscopic Sacrocolpopexy (n=207)
Overall	10%	14.8% (p=0.418)
Cystotomy	0	7 (3.4%)
Enterotomy	0	1 (0.5%)
Conversion to laparotomy	0	1 (0.5%)
Blood transfusion	0	0
Nerve Injury	0	0
Hematoma	0	2 (1.0%)
UTI	2 (6.7%)	6 (2.9%)
EBL	39.3mL (range 25-200)	47.0mL (range 10-250mL)
Elevation of care	0	1 (0.5 %)
PE or DVT	0	1 (0.5 %)
Readmission	0	0
Mesh erosion	0	3(1.4%)
Mesh detachment	0	2 (1.0%)
Mesh removal	0	3 (1.4%)
Recurrent prolapse (POP-Q >2)	1 (3.3%)	13 (6.3%)
Prolapse reoperation	1 (3.3%)	8 (3.9%)
Surgical site infection	0	2 (1.0%)
Small bowel obstruction	0	1 (0.5 %)
De-novo stress urinary incontinence requiring surgery	0	10 (4.9%)
Urinary retention requiring intervention	1 (3.3%)	2 (1.0%)
Follow up (days)	43.5 (0-369)	327.5 (10-2198)

Table 2: Complications

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A Transvaginal Percutaneous Bilateral Sacrospinous Hysteropexy for Treatment of Uterine Prolapse in Young Women

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3 - Department of Urologic Surgery, Edith Wolfson Medical Center
4 - Urogynecology & Pelvic Floor Medicine, Faculty of Health Sciences, Ben Gurion University of the Negev, Beer Sheva, Israel

Introduction: Younger women are more receptive to alternative choices for treatment of their pelvic health conditions. It is well established that this younger group of patients seek out alternatives choices to traditional approaches of both non-surgical and surgical management of medical conditions. There is also a continued trend toward more and more minimally invasive approaches when surgical treatment is indeed pursued. For reconstructive surgeries, durability has often been the central focus for physician providers, yet often patients themselves are more or equally interested in the experiential aspects of the surgical care, such as; post-operative discomfort, recovery, and duration of time to normal activity and exercise. In addition, young women are more often to desires uterine preservation when undergoing surgical correction of their pelvic organ prolapse. Although there are many various traditional surgical procedures utilizing both abdominal and vaginal approaches for correction uterine prolapse repair, most involve deep pelvic dissection, general anaesthesia, and in selected cases mesh implants. Hysterectomy has historically been performed concomitantly with pelvic reconstruction. However, more recent evidence based data exist that favours surgical management by sacrospinous hysteropexy versus hysterectomy when performing pelvic reconstructive surgery. This uterine preserving technique has been associated with decreased blood loss, shorter operative times, similar anatomic outcomes with less anatomical recurrences of the apical compartment, or need for repeat surgery. Thus, fixing the cervix to the sacrospinous ligament may offer a simple, safe and durable outcome, especially if it can be performed percutaneously through the vagina.

Objective: To demonstrate an alternative minimally invasive, mesh free bilateral sacrospinous ligament fixation (SSLF) hysteropexy for the management of symptomatic uterine prolapse in young women desiring surgical treatment (EnPlace™ Fig1).

Methods: The study population consisted of 17 women aged from 33-45 years old with stage 2-3 symptomatic uterine prolapse who were seeking surgical treatment. The study patients underwent surgical repair using the EnPlaceTM device. Operative results and postoperative follow up Pelvic Organ Prolapse Quantification results were recorded.

Results: Twelve patients presented for initial post-operative follow up. Mean age of patients was 40.7 (33-45). Patient's characteristics are described in Table-1. Mean operating time was 33 minutes. Mean blood loss was 32 ml. The C point average on POP-Q examination was -5. Overall patients' satisfaction rate from the surgery was 92.5 (of 100). All patients were discharged on the operative day except one that went home the following day. No short-term complications occurred. Post-operative outcomes are described in Table-2.

Conclusions: Minimally invasive bilateral sacrospinous hysteropexy with the with the EnPlaceTM device provides a safe and alternative approach for the management of uterine prolapse in young women that wish to preserve their uterus.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Menahem Neuman is Founder and Medical Director of FEMselect

Images:

Table 1- Patient's characteristics

Characteristics	N=17
Age	40.7 (33-45)
Para	3 (1-5)
Previous POP surgery	0
Previous hysterectomy	0
SUI	1
OAB	10
Defecatory problems	0
POP	17
Point C POPQ median (range)	3 (-1-6)
Central compartment prolapse stage ≥ 3	13
Cystocele stage ≥ 2	17
Rectocele stage ≥ 2	17
Concomitant procedure	17
Anterior repair	14
Posterior repair	14
MUS	1
Cervical amputation	1

Values are presented as ±SD, median and range or number of women **MUS**=mid urethral sling, **SUI**=stress urinary incontinence, **POP**=pelvic organ prolpase, **OAB**=over active bladder **POPQ**=pelvic organ prolapse quantification system

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Table 2- Postoperative outcomes of patients who underwent EnPlace surgery

Characteristics	n=12
Point C POPQ	-5 (0- -6)
Post operative pelvic pain	0
Hematoma formation	0
Post operative buttock pain	0
De novo USI	1
De novo OAB	0
De novo defecatory symptoms	0
Recurrent POP	1
Satisfaction	92.5

Values are presented as ±SD, median and range or number of women **MUS**=mid urethral sling, **SUI**=stress urinary incontinence, **POP**=pelvic organ prolpase, **OAB**=over active bladder **POPQ**=pelvic organ prolapse quantification system

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Does Avulsion Lead to Earlier Presentation for Symptoms of Pelvic Organ Prolapse?

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Introduction: Pelvic floor damage at vaginal birth is a central factor in the aetiology of female pelvic organ prolapse (POP). While prolapse also occurs in nulliparae, early presentation with symptoms of prolapse may be a marker for birth trauma.

Objective

To compare the latency between first vaginal delivery and onset of POP symptoms in women with intact levator ani and those with partial, unilateral and bilateral complete avulsion.

Methods: This was a retrospective study of 934 women attending a tertiary urogynecology unit for symptoms of pelvic floor dysfunction between 2/19 and 11/21. All underwent a history, clinical POPQ examination and tomographic ultrasound imaging for pelvic floor assessment as standardised by IUGA. Patients were asked to define the time since first onset of POP symptoms. 'Significant prolapse on examination' was defined as Ba= -1 or higher, C= -4 or higher, and Bp =-1 or higher. Stored ultrasound volume data were analysed at a later date to score levator trauma as full unilateral or bilateral avulsion, or as partial trauma. Our null hypothesis was: Pelvic floor trauma is not associated with onset of prolapse symptoms as defined by patient age at onset or time since the first vaginal delivery.

Results: 934 women were seen during the inclusion period. Mean age at assessment was 58 (20-95), mean BMI 30 (17-65). 677 (73%) presented with stress urinary incontinence, 686 (74%) with urgency urinary incontinence and 497 (53%) with POP symptoms at a mean bother of 6.5 (0-10). Patients had suffered from such symptoms for an average of 6.9 (0-50) years. Age at onset was on average 50.9 (17-85) years, with a latency of 25.9 (0-62.8) years since the first vaginal birth. 829 (89%) had given birth vaginally, and 226 (24%) reported at least one Forceps. On clinical examination, 577 (62%) had a Ba =-1 or higher, in 264 (38%) C was -4 or higher, and in 500 (54%) women Bp was -1 or higher. On imaging, 389 had a significant cystocele, 263 significant uterine descent and 399 significant rectal descent. Tomographic analysis was possible in 490/497, with no trauma in 223 women, partial trauma (TTS 1-10 without full avulsion) in 113, a full unilateral avulsion in 97 and a bilateral avulsion in 57. There was evidence of earlier onset of prolapse symptoms in women with bilateral avulsion and prolapse on POPQ (47.9 vs 52.5 years, P= 0.02); see Table 1. On compartment- specific subgroup analysis, this was confirmed in women with cystocele (47.5 vs 51.6 years, P= 0.034) uterine prolapse (45.1 vs 50.2 years, P= 0.058) and posterior compartment descent (44.3 vs 50.7 years, P=0.003).
Conclusions: We have found limited evidence for earlier onset of prolapse symptoms in women with bilateral levator avulsion, by about 5 years. This seems to hold true for all compartments, but lesser forms of levator trauma do not seem to convey a risk of earlier symptom onset. References: 1. Int Urogynecol J 2021; 32: 1623–1631; 2. Int Urogynecol J 2015; 26: 1185–1189; 3. Int Urogynecol J 2019; 30: 1389-1400.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Materna Medical, GE Medical, Mindray
Images:

	No trauma	Partial trauma	Unilateral avulsion	Bilateral avulsion
	n= 223	n=113	n=97	n=57
Years since onset of POP symptoms*	5.6 (SD 6.6)	8.1 (SD 4.4)	7.1 (SD 7.9)	9.5 (SD 10.2)
Age at onset of POP symptoms	50.12 (SD 14.6)	51.74 (SD 14.4)	53.05 (SD 12.6)	48.6 (SD 13.4)
Interval between first birth and onset of POP symptoms	25.6 (SD 16.3)	27.5 (SD 16.4)	26.7 (SD 15.4)	22.2 (SD 15.7)

*Table 1: Associations between no, partial, unilateral and bilateral avulsion on the one hand and onset of POP symptoms (n=490). *ANOVA P= 0.003)*

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Differences in Practice Patterns of Vaginal Native Tissue Repair Procedures for Pelvic Organ Prolapse between Urologists and Gynecologists

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1 - Wake Forest Baptist Health
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Introduction: Pelvic organ prolapse (POP) is treated by both urologists and gynecologists by vaginal approach. Isolated anterior compartment repair (AR) without concurrent apical suspension (ApS) is commonly performed despite being a known risk factor for POP recurrence.
Objective: We sought to better understand practice pattern differences between specialties treating POP.
Methods: We queried the prospectively collected American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database for women who underwent vaginal POP repairs (CPT 57240, 57260, 57265, 57268, 57282, 57283) over a 5-year period by urology versus gynecology designated surgical specialty. We analyzed the relationships between surgical specialty, vaginal repair procedures, operative details, and 30-day post-operative complications.
Results: Between 1/2015 and 12/2019, we included 14,423 women who underwent POP repair, 90% performed by gynecology and 10% by urology. Patients operated on by urologists were slightly older (65.4 vs 63.1 years) and had higher American Society of Anesthesiologists scores (34% vs 27% ASA III) (p 0.05). Concurrent urethral sling placement was performed in 27% of patients, with no difference between specialties in rates of concomitant sling placement regardless of POP repair type (p>0.05). There were no differences in any of the 30-day complications listed above between specialties in cases where a concurrent urethral sling was placed (p>0.05).
Conclusions: Urologists perform a minority of vaginal pelvic organ prolapse repairs and were more likely to perform an isolated anterior repair than gynecologists. The absence of concurrent apical suspension may increase the rates of prolapse recurrence. Despite gynecologists performing more apical suspensions, immediate complication rates did not differ.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Grant support and consultant from Boston Scientific; expert witness Johnson & Johnson

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Trends in Vaginal Native Tissue vs Abdominal Mesh Augmented Repair for Apical Pelvic Organ Prolapse between Urologists and Gynecologists over 10 years

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Introduction: Apical pelvic organ prolapse (APOP) is treated surgically by both urologists and gynecologists from both abdominal mesh-augmented sacrocolpopexy (ASCP) and apical vaginal native tissue repair (AVNTR) approaches.
Objective: Given the differences in surgical training between the two specialties, we hypothesized that their approaches to management of APOP would differ.
Methods: The prospectively maintained National Surgical Quality Improvement Program (NSQIP) database was queried for both ASCP (CPT 57280, 57425) and AVNTR (CPT 57265, 57268, 57282, 57283) performed by both urologists and gynecologists. Vaginal mesh-based repairs were excluded given the FDA ban. Demographics and operative details were retrieved. Trends in repair type utilization between the specialties were analyzed.
Results: A total of 15,736 cases of APOP repair (53% AVNTR, 47% ASCP) from 2010-2019 were included, 12% of which were done by urologists. Urologists tended to operate on older (66 vs 63 years) patients with higher ASA score (33% vs 25% ASA III) (p 0.05), while urologists have been performing more ASCP (p=0.0311). Urologists were less likely to perform any concomitant vaginal native tissue repair during ASCP (17% vs 38%, p 0.05) to gynecologists. Laparoscopic ASCP is being more frequently performed over time for both specialties relative to open (p 0.05). Midurethral sling placement during APOP repair has not varied significantly over time (p>0.05).
Conclusions: Urologists perform a minority of APOP repairs and tend to favor abdominal sacrocolpopexy over vaginal native tissue repair. Urologists are less likely to perform concurrent vaginal repairs during abdominal sacrocolpopexy than gynecologists. Laparoscopic sacrocolpopexy is being more frequently utilized for all specialties treating APOP.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Grant support and consultant from Boston Scientific; expert witness Johnson & Johnson

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General Versus Regional Anesthesia in Sacrospinous Ligament Fixation for Pelvic Organ Prolapse: Assessment of a National Database.

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Introduction: Sacrospinous ligament fixation (SSLF) is a common surgical approach for management of pelvic organ prolapse (POP). While it is typically performed under general anesthesia (GA), regional anesthesia (RA) can also been utilized. Little is known about the impact of the choice of anesthesia on postoperative outcomes.
Objective: The primary objective of this study was to compare 30-day complication rates for patients undergoing SSLF for POP without concurrent hysterectomy by anesthesia type. Secondary objectives were to assess factors associated with type of anesthesia selected and characterize temporal trend in RA utilization.
Methods: This was a retrospective cohort analysis of the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) for the years of 2015-2020. Cases were selected based on procedural codes for SSLF and diagnostic codes for POP. Cases were excluded for pre-existing malignancy, infection, renal failure, or emergent surgery. The two cohorts were defined by primary anesthesia type: general versus regional (epidural or spinal). Complications, readmissions, and reoperations were compared between cohorts. Multivariable regression analysis was performed to assess the impact of anesthesia type on complications as well as to determine factors affecting the type of anesthesia selected for SSLF.
Results: A total of 2984 cases of SSLF met inclusion criteria with 2742 (91.9%) performed under GA and 242 (8.1%) performed under RA. Rate of RA utilization peaked at 11.4% in 2017 and showed a decreasing trend with only 5.5% of SSLF cases performed under RA in 2020. RA cohort was older (69.2 vs 65.4 years old, p<0.001) with no differences in medical or surgical history variables. Racial and ethnic differences were significant between cohorts with more subjects with unknown race in the RA cohort. Only 0.4% (n=1) of the patients receiving RA were Hispanic compared to 10.8% of those undergoing GA (p<0.001). RA was associated with shorter operative time, longer hospital stay, inpatient surgical setting, and was utilized less by urologists compared to gynecologists (all p<0.001, Table 1). More superficial surgical site infections (2.5% vs 0.8%, p=0.026) and cardiac complications (0.8% vs 0.1%, p=0.035) were noted in the RA cohort. The overall composite variable of minor or major complications was also higher in RA (12% vs 7.7%, p=0.018). However, when controlling for age, BMI, concurrent midurethral sling (MUS), medical and surgical comorbidities, multivariable regression analysis showed that RA was not associated with increased rates of minor or major complications (95% confidence interval 0.81 – 1.96). No differences in readmissions or reoperations were noted between cohorts. Regression analysis confirmed that older age, black/African American or unknown race, and gynecology surgeon specialty were associated with selecting RA while other medical comorbidities and concurrent MUS were not.
Conclusions: While older age was associated with RA utilization for SSLF, mode of anesthesia was not a significant predictor of minor or major complications. Racial and ethnic differences in mode of anesthesia warrant further investigation to reduce racial disparities.
Disclosure: No
Images:

Table 1: Patient Demographic and Perioperative Factors by Type of Operative Anesthesia.

	General n = 2742	Regional n = 242	*P* value
Demographic Variables			
Age, years	65.4 +/- 10.6	69.2 +/- 10.2	<0.001
BMI, kg/m^2	28.5 +/- 6.1	27.6 +/- 7.1	0.596
Race			<0.001
White	1738 (63.4)	48 (19.8)	
Black/African American	115 (4.2)	3 (1.2)	
Asian	47 (1.7)	7 (2.9)	
Other	19 (0.7)	0	
Unknown/unanswered	822 (30)	184 (76)	
Ethnicity			<0.001
Hispanic	297 (10.8)	1 (0.4)	
Non-Hispanic/unknown	2445 (89.2)	241 (99.6)	
Medical and Surgical History Variables			
Smoker	196 (7.1)	24 (9.9)	0.114
ASA classification			0.054
I/II	1898 (69.2)	153 (63.2)	
III/IV	844 (30.8)	89 (36.8)	
Chronic steroid use	61 (2.2)	4 (1.7)	0.559
Hypertension	1298 (47.3)	126 (52.1)	0.158
Severe COPD	68 (2.5)	11 (4.5)	0.055
Bleeding disorders	34 (1.2)	3 (1.2)	1.000
Diabetes mellitus			0.159
On oral medication	334 (12.2)	21 (8.7)	
Insulin dependent	78 (2.8)	10 (4.1)	
Any morbidity	1448 (52.8)	141 (58.3)	0.103
Perioperative Variables			
Surgeon Subspecialty			<0.001
Gynecology	2343 (85.4)	237 (97.9)	
Urology	399 (14.6)	5 (2.1)	
Surgical setting			<0.001
Outpatient	1989 (72.5)	76 (31.4)	
Inpatient	753 (27.5)	166 (68.6)	
Operative time	91 (66-125)	75 (55-97)	<0.001
Total length of stay	1 (0-1)	1 (1-2)	<0.001
Concurrent surgeries			
MUS	882 (32.2)	57 (23.6)	0.006
Vaginal repairs	2317 (84.5)	209 (86.4)	0.441

Data are presented as n (%) for categorical variables with *P* value from χ^2, mean (standard deviation) for continuous variables with *P* value from Student's *t*-test.
BMI, body mass index; ASA, American Society of Anesthesiologists; COPD, chronic obstructive pulmonary disease.

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Perineal Ultrasound Evaluation of Mesh Placement After Laparoscopic Nerve-sparing Sacrocolpopexy

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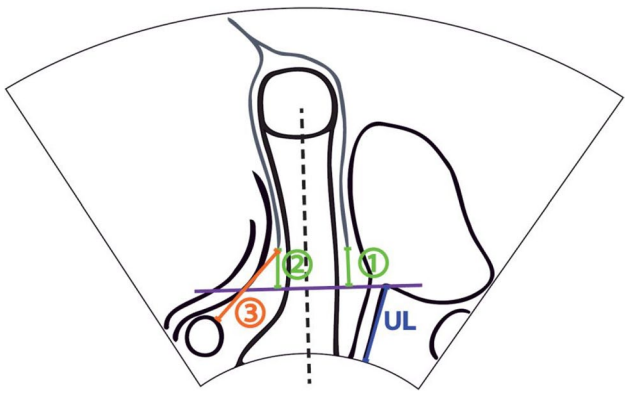
1 - cantonale hospital lucerne

Introduction: Laparoscopic sacrocolpopexy is regarded as the gold standard surgical treatment option in women with apical or multicompartment pelvic organ prolapse (POP) with a low recurrence rate. Despite being broadly performed there is no objective standardised method to document and quantify the placement of the mesh. To objectify the anatomic postoperative results the POP-Q according to ICS is used to provide a low inter-observer variation.
Objective: The aim of this study was to demonstrate and establish a standardised measurement tool of the mesh localisation by ultrasound after sacrocolpopexy. Secondary outcome was to determine sonographic landmarks for successful SCP-mesh placement and to understand the surgical weakness of this procedure in the event of a recurrence.
Methods: All women undergoing a laparoscopic sacrocolpopexy or subtotal hysterectomy with concomitant sacrocervicopexy were included in this prospective study from April 2021 to January 2022 at the department of Urogynecology. Perineal or in selected cases combined with transvaginal ultrasound was chosen as well-established method to localize urogenital meshes. Due to varying urethral length and moreover missing intraoperative reference, we do not use the perineum as reference plain. Orienting on surgical landmarks we propose the bladder neck as independent reference point and measure the mesh position compared to a plain perpendicular to the vaginal axis through the bladder neck, as demonstrated in figure 1. A mesh

lay equidistant to this virtual plain is set as zero, the distance towards intraabdominally as positive measures in millimetre and vice versa in direction to perineum in negative measures. Additionally, we captured the shortest distance of the edge of the posterior mesh to the edge of the sphincter ani externus muscle. All measures were taken at rest as well as under abdominal strain (Valsalva).
Results: In total 60 women were included and sonographically assessed. At rest in all women the mesh could be detected sufficiently, under abdominal strain (Valsalva) from 44 patients data were collected. At rest the anterior mesh lay was in median -4mm (SD 6.8mm), the posterior mesh laying in the median on -7mm (SD 8.7mm) from the reference plain and 18mm (SD 9.4mm) from the edge of the sphincter ani externus. Under abdominal strain the mesh lowered by 1.6mm (SD 4.7mm) anteriorly and 2.2mm (SD 6.7mm) posteriorly as well as shortens the distance to the sphincter by 1.3mm (SD 4.2mm) respectively. Generally transvaginal measures were within few millimetres the same as perineal as summarised in table 1.
Conclusions: This study demonstrated the proposed measurement method as feasible and consistent, independent from urethral length or other variables such as perineal pressure applied during measurement. In the case a satisfactory reposition is verified through clinical examination the mesh was detectable throughout at rest and abdominal strain. Therefore, we advocate our measurement method as confirmation of surgical quality after sacrocolpopexies especially for scientific comparison.
Disclosure: No
Images:



	perineal ultrasound						transvaginal ultrasound						difference rest vs. valsalva perineal ultrasound			POP-Q at assessment		
	rest			abdominal strain			rest			abdominal strain								
	ante-r	post-r	sphi-r	ante-v	post-v	sphi-v	ante-r	post-r	sphi-r	ante-v	post-v	sphi-v	anterior	posterior	sphincter	Aa	C	Ap
numbre (n)	59	59	59	43	43	43	29	29	3	19	19	1	43	43	43	60	60	60
mean	-3.0	-7.3	19.0	-2.0	-6.7	17.1	-2.2	-5.6	13.7	-2.0	-4.8	8.0	1.6	2.2	1.3	-2.3	-7.7	-2.7
median	-4	-7	18	-4	-6	16	-4	-5	15	-3	-4	8	1	1	1	-2	-8	-3
standard deviation (SD)	6.8	8.7	9.4	8.4	9.4	8.6	8.9	9.1	2.6	7.4	7.2	0.0	4.7	6.7	4.2	0.7	1.3	0.6

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Laparoscopic Uterosacral Ligament Suspension
Ross, J[1]; Yuan, A[1]; Chapman, G[1]
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Introduction: The uterosacral ligament suspension (USLS) is traditionally performed vaginally as an apical prolapse suspension. Complications most commonly include ureteral obstruction and nerve entrapment. The USLS can also be successfully performed via a laparoscopic approach with similar success rates to the vaginal approach. Techniques for the laparoscopic approach vary based on surgeon preference.
Objective: The objective of this video is to describe current data surrounding the laparoscopic USLS and describe our technique for a successful laparoscopic USLS after a total laparoscopic hysterectomy (TLH).
Methods: After completion of the TLH, we began our USLS. The cuff is first closed with interrupted absorbable suture tied down with extracorporeal knots. Then the cuff is tented towards the abdominal wall using one of the sutures to reveal the uterosacral ligament. Once identified, the ureter is then seen coursing laterally to the ligament. Next, using 0 PDS suture, a figure of eight is placed through the left distal ligament then through the posterior and anterior cuff. The needle is placed through the ligament in a medial to lateral fashion, with the ureter in view. It is then tied down in an extracorporeal knot. A second, more proximal suture is then placed in the same fashion. This is then repeated on the contralateral side. Cystoscopy is then performed to confirm there is no ureteral obstruction.
Results: At the completion of the procedure, the patient had excellent apical and anterior vaginal support. A posterior repair was still indicated and performed without complication.
Conclusions: A laparoscopic USLS can be successfully performed without ureteral releasing incisions or tagging of the ligaments prior to the hysterectomy. Excellent anatomic support can be achieved with this method.
Disclosure: No

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Robotic-assisted Sacrohysterocolpopexy with a Single Polypropylene Mesh
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1 - Cleveland Clinic Foundation

Introduction: The patient is a 65-year-old with a history of a prior single posterior mesh sacrohysterocolpopexy who presented for consultation for symptomatic vaginal bulge/recurrent prolapse and voiding dysfunction. On exam her prolapse was consistent with Stage 3 anterior predominant uterovaginal prolapse. She desired a repeat uterine-sparing minimally invasive prolapse repair and had no contraindications to keep her uterus.
Objective: The objective of this video is to describe our technique for a robotic-assisted sacrohysterocolpopexy with single polypropylene mesh with a previous single posterior mesh in place.
Methods: After docking of the robot, the surgery began by visualizing the previous posterior mesh which appeared partially contracted. Next, we performed the bladder dissection. The peritoneum was grasped and entered sharply with monopolar cautery and the bladder flap was dissected. A ruler was introduced into the pelvis and we measured from the level of the bladder trigone to the lower uterine segment proximally. The ultra-lightweight single flat mesh was then opened and fashioned into a single apron-shaped mesh which was then introduced into the pelvis. We then identified the broad ligaments and made small defects 2 cm lateral to the uterus and about 1 cm inferior to the round ligaments. Following the broad ligament incisions, the arms of the mesh were brought through the defects posteriorly. The mesh was then attached anteriorly with fourteen interrupted 2-0 delayed absorbable sutures along the anterior vaginal wall and cervix. Next, attention was directed to the sacrum. The peritoneum just medial to the previously attached mesh at the level of the sacrum was grasped, elevated, and opened sharply. The peritoneal incision was then extended down towards the pelvis. Next, the two arms of the mesh were placed over the old attached posterior mesh and secured at the midline at the posterior distal cervix with both permanent and delayed absorbable suture. A 2-0 delayed absorbable suture was then used to start the purse string suture along the medial aspect of the peritoneal incision. Two stitches of 2-0 permanent suture were used to attach the mesh to the previous mesh and the sacrum. We then improved the anterior and apical suspension by shortening the mesh by placing three additional 2-0 permanent stitches distally which plicated and shortened the mesh.

The peritoneum was then closed over the mesh and a cystoscopy was performed. A small distal anterior colporrhaphy was then performed. delayed absorbabledelayed absorbabledelayed absorbable
Results: At the completion of the procedure, the patient had excellent vaginal support and was discharged on postoperative day 0. On return to the office 6 weeks later she had no prolapse symptoms and had excellent support on exam.
Conclusions: A revision robotic-assisted sacrohysterocolpopexy can be successfully performed with a single polypropylene mesh in a patient where a previous posterior mesh had already been placed.
Disclosure: No

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The "Ins and Outs" of Dynamic Magnetic Resonance Imaging for Female Pelvic Organ Prolapse
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2 - Sibley Memorial Hospital (Johns Hopkins Medicine)

Introduction: Concurrent pelvic organ prolapse and rectal prolapse have an incidence of at least 38%. Particularly with multi-compartmental prolapse, a multidisciplinary approach should be used in the workup and surgical management of these patients. Dynamic pelvic magnetic resonance imaging (MRI) has become the preferred modality of choice, particularly for posterior compartment disorders. In 2017, the European Society of Urogenital Radiology and the European Society of Gastrointestinal and Abdominal Radiology published a joint recommendation regarding use of this modality. More recently in 2021, the Pelvic Floor Disorders Consortium developed a consensus statement regarding magnetic resonance defecography to generate inclusive guidance for all practitioners caring for patients with pelvic floor disorders.
Objective: Discussion of the indications and preparation needed for dynamic pelvic MRI and to provide the foundational knowledge needed for basic imaging interpretation with clinical application to specific pelvic floor disorders.
Methods: This is an illustrative video with coincident interpretation of dynamic pelvic MRI images and cine-loops.
Results: Several lines for characterizing pelvic organ prolapse have been proposed. The pubococcygeal line has the highest inter- and intra-observer reliability of MRI-based reference points. It is obtained in the mid-sagittal plane at rest, with a line drawn from the inferior border of the pubic symphysis to the last coccygeal joint. The "hiatus" or "H line" demonstrates the antero-posterior width of the levator hiatus and is obtained on a midsagittal image with a line drawn from the inferior border of the pubic symphysis to the posterior wall of the rectum at the level of the anorectal junction. The "muscle" or "M line" represents the vertical descent of the levator hiatus and is drawn perpendicularly from the PCL to the most posterior aspect of the H line. If a defect in the rectovaginal fascia is present, herniation of other tissues through the vagina, such as the small bowel, peritoneum, and sigmoid colon can occur. Posterior compartment abnormalities include rectocele and rectal prolapse. With the rectum prolapsing distal to the external anal sphincter and left untreated for a period as short as 2 years, permanent damage to the pudendal nerve can result, causing fecal incontinence even after surgical intervention. In contrast to rectal prolapse, descending perineal syndrome involves descent of the anorectal junction greater than 2.5 centimeters from the PCL. Pelvic MRI can also evaluate functional disorders such as paradoxical contraction of the puborectalis muscle, where the rectal angle would not change or becomes more acute and is also associated with a lack of pelvic floor descent as well as prolonged and incomplete evacuation.
Conclusions: Dynamic pelvic MRI has become an imaging modality of choice for the complex prolapse patient. It is a useful adjunct to guide patient management especially for patients presenting with concurrent urogynecologic and colorectal complaints, had previous pelvic reconstructive surgery, or when clinical symptomatology does not correlate with the physical exam. As dynamic pelvic MRI gains popularity, it is critical for pelvic reconstructive surgeons to be familiar with this imaging modality to properly counsel patients regarding its process and accurately interpret radiographic findings.
Disclosure: No

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Video Guided Pelvic Physical Therapy for Stress Urinary Incontinence
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1 - University of Southern California
2 - USC

Introduction: Pelvic Floor Physical Therapy (PFPT) is a first-line treatment for stress urinary incontinence according to expert guidance, including the American Urogynecologic Society. Barriers such as cost, time commitment, motivation, and uncertainty of efficacy have been previously identified. These barriers make access to PFPT difficult for many. Additionally, those who are motivated may not receive timely care due to the current coronavirus pandemic.
Objective: The objective of this video is to detail evidence-based PFPT exercises known to be effective in treating SUI.
Methods: This animation film is a multidisciplinary effort and has been developed in collaboration with female pelvic medicine and reconstructive surgery clinicians, PFPT providers, and students in cinematic arts.
Results: The PFPT exercises include five sections and follow the order of recommendations by our institution's PFPT. These include diaphragmatic breathing, Kegel exercises, bridge with Kegels, leg raises, and squat with Kegels.
Conclusions: This video was created as an additional resource for patients with limited access to PFPT, especially given current limitations due to the coronavirus pandemic. The video is part of a single-blinded randomized controlled trial comparing video-guided PFPT versus a routine informational video on SUI. Both videos will be in English and Spanish. Eventually, the goal is for more widespread distribution and increased accessibility for all patients.
Disclosure: No

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Meshless Sacrocolpopexy for Post-hysterectomy Vaginal Vault Prolapse: Vascularized Flap Technique
Shakhaliev, R[1]; Kubin, N[1]; Shkarupa, D[1]; Basos, A[1]; Shulgin, A[1]; Labetov, I[1]
1 - Saint-Petersburg State University Hospital

Introduction: The absence of rigid fixation point, tissue atrophy and multi-compartment defects make post-hysterectomy vaginal vault prolapse a real challenge for the surgeon. The gold standard for treatment of post-hysterectomy vaginal vault prolapse is sacrocolpopexy. Unfortunately, this approach does not allow to perform reliable long-term meshless reconstruction in the anterior and posterior compartments. Moreover, the use of a mesh is associated with the risk of erosion, which is especially important in mesh ban era.
Objective: To show the possibility of replacing a standard mesh with a vaginal flap during laparoscopic sacrocolpopexy.
Methods: A 60-year-old patient with post-hysterectomy prolapse stage III underwent meshless laparoscopic vaginal-assisted sacrocolpopexy: 1. Subfascial hydrodissection of the vaginal vault and the most prolapsing (posterior) wall tissues was performed. 2. A U-shaped de-epithelialized flap was cut out capturing all layers of the vaginal wall. 3. Dissection of the paravaginal tissues towards the abdominal cavity was performed; the peritoneum was opened to the width of the flap base.

4. The flap is plunged into the abdominal cavity through the formed opening in the peritoneum and then rectovaginal fascia was closed. 5. Further, perineoplasty was performed and finalizing vaginal step of the surgery. 6. The LSC was performed in standard manner. The promontory is identified and dissected until the anterior longitudinal ligament is reached. The peritoneum is incised caudally towards the vaginal cuff with flap. 7. The vaginal flap is brought to the sacral promontory with medium tension and attached to the anterior longitudinal ligament. 8. The flap is retroperitonealized.
Results: The duration of the surgery was 105 minutes (35min vaginal part and 70 min LS part). Intraoperative blood loss was 55ml. Vaginal packing and urethral catheter were placed and removed within 20h after operation. No intraoperative and early postoperative complications were recorded. According to the ultrasound postvoiding residual was 35ml, hematomas in the operation area were not visualized. During the exam in 12 months after the surgery, no signs of POP (Aa-2 Ba -3 C -8 Ap -3 Bp -3 tvl9 gh4 pb3), erosion and any pain were detected. The results of the questionnaires were as follows: PFDI-20 - 22,92, PISQ-12 - 31 and ICIQ-SF - 1. According to ultrasound the volume of residual urine was 0ml.
Conclusions: The presented video demonstrates the possibility of replacing the standard mesh with a vaginal flap during laparoscopic sacrocolpopexy. This approach allows to completely eliminate the risk of erosion and create a unified natural support construction from the vaginal cuff and the vascularized flap. This approach can also reduce the risk of pain syndrome and dyspareunia. Further follow-up will fully assess the efficiency and safety of the described technique.
Disclosure: No

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Fluoroscopic Landmarking During Sacral Neuromodulation Lead Placement

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2 - Duke University School of Medicine

Introduction: Fluoroscopic guidance is a key tool to ensure optimal sacral neuromodulation lead placement.
Objective: The objectives of this video are to review bony landmarks for fluoroscopic imaging as well as present strategies to overcome common obstacles during fluoroscopic mapping for stage 1 sacral neuromodulation lead placement.
Methods: Our video is divided into two parts. First, we review anatomic landmarks and optimal technique during anterior-posterior (AP) fluoroscopic imaging for identification of the sacrum and the medial edge of the bilateral sacral foramina. We then provide a series of non-ideal fluoroscopic images, explaining the cause of the difficult interpretation and strategies to overcome these obstacles. In the second half, we similarly review our technique for identification of S3 and optimal needle angle trajectory during lateral fluoroscopic imaging. We again provide a series of examples of non-ideal imaging to highlight strategies for needle placement in difficult cases.
Results: We provide an overview of normal fluoroscopic landmarks for both AP and lateral fluoroscopic imaging during stage 1 sacral neuromodulation lead placement, along with a series of 6 non-ideal examples. Strategies for overcoming barriers to identification of bony anatomy on fluoroscopy are provided in the context of these examples.
Conclusions: While appropriate patient preparation and positioning is important to optimize stage 1 sacral neuromodulation lead placement, patient anatomy and other factors often obscure or distort expected anatomic landmarks. We demonstrate our approach to overcome common fluoroscopic obstacles and provide strategies for improvement of operative efficiency and optimized sacral neuromodulation lead placement.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Blue Wind (Amundsen)

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Colpocleisis Techniques: An Open-and-shut case for Advanced Pelvic Organ Prolapse

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2 - Sibley Memorial Hospital (Johns Hopkins Medicine)

Introduction: Pelvic organ prolapse is a common condition that affects up to 40% of the postmenopausal female population. Particularly for women with advanced pelvic organ prolapse who no longer desire penetrative vaginal intercourse and with multiple medical comorbidities, the obliterative approach is preferred due to decreased anesthetic needs, operative time, and perioperative morbidity. Additionally, colpocleisis is associated with a greater than 95% long-term efficacy with low patient regret, high satisfaction, and improved body image. The umbrella term of "colpocleisis" encompasses a uterine-sparing procedure, the LeFort colpocleisis, colpocleisis with hysterectomy, and post-hysterectomy vaginal vault colpocleisis. Typically with colpocleisis, levator myorrhaphy and perineorrhaphy are also included to reinforce the repair.
Objective: To highlight several advanced surgical techniques for all types of colpocleisis.
Methods: A demonstrative video presentation featuring surgical footage of multiple patients undergoing colpocleisis.
Results: We utilize several surgical methods to streamline the LeFort colpocleisis procedure, to include using electrosurgery to mark out the epithelium and methods to create the lateral tunnels with LeFort colpocleisis with and without the use of a urinary catheter. We also present techniques that can be utilized across all types of colpocleisis including the push-spread technique for dissection, tissue retraction with Allis clamps and rubber bands on hemostat clamps to improve visualization, and approximation of the anterior and posterior vaginal muscularis to close existing space. Attention must be paid not to proceed past the level of the urethrovesical junction to avoid angulation of the urethra. We use an anatomic model to demonstrate appropriate suture placement during levator myorrhaphy to facilitate an adequate purchase of the levator ani muscles in order to adequately narrow the vaginal opening. Ultimately the goal of the colpocleisis procedure is a well-approximated, obliterated vagina, approximately three centimeters in length and one centimeter in width.
Conclusions: The skills demonstrated enable the surgeon to maximize efficiency and surgical outcomes for an effective obliterative procedure for advanced stage pelvic organ prolapse.
Disclosure: No

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Cystoscopic Findings and Management of Mesh Erosions of the Lower Urinary Tract

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Introduction: Suburethral synthetic sling procedures are next to bulking agents, fascial slings and colposuspension a possible treatment in stress urinary incontinence. They have high success rates and low complications. Late complications encompasses erosion into the tissue as vaginal extrusion (1,5%) or urethral/bladder perforations (0,3%). Patients are complaining about pelvic or urethral pain, vaginal discharge, de novo urgency, recurrent urinary tract infections or bladder outlet obstruction. In this case cystoscopy is essential to identify mesh eroding into the lower urinary tract requiring further surgery. Although the incidence is low, we had several cases in which we performed surgery.

Objective: The video explains the surgical management of these complications and the results.
Methods: Throughout the video, we demonstrate mesh erosions of the lower urinary tract.
Results: As we are a tertiary referral center our experience lead to a informative video that shows clinical findings in cystoscopy, management and results in patients undergoing mesh excisions.
Conclusions: Women with lower urinary tract symptoms such as de novo urgency after sling implantation should receive cystoscopy to exclude mesh complications. A complete excision of the eroded part of the sling with urethroplasty by a multidisciplinary team often is needed. The video shows several cases of sling erosions into the lower urinary tract, discussing the safe and complete excision.
Disclosure: No

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Successful Technique For Removal of 17 Years old Tined Lead
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2 - University of Cincinnati

Introduction: Sacral neuromodulation is one of the modalities that are used for treatment of OAB, urine retention and fecal incontinence -Typically, during placement a quadripolar tined lead is placed in the third sacral foramen -Around 30% of SNM implanted patients require surgical revision -Reasons for revision include infection, lead migration, pain, lead fibrosis and need for MRI in an incompatible implanted sacral nerve stimulator -In one retrospective review, the rate of lead breakage was 7.5% during sacral neuromodulation removal
Objective: The objective of this video is to demonstrate the anatomy of the tined lead and to demonstrate a safe surgical technique for removal of the lead without leaving a lead fragment.
Methods: 70y old patient who had SNM in 2003 for OAB symptoms, her symptoms were controlled, and she had her battery changed 2 times last time was in 2016. She presented to us after referral from her PCP, due to the need for MRI for back pain problems She was offered removal of old tined non-MRI compatible old lead and replacing it with a new MRI compatible lead, but she opted for only lead removal - In this video, we describe the technique for removal of tined lead with tips to avoid lead break during removal
Results: The video shows and demonstrate successful removal of tined lead.
Conclusions: `-Generous incision is essential for dissection all the way to Marker Band B -Avoid pulling on the lead before Marker Band B as this region is very thin and lead breakage typically occur in this area
Disclosure: No

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Surgical Management of Rectovaginal Fistula
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1 - The Christ Hospital/University of Cincinnati

Introduction: Rectovaginal fistulas most commonly result from obstetric injury but can also occur in patients with inflammatory bowel disease, malignancy, radiation, or pelvic surgery. Success rates of rectovaginal fistula closure vary widely ranging from 42% – 100%. There is no standard of care regarding surgical technique for rectovaginal fistulas.
Objective: The objective of this video is to present surgical techniques to optimize surgical outcome and hopefully prevent recurrence.
Methods: In this video, we present 3 cases of RVF which successfully managed with primary closure.
Results: The video shows the technique for surgical repair of rectovaginal fistula in 3 patients.
Conclusions: Keys to optimize chance of successful repair and minimize recurrence of fistula 1- Mobilization of surrounding tissue to allow tension free closure of fistula 2- Excise devascularized scarred tissue 3- Consider routine use of biologic graft (A-cell) to augment repair
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Allegran, Axonics, Caldera, Colpoplast and Inmode

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Robotic Peritoneal Vaginoplasty for the Transgender Woman with Vaginal Stenosis
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1 - Cleveland Clinic Foundation

Introduction: Some transgender women undergo genital gender affirmation surgery, commonly referred to as vaginoplasty. Vaginal stenosis occurs in patients who cannot dilate or fail to comply with the dilation plan post-operatively. We present a case of a 54-year-old transgender women who presented with vaginal stenosis after a penile inversion vaginoplasty resulted in graft necrosis and a subsequent perineal revision led to vaginal stenosis. She elected undergo a peritoneal vaginoplasty via a robotic approach.
Objective: To describe our surgical technique for a robotic peritoneal vaginoplasty for the transgender woman with vaginal stenosis.
Methods: The surgery is begun with the posterior peritoneum incision. The vas deferens and the seminal vesicles are identified and used as landmarks for this dissection. Dissection is carried down inferior to these structures and the plane is developed towards Denonvillier's fascia. The posterior plane is further developed until the scarred neovagina is encountered. To identify the neovaginal apex, a lighted cystoscope is placed in the canal. The apex of the vagina is opened sharply and then incised laterally until adequate width and depth are sufficient. When passage of a vaginal dilator or stent is possible, the caliber is determined to be adequate. Peritoneum from the posterior dissection is then pulled through to the vaginal incision and is sutured to the posterior cuff using a 2-0 monofilament suture. The same thing is performed along the anterior neovaginal cuff. This is done until there is approximation of the peritoneum to the vaginal cuff circumferentially. The peritoneal flaps are then created. First, the vesicoperitoneal flap is made. Then, the lateral peritoneal flaps are created. The ureters are identified and visualized during the entire dissection as it is carried down caudally. After the dissection is complete, the flaps are sutured together to create a peritoneal pouch that will serve as the neovagina. Closure is done using 2-0 barbed absorbable suture.
Results: At the end, the neovagina is packed under direct visualization. The patient will be required to perform regular vaginal dilation postoperatively to maintain neovaginal length, but also to ensure that the caliber of the neovagina were the peritoneum meets the vaginal opening remains adequate.
Conclusions: Several options exist for revision vaginoplasty in women presenting with postoperative vaginal stenosis. Peritoneal vaginoplasty is a surgical option for these patients and is becoming a mainstay option for patients seeking revision surgery.
Disclosure: No

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Transurethral Resection of Eroded Urethral Bulking Agent with Salvage Bulkamid Procedure

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1 - Cleveland Clinic

Introduction: Our patient, is an 82 year old female who was referred from an outside hospital. She was found to have urethral exposure of bulking agent upon cystoscopy for recurrent UTI. She had an extensive past surgical history. This included 3 prior bladder neck suspensions. In 2002 she underwent a transvaginal urethrolysis with prolapse and bladder neck repair. Following this, she had recurrent stress urinary incontinence and had 9 urethral bulking procedures from 2002 to 2019. Prior to her macroplastique injection our patient underwent a CT scan which demonstrated a large amount of periurethral material. At the time, she was not experiencing lower urinary tract symptoms and no erosion was noted on cystoscopy.
Objective: Our objective is to demonstrate our technique for salvage Bulkamid injection.
Methods: The eroded macroplastique was visualized at the 3 o'clock position. The material was embedded into the wall and adherent to the surrounding mucosa. Bipolar cutting current was used to unroof the cavity and allow for better exposure of the eroded material. Minimal resection was used in order to reduce potential damage to the urethral sphincter. Forward and backward pressure was applied to the material using the loop. A rocking motion proved to be helpful in loosening the material away from the surrounding mucosa and breaking the material into multiple pieces. Eventually the material was able to be freed from the cavity. At the conclusion of the procedure the cavity was clear of visible macroplastique. The mucosa was carefully cauterized and the resectoscope was removed.
Results: Our patient was discharged home from same-day-surgery with a urethral Foley. This was maintained for 3 days at which time she completed a successful voiding trial. Eight weeks following transurethral removal of the eroded bulking material, the patient was brought back for office cystoscopy. She reported persistent stress incontinence. After discussing risks, benefits, and alternatives, she consented to transurethral Bulkamid procedure. The bulkamid system is inserted into the patient's urethra. The area of previous resection is visualized at the 3 o'clock position and appears to be healing well. The bulking needle is inserted into the bladder lumen to the 2 cm mark. The cystoscope is retracted into the urethra with the needle extended, measuring approximately one and half centimeters from the bladder neck. The needle is rotated with the bevel is facing the urethral lumen. The Bulkamid system is pressed parallel against the urethral wall. The needle is inserted approximately 5 millimeters into the urethral mucosa. The Bulkamid hydrogel was injected until a cushion was visualized. The needle is retracted and the sheath rotated. Several areas are injected, maintaining the same urethral level. Due to the previous bulking materials present, more injections sites were required to account for the asymmetrical cushion formation and the varying compliance of the urethral mucosa. Injections were completed until all cushions met at the midline of the urethral lumen. The cystoscope was removed, and patient asked to cough. No stress incontinence was demonstrated.
Conclusions: Following her Bulkamid injection, our patient had excellent improvement in her stress urinary incontinence.
Disclosure: No

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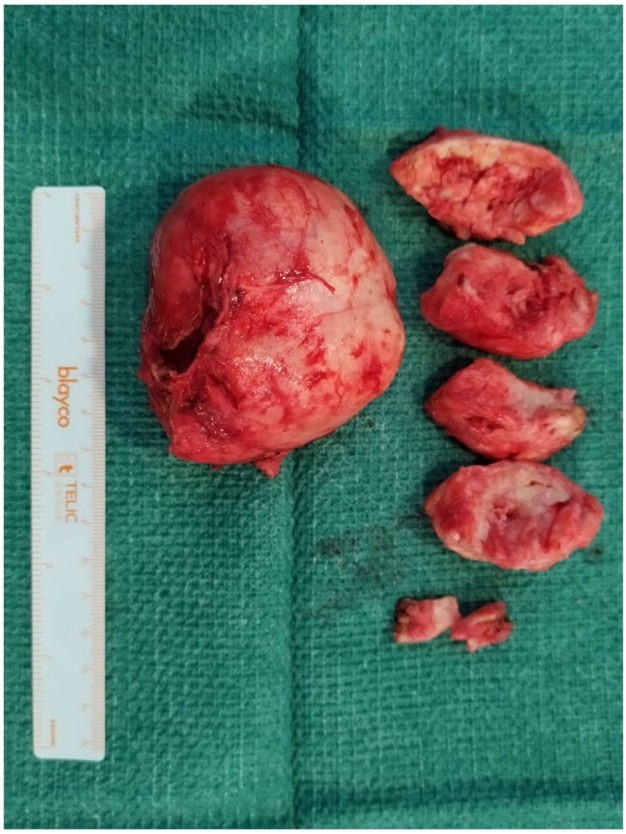
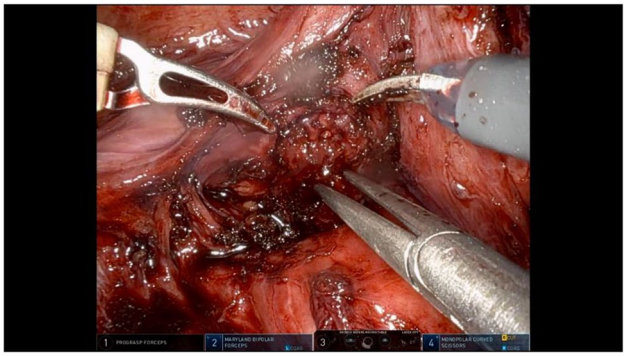
12cm Vaginal Myomectomy With Modified Posterior Approach Manchester Repair

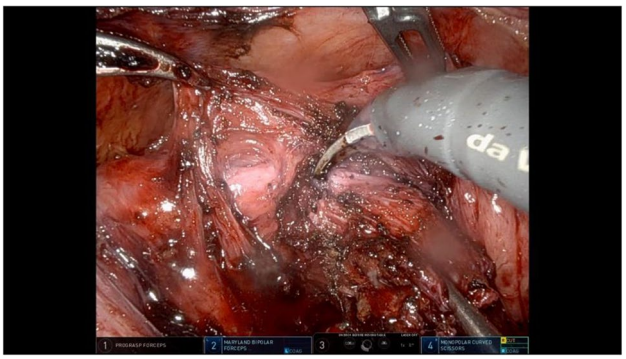
Melendez-Munoz, J[1]; Corzo Orantos, P[1]
1 - Hospital Universitari Dr. Josep Trueta

Introduction: It is common practise in many units to offer hysterectomy to patients affected by uterovaginal prolapse when there is some degree of uterine descent. If the patient has symptomatic fibroids, the decision would seem even easier. Nowadays though there is definetly a trend towards more conservative surgery.This encourages surgeons to seek new approaches and new techniques for patients keen to preserve the uterus and/or to avoid mesh implantation. Vaginal myomectomy is not a new technique and the literature proved that when used adequately has a low complication rate, less blood loss and risk for blood transfusion, shorter operating time and shorter inpatient stay compared to abdominal approach. It would also allow for removal of bigger fibroids that would prove very difficult and time consuming via endoscopic techniques. Should we have to correct uterovaginal prolapse at the same time, preserving the uterus and supporting structures will help us reducing the risk for vault prolapse or prolapse recurrence. We believe the vaginal myomectomy can be a valid alternative to the generally recommended abdominal or transcervical myomectomy, especially in those cases where the fibroid is low and vaginal access deemed adequate. More importantly it allows for uterine preservation without compromising the possibility of effective prolapse correction through vaginal approach.
Objective: To describe the technique of vaginal myomectomy with concomitant uterovaginal prolapse repair through a modified posterior approach Manchester repair.
Methods: We present a case of a 37 years old woman with no relevant past medical or surgical history, diagnosed with a 7 cm anterior intramural fibroid near the cervical isthmus. She presented to the outpatient clinic with abdominal pain, heavy and painful periods and urinary symptoms in the form of urgency, frequency and occasional stress incontinence. On vaginal examination, uterus was very mobile and the fibroid was palpable. She presented some degree of cervical elongation but no obvious symptomatic prolapse. Vaginal access for vaginal surgery was deemed adequate. We discussed surgical options balancing risks and benefits. She consented for a vaginal myomectomy with prolapse repair if needed.
Results: Steps: Local infiltrations. Pericervical incision and dissection of pericervical mucosa. Paracervical hemostatic sutures. Dührssen modified incision at 12 o'clock moving upwards until encountering the fibroid. Anterior colpotomy and anterior repair to facilitate access to fibroid. With Pozzi forceps (tenaculum) we hold the fibroid while trying to enucleate it from the capsule and free it from the uterus. Due to it's size, we proceded to partial vaginal morcelation with cold knife and scissors. With gentle traction-contratraction we finally managed to remove the whole fibroid. Uterine reconstruction closing the fibroid cavity with interrupted sutures. Prolapse repair: Clamping, ligation and section of uterosacral ligaments. Amputation of elongated cervix. Reimplantation of uterosacral ligaments to the posterior aspect of the uterus. Cervial stump closure with Sturmdorff sutures. Complete vaginal closure.
Conclusions: Vaginal myomectomy is a good alternative to abdominal or endoscopic route to remove fibroids and it allows for uterine conservation and effective prolapse repair vaginally.
Disclosure: No
Images:





Disclosure: No
Images:



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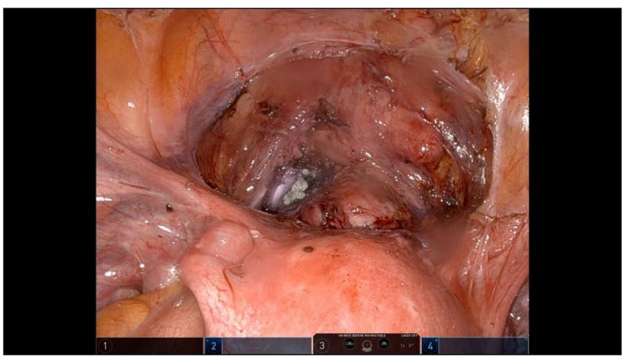
Robotic Excision of Paravaginal Deep Infiltrating Endosalpingiosis
Garcia, A[1]; Hidalgo, R[1]; Sawangkum, P[1]; Heinsimer, K[1]; Mikhail, E[1]
1 - University of South Florida

Introduction: Endosalpingiosis is the presence of ectopic, cystic glands outside the fallopian tube that are lined with fallopian-tube type ciliated epithelium. Though endosalpingiosis is a pathologically distinct entity, it is often clinical indistinguishable from deep infiltrating endometriosis. While patients with endosalpingiosis may be asymptomatic, this patient presented with cyclic pelvic pain, urinary symptoms, and a discrete vaginal mass.
Objective: This video aims to demonstrate the excision of a paravaginal mass in close proximity to the course of the ureter along the anterior vaginal wall towards the bladder.
Methods: Due to the location of the mass, care was taken to identify surrounding structures to avoid inadvertent injury. A lighted ureteric stent was placed using an angled cystoscope due to the mass abutting the left ureteral orifice. Once placed, it facilitated safe dissection of the mass.
Results: Though the patient's preoperative symptoms, imaging, and intraoperative findings were initially suggestive of deep infiltrating endometriosis, final pathology instead demonstrated a nodule of endosalpingiosis in the setting complete absence of peritoneal disease.
Conclusions: This case represents a unique presentation of deep infiltrating endosalpingiosis, a disease that is pathologically different but clinically identical to deep infiltrating endometriosis. Like endometriosis, endosalpingiosis can cause mass effect to surrounding organs including the bladder, leading to bothersome lower urinary tract symptoms and incontinence. Urogynecologists should be familiar with endosalpingiosis in their differential diagnosis prior to considering surgical management.



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Colpoceisis of Neovagina
Sadun, TY[1]; Fero, KE[1]; Nitti, VW[1]
1 - University of California, Los Angeles

Introduction: Our patient is a 64 year old female with recurrent prolapse of her ileal neovagina. Her native vagina was stenosed and shortened after she had prior anterior vaginal mesh for prolapse repair (Uphold) and transobturator urethral sling (Obtryx) removed due to mesh complications of pelvic pain, dyspareunia, leg weakness, and difficulty walking. A gluteal flap was attempted to address her vaginal stenosis; however, she required a neovaginal reconstruction with ileum. Unfortunately, due to lack of pelvic wall support of the neovagina, her canal prolapsed and she underwent

four unsuccessful attempts for prolapse repair including paravaginal fixation to levator musculature, sacrospinous ligament fixation, resection of prolapsed vagina, and transabdominal sacrocolpopexy of prolapsed neovagina with rectus fascia. She presents for management of her refractory prolapsed neovaginal canal, which is 3 cm in depth and not functional for sexual intercourse and causes a pelvic bulge with pain.
Objective: Our objective is to demonstrate surgical treatment for complex pelvic organ prolapse.
Methods: We perform a colpocleisis with levator myorrhaphy and perineorrhaphy. A circumferential incision was made in the vagina at the junction of the vaginal skin and the neovagina. After the initial incision, the neovagina was dissected off the vaginal wall sharply. This was done so that the entire neovagina was mobilized. Next, the mesentery to the neovagina was taken down using a mini LigaSure. Once the mesentery was detached, the neovagina was removed. In order to create an adequate floor for colpocleisis, a levator myorrhaphy and perineorrhaphy was performed. This was done by bringing the transverse perineal muscles and puborectalis muscles together in the midline for several centimeters. After the levator myorrhaphy was completed, Halban type sutures were placed from the levator myorrhaphy to the pubocervical fascia, closing the space between the bladder and the vagina. The vaginal skin was then reapproximated with the left posterior skin being the gluteal flap.
Results: At the completion of the colpocleisis, the vagina had a depth of about 1 cm.
Conclusions: Colpocleisis is an effective management strategy for refractory ileal neovaginal prolapse.
Disclosure: No

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Evaluation and Management of Anal Incontinence in a Perineal Clinic Utilizing Pelvic Floor Ultrasound
Raza, M[1]; Shobeiri, SA[1]; Marroquin, J[1]; Alshiek, J[1]
1 - Inova Fairfax Hospital

Introduction
Obstetric anal sphincter injuries (OASIS) occur as a result of perineal trauma involving the external and/or internal anal sphincter during vaginal deliveries. Women with OASIS have an increased risk of developing anal incontinence later in life. 3D Endoanal ultrasound (3D-EAUS) is a valuable tool to diagnose anal sphincter defects and its use requires a thorough understanding of perineal anatomy. Anal sphincteroplasty is a treatment modality reserved for patients with fecal/anal incontinence who fail conservative management and have evidence of anatomic sphincter injury on 3D-EAUS.
Objective: To demonstrate an anatomical approach to the surgical management of anal incontinence secondary to vaginal birth related perineal injury using pelvic floor ultrasound.
Methods: This video will discuss a specialized perineal clinic's approach to the evaluation and management of a specific case of anal incontinence using pelvic floor ultrasound including 3D-EAUS in a patient with a history of OASIS in a prior pregnancy.
Results: 3D-EAUS can demonstrate the angle of the internal or external anal sphincter defect better than with standard EUS. Surgery addresses anal incontinence in patients who do not respond to initial management and have evidence of anatomic sphincter injury on EAUS.
Conclusions: Anal sphincteroplasty is a surgical treatment which addresses vaginal birth related anal incontinence in patients with intact levator ani muscles who have evidence of anatomic sphincter injury on pelvic floor ultrasound.
Disclosure: No

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Revival of a Surgical Technique: Marsupialization of Female Urethral Diverticula
Merriman, A[1]; Taylor, G[1]
1 - Atrium Health

Introduction: Urethral diverticula are uncommon and disproportionately affect women. They are caused by repeat infection and occlusion of the periurethral glands, which enlarge then rupture into the urethral lumen, allowing urine pool. Treatment of choice, historically, has been with diverticulectomy, unless infection is present. Complications after diverticulectomy are not inconsequential and alternative procedures are few. Marsupialization has been traditionally used only for very distal diverticula; however, prior studies have demonstrated high rates of success and low morbidity. Overall, there is limited literature available on current marsupialization techniques and outcomes for treatment of female urethral diverticula.
Objective: To review the etiology, incidence, basic evaluation and the current treatment options for female urethral diverticula. As well as to describe a case-presentation of female urethral diverticulum and to demonstrate a technique for marsupialization.
Methods: A case presentation and surgical video of single patient from an academic institution.
Results: We present a case of a 31 year old female with a painful anterior vaginal wall mass, urinary urgency/frequency and some leakage of urine during pregnancy. MRI was notable for a 3.7x2.7cm anterior vaginal wall mass concerning for urethral diverticulum. After her vaginal delivery she underwent aspiration for decompression; however, she then had recurrence of the diverticulum 6-weeks later resulting in repeat drainage. At that time, she referred to Urogynecology. Her exam was notable for a recurrent diverticulum. She as counseled extensively on her options for treatment and decision was ultimately made to proceed with marsupialization due to her current social circumstances, desire not to undergo a more complex surgery nor to have prolonged Foley catheter use. She underwent an uncomplicated marsupialization of her urethral diverticulum and was discharged home the same day and her foley was removed at home on postoperative day zero. She was seen for follow-up at 2-weeks and 6-weeks and was healing well without urinary incontinence or notable recurrence symptoms or diverticulum.
Conclusions: Marsupialization is a simple, quick, and effective treatment option for urethral diverticula with minimal surgical risk and should be considered in appropriately counseled patients as an initial treatment option for female urethral diverticula.
Disclosure: No
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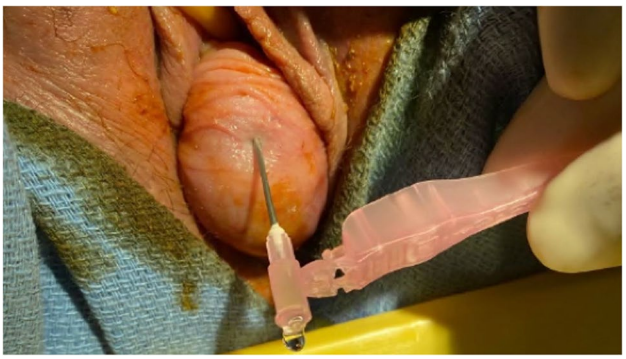
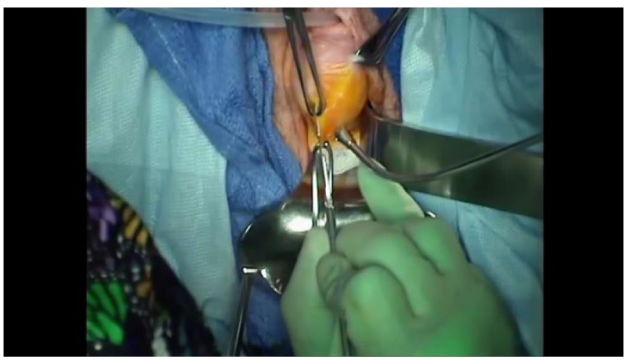
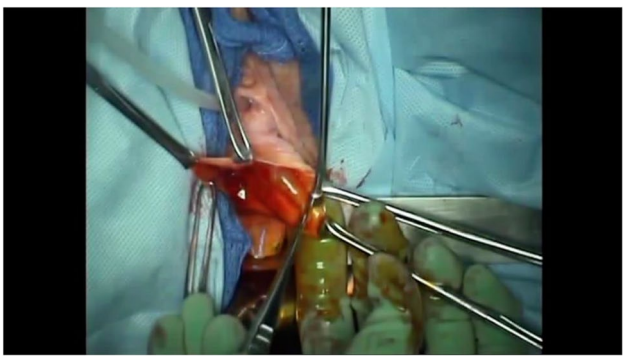
Gartner Duct Cyst: The Great Mimicker
Garcia, A[1]; Hidalgo, R[1]; Jackson, A[1]; Lynch, C[1]
1 - University of South Florida
Introduction: Gartner duct cysts (GDCs) arise from embryologic remnants of the mesonephric ducts when they fail to completely regress during female urogenital development. Due to their common location along the anterolateral vaginal wall, GDCs may be mistaken for anterior wall prolapse, urethral diverticulum, Skene's gland cysts, and other diagnoses. GDCs can often be associated with urinary tract abnormalities, therefore appropriate diagnosis and management is key in avoiding inadvertent injury or morbidity.
Objective: This video aims to demonstrate a unique case of recurrent Gartner Duct Cyst which first presented as an anterior vaginal wall mass in pregnancy, its subsequent recurrence, and the use of varying management options given the patient's unique clinical circumstances at each presentation.
Methods: For this patient, we present a novel technique using fluorescein dye to aid in identification, dissection, and excision of the GDC.

This technique involves the injection of fluorescein dye into the cyst followed by diagnostic cystoscopy prior to cyst excision.
Results: The use of fluorescein dye confirmed the absence of communication between the GDC and the urinary system on cystoscopy. Furthermore, it allowed for easy delineation of the cyst wall and normal vaginal tissue, ensuring complete resection despite inadvertent cyst rupture.
Conclusions: We present a unique case of recurrent Gartner Duct Cyst first presenting as anterior vaginal wall mass in pregnancy and its subsequent recurrence. This patient's case is an example of varying management options given her unique clinical circumstances at each presentation. Surgeons should consider use of a fluorescein dye injection prior to cyst excision to minimize risk of recurrence and inadvertent morbidity.
Disclosure: No
Images:







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Laparoscopic High Uterosacral Ligament Suspension and Vaginal Anterior Colporrhaphy
Di Serio, M[1]; Novaretti, G[1]; Ghi, T[1]
1 - Università di Parma

Introduction: Laparoscopic high uterosacral ligament suspension is an effective strategy in the surgical management of apical prolapse with native tissue and presents low operative risks, such nerve and uretere injury, compared to the classic vaginal route. It presents less efficacy in the correction of associated anterior prolapse compared to laparoscopic colposacropexy; however, it can be efficiently associated with a vaginal approach to correct major anterior defects using native tissue.
Objective: The objective of this video is to demonstrate the steps of a combined laparoscopic and vaginal technique to treat multicompartmental POP.
Methods: A 69-year-old woman came to our clinic for stage III anteroapical prolapse (POP-Q), symptomatic for bulge, and underwent combined surgery of laparoscopic high uterosacral ligament suspension and vaginal anterior colporrhaphy, using the technique described in this video.
Results: This surgical technique has been successful in correcting apical and anterior prolapse, and no complications have occurred.
Conclusions: This video may be helpful for urogynecologists to improve surgical technique. Laparoscopic high uterosacral ligament suspension can be safely and effectively performed to treat apical prolapse and can be combined with a vaginal approach to treat anterior prolapse in patients with multicompartmental defect.
Disclosure: No

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Transvaginal Mesh Related Complication Resolution Surgery - Video Case
Baquerizo, N[1]; Pavan, L[1]; Builes, MJ[1]; Ubertazzi, E[1]
1 - Hospital Italiano de Buenos Aires

Introduction: Urinary incontinence and pelvic organ prolapse (POP) commonly coexist. Up to 60% of women presenting with POP are also diagnosed with stress urinary incontinence (SUI). In Latin America, the use of transvaginal mesh (TVM) for the correction of POP is widespread. Indeed, in our country, synthetic four-arm polypropylene mesh was introduced to correct the anterior compartment with the ability to treat SUI at the same time (using two prepubic branches and two transobturator arms), however, it is not currently available. Despite its high effectiveness for the treatment of POP, TVM are not free of complications, as dyspareunia, pelvic pain, mesh contracture or mesh exposure have been reported. When pain does not improve, surgical management must be considered.
Objective: To present a case video of complete vaginal mesh excision and recurrent POP repair.
Methods: Video presentation: Case report in a Tertiary Hospital of Buenos Aires, Argentina.
Results: A 69-year-old woman was referred to our institution for recurrent POP associated with chronic pelvic pain and dyspareunia. At examination she presented POP stage III Ba + 2 according to Pelvic Organ Prolapse Quantification (POP-Q), folded mesh was found in the suburethral space in the middle urethra, with exquisite pain at its touch. Complication Classification: 1Be-T4-S2. Patient had a history of POP and SUI repair with a transvaginal synthetic four-arm polypropylene mesh placement four years earlier in another institution. Urodynamics showed occult SUI. Transperineal ultrasound identified suburethral mesh at the level of the middle third of the urethra; it has four branches: two of them with pubic direction and two posterior branches directed to posterior fornix. During surgical intervention hydrodissection of

the anterior vaginal wall was performed with hemostatic solution (400 ml of saline solution + 1mg of epinephrine). An inverted U shaped incision was made on the anterior vaginal wall. Dissection with Metzembaun scissors and blunt maneuvers releasing the bladder from the vagina, retracting it until it was released from the cervix. A complete vaginal mesh excision was performed in suburethral space, avoiding the urethral lumen. Flaps of muscularis vaginalis were overlapped with Vycril ® 2-0. Anterior colporrhaphy was performed with the same suture. Then, a unilateral sacrospinous ligament suspension with anchoring system (TAS) was performed attaching the cervix with a pulley point, reducing apical prolapse by posterior. Perineoplasty was performed according to technique. At one month follow-up the patient improved her chronic pelvic pain and is satisfied with surgical results.
Conclusions: TVM are highly effective for POP surgery in trained surgeons. However, complications related to its use may occur, such as chronic pelvic pain, dyspareunia,exposure, contracture or folding of the mesh. It is important that the surgeons who perform this type of surgery are properly trained to resolve any type of complication that may occur and if not, timely referral should be made. This video shows the successful resolution of a TVM-related complication.
Disclosure: No

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Urogynecology-Focused Adaptations For Enhancing vNOTES Hysterectomy And Suspension Practices
Zoorob, D[1]; Shuffle, E[2]; Chen, K[2]
1 - University of Toledo College of Medicine and Life Sciences / ProMedica Health System
2 - University of Toledo Colege of Medicine and Life Sciences
Introduction: Integration of laparoscopy into vaginal procedures, whether as Laparoscopic Assisted Vaginal Hysterectomies (LAVH) or or vaginal natural orifice transluminal endoscopic surgery (vNOTES) options, is considered a modification of the traditional vaginal hysterectomy approach. To enhance accessibility and intraoperative efficiency in vNOTES cases, modifications may be needed when prolapse and longer or larger cervices are present.
Objective: This video aims to suggest techniques that could optimize the surgical experience when considering vNOTES procedures for patients who have elongated or larger cervices and who need vaginal suspension concurrent with a hysterectomy
Methods: This video was developed using intraoperative footage to assist surgeons, in cases performed entirely through the vaginal route using the vNOTES technique. Traditional vaginal surgical steps were adapted to permit for optimal utilization.
Results: The three sections highlighted in this video include general hysterectomy-focused suggestions, cervix-directed insights, and vaginal suspension-related techniques. The clinical relevance of these optimizations may be evident in challenging cases where surgeons are considering the use of the vNOTES hysterectomy option.
Conclusions: Thus, this video proposes new adaptations to help surgeons achieve efficient and safe vNOTES hysterectomy procedures in cases with prolapse and/or elongated or larger cervices.
Disclosure: No

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Voiding Dysfunction: Evaluation and Management
Hines, K[1]; Badlani, G[1]; Matthews, C[1]
1 - Wake Forest School of Medicine
Introduction: Voiding dysfunction in females can present a diagnostic dilemma to providers caring for women with pelvic floor conditions. Patients often present with storage symptoms but have concurrent voiding dysfunction that can complicate diagnosis and management and ultimately affect patient satisfaction with treatment.
Objective: Our objective was to create an educational video to review diagnosis and management of women with voiding dysfunction.
Methods: We performed a literature review on non-neurogenic female voiding dysfunction. IRB waiver was obtained as all clinical photos and videos used were used with consent and no identifiable information was obtained. Patient histories from three patients were used as basis for case presentations.
Results: There were no outcomes for this educational video.
Conclusions: This educational video reviews the nuances of managing female non-neurogenic voiding dysfunction.
Disclosure: No

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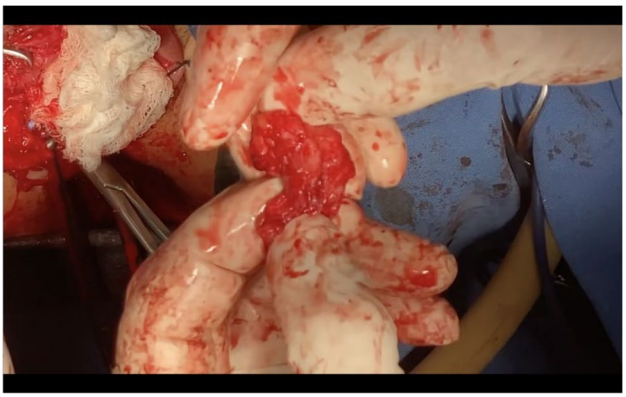
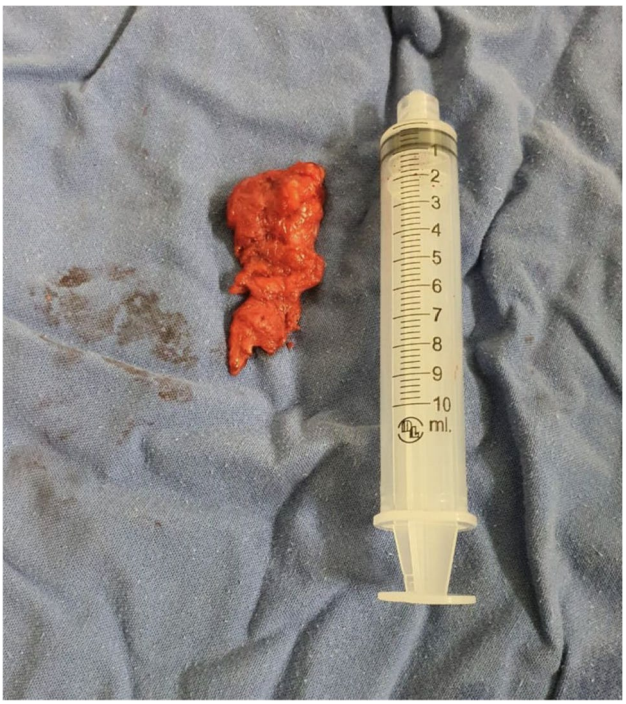
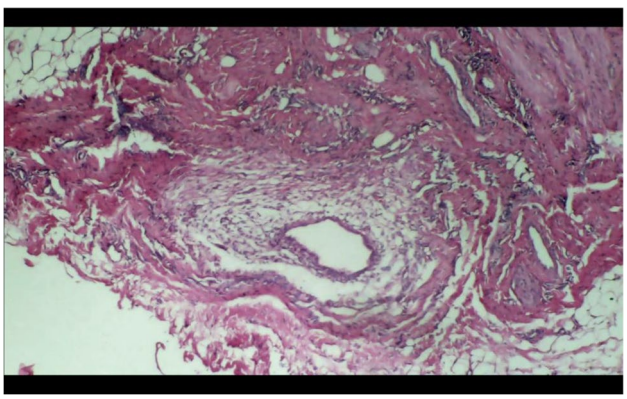
Perineal Endometriosis: Surgical Excision Approach
Hernández Sánchez, R[1]; Santiago Arreortúa, C[1]; Rule Gómez, SG[1]; Vélez Sánchez, D[1]; Zapico Ortíz, CA[1]; Luna Ramírez, E[1]
1 - Hospital Militar de Especialidades de la Mujer y Neonatología
Introduction: Although major advances in the management of endometriosis have been made, the exact etiology of this condition remains unknown. Retrograde menstruation, might provide an explanation of why endometriotic deposits are most commonly found on the peritoneal surfaces. Transplantation seeding of endometriosis may be the mechanism by which endometriosis develops in episiotomy scars and other abdominal incisions. Perineal endometriosis is a rare type of extrapelvic endometriosis. Endometriosis of perineum and vulva, accounting for less than 1 % of cases of surgically treated endometriosis, has been reported in the literature with the most common site being episiotomy scars. Likewise, implantation of endometrial tissue within scars may be the cause of perineal endometriosis.
Objective: To demonstrate the appropriate diagnosis and treatment of perineal endometriosis. To describe the surgical excision approach of perineal endometriosis. To excise all suspicious tissue, decreasing recurrence rate. To improve post-operative outcomes after complete healing.
Methods: As this is a surgical education video, a 32-year-old multigravida with an episiotomy 19 years ago and perineal endometriosis is discussed, sent to Urogynecology with perineal endometriosis diagnosis. It is highlighted the complete approach, from the beginning with superficial and deep layers dissection, to the end with step-by-step closure stitching each layer and repairing the wound thickness to the skin.
Results: Ultrasound and Magnetic Resonance revealed a subcutaneous nodule underlying the episiotomy scar. Endometriotic nodule in perineum was completely excised and cured, and confirmed by the microscopic examination. Histopathological Specimen Q-1173-21, 04/12/2021. Vessel: Perineal endometriotic nodule. Diagnosis: Perineal endometriotic nodule bearing out Endometriosis diagnosis.
Conclusions: In the immediate post-operative, after repairing and closure, the surgical wound edges are visualized clean and side by side, with suitable hemostasis. Follow-up, one-week post-operative, April 15 2021, symptomatology reduction more than 90%, and one-month post-operative, May 13 2021, complete resolution of symptoms is documented, surgical wounds with complete healing. Histopathological slices demonstrate endometrial epithelium, characteristic niches of endometriotic foci, correlating patient diagnosis. The principle of management includes adequate, wide excision to prevent recurrence. It is of great importance not to rupture the mass during surgery to avoid re-implantation. During surgical approach, it is recommended to excise the surrounding fibrous tissue to ensure that no residual endometriosis is left.
Disclosure: No
Images:







299

Laparoscopic Anterior and Posterior Repair with Apical Suspension

heusinkveld, j[1]
1 - University of Arizona/Banner Health

Introduction: Laparoscopic uterosacral ligament suspension is an effective method for apical suspension at the time of hysterectomy. Many patients have coexisting anterior and posterior defects. A laparoscopic method for addressing defects in all three compartments is desirable.
Objective: This video demonstrates how an anterior and posterior repair can be performed laparoscopically at the same time as a uterosacral ligament suspension.
Methods: A laparoscopic hysterectomy was performed. The vaginal cuff was closed, and then the bladder was dissected away from the anterior vaginal wall. The anterior vaginal wall was then plicated with absorbable sutures in a manner analogous to a vaginal anterior colporraphy. A similar repair was performed on the posterior wall. Both walls were then attached securely to the apex, and the vaginal apex was suspended from the uterosacral ligaments, which were then plicated for additional support.
Results: A very anatomic repair with stage 0 prolapse of all 3 compartments was obtained.
Conclusions: Anterior and posterior repair can be performed laparoscopically in a manner analogous to the traditional vaginal procedures.
Disclosure: No

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How to Deal With a "Megavagina"

heusinkveld, j[1]
1 - University of Arizona/Banner Health

Introduction: Advanced pelvic prolapse can result in stretching of the vaginal walls to create a large sac which we term a "Megavagina," which will reach beyond the sacrum when replaced in the body. In order to perform a sacral colpopexy, the length of the vagina must be returned to normal.
Objective: In this video we demonstrate how a "megavagina" can be restored to normal length so that a sacral colpopexy can be performed without any vaginal repairs.
Methods: A vaginal manipulator was placed, and the peritoneum overlying the attenuated vaginal wall was dissected away. The vaginal wall was then plicated with successive sutures until normal length was restored. A sacral colpopexy Y-mesh was attached in the usual manner, with care to attach as far down the posterior wall as possible. The Y-mesh was attached at the sacrum and buried under the peritoneum.
Results: Stage 0 prolapse in all 3 compartments was obtained without removing any vaginal epithelium. The result was maintained at a 3-month follow up visit.
Conclusions: Stage 4 prolapse with a greatly enlarged and attenuated vagina can be managed by laparoscopically plicating the vagina and then performing a sacral colpopexy.
Disclosure: No

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Laparoscopic Excision of Bladder Mesh Erosion after Midurethral Sling

Christensen, K[1]; Gaigbe-Togbe, B[1]; Kim, R[1]; Ascher-Walsh, C[1]
1 - Icahn School of Medicine at Mount Sinai

Introduction: Mesh erosion is a rare complication of midurethral slings that may require surgical excision.

Objective: The objective of this video is to discuss a laparoscopic technique for excision of eroded bladder mesh after a midurethral sling.
Methods: We present a case of an 84-year-old P2 who presents with frequent urination and recurrent urinary tract infections 14 months after undergoing a laparoscopic supracervical hysterectomy, sacrocolpopexy, and TVT sling. An in-office cystoscopy was performed which showed a 1-1.5cm portion of eroded mesh into the right lateral bladder wall approximately 4cm from the ureteral orifice. This video was edited and narrated to demonstrate the surgical steps of completing this laparoscopic excision of the eroded mesh from the bladder.
Results: In the operating room, a cystoscopy was performed to confirm the location of the eroded mesh and a right ureteral stent was placed due to proximity of the mesh to the ureteral orifice. Attention was then turned to the abdomen. With the bladder filled, the anterior peritoneum overlying the space of Retzius was opened and then dissected down to the level of the mesh. The mesh was elevated and the portion entering the bladder was identified then excised with cold scissors. A cystotomy was created during the process of mesh excision which was subsequently closed in two layers using barbed suture. The peritoneum overlying the space of Retzius was also closed with barbed suture. The ureteral stent was felt to be freely mobile and subsequently removed upon completion of the case. The patient was discharged home on post-operative day 0 with a foley catheter in place. She followed up on post-operative day 10 for foley catheter removal.
Conclusions: This surgical video demonstrates that a laparoscopic approach is a safe and effective method to excise eroded mesh after a midurethral sling.
Disclosure: No

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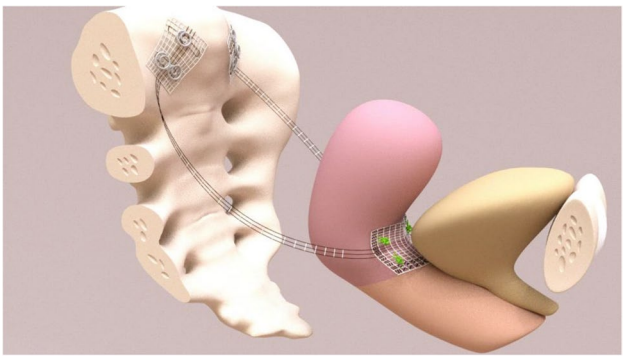
Laparoscopic Bilateral Uterosacropexy - Advancement of a New Surgical Technique with Uterine Preservation and Apical Restoration in Women with Symptomatic Pelvic Organ Prolapse
Ludwig, S[1]; Morgenstern, B[1]; Morgenstern, P[1]
1 - University Hospital of Cologne, Germany

Introduction: Symptomatic pelvic organ prolapse (POP) affects many women. If conservative therapies fail, reconstructive surgical therapies come into question, which depends on a number of factors. In addition to the correction of the affected anatomical structures, the patient's desire or preference with regard to uterine preservation and desire for fertility preservation must also be taken into account. In the last 2 decades, attitudes toward and interest in uterus-preserving POP surgery have increasingly changed. There are a variety of uterus-preserving surgical options, but few publications on subsequent pregnancy. Uterus-preserving procedures have the advantage of significantly shorter operative time, less blood loss, as well as faster recovery and the possibility of fertility preservation. So far, there is also no clear consensus on a uniform surgical procedure in terms of standardization of individual surgical steps for better comparability of clinical outcomes.
Objective: For the first time, we present a uterus-preserving surgical technique with a bilateral apical suspension (replacement of both uterosacral ligaments, USL) in a step-by-step standardized surgical technique called laparoscopic uterosacropexie with a minimum amount of synthetic material.
Methods: Women with symptomatic uterine prolapse were referred to our tertiary unit and were included in this pilot study. These patients have failed or declined conservative management; none of them had undergone previous urogynecological surgery. For the laparoscopic uterosacropexy, both USLs were replaced with a tape-like synthetic structure made of polyvinylindene-fluoride (PVDF) (Fig. 1). These tapes of defined length (9 cm) and width (0.4 cm) were retroperitoneally implanted within the run of both USL under preservation of the integrity of the peritoneum by using a semi-circular tunneler.
Results: Apical support was restored in all 15 patients (mean age: 41 years), as well as urinary continence (in all 6 patients with prior mixed urinary incontinence). No intraoperative complications occurred (vessel or ureter injury and bowel or bladder lesions). Blood loss was less than 30 mL per patient, and the mean operation time was 56 minutes. Over a mean follow-up period of 20 months, no mesh erosions or relapse of prolapse was detected. One patient became pregnant and was delivered by cesarean section in the 39th week without complications.
Conclusions: This laparoscopic bilateral uterosacropexy represents one alternative treatment option for uterus-preserving standardized apical reconstruction in premenopausal patients. This uterosacropexy also offers the advantage of fertility preservation in addition to shorter surgical time, low blood loss, and faster convalescence. This clearly defined surgical technique leads to a better comparability of clinical outcomes. To date, there are only 8 case series in the literature of reported pregnancies after unilateral hysteropexy. However, to date, there is no described case of bilateral uterosacropexy with subsequent successful pregnancy. Nevertheless, further studies need to provide long-term data on anatomic recurrence, and in the case of subsequent pregnancy, especially on the risk of intrapartum complications as well as postpartum anatomic recurrence.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: FEG Textiltechnik mbH Aachen, Germany
Images:



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Pectineal Hysteropexy: A New Alternative to Uterus-Conserving Prolapse Repair
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1 - University of Arizona/Banner Health

Introduction: Uterus-conserving prolapse repairs are the subject of increasing interest due to the perception that hysterectomy is unnecessary in many cases. Suspending the uterus from the sacrum requires tunneling through the cardinal ligament in order to include anterior support. Recent data from Germany indicate that use of the pectineal ligaments leads to similar outcomes with fewer postoperative bowel symptoms.
Objective: This video shows how a hysteropexy including support for the anterior wall can be performed using the pectineal ligaments as attachment points.
Methods: Laparoscopic access was established. The bladder was dissected away from the upper vagina. The pectineal ligaments were exposed on both sides. A modified colpopexy mesh was sutured to the cervix and upper vagina and suspended from the pectineal ligaments. The peritoneum was closed over the mesh. A small posterior repair was performed.

Results: Excellent support in all three compartments without leftward displacement of the sigmoid colon as occurs with sacral hysteropexy.
Conclusions: Pectineal hysteropexy is a viable alternative to sacral hysteropexy that may have certain advantages including avoiding the need to tunnel through the cardinal ligament and fewer postoperative bowel symptoms.
Disclosure: No

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Circumferential Fistula Repair with Pubococcygeal Sling and Refixation of the Pubococcygeal Fascia in Lilongwe, Malawi
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1 - Baylor College of Medicine
2 - Freedom from Fistula Care Center
3 - Baylor College of Medicine; Freedom from Fistula Care Center

Introduction: Obstetric fistula affect approximately two million women in Africa. Caused primarily by ischemic necrosis due to prolonged, obstructed labor, this condition is predominantly encountered in low and middle income countries without access to timely and/or skilled cesarean sections. Prolonged ischemia can lead to circumferential tissue loss and complete separation of the urethrovesical junction with bare bone between the urethra and bladder. This type of fistula is extensive and successful surgical repair can be difficult. Risk of continued incontinence post-operatively is high given urethral involvement, including the urethral closing mechanism musculature and the pubo-urethral ligament.
Objective: The objective of this video is to illustrate an approach for repair of a circumferential fistula, incorporating both a pubococcygeal sling and refixation of the pubococcygeal fascia (RPCF) to decrease post-operative stress urinary incontinence.
Methods: A 17 year old G1P1000 delivered a stillborn fetus after suffering a forty-eight hour labor. Immediately post-delivery, she noted constant urinary leakage. She had prolonged catheterization for two weeks post delivery with no improvement in her leaking. She presented to the fistula center for surgical repair. On initial evaluation, she was noted to have a large circumferential fistula with a positive dye test as well as a positive cough stress test. Minimal urine dermatitis was noted. She did not have foot drop. Decision was made for surgical management. Surgical footage was obtained with the patient's informed consent. Video footage and educational content was edited with iMovie software.
Results: The patient underwent a circumferential fistula repair with pubococcygeal sling and RPCF. Intra-operative findings included a 5x4cm fistula extending laterally to the bilateral pubic rami. The procedure was uncomplicated with a total operating time of 1 hour and 42 minutes and estimated blood loss of 200cc. She had an intra-operative dye test that was negative indicating a water tight bladder repair. She remained dry throughout her post-operative course. Her bilateral ureteric catheters were removed on postoperative day (POD) three and her urethral catheter on day seventeen. She had a negative dye test and cough stress test on POD17. She was discharged home with plans for a one and three month follow up.
Conclusions: This case illustrates an extensive obstetric fistula that was successfully repaired vaginally. It demonstrates the importance of addressing mechanisms contributing to continued post-operative urinary incontinence. By harvesting muscle from the lateral pelvic walls and rotating them under the urethra, we created a sling that also served as a graft over the anastomosis to decrease the rate of repair breakdown and failure. The importance of completing the repair off tension is highlighted by the use of the RPCF during repair of the vagina.
Disclosure: No

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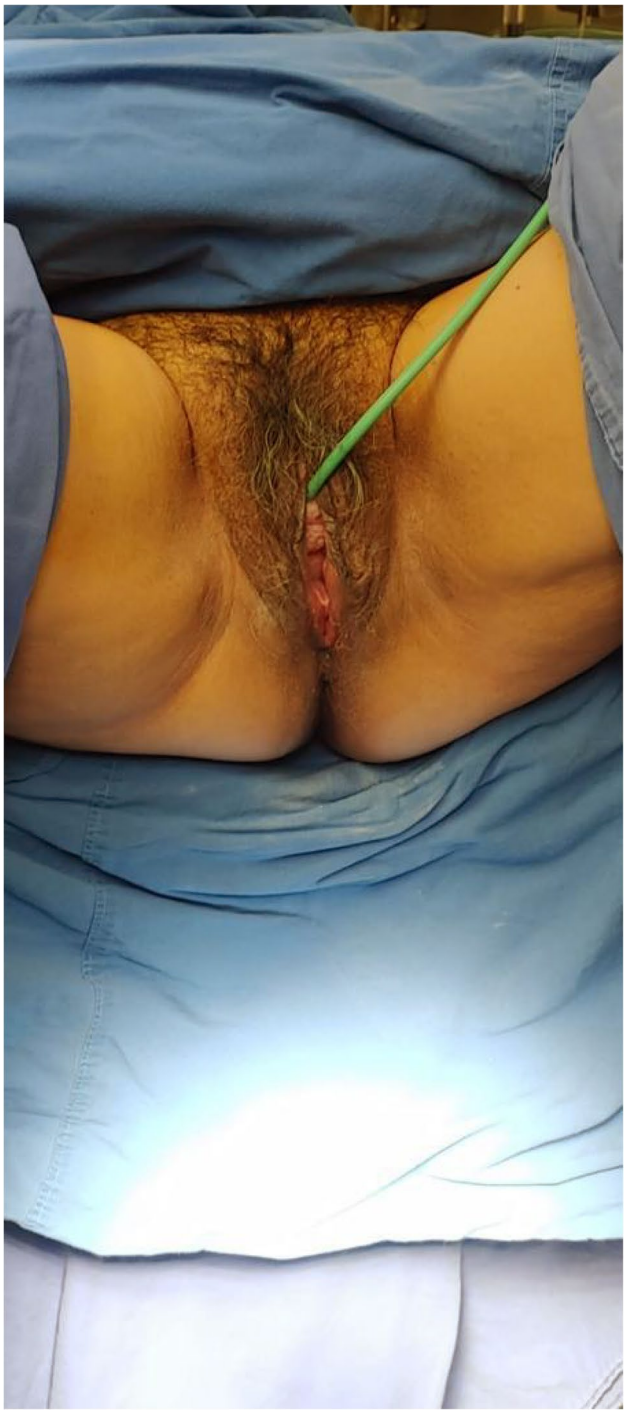
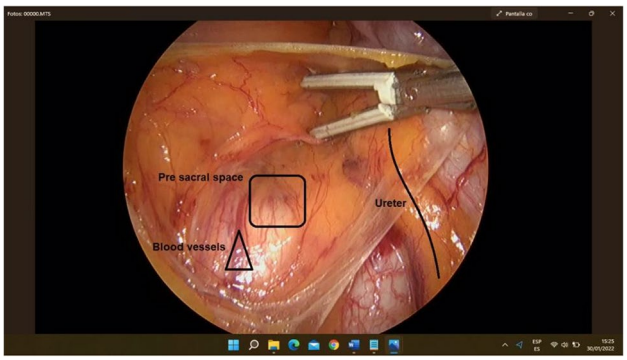
Laparoscopic Sacrocolpopexy
Santiago Arreortua, C[1]; Rule Gomez, SG[2]; Luna Ramírez, E[2]; Florentino Posadas, T[2]; Rivera Torres, AR[2]
1 - Military Hospital for Women and Neonatology Specialties
2 - Military Hospital for women and neonatology specialties

Introduction: Pelvic organ prolapses are currently a problem that affects the quality of life of patients, despite performing vaginal surgeries to correct apical prolapses, there is a risk of recurrence of prolapses such as vaginal vault prolapse. It is important to reproduce innovative surgical techniques to correct these prolapses in the least invasive way and with the best possible results, with the aim of improving the quality of life of patients with the least risk. Laparoscopic sacrocolpopexy is an excellent reproducible technique in which we obtain good surgical results in the least invasive way possible.
Objective: Our fundamental objectives are: 1. Reproduce surgical techniques of surgeries for prolapse. 2. Perform innovative surgical techniques for pelvic organ prolapse 3. Demonstrate the change in the quality of life of patients with pelvic organ prolapse 4. Demonstrate surgical skills of our institution.
Methods: The method of this video was recorded in an educational way, to understand anatomical concepts and surgical techniques in a simple way. It was prepared under a usual outpatient recruitment process, the patient was protocolized under our regulations and surgery was scheduled. The patient was always informed about each planned process and agreed with the treating physicians.
Results: An improvement in the patient's quality of life was obtained, resolving symptoms, avoiding prolapse complications such as emptying disorders and ulcerations. The procedure was performed without complications in the short or long term. It was possible to identify fundamental anatomical structures to carry out the procedure and important academic results were obtained for residents in training.
Conclusions: 1. The first-line treatment for vaginal vault prolapse is sacrocolpopexy. 2. Laparoscopic sacrocolpopexy is a good corrective method for vaginal vault prolapse, being less invasive. 3. It is important to master anatomical structures to achieve a correct suspension of the vaginal vault and avoid injury to vessels or organs.
Disclosure: Yes, this is sponsored by industry/sponsor: Military Hospital for Women and Neonatology Specialties
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: Military Hospital for Women and Neonatology Specialties
Images:





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Vascular Pelvic Nerve Entrapment

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1 - University of Texas Medical Branch

Introduction: Pelvic nerve entrapment is a lesser known cause of chronic pelvic pain, and occurs when engorged vasculature of the iliac and/or uterine vessels entrap nerves of the sacral plexus against the pelvic sidewall. Considering vascular pelvic nerve entrapment as a differential diagnosis for chronic pelvic pain is important as it may be treated with surgical management. Our patient was a 27 year old G0 female with history of chronic left pelvic pain exacerbated by intercourse, standing, and ambulation. Physical exam was remarkable for left vaginal sidewall tenderness around the sacrospinous ligament and piriformis muscle, as well as positive straight leg raise test for sciatica of the left leg. The patient underwent conservative management and pelvic floor injections without improvement. MRI of the lumbar spine showed mild asymmetry of the piriformis muscle however the lumbosacral plexus was grossly unremarkable. The patient opted for surgical management to determine etiology of pelvic pain.
Objective: The goal of this video is to present intraoperative findings of vascular pelvic nerve entrapment and show our approach for surgical treatment.
Methods: The patient underwent robotic-assisted diagnostic laparoscopy. Upon entry into the abdominal cavity, no endometrial implants were visualized. The space between the left common iliac and sigmoid colon was dissected to enter the rectovaginal avascular space. Ureter was identified, and the dissection was continued to the ileococcygeus muscle within the pelvic floor. No endometriosis was noted within the retroperitoneal area. An engorged left uterine vein was observed. The engorged vein was dissected off surrounding tissue. Then two medium-to-large sized Hem-o-lok ligation clips were placed on either end of the vein. The vein was cut in between the Hem-o-lok ligation clips with sharp scissors. Good hemostasis was obtained. The peritoneum was closed with continuous 3-0 V lock suture. The intra-abdominal pressure was dropped to 8mmHg with continued hemostasis observed.
Results: Our patient reported complete resolution of chronic pelvic pain and dyspareunia at her two month postoperative visit. Physical exam confirmed no vaginal wall tenderness or pain around the sacrospinous ligament or piriformis muscle. She had a negative straight leg raise test.
Conclusions: Pelvic nerve entrapment should be considered as a differential diagnosis for chronic pelvic pain. Surgical correction by an experienced gynecologic surgeon provides effective treatment of chronic pelvic pain associated with vascular pelvic nerve entrapment.
Disclosure: No

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WITHDRAWN - Tips and Tricks for Vaginal Hysterectomy
WITHDRAWN

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Pudendal Nerve Stimulation
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Introduction: Pudendal neuralgia is a debilitating condition characterized by chronic dysfunction or compression of the pudendal nerve. It is most commonly associated with childbirth or pelvic trauma, and presents with persistent vaginal and perineal pain that may be accompanied by painful or irritative voiding symptoms. Neuromodulation of the pudendal nerve, which contains branches of S2-4 has been shown to be an appropriate treatment modality for refractory patients for whom more conservative therapies such as lifestyle changes, pelvic floor physical therapy, medical therapy, and pudendal nerve block have failed.
Objective: The objective of this video is to demonstrate the procedural technique for percutaneous pudendal nerve stimulation using neuromodulation for refractory pudendal neuralgia with special attention to relevant pelvic anatomy and confirmation of appropriate placement using electromyography (EMG) potentials and fluoroscopy.
Methods: A case is presented of a 62-year-old female patient with refractory pudendal neuralgia. This video demonstrates the relevant pelvic anatomy including the course of the pudendal nerve as it relates to bony landmarks of the pelvis in the prone position for a transperineal approach to lead placement. The electrode lead is placed under fluoroscopic guidance along the course the nerve via Alcock's (the pudendal) canal and terminating 1cm medioposterior to the ischial spine. Lead placement proximal to the nerve is confirmed with EMG and activation of the pudendoanal reflex. The remainder of the lead placement technique including creating the internal neurostimulator pocket site is demonstrated.
Results: This video successfully demonstrates a percutaneous pudendal nerve stimulation with discussion of relevant anatomy and confirmatory techniques.
Conclusions: Pudendal nerve stimulation is a safe and viable option for patients with refractory pudendal neuralgia and can be achieved easily under fluoroscopic guidance with neuromodulation kits and EMG confirmation of placement along the nerve.
Disclosure: No

309

Evaluation and Treatment of Complex Vesicocervicovaginal Fistula in a Patient with Stage 1A1 Cervical Cancer
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2 - Cooper University Health

Introduction: There have been multiple case reports documenting fistula complication after LEEP. There is no standardized approach to the management of fistula after LEEP, and the case reports detail various successful approaches. These include conservative management with Foley catheter, surgical management with vaginal fistula repair alone, and surgical management with a combination of hysterectomy and fistula repair including open, robotic, and vaginal approaches.
Objective: This video documents preoperative evaluation of a complex fistula, and fistula repair with the correct vaginal approach.
Methods: This is a case presentation of a 59 year old patient with Stage 1A1 squamous cell carcinoma of the cervix, who presented with post-operative urinary incontinence status post-LEEP. Surgical management was recorded using a mounted high-definition camera to precisely document surgical technique and methods. Preoperative evaluation included CT cystogram, retrograde filling of the bladder, and MRI. Surgical techniques included use of ureteral stents; pediatric Foley catheter for occlusion of the fistula opening, and guidance and dissection of the fistula tract; interrupted Lembert sutures to ensure water-tight closure on the first layer of fistula repair; interrupted horizontal mattress sutures for second layer of closure; and robotic arms for careful dissection and leveraging of the vaginal and cervix free from the bladder.
Results: Allowing six weeks for inflammation resolution improved the vitality of the tissue for repair. We avoided PCNs because they tend to lead to an increased risk of infection and overall patient morbidity. Although this patient continued to leak in the weeks leading up to surgery, she did not develop infection as a result of her leakage and was not placed at risk of pyelonephritis or future renal damage.
Conclusions: It is important to be aware that surgical procedures, including LEEPs, can be complicated by fistula formation. When planning time for fistula repair, it is necessary to allow time for inflammation resolution because using healthier tissue for closure ensures integrity of repair, decreases the risk of fistula reoccurrence, and optimizes outcomes. It is valuable to perform a thorough preoperative evaluation of the fistula tract with MRI and retrograde filling of the bladder to aid in surgical planning. When possible, we recommend avoiding the use of PCNs because PCNs tend to lead to an increased risk of infection and overall patient morbidity. In the surgical repair of complex fistula, we recommend ureteral stent placement if the fistula is in close proximity to the ureters. We recommend using a pediatric Foley catheter for occlusion of the fistula opening and for guidance and dissection of the fistula tract. It is important to ensure a water-tight closure on the first layer of the fistula repair before closing subsequent layers. When possible, vaginal approach to fistula repair should be employed in order to avoid unnecessary second cystotomy. When performing a combination fistula repair and hysterectomy, we recommend robotic approach for hysterectomy to perform careful dissection of the vagina and cervix free from the bladder.
Disclosure: No

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Ureteral Stent Placement for the Urogynecologist
Megahed, N[1]; Hernandez, N[1]; Bruce, S[1]; Gonzalez, R[1]
1 - Houston Methodist Hospital

Introduction: Maintaining ureteral integrity is a key aspect of gynecologic surgery. The majority of ureteral injuries are recognized postoperatively. Ureteral injuries can lead to obstruction, loss of renal function, and fistula formation. Ureteral stents can prevent delayed identification of ureteral injury and ensure the patency of the ureter. This technique of ureteral stent placement is a simple addition to a surgeon's skillset.
Objective: We aim to describe indications for ureteral stent placement that are relevant to the urogynecologist. We will describe different types of temporary ureteral stents that are commonly used in the gynecologic setting. We will then demonstrate a simple approach to the placement of a temporary ureteral stent.
Methods: In this video we present ureteral stent placement without use of a guide wire. The supplies needed include a 30 degree lens in a 21 French cystoscope, a 5 French open ended catheter, and a 10 cc syringe of normal saline. Patient is placed in the low dorsal lithotomy position and cystoscopy is performed. Cystoscope light handle is directed towards the ureter being accessed. Instead of using a guide wire, we use a 10 cc syringe of normal saline. The ureteral stent is placed at the inferior edge of the ureteral meatus. A short brief puff of fluid is injected from the opposite end of the catheter to help cannulate the meatus and insert the stent.
Results: After removal of a temporary ureteral stent, it is imperative to ensure that they are removed intact. Mild hematuria can occur and should self-resolve within twenty-four hours. For inpatient procedures, it is important to use maintenance fluid overnight and have an adequate measure of urine output.

Conclusions: This demonstrates a simple approach to ureteral stent placement for the urogynecologic surgeon.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Boston Scientific

311

Diagnosis and Surgical Management of OHVIRA Syndrome: The Role of the Urogynecologist
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1 - Jefferson-Abington Health
2 - Cooper University Health

Introduction: OHVIRA syndrome is a rare genitourinary condition that necessitates vaginal surgery. Due to the scarcity of pediatric and adolescent gynecologists across the country, patients often initially present to a urogynecologist for surgical management. It is imperative that urogynecologists are familiar with the embryologic origin of this condition, the resultant anatomical variations seen in affected patients, and the classic clinical presentation in order to offer safe and effective surgical correction.
Objective: This video depicts an atypical presentation of OHVIRA syndrome, the surgical techniques used in the management of obstructed hemivagina, and the importance that surgical correction plays in decreasing the risks of endometriosis in these patients.
Methods: This is a case presentation of a 14 year old patient with atypical presentation of OHVIRA syndrome. Surgical management was recorded using a mounted high-definition camera to precisely document surgical technique and methods. The obstructed hemivagina was entered with a Bovie. The incision was extended to decrease the risk of stricture. The raw edges were oversewn with figure-of-eight ties.
Results: Surgical findings included a large vaginal mass, hematocolpos, and extensive endometriosis. Patient underwent successful hemivaginectomy, as well as fulguration of endometriosis implants.
Conclusions: OHVIRA syndrome is a rare genitourinary anomaly that requires vaginal surgery for evacuation of hematocolpos and prevention of future endometriosis. Most general gynecologists do not feel comfortable operating on these patients due to unfamiliarity with the condition and the resultant anatomy. These patients are often referred to a urogynecologist due to the relatively small number of pediatric and adolescent gynecologists in practice. It is important that urogynecologists can identify this condition and perform the correct vaginal approach to evacuation of hematocolpos.
Disclosure: No

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Common Urodynamic Findings in Female Lower Urinary Tract Symptoms
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1 - University of Cincinnati

Introduction: In this video, we will demonstrate common urodynamic findings in female lower urinary tract symptoms including phasic detrusor overactivity, poor bladder compliance with vesicoureteral reflux, bladder outlet obstruction and detrusor external sphincter dyssynergia. We present these urodynamic findings with clinical history for practical applications.
Objective: We present these urodynamic findings with clinical history for practical applications.
Methods: Retrospective chart review was performed on selected patients.
Results: Case 1: We demonstrate phasic detrusor overactivity in a 61 year old female with overactive bladder, urge urinary incontinence and nocturia. During the filling phase, patient demonstrated a rise in detrusor pressure accompanied with a rise in the vesical pressure with no rise in the abdominal pressure. Case 2: We demonstrate poor bladder compliance in a 32 year old female with history of spina bifida and hydrocephalus. During the filling phase, patient showed a progressive rise in detrusor pressure in response to continued bladder filling with a parallel rise in the vesical pressure with no change in the abdominal pressure. Case 3: We demonstrate bladder outlet obstruction in a 81 year old female who has elevated post-void residual and recurrent mixed urinary incontinence. During the voiding phase of the study, there was elevated detrusor pressure of 80 cm water at maximum flow rate of 4ml/s. Case 4: We demonstrate detrusor external sphincter dyssynergia in a 53 year old female with history of neurogenic bladder due to multiple sclerosis. The pressure flow study tracing showed high detrusor pressure, low maximum flow as well as the lack of relaxation of the external sphincter.
Conclusions: Urodynamics is a valuable tool to evaluate female lower urinary tract symptoms. We demonstrate that adding an imaging study with video urodynamic study may improve diagnosis associated with anatomical changes, such as vesicoureteral reflux and detrusor external sphincter dyssynergia.
Disclosure: No

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Vesico-vaginal Fistula After Cervical Cerclage - Let's Make the Repair Simpler
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2 - UCLH

Introduction: Vesico-Vaginal fistulae (VVF) remain the most prevalent genitourinary fistula detrimentally impacting quality of life. The management of pin-point high-riding vesico-vaginal fistulas may present a few challenges: diagnostic difficulties, choosing optimal repair timing, correct approach and surgical technique.
Objective: In this video we demonstrate the maneuver that simplifies and makes the repair safer during fistuloplasty in selected patients.
Methods
Method: 26 years old woman with prior history of cervical cerclage with a complaint of vaginal urine leakage in the past 8 months was diagnosed with VVF. The video shows the procedure step by step, a Foley catheter is passed through fistulous tract from vaginal orifice following the fistulous tract into the bladder. The role of the catheter during traction, is to improve exposition of fistulous area and facilitate and make safer the bladder wall fixation.
Results: 3 patients underwent successful repair of narrow high riding VVF using this teqnique.
Conclusions: We suggest this maneuver may be a useful tool in a reconstructive surgeon's armamentarium.
Disclosure: No

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WITHDRAWN: Tips and Tricks for Removal of TOT – Trans-Obturator Tape
WITHDRAWN

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Novel Vaginal Cerclage Assisted Laparoscopic Hysteropexy Technique: VCALH
aydin, S[1]; Guler Cekic, S[2]
1 - Koc Univertsity
2 - Koc University Hospital

Introduction: Apical prolapse, alone or in combination with anterior/posterior vaginal wall prolapse, results from defects in the integrity of the uterosacral and cardinal ligaments. Sacrocolpopexy are accepted as the gold standard treatments for apical uterine prolapse. Reduced blood

loss, fast patient recovery and fewer incisional morbidities are achieved by laparoscopic sacrocolpopexy (3). However laparoscopic sacrocolpopexy is a long and complicated procedure that requires specialized surgical skills, including precise dissection, suturing and the use of advanced laparoscopic equipment, or a robotic endoscopic unit to assist with suturing and dissection. Concomitant hysterectomy at the time of sacrocolpopexy, usually performed to facilitate access to the anterior and posterior vaginal walls, is associated with increased cost, morbidity and operation time. Uterus-sparing hysteropexy reduces mesh exposure, operative time, blood loss and surgical cost with no differences in prolapse recurrence. Despite a better understanding of apical support and advancements in surgical techniques, there are still several problems associated with the peritonization of mesh and a non-physiological position of the uterus or vagina, including a relatively high recurrence rate, frequent mesh exposure and complications such as ileus and ureter damage.

Objective: To present a video describing the technical considerations for performing a new feasible and minimally invasive technique to correct apical and concurrent apical and anterior vaginal wall defects

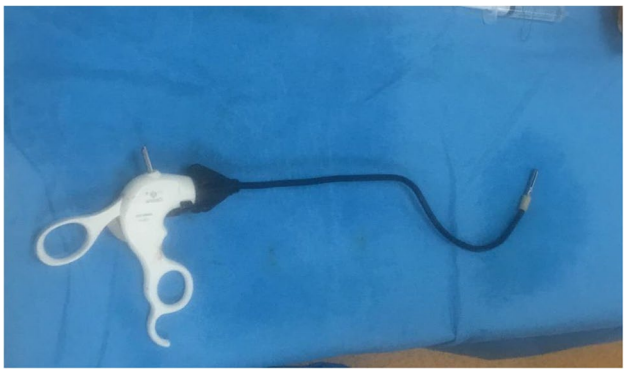
Methods: The presented operation is performed in two phases, consisting of an initial vaginal surgery followed by a laparoscopic approach. 1. An anterior 2-cm long transverse incision to the anterior cervicovaginal junction and dissection of bladder 2. Posterior colpotomy 3. Insertion of mid-urethral sling tape into the cervix 4. Free arms of tape are inserted into the peritoneum via posterior colpotomy. 5. Two arms of tape is passed from the tunnel parallel and medial to a sacrouterine fold formed by a modified semicircular laparoscopic needle holder 6. Fixation of the tape is fixed to the anterior longitudinal ligament bilaterally

Results: The tape can be inserted into the cervix in median 15 minutes and the laparoscopy procedure can be completed in 24 minutes. All operations performed laparoscopically. Hospitilization duration was 1 day. No intraoperative or early postoperative complication occurred. No mesh erosion or long-term complications occured. At a 1 year control, no cases of recurrence. The median change from preoperative point C to postoperative point C was 9 cm ($P < 0.01$).

Conclusions: This novel hysteropexy technique feasible and safe minimally invasive way to correct primarily apical or multicompartment defects with short operation time and anatomical result that mimics the normal sacrouterine ligament.

Disclosure: No

Images:



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Laparoscopic Suture Sacrohysteropexy: A Meshless Alternative Approach to Uterovaginal Prolapse Surgery

Ben Zvi, M[1]; Thanatsis, N[1]; Vashisht, A[1]
1 - UCLH

Introduction: Laparoscopic mesh sacrohysteropexy is one of the NICE recommended procedures for uterine prolapse and probably the one with the most robust outcomes. Nevertheless, the concerns about safety of transvaginal mesh and the associated publicity have created controversies about the role of mesh in pelvic reconstructive surgery. Currently, there is a growing trend towards the use of dissolvable surgical materials. Laparoscopic suture sacrohysteropexy is an alternative option for women who wish to preserve their uterus and they are mesh averse. Previous authors have described minimally invasive techniques for uterine-sparing prolapse surgery. In 2001, Maher et al. utilised non-absorbable sutures to plicate the uterosacral ligaments (laparoscopic uterosacral ligament suspension and culdoplasty). Subsequently, Krause et al. described the technique of laparoscopic sacral suture hysteropexy. The authors used two running non-absorbable sutures to anchor the uterine torus to the right uterosacral ligament and the anterior longitudinal ligament over the sacral promontory.

Objective: Our approach of laparoscopic suture sacrohysteropexy incorporates surgical steps of both procedures in an effort to achieve optimal and long-lasting apical support.

Methods: Technique: 1. EUA, Foley catheter and uterine manipulator inserted. Rectal sizers used throughout the procedure as needed to mobilise rectum. 2. 4 port laparoscopy. 3. Pelvic survey. 4. Ureters identified-peritoneal relaxing incisions. 5. Promontory identified and peritoneum opened. Anterior longitudinal ligament exposed. 6. Peritoneal dissection developed caudally to insertion of uterosacral ligaments. 7. In case of concomitant enterocele, then we proceed to a dissection of the rectovaginal space and laparoscopic correction of enterocele using delayed absorbable sutures. 8. Plication of uterosacral ligament with PDS sutures x 3. 9. Midline plication of USL ligaments utilising delayed absorbable sutures (Laparoscopic culdoplasty). 10. Two monofilament non-absorbable sutures inserted to the uterine torus, then passed into the right USL, anchored to the ALL over the sacral promontory and then passed back to the uterine torus. 11. Retroperitonealisation of the non-absorbable sutures. Patient examined at the end of the procedure and anterior/low posterior vaginal repair and perineorrhaphy undertaken if deemed necessary in case of any residual prolapse.

Results: Following surgery anatomic apical support was fully restored, C point at -6 position. The patient went home one post operative day one. No short-term post operative complications occurred.

Conclusions: Our approach of laparoscopic suture sacrohysteropexy was developed in an effort to offer minimally invasive alternative surgical options to mesh averse women who wish to undergo a uterine sparing prolapse surgery. Undoubtedly, it requires a surgeon competent in minimally invasive surgery as well as urogynaecology. Nevertheless, it is a feasible and safe technique combining the advantages of laparoscopic surgery whilst avoiding the use if mesh. Long term efficacy and safety data are needed.

Disclosure: No

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Laparoscopic Uterosacral Ligament Suspension Techniques for Apical Pelvic Organ Prolapse: A Hysterectomy-based Approach

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1 - University of Calgary

Introduction: Laparoscopic uterosacral ligament suspension techniques are increasingly utilized for the surgical treatment of apical

pelvic organ prolapse using hysterectomy-based or uterine-preserving approaches. Advantages of the laparoscopic approach include improved visualization of pelvic anatomy, decreased rates of ureteric compromise, ability to perform a higher apical suspension, and opportunistic performance of complete salpingectomies for cancer prevention or contraception.
Objective: To describe the equipment required and steps to complete a native tissue laparoscopic uterosacral ligament vault suspension at the time of a laparoscopic assisted vaginal hysterectomy for pelvic organ prolapse.
Methods: This video was produced using footage from laparoscopic assisted pelvic floor reconstructive surgeries performed at the University of Calgary, a tertiary care center in Calgary, Alberta, Canada. Surgeries were performed by fellowship trained urogynecologists. Written consent for electronic video capture was obtained from all patients prior to their procedures.
Results: This video demonstrates a technique for laparoscopic uterosacral ligament vault suspension at the time of a laparoscopic assisted vaginal hysterectomy for pelvic organ prolapse.
Conclusions: Laparoscopic approaches to uterosacral ligament apical suspension are feasible at hysterectomy-based procedures.
Disclosure: No

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Laparoscopic Uterosacral Ligament Suspension Techniques for Apical Pelvic Organ Prolapse: A Uterine Preserving Approach
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1 - University of Calgary

Introduction: Laparoscopic uterosacral ligament suspension techniques are increasingly utilized for the surgical treatment of apical pelvic organ prolapse using hysterectomy-based or uterine-preserving approaches. Advantages of the laparoscopic approach include improved visualization of pelvic anatomy, decreased rates of ureteric compromise, ability to perform a higher apical suspension, and opportunistic performance of complete salpingectomies for cancer prevention or contraception.
Objective: To describe the equipment required and steps to complete a native tissue laparoscopic uterosacral ligament uterine suspension for apical pelvic organ prolapse.
Methods: This video was produced using footage from laparoscopic assisted pelvic floor reconstructive surgeries performed at the University of Calgary, a tertiary care center in Calgary, Alberta, Canada. Surgeries were performed by fellowship trained urogynecologists. Written consent for electronic video capture was obtained from all patients prior to their procedures.
Results: This video demonstrates a technique for laparoscopic uterosacral ligament uterine suspension for apical pelvic organ prolapse.
Conclusions: Laparoscopic approaches to uterosacral ligament uterine suspension are feasible for women who wish to conserve their uterus.
Disclosure: No

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Correlation Between Mobile-Application Electronic Bowel Diary and Validated Questionnaires in Women with Fecal Incontinence
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Introduction: Fecal incontinence (FI) is a prevalent and burdensome condition. While a bowel diary has been considered "the gold standard" for reporting bowel incontinence episodes, patient-reported outcomes via validated questionnaires have gained popularity in assessing condition-specific symptom severity and impact. In clinical studies, validated questionnaire outcomes are typically reported concurrently with bowel diary data, most collected in a paper-format. However, there are potential disadvantages related to convenience and accuracy using a paper diary. A recent randomized cross-over trial demonstrated that a mobile-application bowel diary had a high correlation with a paper diary and was preferred by patients. Despite the growing interest in the use of a mobile-app diary, data are limited regarding the correlation between mobile-app diary data on incontinence and questionnaire-based outcomes.
Objective: The current study aims to determine whether %-reduction in FI episodes/week recorded on a mobile-app diary correlates with changes in scores of validated measures for FI symptoms from baseline to 12 weeks in women with FI undergoing percutaneous tibial nerve stimulation (PTNS) or sham treatment.
Methods: This is a planned secondary analysis of a multicenter randomized controlled trial where women with moderate to severe FI (baseline St. Mark's score ≥12) for ≥3 months were randomized to PTNS versus sham (2:1). FI episodes were documented using a mobile-app diary. Validated measures of FI symptoms included the St. Mark's, Accidental Bowel Leakage Evaluation (ABLE), Fecal Incontinence Severity Index (FISI), Colorectal Anal Distress Inventory (CRADI), Colorectal Anal Impact Questionnaire (CRAIQ), Fecal Incontinence Quality of Life (FIQoL, 4-subscales), Patient Global Impression of Improvement (PGI-I), and Patient Global Symptom Control rating (PGSC). Spearman's correlation coefficient (ρ) was computed between %-reduction in FI episodes/week and change in scores from baseline to 12 weeks for each validated measure, except for PGI-I and PGSC, where scores at 12 weeks were used. Additionally, a change in questionnaire scores that represents 50%-reduction in FI episodes/week was estimated via a generalized linear model. Significance was set at 0.005 to account for multiple comparisons.
Results: One hundred sixty three women were included in analysis (109 PTNS versus 54 sham): mean age was 63.4±11.6; 81% White; Body Mass Index 29.4±6.6 kg/m2; 4% had previous FI surgeries; 6.8±5.5 FI episodes/week at baseline; and baseline St. Mark's score 17.4±2.6. A significant correlation was demonstrated between %-reduction in FI episodes/week and all validated questionnaire scores (all p 0.4) was observed for St. Mark's (ρ=0.48), FISI (ρ=0.46), PGI-I (ρ=0.51), and the PGSC (ρ=-0.43), (Table 1, Figure 1). Estimated change in scores indicating 50%-reduction in FI episodes exceeded the respective minimally important difference for all questionnaires (Table 2).
Conclusions: In women with moderate to severe FI randomized to PTNS versus sham, a moderate correlation was noted between a change in FI episodes measured via mobile-app diary and score change of validated FI questionnaires. Women having ≥50% reduction in FI-episodes achieved the minimally important difference of validated patient-reported measures for FI symptoms.
Disclosure: No
Images:

Table 1: Spearman correlation between %-reduction in fecal incontinence episodes/week on a mobile-app diary and changes in scores of validated measures for FI symptom severity and impact from baseline to 12 weeks

Validated Measures	Spearman Correlation (ρ)	p-value
St. Mark's	0.475	<0.001
ABLE	0.354	<0.001
FISI	0.458	<0.001
CRADI	0.377	<0.001
CRAIQ	0.315	<0.001
FIQoL - lifestyle	-0.321	<0.001
FIQoL - coping/behavior	-0.397	<0.001
FIQoL - depression/self-perception	-0.240	0.004
FIQoL - embarrassment	-0.321	<0.001
PGI-I*	0.512	<0.001
PGSC*	-0.426	<0.001

*scores at 12 weeks

Table 2: Estimated change in scores from baseline to 12 weeks for 50%-reduction in fecal incontinence episodes/week

Validated Measures	MID*	Estimated Change in Scores	95% CI	p-value
St. Mark's	-5	-5.674	-6.523, -4.825	<0.001
ABLE	-0.2	-0.494	-0.605, -0.382	<0.001
FISI	-4	-8.028	-9.946, -6.110	<0.001
CRADI	-5	-13.518	-17.170, -9.865	<0.001
CRAIQ	-8	-19.571	-24.205, -14.937	<0.001
FIQoL - lifestyle	0.3	0.600	0.480, 0.719	<0.001
FIQoL - coping/behavior	0.4	0.660	0.539, 0.782	<0.001
FIQoL - depression/self-perception	0.1	0.446	0.338, 0.555	<0.001
FIQoL - embarrassment	0.4	0.703	0.578, 0.828	<0.001

*Minimally Important Difference

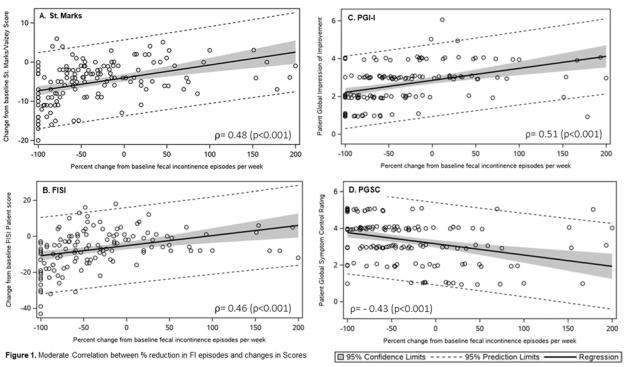

Figure 1. Moderate Correlation between % reduction in FI episodes and changes in Scores

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Retrospective Study of Long-Term Surgical Outcomes in Patients Who Had a Vaginal Hysterectomy in Conjunction with Pelvic Organ Prolapse Surgery

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Introduction: Pelvic organ prolapse is a chronic condition estimated to affect up to 50% of women, and lifetime risk for undergoing prolapse surgery is 12.6%. Common risk factors include increasing age, BMI, and parity. Symptoms associated with pelvic organ prolapse including vaginal pressure, bulging, or pain and disruption of sexual, urinary tract, or bowel function can negatively impact quality of life. Patients who fail or decline conservative treatment may undergo surgery to alleviate symptoms. Evaluating prolapse repair outcomes is difficult due to variability in the definitions of surgical success and the lack of long-term data. Due to the difficulty in reaching surgical success based on anatomic criteria and the impact prolapse has on quality of life, retreatment rates and the relief of symptoms should be considered when evaluating surgical outcomes.
Objective: Our primary aim was to evaluate the long-term prolapse recurrence and retreatment rates of women who have undergone native tissue prolapse repair. Our secondary aim was to evaluate subjective patient improvement in pelvic floor symptoms and quality of life 7 to 10 years after primary prolapse surgery.
Methods: This retrospective study included patients who underwent primary prolapse repair surgery including a hysterectomy and native tissue repair by a single surgeon at a tertiary pelvic floor center from 2009 to 2013. Subjects were obtained from a surgical database and included if they had no previous prolapse surgeries. A validated pelvic organ symptom questionnaire, the Pelvic Floor Distress Inventory (PFDI-20), was distributed to subjects before undergoing prolapse repair surgery and 7 to 10 years after surgery. The PFDI-20 includes subsections assessing prolapse, colorectal-anal, and urinary symptoms. Subjects were asked if they had required retreatment with a pessary device and/or surgery. Patient improvement was measured through changes in PFDI-20 summary and subsection scores. A paired t-test was performed to compare pre- and post-operative survey results.
Results: 112 surveys were returned, giving a response rate of 54.9%. 1.9% of patients reported retreatment in the form of a pessary and no subjects required additional prolapse repair surgery. 8.57% of subjects reported prolapse symptom recurrence. 77.1% of subjects had a score improvement on the PFDI-20 following prolapse repair with an average score improvement of 46.21 ($p<0.001$) points. Statistically significant mean score improvements were also observed on PFDI-20 subsections.
Conclusions: Native tissue pelvic organ prolapse repair results in low recurrence and retreatment rates and clinically meaningful improvement in symptom control and quality of life. Long-term follow-up is required to determine accurate prolapse recurrence. Recommendations on defining surgical success and failure should be based on subjective patient symptoms and quality of life measures.
Disclosure: No

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Periurethral Bulking Agent for the Treatment of Stress Incontinence in Women

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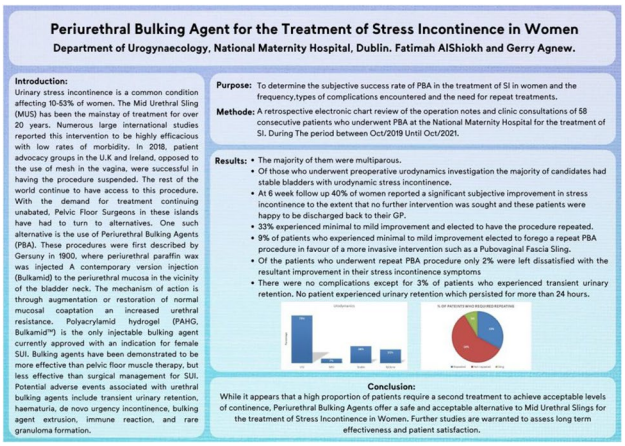
Introduction: Stress Incontinence (SI) of urine is a common and debilitating condition. Overall prevalence of urinary incontinence in women

over the age of 20 has been estimated to range from 10 to 53%. The Mid Urethral Sling (MUS) has been the most commonly performed surgical treatment for SI for more than 20 years. Numerous large international studies reported high levels of efficacy and low rates of complication. In 2018, patient advocacy groups, concerned about the safety of these devices, successfully lobbied the British and Irish governments. The MUS was indefinitely suspended in both the U.K and Ireland. The procedure remains the mainstay of treatment for SI in the rest of the world. With the demand for treatment continuing unabated in these islands, Urogynecologists and Urologists have had to look at alternative methods of treatment. One such treatment is the injection of a Periurethral Bulking Agent (PBA). This procedure which can be carried out as a Day case under local anaesthetic consists of a cystourethroscopic injection of a water based gel (Bulkamid) to the periurethral mucosa in the vicinity of the vesical neck. Introduction
Objective: To determine the subjective success rate of PBA in the treatment of SI in women. To determine the frequency and types of complications encountered and the need for repeat treatments.
Methods: A retrospective electronic chart review of the operation notes and clinic consultations of 59 consecutive patients who underwent PBA at the National Maternity Hospital for the treatment of SI. During The period between Oct/2019 Until Oct/2021. We relied on entering the data on a table that includes age‹parity, urodynamic results, physiotherapy, subjective cure rate, complications, and whether they require repeating the treatment on not.
Results: The majority of them were multiparous. • Of those who underwent preoperative urodynamics investigation the majority of candidates had stable bladders with urodynamic stress incontinence. • At 6 week follow up 40% of women reported a significant subjective improvement in stress incontinence to the extent that no further intervention was sought and these patients were happy to be discharged back to their GP. • 33% experienced minimal to mild improvement and elected to have the procedure repeated. • 9% of patients who experienced minimal to mild improvement elected to forego a repeat PBA procedure in favour of a more invasive intervention such as a Pubovaginal Fascia Sling. • Of the patients who underwent repeat PBA procedure only 2% were left dissatisfied with the resultant improvement in their stress incontinence symptoms • There were no complications except for 3% of patients who experienced transient urinary retention. No patient experienced urinary retention which persisted for more than 24 hours.
Conclusions: While it appears that a high proportion of patients require a second treatment to achieve acceptable levels of continence, Periurethral Bulking Agents offer a safe and acceptable alternative to Mid Urethral Slings for the treatment of Stress Incontinence in Women. Further studies are warranted to assess long term effectiveness and patient satisfaction. With proper patient selection and counselling, urethral bulking agents are a valuable option in a country such Ireland which they were banned from doing Mesh surgeries for the last 3 years.
Disclosure: No
Images:



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6-month Effects of Percutaneous Tibial Nerve Stimulation Compared to Sham Treatment for Refractory Fecal Incontinence
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Introduction: A previous randomized controlled trial (RCT) demonstrated significant reductions in fecal incontinence (FI) in women assigned to PTNS and sham treatment leading to no group differences at 12 weeks. It is unknown if longer treatment duration will result in group differences in treatment effect.
Objective: To determine if FI symptom reductions differ between PTNS and sham over time. We hypothesized that reductions in FI from baseline would persist to a greater degree in the PTNS group compared to sham group after 6 months of treatment.
Methods: In this planned secondary analysis of a multicenter RCT of PTNS vs. sham for treatment of refractory FI, responders defined as those reporting ≥ 4-point reduction from baseline in St. Mark's score after 12 weekly sessions, continued maintenance treatments per randomization assignment at intervals of every 2 weeks for 2 sessions, every 3 weeks for 2 sessions then every 4 weeks. Participants remained masked to group assignment. Primary outcome was change from baseline in St. Mark's score through 6 months. Secondary outcomes included variables recorded in a 14-day electronic bowel diary, condition-specific quality of life (QOL), Patient Global Impression of Improvement (PGI-I) and Symptom Control (PGSC). Analyses included all responders at 12 weeks. PTNS and sham groups were compared at 6 months using a general linear mixed model, adjusted for site, visit, and the treatment by visit interaction.
Results: Of 166 randomized, 162 women completed 12 weeks of treatment (108 PTNS/54 sham); 90 women (54%: 64 PTNS/26 Sham) were treatment responders. A total of 87 (97%) continued maintenance treatments and 77 (86%: 55 PTNS/22 sham) provided 6-month data before the RCT was discontinued due to absence of group differences after 12 weeks of treatment. Among the women included in the analysis, mean age at baseline was 64 (+/-12) years, 80% were White, 12% Black, and 10% Latina with BMI of 28 (+/- 6) kg/m2. At 6-months, reductions in St Mark's score in the 12-week responders persisted in both groups with no significant group differences (-6.62 vs. -7.01 points, PTNS vs. sham, adjusted difference [95% confidence interval] 0.39 [-1.68, 2.46]). The proportion of responders in both groups remained high during maintenance stimulation without group difference at 6 months, 83.6% PTNS vs. 72.7% sham, p=0.28. Bowel diary variables did not differ significantly between groups except for weekly fecal incontinence episodes which showed a greater reduction from baseline in the sham group (-2.18 vs -4.80 episodes, PTNS vs. sham, adjusted difference [95% confidence interval] 2.62 [0.07, 5.17]). Improvements in condition-specific QOL measures, PGI-I and PGSC scores demonstrated at 12 weeks persisted in both treatment groups resulting in no evidence of benefit of PTNS over sham. (Table)

Conclusions: Participation in an intervention trial for FI leads to enduring symptom reduction in both active and sham treatment assignment highlighting the challenge of studying interventions for fecal incontinence and the importance of including a sham comparator.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: NinoMed
Images:

PTNS vs Sham (Among Responders after 12 Weeks of Treatment)

		PTNS			Sham			
Study Day	N	Mean (SD) or n/N (%)	Mean Change from Baseline (95% CI)	N	Mean (SD) or n/N (%)	Mean Change from Baseline (95% CI)	Estimated Mean Difference or Odds Ratio (95% CI)	P-value for Comparison
St. Mark's Score								
0	64	17.94 (2.40)		26	18.04 (3.29)			
91	64	9.47 (4.10)	-8.02 (-9.10, -6.94)	26	10.15 (4.07)	-7.77 (-9.40, -6.14)	-0.25 (-2.14, 1.65)	0.7989
175	55	11.16 (4.21)	-6.62 (-7.78, -5.46)	22	10.73 (6.10)	-7.01 (-8.79, -5.22)	0.39 (-1.68, 2.46)	0.7118
Responders to Treatment (≥ 4-point reduction from baseline in St. Mark's score)								
91	64	64/64 (100.00)		26	26/26 (100.00)		0.51 (0.10, 2.69)	0.4255
175	55	46/55 (83.64)		22	16/22 (72.73)		1.89 (0.60, 5.96)	0.2775
Fecal Incontinence Episodes per Week								
0	63	6.13 (4.57)		26	7.01 (7.36)			
91	64	3.48 (4.95)	-1.77 (-3.09, -0.45)	25	4.01 (6.06)	-3.22 (-5.14, -1.30)	1.45 (-0.76, 3.65)	0.1953
175	42	3.83 (7.51)	-2.18 (-3.65, -0.70)	16	2.43 (4.43)	-4.80 (-7.01, -2.58)	2.62 (0.07, 5.17)	0.0444
50% Improvement in Fecal Incontinence Episodes per Week								
91	59	38/59 (64.41)		24	10/24 (41.67)		1.14 (0.51, 2.53)	0.7493
175	38	22/38 (57.89)		15	10/15 (66.67)		0.74 (0.20, 2.71)	0.6438
75% Improvement in Fecal Incontinence Episodes per Week								
91	59	27/59 (45.76)		24	8/24 (33.33)		0.73 (0.33, 1.62)	0.4290
175	38	16/38 (42.11)		15	9/15 (60.00)		0.51 (0.14, 1.84)	0.3018
Fecal Incontinence Episode-Free Days per Week								
0	63	3.47 (1.92)		26	3.50 (2.08)			
91	64	4.94 (2.16)	1.09 (0.59, 1.60)	25	4.75 (2.00)	1.51 (0.78, 2.25)	-0.42 (-1.26, 0.43)	0.3268
175	42	5.05 (1.93)	1.28 (0.66, 1.89)	16	5.61 (1.65)	2.02 (1.09, 2.95)	-0.74 (-1.82, 0.33)	0.1738
Patient Global Impression of Improvement[a]								
91	64	38/64 (59.38)		26	16/26 (61.54)		0.88 (0.33, 2.32)	0.7911
175	56	32/56 (57.14)		23	13/23 (56.52)		1.09 (0.38, 3.09)	0.8719
Patient Global Symptom Control[b]								
0	64	13/64 (20.31)		25	3/25 (12.00)			
91	64	53/64 (82.81)		26	19/26 (73.08)		1.48 (0.45, 4.86)	0.5117
175	58	45/58 (77.59)		23	15/23 (65.22)		1.77 (0.54, 5.77)	0.3450

[a] The PGI-I is dichotomized as "Much better" and "Very much better" compared to all other categories.
[b] The PGSC is dichotomized as "Neutral", "Agree", and "Agree Strongly " compared to all other categories

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WITHDRAWN - Uterosacral Ligament Suspension using vNOTES vs Conventional Approach
WITHDRAWN

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WITHDRAWN - Role of Magnetic Resonance Imaging in Evaluation of Post Hysterectomy Vault Prolapse
WITHDRAWN

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WITHDRAWN - Correlation of Overactive Bladder Syndrome Score with Urodynamic Study in Overactive Bladder Syndrome Cases
WITHDRAWN

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Prevalence of Rectal Examinations Prior to Magnetic Resonance Defecography Studies
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3 - American Association of Colleges of Osteopathic Medicine

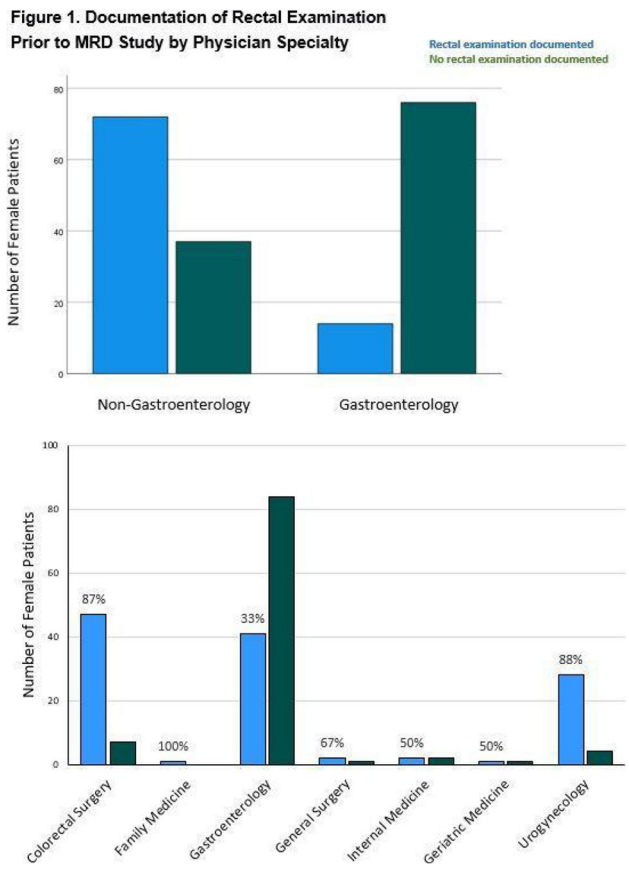
Introduction: Constipation, anal incontinence and pelvic organ prolapse are common disorders under the larger umbrella of pelvic floor dysfunction (PFD), affecting upwards of 50% of women (Sung & Hampton, 2009), (Roque & Bouras, 2015). Magnetic resonance defecography (MRD) is among the adjunct tests recommended in the algorithms for evaluation of patients with PFD, but should be preceded by a physical exam including digital rectal exam (DRE) (Bharucha et al., 2013), (Jamshed et al., 2011).
Objective: The objective of this study is to assess the frequency of DRE in female patients prior to MRD.

Methods: We conducted a retrospective cohort review of all MRD exams performed on female patients at a single rural tertiary care center from 2016 through 2020. Cohorts were determined by the referring provider's subspecialty. Retrospective chart review was performed to abstract patient age, referring provider subspecialty, and to determine if DRE was performed as part of the clinical evaluation of each patient's PFD complaints. Baseline characteristics were summarized using descriptive statistics (Table 1). A one-way ANOVA was performed to compare the effect of referring physician specialty on the absence or presence of a rectal examination.
Results: A total of 304 female patients underwent MRD during the study period: 209 (68.8%) were referred by gastroenterology providers and 95 (31.2%) from other specialties. Chi-square analysis results (Figure 1) indicate that physician gastroenterologists perform a rectal examination statistically significantly less often than physicians of other specialties; 32.8% and 84.4% respectively (Pearson $\chi 2=29.314$; n=155; p<0.001). When comparing all subspecialties, the one-way ANOVA revealed that there was a statistically significant difference in the presence of a rectal examination between at least two groups ($F(6,297) = 18.790$, $p < 0.001$). Tukey's HSD Test for multiple comparisons found that the mean value of the presence of a rectal examination was significantly different between gastroenterologists and urogynecologists ($p < 0.009$, 95% C.I. = [3.55, 31.42) favoring more exams performed by non-gastroenterology providers. There was also a statistically significant difference between gastroenterologists and all other specialties (p<0.001).
Conclusions: DRE by an experienced practitioner has high sensitivity and specificity for detection of dyssynergia in the evaluation of constipation (Tantiphlachiva et al., 2010) and decreased anal sphincter tone for fecal incontinence (Hallan et al., 2005). We expected to find that DRE was performed universally before performing ancillary tests. Performance of a DRE was less common with gastroenterology than with other providers. Our findings highlight the need for better understanding and practitioner utilization of DRE and ancillary testing in the algorithms for evaluation of PFD.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: GI Supply (consultant - Dr. Shah), REIA, LLC (clinical investigator - Dr. Strohbehn), WebMD FPMRS (section editor - Dr. Strohbehn)
Images:

Table 1. Baseline characteristics by referring specialty cohort

		Colorectal Surgery	Family Medicine	Gastro-enterology	General Surgery	Internal Medicine	Geriatric Medicine	Urogynecology	Total	Sig (chi-square)	Sig (ANOVA)
Age (SD)		58.2 (17.1)	65.0 (n/a)	55.5 (15.5)	61.0 (8.5)	52.0 (13.7)	65.5 (6.4)	60.9 (11.5)	56.6 (15.4)	.970	
BMI (SD)		26.2 (6.1)	NR	27.3 (6.2)	18.4 (n/a)	38.0 (9.3)	26.8 (3.5)	25.8 (4.6)	27.0 (6.1)	.383	
Parity (SD)		2 (1.5)	NR	2 (1.4)	NR	2 (0)	NR	2 (1.2)	2 (1.4)	.455	
Tobacco Use (%)										.049	
	Never	23 (45.1)	0	117 (56)	0	1 (20)	1 (50)	19 (55.9)	161 (53)		
	Former	15 (29.4)	0	55 (26.3)	1 (50)	1 (20)	1 (50)	10 (29.4)	83 (27.3)		
	Current	5 (9.8)	1 (100)	24 (11.5)	0	1 (20)	0	4 (11.8)	35 (11.5)		
	Unknown	8 (15.7)	0	13 (6.2)	1 (50)	2 (40)	0	1 (2.9)	25 (8.2)		
Prior Hysterectomy (%)										.001	
	Performed	19 (37.3)	0	83 (39.7)	0	1 (20)	0	26 (76.5)	129 (42.4)		1.31
	Not Performed	32 (62.7)	1 (100)	126 (60.3)	2 (100)	4 (80)	2 (100)	8 (23.5)	175 (57.6)		.015*
Race (%)										.520	
	Asian	0	0	1	0	0	0	0	1		
	Declines	0	0	2	0	0	0	1	3		
	Unknown	0	0	3	0	1	0	0	4		
	White	51	1	203	2	4	2	33	296		
Ethnicity (%)										<.001	
	Hispanic	1 (2)	0	5 (2.4)	0	0	0	0	6 (2)		.637
	Not Hispanic	50 (98)	1 (100)	204 (97.6)	2 (100)	4 (80)	2 (100)	33 (97.1)	296 (97.4)		.924
	Declines	0	0	0	0	0	0	1 (2.9)	1 (.3)		.018*
	Unknown	0	0	0	0	1 (20)	0	0	1 (.3)		.136

*Patients referred by a Urogynecology provider were less likely to have a uterus in-situ compared to other specialties.
†Although chi square analysis showed significance between cohorts, ANOVA showed this was due to one patient from the Urogynecology practice who declined to list ethnicity.



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Complications During Laparoscopic Sacrohysteropexy: a Retrospective Cohort Study

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Introduction: Laparoscopic sacrohysteropexy (LSH) is gaining popularity in treating apical prolapse. Besides the clear benefit of uterine preservation (when desired), LSH decreases operative time, blood loss, and surgical cost, as well as rates of mesh exposure, while providing similar success rates, when compared to hysterectomy and sacrocolpopexy. As this procedure becoming more common, it is important to provide data regarding the incidence, as well as long term consequences, of perioperative complications.
Objective: Our aim was to study the incidence of complications during LSH, and potential effect on long term outcomes.
Methods: This was a retrospective cohort study. All the patients who underwent LSH at our institute, between July 2005 and December 2019 were evaluated preoperatively and postoperatively (starting from 1 month after surgery, and then annually). In addition, their medical files and surgical reports were reviewed. All surgeries were made by single surgeon. For all patients, one anterior mesh was used to treat apical± anterior prolapse. Additional posterior (for posterior prolapse) and/ or rectal (in cases of rectal prolapse) were used, when indicated. The study population was divided into two groups, according to the presence of intraoperative or immediate postoperative (within 30 days after surgery) complications (classified as stage 2 or higher, according Clavien- Dindo classification). We compared patients' background and operative characteristics, as well as long-term results, between the groups.
Results: A total of 270 patients were included, of them, 15 women (5.6%) had perioperative complications: two patients had presacral bleeding, three had vesical injury, one patient had ureteral injury, three patients were reoperated due to bowel obstruction (one of them was trocar site incarceration) within 30 days after surgery. There were also six cases of intestinal injury. Patients who encountered perioperative complications were less likely to be married (46.7% vs. 76.2%, p=0.001). For the patients who had perioperative complications, operation time was longer (95±12 minutes vs. 103±20 minutes, p=0.01), and there were more cases in which more than one mesh was used (73.3% vs. 58%, p=0.05), compared to those without complications. In cases of complications, postoperative hospitalization was longer (4.7±8.4 days vs. 1.8±0.9 days, p<0.001) and mean level of postoperative pain (assessed by visual-analogue score) was higher (4.1±8.6 vs. 1.9±2.9, p=0.001) when compared to patients for whom the surgery went uneventful. However, in terms of long-term results, there were no differences in late complications nor the rate of prolapse recurrence, between the study groups.
Conclusions: LSH is associated with low rates of perioperative complications. When perioperative complications do occur, they probably do not affect long term outcomes.
Disclosure: No
Images:

Table 1: Background characteristics and preoperative evaluation of the study groups

	No complications (n=255)	Complications (n=15)	P value
Age (years)	61.1±11	60.1±13	0.8
Body mass index (kg/m^2)	23.5±3.4	24.4±4.1	0.3
Chronic illness (yes/no)	60 (23.6)	4 (26.7)	0.8
Family history of POP	93 (36.5)	2 (13.3)	0.09
Married	**192 (76.2)**	**7 (46.7)**	**0.001**
Sexually active	167 (65.5)	12 (80.0)	0.4
Parity	2.3±1.2	2.8±1.4	0.08
Prior abdominal surgery	132 (51.8)	11 (73.3)	0.1
Prior prolapse repair	15 (5.9)	1 (6.7)	1.0
Menopause	185 (72.8)	12 (80.0)	0.8
Hormonal replacement therapy	22 (9.2)	1 (6.7)	1.0
Preoperative urogynecological evaluation			
Apical prolapse stage 3-4	235 (92.2)	14 (93.3)	0.9
Mix prolapse	139 (54.5)	6 (40.0)	0.3
Duration of symptoms	24.8±24.8	21.6±19.2	0.6

Data are presented in mean± standard deviation or n (%).

Value in bold represents statistically significant differences.

POP- pelvic organ prolapse.

Table 2: Operative details of the study groups

	No complications (n=255)	Complications (n=15)	P value
Operative details			
Operative time (minutes)	**95±12**	**103±20**	**0.01**
Additional procedure (yes)	21 (8.2)	0 (0)	0.6
Number of meshes			**0.05**
One	**107 (41.9)**	**4 (26.7)**	
More than one	**148 (58.0)**	**11 (73.3)**	
Post-operative hospitalization (days)	**1.8±0.9**	**4.7±8.4**	**<0.001**
Post-operative pain (VAS)	**1.9±2.9**	**4.1±8.6**	**0.01**

Data are presented in mean± standard deviation or n (%).

Value in bold represents statistically significant differences.

VAS- visual- analogue score.

Apical prolapse stage 3-4	235 (92.2)	14 (93.3)	0.9
Mix prolapse	139 (54.5)	6 (40.0)	0.3
Duration of symptoms	24.8±24.8	21.6±19.2	0.6

Data are presented in mean± standard deviation or n (%).

Value in bold represents statistically significant differences.

POP- pelvic organ prolapse.

Table 3: Late post-operative outcomes

	No complications (n=255)	Complications (n=15)	P value
Follow-up duration (months)	44±45	32±28	0.3
De-novo lumbar pain	25 (9.8)	0 (0)	0.6
De-novo pelvic pain	17 (6.7)	0 (0)	0.8
De-novo Dyspareunia	24 (9.4)	0 (0)	0.2
De-novo Dyschezia	80 (31.3)	4 (26.7)	1.0
Mesh exposure	2 (0.8)	0 (0)	1.0
De-novo Stress urinary incontinence	55 (21.6)	5 (33.3)	0.2
Surgery for Stress urinary incontinence	31 (12.1)	4 (26.7)	0.1
De-novo Constipation	25 (9.8)	2 (13.3)	0.8
De-novo Anal incontinence	13 (5.1)	0 (0)	0.4
Objective prolapse recurrence	15 (5.9)	2 (13.3)	0.09
Subjective prolapse recurrence	20 (7.8)	0 (0)	0.3
Total Prolapse recurrence	27 (10.6)	2 (13.3)	0.3

Data are presented in mean± standard deviation or n (%).

Duration of symptoms	24.8±24.8	21.6±19.2	0.6

Data are presented in mean± standard deviation or n (%).

Value in bold represents statistically significant differences.

POP- pelvic organ prolapse.

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Vesicovaginal Fistula: Characteristics, Diagnosis and Management at Dr. Soetomo Hospital in Three Years (2017-2019)

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Introduction: Vesicovaginal fistula (VVF) is an abnormal opening between the bladder and the vagina that results in continuous and unremitting urinary incontinence.1 The entity is one among the most distressing complications of gynecologic and obstetric procedures. Vesicovaginal fistula is still a major cause for concern in many developing countries. It represents a significant morbidity in female urology.2 Although the incidence of VVFs has become rare in the industrialized world, they still commonly occur in developing countries. Estimates suggest that at least three million women in poor countries have unrepaired VVFs. The true incidence of VVF is difficult to estimate as the affected women often suffer silently due to the social stigma. The reported incidence of VVF is different between the developing and the developed nations, similarly, the etiology also varies. 3

Objective: To characterize the incidence, presentation, management, and outcomes of vesicovaginal fistula at Dr. Soetomo District Hospital between January 2017 and December 2019.

Methods: In a retrospective study, demographic and clinical data were obtained for all women with vesicovaginal fistula at Dr. Soetomo Hospital between January 2017 and December 2019.

Results: The age of the women ranged from 16 to 69 years with mean of 42 (±6) years and mode 41-50 years (40.42%), with parity 0-VI. The etiology of VVFs are obstetric (8 patients; 17.02%), surgical (20; 42.55%), malignancy (18; 38.29%), and miscellaneous (1; 2.12%). The precipitating factor of gynecology fistula is mostly unnoticed injury to the bladder during surgery or inadvertent placement of a suture or a clamp into the bladder wall. It is estimated 0.5–2% of hysterectomies are complicated by VVFs.4 Mostly of obstetric etiology are prolonged obstructed labour (50%), 37.5% of cases following caesarean section and 12.5% following forceps delivery. VVF results from prolonged obstructed neglected labour with subsequent ischaemic pressure on the anterior vaginal wall and the base of the bladder during prolonged labour. The major risk factor appears to be prolonged obstruction that produces an extended period of ischaemia of the bladder and vaginal wall that leads to tissue necrosis and the subsequent development of a VVF.4,5 The most patients (28 cases, 59.57%) had complex fistula with 0.50-2.5cm in diameter and the position mostly high fistula, near from vaginal stump. A number 22 patients (46.80%) have been repaired, while 11 patients with malignancy (23.40%) still wait until 12 months after chemoradiation, and 14 patients (29.78%) in conservative management, were observed until 3 month post surgical procedure. One patient of fistula repair had failed one month after first repair.

Conclusions: There are many etiology that cause vesicovaginal fistula. The cases of vesicovaginal fistula are dominantly caused by surgical procedure such as hysterectomy. Most of this are complex fistula and their position at vaginal superior near from vaginal stump. The patients that have been repaired, mostly good outcome. One patient had failed one month after first fistula repair.

Disclosure: No

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The Impact of Pelvic Floor Physical Therapy on Bladder, Bowel, and Sexual Function in Women with Obstetric Anal Sphincter Injury

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Introduction: Women with obstetric anal sphincter injury (OASI) are at increased risk of postpartum pelvic floor disorders. While there is no standard of care for postpartum management following OASI, there is evidence that pelvic floor physical therapy (PFPT) can effectively treat pelvic floor disorders in pregnant women.

Objective: This study aims to compare bladder, bowel, and sexual function between women with OASI who received PFPT and women who did not receive PFPT based on validated questionnaires administered at baseline and at six months, as well as to describe adherence to PFPT.

Methods: This is a retrospective cohort study of women who were seen at a postpartum perineal clinic from November 2017 to November 2021.

Women were grouped according to PFPT attendance. Scores on Urinary Distress Inventory-6 (UDI-6), Fecal Incontinence Severity Index (FISI), and Postpartum Pelvic Floor and Birth Questionnaire (PPFBQ) were compared between the PFPT and non-PFPT groups at baseline and at six months. Paired one-sample t-test was used to compare changes in paired UDI-6 and FISI scores from baseline to six months.

Results: Of the 424 women with OASI, 154 (36.3%) completed six-month surveys and were included in the analysis. Forty-two (27.3%) attended at least one PFPT session, and 112 (72.7%) did not attend PFPT. Women in the PFPT group were older, more likely to have had operative vaginal delivery, fourth degree laceration, and history of anxiety/depression (Table 1). Baseline UDI-6 scores were higher in the PFPT group than non-PFPT group (median: 12.5 IQR: [8.3, 25.0] versus 8.3 [4.2, 12.5], P=0.005). From baseline to 6 months, UDI-6 scores improved significantly in both PFPT (mean: -6.1 ± SD: 16.1, P=0.019) and non-PFPT (-3.6 ± 10.9, P<0.001). However, there was no significant difference between group improvement in UDI-6 scores. Baseline FISI scores were higher in the PFPT group than non-PFPT group (7.0 [0.0, 12.0] vs. 0.0 [0.0, 8.0], P=0.006). From baseline to 6 months, FISI scores remained unchanged in the PFPT group (1.5 ± 11.9, P=0.43) but significantly worsened in the non-PFPT group (9.8 ± 15.2, P<0.001). There was a significant difference in mean FISI score changes between groups (P=0.002). No significant difference in 6-month PPFBQ scores were observed between groups, except in the sexual activity domain. The PFPT group had lower median scores in this domain compared to non-PFPT group (2.2 [1.8, 2.7] versus 2.7 [2.1, 3.1], P=0.012), indicating worse sexual function. Of the 200 (47.2%) women referred to PFPT, two-thirds (N=132) attended at least one session. Median number of recommended sessions was 6.0 [4.0, 8.0], and median number of sessions attended was 3.0 [2.0, 6.0]. Only 28.8% (N=38) of women who attended PFPT completed all recommended sessions.

Conclusions: UDI-6 scores were significantly improved by 6 months postpartum; however, there was no statistically significant difference in improvement based on PFPT attendance. FISI scores significantly worsened after 6 months in women without PFPT but not in those who received PFPT. PFPT was associated with lower scores on the PPFBQ sexual activity domain at 6 months. Less than one-third of women who attended PFPT were fully adherent.

Disclosure: No

Images:

Table 1. Baseline demographic and clinical characteristics of OASI patients who attended PFPT versus not attended PFPT

	All OASI patients (N=424)	PFPT group (N=133)	Non-PFPT group (N=291)	p-value
Age at delivery (years)	31.0 ± 4.1	31.7 ± 3.3	30.7 ± 4.4	**0.009** [a]
BMI at delivery (kg/m2)	30.8 ± 5.5	30.6 ± 5.1	30.9 ± 5.7	0.690 [b]
Race				0.260 [c]
White, non-Hispanic	308 (72.6)	107 (80.5)	201 (69.1)	
White, Hispanic	11 (2.6)	3 (2.3)	8 (2.7)	
African American	16 (3.8)	2 (1.5)	14 (4.8)	
Asian	49 (11.6)	13 (9.8)	36 (12.4)	
American Indian	1 (0.24)	0 (0.0)	1 (0.34)	
Multiracial	30 (7.1)	7 (5.3)	23 (7.9)	
Unknown	9 (2.1)	1 (0.75)	8 (2.7)	
Vaginal parity (after recent delivery)				0.790 [d]
1	381 (90.3)	121 (91.0)	260 (90.0)	
2	36 (8.5)	9 (6.8)	27 (9.3)	
3	3 (0.71)	2 (1.5)	1 (0.35)	
4	2 (0.47)	1 (0.75)	1 (0.35)	
Vaginal delivery type				**0.031** [e]
Spontaneous	221 (52.1)	59 (44.4)	162 (55.7)	
Operative	203 (47.9)	74 (55.6)	129 (44.3)	
Degree of laceration				**0.002** [e]
Third degree	356 (84.0)	101 (75.9)	255 (87.6)	
Fourth degree	68 (16.0)	32 (24.1)	36 (12.4)	
Episiotomy	40 (9.6)	17 (13.1)	23 (8.0)	0.110 [e]
History of prior OASIS	7 (1.7)	1 (0.77)	6 (2.1)	0.440 [c]
History of anxiety/depression	114 (27.1)	47 (35.9)	67 (23.1)	**0.006** [e]
Days postpartum at initial visit	15.0 [10.0, 21.0]	15.0 [10.0, 20.0]	16.0 [10.0, 22.0]	0.260 [d]
Urinary incontinence postpartum	121 (28.7)	58 (43.9)	63 (21.8)	**<0.001** [e]
Fecal urgency postpartum	121 (29.2)	58 (45.3)	63 (22.0)	**<0.001** [e]
Fecal incontinence postpartum	56 (13.2)	33 (24.8)	23 (7.9)	**<0.001** [e]
Flatal incontinence postpartum	147 (35.0)	68 (51.9)	79 (27.3)	**<0.001** [e]
Present pain index score	2.0 [2.0, 3.0]	3.0 [2.0, 3.0]	2.0 [2.0, 3.0]	**0.007** [d]

OASI = Obstetric anal sphincter injury; PFPT = pelvic floor physical therapy
Data presented as Mean ± SD, Median [P25, P75], N (%).
p-values: a=Satterthwaite t-test, b=t-test, c=Fisher's Exact test, d=Wilcoxon Rank Sum test, e=Pearson's chi-square test

Table 2. Bladder, bowel, and sexual function in women with OASI at baseline and 6 months

	Overall (N=154)	PFPT group (N=42)	Non-PFPT group (N=112)	p-value
UDI-6				
Baseline	8.3 [4.2, 16.7]	12.5 [8.3, 25.0]	8.3 [4.2, 12.5]	**0.005** [d]
6-month	4.2 [0.0, 12.5]	10.4 [4.2, 16.7]	4.2 [0.0, 12.5]	**0.002** [d]
Mean change	-4.2 ± 12.5	-6.1 ± 16.1	-3.6 ± 10.9	0.360 [a]
FISI				
Baseline	0.0 [0.0, 11.0]	7.0 [0.0, 12.0]	0.0 [0.0, 8.0]	**0.006** [d]
6-month	11.0 [0.0, 26.0]	6.0 [0.0, 17.0]	12.5 [0.0, 28.0]	0.190 [d]
Mean change	7.5 ± 14.8	1.5 ± 11.9	9.8 ± 15.2	**0.002** [b]
PPFBQ (6-month)				
Pelvic Organ Prolapse	3.0 [3.0, 4.0]	3.0 [3.0, 3.8]	3.0 [2.8, 4.0]	0.840 [d]
Muscle Function and Integrity	3.0 [2.5, 3.3]	2.8 [2.0, 3.0]	3.0 [2.5, 3.3]	0.084 [d]
Sexual Activity	2.6 [2.1, 3.0]	2.2 [1.8, 2.7]	2.7 [2.1, 3.1]	**0.012** [d]
Sensation of Intercourse	3.0 [2.5, 3.0]	3.0 [2.5, 3.0]	3.0 [2.5, 3.0]	0.100 [d]
Sexual Arousal and Orgasm	3.0 [2.0, 3.0]	2.5 [2.0, 3.0]	3.0 [2.0, 3.0]	0.100 [d]

OASI = Obstetric anal sphincter injury; PFPT = pelvic floor physical therapy
UDI-6 = Urinary Distress Inventory 6; FISI = Fecal Incontinence Severity Index; PPFBQ = Postpartum Pelvic Floor and Birth Questionnaire
Data presented as Mean ± SD, Median [P25, P75].
p-values: a=Satterthwaite t-test, b=t-test, d=Wilcoxon Rank Sum test

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WITHDRAWN - Urinary Microbiome Community Types Associated with Urinary Incontinence Severity in Women with Mixed Urinary Incontinence

WITHDRAWN

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Early Report of External Trial Responder Rates in the ARTISTRY Post Market Registry

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6 - Louisiana State University
7 - Adult Pediatric Urology & Urogynecology
8 - Institute for Female Pelvic Medicine and Reconstructive Surgery
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Introduction: The ARTISTRY post-market registry is intended to collect clinical outcomes on the Axonics rechargeable sacral neuromodulation (SNM) System. The patient population includes those with overactive bladder (OAB), non-obstructive urinary retention (NOUR), and fecal incontinence (FI) who have failed or could not tolerate more conservative treatments.

Objective: The purpose of this abstract is to provide an early report of the external Trial Responder (TR) rates stratified by indication and trial type.

Methods: ARTISTRY enrolled participants who were considered candidates for SNM and who met inclusion/exclusion criteria. Outcomes were assessed with validated condition-specific questionnaires and defined adverse events were collected. Enrolled participants underwent an external trial evaluation with either a peripheral nerve evaluation (PNE) or advanced trial (AT) evaluation according to the physician's preference. A TR was defined as physician determined 50% improvement in symptoms and scheduled for a full Axonics System.

Results: As of January 3, 2022, 203 participants are enrolled, and data was available in 141 participants who underwent an Axonics System external trial with either a PNE or AT. Table 1 shows participants by indication. Of the 141 participants that had an Axonics external trial, 62% had a PNE and 38% had an AT. Five (5) participants had an inconclusive PNE. Two (2) of those went on to have an AT (both of which were successful) and 3 participants are pending evaluation. Of

the 87 participants that received a PNE lead, 80 (92%) were TR. Of the 54 participants that received an AT, 100% were TR. Table 2 and Table 3 further stratify the PNE Trial and AT results to indications of urgency urinary incontinence (UUI) with urinary frequency (UF), fecal incontinence (FI), and urinary retention (UR).

Conclusions: The ARTISTRY post-market registry provides evidence of the real-world performance of the Axonics System, including the external trial system. The initial cohort of participants had a high Trial Responder rate with a 92% PNE TR rate and a 100% AT TR rate, reflecting robust performance of the Axonics trial system. The success of PNE's was high (80%+) for each condition, suggesting that patients may be offered a PNE regardless of indication. However, other factors may be considered when determining the most appropriate trial type. For those patients who have an inconclusive PNE, physicians can consider proceeding to an AT.

Disclosure: Yes, this is sponsored by industry/sponsor: Axonics, Inc.
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: Axonics, Inc.
Images:

Table 1: External Trial Participants by Indication

	N
OAB (UUI + UF)	85 (60%)
UR	31 (22%)
FI only + Dual Incontinence	25 (18%)

Table 2: PNE Trial Results

	OAB (%)	FI Only (%)	UR (%)	Dual Incontinence (%)
PNE Trial Responder	53 (95%)	1 (100%)	10 (83%)	16 (89%)
PNE Trial Non-Responder, exited	0	0	0	2 (10%)
Inconclusive, proceeded to an AT	3 (5.3%)	0	2 (17%)	0

Table 2: Advanced Trial Results

	OAB (%)	FI Only (%)	UR (%)	Dual Incontinence (%)
Advanced Trial Responder	29 (100%)	1 (100%)	19 (100%)	5 (100%)

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Associations between Physical Activity Levels and Constipation in Adult Population: A Systematic Review and Meta-analysis

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Introduction: Constipation is a digestive complaint affecting 10-15% of adults globally. While increasing physical activity/exercise is one of the common modalities recommended for clinical management of chronic constipation, previous studies reported conflicting results of the associations between physical activity and constipation. Moreover, the impact of different levels of physical activity on constipation is also unknown.

Objective: The aim of this systematic review and meta-analysis was to estimate the associations between physical activity levels and constipation in adult population.

Methods: Electronic searches were performed in nine databases (Medline, Cochrane Library, EMBASE, CINAHL, Web of Science, PEDro, Airiti Library, Wanfang data, and China National Knowledge Infrastructure) on 10th July 2021 by using a combination of the following keywords: adult; physical activity, exercise; constipation, defecation disorder. Two reviewers independently screened all relevant articles. Experimental (randomized/non-randomized controlled trial) and observational (cross-sectional, cohort, case-control) studies published in English or Chinese that provided both exposure variables (self-reported or objectively assessed physical activity) and outcome variables (presence of constipation symptoms) in adults were eligible for inclusion. The risk of bias of eligible studies was assessed using the Joanna Briggs Institute Critical Appraisal Tools by two independent reviewers. Meta-analyses were performed on Review Manager (RevMan 5) and conducted using a random-effect model if heterogeneity was significant (I2≥30%). Subgroup analyses were conducted to compare the impact of different physical activity levels on constipation. A p-value of <0.05 indicated statistically significant associations.

Results: After screening 3,074 articles, a total of 11 cross-sectional studies were included in the meta-analysis (52,005 participants; 53% female) (Figure 1). Six studies used validated questionnaires (International Physical Activity Questionnaire, Global Physical Activity Questionnaire, and Brief Physical Activity Assessment Tool), one used calculation (total energy expenditure/basal metabolic rate), and the remaining studies used non-validated brief questions to assess physical activity levels. All included studies evaluated constipation outcomes using ROME criteria, bowel frequency, and/or stool consistency. Six, four, and one studies had low, moderate, and high risk of bias, respectively. The pooled odds ratio comparing any physical activity with no physical activity was 0.74 (95%CI=0.52-1.06, p=0.10). The pooled odds ratios from subgroup analyses were: high physical activity levels vs. low physical activity levels 0.58 (95%CI=0.49-0.68, p<0.001) (Figure 2), moderate physical activity levels vs. low physical activity levels 0.66 (95%CI=0.57-0.76, p<0.001) (Figure 3), and high physical activity levels vs. moderate physical activity levels 0.88 (95%CI=0.74-1.05, p=0.14).

Conclusions: The available evidence suggests that moderate and high physical activity levels seem to be associated with a lower risk of constipation in adults. The heterogeneity in assessment tools used for physical activity may have led to misclassification of physical activity levels; hence, the findings of this study need to be interpreted with caution. Moreover, due to the limited number of studies included, the associations between different types of physical activity and constipation remain unknown. Despite the limitations, the present study may provide evidence for healthcare professionals to inform and discuss the importance of moderate and high physical activity with patients with constipation.

Disclosure: No
Images:

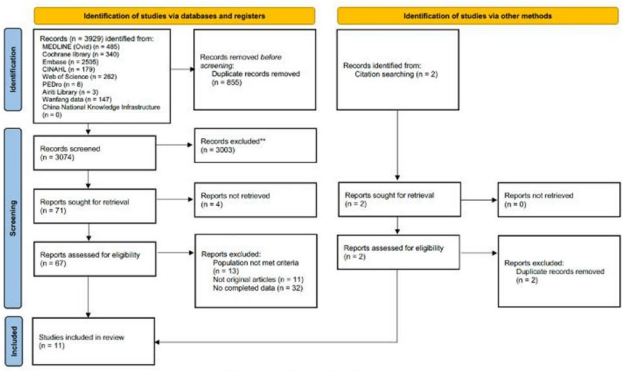

Figure 1 PRISMA flow diagram of study selection process

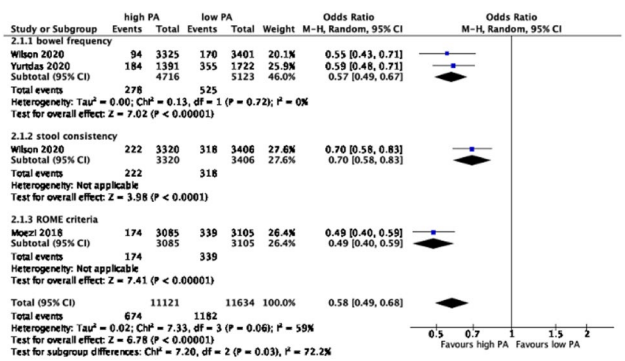

Figure 2 Forest plot of comparison of high physical activity levels versus low physical activity levels

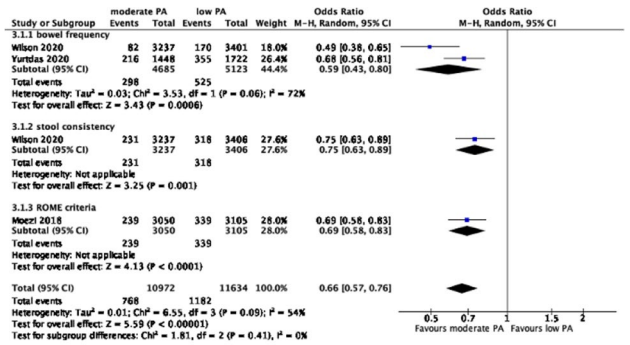

Figure 3 Forest plot of comparison of moderate physical activity levels versus low physical activity levels

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Transcutaneous Posterior Tibial Nerve Stimulation to Treat Primary Dysmenorrhea in Adolescents. Prospective, Randomized, Placebo, Controlled Trial

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Introduction: Primary dysmenorrhea is the presence of pelvic pain during menstruation, with no underlying organic cause. The principal mechanism of primary dysmenorrhea is the overproduction of prostaglandins (mainly PGF2α) in the endometrium. There is solid evidence supporting the efficacy of non-steroidal anti-inflammatory drugs as therapeutic agents.Transcutaneous posterior tibial nerve stimulation (TC. PTNS) consists of electrical stimulation of the posterior tibial nerve by means of surface electrodes. In our practice, we currently use TC. PTNS to treat pathologies such as overactive bladder, fecal incontinence, and endometriosis, and based on our experience, we believe that this technique has the potential to become an effective treatment alternative for patients with dysmenorrhea.
Objective: To evaluate the effectiveness and safety of transcutaneous posterior tibial nerve stimulation (TC. PTNS) to treat primary dysmenorrhea in adolescents.
Methods: Double-blind, block-randomized controlled clinical trial, approved by the Ethical Committee of Hospital Clínico Universidad de Chile (HCUCH). Setting: Centro de Medicina Reproductiva y Desarrollo Integral de la Adolescencia (CEMERA), a HCUCH clinic focused on adolescent reproductive and developmental medicine. Participants: Adolescents, 12 to 19 years of age, with menstrual pain. Patients with secondary dysmenorrhea (based on clinical evaluation and pelvic ultrasound), who used hormonal contraception or intrauterine devices, who were pregnant, who requested contraception, who had contraindications to use non-steroidal anti-inflammatory drugs (NSAIDs), or who had intellectual disabilities were excluded. Interventions: A total of 87 adolescents were recruited and randomized into two groups: Group 1 received mefenamic acid, an NSAID, the first three days of their menstrual cycle and simulation sessions of TC. PTNS, while Group 2 received three weekly sessions of TC. PTNS for eight weeks and an oral placebo. Clinical evaluations were conducted after four and eight weeks. Reduction in menstrual pain, was assessed with the visual analog scale (VAS). For quantitative variables, depending on whether the distribution was normal o non-terminal, Student's T-test or the Wilcoxon signed-rank test were used, respectively. To compare proportions, the Z-test was utilized, and for qualitative variables, the Chi-squared test or the Fisher's exact test were used. A p value <5% was considered significant
Results: The results are presented using descriptive statistics, with measures of central tendancy (mean, median) and measures of dispersion (standard deviation, range, percentiles) for the quantitative variables, and with absolute numbers and relative frequency in percentages for the qualitative variables. No statistically significant differences were observed in pain reduction, evaluated with the VAS at 4 and 8 weeks, between the two treatment groups, when successful pain reduction was considered to be a change in VAS category. However, if a successful treatment response is considered to be a decrease in VAS with respect to baseline, then there were significant differences in the 8th week of follow-up, with the TC. PTNS
Conclusions: TC. PTNS ameliorate the pain associated with primary dysmenorrhea in adolescents. This is comparable to the effect achieved by mefenamic acid and could be considered as a therapeutic alterative, as it is free from the adverse effects of NSAIDs and self-applicable.
Disclosure: No
Images:

Table 1: Comparison of baseline characteristics of Group 1 and Group 2

Factor	*Variable*	*Group 1 NSAID(23)*	*Group 2 TC. PTNS(32)*	*p value*
Age	Years	16(14;18)	15(14;16)	0.0548
Menarche	Years	12(11;13)	12(11;12.25)	0.4129
Grade	Year	9.5(9;11)	9(7;11)	0.2313
Baseline VAS	Number (1-10)	6.5(6;8)	8(6.75;10)	0.0127*
Total dropout	N (%)	12(52.17%)	14(43.75%)	0.366

Table 3: Comparison of effectiveness of pain reduction in the NSAID and TC. PTNS groups

FACTOR	SCALE	GROUP 1 NSAID	GROUP 2 TC. PTNS	*P* VALUE
VAS 4TH WEEK	Numeric (1-10)	4(4;5.5)	4(3.25;6)	0.4881
VAS 8TH WEEK	Numeric (1-10)	4(2;5.5)	3(2;5)	0.8329
RESPONSE 4TH WEEK	N(%)	10(83.3%)	16(80%)	0.4075
RESPONSE 8TH WEEK	N(%)	9(75%)	19(100%)	0.0109*

Table 4: Intra-group comparison of pain reduction measured with VAS

	BASELINE VAS	VAS 4TH WEEK	*P* VALUE	VAS 8TH WEEK	*P* VALUE
NSAID	6.5(6;8)	4(4;5.5)	0.0030*	4(2;5,5)	0.0089*
TC. PTNS	8(6.75;10)	4(3.25;6)	0.004*	3(2;5)	0.0001*

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Zinc-containing Vaginal Gel for the Prevention of Recurrent Vaginal Infections: A Pilot Trial

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Introduction: Zinc deficiency is closely linked to impaired mucosal integrity which is critical for the prevention of infections. The presence of zinc in the epidermis promotes epidermal homeostasis. Oral supplementation with zinc had no significant impact on cervicovaginal lavage zinc level despite a significant rise in serum zinc level. However, vaginal application of zinc in the form of a zinc-containing vaginal gel is undoubtedly a viable option to deliver zinc to the vagina. Zinc transporters are present in the vagina and ZIP4 is present in the vagina wall for absorption of vaginal zinc replenishment.
Objective: To test the hypothesis that prophylactic use of zinc-containing vaginal gel decreases the reoccurrence rate of vaginal infection in women with a diagnosis of recurrent vaginal infections.
Methods: Women with a history of recurrent vaginal infections (bacterial vaginosis or recurrent vulvovaginal candidiasis) were offered prophylactic treatment with a commercially available zinc-containing vaginal moisturizer gel. Women were asked to use the vaginal gel daily for two weeks and after that twice per week. Women were asked to return to the clinic if any symptoms of vaginal infection were present for evaluation.
Results: Eight women were enrolled. The mean age was 32 ± 6 years, mean BMI 24 ± 5, Gravida 1.5 (0-3), Para 1.5 (0-3). All women were premenopausal. None of the patients were using any oral or vaginal hormonal treatment. The number of sexual partners was 1 (1-3). On average, there was at least one infection every three months before treatment. After treatment with the zinc-containing vaginal gel, 5 out 8 women did not have an infection in the first three months (P=0.04). Three women developed one vaginal infection resulting in a 62% reduction in infections.
Conclusions: Zinc-containing vaginal gel may help to prevent recurrent vaginal infections. Further studies are required to delineate the possible mechanism of action: zinc - immunoprotective -immunomodulation through vaginal dendritic cells / Langerhans cells; lactic acid – acidic pH favors lactobacilli and prevents overgrowth of other organisms; hydroxyethyl cellulose - gentle exfoliation - increased availability of glycogen, favors lactobacilli growth.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: PT is a paid consultant for Fempharma LLC. The other authors have nothing to disclose.

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Absorbable vs. Permanent Suture for Vaginal Uterosacral Ligament Suspension for Treatment of Apical Prolapse

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Introduction: Pelvic organ prolapse (POP) is a debilitating condition which has a substantial effect on quality of life of women worldwide. Vaginal hysterectomy with uterosacral ligament suspension (VUSLS) is an established surgical treatment for apical prolapse, during which the vaginal cuff is suspended to the uterosacral ligaments. Over the years different sutures have been used for this surgical step including permanent as well as absorbable ones. While some studies have shown permanent sutures afford increased durability with superior anatomical support, others have not shown any advantage when using permanent sutures.
Objective: The aim of this study was to compare surgical outcomes in women undergoing vaginal uterosacral ligament suspension using permanent as opposed to absorbable sutures. We also aimed to assess for specific risk factors for suture complications.
Methods: We performed a retrospective, comparative cohort study between 2010-2020 at a tertiary university teaching hospital. Included were all women who underwent VUSLS for treatment of apical prolapse. The cohort was divided into two groups: 1) women for whom a permanent suture was used to suspend the vaginal apex; 2) women for whom an absorbable suture was used for that purpose. Excluded were women with follow up of one month or less. A comparison was performed between women treated using a permanent suture and those for whom an absorbable suture was used during apical suspension. Pre-, intra-, and post-operative data were compared. The primary outcome was defined as clinical success. Secondary outcomes included anatomical and composite outcome success, patient satisfaction assessed by the PGI-I questionnaire and other complications such as suture erosion and dyspareunia.
Results: One-hundred and ninety-seven women were included in the study. One-hundred and eighteen (59.9%) of them underwent the procedure using a permanent suture and 79 (40.1%) using an

absorbable suture. Women in the permanent suture group had increased rate of dyslipidemia, were less sexually active and had less advanced prolapse of point C on pre-operative exam. Other pre-operative parameters assessed were similar between groups (Table 1). With regards to intra-operative and post-operative data (Table 2), women in the permanent suture group had increased rate of concomitant procedures, regional anesthesia, surgical time, duration of hospital stay and change in hemoglobin. Clinical, anatomical, and composite success rates did not differ between groups. Patient satisfaction recorded using the PGI-I questionnaire was similar as well. Women in the permanent suture group had a higher rate of suture erosion compared to the absorbable suture group (8.5% vs. 0.0%, p=0.006). In order to assess for risk factors leading to suture complications a comparison was performed between women who had erosion or granulation tissue and those who did not (table 3). Increasing parity by one increased risk of having erosion or granulation tissue by a factor of approximately 1.2 (aOR=1.24, CI 1.05-1.47). Women with stage 4 prolapse had 3.4 times the risk of suture complication compared to stage 3 prolapse (aOR=3.4, CI 1.1-10.6).

Conclusions: Use of an absorbable suture affords comparable success rate and lower erosion rate compared to permanent suture in women undergoing vaginal uterosacral ligament suspension for treatment of apical prolapse.

Disclosure: No

Images:

Table 1. Demographic and pre-operative characteristics of the study population

Parameter	Permanent suture	Absorbable suture	P value
No. of patients	118 (59.9%)	79 (40.1%)	
Age	63.3 ±8.1	65.4±8.8	0.093
BMI	27.3 ±4.1	26.6±4.5	0.277
Menopausal	107/117 (91.5%)	72 (91.1%)	0.939
HRT	9/65 (13.8%)	3/69 (4.3%)	0.054
Parity	4.1±2.4	4.8±2.8	0.081
Operative vaginal delivery	12/114 (10.5%)	4/76 (5.3%)	0.201
Cesarean deliveries	0.1±0.3	0.2±0.6	0.237
Maximal birth weight (gr)	3612±478	3649±526	0.646
Sexually active	58/87 (66.7%)	50/61 (82.0%)	0.039
Smoking	6 (5.1%)	4 (5.1%)	1.000
Comorbidity	51 (43.2%)	43 (54.4%)	0.123
Dyslipidemia	4 (3.4%)	15 (19.0%)	<0.001
Diabetes	13 (11.0%)	14 (17.7%)	0.180
Hypertension	39 (33.1%)	25 (31.6%)	0.836
Hypothyroidism	10 (8.5%)	10 (12.7%)	0.341
Prior pelvic surgery	24 (20.3%)	14 (17.7%)	0.648
Previous incontinence surgery	2 (1.7%)	3 (3.8%)	0.392
Previous prolapse surgery	4 (3.4%)	4 (5.1%)	0.716
Preoperative POP-Q stage			0.144
Stage 1	0 (0.0%)	0 (0.0%)	
Stage 2	3 (2.5%)	1 (1.3%)	
Stage 3	99 (83.9%)	59 (74.7%)	
Stage 4	16 (13.6%)	19 (24.1%)	
Preoperative POP-Q Point C	2.93±3.77	4.43±3.62	0.007

Data presented as mean+SD or n(%)

Note: BMI, body-mass index; HRT, hormone replacement therapy; POP-Q, pelvic organ prolapse quantification system

Table 2. Comparison of intra-operative and post-operative results.

Parameter	Permanent suture	Absorbable suture	P value
No. of patients	118 (59.9%)	79 (40.1%)	
Concomitant procedures			
Anterior (Cystocele) Repair	109 (92.4%)	71 (89.9%)	0.540
Posterior (Rectocele) Repair	77 (65.3%)	45 (57.0%)	0.240
Enterocele Repair	6 (5.1%)	0 (0.0%)	0.083
Anesthesia type			0.020
General	97 (82.2%)	74 (93.7%)	
Regional	21 (17.8%)	5 (6.3%)	
Duration of surgery (minutes)	150.2±44.4	116.8±41.1	<0.001
Intra-operative bleeding	1 (0.8%)	1 (1.3%)	1.000
Hospitalization length (days)	4.47±1.6	3.84±1.1	<0.001
Post-op complications[a]			
Fever	10 (8.5%)	3 (3.8%)	0.195
UTI	6 (5.1%)	7 (8.9%)	0.295
Bleeding	5 (4.2%)	1 (1.3%)	0.405
Pain	2 (1.7%)	4 (5.1%)	0.221
Long term complications[b]			
Recurrent UTI	5 (4.2%)	2 (2.5%)	0.369
Dyspareunia	4 (3.4%)	3 (3.8%)	1.000
Constipation	2 (1.7%)	4 (5.1%)	0.369
Suture erosion	10 (8.5%)	0 (0.0%)	0.006
Suture granulation	9 (7.6%)	7 (8.9%)	0.756
Re-operation	2 (1.7%)	3 (3.8%)	0.392
Clinical success	106 (89.8%)	71 (89.9%)	0.992
Anatomical success	71/115 (61.7%)	50/77 (64.9%)	0.653
Composite outcome success	68/115 (59.1%)	48/77 (62.3%)	0.656
PGI-I success	54/56 (96.4%)	66/77 (85.7%)	0.127
Clinical follow-up (months)	22.6±21.9	10.3±7.3	<0.001
Anatomical follow-up (months)	20.7±21.7	10.2±7.3	<0.001

Data presented as mean + SD or n (%)

Note: UTI, urinary tract infection; PGI-I, Patient Global Impression of Improvement

[a] Complications during first two weeks following surgery

[b] Complications at last recorded follow up

Table 4. Demographic, pre-operative, intra-operative and post-operative characteristics of patients with vs. without suture complication

Parameter	With suture complication	Without suture complication	P value
No. of patients	22 (11.2%)	175 (88.8%)	
Age	63.5 ±9.5	64.2±8.3	0.733
BMI	28.5 ±3.5	26.8±4.3	0.056
Menopausal	20 (90.9%)	159/174 (91.4%)	0.941
Parity	5.8±3.5	4.2±2.4	0.050
Comorbidity	12 (54.5%)	82 (46.9%)	0.496
Dyslipidemia	3 (13.6%)	16 (9.1%)	0.501
Diabetes	2 (9.1%)	25 (14.3%)	0.504
Hypertension	10 (45.4%)	54 (30.9%)	0.168
Hypothyroidism	3 (13.6%)	17 (9.7%)	0.566
Prior pelvic surgery	3 (13.6%)	35 (20.0%)	0.476
Previous Prolapse Surgery	0 (0.0%)	8 (4.6%)	0.306
Preoperative POP-Q stage			<0.001
Stage 1	0 (0.0%)	0 (0.0%)	
Stage 2	3 (13.6%)	1 (0.6%)	
Stage 3	12 (54.5%)	146 (83.4%)	
Stage 4	7 (31.8%)	28 (16.0%)	
Preoperative POP-Q Point C	3.83±4.91	3.51±3.63	0.781
Concomitant procedures			
Anterior (Cystocele) Repair	19 (86.4%)	161 (92.0%)	0.375
Posterior (Rectocele) Repair	15 (68.2%)	107 (61.1%)	0.522
Enterocele Repair	0 (0.0%)	6 (3.4%)	0.378
Type of anesthesia			0.745
General	20 (90.9%)	151 (86.3%)	
Regional	2 (9.1%)	24 (13.7%)	
Duration of surgery (minutes)	156.9±53.9	136.2±44.9	0.204
Hospitalization length (days)	4.14±1.1	4.23±1.4	0.729
Post-op complications			
Hematoma	5 (22.7%)	33 (18.9%)	0.665
Fever	0 (0.0%)	13 (7.4%)	0.186
UTI	0 (0.0%)	13 (7.4%)	0.186
Bleeding	2 (9.1%)	4 (2.3%)	0.136
Pain	0 (0.0%)	6 (3.4%)	0.378

Data presented as mean+SD or n/N(%)

Note: BMI, body-mass index; POP-Q, pelvic organ prolapse quantification system; UTI, urinary tract infection

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Health Literacy in Women with Chronic Pelvic Pain

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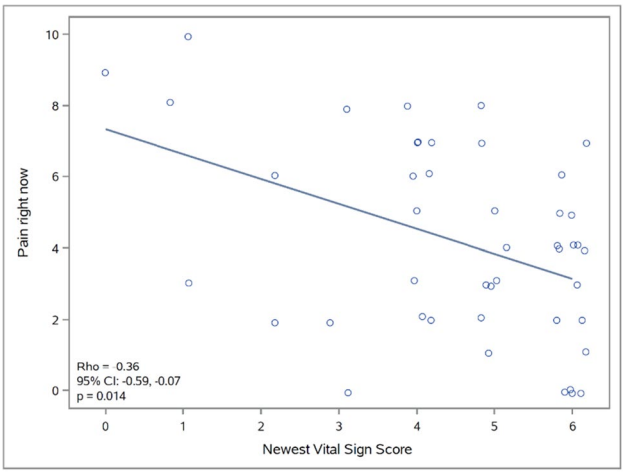
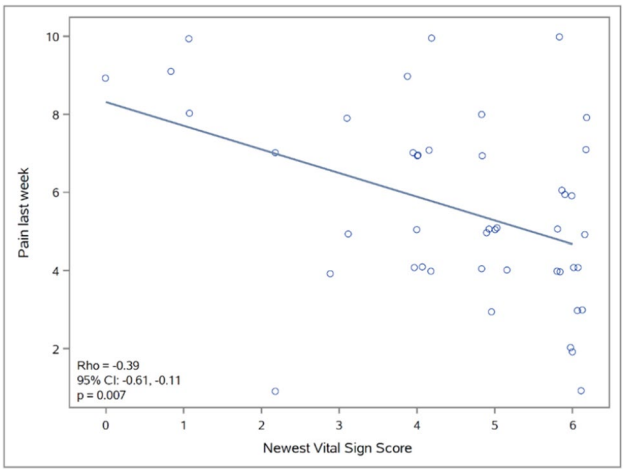
Introduction: Limited health literacy has been identified as a risk factor for poor patient outcomes, including pain. Chronic pelvic pain (CPP) is a prevalent, complex disorder with multiple overlapping conditions. Poor health literacy is prevalent among chronic pain patients and associated with lower quality of life and decreased adherence to self-management strategies. While low health literacy has been linked to other forms of chronic pain, there are no studies that examine the relationship between health literacy and CPP.
Objective: The aim of this pilot study was to investigate health literacy levels and determine if health literacy correlated with pain intensity and duration among women with CPP.
Methods: This was a prospective, cross-sectional pilot study that recruited participants from a multidisciplinary CPP clinic. Forty-five patients were enrolled in this single-visit study. Inclusion criteria were English-speaking women aged 18 years or older with constant or intermittent CPP for over six months as defined by ACOG. Exclusion criteria were age less than 18 years, current pregnancy, and those not meeting the ACOG definition for CPP. Validated outcomes measures assessed pain level, psychosocial impact and coping style of pain, and health literacy. SAS 9.4 was used for descriptive statistics of patient characteristics and summary scores. Spearman's rank correlation coefficients (rho) were calculated to assess the strength of associations between summary scores and health literacy.
Results: In the study sample, the mean age was 49 ± 17 years, and a majority were non-Hispanic White (n=34, 75.6%) followed by Hispanic and non-Hispanic Black. The median duration of symptoms was 7 years (IQR: 2-11, Table 1). Eighty percent of patients had adequate health literacy, with 8.9% and 11.1% having a high and possible likelihood of limited literacy, respectively. Current pain (rho=-.36, 95% CI: -0.59, -0.07, Figure 1) and pain over the last week (rho=-0.39, 95% CI: -0.61, -0.11, Figure 2) were significantly inversely correlated with health literacy. Duration of pain was not significantly correlated with health literacy. Pain catastrophizing demonstrated a significant inverse correlation, with lower scores among those with higher health literacy (rho=-0.30, 95% CI: -0.55, -0.001).
Conclusions: Chronic pelvic pain patients in this pilot study overall had adequate health literacy. Those with limited health literacy had greater pain intensity, more depressive symptoms, and poorer coping. Duration of pain, anxiety, and pain disability were not associated with health literacy. These findings suggest that socioeconomic status and certain psychosocial factors may impact a patient's ability to engage in decision-making and self-management strategies for their condition. This study underscores the importance of patient education to decrease health disparities in women with CPP.
Disclosure: No
Images:

	Overall N=45
Age, mean (SD)	49 (17)
BMI, mean (SD) [n=44]	28.1 (6.6)
Married, n (%)	30 (66.7)
Race/ Ethnicity	
Non-Hispanic White	34 (75.6)
Non-Hispanic Black	3 (6.7)
Hispanic	4 (8.9)
Asian	1 (2.2)
Other/ not reported	3 (6.7)
Years of education, median (IQR)	16 (14-18)
Employment, n (%)	
Employed	23 (51.1)
Unemployed	12 (26.7)
Retired	10 (22.2)
Insurance, n (%)	
Private	30 (66.7)
Medicaid	6 (13.3)
Medicare	6 (13.3)
Medicare Plus	3 (6.7)
Duration of symptoms, median (IQR) [n=43]	7 (2-11)
Comorbidities, n (%)	
Pelvic pain comorbidities	
Interstitial cystitis/ Pamful bladder syndrome	7 (15.6)
Irritable bowel syndrome	4 (8.9)
Pelvic floor myofascial pain	43 (95.6)
Endometriosis	8 (17.8)
Vulvodynia	2 (4.4)
Pudendal neuralgia	5 (11.1)
Abdominal pain	14 (31.1)
Number of pelvic pain comorbidities	
1	16 (35.6)
2	20 (44.4)
3	9 (20.0)
Musculoskeletal comorbidities	
Fibromyalgia	4 (8.9)
Low back pain	19 (42.2)
Sacroiliac joint pain	8 (17.8)
Hip pain	8 (17.8)
Lumbar radiculopathy	5 (11.1)
Number of musculoskeletal comorbidities	
0	17 (37.8)
1	16 (35.6)
≥ 2	12 (26.7)
Other comorbidities, n (%)	
Migraines/ Headaches	9 (20.0)
Depression	17 (37.8)
Anxiety	18 (40.0)
Prior treatments for chronic pelvic pain, n (%)	
Acupuncture	7 (15.6)
Chiropractor	3 (6.7)
Physical therapy	29 (64.4)
Pelvic floor physical therapy	7 (15.6)
Medications	23 (51.1)
Psychotherapy	1 (2.2)
None	7 (15.6)
Current medications, n (%)	
Opioids	9 (20.0)
Neuromodulators	29 (64.4)
Non-steroidal anti-inflammatory drugs (NSAIDs)	12 (26.7)
Muscle relaxants	16 (35.6)
Injections	10 (22.2)
Number of treatments tried, n (%)	
0	7 (15.6)
1	14 (31.1)
≥ 2	24 (53.3)





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Demographic Implications Of Patient Perceptions Regarding Pelvic Floor Physical Therapy – A Geographic Case Study

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Introduction: While awareness of surgical options in women's healthcare is commonplace, familiarity with conservative remediation for pelvic floor conditions remains limited. Although women are familiar with pelvic floor exercises, the majority do not perform them as needed and are unaware that pelvic floor therapists provide education and treatment for pelvic floor dysfunction conditions, such as pelvic pain.

Objective: The objective of this study was to ascertain baseline knowledge of patients with the indications of Pelvic Floor Physical Therapy (PFPT) in women's health care, with a focus on racial variations.
Methods: This cross-sectional survey study was institutional review board approved and distributed to English-speaking women, over 18 years old, who receive general medical care at a large academic healthcare center in Northwestern Ohio. Study participants completed a 50-item questionnaire devised to assess awareness, perceived benefits, and treatment indications along with methods of soliciting PFPT. Survey results were reported as descriptive statistics. Means were used for continuous variables, whereas percentages for true/false and agree/disagree questions. Analysis was performed using JMP software.
Results: Survey response rate was 80% (343 surveys completed, 380 approached). The mean age was 47.5 (SD 16.9), with the majority of the patients being Caucasian (n=248, 71%) and African American (n=54, 16%), educated (n=263, 77%), and sexually active (n=245, 71%). Most patients (55%) had heard of the pelvic floor, but only 29% and 32% were familiar with PFPT and its indications, respectively. Similarly, 25% of menopausal women were familiar with PFPT compared to 37% of premenopausal women. While only 45% believed it could be covered by insurance, 199 (58%) believed it would be significantly expensive to justify out-of-pocket payment. Additionally, only 38% were familiar with routes of referral for treatment. Whereas 86% believed that PFPT involves multiple visits and 95% understand that it may be supplemented with home exercises, only 35% recognized the need for vaginal manipulation during therapy. When analyzing for racial or educational associations, variability was not noted relative to awareness of potential PFPT benefits and applications. However, minor variation was noted regarding familiarity with terminology and pelvic floor-related concepts.
Conclusions: The survey suggests that familiarity with PFPT remains relatively low irrespective of race and education level. The gap in awareness of the benefits and intricacies of PFPT necessitates enhanced patient education efforts focused on conservative management methods with proven benefits.
Disclosure: No
Images:

Table 1. Participant Demographics

Characteristics	Total N (%)
Age	47.5 (16.9)*
Post-Menopausal	153 (45)
Sexually Active	245 (71)
Prior Vaginal Delivery	222 (65)
Race	
Caucasian	248 (73)
African American	54 (16)
Hispanic	15 (4)
Asian	5 (1)
Native American	2 (1)
Mixed	11 (1)
Other	8 (2)
Education	
No High School	13 (4)
High School	67 (20)
Some College	83 (24)
Associate Degree	49 (14)
4-year Degree	86 (25)
Graduate Degree	35 (10)
Professional Degree	8 (2)
Doctoral Degree	2 (1)

* Refers to Standard Deviation

Table 2. Familiarity With Pelvic Floor Related Concepts

	Familiar With the Pelvic Floor Term	Familiar With the Pelvic Floor Physical Therapy Term	Familiar with Pelvic Floor Physical Therapy Indications	Familiar With Kegel Exercises	Believe Can Personally Successfully Perform Kegel Exercises	Familiar with Pelvic Exercises Other Than Kegel's	Familiar With When Kegel's May Be Counter-Productive	Personal Perception that Pelvic Floor PT is Expensive
Ethnicity								
Caucasian	68%	35%	33%	91%	75%	26%	18%	60%
African American	50%	19%	22%	76%	59%	20%	15%	56%
Hispanic	47%	33%	40%	73%	60%	40%	13%	60%
Education								
Higher Education	67%	35%	33%	91%	74%	26%	17%	59%
No Higher Educatio	44%	23%	26%	74%	59%	23%	14%	56%

Table 3. Awareness With Pelvic Floor Physical Therapy Services

	Covered by Insurance	Either PCP/OBGYN Can Refer To Pelvic Floor PT	May Address Pelvic Pain	May Alleviate Dyspareunia	May Address Urinary Incontinence	May Address Fecal Incontinence	May Address POP	Involves Multiple Visits	May Involve Home Exercises	Ideally Involves Intravaginal Manipulation
Ethnicity										
Caucasian	47%	35%	82%	82%	83%	74%	81%	87%	93%	43%
African American	43%	26%	76%	85%	74%	63%	74%	70%	83%	28%
Hispanic	47%	53%	87%	80%	93%	80%	80%	100%	100%	33%
Education										
Higher Education	47%	35%	82%	82%	83%	70%	70%	86%	92%	41%
No Higher Education	46%	34%	83%	85%	79%	70%	70%	84%	91%	31%

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Symptoms of Anal Incontinence Among Patients Who Undergo Laparoscopic Sacrohysteropexy

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Introduction: It is not uncommon that patients with pelvic organ prolapse (POP) have concomitant symptoms of anal incontinence.
Objective: Our aim was to study the prevalence of anal incontinence symptoms among women undergoing laparoscopic sacrohysteropexy (LSH) to treat apical prolapse, as well as long-term outcome.
Methods: This was a historic cohort study of patients underwent LSH due to stage 3-4 apical compartment prolapse. As part of pre-operative and postoperative urogynecological assessment, patients were asked about symptoms of anal incontinence, constipation, and dyschezia. We also used the Wexner fecal incontinence score. In addition to apical compartment repair, patients who had posterior vaginal prolapse underwent also posterior compartment repair, while for patients who suffered from rectal prolapse, additional ventral rectopexy was also performed.
Results: Out of 270 patients who underwent LSH for apical prolapse repair, 63 (23.3%) reported symptoms of anal incontinence. Of them, 41 patients (64.1%) completed preoperative Wexner questionnaire, with a mean score of 10.3 (1-18). Eleven patients (17.5%) underwent apical repair only, 13 patients (20.6%) underwent apical and posterior repair, and 39 patients (61.9%) underwent apical repair and ventral rectopexy. There were five cases of major perioperative complications (7.9%). The mean follow up after surgery was 32.8 (1-174) months. Fifty one (80.9%) patients reported no symptoms of anal incontinence: 9 patients (81.8%) who underwent apical repair, 10 patients (76.9%) who underwent apical and posterior repair, and 32 patients (82.1%) who underwent apical repair and ventral rectopexy. Forty two patients (66.7%) completed post operative Wexner questionnaire, with a mean score of 1.4 (0-20). Six patients reported de-novo constipation (9.5%), and one patient (1.6%) was re-operated due to prolapse recurrence.
Conclusions: Symptoms of anal incontinence are relatively common, among patients encounter for apical prolapse repair. It appears that treating the apical prolapse with/ without additional compartment repair, can also improve anal incontinence symptoms.
Disclosure: No
Images:

Table 1: Patients Background Characteristics

Age (years)	62.1 (29-85)
Body Mass Index (kg/m^2)	24.8 (17.7-38.0)
Parity	2.4 (0-6)
Significant obstetrical trauma	30 (46.8)
Menopause	47 (73.4)
Prior POP surgery	4 (63)
Duration of prolapse symptoms (months)	29.1 (1-144)
Anterior prolapse stage 3-4	25 (39.1)
Apical prolapse stage 3-4	60 (93.8)
Posterior prolapse stage 3-4	10 (15.6)
SUI	41 (64.1)
Preoperative defecography	49 (76.6)
Completed preoperative Wexner score	41 (64.1)
Preoperative Wexner score	10.3 (1-18)
Rectal prolapse	33 (51.6)
Dyschezia	25 (39.1)

Data are presented as n (%) or mean ± standard deviation.

SUI- Stress Urinary Incontinence; POP- pelvic organ prolapse;

Table 2: Operative details and perioperative complications up to 4 weeks.

Operative time (minutes)	90.5 (90-180)
Length of Hospitalization (days)	1.9 (1-4)
Additional procedure	6 (9.5)
Additional posterior compartment repair	13 (20.6)
Additional ventral rectopexy	39 (61.9)
Intestinal injury	1 (1.6)
Vesical injury	2 (3.2)
Conversion to laparotomy	1 (1.6)
Post operative peritonitis	1 (1.6)
Any major complication	5 (7.9)

Table 3: Long-term surgical outcomes.

Mean Follow-up duration (month)	32.8 (1-174)
Pelvic or lower back pain	6 (9.5)
Mesh exposure	0 (0)
De novo SUI	7 (11.1)
Surgery for SUI	8 (12.7)
2nd surgery for POP recurrence	7 (11.1)
De novo constipation	6 (9.5)
Anal incontinence cured	51 (80.9)
Completed Post operative Wexner questionnaire	42 (66.7)
Post operative Wexner score	1.4 (0-20)
Improvement in sexually activity	29 (46.0)
Dyspareunia	5 (7.9)
Prolapse recurrence	4 (6.3)
Reoperation for prolapse recurrence	1 (1.6)

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Impact of Intrapartum Prophylactic Antibiotics on Bowel and Bladder Function in Women with Obstetric Anal Sphincter Injury

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Introduction: The use of prophylactic antibiotics at the time of obstetric anal sphincter injury (OASI) repair has been shown to decrease postpartum wound complications and improve healing. The impact of prophylactic antibiotics on postpartum bowel and bladder function has not been evaluated.

Objective: The primary objective of this study is to compare immediate postpartum bowel and bladder function between women with OASI who did and did not receive prophylactic antibiotics at the time of perineal repair. Secondary objectives include comparisons of bowel and bladder function at baseline versus six to twelve months postpartum in women who did and did not receive prophylactic antibiotics at the time of perineal repair.

Methods: This is a prospective cohort study of women who sustained a OASI at the time of vaginal delivery. Women were enrolled in a prospective database at their initial visit in our postpartum perineal clinic. At the initial visit, baseline participant and delivery characteristics are collected and validated questionnaires including the Urinary Distress Inventory-6 (UDI-6) and Fecal Incontinence Severity Index (FISI) are completed. At six months postpartum, women were invited to complete an electronic survey to follow up on their bowel and bladder function. Bowel and bladder function at baseline and at six to twelve months postpartum were compared between women who did and did not receive prophylactic antibiotics for OASI at the time of perineal repair.

Results: 111 women met study inclusion criteria and were included in this analysis. The mean age of participants was 31.4 (±3.8) years, mean BMI was 30.8 (±4.8), and the majority were white (92, 82.9%). 63 (56.8%) women delivered via spontaneous vaginal delivery and 99 (89.2%) women experienced a third-degree laceration. 45 (40.5%) women received no prophylactic antibiotics and 66 (59.5%) women received prophylactic antibiotics. There were no differences in demographic characteristics between the groups. Cefazolin (48, 72.7%) was the most commonly used prophylactic antibiotic. Median days postpartum at the initial visit was 12.0 (IQR: 9.0, 18.0). 36 (33.3%) women reported urinary incontinence and the median UDI-6 score was 8.3 (4.2, 16.7). 12 (10.8%) women reported fecal incontinence and the median FISI score was 0 (0, 12.0). 31 (27.9%) women reported fecal urgency. There were no differences in immediate postpartum bowel and bladder function between women who did and did not receive prophylactic antibiotics, see Table. Median days to postpartum survey completion was 216.0 (204.0, 238.0). 38 (34.2%) women reported urinary incontinence and the median UDI-6 score was 4.2 (0, 12.5). 9 (8.1%) women reported fecal incontinence and the median FISI score was 11.0 (0, 25.0). 23 (20.7%) women reported fecal urgency. There were no differences in six-to-twelve-month postpartum bowel and bladder function between the women who did and did not receive antibiotics.

Conclusions: In this population, use of intrapartum prophylactic antibiotics in women who experienced OASI did not impact bowel and bladder function in the immediate postpartum period or at six to twelve months postpartum.

Disclosure: No

Images:

Table
Postpartum Bowel and Bladder Function

		No antibiotics (N=45)		Prophylactic Antibiotics (N=66)		
Variable	**Total (N=111)**	**N**	**Data**	**N**	**Data**	**p-value**
Immediate Postpartum						
Urinary incontinence	36 (33.3)	45	15 (33.3)	63	21 (33.3)	0.99[c]
UDI-6 score	8.3 [4.2, 25.0]	45	12.5 [4.2, 16.7]	66	8.3 [4.2, 16.7]	0.24[b]
Fecal incontinence	12 (10.8)	45	5 (11.1)	66	7 (10.6)	0.99[d]
Flatulence incontinence	40 (36.4)	45	18 (40.0)	65	22 (33.8)	0.51[c]
FISI score	0.00 [0.00, 12.0]	45	0.00 [0.00, 12.0]	65	0.00 [0.00, 8.0]	0.37[b]
Fecal urgency	31 (27.9)	45	14 (31.1)	66	17 (25.8)	0.54[c]
6-12 Months Postpartum						
Urinary incontinence	38 (34.2)	45	16 (35.6)	66	22 (33.3)	0.81[c]
UDI-6 score	4.2 [0.00, 12.5]	45	4.2 [0.00, 12.5]	65	4.2 [0.00, 12.5]	0.81[b]
Fecal incontinence	9 (8.1)	45	6 (13.3)	66	3 (4.5)	0.15[d]
Flatulence incontinence	46 (42.2)	44	23 (52.3)	65	23 (35.4)	0.80[c]
FISI score	11.0 [0.00, 25.0]	45	6.0 [0.00, 21.0]	66	12.5 [3.0, 27.0]	0.16[b]
Fecal urgency	23 (20.7)	45	12 (26.7)	66	11 (16.7)	0.20[c]

Statistics presented as Median [P25, P75], N (column %)
p-values: b=Wilcoxon Rank Sum test, c=Pearson's chi-square test, d=Fisher's Exact test

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OnabotulinumtoxinA Improves Idiopathic Overactive Bladder Symptoms in Patients Refractory to Oral Medications

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Introduction: There is a paucity of data comparing the efficacy of onabotulinumtoxinA (onabotA) treatment between patients treated with one oral overactive bladder (OAB) medication to those treated with more than one.
Objective: This real-world study examines UI (urinary incontinence) episodes and treatment benefit of onabotA in patients who are refractory to one or more oral medications.
Methods: A prospective, observational study (NCT02161159) enrolled adult patients with OAB symptoms inadequately managed by oral medications. Patients were naïve to botulinum toxin for OAB; efficacy and safety analyses were conducted on those that received >1 dose of onabotA. Adverse events (AEs) and adverse drug reactions (ADRs) were recorded for up to 12 months after onabotA treatment. We analyzed UI episodes at baseline for all patients taking oral medications (□-3 adrenergic agonist [(□-3] and/or an anticholinergic [AC]) for OAB. Only patients taking oral medications before, but not after onabotA and who had >1 diary entry at the indicated timepoint were included in analyses of UI episodes after onabotA at 1 and 12 weeks and treatment benefit scores (TBS) at 12 weeks.
Results: Baseline UI episodes were similar in patients treated with one versus more than one oral medication; reductions in UI at week 12 post-onabotA did not differ based on the number of prior oral medications (Fig. 1). UI was significantly reduced (*P=<.001) in as little as 1 week after onabotA for all prior oral treatment groups (b-3, -3.3*, n=16; AC, -1.8*, n=53; b-3 + AC, -2.2*, n=28; >1 AC, - 1.7*, n=52). Of the 233 patients who reported TBS at week 12, 88% were improved or greatly improved after onabotA. In the safety population (N=504), 57 AEs were reported in 38 patients (7.5%); 9 were serious. Urinary retention, as determined by the treating physician, was reported in 5 patients (1.0%); 1 was severe. Symptomatic urinary tract infection was reported in 2 patients (0.4%).
Conclusions: Treatment with onabotA led to significant reductions in UI episodes, with no significant improvement in patients who had been on more than one oral as compared to only one oral before onabotA treatment. Given these results, clinicians may want to consider onabotA treatment earlier as opposed to cycling through oral medications.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: AbbVie

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Examining Treatment Rates with Sacral Neuromodulation for the Management of Overactive Bladder: Do Hispanic Treatment Disparities Exist in a Minority-Majority Population?

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Introduction: Current literature suggests that racial/ethnic disparities exist in treatment rates for overactive bladder (OAB). Specifically, Hispanics have been shown to be less likely to receive sacral neuromodulation (SNM) for OAB than non-Hispanic whites. Spanish as a primary language has been suggested as a barrier to care in this population, however studies with granular data including primary language spoken are limited. In addition, prior studies are population-based, rather than practice-based. Our tertiary care center provides Urogynecologic care to a unique area of the United States that represents a "minority-majority population", where Hispanics represent the majority racial/ethnic group. This provides us a unique opportunity to analyze disparities that may exist among racial and ethnic minorities with OAB.
Objective: We seek to determine if sociodemographic factors including race, ethnicity, and primary language spoken predict receiving sacral neuromodulation for the treatment of overactive bladder among a minority-majority Hispanic patient population managed in a specialized Urogynecologic practice.
Methods: A retrospective chart review of patients in a tertiary Urogynecologic practice with a Hispanic minority-majority patient population was performed via an IRB approved protocol. We collected sociodemographic data on 3,511 patients between October 2019 and March 2021. We identified 1,828 patients with a diagnosis of OAB using ICD codes. Patients who underwent SNM were identified. Contingency tables were created, and statistical significance was analyzed using a chi-squared test for categorical variables and t-test for continuous variables. A multiple logistic regression model was fitted to identify independent predictors of undergoing SNM. A p-value of <0.05 indicated statistical significance. All analysis was conducted using STATA MP 16.1 (College station, Texas).
Results: Of the 1,828 OAB patients identified, 186 (10.18%) underwent SNM. Sociodemographic details are outlined in table 1. Compared to white and African-American race, other race (which included Asians, American Indians, and mixed racial background) was predictive of receiving SNM treatment (aOR 5.94 [2.8-12.8]) (Table 2). Hispanic ethnicity, primary language spoken, age, insurance type, alcohol use, BMI and smoking history were not predictors of receiving SNS. Adjusted odds ratios are reported for predictors of SNM treatment of OAB in table 2.
Conclusions: Our analysis suggests that Hispanic patients who are enrolled in a tertiary Urogynecologic specialty practice in a Hispanic minority-majority population do not have lower SNM rates than non-Hispanics, even when other socioeconomic factors are accounted for. Interestingly, patients of "other" race receive SNM at higher rates than other racial groups. Where primary language spoken is often identified as a barrier to treatment, this population had no difference in treatment rates when Spanish is a primary language. Further understanding of the high rates of surgical conversion among the diverse patient population who identify as "other" race is needed, as is a better understanding of barriers in provider-patient relationships, such as the effect of Spanish fluency of providers, that may influence SNM use.
Disclosure: No
Images:

Table 1: Sociodemographic description of patient population.

Variables	Neuromodulation	No Neuromodulation	P-value
	1828		
N	186 (10.18)	1642 (89.82)	
Age	57.0 (12.6)	60 (14.5)	0.0041
Race			
White	151 (10.0)	1359 (90.0)	<0.001
African Americans	19 (9.6)	179 (90.4)	
Others	12 (34.29)	23 (65.71)	
Ethnicity			
Hispanic	138 (10.97)	1120 (89.03)	0.138
Non-Hispanic	46 (8.85)	474 (91.15)	
Unknown	2 (4.0)	48 (96.0)	
Primary Language			
English	86 (9.10)	859 (90.9)	0.290
Spanish	97 (11.32)	760 (88.68)	
Others	3 (11.54)	23 (88.46)	
BMI	30.0 (5.9)	29.1 (6.3)	0.0482
Smoking Status			
Never smoked	140 (10.9)	1149 (89.1)	0.685
Previous smoker	38 (9.4)	365 (90.5)	
Current smoker	7 (9.46)	67 (90.5)	
Alcohol Use			
No	113 (10.2)	998 (89.8)	0.743
Yes	67 (10.7)	561 (89.3)	
Insurance Type			
Medicare/aid	25 (7.5)	307 (92.47)	0.117
Private	159 (10.9)	1300 (89.1)	
Others	2 (5.4)	35 (94.6)	

Table 2: Sociodemographic predictors of Neuromodulation therapy.

Variables	OR	CI	P-value
Race			
White	Referent		
AA	1.15	0.6-2.1	0.626
Others	5.94	2.8-12.8	<0.001
Unknown	0.63	0.2-1.9	0.425
Hispanic			
No	Referent		
Yes	1.20	0.7-2.0	0.457
Language			
English	Referent		
Spanish	1.34	0.9-2.0	0.142
Others	1.62	0.5-5.8	0.457
Insurance			
Medicare/Medicaid	Referent		
Private	1.11	0.7-1.8	0.678
Others	0.34	0.0-2.7	0.303
Alcohol intake			
No	Referent		
Yes	1.15	0.8-1.6	0.423
Smoker			
No Smoking History	Referent		
Previous Smoker	0.84	0.6-1.3	0.416
Current Smoker	0.80	0.4-1.8	0.602
BMI (continuous)*	1.03	1.0-1.1	0.043
Age	0.98	1.0	0.006

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A Comparison of Vaginal pH using Prasterone, Estradiol Cream or Non-hormonal Vaginal Moisturizer for Genitourinary Syndrome of Menopause (VpHresh)

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Introduction: Genitourinary Syndrome of Menopause (GSM) includes symptoms of vaginal irritation, dryness, dyspareunia, and recurrent urinary tract infections. Topical vaginal estrogen is considered the gold standard treatment for GSM, but alternative treatment modalities include prasterone and non-hormonal/over-the-counter vaginal moisturizers. Few studies compare these three treatment modalities for GSM.
Objective: To compare the change in vaginal pH and Vaginal Health Index (VHI) scores in women with GSM using vaginal estradiol cream, prasterone suppositories, or OTC vaginal moisturizers at baseline and 12 weeks.
Methods: This is an ongoing observational pilot study comparing estrogen (1 g nightly for 2 weeks, then 0.5 g twice weekly), prasterone (6.5 mg suppository nightly), or OTC moisturizers (1 applicator every 3 days) for the treatment of GSM. Patients were recruited between 8/2020 - 11/2021 at a single academic practice. Eligible participants were postmenopausal females who were English-speaking and had GSM symptoms with a baseline vaginal pH ≥ 5. Women were excluded if they were on systemic or topical hormone therapy within 12 weeks of enrollment or on active endocrine therapy with either a selective estrogen receptor modulator or aromatase inhibitor. After provider counseling on treatment options for GSM, women chose their treatment arm and were followed for 12 weeks. At the baseline and 12 week visits, participants underwent genitourinary examination with vaginal pH measurement and clinically validated Vaginal Health Index (VHI) scoring. Student's t-test and Kruskall-Wallis rank sum test were used to compare continuous parametric and nonparametric variables, respectively. Fisher's exact test was used for categorical variables.

Results: Of the 24 women who completed the study, 6 were in the estrogen arm, 9 in the prasterone arm and 9 in the OTC moisturizer arm. There were no significant differences in the baseline demographics (Table 1). The estrogen and prasterone treatment arms had significant reduction in pH from baseline to 8-12 weeks by 2.0 (SE=0.35, p value <0.0001) and 1.5 (SE=0.29, p <0.0001) respectively (Table 2a). There was no significant change in the pH value in the OTC moisturizer arm (p value = 0.1383). The mean VHI scores increased significantly from baseline for all treatment arms: in the estrogen arm, VHI scores improved by a mean of 13.8 points (SE=1.8, p<0.01); in the prasterone arm, VHI scores improved by a mean of 10.8 points (SE=1.5, P <0.01); in the OTC moisturizer arm, VHI scores improved by a mean of 3.7 points (SE=1.5, P =0.02) (Table 2b).
Conclusions: Vaginal estradiol cream and prasterone suppositories significantly improved the vaginal pH of women with GSM over 12 weeks of therapy, while OTC moisturizers did not significantly alter vaginal pH. Similarly, VHI scores improved by a greater degree in the estradiol and prasterone treatment arms compared to the OTC moisturizer arm. These findings suggest estrogen cream and prasterone suppositories are both effective options for treating GSM, while OTC moisturizers are less effective.
Disclosure: No
Images:

Table 1 Differences in demographic and clinical data for elderly women with SUI and UUI/MUI

	Type of UI			
	SUI(n = 717)	UUI/MUI(n = 209)	Z/χ^2	P
Age(years)	64(62-68)	66(62-69)	-2.686	0.007*[a]
Educational level			-0.198	0.843[a]
Primary education or less	224(31.3%)	68(32.6%)		
Secondary education	424(59.1%)	120(57.4%)		
Tertiary education or above	69(9.6%)	21(10%)		
Weight(kg)	62(56-68))	63(58.25-70.00)	-1.984	0.047*[a]
BMI (kg/m^2)	24.7(22.6-26.7)	25.4(23.00-27.5)	-2.397	0.017*[a]
Waist circumference(cm)	90(85-97)	93(86-100)	-2.087	0.037*[a]
Delivery mode			2.451	0.294[b]
VD	655(91.4%)	186(89%)		
CS	57(7.9%)	19(9.1%)		
Both	5(0.7%)	4(1.9%)		
Parity			5.379	0.020*[b]
0-2	550(76.7%)	176(84.2%)		
⩾3	167(23.3%)	33(15.8%)		
Beverage Preference	142(19.8%)	33(15.8%)	1.702	0.192[b]
Menopause mode			1.867	0.172[b]
Nature	680(94.8%)	193(92.3%)		
Surgery	37(5.2%)	16(7.7%)		
Menopausal years	14(11-20)	16(12-21)	-2.863	0.004*[a]
Comorbidities				
Chronic cough	95(13.2%)	53(25.4%)	17.671	< 0.001*[b]
Asthma	30(4.2%)	15(7.2%)	3.135	0.077[b]
Diabetes Mellitus	93(13.0%)	27(12.9%)	0.000	0.984[b]
Constipation	207(28.9%)	69(33.0%)	1.328	0.249[b]
Weakened PFMS	552(77%)	172(82.3%)	2.675	0.102[b]

* P < 0.05; [a] Mann–Whitney U tests; [b] Chi-square tests

UI: urinary incontinence; SUI: stress urinary incontinence; UUI: urgency urinary incontinence; MUI: mixed urinary incontinence; BMI: body mass index; VD: vaginal delivery ; CS: cesarean section ; PFMS: pelvic floor muscle strength.

Table 2 Severity and impact of UI on QOL in elderly women

	Type of UI			
	SUI(n = 717)	UUI/MUI(n = 209)	Z/χ^2	P
ICIQ-SF total score(0 to 21)	5(4-6)	7(5-10)	-8.618	< 0.001*[a]
Impact on QOL(0 to 10)	2(1-3)	3(1-5)	-5.425	< 0.001*[a]
(0) not at all	112(15.6%)	17(8.1%)		
(1-3) mild	470(65.6%)	112(53.6%)		
(4-6) moderate	113(15.8%)	68(32.5%)		
(7-9) severe	16(2.2%)	10(4.8%)		
(10) to a great extent	6(0.8%)	2(1.0%)		

* P < 0.05; [a] Mann–Whitney U tests .

ICIQ-SF: International Consultation on Incontinence Questionnaire-Short Form; QOL: quality of life.

Table 3 Comparison of the general sex life of elderly women in SUI and UUI/MUI groups.

	Type of UI				
	SUI(n = 717)	UUI/MUI(n = 209)	Total(n%)	Z/χ^2	P
Sex life				4.105	0.043*[b]
inactive	486(67.8%)	157(75.1%)	643(69.4%)		
active	231(32.2%)	52(24.9%)	283(30.6%)		
Degree of Satisfaction with active sex life				-1.958	0.050[a]
Satisfaction	69/231(29.9%)	8/52(15.4%)	77/283(27.2%)		
Moderate satisfaction	144/231(62.3%)	39/52(75.0%)	183/283(64.7%)		
Poor satisfaction	18/231(7.8%)	5/52(9.6%)	23/283(8.1%)		

* P < 0.05 ; [a] Mann–Whitney U tests ; [b] Chi-square tests

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Distribution of Urinary Incontinence Subtypes of Elderly Women in the Community-dwelling and Impact on Quality of Life

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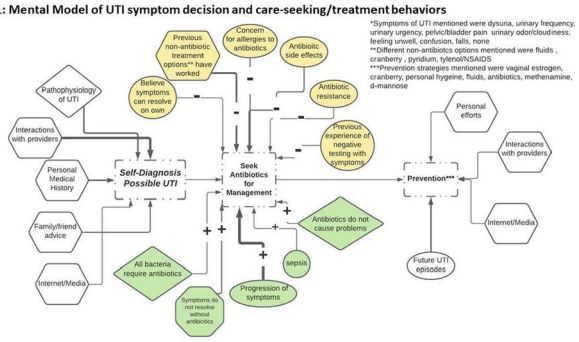
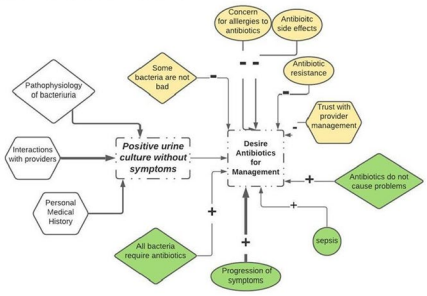
Introduction: The incidence of urinary incontinence (UI) as a common bothersome problem in elderly women increases with aging. Compare with mild and moderate types, severe UI brings more negative impact to patients' quality of life (QOL). In this regard, we are conducting a prospective multicenter cohort study to identify the distinguishable characters of elderly community patients with mild and moderate UI. Through tracking the progression of UI symptoms, we try to develop an effective UI progress prediction model (UPPM) to facilitate provision of proper cares for elder women to prevent the UI upgrading.
Objective: This manuscript is to report the distribution of UI types among community elder women and the relevant analysis to the QOL of the patients who suffering this problem.
Methods: A total of 926 elderly women aged ≥60 (the participants) were enrolled in this study from six hospitals from May 2020 to March 2021, among whom 717 and 209 were grouped into SUI(stress urinary incontinence) and UUI/MUI (urgency/ mixed UI) cohorts respectively according to the symptomatic degree of urine leakage. Demographic and clinical data was collected from all participants in the primary clinical visit for the study, followed by pelvic organ prolapse quantification (POP-Q), pelvic floor muscle strength (PFMS) measurement, and an evaluation of the quality of life (QOL) and sexual life satisfaction using the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF) and two specially-designed questionaries. Mann–Whitney U tests and Pearson's chi-squared test were used to analyze the differences in all variables between this two groups.
Results: The major type of UI in community women was SUI (77.4%, 717/926), 90.9% (652/717) of them were mild. MUI and UUI accounted for 20.63%(191/926) and 1.94% (18/926), respectively, and 89% (170/191) of the MUI and 83.3% (15/18) of UUI were symptomatically moderate. respectively. Weakened PFMS was detected in 78.2% (724/926) of the participants with UI. Of the 30.6% participants who had active sexual life, 27.2% were satisfied with their sexual lives. UUI/MUI cohort was significant different from SUI in the compositive ratio of women with chronic cough history (P 0.05) .
Conclusions: Elderly community women suffers all types of UI including SUI, MUI and UUI. SUI distributes dominantly, but UUI/MUI has greater impacts on women's quality of life and is related to less active sex life, which requires more attention from medical staff.
Disclosure: Yes, this is sponsored by industry/sponsor: National Key Technology R&D Program of China (grant number: 2018YFC2002204). Clarification: Industry funding only - investigator initiated and executed study
Images:

Figure 1: Mental Model of UTI symptom decision and care-seeking/treatment behaviors



- Each shape is meant to denote either a personal belief (triangle), previous experience (hexagon) or point of concern (circle)
- Heavier lines between nodes signify more frequently represented codes

Figure 2: Mental Model of ASB treatment behaviors



- Each shape is meant to denote either a personal belief (triangle), previous experience (hexagon) or point of concern (circle)
- Heavier lines between nodes signify more frequently represented codes

Table 1. Baseline Demographic Differences between Postmenopausal Women undergoing Intradetrusor Onabotulinum Toxin-A (BTX-A) for Refractory Overactive Bladder based on Vaginal Estrogen Use

	Estrogen (n=63)	No Estrogen (n=240)	P value
Mean age (years)	70.6 (7.4)	64.8 (12.7)	0.01
Retention after BTX-A injection*	7 (11.1)	25 (10.4)	0.87
History of recurrent UTI	19 (30.2)	29 (12.1)	<0.01
Antibiotic suppression prior to injection	6 (9.5)	17 (7.1)	0.59
Neurogenic bladder	7 (11.1)	88 (36.7)	<0.01
BTX-A Dose			0.02
100 unit	39 (61.9)	101 (42.1)	
200 units	20 (31.7)	121 (50.4)	
300 units	4 (6.3)	17 (7.1)	

Data is presented as either mean (SD) or n (%)
*Defined as requirement of clean-intermittent self catheterization after injection

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WITHDRAWN - Evaluation of Sexual Functions in Women after Transvaginal Mesh Repair of Recurrent Pelvic Organ Prolapse - Mid-term Outcomes

Huser, M[1]
WITHDRAWN

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A Qualitative Study of Postmenopausal Women's Decision-making and Knowledge Gaps Surrounding Bacteriuria

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2 - University of Pittsburgh

Introduction: Patient understanding of urinary tract infection (UTI) symptoms and asymptomatic bacteriuria (ASB) may influence care-seeking behavior, however, there is limited data on their perspective.
Objective: To describe how the current beliefs and values of postmenopausal women, informed by their personal history of UTIs, shape their preferences for future care for symptomatic UTI and ASB.
Methods: We performed semi-structured interviews with postmenopausal women who have been previously treated for a UTI. The majority of questions asked about patient experiences of UTIs and knowledge of symptoms and treatment options along with a discussion about their approach to seeking antibiotics for management. Further questions about a management preference for ASB (whether or not they had previously been diagnosed) were also explored. Two authors independently coded the interviews and identified a set of symptom-related knowledge and experiences that relate to specific management, care-seeking, treatment, and prevention preferences. We then graphically represent a "mental model" of symptomatic UTI care and prevention as an influence diagram, illustrating how knowledge and values affect preferences for care. A similar graphical representation was created surrounding the "mental model" of care after a positive urine culture without symptoms (ASB).

Results: We performed 30 interviews of postmenopausal women with a mean age of 69.4 (SD 6.4). Overall, 10 (33.3%) had an educational experience of high school or less, 11 (36.7%) had some post-high school education and 9 (27.3%) had gone to college or graduate school. All had been treated for a presumed UTI in the last year and 12 (40.0%) were currently on vaginal estrogen. Participants had many different variables that affected both their symptomatic UTI care-seeking decisions (Figure 1) and management preference for ASB (Figure 2). Two distinct "mental models" of appropriate UTI treatment emerged; one group reported greater anticipated risks related to antibiotic use and predominately endorsed non-treatment of ASB (represented as yellow shaded nodes in both figures). A separate group of women desired antibiotics for both UTI and ASB. The desire for antibiotics was largely driven by concern for sequalae from non-treated bacteria (represented as green shaded nodes in both figures) and underweighting of potential side effects of antibiotic use. Both mental models demonstrate that the way women conceptualizes their first symptoms (or being told they have a positive urine culture) affects their preferences for antibiotic treatment and subsequent future prevention. For both symptomatic and asymptomatic UTIS , perceived provider endorsement of antibiotics weighed heavily in their treatment decision making (Figure 2).
Conclusions: Women's cognitive approach to UTI symptoms and care-seeking is complex and influenced by many factors. These factors include both personal and friend/family experience, level of awareness of non-antibiotic management for both symptomatic UTI and ASB by patient and provider and many misconceptions about urinary tract pathophysiology. An improved understanding of these processes could inform interventions designed to aid women and providers in understanding key differences between symptomatic UTI and ASB.
Disclosure: No
Images:

Table 2. Baseline Demographic Differences between Postmenopausal Women undergoing Intradetrusor Onabotulinum Toxin-A (BTX-A) for Refractory Overactive Bladder based on Post-injection Urinary Tract Infection (UTI)

	UTI (n=106)	No UTI (n=197)	P value
Mean age (years)	67.9 (12.6)	65.0 (11.6)	<0.01
Retention after BTX-A injection*	22 (20.7)	10 (5.1)	<0.01
History of recurrent UTI	30 (28.3)	18 (9.1)	<0.01
Antibiotic suppression prior to injection	11 (10.4)	12 (6.1)	0.18
Neurogenic bladder	36 (34.0)	59 (30.0)	0.49
BTX-A Dose			0.16
100 unit	53 (50)	87 (44.2)	
200 units	42 (39.6)	99 (50.2)	
300 units	10 (9.4)	11 (5.6)	

Data is presented as either mean (SD) or n (%)
*Defined as requirement of clean-intermittent self catheterization after injection

Table 3. Logistic Regression Model of Urinary Tract Infection (UTI) in Postmenopausal Women undergoing Intradetrusor Onabotulinum Toxin-A (BTX-A) for Refractory Overactive Bladder

Table 3.		
	Adjusted OR (95% CI)	P value
Estrogen Use	2.30 (1.21, 4.37)	0.01
Age (years)	1.03 (1.00, 1.05)	0.03
Retention after BTX-A injection*	6.27 (2.66, 14.76)	<0.01
History of recurrent UTI	3.85 (1.79, 8.25)	<0.01
200-unit BTX-A Dose	0.57 (0.32, 1.01)	0.05

*Defined as requirement of clean-intermittent self catheterization after injection

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The Impact of Vaginal Estrogen in Postmenopausal Women on Urinary Tract Infection Rates after Intradetrusor OnabotulinumtoxinA

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Introduction: Increasing age and history of recurrent urinary tract infections (UTI) are known risk factors for post-injection UTI after intradetrusor OnabotulinumtoxinA (BTX-A) for overactive bladder (OAB). Although vaginal estrogen is utilized to decrease recurrent UTI and genitourinary symptoms of menopause, it is currently unknown how use of vaginal estrogen at the time of BTX-A impacts post-injection UTI.
Objective: To investigate whether women already on vaginal estrogen at the time of intradetrusor BTX-A injections have a decreased proportion of post-injection UTI as compared to those not using vaginal estrogen. We hypothesized that the use of vaginal estrogen in postmenopausal women undergoing intradetrusor BTX-A injections will have a lower rate of post-injection UTI.
Methods: This is a retrospective chart review of women undergoing intradetrusor BTX-A from 2018 to 2021. We included postmenopausal women who underwent intradetrusor BTX-A injection for refractory OAB and divided them into two groups based on vaginal estrogen use. We defined vaginal estrogen use as an updated prescription for vaginal estrogen in the electronic medical record on day of injection. Everyone was given oral antibiotics at the time of BTX-A injection, but type and amount were left to the discretion of the provider. Our primary outcome was the incidence of UTI in the first 6 months after intradetrusor BTX-A injection defined as UTI-related symptoms and a positive urine culture. We compared baseline demographics between vaginal estrogen groups and those with a post-injection UTI. The association between vaginal estrogen use and risk of post-injection UTI was estimated with multivariable logistic regression models controlling for relevant demographic variables and backwards selection for our final model. We considered a p-value of <0.05 to be statistically significant.
Results: Our cohort consisted of 303 postmenopausal women of which 63 (20.8%) were prescribed vaginal estrogen and 240 (79.2%) were not at the time of BTX-A. Those in the estrogen group were older (70.6±7.4 v. 64.8±12.7 years, p=0.01), had a higher proportion of recurrent UTI history (30.2% v. 12.1%, p<0.01), and had a lower proportion of neurogenic bladder (11% v. 37%, p<0.01) than the no estrogen group. (Table 1) Overall, 106 women (34.9%) had a UTI as compared to 197 (65.0%) who did not. In bivariate analysis, 57.1% of those on vaginal estrogen had a post-injection UTI as compared to 29.2% of those not on estrogen (p=0.01). (Table 2) In our final multivariable logistic regression model, women in the estrogen group had a 2.3 times higher odds of having UTI after intradetrusor BTX-A injection (aOR 2.30, 95% CI 1.21, 4.37; p=0.01) when adjusting for BTX-A dose (p=0.05), history of recurrent UTI (p<0.01), concurrent antibiotic suppression therapy (p=0.16), post-injection urinary retention requiring clean intermittent self catheterization (p=<0.01), and diagnosis of neurogenic bladder (p=0.66). (Table 3)
Conclusions: In our study, vaginal estrogen does not appear to be protective against post-injection UTI in postmenopausal women undergoing intradetrusor BTX-A injection for refractory OAB, but we were limited by our ability to comment on adherence to estrogen application. More research is needed to determine if adherence to vaginal estrogen can potentially decrease post-injection UTI after BTX-A.
Disclosure: No
Images:

Table 1 - Patient Demographics

	Top-Down (N=140) (%)	Bottom-Up (N=169) (%)	p-value
Age, median (IQR)	58 (48-68)	54 (47-65)	0.02
Mode of Delivery	--	--	0.83
Cesarean Only	10 (7.1)	7 (4.1)	--
Vaginal Only	97 (69.2)	119 (70.4)	--
Both Vaginal and Cesarean Delivery	33 (23.6)	43 (25.4)	--
Current Smoker	20 (14.3)	15 (8.9)	0.14
Post-Menopausal	98 (70)	101 (59.8)	0.06
Prior Prolapse Repair	0	3 (1.8)	0.16
Prior Sling	x	x	0.29
Retropubic Synthetic Sling	10 (7.1)	6 (3.6)	--
Pubovaginal Sling	0	1 (0.6)	--
Mini-Sling	0	1 (0.6)	--
Prior Hysterectomy	38 (27)	27 (16)	0.02
Diuretic Use	22 (15.7)	36 (21.3)	0.67
Diabetes Mellitus	28 (20)	15 (8.9)	0.004
Preoperative Overactive Bladder Symptoms	61 (43.6)	61 (36)	0.43
Detrusor Overactivity on Preoperative Urodynamic Testing	10 (7.1)	11 (6.5)	0.69

Table 2 - Concurrent Procedures

	Top-Down (N=140) (%)	Bottom-Up (N=169) (%)	p-value
ASA Class, median (IQR)	2 (1-3)	2 (1-3)	0.13
Anterior Repair	13 (9.3)	79 (46.7)	<0.001
Posterior Repair	22 (15.7)	83 (49.1)	<0.001
Sacrocolpopexy	17 (12.1)	31 (18.3)	0.13
Uterosacral Suspension	13 (9.3)	13 (7.7)	0.38
Obliterative Procedure	6 (4.3)	4 (2.4)	0.27
Salpingectomy	16 (11.4)	26 (15.4)	0.43
Concurrent Hysterectomy	28 (20)	39 (23.1)	0.51

Table 3 - Procedure Outcomes

	Top-Down (N=140) (%)	Bottom-Up (N=169) (%)	p-value
UTI within 90 Days	19 (13.6)	28 (16.6)	0.5
Blood Transfusion	3 (2.1)	0 (0.0)	0.09
Pelvic Hematoma	2 (1.4)	2 (1.2)	0.61
Bladder Perforation	5 (3.6)	6 (3.6)	0.6
Failed Trial of Void	21 (15)	19 (11.2)	0.18
Sling Erosion	2 (1.4)	11 (6.5)	0.02
Sling Lysis Due to Obstruction	1 (0.7)	2 (1.2)	0.57
Required Second Sling	2 (1.4)	2 (1.2)	0.588
Any de novo OAB symptoms	19 (13.6)	27 (16)	0.54
de novo nocturia	6 (4.3)	7 (4.1)	0.06
de novo urgency	11 (7.9)	11 (6.5)	0.54
de novo frequency	8 (5.7)	14 (8.3)	0.96
de novo urge incontinence	8 (5.7)	15 (8.9)	0.89
OAB symptoms resolved spontaneously	6 (4.3)	7 (4.1)	0.49
UDS performed postoperatively	17 (12.1)	20 (11.8)	0.49
de novo detrusor overactivity on urodynamic testing	2 (1.4)	8 (4.7)	0.14
OAB treated with medication	22 (15.7)	23 (13.6)	0.63
OAB treated with physical therapy	9 (6.4)	12 (7.1)	0.51
OAB treated with third-line therapy	3 (2.1)	6 (3.6)	0.31

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Perineal Botulinum Toxin and Blockage of the Transverse Plane of the Abdomen as a Treatment for Chronic Pelvic Pain

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Introduction: Chronic pelvic pain is a very complex entity. When sustained over time, it causes pain at the abdominal muscle plane level. Perineal botulinum toxin (PBT) and blockage of the transverse plane of the abdomen (TAP) with antesthetic infiltrations has demonstrated to be an effective treatment when other techniques have failed.
Objective: Infiltrations with local anesthetic for myofascial syndrome is a suitable option for this type of patient. The disadvantage of this treatment is the short duration of the effect. TAP associated with PBT infiltrations have been shown to have a longer lasting effect.
Methods: We selected 14 patients with myofascial syndrome involving the oblique muscle, rectus abdominis and levator ani muscle (LAM) on whom anesthetic infiltrations were performed but the duration of their effect was extremely short. This patients underwent ultrasound-guided abdominal block instillating local anesthetic under the oblique muscle fascia and infiltrating 100 IU botulinum toxin A in LAM.
Results: Before TAP and PBT infiltrations pain visual analog scale (VAS) mean was 7. At the 4 month review, mean VAS remained at 4.18. The only complications described were 2 flu-like syndromes and 3 with self-limited urinary incontinence.
Conclusions: The combination of TAP and PBT infiltrations represents an effective and long-lasting treatment in patients in whom infiltrations with local anesthetic have improved their symptoms in an incomplete and time-limited manner.
Disclosure: No

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Evaluation of Outcomes between Top-Down versus Bottom-Up Approaches for Mid-Urethral Sling

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Introduction: Two common causes of urinary incontinence in women are overactive bladder (OAB) and pelvic organ prolapse (POP). The midurethral sling procedure is commonly used to fix urinary incontinence. This is a highly effective and low-risk procedure that can be done in an outpatient setting. There are two main variations for this procedure: retropubic and transobturator methods. Within the retropubic method, there is a distinction between a top-down and bottom-up surgical method. Both top-down and bottom-up slings are equally popular and commonly used for urinary incontinence in women.
Objective: Our objective for this study was to compare the demographics and clinical characteristics of patients who had a top-down versus bottom-up retropubic midurethral sling procedure. We also compared short-term and long-term outcomes including recurrence rate of urinary incontinence for these two procedures to characterize if one method is more effective and safer for patients.
Methods: This was a retrospective cohort study of women undergoing midurethral sling procedures alone or at the time of POP repair between 2010 and 2018. Patients undergoing concomitant oncologic or non-gynecologic procedures, trans-obturator slings, single incision slings, and those with history of neurogenic bladder were excluded. The primary outcome was any perioperative complication including postoperative urinary tract infection, pelvic hematoma, failure of trial void, sling erosion, sling lysis or requiring a second sling. Secondary outcomes were incidence and persistence of postoperative urgency symptoms. Variables included in the analysis were: age, mode of delivery, prior pelvic surgery, diuretic use, diabetes, preoperative OAB symptoms and presence of detrusor over-activity, and concomitant surgery. An a priori power analysis determined that we would need 140 patients in each group to identify a 10% difference in complication rates. Descriptive statistics were expressed as median and interquartile range or mean and standard deviation where appropriate. Group comparison was performed using Wilcoxon rank-sum, Student's t-test, and Fisher's exact test. Multivariable logistic regression was used to evaluate for independent predictors of sling related complications.
Results: After assessing 1,594 patients for the inclusion criteria of this study, we included a total of 309 women who had a top-down or bottom-up retropubic sling procedure for urinary incontinence. Of these 309 patients, 140 had a top-down procedure and 169 had a bottom-up procedure. For patient demographics, women who had a top-down procedure were older, aOR=1.03 (95%CI: 0.73-1.43) (p=0.02) and had higher rates of previous hysterectomy (p=0.02). When analyzing what concurrent procedures these patients had during their retropubic sling, we found that patients who had a bottom-up procedure had more anterior and posterior repairs compared to patients who had the top-down procedure aOR=0.43 (95%CI: 0.16-0.97) (p<0.001). Upon analysis of post-surgical complications for the two procedures, we found that there were no significant differences in outcomes except for sling erosions.

Patients undergoing the bottom-up procedure had more sling erosion (p=0.02). After adjusting for confounders, top-down approach was not associated with an increased risk of complications compared to the bottom-up approach, aOR=1.55 (95%CI: 0.71-3.38).

Conclusions: The top-down approach is not associated with a significantly higher complication rate compared to the bottom-up approach for midurethral slings.

Disclosure: No

Images:

Table 1 The demographic characteristics and clinical data of the study patients with normal PFMS or weakened PFM

	Normal PFMS (n = 165)	Weakened PFMS (n = 552)	Z/χ2	Pvalue
Age(years)	63(61-67)	64(62-68)	-1.960	0.050[a]
Mainly physical labor#			0.585	0.975[a]
Height(cm)	158 (155-160)	158 (155-161)	-0.262	0.793[a]
Weight(kg)	60(55-67)	62(56-68)	-1.933	0.053[a]
BMI (kg/m^2)	24.2(22.1-26.3)	24.8(22.7-26.877)	-1.966	0.049*[a]
Waist circumference(cm)	90(83.5-95.5)	91(85-98)	-1.891	0.059[a]
Hip circumference(cm)	100(95-105)	100(96-105.75)	-0.828	0.408[a]
Waist-to-hip ratio(WHR)	0.9(0.86-0.94)	0.9(0.87-0.95)	-1.893	0.058[a]
Delivery mode			0.393	0.822[b]
VD	149 (90.3%)	506 (91.7%)		
CS	15 (9.1%)	42 (7.6%)		
Both	1 (0.6%)	4 (0.7%)		
Parity			-0.158	0.875[a]
0	2 (1.2%)	5(0.9%)		
1	79(47.9%)	265(48.0%)		
2	43(26.1%)	156(28.3%)		
3	41(24.8%)	126(22.8%)		
Menopause mode			0.043	0.836[b]
Nature	157(95.2%)	523(94.7%)		
Surgery	8(4.8%)	29(5.3%)		
Menopausal years	15(11-20)	14(11-20)	-0.163	0.871[a]
Volume of liquid intake (24 h, ml)			-0.784	0.433[a]
< 1000	56 (33.9%)	160 (29.0%)		
1000-2000	79 (47.9%)	295 (53.4%)		
> 2000	30 (18.2%)	97 (17.6%)		
Physical exercise	122 (73.9%)	363 (65.8%)	3.882	0.049*[b]
Comorbidities				
Chronic cough	26(15.8%)	69(12.5%)	1.173	0.279[b]
Asthma	4(2.4%)	26(4.7%)	1.656	0.198[b]
Diabetes Mellitus	22(13.3%)	71(12.9%)	0.025	0.874[b]
Constipation	46(27.9%)	161(29.2%)	0.103	0.749[b]
Fetal incontinence	8 (4.8%)	26 (4.7%)	0.005	0.942
Hysterectomy	10(6.1%)	38(6.9%)	0.138	0.710[b]
POP	96(58.2%)	368(66.7%)	4.005	0.045*[b]
Degree of SUI				
Mild	156 (94.5%)	496(89.9%)	3.390	0.066[b]
Moderate	9(5.5%)	56(10.1%)		

* P < 0.05; [a] Mann–Whitney U tests; [b] Chi-square tests; SUI: stress urinary incontinence; BMI: body mass index; VD: vaginal delivery ; CS: cesarean section ; PFMS: pelvic floor muscle strength. POP: pelvic organ prolapse.

Table 2 POP-Q point values of the normal PFMS group and weakened PFMS

	Normal PFMS	Weakened PFMS	Z	Pvalue
Aa	-3(-3 to-2)	-2.0(-3 to -1)	-2.835	0.005 *
Ba	-3(-3 to-1.5)	-2.5(-3 to-1)	-1.410	0.158
C	-6(-7 to-5)	-5.5(-6 to-4)	-1.750	0.080
D	-7(-8 to -6)	-6(-7 to -5.5)	-3.580	0.000*
Ap	-3(-3 to -3)	-3(-3 to -2)	-2.252	0.024*
Bp	-3(-3 to -3)	-3(-3 to -2)	-1.877	0.060
Gh	4(3 to 4)	4(3 to 4)	-0.879	0.380
Pb	3(2.5 to 4)	3(2.5 to 3.5)	-0.701	0.483
TVL	7(7 to 8)	7(7 to 8)	-1.675	0.094

*p < 0.05; POP-Q: pelvic organ prolapse quantification. *Aa* A anterior; *Ba* B anterior; *Ap* A posterior; *Bp* B posterior; *C* cervix or vaginal cuff; *D* posterior fornix; *Gh* genital hiatus; Pb perineal body; TVL total vaginal length.

Table 3 Multivariate logistic regression analysis of statistically significant variables affecting PFMS of elderly women with SUI

	Normal or weakened PFMS			
Variable	Ba	OR	95% CI	Pvalue
BMI (kg/m2)	0.070	1.073	1.013-1.136	0.016*
Physical exercise	-0.364	0.695	0.469-1.031	0.070
POP	0.048	1.049	0.668-1.648	0.836
Aa (cm)	0.204	1.226	0.982-1.531	0.072
D (cm)	0.027	1.020	0.968-1.076	0.457
Ap (cm)	0.086	1.090	0.855-1.390	0.487

*p < 0.05. CI: confidence interval; OR: odds ratio.

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Comparison of Vaginal Mesh Exposure Between Minimally-Invasive Sacrocolpopexy and Tension-Free Vaginal Tape Procedures

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Introduction: Pelvic organ prolapse (POP) and urinary incontinence (UI) represent common, burdensome, yet under-reported issues among women. Minimally-invasive robotic-assisted sacrocolpopexy (RASC) and tension-free (mesh) transvaginal tape (TVT) have become common surgical treatments for women suffering from advanced POP and stress urinary incontinence (SUI), respectively. It is well established that POP and SUI frequently co-exist, and surgical intervention for POP may unmask underlying occult SUI. The colpopexy and urinary reduction efforts (CARE) trial showed reduction in SUI if a continence procedure was performed at the time of sacrocolpopexy. In the US it is common to perform concomitant TVT with RASC if SUI is demonstrated on preoperative urodynamic studies (UDS). Mesh exposure is a known complication of both sacrocolpopexy and TVT procedures. The incidence of vaginal mesh exposure after sacrocolpopexy has been reported to range from 0.7% to 10.5%. The incidence of vaginal mesh exposure following TVT procedures has been reported to range between 0.4% and 4.0%. Given that the incidence of mesh exposure in sacrocolpopexy and TVT overlap, it is unclear if the incidence of mesh exposures truly differs between these two anatomically disparate procedures.

Objective: The primary objective of this study was to determine if a difference exists in the incidence of vaginal mesh exposure following TVT procedures compared to mesh exposure from RASC procedures, regardless of other concomitant procedures.

Methods: This is a retrospective cohort study comparing the incidence of vaginal mesh exposure between patients who underwent TVT and those who underwent RASC, with and without concomitant procedures between January 1, 2016 to September 30, 2021. Data was obtained form and electronic records review. Data collected included the preoperative, operative, and postoperative courses of patients who underwent RASC and/or TVT. Patient demographics were also collected. The incidence of vaginal mesh exposure was determined based on physical exam findings and patient reported symptom confirmed by exam. Based on previous studies and our experience, we estimated the incidence of TVT mesh exposure to be 10% and the incidence of RASC mesh exposure to be 3%. To show such an effect with 80% power and alpha = 0.05 a total of 194 patients were needed for each group. Univariable analysis was conducted with Student's t-test and the chi-squared test. All data were analyzed using SPSS v. 25.0 and a p-value less than 0.05 was considered to indicate statistical significance.

Results: A total of 228 patients underwent TVT, and 289 patients underwent RASC. The incidence of mesh exposure in the TVT group was found to be 7.5% compared to 2.1% in the RASC group (p=0.0032).

Conclusions: There is a higher incidence of vaginal mesh exposure after TVT procedures when compared to RASC procedures. The anatomic location of the vaginal mesh likely plays a role in the observed difference. In RASC, mesh is placed laparoscopically and is attached to the vagina in the vesicovaginal and rectovaginal spaces. TVT mesh is placed vaginally and is located submucosally. Accordingly, TVT mesh is protected by a thin mucosal layer resulting in a greater risk of mesh exposure.

Disclosure: No

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WITHDRAWN - Cost Efficacy of Phenazopyridine Versus Sodium Fluorescein for Use During Cystoscopy After Hysterectomy
WITHDRAWN

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Does Body Mass Index Influence the Pelvic Floor Muscle Strength of Elderly Women with Mild-to-moderate Stress Urinary Incontinence?

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Introduction: Urinary incontinence(UI) is a common chronic disease for women, with a yearly increasing prevalence. Moderate or severe UI usually has a serious impact on women's life. Pelvic floor muscle weakness resulted pelvic floor dysfunction is a major affecting factor of UI. Stress urinary incontinence (SUI) is the most common type of UI, pelvic floor muscle training (PFMT) is the first-line rehabilitation therapy for women with SUI. Strengthening pelvic floor muscle strength (PFMS) is particularly important in preventing progress to severe in women with mild or moderate SUI.
Objective: The objectives of this study are to report general PFMS of mild and moderate SUI among the recruited patients and to analyze the factors potentially weakening the PFMS using the data from a prospective, multicenter and cohort study we are conducting.
Methods: 926 elderly women with mild or moderate UI including 717 with SUI were enrolled in the study from 6 hospitals. Data collected from all SUI participants included the demographic and clinical data, PFMS measurement and pelvic organ prolapse quantification (POP-Q). Comparison of the differences between women with normal PFMS and weakened PFMS was conducted using Pearson's chi-squared test and Mann-Whitney U test, and multivariate binary logistic regression was used to analyze the factors influencing PFMS weakness.
Results: Women with weakened PFMS had significantly greater BMI, lower rate of physical exercise, higher rate of POP than women with normal PFMS($P<0.05$). Significant differences were not observed in indicators related to beverage preference, volume of liquid intake(24h), smoking history and comorbidities. Women with normal PFMS had a smaller Aa and D points. Ap point was statistically different between two groups($p < 0.05$), although the median values were same in the two groups. When these significant variables were put into the multivariate logistic regression analysis, only the association between BMI and weakened PFMS remained statistical significance(Ba:0.070, OR:1.073, 95%CI:1.013-1.136, p:0.016).
Conclusions: BMI is an independent factor affecting PFMS weakness in elderly women with mild and moderate SUI, indicating that weight loss can improve PFMS and weight loss combining with PFMT may be more effective to improve PFMS of elderly women with mild and moderate SUI.
Disclosure: Yes, this is sponsored by industry/sponsor: National Key Technology R&D Program of China (grant number: 2018YFC2002204).
Clarification: Industry funding only - investigator initiated and executed study
Images:

Table 1. Demographic and pre-operative characteristics of the study population – patients with and without pelvic hematoma

Parameter	With pelvic hematoma	Without pelvic hematoma	P value
No. of patients	66	250	
Age at surgery	63.0 ±9.7	64.7±8.5	0.183
BMI	27.0 ±4.1	27.1±4.3	0.855
Menopausal	(84.6%) 55/65	(91.1%) 226/248	0.123
Years since menopause	12.8±8.8	12.9±9.1	0.927
Sexually active	36/47 (76.6%)	127/182 (69.8%)	0.358
Parity	4.8±3.2	4.6±2.8	0.472
No. of vaginal deliveries	4.7±3.1	4.3±2.8	0.331
No. of CS deliveries	0.1±0.3	0.2±0.5	0.352
Smoker	(1.5%) 1	(5.6%) 14	0.210
Comorbidity	(43.9%) 29	129 (51.6%)	0.268
Diabetes	(13.6%) 9	(13.2%) 33	0.926
Hypertension	(27.3%) 18	(33.6%) 84	0.328
Hypothyroidism	(19.7%) 13	(9.2%) 23	0.017
Prior pelvic surgery	(18.2%) 12	(21.2%) 53	0.590
Previous Incontinence surgery	0 (0%)	8 (3.2%)	0.212
Previous Prolapse Surgery	2 (3.0%)	12 (4.8%)	0.742
Pre-operative POP-Q apical Stage	2.8 ±0.8	2.9 ±0.8	0.920

Data presented as mean+SD (%)or n/N
Note: BMI, body-mass index; CS, cesarean section; POP-Q, pelvic organ prolapse quantification system

Table 2. Intra-operative and post-operative characteristics of the study population – patients with and without pelvic hematoma

Parameter	With pelvic hematoma	Without pelvic hematoma	P value
No. of patients	66	250	
Concomitant procedures			
Anterior (Cystocele) Repair	64 (97.0%)	221 (88.4%)	0.037
Posterior (Rectocele) Repair	45 (68.2%)	153 (61.2%)	0.297
Enterocele Repair	1 (1.5%)	6 (2.4%)	1.000
Perineorrhaphy	24 (36.4%)	62 (24.8%)	0.060
Any Intraoperative complication	1 (1.5%)	5 (2.0%)	1.000
Type of anesthesia			0.868
General	59 (89.4%)	217 (86.8%)	
Regional	7 (10.6%)	32 (12.8%)	
Both	0 (0%)	1 (0.4%)	
Duration of surgery (minutes)	138.7±43.4	131.6±46.7	0.375
Post -operative hemoglobin (g/dL)	11.2 ±1.4	11.6±1.0	0.044
Delta hemoglobin (g/dL)	2.0±1.1	1.7±0.8	0.110
Clinical success	54/59 (91.5%)	198/214 (92.5%)	0.785
Anatomical success	43/54 (79.6%)	147/211 (69.7%)	0.147
Composite outcome success	41/54 (75.9%)	143/211 (67.8%)	0.246
Post-operative complications			
Dyspareunia	0 (0%)	7 (2.8%)	0.352
Recurrent UTI	3 (4.5%)	4 (1.6%)	0.137
Constipation	0 (0%)	7 (2.8%)	0.137
Clinical follow-up (months)	13.7 ±18.3	12.9 ±17.2	0.745
Anatomical follow-up (months)	10.8 ±14.6	12.7 ±17.5	0.444

(%)Data presented as mean+SD or n/N
Note: POP-Q, pelvic organ prolapse quantification system; UTI, urinary tract infection

Table 3. Demographic, pre-operative, intra-operative and post-operative characteristics of patients with a pelvic hematoma – infected vs. non-infected

Parameter	Infected pelvic hematoma	Non-infected pelvic hematoma	P value
No. of patients	17	49	
Age at surgery	62.2 ±10.8	63.4±9.4	0.803
BMI	28.0 ±4.6	26.7±3.9	0.432
Menopausal	(76.5%) 13	(87.5%) 42/48	0.434
Sexually active	11/15 (73.3%)	25/32 (78.1%)	0.725
Parity	4.9±4.1	4.8±2.9	0.427
Smoker	(0%) 0	(2.0%) 1	1.000
Comorbidity	(41.2%) 7	22 (44.9%)	0.790
Diabetes	(17.6%) 3	(12.2%) 6	0.684
Hypertension	(23.5%) 4	(28.6%) 14	0.763
Prior pelvic surgery	(11.8%) 2	(20.4%) 10	0.716
Previous Prolapse Surgery	0 (0%)	2 (4.1%)	1.000
Pre-operative POP-Q apical stage	2.8 ±0.9	2.9 ±0.8	0.480
Concomitant procedures			
Anterior (Cystocele) Repair	15 (88.2%)	49 (100%)	0.063
Posterior (Rectocele) Repair	15 (88.2%)	30 (61.2%)	0.039
Enterocele Repair	0 (0%)	1 (2.0%)	1.000
Perineorrhaphy	7 (41.2%)	17 (34.7%)	0.632
Any Intra-operative complication	0 (0%)	1 (2.0%)	1.000
Type of anesthesia			1.000
General	15 (88.2%)	44 (89.8%)	
Regional	2 (11.8%)	5 (10.2%)	
Duration of surgery (minutes)	147.7±44.1	135.3±43.4	0.410
Hematoma size			
One dimension (mm)	46.5±19.0	38.7±12.0	0.190
Two dimensions (mm^2)	1689.6±1689.0	1305.1±855.0	0.726
Clinical success	11/13 (84.6%)	43/46 (93.5%)	0.302
Anatomical success	8/12 (66.7%)	35/42 (83.3%)	0.237
Composite outcome success	8/12 (66.7%)	33/42 (78.6%)	0.453
Post-operative POP-Q points			
Ba	-1.9±0.5	-1.9±0.9	0.620
C	-7.6±1.3	-7.9±1.1	0.333
Bp	-1.8±1.7	-2.4±0.8	0.182
Post-operative complications			
Dyspareunia	0 (0%)	0 (0%)	
Recurrent UTI	1 (5.9%)	2 (4.1%)	1.000

Data presented as mean+SD
(%)or n/N
Note: BMI, body-mass index; POP-Q, pelvic organ prolapse quantification system; UTI, urinary tract infection

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WITHDRAWN - Sexuality after Laparoscopic Mesh Sacrocolpopexy

WITHDRAWN

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Infected Pelvic Hematoma Following Vaginal Hysterectomy with Uterosacral Ligament Suspension for Treatment of Apical Prolapse

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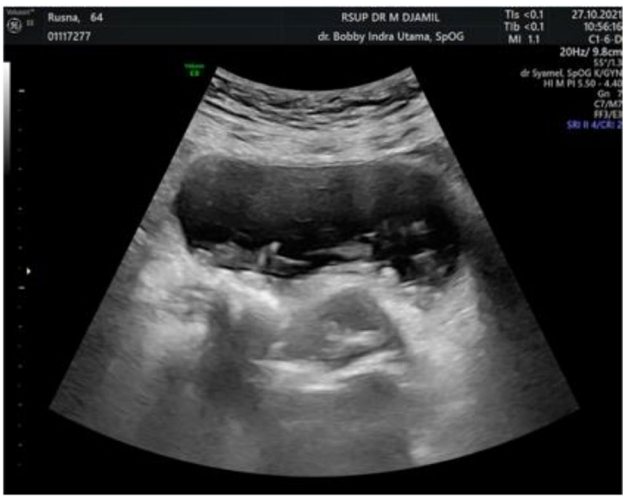
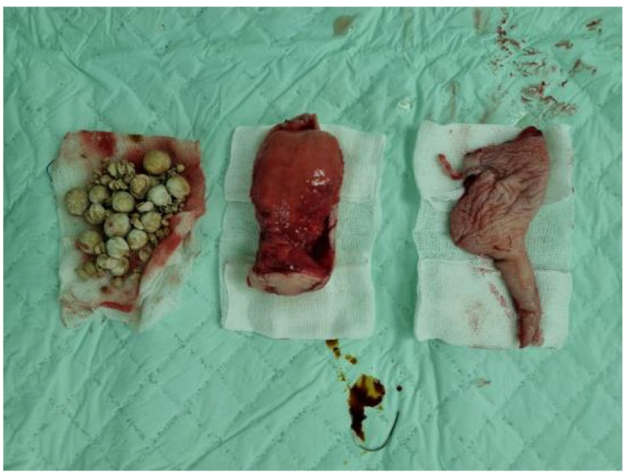
Introduction: Vaginal hysterectomy with uterosacral ligament suspension (VUSLS) is a common procedure for apical prolapse repair. Incidence of pelvic hematoma following hysterectomy has been estimated to occur in 25-98% of cases. Most of these pelvic hematomas are an incidental finding diagnosed following ultrasound exam. However, pelvic hematomas can become infected, which may result in a wide array of symptoms including fever, pain, and vaginal discharge, requiring antibiotic treatment, re-hospitalization, and surgical drainage. Data regarding pelvic hematoma following VUSLS is scarce.
Objective: The aim of this study was to describe the occurrence of infected and non-infected pelvic hematoma in women following VUSLS for the treatment of apical prolapse. We further attempted to ascertain whether this complication may affect procedure success rates. Lastly, we evaluated possible risk factors for infected pelvic hematoma in our cohort.
Methods: We performed a retrospective cohort study, including all women who underwent VUSLS for treatment of apical prolapse between 2010 and 2020. It is our routine practice to perform a transabdominal ultrasound for post-void residual urine testing postoperatively in every woman undergoing POP repair. Due to this, we were able to collect data on the presence or absence of pelvic hematoma in women following VUSLS. Diagnosis of infected pelvic hematoma was defined as a patient with a known pelvic hematoma who presented with fever, foul smelling discharge, and/or pelvic pain, or if they underwent surgical drainage. Patients with and without pelvic hematoma by ultrasound were compared. A subgroup analysis compared patients with infected vs non infected hematomas.
Results: During the study period, 316 women underwent VUSLS for treatment of apical prolapse. Sixty-six (20.9%) were diagnosed with a pelvic hematoma, and in seventeen (5.4%) women the hematoma became infected. The majority (76%) of pelvic hematomas were located above the vaginal cuff. A comparison was performed between women diagnosed with a hematoma and those that were not (Tables 1 and 2). The hematoma group had increased rates of hypothyroidism and concomitant anterior colporrhaphy. However, following multivariate analysis, these differences were no longer significant. Within the infected hematoma group, eleven (64.7%) women presented with fever, eight (47.1%) with vaginal bleeding, and four (23.5%) with pain. Drainage of the hematoma was required in eight (47.1%) cases out of which six (75%) had a positive culture. One patient had a positive blood culture following admission. All women received antibiotic treatment and improved clinically. In an attempt of identifying risk factors for infected pelvic hematoma, subgroup analysis was carried out comparing women with infected pelvic hematoma to women who had asymptomatic pelvic hematoma (Table 3). Parameters compared were similar between groups including clinical, anatomical, and composite outcome success rates. Women in the infected hematoma group were more likely to have a posterior colporrhaphy during surgery (33.3% vs 9.5%, p=0.039). Multivariate analysis was performed to adjust for potential confounders and this difference remained significant (aOR=8.87, CI 1.1- 73.0).
Conclusions: Pelvic hematoma following VUSLS is common as opposed to infected pelvic hematoma which seldom occurs. Concomitant posterior colporrhaphy was associated with infection.
Disclosure: No
Images:





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Uterine Prolapse With Vesicolithiasis

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Introduction: Pelvic organ prolapse followed by vesicolithiasis is a rare finding. This condition needs consideration for its management because of its rarity

Objective: Reporting a case of uterine prolapse with vesicolithiasis.

Methods: Case report

Results: A 64 year old woman with eight parities complained a mass protruding from vagina since 5 years ago. This complained followed with discomfort and incomplete emptying during micturition. Patient diagnosed with uterine prolapse stage IV, cystocele grade IV and vesicolithiasis. A surgical management was performed in this patient.

Conclusions: Increasing of age and multiparity has been shown to be a contributing factor causes uterine prolapse and cystocele. Uterine prolapse could cause urine incontinence, which also aggravate stone formation.

Disclosure: No

Images:

Table 1. Demographic and obstetric characteristics of the study population patients with and without obstetric anal sphincter injury (OASI).

Parameter	OASI	No OASI	P value *
No. of patients	108	216	
Age	29.7 ± 4.4 (29)	29.2 ±5.0 (29)	0.152
Gestational diabetes	4/104 (3.8%)	7/162 (4.3%)	1.000
Parity			
1	59 (54.6%)	119 (55.1%)	
2-3	38 (35.2%)	75(34.7%)	1.000
4 or more	11 (10.2%)	22 (10.2 %)	
Any previous cesarean delivery	10 (9.3%)	16 (7.4%)	0.665
Any previous operative vaginal delivery	38 (35.2%)	30 (13.9%)	<0.001
ANY previous VBAC delivery	9 (8.3%)	12 (5.6%)	0.474
Maximal previous birthweight	3415 ± 455 (3462)	3359 ± 472 (3310)	0.307
Previous delivery birthweight	3323 ± 444 (3360)	3292 ± 469 (3324)	0.561

Data presented as mean± SD or n(%) or n/N (%).
Note: OASI, obstetric anal sphincter injury; PIH, pregnancy induced hypertension; VBAC, vaginal delivery after cesarean.
* P-values indicate comparison of parturients with and without OASI tears grade 3-4 and were calculated for $\chi 2$ test for dichotomous features, Mann-Whitney U test for continuous features.

Table 2. Labor related characteristics of the study population – patients with and without obstetric anal sphincter injury (OASI)

Parameter	OASI	No OASI	P value*
No. of patients	108	216	
Gestational week	39.9 ± 1.14 (40)	39.9 ± 1.15 (40)	0.945
Induction of labor	14 (13.0%)	35 (16.2%)	0.512
Epidural analgesia	50 (46.3%)	118 (54.6%)	0.194
Artificial rupture of membranes	57/103 (55.3%)	105/193 (54.4%)	0.903
Prolonged 2nd stage	8/107 (7.5%)	9/207 (4.3%)	0.294
Compound position	0 (0%)	4 (1.9%)	0.305
Mode of delivery			
Vaginal	95 (88.0%)	208 (96.3%)	0.007
Operative vaginal	13 (12.0%)	8 (3.7%)	
Episiotomy	8/107 (7.5%)	1/171 (0.6%)	0.002
BW (grams)	3677 ± 437 (3722)	3418 ± 382 (3424)	P<0.001
BW ≥90th percentile (≥3900 grams)	38 (35.2%)	27 (12.5%)	P<0.001
Difference in BW (current BW- maximal previous BW):			
Less than -250 gr (%)	17 (15.7%)	44 (20.4%)	<0.001
Between -250 gr and +250 gr (%)	30 (27.8%)	101 (46.8%)	
Between 250 and 500 gr (%)	30 (27.8%)	45 (20.8%)	
More than +500 gr (%)	31 (28.7%)	26 (12.0%)	
Mean difference (%) between current and maximal previous delivery BW	6.5 ± 12.9% (7.9)	1.0 ± 14.7% (1.4)	0.001
Mean difference (%) between current and previous delivery BW	9.1 ± 11.7% (9.1)	2.9 ± 14.5% (2.8)	<0.001
Mean difference (gr) between current and previous delivery BW	354 ± 426 (349)	127 ± 488 (98)	<0.001
Mean difference (gr) between current and maximal previous delivery BW	262 ± 467 (298)	60 ± 491 (48)	<0.001
Current BW higher than previous (%)	61 (56.5%)	71 (32.9%)	<0.001

Table 3. Multivariate analysis of parameters associated with obstetric anal sphincter injury in patients with a previous delivery

Parameter	OR (95% CI)	P value
Past cesarean delivery	0.93 (0.36-2.37)	0.878
Past operative vaginal delivery	3.86 (2.02-7.36)	<0.001
Episiotomy	8.72 (0.98-77.9)	0.053
BW90th percentile	2.49 (1.27-4.88)	0.008
Delta between current BW and previous maximal BW (gr)		
<250	referent	
250-500	1.53 (0.79-2.94)	0.206
>500	2.97 (1.41-6.23)	0.004

Note: BW, birthweight

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Birthweight Difference Between Deliveries and the Risk of Obstetric Anal Sphincter Injury in Parous Women

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Introduction: Obstetric anal sphincter injury (OASI) greatly increases the risk of future fecal incontinence, pelvic floor disorders, fistula formation and sexual dysfunction. While primiparity is a known risk factor for OASI, data regarding OASI in parous women is limited. One factor which has yet to be investigated with regards to OASI in parous women is neonate birthweight (BW) difference between deliveries.
Objective: The aim of this study was to evaluate the association between neonatal BW difference between deliveries and risk of OASI in parous women. We further investigated the association between other obstetric parameters and OASI.
Methods: We performed a retrospective case-control study, including parous women with at least one previous vaginal delivery who were diagnosed with OASI. The control group consisted of parous women who did not have OASI during vaginal delivery. Medical history, obstetric background and current labor related data were compared. Difference in BW between deliveries was defined as the current BW minus the maximal or previous BW as a continuous parameter. We additionally created a categorical parameter for difference in BW between deliveries: (1) current BW is smaller than previous BW by more than 250 gr, (2) a difference of under 250 gr between deliveries (-250 gr to +250 gr), (3) current BW is larger than previous BW by 250 to 500 gr, (4) current BW is larger than previous BW by more than 500 gr. Further univariate and multivariate analyses were performed, assessing for risk factors for OASI within the entire cohort.
Results: One-hundred and eight parous women who had a diagnosis of OASI were compared to a control group of 216 parturients who delivered without OASI. Differences between the current BW and the preceding and maximal previous BW were evaluated. Patients in the study and control groups did not differ in their basic characteristics, except for higher rate of any previous operative vaginal delivery in the OASI group (35.2% vs. 14.0%, p<0.001) (Table 1). The differences between the current BW and the preceding and maximal previous BW were evaluated (Table 2). There was a significantly higher rate of women who had over 500 grams difference between the current compared to previous BW in the OASI group (28.7% vs. 12.30%, respectively; p<0.001) with a mean difference of plus 262±467 grams in the OASI group compared to a plus 60± 491 grams in the No OASI group (p=0.001). Additionally, the percentage of mothers with a higher neonatal BW in their current delivery compared to the previous delivery was also higher in the OASI compared to the No OASI group (56.5% vs. 32.9%, respectively; p<0.001). A multivariate logistic regression analysis for the dependent parameter of OASI was performed (Table 3). The following parameters were found to be independently associated with OASI outcome in this model: previous operative delivery, BW≥90th percentile and current BW that was 500 grams or higher than previous maximal BW.
Conclusions: In parous women, neonatal BW difference between deliveries of more than 500 grams is associated with OASI.
Disclosure: No
Images:

Table: Primary Care Provider Perspectives Regarding management of Older Women with symptoms associated with Urinary Tract Infections

Provider Practice Questions	
Q1. Most Common Symptoms of a UTI in older women*	
Dysuria	89/142 (62.7)
Urinary urgency	84/142 (59.2)
Urinary frequency	101/142 (71.1)
Change in urinary odor/appearance	53/142 (37.3)
Confusion	69/142 (48.6)
Q2. What proportion of the time do you prescribe empiric antibiotics for older women with UTI symptoms?	
0-<25%	56/137 (39.4)
25-50%	36/137 (25.4)
50-<75%	27/137 (19.0)
75-100%	18 /137(12.7)
Q3. In general, do you think it is safe to wait for a urine culture prior to prescribing antibiotics in an older woman with UTI symptoms?	
Yes	37/138 (26.1)
No	13/138 (9.2)
It Depends	88/138 (62.0)
Q4. What are your reasons for feeling it is unsafe to delay antibiotic prescribing for older women with UTI symptoms?**	
Concern for progression to pyelonephritis	15/101 (14.9)
Concern for progression to sepsis	50/101 (49.5)
Concern for progression of patient symptoms	28/101 (27.7)
Q5. What are your reasons for waiting for urine culture results prior to prescribing antibiotics in older women with UTI symptoms?***	
Urine cultures are often negative	34/125 (27.2)
Antibiotic side effects	9/125 (7.2)
Concern for antibiotic resistance	64/125 (51.2)

* Could choose more than one answer
** Only those who chose No or It Depends for Q3 able to select more than one answer
*** Only those who chose Yes or It Depends for Q3 able to select more than one answer

UTI, urinary tract infection

Table 1. Demographic and Clinical Characteristics

Characteristics	Suture rectopexy N=16	Ventral mesh rectopexy N=13	Total N=29	p-value
Age (years)				
At time of surgery	65.0 (59.3-72.5)	65.0 (61.0-69.0)	65.0 (60.0-72.0)	.775
At time of follow-up	68.5 (63.0-77.8)	67.0 (62.0-69.0)	67.0 (63.0-74.0)	.282
Follow-up interval (months)	54.0 (40.8-65.3)	21.0 (17.0-67.0)	34.0 (22.0-59.0)	.00001[a]
Race				
White	15 (93.4)	10 (76.9)	25 (86.2)	.299
Black	1 (6.3)	1 (7.7)	2 (6.9)	
Hispanic	--	1 (7.7)	1 (3.4)	
Asian	--	1 (7.7)	1 (3.4)	
POP-Q stage				
Stage 1 and 2	9 (56.3)	11 (84.6)	20 (69.0)	.130
Stage 3	5 (31.3)	1 (7.7)	6 (20.7)	.183
Stage 4	1 (6.3)	--	1 (3.4)	>.99
Not available	1 (6.3)	1 (7.7)	2 (6.9)	>.99
Colorectal surgery indication				
Rectal prolapse	14 (87.5)	9 (69.2)	23 (79.3)	.364
Sigmoidocele	2 (12.5)	2 (15.4)	4 (13.8)	>.99
Enterocele	--	3 (23.1)	3 (10.3)	.078
Rectocele	1 (6.3)	--	1 (3.4)	>.99
Concurrent procedures				
Sigmoid resection	8 (50.0)	--	8 (27.6)	.003[a]
Mid-urethral sling	7 (43.8)	5 (38.5)	12 (41.4)	>.99
Posterior colporrhaphy	6 (37.5)	--	6 (20.7)	.021[a]
Enterocele repair	1 (6.3)	4 (30.8)	5 (17.2)	.144
Suprapubic catheter insertion	2 (12.5)	--	2 (6.9)	.488
Inguinal hernia repair	1 (6.3)	--	1 (3.4)	>.99
30-day complications				
Clavien-Dindo classification grade II	3 (18.8)	2 (15.4)	5 (17.2)	>.99
Clavien Dindo classification grade III	2 (12.5)	--	2 (6.9)	.488

Data are median (interquartile range), n (%) unless otherwise specified. Fisher's exact test was used for categorical data between groups while the Mann-Whitney U test was used to compare continuous data. P <0.05 considered statistically significant.

POP-Q: pelvic organ prolapse quantification

[a] p<0.05.

Table 2. Functional and Sexual Outcomes

Survey scores	Suture rectopexy N=16	Ventral mesh rectopexy N=13	Total N=29	p-value
PFDI-20 (0-300)	55.7 (17.4-95.1)	116.7 (86.5-154.2)	81.3 (39.6-136.5)	.051
POPDI-6 (range 0-100)	14.6 (0.0-18.8)	41.7 (25.0-54.2)	20.8 (8.3-50.0)	.008[a]
CRAD-8 (range 0-100)	14.1 (8.6-33.6)	37.5 (25.0-43.8)	28.1 (9.4-40.6)	.129
UDI-6 (range 0-100)	27.1 (3.1-40.6)	33.3 (20.8-58.3)	33.3 (12.5-50.0)	.202
PFIQ-7 (0-300)	9.5 (0.0-29.7)	52.3 (9.4-85.6)	14.3 (0.0-80.9)	.101
POPIQ-7 (range 0-100)	0.0 (0.0-0.0)	0.0 (0.0-23.8)	0.0 (0.0-0.0)	.019[a]
CRAIQ-7 (range 0-100)	0.0 (0.0-13.1)	9.5 (0.0-38.1)	4.8 (0.0-23.8)	.244
UIQ-7 (range 0-100)	2.4 (0.0-14.3)	4.8 (0.0-38.1)	4.8 (0.0-14.3)	.549
FSFI (2-36)	5.5 (4.5-14.2)	6.4 (3.5-21.1)	6.4 (4.2-20.5)	.878
Desire	2.1 (1.2-3.0)	2.4 (1.2-2.4)	2.4 (1.2-3.0)	.911
Arousal	0.0 (0.0-1.4)	1.2 (0.0-4.5)	0.0 (0.0-4.2)	.248
Lubrication	0.0 (0.0-1.9)	0.3 (0.0-5.1)	0.0 (0.0-3.3)	.348
Orgasm	0.0 (0.0-1.8)	0.0 (0.0-5.6)	0.0 (0.0-5.2)	.350
Satisfaction	2.8 (2.4-4.0)	3.0 (0.8-4)	2.8 (2.4-4.0)	.691
Pain	0.0 (0.0-3.8)	0.0 (0.0-2.4)	0.0 (0.0-3.2)	.660
Sexually active	6 (37.5)	4 (30.8)	10 (34.5)	>.99

Data are median (interquartile range), n (%) unless otherwise specified. Mann-Whitney U test was used to compare continuous data, with p <0.05 considered statistically significant.

PFDI-20: pelvic floor distress inventory-20; POPDI-6: pelvic organ prolapse distress inventory-6; CRAD-8: colorectal-anal distress inventory-8; UDI-6: urinary distress inventory-6; PFIQ-7: pelvic floor impact questionnaire-7; UIQ-7: urinary impact questionnaire-7; CRAIQ-7: colorectal-anal impact questionnaire-7; POPIQ-7: pelvic organ prolapse impact questionnaire-7; FSFI: female sexual function index.

[a] p<0.05

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Management of Older Women with Urinary Tract Infection Symptoms: A Survey of Practicing Physicians

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Introduction: Empiric antibiotics for presumed urinary tract infection (UTI) are often prescribed to older women with incontinence and those with altered mental status due to concern for urosepsis.
Objective: To assess knowledge, attitudes, and practices regarding management of older women with symptoms attributed to UTI among primary care providers.
Methods: This cross-sectional electronic survey study was conducted at a large medical center in November 2021. Knowledge, attitudes, and practices regarding management of UTI symptoms were ascertained from 330 community medical center physicians via QualtricsXM. The primary outcome was the proportion of responders who were comfortable waiting for urine culture results before prescribing antibiotics for presumed UTI in older women (≥65 years). Possible answers were "Yes", "No" and "It Depends". Bivariate analyses compared demographics between those who never felt it was safe to delay antibiotics and those who answered "yes" or "it depends". Additional questions explored physician perspectives on common UTI symptoms and suspected sequelae of delayed treatment.
Results: Response rate was 43.0% (142/330); the majority practiced medicine >15 years (n=80, 56.3%), were female (60.6%) and practiced in a suburban location (50.7%). Symptoms identified by providers as pathognomonic of UTI in older women were urinary frequency (71.1%), dysuria (62.7%), urinary urgency (59.2%), confusion (48.6%) and change in urinary odor/appearance (37.3%) (Table). Overall, 66.9% providers prescribe empiric antibiotics 15 years always felt safe delaying antibiotics compared to those with ≤15 years of experience (33.3% v. 18.3%; p=0.04) and 70.3% of those who felt it was safe to delay antibiotics had >15 years of experience. This finding remained significant in logistic regression: ≤15 years of experience were less likely to always feel safe delaying antibiotics (aOR 0.38, 95% CI 0.16, 0.89; p=0.03) when controlling for gender (p=0.35) and location of practice (p=0.18).
Conclusions: This cross-sectional survey found that providers with more clinical experience have more comfort delaying antibiotics in

older women with UTI symptoms. Despite recent literature suggestive of an overall low risk of urosepsis in this population, this sequela remains a large concern. Additional implementation strategies and research to reduce empiric antibiotic prescribing are necessary.
Disclosure: No
Images:

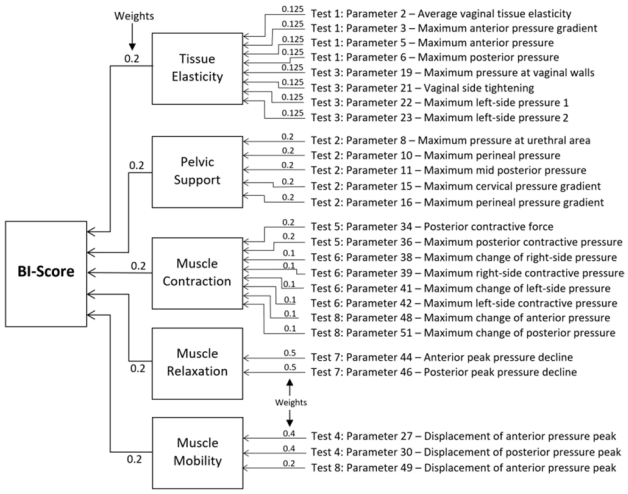

Figure 1. *A diagram illustrating composition of BI-Score from five components and VTI parameters contributing to these components with specific weights.*

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Robotic Repair of a Branching Vesicouterine and Vesicovaginal Fistula

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Introduction: Vesicouterine fistulas are rare, accounting for 1-5% of all genitourinary fistulas. Typically, these have been associated with cesarean section. Patients with isolated vesicouterine fistulas may present with urinary continence, amenorrhea, and cyclic hematuria (Youssef's syndrome). The management of a vesicouterine fistula is based on multiple factors including patient fertility status, fistula location, size, and complexity. Initial conservative management with bladder drainage and hormonal treatment can be considered. However, if the fistula fails to resolve surgical intervention is warranted. Minimally invasive techniques should be considered given the benefits in perioperative outcomes and morbidity.
Objective: To demonstrate a surgical technique and discuss management tips for repairing a complex branching vesicouterine and vesicovaginal fistula via a robotic approach.
Methods: The patient is a 31-year-old para 2 female who underwent a vaginal birth after a cesarean section, which was complicated by a left vaginal laceration extending to the lower uterine segment. The patient presented with constant urinary leakage on postpartum day one. At her local facility, a transvaginal repair was attempted, but unsuccessful. She was referred to our institution for further management. A robotic approach was planned after tissue optimization and uterine involution, given the fistula complexity and proximity to the left ureteral orifice. The repair was approached with an intentional cystotomy and tear-drop incision around the fistula tracts. The vesicouterine and vesicovaginal planes were dissected and mobilized to allow for a tension-free closure. The vaginal opening was closed in a running two-layer fashion with an absorbable suture, and the uterine defect closed with an interrupted absorbable suture. Tacking sutures for the tissue interposition later in the case were then placed beyond the apex of the cystotomy and vaginal repair. The cystotomy was then closed in two layers with running absorbable suture, a mucosal layer, and a seromuscular layer. This was started initially by securing both sutures at the apex and then alternating sutures while working out of the corner. The mucosal layer was then completed and the seromuscular layer imbricated the mucosal layer throughout its entire length. Retrograde bladder filling confirmed a watertight repair. A broad peritoneal flap was created, positioned, and secured via the previously placed tacking sutures, with care to ensure it covered past the apex of the fistula closure.
Results: The patient was discharged the day after her procedure. A foley catheter was left in place for 3 weeks. At that time, a CT Cystogram confirmed resolution of the fistula, and the catheter was removed. At 6 weeks, she denied any ongoing issues with urinary incontinence.
Conclusions: We present a case of a complex vesicovaginal and uterovaginal fistula successfully repaired using a robotic-assisted approach. Management aspects reported in our case may be useful in subsequently handling complex urogenital fistulas given the limited data surrounding this topic.
Disclosure: No

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Long-Term Sexual and Functional Outcomes of Combined Rectopexy and Sacrocolpopexy for Treatment of Multicompartmental Prolapse

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Introduction: Pelvic organ prolapse and rectal prolapse occur concurrently in approximately 38% of patients. Given the complexity of multicompartmental prolapse, it is critical to manage these patients with an interdisciplinary team. The optimal procedure for rectal prolapse treatment is unknown. Posterior suture rectopexy involves mobilizing the rectum between the mesorectal and presacral fascia followed by rectal fixation with suture at the sacral promontory. Sigmoid resection can be performed concurrently in patients with redundant colon and preoperative constipation. Ventral mesh rectopexy (VMR) involves dissection in the rectovaginal space to the perineal body followed by mesh attachment to the anterior rectum with fixation at the sacral promontory; the lack of posterior rectal dissection decreases autonomic nerve injury and postoperative constipation rates. Combined surgical approaches for multicompartmental prolapse have been studied, however long-term sexual and functional outcome data is lacking.
Objective: Assess reoperation rates and long-term sexual and functional outcomes after sacrocolpopexy-rectopexy.
Methods: This was a cross sectional study of women who underwent sacrocolpopexy with either suture rectopexy or VMR from 2015-2021 and were contacted to complete PFDI-20, PFIQ-7, and FSFI questionnaires by telephone. The electronic medical record was queried for demographic and operative data.
Results: Forty-six patients met surgical inclusion criteria. Seventeen were not reached or declined participation, and 29 completed the questionnaires. Overall median time from surgery was 34.0 months (IQR 22.0-59.0), which differed between groups. On a scale of 0-300, with higher scores associated with worse symptoms, the median PFDI-20 score was 81.3 (IQR 39.6-136.5), and the median PFIQ-7 score was 14.3 (IQR 0.0 – 80.9). Patients who underwent sacrocolpopexy-VMR had higher POPDI-6 and POPIQ-7 scores (41.7 vs 14.6, p=.008; 0.0 vs 0.0, p=.019). While the majority of patients reported bothersome prolapse, colorectal-anal, and urinary symptoms, this did not correlate well with negative impact on daily activities as 70%, 46%, and 36% of these patients also reported scores of zero on the POPIQ-7, CRAIQ-7, and UIQ-7 respectively. Twenty-four patients met the questionnaire cutoff for female sexual dysfunction, scoring

below 26.5 on the FSFI, however, 42.1% of the 19 abstinent patients were very or moderately satisfied with their sexual life. No patients had undergone subsequent urogynecologic or colorectal surgery.
Conclusions: In this sample population, our data suggests good postoperative functional outcomes. Compared to patients who underwent sacrocolpopexy-suture rectopexy, patients who underwent sacrocolpopexy-VMR had worse pelvic organ prolapse symptoms. However, median postoperative intervals from surgery were shorter due to the more recent introduction of VMR. To date, no patients have recurred or required subsequent reconstructive surgery. The majority of patients reported bothersome pelvic floor symptoms, which did not necessarily correlate with perceived negative impact on daily functioning. Sexual function appeared to be similar between groups at follow-up. While most patients met criteria for female sexual dysfunction, nearly half of abstinent patients were satisfied with their overall sexual life, with many reporting partner ability and libido as detractors to their sexual activity, unrelated to postoperative recovery. Therefore, sexual function may not be as clearly associated with other functional outcomes, signifying the importance of long-term follow-up and evaluation.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Welgoss is a consultant for Coloplast
Images:

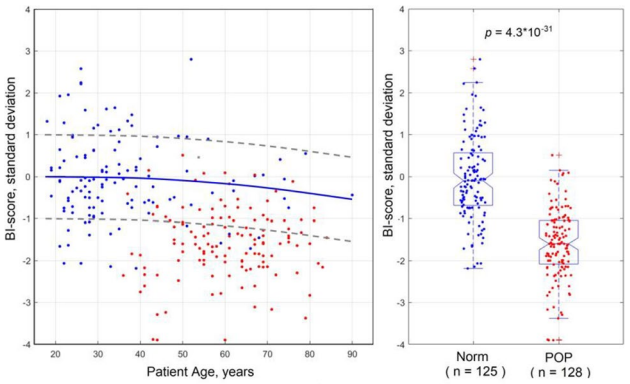

Figure 2. BI-score calculated for normal (blue dots) and POP (red dots) cases against patient age for 253 cases analyzed in this study (left panel). BI-score boxplots for normal (blue dots) and POP (red dots) cases.

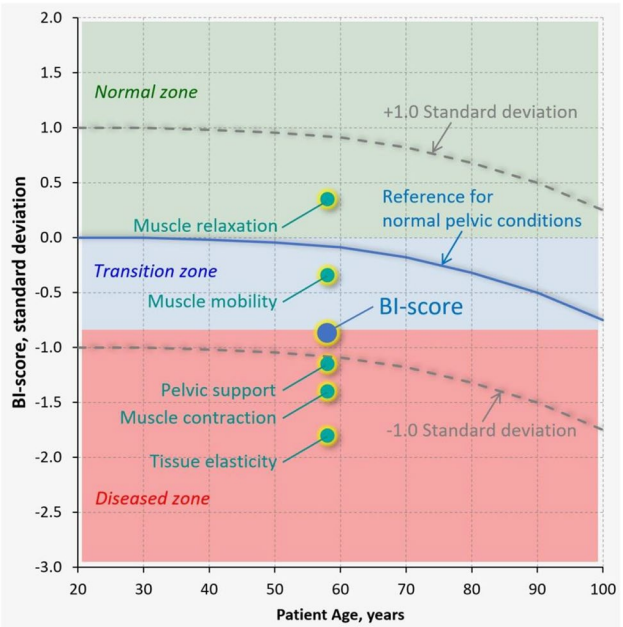

Figure 3. An example of examination results with BI-score and its five components for 58 y.o. patient with stage 2 anterior prolapse.

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Introducing New Integral Parameter for Biomechanical Characterization of the Female Pelvic Floor

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6 - The Pelvic Floor Institute

Introduction: The true etiology of pelvic organ prolapse (POP) and variations observed among individuals are not entirely understood. These disorders are thought to share common pathogeneses, tissue elasticity changes, weakening of the connective support tissues, and pelvic muscle dysfunction. Logically, proposing a biomechanical assessment and characterization of the female pelvic floor could give rise to important information in clinical practice. However, ultrasound and MRI elastography, as well as functional imaging of the pelvic floor, did not obtain appropriate acceptance in urogynecology. There is a significant gap in the biomechanical and functional research of the female pelvic floor.
Objective: To develop and validate a new integral parameter – the Biomechanical Integrity score (BI-score) - for the characterization of the female pelvic floor.
Methods: A total of 253 subjects with normal and pelvic organ prolapse (POP) conditions were included in the data analysis from multisite observational, case-controlled studies; 125 subjects had normal pelvic floor conditions, and 128 subjects had POP stage II+. A Vaginal Tactile Imager (VTI) was used to acquire and calculate automatically 52 biomechanical parameters for eight VTI test procedures (probe insertion, elevation, rotation, Valsalva maneuver, voluntary muscle contractions in two planes, relaxation, and reflex contraction). Statistical methods were applied (t-test, boxplot, and correlation) to identify the VTI parameters sensitive to the pelvic conditions and to establish the BI-score components.
Results: Out of 52 parameters, 26 were identified as statistically sensitive to the POP development and not highly correlated with each other (Pearson's correlation coefficient $r<0.85$). These 26 parameters were subdivided into five groups, each of them characterizing (1) tissue elasticity, (2) pelvic support, (3) pelvic muscle contraction, (4) involuntary muscle relaxation, and (5) pelvic muscle mobility, respectively. Every parameter was transformed to its standard deviation units against the patient age similar to T-score for bone density. Linear combinations with specified weights led to the composition of five component parameters for groups (1)-(5) and the BI-score in standard deviation units as shown in Figure 1. The p-value for the BI-score has p = 4.3*10-31 for POP versus normal conditions (see Figure 2). The POP diagnostic accuracy of the BI-score was found as 89.7% versus POP-Q data. A reference BI-score curve against age for normal pelvic floor conditions was defined (see Figure 3).
Conclusions: The proposed BI-score and its five components allow a comprehensive biomechanical characterization of the pelvic floor. Objectively measurable transformations of the pelvic tissues, support structures, and functions under different diseased conditions may be studied with the BI-score in future research and practical applications.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Advanced Tactile Imaging
Images:

Table 1. Baseline characteristics stratified by treatment group.

	Extended treatment-strength antibiotics (N=43)	≥3-months of low-dose prophylactic antibiotics (N=203)	P-Value
Age	69.4(18.7)	71.4(13.8)	0.4
Hemoglobin A1C (%)	6.8(2.1)	6.3(1.7)	0.18
Days of Prophylactic Antibiotic Treatment	-	90 [90,264]	-
Diabetes Diagnosis	15(34.9)	86(42.4)	0.36
Topical or Systemic Estrogen Treatment	28(65.1)	181(89.2)	**<0.001**
Menopausal Status			0.29
Pre-menopausal	4(9.3)	8(3.9)	
Peri-menopausal	4(9.3)	15(7.4)	
Post-menopausal	35(81.4)	180(88.7)	
Race *			0.22
American Indian or Alaskan Native	1(2.3)	3(1.4)	
Asian	2(4.7)	5(2.5)	
Black	3(7.0)	21(10.3)	
White	38(88.4)	175(86.2)	
Not Reported/Declined	0	2(1.0)	
Other	1(2.3)	0	
Number of UTIs in 6 months prior to antibiotic treatment	3[2,4]	2[2,3]	0.2
Number of UTIs in 1 year prior to antibiotic treatment	4[3,5]	3[2,4]	0.42
Prior Hysterectomy	19(44.2)	103(50.7)	0.44
Prior Urinary Incontinence Treatment			
Midurethral Sling	4(9.3)	27(13.3)	0.31
Botox	9(20.9)	43(21.2)	0.97
rUTI with a single bacterial species†	36(83.7)	138(68.0)	**0.04**
Smoking Status			0.45
Current	0	9(4.4)	
Former	11(25.6)	68(33.5)	
Never	32(74.4)	126(62.0)	

*Race self-defined by patient; sum > 100% due to multiracial individuals.

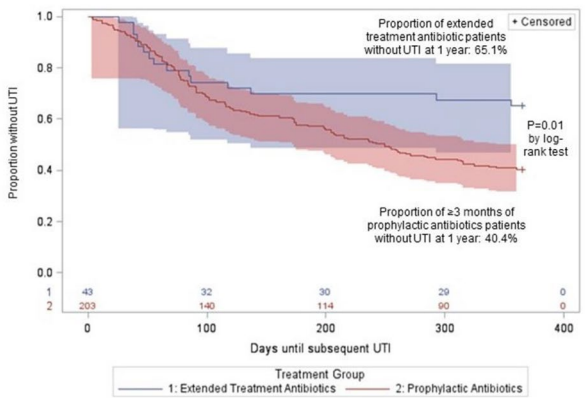
† defined as ≥2 culture-proven UTI within 6 months or ≥3 culture-proven UTI within 1 year with the same bacterial species

Table 2. Secondary outcomes stratified by treatment group.

	Extended treatment-strength antibiotics (N=43)	≥3-months of low-dose prophylactic antibiotics (N=203)	P-Value
Proportion with at least 1 UTI within 1 year	15(34.9)	121 (59.6)	**<0.01**
Number of UTIs in 1 year following treatment initiation	0[0,2]	1[0,2]	**0.02**
Hospitalization for pyelonephritis or sepsis within 1 year of treatment initiation	2(4.7)	20(9.9)	0.38
Adverse Medication Reactions*			
Any Adverse Reaction	4(9.3)	16(7.9)	0.76
Cardiac	0	1(0.5)	
Clostridium Difficile	0	3(1.5)	
Gastrointestinal	1(2.3)	5(2.5)	
Multidrug-resistant organism (not previously present/colonized)	0	1(0.5)	
Neurologic	0	2(1.0)	
Renal	0	1(0.5)	
Vaginitis	4(9.1)	6(3.0)	

Data presented as median [interquartile range] or n(%). *Tests of statistical significance were not performed for individual adverse reaction types due to small sample sizes.

Figure 1. Kaplan-Meier curve showing days until subsequent urinary tract infection (UTI) for women receiving extended treatment-strength antibiotics vs daily prophylactic antibiotics. Women who did not experience a subsequent UTI within 12 months were censored at 365 days.



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Do Racial/Ethnic Disparities Exist in Trainee Evaluations? A Linguistic Analysis of Biannual Summative Resident Evaluations in Obstetrics and Gynecology

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Introduction: While racial and ethnic bias in evaluations have been documented in many clinical and non-clinical settings, there are limited studies specifically analyzing trainee evaluations in graduate medical education.
Objective: We aimed to determine if the racial and ethnic bias that has been reported throughout medicine is also prevalent in resident evaluations. Specifically, this study sought to explore if linguistic differences were present in the evaluations of residents who identified as non-Hispanic white compared with residents who identified as another race or ethnicity.
Methods: Evaluations of residents in obstetrics and gynecology from a single tertiary care training hospital were collected. Residents are evaluated throughout training, and these evaluations are compiled into summative biannual reports. Self-reported race/ethnicity were obtained from each trainee's residency application. Reports were analyzed using Linguistic Inquiry and Word Count (LIWC), a validated text analysis software program (Pennebaker Conglomerates, Inc, Austin TX), which has been used in numerous studies to detect bias in letters of recommendations. The program relies on an internal dictionary to classify words into preselected categories. It contains 90 output variables, including 4 summary language variables (analytical thinking, clout, authenticity and emotional tone) and 41 categories related to psychologic constructs. In addition, a linguistic dictionary assessing agentic and communal language was added to the analysis.
Results: A total of 330 summative biannual reports were available for 58 residents from 2014 through 2021 with over 220,000 words in aggregate. Of the 330 summative reports, 178 (54%) were for non-Hispanic white residents and 152 (46%) were for residents who identified as another race or ethnicity. The mean word count was similar for residents who identified as non-white (655±600) as for those who did not (683±649; p=0.81). Overall, the summary language variables of analytical thinking, clout, authenticity and emotional tone were similar between groups (all p≥0.46). While many of the psychologic constructs were also similar between groups, significant differences were noted in several subscales. For example, while drive scores were similar between groups (p=0.47), affiliation subscale scores and power subscale scores were higher in the summative reports of non-Hispanic white residents (2.3 vs 2.0, p=0.01 and 3.7 vs 3.2, p=0.02 respectively). The affiliation construct includes words such as "colleague" and "friend." The power construct includes references to status and includes words such as "ambitious" and "leader." The biannual reports of non-Hispanic white residents had similar agentic scores (3.8 vs 3.5, p=0.08) and communal scores (3.0 vs 2.8, p=0.11) compared with residents who identified as another race or ethnicity.
Conclusions: While summative language variables are similar between obstetrics and gynecology residents who identify as non-Hispanic white compared with another race or ethnicity, we identified significant differences in several of the psychologic constructs, including affiliation and power, which were higher in evaluations of non-Hispanic white residents. Further analysis is needed to more fully understand the linguistic characteristics given the racial and ethnic heterogeneity of the groups as categorized in this dataset.
Disclosure: No

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Extended Treatment-dose Antibiotic Therapy versus Low-dose Prophylaxis for the Management of Recurrent Urinary Tract Infections

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Introduction: Women with recurrent urinary tract infection (rUTI) are commonly treated with low-dose prophylactic antibiotics. Unfortunately, antibiotic prophylaxis lacks sustained benefit after discontinuation and long-term exposure increases risks of antibiotic resistance and adverse events. Animal data among canines and felines with rUTI have shown medium-long-term effectiveness in preventing subsequent UTI with extended courses of treatment strength antibiotics. To our knowledge, data assessing this approach in humans have not been published.

Objective: We aimed to compare the risk of subsequent UTI over a one-year period among women with rUTI treated for acute UTI with extended (1-month) treatment-strength oral antibiotics versus daily low-dose prophylactic antibiotics for ☐3 months after standard UTI therapy.

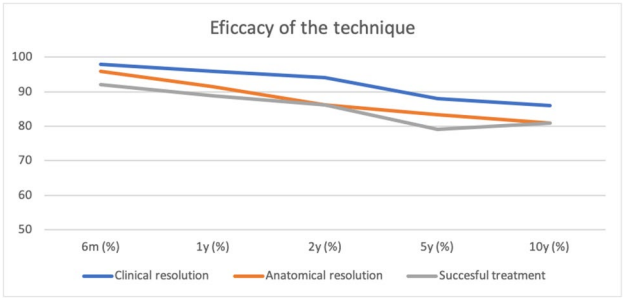
Methods: We performed a retrospective cohort study of adult women presenting to a tertiary urogynecology group practice with acute UTI between January 1, 2018 and October 1, 2020 meeting rUTI criteria (≥2 within 6 months or ≥3 within 1 year). Based on provider preference, women were offered one of two management options: 1) treatment-strength antibiotic therapy for 1 month; or 2) up to 7 days of treatment strength antibiotic therapy followed by ≥3 months of low dose daily prophylactic antibiotics. For this analysis we excluded those requiring chronic urinary catheterization; a post void residual >200mL; prophylactic antibiotic use within previous 6 months; immunocompromised status; a multi-drug resistant (MDR) UTI requiring IV therapy; bladder or pelvic cancer, fistula or mesh erosion; and prior pelvic radiation. The primary outcome was the presence or absence of a subsequent culture-proven UTI within 12 months of antibiotic treatment initiation. Secondary outcomes were the total number of subsequent UTIs over 12 months, hospitalization for sepsis or pyelonephritis, and medication-related adverse events. Multivariable logistic regression assessed differences in the primary outcome controlling for potential confounders.

Results: Of the 246 women included, 43 received extended 1-month treatment-dose antibiotics and 203 received ≥3 months of daily prophylactic antibiotics. At baseline, women receiving prophylactic antibiotics were more likely to be using estrogen and less likely to have had rUTI with a single bacterial species (Table 1). Women who received 1-month treatment-dose antibiotics had a significantly lower risk of experiencing a subsequent UTI within 1 year when compared to those taking prophylactic antibiotics for ≥3 months (34.9% vs 59.6%; P=0.01; Table 2). Time to event analysis showed a divergence in the survival curves beginning at 2 months favoring extended 1-month treatment dose antibiotics (P=0.01; Figure 1). This significant risk reduction was maintained in multivariable regression (aOR 0.42; 95% CI 0.20,0.89) controlling for age, estrogen use, anti-incontinence procedure, presence of rUTI with a single bacterial species, and diabetes. Table 2 provides comparisons of secondary outcomes.

Conclusions: Women treated with a 1-month course of treatment-strength antibiotics had a significantly lower risk of subsequent UTI within 12 months compared to women receiving ≥3-months of daily low-dose prophylactic antibiotics after acute UTI treatment. Extended treatment-strength antibiotics may provide therapeutic benefit by clearing intracellular bacterial reservoirs through sustained higher-dose treatment while overall reducing cumulative antibiotic dose and duration. This innovative approach warrants evaluation in randomized trials.

Disclosure: No

Images:



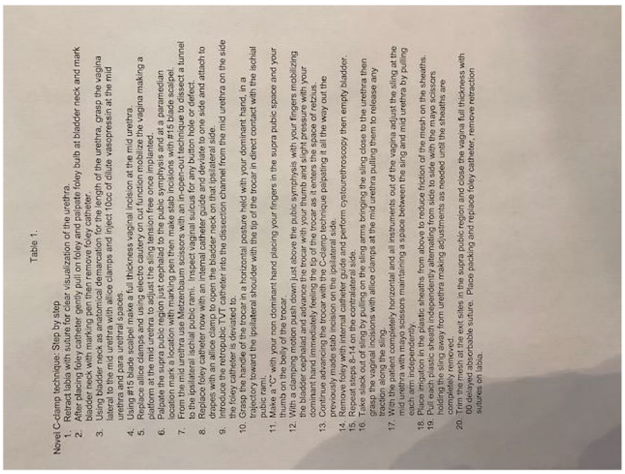


Table 1. Characteristics of 117 patients who underwent laparoscopic cerclage sacrohysteropexy

	n=117
Age, years	62 (53-68)
Body mass index, kg/m²	25 (22-28)
Racial/ethnic group	
White	93 (79)
Black	1 (1)
Asian	2 (2)
Other/unknown race	21 (18)
Hispanic/Latina	0 (0)
Parity	3 (2-3)
Post-menopausal	88 (77)
Vaginal estrogen use	40 (37)
Current tobacco use	6 (5)
Hypertension	24 (21)
Autoimmune disorder	6 (5)
Prior pelvic surgery	42 (36)
Prior prolapse surgery	10 (9)
Anterior repair	3 (37)
Posterior repair	4 (50)
Sling	0 (0)
Other	1 (13)
Preoperative POP-Q stage	
I	4 (3)
II	63 (54)
III	45 (38)
IV	5 (4)
Concomitant procedures	44 (38)
Anterior repair	25 (21)
Posterior repair	19 (16)
Perineorrhaphy	56 (48)
Synthetic midurethral sling	73 (62)
Paravaginal repair	2 (2)

Data presented as median (IQR) or n (%)

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Patients' Perspectives: Outcomes of Marsupialization of Female Urethral Diverticula

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Introduction: Urethral diverticula are rare, disproportionately affecting women. Presenting symptoms include: dysuria, post-void dribbling, dyspareunia, urinary incontinence, UTIs, and/or pain. Urethral diverticulectomy is most commonly performed, although aspiration, diverticulotomy, transurethral endoscopic resection, and marsupialization are described. Diverticulectomy complications are not uncommon. Marsupialization is typically reserved for distal diverticula due to the risk of urinary incontinence; however, past studies show high success rates and low morbidity. There are no recent studies on marsupialization techniques or outcomes.
Objective: Describe surgical characteristics, postoperative complications, and patient satisfaction with marsupialization for urethral diverticula.
Methods: A retrospective case series and follow-up telephone survey was completed for patients who underwent marsupialization of a urethral diverticulum at a single academic institution (1990-2021) by two FPMRS fellowship trained surgeons. 22 patients included. Chart review completed for demographics, preoperative evaluation, intraoperative findings, and postoperative complications. Patients contacted by phone to complete a 15-question postoperative satisfaction and outcomes survey using the Patient Global Impression of Improvement (PGI-I) and Surgical Satisfactions Questionnaire-9 (SSQ-8). Data analyzed using descriptive statistics.
Results: All 22 patient charts had preoperative and intraoperative data for review. Mean age at the time of surgery 46.1+/-14.0 years. Most patients were African American 10/22(45.5%) or Caucasian 9/22(40.9%). Patient characteristics: smokers 3/22(13.6%), diabetes mellitus 2/22(9.5%), immunocompromised 1/22(4.5%), pregnant 1/22(4.5%). Median BMI 29.7(25.2,34.7). Most urethral diverticula were diagnosed preoperatively 18/22(81.1%). Cystoscopy 18/22 (81.8%), MRI 10/22(55.6%) and/or CT 7/22(38.9%) were performed. Patients had both simple 12/22(54.5%) and complex 10/22(45.5%) diverticula. 1/22(4.5%) patient had a prior aspiration of diverticula. 3/22(13.6%) patients were treated for perioperative infection with antibiotics. Patients were counselled on options of observation, aspiration, marsupialization and diverticulectomy. Reasons for marsupialization were not desiring a more complex surgery 9/22(0.9%), location of diverticula 6/22(27.3%), and/or not desiring prolonged Foley use 5/22(22.7%). Procedures were performed in the OR 18/22(81.8%) and office 4/22(18.2%). Operative reports noted minimal blood loss median 5(0,10) mL (n=22) and median surgical time 54(35,72) minutes (n=19). Median hospital stay was 450(356,950) minutes (n=15). There were no intraoperative complications and no Foley catheters at discharge. Postoperative complications were uncommon including denovo or worsening SUI 2/17(11.8%) and increased urinary frequency 1/17(5.8%), all Clavien-Dindo Classification ≤ grade II. Median length of follow-up 4(1,6) months (n=17). Survey response rate was 11/22(50%). Of those who did not complete the survey 2/10(20%) were deceased, 3/10(30%) did not remember surgery, and 4/10(40%) could not be reached. Of those completing the survey, 10/11(90.9%) were either satisfied or very satisfied with postoperative pain control, and 11/11(100%) were very satisfied their return to daily activities and surgical results. Postoperatively 2/11(18.2%) patients reported symptoms of SUI incontinence and 1/11(9.1%) with UUI. None required additional treatment. No patients reported return of preoperative symptoms. All patients were "very much better" than before surgery, would elect to undergo the same procedure again, and would recommend this procedure to a friend.
Conclusions: This retrospective study demonstrates marsupialization as a simple, quick, and effective treatment option for urethral diverticula with high postoperative patient satisfaction, no postoperative Foley requirement, quick return to daily activities, and minimal risk. Long term follow-up is needed.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Intuitive, Allergan, Astellas, Bard, Boston Scientific, Coloplast, Medtronic, Urovant, Laborie

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Is Pelvic Organ Prolapse Correction with Vaginal Mesh Suitable with a Correct Indication and Protocolized Follow-up?

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Introduction: The use of vaginal mesh in order to correct pelvic organ prolapse (POP) has been banned by the FDA due to the complications associated with them.
Objective: The objective is to determine efficacy and safety in the short and long term in a sample of women undergoing transvaginal mesh surgery performed by properly trained surgeons, in a referral center and with a protocolized follow-up.
Methods: We present a longitudinal, descriptive study of a cohort of 53 patients with POP who underwent transvaginal mesh surgery between 2001 and 2015. The efficacy of the treatment is evaluated quantifying both clinical changes and life quality, as well as the rate for prolapse recurrence and the short-and long-term treatment-related complications.
Results: 53 patients with average follow-up of 87 months were included. All of them had their surgery performed by three properly-trained surgeons. Indication for mesh placement was assessed in 49.1% of cases due to previous surgery recurrence. Treatment improved urinary incontinence rates, constipation, voiding difficulty, dyspareunia and quality of life. Long-term complication rate was 9.6% (5.7% exposure, 1.9% urinary obstruction and 1.9% pain). None of the patients presented recurrence in the mesh-treated compartment and 6 patients (11.3%) needed surgery after recurrence in a different compartment at the end of follow-up.
Conclusions: Vaginal placement of synthetic mesh for POP treatment is safe in the short-, medium- and long-term when performed in referral centers. The correct indication and long-term follow-up are essential to diagnose and treat possible complications.
Disclosure: No
Images:

Table 2. POP-Q score changes and subjective outcomes at 6 weeks after laparoscopic cerclage sacrohysteropexy

Outcome	Pre-operative	Post-operative	Change	P
POP-Q	n=97	n=97*		
Aa	0 (0 – 1)	-3 (-3 - -2)	-3 (-4 – -2)	<0.001
Ba	1 (0 – 2)	-3 (-3 - -2)	-3 (-5 - -2)	<0.001
C (n=98)	0 (-2 – 1)	-6 (-6 – -5)	-6 (-7 - -4)	<0.001
Ap	-3 (-3 - -2)	-3 (-3 - -3)	0 (-1 – 0)	<0.001
Bp	-2 (-3 - -1)	-3 (-3 - -3)	-1 (-2 – 0)	<0.001
GH	4 (3 – 5)	3 (2 – 3)	-1 (-2 - -1)	<0.001
TVL	9 (8 – 10)	10 (9 – 10)	0 (0 – 1)	0.01
PB	3 (3 – 4)	3 (3 – 4)	0 (0 – 1)	0.06
POPDI-6	n=50	n=50		
Score	30 (21-50)	4 (0-21)	-25 (-38 - -8)	<0.001

POP-Q: Pelvic Organ Prolapse Quantification scale; POPDI-6: Pelvic Organ Prolapse Distress Inventory; PGI-I: Patient Global Impression of Improvement (1=Very much better to 7=Very much worse)
*1 patient had only point C data available at 6 weeks

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C-clamp Technique-A Novel Technique to Prevent Bladder Injury in Retropubic Mid Urethral Slings

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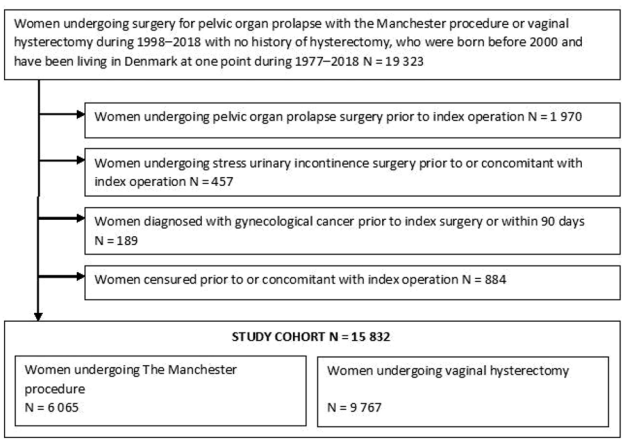
4 - Universithy of Texas

Introduction: Iatrogenic bladder and urethral injury is a known risk at the time of implantation of a bottom up retropubic mid urethral sling.
Objective: Our primary objective was to show a novel "C-clamp technique" can significantly reduce the risk of bladder injury at the time of implantation of a bottom up synthetic mesh mid urethral sling. Our secondary objective was to show a novel C-clamp technique can significantly reduce the risk of urethral injury at the time of implantation of bottom up synthetic mesh mid urethral sling.
Methods: Patients who underwent placement of a bottom up retropubic synthetic mesh mid urethral sling were identified by CPT code in the electronic medical record of one provider as part of a quality improvement review. Medical records were reviewed for demographic and clinical data for all bottom up retropubic synthetic mesh mid urethral slings placed using the C-clamp technique. C-clamp technique is described in table 1.
Results: 170 consecutive bottom up retropubic synthetic mesh mid urethral slings were placed using the C-clamp technique from April 2012 through November 2021. The average age was 51.5 years (30-86 years), the average weight was 180 lbs. (102-306 lbs) the average BMI was 31lbs/sq inch (15-57 lbs/sp inch), 91 women had stress urinary incontinence, 73 women had mixed urinary incontinence, 170 women had urethral hypermobility, 87 women had intrinsic urethral sphincter insufficiency, 44 women had concomitant hysterectomy, 64 women had concomitant vaginal prolapse repair, 78 women had prior hysterectomy, 25 women had prior prolapse repair, 25 women had prior sling replacement and removal, 4 women had prior retropubic colposuspension, 24 women had at least one prior cesarean section, 111 women had prior abdominal surgery. No patients sustained a bladder or urethral injury at the time of implantation.
Conclusions: The novel C-clamp technique shows promise in eliminating risk of iatrogenic bladder and urethral injury at the time of implanting a bottom up retropubic synthetic mesh mid urethral sling.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Johnson & Johnson, Boston Scientific
Images:

Fig. 1: Overview of the data flow.



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Laparoscopic Cerclage Sacrohysteropexy: Anatomical and Subjective Post-operative Outcomes at 6 Weeks

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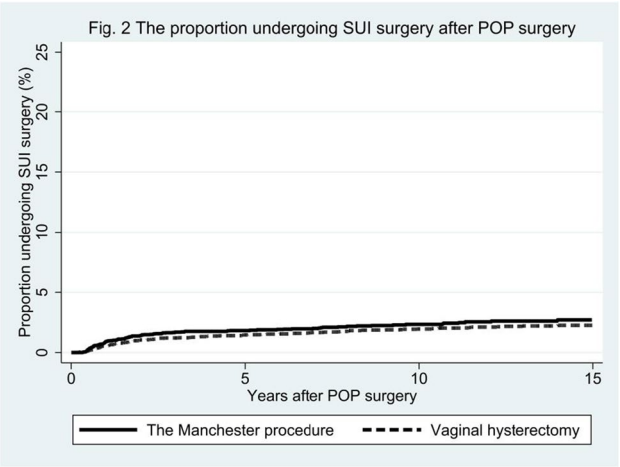
Introduction: Our group first described a novel approach for hysteropexy in 2017. This procedure utilized a combined laparoscopic and vaginal approach to place a polypropylene mesh sling around the cervicouterine junction as a cerclage and attach this mesh to the sacrum. Previous outcomes comparing this technique to laparoscopic hysterectomy and sacrocervicopexy showed equivalent anatomical and subjective outcomes with decreased suturing and intraoperative time compared to traditional sacrocervicopexy at 6 weeks, 6 months and 12 months. The procedure was refined in 2019 when vaginal attachment of the mesh was replaced with a novel laparoscopic mesh attachment technique, now referred to as total laparoscopic cerclage sacrohysteropexy (TLCSH).
Objective: To assess postoperative outcomes of the novel, modified TLCSH.
Methods: This was a retrospective study of patients who underwent TLCSH from February 2019 to October 2021. Chart review was performed to obtain patient demographics, baseline pelvic organ prolapse quantification (POP-Q) scores and 6-week outcome data. Anatomical success was a composite of anterior, posterior and apical success. We defined anterior and posterior compartment success as Ba and Bp $\leq$0, respectively. Apical success was defined as C $\leq$ half the total vaginal length (TVL). As a more conservative measure, we also defined success as C <-4 and C $\leq$-2/3 TVL. Subjective outcomes, including patient-reported pelvic organ prolapse distress inventory (POPDI-6), patient global impression of improvement (PGI-I) and satisfaction, were also assessed at 6 weeks. Data are reported as median (interquartile range) and were compared with the Wilcoxon signed rank test.
Results: A total of 117 patients underwent TLCSH and 107 (91%) had a 6-week post-operative visit at a median time of 2 months (1-2). Of patients who had a 6-week visit, 9 had a telehealth visit due to COVID-19 and did not have a POP-Q assessment, and 1 patient only had point C documented and therefore was only included in the point C analysis. Pre-operative characteristics are in Table 1. Post-operative changes for points C, Ba, Bp, and GH were significantly improved ($p<0.001$ for all; Table 2). Most patients (93%) had surgical success as defined by C $\leq$ half TVL. Using the more restrictive definitions of apical success there was 94% success with C <-4 and 35% with C $\leq$ -2/3 TVL. At 6 weeks, 31% of patients were stage 0, 54% stage I, and 15% stage II. There were no mesh exposures. Subjective outcomes were available for 50 (47%) patients. While only available for a portion of patients, median POPDI-6 scores improved significantly from 30 (21-50) to 4 (0-21), $p<0.001$. Most patients (85%) reported that they were "very satisfied," 12% reported "satisfied," 2% reported "neutral;" none reported "unsatisfied" or "very unsatisfied." The median PGI-I score was 1 (1-2), with 1 and 2 corresponding to "very much better" and "much better," respectively.
Conclusions: TLCSH results in anatomical success, in addition to decreased POPDI-6 scores and high PGI-I scores at 6 weeks. Given this novel technique, additional follow-up time with further analysis is necessary to assess whether this procedure is a durable repair for long-term prolapse reduction and patient satisfaction.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: P. Rosenblatt: Boston Scientific, C.R. Bard, Ethicon, Coloplast, Medtronic, Hologic, Stryker
Images:

Table 1: Risk of stress urinary incontinence surgery (SUI) following the Manchester procedure and vaginal hysterectomy.

	The Manchester procedure	Vaginal hysterectomy
Number of women	6 065	9 767
Number of women undergoing SUI surgery following the Manchester procedure or vaginal hysterectomy	123	175
Median time of risk (years)	7.18	9.23
Incidence rates (per 100.000 person-years)	255.95	189.71
HR crude [95 % CI]	1.27 [1.01-1.60]	1 (Ref.)
HR adjusted [95 % CI]*	1.06 [0.84-1.35]	1 (Ref.)

* Adjusted for age, calendar year, income level, concomitant surgery in anterior prolapse, concomitant surgery in posterior prolapse, and previous SUI diagnosis.



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Stress Urinary Incontinence Following Manchester Procedure and Vaginal Hysterectomy: A Nationwide Cohort Study

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Introduction: One in five women undergoes surgery for pelvic organ prolapse. Pelvic organ prolapse (POP) and stress urinary incontinence (SUI) are closely connected. Both diagnoses have major effects on the quality of life for the women as well as on the health economy. The Manchester procedure has shown to cure pelvic organ prolapse better than vaginal hysterectomy according to the rate of recurrences and complications as well as cost effectiveness. POP surgeries cure existing SUI symptoms for some women but worsen them or lead to de novo SUI for other women. Hysterectomy has been shown to increase the risk of SUI. However, to our knowledge no studies have compared the risk of SUI following the Manchester procedure and vaginal hysterectomy.
Objective: We aimed to compare the risk of undergoing SUI operation following the Manchester procedure versus vaginal hysterectomy in a large historical cohort study.
Methods: We conducted a historical cohort study based on nationwide registers in Denmark. All Danish residents have a 10-digit personal identifier, which permits linkage of registers on an individual level enabling epidemiological studies with lifelong follow-up. We identified all Danish women undergoing the Manchester procedure and vaginal hysterectomy for prolapse indication during 1998–2018, with no history of hysterectomy, using the Danish National Patient Registry and the Danish Civil Registration System. We excluded women who had undergone previous or concomitant surgery for SUI, women who had previously undergone surgery for prolapse and women diagnosed with gynecological cancer prior to or within 90 days after surgery. Women were censored at time of death, emigration, diagnosis of gynecological cancer, or December 31, 2018 whichever came first. Furthermore, women in the Manchester procedure-group were censored if they underwent hysterectomy. Operations and cancer diagnoses were identified using the Danish National Patient Registry. We performed a Cox Proportional Hazard Regression after graphical assessment of the proportional hazard assumptions. We adjusted the model for age, calendar year, income level at the time of prolapse operation as well as concomitant surgery in anterior prolapse, concomitant surgery in posterior prolapse, and diagnosis of SUI prior to prolapse operation.
Results: We included 6 065 women undergoing the Manchester procedure and 9 767 women undergoing vaginal hysterectomy for prolapse. The crude hazard ratio (HR) for undergoing a SUI surgery following the Manchester procedure was 1.27 (95% confidence interval (CI) 1.01-1.60) compared to vaginal hysterectomy while the adjusted HR was 1.06 (95% CI 0.84-1.35) (table 1). It is worth noticing that only 2% of the women undergoing the Manchester procedure or vaginal hysterectomy for prolapse had a previous or concomitant surgery performed for SUI (fig. 1). Fifteen years after the Manchester procedure and vaginal hysterectomy, 2.7% and 2.3%, respectively, had undergone surgery for SUI (fig. 2).
Conclusions: This nationwide historical cohort study shows comparable rates of SUI surgery following the Manchester procedure and vaginal hysterectomy.
Disclosure: No
Images:

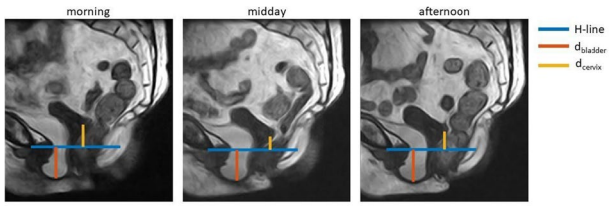

Figure 1 Sagittal MR images of one patient at different moments during the day in upright position, on which the measured distances of the bladder and cervix to the H-line ($d_{bladder}$ and d_{cervix} respectively) are visualized. The bladder height has not changed during the day, with a distance of 3.4 cm below the H-line at all three moments. The cervix height changes from 2.4 cm above the H-line in the morning to 1.4 cm during midday and 2.0 cm in the afternoon. This variation might be caused by the difference in rectal filling between the three measurements.

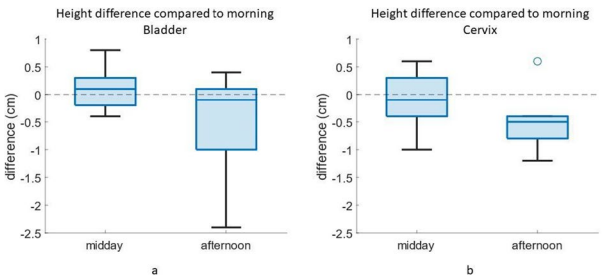

Figure 2 Difference in bladder (a) and cervix (b) height in the midday and afternoon compared to the morning measurements. a) The bladder height has a median (IQR) difference of 0.1 (-0.2, 0.3) cm during midday (p=0.55) and -0.1 (-1, 0.1) cm in the afternoon (p=0.21). b) The cervix height has a median (IQR) difference of -0.1 (-0.4, 0.3) cm during midday (p=0.67) and -0.5 (-0.8, -0.4) cm in the afternoon (p=0.07).

Success definitions	Comparison	Estimate	Odds Ratio (95% Confidence Interval) Lower Bound	Upper Bound	Comparison p-value
a). Responder ≥ 4-point reduction from baseline in St. Mark's (N=158, No. of Successes=90 (57%))					
Treatment	**PTNS vs Sham at BMI <25 kg/m2**	**9.357**	**1.433**	**61.112**	**0.0195**
	PTNS vs Sham at BMI 25 - 29.9 kg/m2	0.555	0.131	2.345	0.4232
	PTNS vs Sham at BMI >= 30 kg/m2	2.052	0.641	6.565	0.2258
Body Mass Index (categorical)	BMI <25 kg/m2 vs 25 - 29.9 kg/m2 within PTNS	3.154	0.861	11.557	0.0829
	BMI <25 kg/m2 vs >= 30 kg/m2 within PTNS	**4.730**	**1.321**	**16.931**	**0.0169**
	BMI 25 - 29.9 kg/m2 vs >= 30 kg/m2 within PTNS	1.500	0.521	4.319	0.4529
	BMI <25 kg/m2 vs 25 - 29.9 kg/m2 within Sham	0.187	0.025	1.375	0.0995
	BMI <25 kg/m2 vs >= 30 kg/m2 within Sham	1.037	0.161	6.673	0.9694
	BMI 25 - 29.9 kg/m2 vs >= 30 kg/m2 within Sham	**5.545**	**1.162**	**26.448**	**0.0317**
Previous UI surgery	**Yes vs No**	**2.784**	**1.074**	**7.218**	**0.0352**
b). PGI-I very much or much better (N=157, No. of Successes=68 (43%))					
Treatment	PTNS vs Sham at St. Mark's score 17.9 and Meat/Snack score 18.4 and no college education	3.459	0.684	17.483	0.1333
	PTNS vs Sham at St. Mark's score 17.9and Meat/Snack score 18.4 and some college or greater	0.784	0.278	2.211	0.6452
Baseline St. Mark's Score	Within PTNS	1.071	0.892	1.285	0.4620
	Within Sham	**1.490**	**1.051**	**2.111**	**0.0250**
Currently using estrogen	**Yes vs No**	**0.388**	**0.151**	**0.996**	**0.0491**
Meat/Snack Score	Within PTNS	1.007	0.959	1.057	0.7834
	Within Sham	**1.169**	**1.038**	**1.315**	**0.0100**
Education	No college education vs Some college or greater within PTNS	2.062	0.744	5.712	0.1640
	No college education vs Some college or greater within Sham	0.467	0.086	2.548	0.3793
c). >50% reduction FIE (N=145, No. of Successes=70 (48%))					
Treatment	**PTNS vs Sham in those taking fiber supplements**	**8.025**	**1.354**	**47.556**	**0.0218**
	PTNS vs Sham in those not taking fiber supplements	0.748	0.250	2.238	0.6036
Currently using estrogen	**Yes vs No**	**0.243**	**0.083**	**0.710**	**0.0097**
Hysterectomy	**Yes vs No**	**0.328**	**0.118**	**0.910**	**0.0323**
Pain/discomfort 6+ months	**Yes vs No**	**4.602**	**1.823**	**11.619**	**0.0012**
Taking fiber supplements	Yes vs No within PTNS	0.592	0.207	1.693	0.3283
	Yes vs No within Sham	**0.055**	**0.008**	**0.369**	**0.0028**
Previous POP surgery	Yes vs No	2.644	0.747	9.360	0.1316

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Assessment of Daily Variation in Pelvic Organ Prolapse – An Upright MR Imaging Study

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Introduction: Pelvic organ prolapse (POP) is a common condition in women, with a prevalence of symptomatic POP of 11% between 45-85 years. POP quantification (POP-Q) is a globally accepted and standardized method to assess the extent of POP and differentiate it into stages. POP stage provides information for treatment planning, additional to POP symptoms (e.g. bulging, urinary incontinence). However, the POP stage may vary among different circumstances under which POP-Q is performed, and these circumstances are currently not standardized. Daily variation in POP extent is hypothesized because loading of the viscoelastic ligaments which lift the pelvic organs might result in lengthening during the day. In previous research contradictory results were found, with on the one hand patients who experience more POP symptoms in the evening, and on the other hand no significant daily variation in pelvic organ height based on POP-Q assessment. However, all studies assessing the daily variation in pelvic organ height are based on measurements in supine straining position. A recent study indicated underestimation of the POP extent in this position as compared to upright position, which reraises the question on adequate daily variation assessment. Daily variation of the POP extent might result in underestimation of the severity of POP and therefore influence the treatment planning.

Objective: To evaluate the influence of the moment of POP assessment on the extent of POP, measured using magnetic resonance imaging (MRI) in upright position.

Methods: Until now 8 out of 15 post-menopausal women with POP stage ≥2 and ≥1 vaginal delivery were included. All women were scanned in the morning (8:00-10:00), midday (12:00-14:00) and afternoon (16:00-18:00) during one day. The scans were acquired in upright position using a tiltable 0.25T MRI scanner (G-scan Brio, Esaote SpA, Italy). On the acquired MRI scans the bladder and cervix height were determined, defined as their perpendicular distance to the horizontal line (Figure 1). The Wilcoxon signed-rank test was used to evaluate any statistically significant differences in bladder and cervix heights between the morning and midday/afternoon measurements.

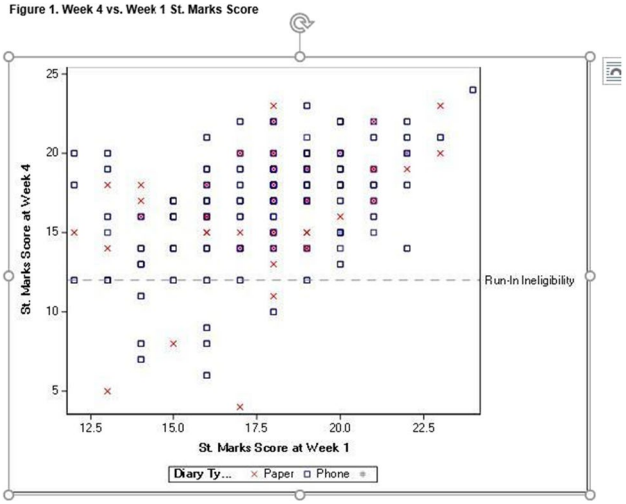
Results: As depicted in Figure 2, the bladder height did not vary during the day, with a median (interquartile range (IQR)) change of -0.1(-1, 0.1) cm in the afternoon compared to the morning (p=0.21). The bladder descended in 4/8 patients, ascended in 2/8, and in 2/8 patients no difference was found. For the cervix a slight descent of the cervix during the day was found, with a median (IQR) height difference of -0.5(-0.8, -0.4) cm in the afternoon compared to the morning (p=0.07). The cervix descended in 7/8 patients and ascended in 1/8.

Conclusions: With a median descent of 0.1 and 0.5 cm during the day for the bladder and cervix respectively, daily variation of POP seems limited. Because the smallest difference between two POP-Q stages is 1 cm, this daily variation does not seem to be clinically relevant. Furthermore, height differences might also be influenced by variations in rectal filling (Figure 1). Given the current limited sample size we cannot draw definitive conclusions.

Disclosure: No

Images:

Figure 1. Week 4 vs. Week 1 St. Marks Score



Note[1]: St. Marks Change from Week 1 Paper vs. Phone t-test equality of variances p=0.176

table 1: Characteristics of study participants

	Gynecologist N (%)	Urologist N (%)	*p*
Number of participants	238 (72,3%)	91 (27,7%)	
female	145 (60,9%)	6 (6,6%)	**0,001**
Male	93 (39,1%)	85 (93,4%)	
Professional experience time (average in years)	21,2 years	17,5 years	0,023**
Postgraduate or specialization	63 (26,5%)	19 (20,9%)	0,294
City of operation			0,023*
Capital	132 (55,5%)	36 (39,6%)	
Countryside	99 (41,6%)	50 (54,9%)	
Is the Urodynamic available in your region?			
yes	235 (98,7%)	91 (100%)	0,564*
not	3 (1,3%)	--	

p → *Qui-square de Pearson*
* → Fisher Test
** → Teste *t de student for independent samples*

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Evaluation of Racial Diversity in Patient Information Handouts
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Introduction: There is increasing emphasis on providing patient-centered medical care as it is an important component of patient education and shared decision making. Racial disparities affect the accessibility, delivery, and quality of healthcare. Lack of racial diversity in images used in medical literature can perpetuate implicit bias and further alienate patients who may feel underrepresented. Multiple studies have demonstrated this lack of diverse patient representation in medical literature but there is limited knowledge regarding patient education materials, particularly as it relates to pelvic floor disorders.
Objective: The objective of this study is to evaluate the frequency and variety of racially diverse individuals in patient information handouts from the American Urogynecologic Society (AUGS) and International Urogynecological Association (IUGA). We sought to determine if images in these commonly used, patient facing Urogynecologic education material reflect the racial demographic of patients.
Methods: The AUGS and IUGA patient information handouts were examined for photographs and rendered graphics depicting patient skin. For each handout, images were categorized as white or nonwhite based on Fitzpatrick Scale (Type I-III versus VI-VI) by two independent reviewers. Depictions of providers were also noted and categorized based on the Fitzpatrick scale. Languages available for each handout was assessed. Microsoft excel (Version 1808) was used for descriptive statistics
Results: A total of 65 handouts (41 IUGA, 24 AUGS) were reviewed. 50 handouts (76.92%) included depictions of patient skin. Only 1 handout (2%) included a nonwhite patient image. A total of 106 depictions of patients were identified, 21 were excluded as they were black and white images. Of the remaining 85 patient depictions, only 1 image (0.18%) depicted a nonwhite patient as compared to 84 white patient images (99.80 %). Only 7 out of 65 (10.77%) handouts included depictions of providers, of which only 3 of those 7 (42.85%) had nonwhite providers. Only AUGS handouts included nonwhite provider images. There were 41 out of 65 (63.07%) handouts available in a non-English language, all from IUGA. There were 26 different languages offered .
Conclusions: There is insufficient racial diversity visually represented in commonly used patient information handouts for Urogynecology. Increasing awareness of image content, and the need for equitable visual representation may allow for improved racial diversity in patient literature, in order to provide more inclusive and patient-centered care.
Disclosure: No

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Characteristics Associated with Successful Treatment of Accidental Bowel Leakage (ABL) in Women Enrolled in a Randomized Sham-controlled Trial of Percutaneous Tibial Nerve Stimulation (PTNS)
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Introduction: Clinically significant reductions in accidental bowel leakage (ABL) have been demonstrated after 12 weekly sessions of PTNS vs. sham treatment although without differences between treatment groups.
Objective: Our objective was to identify factors associated with treatment success defined by improvements in subjective and objective ABL outcomes in women enrolled in an intervention trial.
Methods: We conducted planned secondary analyses of a multicenter randomized trial of PTNS vs. sham (2:1) for treatment of refractory fecal incontinence (FI). Success was evaluated after 12 weekly sessions subjectively as a) treatment responder, defined as ≥ 4-point reduction from baseline in St. Mark's score, b) Patient Global Impression of improvement (PGI-I) of very much or much better, and objectively as c) ≥50% reduction in FI episodes (FIE). Baseline demographic, clinical and symptom characteristics were compared between treatment success and failure for each of the above definitions. Variables with $p<0.20$ on univariate testing were entered into multivariable logistic regression models, adjusted for site, and treatment assignment, and backward selection retained all variables with $P<0.1$. Interaction terms were tested to assess for possible differential treatment effect based on candidate risk factors. Individual point estimates from the models were deemed significant if $p<0.05$.
Results: Of 166 randomized, 162 women completed 12 weeks of treatment (108 PTNS/54 sham) and 158 had sufficient data for these secondary analyses. Among the women included in these analyses, mean age at baseline was 64 (□12) years, with 11% Black, 9% Latina, and 80% White race/ethnicity; and a mean BMI of 29 (□7 kg/m2) and baseline St. Mark's score of 18 (□3). Overall, 57% (90: 64 PTNS/26 Sham) were treatment successes by St. Mark's score and this responder status was associated with PTNS among women with BMI<25kg/m2 and with prior urinary incontinence surgery. Success by PGI-I was 43% (68: 47 PTNS/21 Sham) and was associated with higher baseline St. Mark's scores and dietary meat/snack scores within the sham group, and lower rates of estrogen use overall. Objective success was 48% (70: 51 PTNS/19 Sham) and was less likely in women on fiber supplements in the sham group. Additionally, women on estrogen at baseline and those with prior hysterectomy had lower objective success rates, while objective success was more likely for those reporting chronic pain. (Table)
Conclusions: Participation in an intervention trial for ABL leads to moderate subjective and objective success rates. Factors associated with treatment success varied across different definitions of success in women undergoing PTNS vs sham for the treatment of ABL with few

common predictors across definitions. Estrogen use at baseline was the only common characteristic across success definitions associated with lower success.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Axonics, Boston Scientific, Uroplasty/cogentix, Urovant, Pathnostics

Images:

Table 3: Routine of the urodynamic study

	Gynecologist N= 238	Urologist N=91	P
Do you perform urodynamic study?			
Yes	66 (27,7%)	65 (71,4%)	0,001
Not	172 (72,3%)	26 (28,6%)	
Which urinary catheter do you use			
2 relief catheters	44 (78,6%)	49 (75,4%)	
double lumen catheter	12 (21,4%)	16 (24,6%)	
Your urodynamic device is:			
National	47 (83,9%)	63 (96,9%)	
Imported	8 (14,3%)	2 (3,1%)	
Inform which item below is part of your urodynamic protocol:			
Previous Uroculture	58 (87,9%)	58 (89,2%)	
Anamnesis	60 (90,9%)	62 (95,4%)	
Prophylactic antibiotic	24 (36,4%)	37 (56,9%)	
UI validated questionnaires	39 (59,1%)	37 (56,9%)	
What urodynamic tests do you routinely perform in the workup of female UI?			
Uroflowmetry	57 (100%)	56 (86,2%)	
Cystometry	57 (100%)	61 (93,8%	
Measurement of residual volume after	46 (80,7%)	54 (83,1%)	
uroflowmetry	9 (15,8%)	2 (7,7%)	
Urethral pressure profile	52 (91,2%)	64 (98,5%)	
Pressure-flow study	9	9	
What is the main UDS data to indicate anti-incontinence surgery?			
loss pressure	174 (73,1%)	68 (74,7%)	
What is the average cost of the urodynamic study?	R$ 397,00	R$ 503,00	

p → Teste *Qui-quadrado de Pearson*

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Impact of Completing a Bowel Diary and Receiving Education on Fecal Incontinence (FI) on Symptom Severity

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Introduction: In a randomized controlled trial (RCT) comparing percutaneous tibial nerve stimulation (PTNS) to sham treatment for fecal incontinence (FI), a 4-week run-in period was included prior to treatment assignment to account for any potential therapeutic effect of journaling bowel habits. Women completed bowel diaries and received education on FI. A minimum symptom burden at the end of the run-in was required to be eligible for randomization.

Objective: Our primary objective was to determine the impact of the run-in on symptom severity as measured by change in St. Mark's score and change in weekly fecal incontinence episodes (FIE). Our secondary objective was to determine the impact of the modality of bowel diary (paper v. phone app) on symptom change during the run-in period.

Methods: We conducted a planned secondary analysis of a multicenter RCT of PTNS v sham for the treatment of refractory FI. All consented participants completed a 4-week run-in that was designed to exclude women whose symptoms reduced below the eligibility threshold (St. Mark's score of 12) after receiving standardized verbal and printed information about causes and treatment of FI (NIDDK pamphlet) and completing bowel diaries. We assessed change in St. Mark's score and weekly FI episodes (week 1 v week 4) during the run-in period. We also compared change in St Marks's score between women who completed a paper versus phone bowel diary.

Results: 185 women completed the run-in period. Among the women included in the analysis, mean age was 63.8(± 11.5) years, 81% were White, 12% African-American, and 10% Latina. 136(74%) completed electronic and 47(26%) completed paper diaries. Mean St. Marks score was 17.8±2.6 and 16.9±3.5 at week 1 and week 4, respectively. The mean change in St. Mark's score from week 1 to week 4 was -0.9±3.2. Only 11(6%) women became ineligible for the trial following the run-in period, all of whom had week 1 scores of 18 or lower. (Figure 1) The average number of FIE/week did not change significantly between week 1 and week 4 (7.9±8.1 v 8.1±7.8), nor did other bowel diary measures including FIE-free days, number of urge FIE, number of bowel movements or number of urge-associated bowel-movements. There was no significant difference in the change in St. Mark's score between women who completed a paper versus phone diary(p=0.176).

Conclusions: Completion of a bowel diary and receiving education on FI during the 4-week run-in did not significantly impact symptom severity in women with FI. Only 6% of women became ineligible for participation following the run-in suggesting that in a refractory population, a run-in may have minimal effect.

Disclosure: No

Images:

Table 1.—Participant baseline characteristics.

Continuous Measures	N	Min	Median	Max	Mean	SD
Age	93	18	53	96	50.9	17.07
Symptom Duration	78	0.1	3.6	21	3.6	4.25
Daytime Voiding Frequency	78	1.5	6	17	7.3	3.50
Nighttime Voiding Frequency	78	0	2.5	7.5	2.2	1.47
Caffeine Daily Intake (oz.)	70	0	12	52	12.5	10.56
Fluid Daily Intake (oz.)	83	12	44	128	52.0	28.17
Number of Accidents per Day	86	0	1	8	1.5	1.81
Number of Vaginal Deliveries	90	0	2	5	1.6	1.28
Number of C-sections	90	0	0	3	0.3	0.61
Number of Episiotomies	90	0	0	5	0.5	0.78
Categorical Measures	**Category**				**N**	**%**
Type of Pad	Diapers				7	7.4
	Face Towels				1	1.1
	None				1	1.1
	Pads				4	4.2
	Panty Liners				8	8.4
	Regular Pads				3	3.2
	Underwear				5	5.3
Alcohol Consumption	No				52	54.7
	Yes/Occasionally				39	41.1
	Not Reported				4	4.2
Bowel Habits	Constipation				3	3.2
	Diarrhea				1	1.1
	Fecal Incontinence				1	1.1
	Regular				15	15.8
	Not Reported				75	78.9
Pregnant/Trying to Conceive	No				89	93.7
	Yes				2	2.1
	Not Reported				4	4.2
Diagnoses (Can be multiple)	Chronic Pelvic Pain				7	7.4
	Constipation				1	1.1
	Cystocele				1	1.1
	Dyspareunia				1	1.1
	Frequency of Urination				37	38.9
	Incomplete Bladder Emptying				2	2.1
	Mixed UI				2	2.1
	Muscle Spasm				1	1.1
	Pelvic Pain				10	10.5
	Prolapse				5	5.3
	Rectocele				1	1.1
	Sexual Dysfunction				3	3.2
	Stress UI				61	64.2
	Urge UI				28	29.5
	Urgency of Urination				1	1.1
	Not Reported				11	11.6

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Use of the Urodynamic by Gynecologists and Urologists in Brazil

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Introduction: The urodynamic (UDS) is a set of tests that study the storage and emptying of urine and is widely used by gynecologists and urologists in the management of urinary incontinence (UI), despite the discussion about its indications.
Objective: The objectives of the study were to verify whether the urodynamics is routinely used in the conservative and surgical approach to female UI, and other clinical indications, comparing the responses between Brazilian gynecologists and urologists.
Methods: This is an opinion survey through a semi-structured questionnaire, consisting of questions about clinical practice, sent by e-mail to all participants; and carried out between August 2020 and January 2021. The responses were compared with statistic analyses.
Results: Of the 329 participants, 238 were gynecologists (72.3%) and 91 urologists (27.7%). The majority of gynecologists (73.5%) and urologists (86.6%) don't request UDS before the conservative treatment of UI; but the UDS is indicated in the preoperative of anti-incontinence surgeries. Most participants indicate UDS in the initial approach to Overactive Bladder (88.2% vs. 96.7%) and there is a greater chance that the urologist will request most UDS in this situation (OR= 3.9). For most participants, it´s necessary to request uroculture before the UDS.
Conclusions: Most Brazilian gynecologists and urologists participants don't request UDS before the conservative treatment of UI according to national and internacional guidelines, and often request it before surgical treatment of female UI. The indication for this exam in the initial approach of idiopathic Overactive Bladder should be reviewed by the participants.
Disclosure: No
Images:

Table 2.—Participant outcome statistics.

Variable	N	Min	Median	Max	Mean	SD	t[1]	p	Mean Difference[2]	95% Bootstrap CI of Difference[3]
BRS Baseline	95	37	82	273	85.0	26.86				
BRS PT[4]	95	7	34	77	35.4	13.65	-16.27	<0.001	-49.6	-58.33, -45.95
Manometry Baseline	95	0.8	36	115.9	40.2	28.75				
Manometry PT	95	1.8	51.9	168.4	56.4	33.91	5.27	<0.001	16.2	7.56, 25.58
Number of Pads Baseline	85	0	0	8	1.0	1.57				
Number of Pads PT	90	0	0	2	0.1	0.28	-6.12	<0.001	-1.0	-1.34, -0.71
Number of Leaks Baseline	86	0	1	9	1.8	2.17				
Number of Leaks PT	89	0	0	1	0.01	0.11	-7.64	<0.001	-1.8	-2.09, -1.24
Number of Treatments	95	4	8	16	8.8	2.48				
Perceived Improvement	95	20%	80%	100%	80%	17.79%				
Level of Satisfaction	26	50%	100%	100%	92.7%	12.5%				

[1]Based on paired t-test. Note that these results were the same statistically as the results of the nonparametric tests.
[2]Based on (time2-time1); a positive difference denotes an increase in score, and a negative difference denotes a decrease in score.
[3]Based on 10,000 bootstrap resamples of the data. Note that intervals not containing "0" are significant.
[4]PT: Post-treatment

Images:

Observation	Pre-operative mean (95% CI)	Short-term mean (95% CI)	Medium term mean (95% CI)
Age (y)	28,7 (25,5 – 32,0)	-	-
Time from index injury (months)	32 (18,9 – 45,2)	-	-
BMI	29,6 (26,3 – 32,9)	-	-
Previous repairs	15,8% (3/19)	-	-
Diverting colostomy	21,0% (4/19)	-	-
Perineal body length (cm)	0,37 (0,09 – 0,64)	1,63 (1,20 – 2,06)	1,42 (1,0 – 1,84)
Arc of disruption of EAS (degrees)	75,0 (59,8 – 90,2)	63,1 (49,4 – 76,9)	52,0 (38,0 – 66,0)
St Mark's Incontinence score	16,6 (14,7 – 28,4)	3,7 (1,0 – 6,4)	6,4 (3,5 – 9,2)
Resting anal pressure	18,4 (13,0 – 23,8)	29,6 (25,7 – 33,5)	24,9 (22,1 – 27,8)
Average anal squeeze pressure	32,1 (25,3 – 38,8)	49,2 (43,4 – 54,9)	44,2 (38,8 – 49,5)
Maximal anal squeeze pressure (cmH2-0)	42,9 (32,2 – 51,7)	60,9 (54,6 – 67,2)	57,1 (50,6 – 63,5)
	Pre-operative number of observations (%)	**Short-term number of observations (%)**	**Medium-term number of observations (%)**
St Mark's Incontinence score <1	0/19 (0%)	9/19 (47%)	2/19 (11%)
St Mark's Incontinence score <4	0/19 (0%)	13/19 (68%)	8/19 (42%)
Alteration of lifestyle score < 1	0/19 (0%)	12/19 (63%)	11/19 (58%)

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Bulbocavernosus Reflex as an Objective Measurement of Improvement Following Directed Pelvic Floor Rehabilitation for Treatment of Urinary Incontinence

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Introduction: Urinary incontinence is a common and frequently underreported problem that leads to significant impact on quality of life, affecting up to 52% of women in the US alone. Pelvic floor muscle therapy is recommended as first-line treatment, however optimal methods for objectively measuring improvement remain unclear. At our institution, a cohort of women with urinary incontinence underwent baseline bulbocavernosus reflex testing. Clinically, this reflex is painlessly elicited by mechanical stimulation of the clitoris and/or vulva, in response to which there is anal sphincteric contraction. We used an electromyography system to obtain measurements of bulbocavernosus reflex electromyography in milliseconds of latency, as well as anal manometry testing. Patients were then treated with an 8-week guided pelvic floor exercise program in conjunction with 200 Hz electrical stimulation. Post-treatment bulbocavernosus reflex and peak anal manometry testing along with questionnaires for subjective patient improvement were then completed.
Objective: To investigate whether testing of the bulbocavernosus reflex can serve as an objective measure of improvement following pelvic floor rehabilitation for the treatment of urinary incontinence.

Methods: We performed a retrospective case series of 95 women with urinary incontinence who were found to have an abnormal bulbocavernosus reflex tested by an electromyography system. Data were collected on demographics, history of prior treatment, pre- and post-treatment bulbocavernosus reflex latencies and anal manometry, daily incontinence episodes, pad counts, and patients' subjective perception of improvement. Pre-to-post mean differences were calculated using paired-t tests with 95% bootstrap confidence based on 10,000 permutations. Normality of the data was investigated using the Shapiro-Wilk test along with investigation of measures of skewness and kurtosis. Additionally, we report 95% bootstrap confidence intervals based on 10,000 permutations for each statistical test.
Results: A total of 95 patients with UI were included in the analysis. The median age was 53 with an average duration of symptoms of 3.6 years. The most common presenting diagnoses included stress UI (64%), frequent urination (39%), urgency UI (30%), and pelvic pain (11%) (Table 1). Pre- and post-treatment significant differences were found in several areas. The bulbocavernosus reflex latency was reduced with the mean reflex improved from 85.0 ms to 35.4 ms, p< 0.001. Maximum BRS at baseline was 273 ms and maximum at completion of treatment was 77 ms. Anal manometry was improved from 40.2 mmHg to 56.4 mmHg, p<0.001. Pad count also decreased with treatment from 1.0 to 0.1 mean/median pads per day, p<0.001. Maximum incontinence episodes improved from 9 to 1 per day. Perceived improvement was noted in 80% of patients (SD 17.8%). At 6 to 24 months post-treatment, satisfaction was 93% (SD 12). (Table 2).
Conclusions: Bulbocavernosus reflex latency is an effective objective measure of pelvic floor dysfunction in our patient population. Abnormal latency values and subsequent improvement after rehabilitation can be used in conjunction with subjective patient improvement.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: New Image Medical, Inc.
Images:

Table 1: Relevant baseline demographic characteristics.

		Total	Black	Hispanic	White	p
	Total, n (row %)	*146*	*36 (24.7)*	*37 (25.3)*	*73 (50.0)*	
Age (y) at visit 1	Mean (SD)	60.3 (13.3)	55.6 (14.5)	65.3 (10.9)	60.1 (13.0)	0.007
Body Mass Index	Mean (SD)	30.3 (7.6)	33.6 (9.2)	29.6 (5.0)	29.0 (7.5)	0.04
Relevant Comorbidities						
Kidney disease		1 (0.7)	0 (0.0)	1 (2.7)	0 (0.0)	0.50
Diabetes		32 (21.9)	9 (25.0)	14 (37.8)	9 (12.3)	0.008
Glaucoma		4 (2.7)	3 (8.3)	1 (2.7)	0 (0.0)	0.02
Hypertensicn		75 (51.4)	22 (61.1)	22 (59.5)	31 (42.5)	0.10
Miles between home and clinic zip-code						
	Mean (SD)	9.5 (7.1)	7.2 (5.3)	5.5 (2.9)	12.7 (7.8)	<0.001
Health Insurance						
Private insurance		66 (45.2)	16 (44.4)	4 (10.8)	46 (63.0)	<0.001
Medicaid/Medicare		33 (22.6)	9 (25.0)	11 (29.7)	13 (17.8)	
State-provided insurance		30 (20.5)	6 (16.7)	19 (51.4)	5 (6.8)	
Other/Self-pay		17 (11.6)	5 (13.9)	3 (8.1)	9 (12.3)	

Table 1 Legend: Relevant baseline characteristics amongst study groups are represented. Information was abstracted from the medical record. Comparisons made using ANOVA and Fisher's exact test.

Figure 1: Proportion of participants prescribed an anticholinergic medication at each attended visit stratified by race and ethnicity.

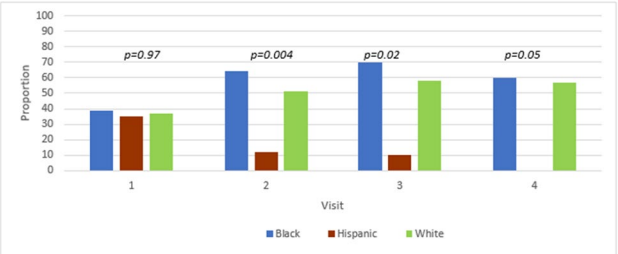

Figure 1 Legend: When stratified by race and ethnicity, the proportions of participants prescribed anticholinergic medications were different at the second and third visits after initiating care for overactive bladder with a Female Pelvic Medicine and Reconstructive Surgery provider. These differences were not present at the first visit or the fourth visit, though fewer patients attended more than three visits in the 11-month period, which limited meaningful comparisons. Comparisons were made using Fisher's exact test.

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Outcomes of Secondary Repair of Obstetric Anal Sphincter Injury in a Tertiary Centre

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Introduction: Unrecognised or poorly repaired obstetric anal sphincter injuries (OASI) result in significant morbidity. Outcomes of subsequent repair after an interval of months to years are not widely reported and available data show mixed results, ranging from 0% to up to 87% of patients reporting perfect continence. Previous studies have failed to demonstrate a direct relationship between residual sphincter damage and faecal incontinence severity.
Objective: The primary objective is to describe the short-term (6 week) and medium-term (6 month) outcomes of secondary repair of OASI in a tertiary unit. Secondary objectives were to identify pre-operative characteristics that correlate with outcomes, as well as to identify which objective outcome measures are correlated with subjective outcomes.
Methods: 19 consecutive patients who underwent secondary repair of OASI in our unit were recruited for this study. Pre-operative data collected were age, time in months since index injury, body mass index (BMI), the presence of diverting colostomy and the number of previous attempts at repair. The length of the perineal body was measured. Average anal resting pressures, average anal squeeze pressures and maximum anal squeeze pressures were determined using a xx anal manometer. The external anal sphincters (EAS) were imaged with transperineal ultrasound (TPUS) with a GE Voluson E6 ultrasound using a standardised technique and the maximum arc of disruption of the EAS measured. Patients were interviewed and their St Mark's Incontinence Score determined. These measures were taken pre-operatively, at six weeks and six months post-operatively.
Results: Baseline characteristics and outcome measures are shown in the attached table. Short-term outcomes showed an improvement in mean SMIS from 16,6 to 3,7. There was worsening in outcomes from 6 weeks to medium term with an increase of mean SMIS to 6,4. Different definitions of outcome success that were assessed were total SMIS < 4 (incontinence for solid or liquid stool rarely, or incontinence to gas less than daily) and an alteration in lifestyle score < 1 (never need to alter lifestyle). Age, BMI, time from index injury, arc of EAS disruption, pre-operative perineal length, resting, average squeeze and maximal squeeze anal pressures were not significantly associated with either long-term or short-term outcomes. Presence of diverting colostomy was significantly associated with achieving SMIS < 4. Postoperative perineal body length > 1cm was significantly associated with all both measures of success. No other objective measures were significantly associated with either of the subjective outcomes.
Conclusions: Medium-term outcomes of secondary repair of OASI in our unit shows a subjective cure rate of 58%. The finding that medium-term success is associated with perineal body length rather than arc of disruption of the EAS or with maximal and average anal squeeze pressures suggest that anatomically correct repair of the EAS is less important than in restoring the length of the anal canal and a reconstruction of the perineal body. It may be postulated that such a reconstructed perineal body provides an anchor to the remnant arc of the EAS that allows it to achieve sufficient function to enable patients to defer defecation and achieve an acceptable quality of life.
Disclosure: No
Images:

Table 1. Characteristics of Patients in Database Study

Characteristic	Overall n (% of overall) N = 9000	Navigator Patients n (% of overall) n = 1151	Non-navigator Patients n (% of overall) n = 7849
Age, y			
Range	18-101	18-97	18-101
Median (IQR)	67 (55-75)	67 (55-75)	67 (55-75)
Mean (SD)	63.5 (16.9)	64.0 (15.1)	63.5 (17.2)
Sex, n (%)			
Female	5392 (59.9)	940 (17.4)	4452 (82.6)
Male	3607 (40.1)	211 (5.8)	3396 (94.2)
Race, n (%)			
Asian	154 (1.7)	22 (14.3)	132 (85.7)
Black	931 (10.3)	169 (18.2)	762 (81.8)
White	6296 (70.0)	817 (13.0)	5479 (87.0)
Other	181 (2.0)	8 (5.6)	173 (95.6)
Unknown	1438 (16.0)	135 (9.4)	1303 (90.6)
Insurance type, n (%)			
Private	2504 (27.8)	276 (11.0)	2228 (89.0)
Medicare	3847 (42.7)	563 (14.6)	3284 (85.4)
Medicaid	328 (3.6)	68 (20.7)	260 (79.3)
Military	60 (0.7)	5 (8.3)	55 (91.7)
Self-pay	37 (0.4)	4 (10.8)	33 (89.2)
Other	31 (0.3)	3 (9.7)	28 (90.3)
Unknown	2193 (24.4)	232 (10.6)	1961 (89.4)

IQR, interquartile range; SD, standard deviation.

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Utility of Telemedicine in Patients Undergoing Treatment for Overactive Bladder

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Introduction: Throughout the COVID-19 pandemic, medical office culture has changed to incorporate telemedicine. Now that regular office visits are occurring once again, many health care settings are left with a hybrid model. Throughout the pandemic, patients with incontinence were treated with telemedicine through many successful avenues. Behavioral, medical, and conservative management are valuable first-line interventions for overactive bladder and are possible in the telemedicine setting. It is important to examine the usefulness of telemedicine to discern if this is an appropriate alternative throughout the future of medicine.
Objective: To assess the utility of telemedicine for patients undergoing management of overactive bladder.
Methods: This is a retrospective chart review spanning March of 2019 through November 2021 at a urogynecologic practice. Patients were included based on CPT codes (N39.41, N32.81, N39.46). These codes are specifically for overactive bladder, urge, or mixed incontinence, respectively. Telemedicine visits started after April of 2020. Visit types including cancellations, re-scheduled visits, and no shows were compiled to look at compliance of in-person versus telemedicine visits. Analytical methods were performed using Python software. Descriptive analysis for all primary and secondary objective variables are reported independently and presented as percent and count within category.
Results: There were 2176 patients who met inclusion criteria during the 32 month time frame. Patient compliance was the measure used to determine the utility of telemedicine visits. It was measured by collecting patient cancellations and re-scheduled visits. In the time before April 2020 16.1% of visits resulted in patients not attending their originally scheduled appointment in comparison to 17.8% after. When broken down into the type of visit, 10% of telemedicine visits were not attended versus 18.2% of in-person visits. Of the visits that were not attended, if a visit was originally for in-person it was rare (4%) that they would switch their next visit to be telemedicine. And the same was true for telemedicine visits. However, when compiling no-show visits, 2.5% of in-person visits resulted in no-show in comparison to 4.4% of telemedicine visits.
Conclusions: There were fewer canceled or rescheduled telemedicine visits overall in our sample of visits for urge incontinence. This could be due to greater flexibility of appointment type and decreased barriers such as transportation or timing of the appointment. Increased compliance with the originally scheduled appointment time strengthens the argument that telemedicine is a useful alternative to in-person appointments. This seems especially useful in the management of chronic medical conditions, such as urge incontinence, which do not require an in-person exam. Interestingly, the no-show rate was greater among telemedicine visits. Patients who do not show up for their appointment without notifying the office prior seem to be a different group from those who cancel. This could highlight a difference in the way patients view this type of medical care. Further research is needed to determine behavioral aspects of telemedicine care.
Disclosure: No

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Manchester-Fothergill Operation Compared to Vaginal Hysterectomy for Uterine Prolapse

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1 - Whittington Health NHS Trust

Introduction: Symptomatic uterine prolapse is a common indication for pelvic floor surgery. The surgical options include uterine conserving procedures or hysterectomy. Recently, uterine conserving surgery has become limited due to the reported complications of synthetic meshes and many women are declining mesh implants. The optimal choice of procedure should be based on low recurrence rates and complications. Although there are several surgical methods described to conserve the uterus, there is a lack of strong evidence supporting a superior technique.
Objective: Our aim was to evaluate the effectiveness and peri/post operative outcomes of the uterine-sparing Manchester-Fothergill repair (MR) compared to vaginal hysterectomy (VH), which is the most common procedure for uterine prolapse. The impact of severity of prolapse and increased BMI (>30) on the surgical outcome was also assessed.
Methods: We have retrospectively evaluated the data from the perioperative period and the 6-week follow-up appointment of 48 patients, who underwent a Manchester repair in a single centre from 2010 to 2018. All procedures were performed by the same surgeon.
Results: The mean age was 62.3 years. 95% of patients were multiparous and 89.6% post-menopausal. The mean BMI was 27.8. 89.6% presented with concurrent cystocele and 83.3% with rectocele. The mean operating time was 105+/-22 minutes and the average hospital stay was 2.51 days. 2 patients did not attend the post-operation follow-up review. 5 patients (10.4%) had EBL>1000ml, none had organ injury and 1 (2.1%) patient required antibiotics due to post-operative infection. In follow-up review, cervical stenosis was noted in 3 (6.3%) patients and recurrence of apical prolapse in only 1 (2.1%) patient. We identified 11 patients with severe prolapse (ie stage 3 and 4). Of those, 3 (27.3%) had major haemorrage >1000ml [RR 4.2, 95%CI (0.77-22.4), p 30, major haemorrhage occurred in 2 (15.4%). The mean operating time (103 minutes) and average hospital stay (3.5 days) did not differ significantly from patients with BMI below 30. No patients had recurrence in follow-up. In comparison, the literature on VH suggests a 2.9-10% risk of major bleeding, 5-13% risk of infection. 0.2-2% risk of bladder or ureteric injury. The recurrence rates of apical prolapse in the literature range from 1-13% for VH and 0.3-9.5% for MR.
Conclusions: The Manchester repair should be considered a good alternative to VH, even for stage 3-4 prolapse. Our data demonstrates good medium-term results and low complication rates. Additionally, the uterus is preserved, which is an important consideration for many

women. Severe prolapse and high BMI appear to increase the risk of intra-operative blood loss but do not affect the recurrence rate. The sample size, however, was small and further longer term follow up data will be collected.
Disclosure: No

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Race, Ethnicity, and Exposure to Anticholingeric Medication for Overactive Bladder
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2 - Division of Research, Department of Obstetrics and Gynecology, Women and Infants Hospital of Rhode Island/Warren Alpert Medical School of Brown University

Introduction: There is evidence suggesting that anticholinergic therapy may be associated with dementia. (1) Patient-related factors associated with differential exposure to anticholinergic therapy for overactive bladder (OAB) should be investigated.
Objective: To describe the association between race, ethnicity, and anticholinergic prescription after initiating care for OAB at a new patient consultation with a Female Pelvic Medicine and Reconstructive Surgery (FPMRS) provider.
Methods: Planned secondary analysis of a retrospective cohort of patients who initiated treatment for OAB after a new patient consultation with a FPMRS provider at a single tertiary referral center March 1, 2017-March 1, 2021. The primary outcome was the proportion of patients prescribed anticholinergic therapy in the first 11 months of treatment. Secondary outcomes included the proportion of patients who contacted the clinic between visits, and reasons why. Inclusion criteria included age greater than 18 years old, self-reported race and ethnicity information, and pursued treatment for OAB. Patients planning surgery for prolapse or stress incontinence were excluded. Information was abstracted from the electronic medical record as available. Statistical comparisons were made by Fisher's exact test and analysis of variance using SAS version 9.4 (SAS Institute Inc. 2016).
Results: A total of 146 participants were included in the analysis. There were baseline demographic differences between the groups (Table 1). There were no differences in self-reported presence of daily frequency, urgency, nocturia, daily incontinence episodes, number of pads used, or duration of symptoms (all p greater than 0.05). Pelvic Floor Impact Questionnaire scores trended toward being higher in Hispanic patients (64.2, SD 64.7, Black; 103.7, SD 87.8, Hispanic; 63.2, SD 62.6, white; p=0.06). A smaller proportion of Hispanic patients sought past treatment for any pelvic floor disorders (p=0.003), including for overactive bladder (p=0.047). A higher proportion of white participants had prior incontinence surgery (p=0.039). There were no significant differences in the proportions of patients prescribed anticholinergic medications at the first visit when stratified by race and ethnicity. However, differences emerged over subsequent visits (Figure 1). There were also differences in the proportions of patients who called the clinic between visits (16/36, 44.4% Black; 7/37, 18.9% Hispanic; and 29/73, 39.7% white, p=0.04), but no significant differences in the reasons cited for the call (p greater than 0.05)
Conclusions: In this single site, tertiary care specialty clinic, there were possible variations in anticholinergic medication prescribing by patient race and ethnicity. REFERENCE: AUGS Consensus Statement: Association of Anticholinergic Medication Use and Cognition in Women With Overactive Bladder. Female Pelvic Med Reconstr Surg. 2017 May/Jun;23(3):177-178. PMID: 28441276.

Disclosure: No
Images:

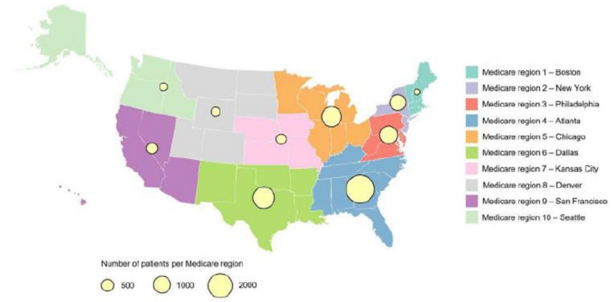

Figure. Geographical representation in the database study. Map displays the number of patients in the database within each US Medicare region. Regional inclusion is represented as filled yellow circles, with circle size corresponding to the total number of patients. The map does not display Puerto Rico (part of Region 2), Guam, and the Northern Mariana Islands (both part of Region 9).

Table 2. Geographic Characteristics

Characteristic	Overall n (% of overall) N = 9000	Navigator Patients n (% of overall) n = 1151	Non-navigator Patients n (% of overall) n = 7849	*P* value*
Medicare region, n (%)				
Medicare region 1	113 (1.3)	0	113 (100)	
Medicare region 2	848 (9.4)	49 (5.8)	799 (94.2)	
Medicare region 3	1067 (11.9)	269 (25.2)	798 (74.8)	
Medicare region 4	2693 (29.9)	283 (10.5)	2410 (89.5)	
Medicare region 5	1367 (15.2)	321 (23.5)	1046 (76.5)	<0.001
Medicare region 6	1631 (18.1)	169 (10.4)	1462 (89.6)	
Medicare region 7	352 (3.9)	14 (4.0)	338 (96.0)	
Medicare region 8	286 (3.2)	7 (2.4)	279 (97.6)	
Medicare region 9	429 (4.8)	18 (4.2)	411 (95.8)	
Medicare region 10	214 (2.4)	21 (9.8)	193 (90.2)	

*Navigator patients vs non-navigator comparison based on a two-sided Pearson's chi-square test.
Unless otherwise specified, percentages are out of the number of patients in sample with non-missing responses.

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Screening of traditional Chinese medicines specifically inhibiting the proliferation of bladder cancer T24 cells
Pang, K[1]
1 - Xuzhou Central Hospital

Introduction: Need for an efficient drug screening method
Objective: Based on CellTiter-Glo® Luminescent Cell Viability Assay (Promega, G7570) technology, compounds with significant inhibitory effects on human bladder cancer T24 cells were screened from 1920 Chinese medicine extract libraries.
Methods: We use Promega's Cell-titer glo kit and use a 384-well plate (Corning, 3765) mode for testing. The initial screening uses each compound in a single concentration, single-well format. Drug library selection 51.KIB Natural Products library 1#, which contains 1920 kinds of natural compounds and some natural derivatives derived from medicinal plants, etc. provided by the State Key Laboratory of Phytochemistry and Sustainable Utilization of Western Plant Resources, Kunming Institute of Botany, Chinese Academy of Sciences.
Results: The preliminary screening results indicated that the cell viablility inhibition rate of 26 hits reached 50%. The re-screening results indicated that the cell activity inhibition rate of 23 hits have reached 50%. The 23 positive results obtained, the inhibition rate ranged from 99.2% to 76.6%, and the molecular weight ranged from 258 to 1064 (average 707).

Conclusions: In our study, 23 compounds with significant inhibitory effects on human bladder cancer T24 cells were screened from 1920 Chinese medicine extract libraries. In the follow-up study, we will conduct IC50 determination, pharmacological and toxicological verification of these 23 traditional Chinese medicine extracts, and study the molecular mechanism of inhibiting bladder proliferation.
Disclosure: No

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Screening of Traditional Chinese Medicines Specifically Inhibiting the Proliferation of Bladder Cancer T24 cells

Pang, K[1]
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Disclosure: No

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Baseline Characteristics of Patients With Overactive Bladder Receiving Navigated or Routine Care Identified From a US National Retrospective Database Study

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2 - Eastern Virginia Medical School, The Devine-Jordan Center for Reconstructive Surgery and Pelvic Health, Virginia Beach, VA
3 - Montefiore Medical Center, Bronx, NY
4 - AbbVie, Madison, NJ
5 - Perelman School of Medicine, University of Pennsylvania, Penn Center for Continence and Pelvic Health, Division of Urology, Philadelphia, PA
6 - AbbVie, Lake Bluff, IL
7 - University of Miami, Miller School of Medicine, Miami, FL

Introduction: Overactive bladder (OAB) is a highly prevalent condition that is undertreated, although some effective interventions are available. Previous research has demonstrated that navigation of care can help guide patients through the OAB clinical pathway, leading to initiation and continuation of third-line treatment options. The present study evaluated the real-world demographics of OAB patients receiving navigated care compared with those who did not.
Objective: To describe the real-world demographic and geographic characteristics of OAB patients identified in a large electronic medical records database representing over 90 community-based urology practices stratified by those who received navigated care and those who did not.
Methods: A random set of patients with OAB were retrospectively identified using the ninth and tenth revisions of the International Classification of Diseases, Clinical Modification and procedure codes from the Precision Point Specialty Analytics Portal for OAB database. This database contains the electronic medical record data for community-based urology practices in the US that provide care to over 2.4 million OAB patients. Eligible patients were ≥18 years of age, newly diagnosed and treated for OAB between January 1, 2015, and December 31, 2019, and had ≥2 OAB visits at least 30 days apart. Pregnancy, interstitial cystitis or cystitis after radiation treatment, chronic urinary retention, and neurogenic lower urinary tract dysfunction were exclusion criteria. Treatment navigation was identified by assessing whether the practice offered navigated care, whether the patients had been assigned to a navigator list, and if the navigator initiated care management through notes or action items in the patient's chart.
Results: A total of 9000 patients were randomly selected from the 190,697 patients who met all study inclusion criteria. Median age at diagnosis was 67 years (IQR 55-75); Overall, 60% (n=5392) of patients were female and 70% (n=6296) were White (Table 1). A greater percentage of women (17.4%) received navigated care compared with men (5.8%). 18.1% of Black patients received navigated care followed by Asian (14.2%) and White (13.0%) patients. Overall, Medicare (n=3847, 42.7%) and private insurance (n=2504, 27.8%) were the most prevalent insurance types. Within the navigated care group, 20.7% of patients on Medicaid received navigated care, 14.6% on Medicare, 11.0% on private insurance, 10.8% on self-pay insurance, and 8.3% on military insurance, indicating that a larger proportion of patients on Medicaid received navigated care compared with other insurance types. While the Atlanta Medicare region 4 had the most overall number of patients in the study (n=2693, 29.9%; Figure), only 10.5% of those patients received navigated care (Table 2). In Medicare regions 3 (Philadelphia) and 5 (Chicago), 25.2% and 23.5% of the patients received navigated care, respectively, and in Medicare regions 6 (Dallas) and 10 (Seattle), 10.4% and 9.8% of the patients received navigated care, respectively (Table 2).
Conclusions: These results suggest that patients with OAB who receive navigated care tend to be women of a variety of races on Medicaid or Medicare.
Disclosure: Yes, this is sponsored by industry/sponsor: Allergan (prior to its acquisition by AbbVie)
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: AbbVie
Images:

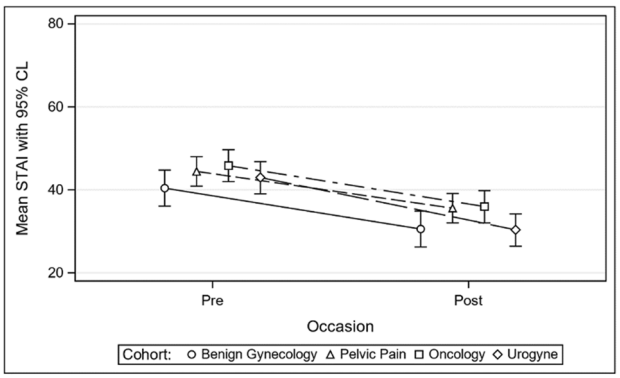
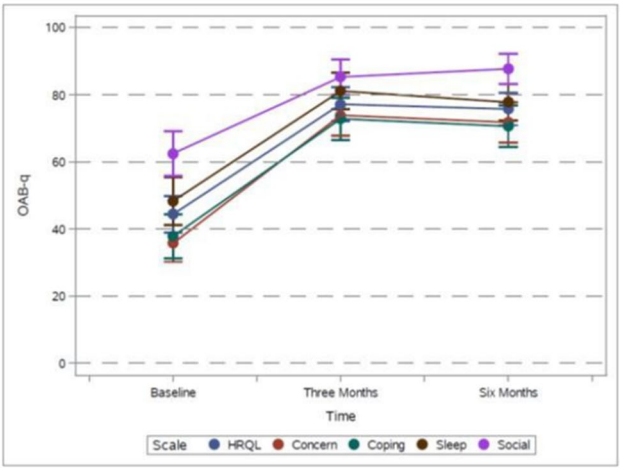


Figure 1. *Change in STAI score by cohort and occasion*

Table 1. Baseline characteristics of enrolled subjects

Characteristic	All subjects (n=68) mean ± SD or N (%)
Age (years)	62 ± 13
Female sex	61 (89.7%)
BMI (kg/m^2)	32 ± 6.8
Years since diagnosis	10 ± 8.0
Primary diagnosis	
Urinary Urge Incontinence	15 (22.1%)
Urgency Frequency	5 (7.4%)
Both UUI and UF	48 (70.6%)
Medication use at baseline	36 (53%)
Prior advanced therapy	
Sacral Neuromodulation	1 (1.5%)
Tibial Neuromodulation	7 (10.3%)
Botox	2 (2.9%)
Baseline leaks/day (UUI)	6 ± 4.5 (n=63)
Baseline voids/day (UF)	14 ± 6.5 (n=53)
Baseline OAB-q HRQL	44 ± 22

Figure 1. OAB-q scores at baseline and follow up. Data are plotted as Mean ± 95% CI.



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Is Perineal Body Size Important in Prolapse?

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1 - London North West University Healthcare NHS Trust
2 - Kingston Universtiy
3 - St Mary's hospital, Paddington

Introduction: The perineal body is the confluence of all the muscles on the pelvic floor. Perineal reconstruction forms an important part of posterior prolapse repair. Accurate assessment of the perineal body has been described and validated.
Objective: Assess the prolapse anatomy in women with a small perineal body as defined as less than 1.1cm3.
Methods: Prospective study of patients undergoing prolapse surgery. Clinical assessment and pelvic floor ultrasound were performed. Different types of prolapse (anterior, posterior and apical) were compared to each other.
Results: A small perineal body (<1.1cm3) was found in patients with rectocoele most commonly. Of these, 15/25 (60%) had grade 3 prolapse. When the perineal body area was more than 1.1cm3, 49.1% (26/53) prolapse patients did not have a rectocele (t-test, p=0.0001). Perineal body size was not associated with cystocoele severity (p=0.5). Apical severity was more likely to be more severe when the perineal body was small (t-test, p=0.01). 10/25 (40%) of severe apical prolapse (grade 3 and 4) were associated with a small perineal body.
Conclusions: A small perineal body is strongly associated with rectocele and apical prolapse. A small perineal body does not appear to be associated with cystocoele.
Disclosure: No

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Comprehensive Analysis of the Gene Expression Characteristics after Puerarin Treatment of Bladder Cancer T24 Cells

Pang, K[1]; Han, C[1]
1 - Xuzhou Central Hospital

Introduction: Puerarin inhibits proliferation of bladder cancer T24 cells, but the mechanism is unclear
Objective: In this article, we referred to bio-information analysis website tools to analyze the gene expression characteristics of Puerarin affects the proliferation of BC T24 cells.
Methods: The IC50 of Puerarin was measured and the BC T24 cells were divided into Puerarin group and control groups. Affymetrix® gene expression profiling microarray chip were performed to get the differentially expressed gene list (DEGL) between the 2 groups. The enrichment of Gene Ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) were analyzed by Metascape®. TCGA analysis tools Ualcan and GeneMINIA were used to find the key gene in molecular network.
Results: The result of gene expression profiling chip showed in the DEGL that 590 genes were up-regulated and 1087 genes were down-regulated. The pathway analysis showed by Metascape® that Puerarin may affect the "cellular metal ion homeostasis", "blood vessel development" and "positive regulation of cell death" signaling pathway. Summary of enrichment analysis in DisGeNET shows that Puerarin may be involved in the "Vascular Diseases", "tumor vasculature" and "Recurrent tumor" in BC T24 cell lines. Many key genes of different signaling pathway were found by GeneMINIA.
Conclusions: Puerarin may affect apoptosis through "tumor vasculature", "blood vessel development" and "positive regulation of cell death" in bladder cancer T24 cell lines. It may be a negative effect on the proliferation of bladder malignant tumor.
Disclosure: No

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Tandem Mass Tags Based Protein quantitative Analysis of Puerarin Treatment in Bladder Cancer T24 Cells

Pang, K[1]; Han, C[1]
1 - Xuzhou Central Hospital

Introduction: Puerarin inhibits proliferation of bladder cancer cells, but the mechanism is unclear
Objective: In this article, we referred to Tandem Mass Tags (TMT) Based Protein Quantification and followed by bio-information analysis website tools to analyze the protein expression characteristics after Puerarin treatment of bladder cancer T24 cells.
Methods: The IC50 of Puerarin was measured and the BC T24 cells were divided into Puerarin group and control groups. TMT Based Protein Quantification were performed to get the differentially expressed protein list (DEPL) between the 2 groups. The enrichment of Gene Ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) were analyzed by Metascape®, protein-protein interaction (PPI) were analyzed by String® and visualized by Cytoscape®. Then TCGA database analysis tool Ualcan was used for key protein screening.

Results: The result of TMT showed in the DEPL that 793 genes were up-regulated and 592 genes were down-regulated. The pathway analysis showed by Metascape® that Puerarin may affect the "Cell Cycle", "Retinoblastoma gene in cancer" and "mitotic cell cycle process" signaling pathway. Summary of enrichment analysis in DisGeNET shows that Puerarin may be involved in the "DNA repair", "Transcriptional Regulation by TP53" and "Vesicle-mediated transport" in BC T24 cell lines. PPI shows that Puerarin may involved in "Malignant Glioma", "Malignant Head and Neck Neoplasm", "Meningioma", "Head and Neck Carcinoma" and "Carcinoma, Transitional Cell". The network key gene screening results finds a list of 20 proteins that were affacted by Puerarin and may involved in the proliferation of BC T24 cells.
Conclusions: Puerarin may affect apoptosis through in bladder cancer T24 cell lines. It may be an activation effect on the proliferation of bladder malignant tumor.
Disclosure: No

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How Anxious are Women When Presenting for Gynecological Care?

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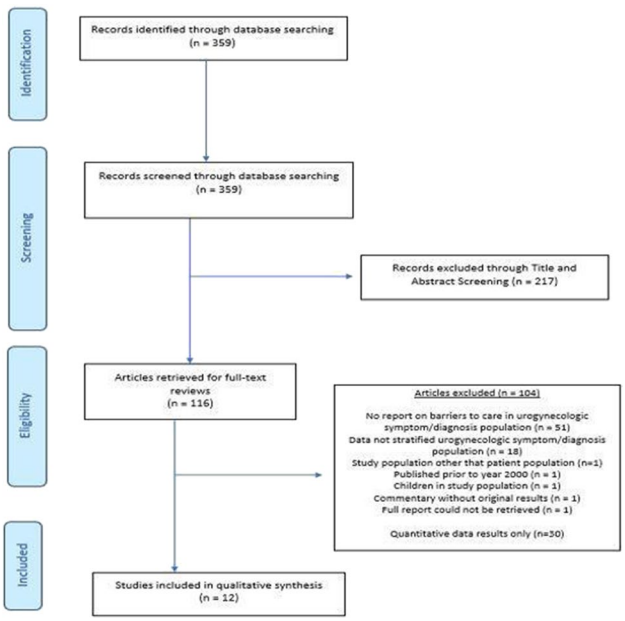
1 - Loyola University Medical Center
2 - Loyola Stritch School of Mediciine
3 - Loyola University Chicago Health Sciences Division
4 - Kern Medical
5 - Loyola Stritch School of Medicine
6 - Northwestern Medicine

Introduction: State anxiety is temporary and sensitive to change. Women presenting for gynecological care may have varying levels of state anxiety and how well this is addressed across the spectrum of gynecological care during the initial visit is unknown.
Objective: To compare the change in state anxiety after the initial visit in various gynecologic clinics and to correlate change in anxiety with patient satisfaction, improvement, and perception that the anxiety was addressed.
Methods: All new patients to our tertiary hospital clinics for benign gynecology, chronic pelvic pain, gynecology oncology, and urogynecology were invited to participate. Power calculations were performed to determine the sample sizes for each cohort. Following consent, participants completed pre- and post-visit questionnaires. The pre-visit questionnaires included the Spielberg State Trait Anxiety Inventory (STAI) Y6 and the Generalized Anxiety Disorder-7 (GAD). The post-visit questionnaires comprised of the STAI Y6, patient global impression of improvement of participant anxiety (PGI-I), patient satisfaction, and the patient's perception of how her anxiety was addressed during the visit.
Results: Women (n = 199) who were primarily white (60%) with an average age of 49 (SD=16) completed the study with the cohort breakdown of 40 women in benign gynecology, 59 women in chronic pelvic pain, 50 women in gynecology oncology, and 50 women in urogynecology. The mean GAD was 5.8 (SD =5.4) and 14.6% (n=29) of women had a self-reported history of an anxiety diagnosis. The mean pre-visit STAI score was 43.6 (SD=14.1). Controlling for all other variables, patients' pre-visit STAI score increased by 1.30 (95% CI:1.03-1.57) points for every 1-point increase in their GAD score (p <.001). Compared to pre-visit STAI scores, post-visit scores significantly decreased by 10.25 points (95% CI:-12.16 to -8.34; p<.001), even after controlling for race, age, parity, and GAD score. This decrease did not differ between the cohorts (see Figure 1). In fact, there was no association between patients' cohort and their STAI scores at any timepoint (p=.09). After the visit, 61.3% (n=122) reported feeling much better or very much better on PGI-I, 84.4% (n=168) were completely satisfied, and 70.4% (n=140) felt their anxiety was completely addressed. Post-visit decreased anxiety was associated with improvements in satisfaction, PGI-I, and the perception that anxiety was completely addressed, regardless of the cohort. Every 1-point improvement in post-visit STAI score increased the odds of reporting a higher satisfaction score by 5% (OR=1.05, 95% CI:1.02–1.09; p=.002), the odds of reporting a better PGI-I by 8% (OR=1.08, 95% CI 1.06–1.11; p<.001), and the odds of reporting higher addressment of anxiety by 4% (OR=1.04, 95% CI:1.01–1.06; p=.002).
Conclusions: State anxiety decreases after the initial visit for all patients regardless of the type of gynecologic care they are seeking. Our study suggests that the patients' satisfaction is correlated with the amount of state anxiety ameliorated during the visit. Overall, women presenting for gynecologic care regardless of whether for pelvic floor disorders, suspected oncologic conditions, pelvic pain, or other indications can benefit simply from the initial consult to improve their state anxiety.
Disclosure: No
Images:

Figure 1: PRISMA Flow Diagram



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Predictors of Slings after Urethral Diverticulectomy: a 5-year Large Population Analysis

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1 - City Of Hope National Medical Center
2 - City of Hope National Medical Center
3 - Cedars-Sinai Medical Center

Introduction: Management of female urethral diverticula can be challenging and can result in stress urinary incontinence (SUI). Currently there is no consensus on management strategy to perform placement of a urethral sling concomitantly or at a delayed interval.
Objective: We aimed to characterize those patients who went on to further surgical intervention for SUI after urethral diverticulectomy.
Methods: All women undergoing urethral diverticulectomy in California between January 2013 through December 2018 were identified using the Office of Statewide Health Planning and Development data sets (CPT 53230). Women who underwent a urethral sling procedure for SUI, either autologous fascial or synthetic, were identified from this cohort (CPT 57288). Women who had undergone concomitant sling at

time of urethral diverticulectomy were excluded. Patient demographics such as age, race/ethnicity, payor type and comorbidities (diabetes mellitus, hypertension, obesity) were identified. Univariate (t-test and chi-square test) and multivariate analysis (multivariable logistic regression) were performed among the patient factors above and the risk of a future sling procedure.
Results: A total of 525 women (mean age 47.2 years) underwent a urethral diverticulectomy during this time period. Of these, 43 (8.2%) underwent a subsequent urethral sling. Limiting the analysis to women who had at least two years of follow up after diverticulectomy, this rate increased to 12.2%. Women of older age (51.6 vs. 41.9, p<0.001), and women with obesity (14.9% vs. 7.1%, p=0.024) were more likely to undergo a subsequent sling procedure. These effects were significant under multivariate analysis, controlling for all other factors. There was no significant effect of patient race or payor status on rates of subsequent sling procedure.
Conclusions: The rate of SUI after treatment of urethral diverticulum for which patients subsequently underwent a urethral sling procedure is not insignificant (12.2% in those with at least two years of follow up). Given that some women with SUI will not elect for surgical intervention, this suggests that an even higher number of women have bothersome incontinence. Women of older age or with obesity have a higher rate of SUI necessitating surgical treatment. Consideration of these factors for sling placement at the time of urethral diverticulum repair may avoid secondary procedures.
Disclosure: No

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WITHDRAWN - Can Changing the Intraoperative Methods of 100units of Intravesical OnabotulinumtoxinA Administration, for Females with Medically Refractory Idiopathic Overactive Bladder, Result in Efficacious Reduction of Symptoms and Reduction in the Post-operative Com
WITHDRAWN

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Historical Perspective of Vaginal Hysterectomy: The Resilience of Art and Evidence-Based Medicine in the Age of Technology
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Introduction: Vaginal Hysterectomy (VH) dates back to ancient times. Nowadays, the scientific community distinguishes, basically, three different surgical approaches to hysterectomy: vaginal, abdominal and laparoscopic. The limitations of conventional laparoscopy have led to the development of robotic surgery, which has evolved over the past decade from simple adjustable arms to support cameras in laparoscopic surgery to more sophisticated four-armed machines now being in use worldwide.4 However, the American College of Obstetricians and Gynecologists (ACOG) continues to recommend VH as the approach of choice whenever feasible.
Objective: The aim of this study was to describe, from a historical perspective, the relevance, resilience and outcomes of Vaginal Hysterectomy (VH) in Gynecology in the age of technological scenario.
Methods: The authors searched records from January 2011 to January 2021 on the following databases: Medline, EMBASE, and CENTRAL (The Cochrane Library) for combinations of the terms "vaginal hysterectomy," "outcomes" AND "history"; and before that period, if the search had historical relevance. Inclusion criteria: randomized clinical trials; hysterectomy performed for benign gynaecological conditions; and VH outcomes compared with Abdominal Hysterectomy (AH), Laparoscopic Hysterectomy (LH) or Robotic Hysterectomy (RH).
Results: The VH combines sequences of reproducible techniques which have been developed over the years to safely and effectively overcome the limitations of difficult cases of vaginal extirpation from the uterus.
Conclusions: The authors support endoscopic surgical approaches in complex surgery for benign indications, urogynecology, and gynecologic oncology when appropriate. However, what makes the gynecological surgeon different from the general surgeon is the vaginal access. It is essential to continue to train residents in vaginal surgical skills and provide safe and cost-effective patient care. The art of technology is the resilience of keeping only the patient at the center of innovation.
Disclosure: No

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Vaginal Agenesis and Vaginal Dilation: An Individualized Approach Using Three-dimensional (3D) Printer Molds
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Introduction: Vaginal Agenesis (VA) is a congenital malformation and 90% of cases are associated with Mayer-Rokitansky-Kuster-Hauser Syndrome (MRKHS). The MRKHS has an incidence ranging from one case for every 4,000 to 5,000 female births, and is characterized by the congenital absence of the uterus and the upper 2/3 of the vagina. According to the American College of Obstetricians and Gynecologists (ACOG) the treatment VA can be conservative or surgical, and has the objective of restoring the anatomy and function of the vaginal canal. Vaginal dilation is the method used in the conservative treatment of vaginal agenesis.
Objective: The objective of this study was to evaluate the use of personalized vaginal molds, made with 3D printing, for conservative treatment through vaginal dilation in patients with Vaginal Agenesis.
Methods: Sixteen patients with a diagnosis of VA (Mayer-Rokitansky-Küster-Hauser syndrome, Total Androgen Insensitivity Syndrome and cervicovaginal agenesis), from Federal University of São Paulo, were selected. The production of the devices was carried out in a 3D printer and, as raw material, the polymeric filament of the lactic polyacid (PLA) was used. A personalized treatment was proposed and developed for each patient.
Results: Fourteen patients reached a final vaginal length of 6 cm or more. The initial TVL Mean (SD) was 1,81(1,05) and the final TVL Mean (SD) 6,37(0,94); the Difference (IC-95%) was 4,56 (5,27 - 3,84) and the Effect size (IC-95%) was 4,58 (2,88 – 6,28). Therefore, there was a significant difference (P<0.05) between the initial and final measurements. The Effect Size was 4.58, reinforcing the great magnitude of this difference.
Conclusions: The present study has shown the fruitful applicability of the devices, which offers an economical, accessible, promissing and reproducible strategy for the treatment of VA.
Disclosure: No

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Anorectal Angle in Prolapse and Control Women
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Introduction: Measuring the posterior anorectal angle is the standard for fluoroscopic defaecography but of uncertain clinical value. There has been only limited assessment of the centro-anterior anorectal angle hence this study aims to investigate the measurement of the centro-anterior angle using trans-perineal ultrasound imaging.
Objective: Assess and compare the anterograde-central anorectal angle in control and prolapse patients
Methods: The anorectal angle (ARA) in the midsagittal plane was measured from 2D transperineal ultrasound scanning in women with posterior compartment prolapse and a control group. ARAs were measured at rest and during a Valsalva manoeuvre.
Results: Anorectal angles at rest were measured in 22 control and 49 prolapse patients; additionally ARA was measured during a Valsalva manoeuvre. The angles measured at rest demonstrated a bimodal distribution (sub-group median angles of 102° and 219°) in the prolapse patient group indicative of anterior and central angles respectively. There was a significant difference in the proportion of anterior and central angles between the control and prolapse groups (p=0.002). Intra-observer repeatability and inter-observer agreement in ARA were good for both groups. For 13/21 prolapse patients with central angles, Valsalva manoeuvre was associated with change to an anterior angle compared with 5/19 in the control group (p=0.03).
Conclusions: Transperineal imaging can be used for anorectal angle measurements. Most control patients had a central anorectal angle whereas most rectocoele prolapse patients had an anterior anorectal angle either at rest or with Valsalva manoeuvre. A central angle signifies normal anatomy, particularly if it maintained on Valsalva.
Disclosure: No

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Evaluation of Clinical Performance and Safety for a Novel Rechargeable Sacral Neuromodulation Device in Overactive Bladder Subjects: 6-month Results from a Global Post-market Study

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9 - Centre Hospitalier Universitaire de Rennes
10 - West Virginia University
11 - Medtronic
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Introduction: Sacral neuromodulation (SNM) is an advanced therapy option for the treatment of overactive bladder (OAB), nonobstructive urinary retention, and fecal incontinence. Safety and performance of SNM therapy have been established with long-term follow-up reported in the literature.
Objective: The ELITE study is a prospective, global, post-market clinical follow up study designed to confirm the clinical performance and safety of a novel rechargeable SNM device (InterStimTM Micro) in all indicated conditions. The results reported here are from the 6-month follow up for subjects enrolled in the OAB cohort.
Methods: Eligible subjects that met all inclusion and no exclusion criteria were enrolled in the OAB cohort after implant of a neurostimulator. Subjects completed voiding diaries and the Overactive Bladder Quality of life questionnaire (OAB-q) at baseline and follow up visits occurring at 3 months and 6 months post-implant. Safety was evaluated as device-, procedure-, or therapy-related adverse events.
Results: Sixty-eight subjects were enrolled in the OAB cohort with 67 and 66 subjects completing the 3- and 6-month follow up visits, respectively. Table 1 describes the demographic data for the OAB cohort. Figure 1 shows the HRQL score at baseline and follow up visits. The OAB-q Health Related Quality of Life demonstrated an improvement from 44±22 points at baseline (95% Confidence Interval: 39 to 50) to 76±20 at 6 months (95% Confidence Interval: 71 to 81), with an average increase of 31±23 points (n=65). Eighty-two percent of subjects achieved the minimally important difference in HRQL score at 6 months with a change of 10 points or greater. The change in score for all other quality of life domains from baseline to 6 months was 2-3x the minimally important difference of 10 points: 36±30 in concern, 33±26 in coping, 29±25 in sleep, 25±24 in social, and -34 ±24 in symptom bother score (n=66). There was an average change from baseline of –3.68 ± 4.01 leaks/day in UUI subjects (n=61) and –4.4 ± 5.91 voids/day in UF subjects (n=52). The cumulative incidence of device-, procedure-, or therapy- related adverse events was 10.3% (7/68). Out of these 7 related adverse events, there was 1 serious adverse event (1.5%, implant site pain) at the time of database snapshot.
Conclusions: These data indicate continued clinical performance for this novel rechargeable SNM device at 6 months post implant by demonstrating improvement of OAB-q scores. The incidence of adverse events is favorable compared to previously reported rates for SNM.
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Any of the authors act as a consultant, employee or shareholder of an industry for: Medtronic
Images:

Table 1: Characteristics of Included Studies

Authors (year)	Study Aim	Target Population, Number of women, Recruitment location, Study Location	Race/ Ethnicity Study Participants	Data Collection Methods, Data Analysis Methods	Results by Race/ Ethnicity *
Longworth J, et al. (2003)	1. To describe Hispanic women's knowledge, experience, and coping behaviors with the symptom of UI. 2. To establish the validity and reliability of translated tools used in the parent study to quantify the severity of UI symptoms and quality of life with UI.	• Hispanic, low income with UI • N =31 • Recruited from medicine clinic • San Antonio, TX	• No race data • 100% LA ethnicity (n=31)	• Mixed methocs • Focus groups (n=3) • Matrix analysis to conduct content analysis	No
Bradway CW, et al. (2006)	1. To describe and analyze what UI means. 2. How that meaning is constructed and negotiated by women with long term UI.	• Community-dwelling with UI • N =17 • Recruited from clinic and community • Philadelphia, PA	• 65% EA (n=11) • 35% AA (n=6)	• Semi-structured interviews (n=17) • Narrative analysis • Thematic analysis	No
Bradway CW, et al. (2008)	1. To examine care-seeking behaviors for women experiencing UI. 2. To describe individual experiences with UI affecting sexuality and intimacy.	• Community-dwelling with long term UI (> 5 years) • N =17 • Recruited from clinic and community • Philadelphia, PA	• 65% EA (n=11) • 35% AA (n=6)	• Focus groups (n=2) 1. UI care 2. UI have not sought care • Narrative analysis	No
Elstad, et al. (2010)	1. To characterize the stigma of urinary frequency and urgency and differentiate it from the stigma of incontinence 2. To describe race/ethnic and gender differences in the experience of stigma among a diverse sample of individuals.	• Community-dwelling with UI • N =75 women subgroup • Community recruitment • Boston, MA	• 33% EA (n=25) • 33% AA (n=25) • 33% LA (n=25)	• In-depth interviews • Grounded theory	No
Welch LC, et al. (2012)	1. To elicit respondents' perceptions of their experiences with lower urinary tract symptoms and outcomes from seeking health care for their symptoms	• Community-dwelling with UI • N =41 women subgroup • Community recruitment • Boston, MA	• 32% EA (n=13) • 34% AA (n=14) • 34% LA (n=14)	• Semi-structured interviews • Thematic analysis	No
Sevilla C, et al. (2013)	1. With the goal of evaluating the perceptions and barriers that Spanish-speaking patients experience, we sought to assess the effect of the initial visit with a female pelvic medicine specialist on disease understanding among Spanish-speaking Latinas with POP and/or UI.	• Community-dwelling, Spanish speaking with UI and/or POP • N =27 • Urogynecology clinic recruitment • Los Angeles, CA	• No race data • 100% LA ethnicity (n=27) • All Spanish speaking	• Interviews pre-/post-physician encounter (n=27) • Grounded theory	No
Dunivan GC, et al. (2014)	1. To better understand both English-speaking and Spanish-speaking women's experience with POP, including their perceptions, symptoms, and related healthcare interactions.	• Community-dwelling, Spanish speaking with POP • N =58 • 3 academic, urogynecology clinic • Los Angeles, CA and New Mexico	• No race data • Ethnicity not clearly defined • All Spanish speaking	• Focus groups (n=8) ○ 4 in English ○ 4 in Spanish • Grounded theory	No
Siddiqui NY, et al. (2016)	1. To qualitatively assess the themes surrounding treatment seeking behaviors in White, Black, and Latina women.	• Community-dwelling UI • N =113 • Community and medical center recruitment • North Carolina, U.S.	• 35% EA (n=39) • 36% AA (n=41) • 29% LA (n=33)	• Focus groups (n=12) • Comparative thematic analysis	Yes
Alas, et al. (2016)	1. To further define communication barriers by comparing common perceptions regarding prolapse and barriers to treatment between Spanish-speaking and English-speaking women with POP.	• Community-dwelling, Spanish speaking with POP • N =58 • 3 academic, urogynecology clinic recruitment • Los Angeles, CA and New Mexico, U.S.	• No race data • Ethnicity not clearly defined in English primary group • All Spanish speaking	• Focus groups (n=8) ○ 4 in English ○ 4 in Spanish • Grounded theory	No
Brown HW, et al., (2017)	1. To describe and characterize barriers to care seeking for accidental bowel leakage among US women to inform development and revision of an instrument to measure these barriers. 2. To compare our findings with existing knowledge about barriers to care for urinary incontinence and accidental bowel leakage.	• Community-dwelling with ABL who had not previously sought care • N =39 • Age range 45-89 years • 3 academic, urogynecology clinic and community recruitment • Madison, Wisconsin	• 89% EA (n=35) • 8% AA (n=3) • 3% LA (n=1)	• Focus groups (n=6) • Semi-structured interviews (n=10) • Content analysis until thematic saturation reached	No
Jackson E, et al. (2017)[	1. To explore baseline knowledge, perceptions, and attitudes of Spanish-speaking Latina women living in the United States/Mexico border on pelvic organ prolapse and urinary incontinence.	• Community-dwelling, Spanish speaking Latinas with UI and/or POP • N =24 • Urogynecology/gynecology clinic • El Paso, TX	• 100% LA ethnicity • EA (n=16) • Other (Latina) (n=8) • All Spanish speaking	• Focus groups (n=5) ○ 4 in English ○ 4 in Spanish • Grounded theory	No
Maldonado PA, et al. (2021)	1. To explore the knowledge, attitudes, and beliefs related to pessary use in primarily Spanish-speaking women along the US-Mexico border, utilizing structured focus groups with guided discussions.	• Community-dwelling, Spanish speaking Latinas with POP • N =29 • Urogynecology/ gynecology clinic recruitment • El Paso, TX	• No race data • 98% LA (n=28) ethnicity • All Spanish speaking	• Focus groups (n=8) • Grounded theory	No

Race: EA- White/European American, AA - African American, LatinaHispanic- LA; Ethnicity: Latina/Hispanic – LA; Pelvic floor disorders: ABL - accidental bowel leakage, POP - pelvic organ prolapse, UI - urinary incontinence
* Some studies dic not provide race for LA women or LA was considered a race
Data are presented when possible as n(%)

Table 2: Themes of Barriers and Facilitators to Urogynecologic Care by Study

	Provider		Patient		System	
Title	Barriers	Facilitators	Barriers	Facilitators	Barriers	Facilitators
Seeking Care: Women's Narratives Concerning Long-Term Urinary Incontinence	• Communication - structure of patient-provider interactions, lack of meaningful communication • Limited evaluation/ management- Lack of screening, explorations of symptoms, mgmt	• None reported	• None reported	• Life impact - more negatively impacted by UI sought care, lived more years with UI • Race/Age- Women who were older and white were more likely to seek treatment	• None reported	• None reported
Beyond Incontinence: the stigma of other urinary symptoms	• None reported	• None reported	• Perception - Shame, embarrassment, stigma; reluctance to discuss condition in Hispanic women • Cultural - secrecy was highly pronounced in Hispanic	• Gender - Women might be more likely than men to seek help for urinary incontinence	• None reported	• None reported
Qualitative Inquiry of Patient-Reported Outcomes: The Case of Lower Urinary Tract Symptoms	• Communication- No treatment offered b/c urinary symptoms were not serious enough or normal part of aging • Limited evaluation/ management - No treatment	• None reported	• Knowledge - Lacked medical knowledge • Perception - normalization, saw no treatment as a message the symptoms were not serious	• None reported	• Access- Compared to Black (24%) and Hispanic (15%) respondents, White (46%) respondents more often saw at least 2 types of providers	• None reported
Communication Between Physicians and Spanish-Speaking Latin American Women With Pelvic Floor Disorders: A Cycle of Misunderstanding?	• Communication • Perception	• Perceptions -Trust • Education/ information	• Knowledge - Lacked medical knowledge • Perception - desperation, fear/distrust of treatment and surgery • Cultural - Religion • Autonomy - Lacked autonomy in decision making • Communication/ language	• Knowledge- High health literacy	• None reported	• None reported
Pelvic Organ Prolapse: A Disease of Silence and Shame	• Communication - lacked confidence in doctors and in interpreters	• None reported	• Perception - Fear of treatment and surgery (Spanish-speaking only), shame, embarrassment, lacked confidence in doctors, lacked confidence in interpreters	• None reported	• None reported	• None reported
Urinary incontinence and health seeking behavior among White, Black, and Latina women	• Education/information - lack of information (Black) • Communication/ attitude - lack of screening for symptoms dominant for Black, Latina)	• None reported	• Knowledge - difference in awareness of urinary incontinence by race (more in wmte, less in black/ Latina) • Perception -increased secrecy in Latina, embarrassment present in all groups	• Life impact - severity of symptoms (worse symptoms prompted care seeking behavior)	• Access - to a specialist, economic concerns (Latina) • Education/ information - lack of information (Black) • Resources - lack of resources (Latina)	• None reported
Health Care Disparities Among English-Speaking and Spanish-Speaking Women With Pelvic Organ Prolapse at Public and Private Hospitals: What Are the Barriers?	• Limited evaluation/ management - discrepancies in treatments offered, waited too long for surgery to be scheduled, only option offered was surgery, ineffective therapies, offered only conservative measures;	• None reported	• Perception - fear/distrust of treatments including surgery, cancer; Spanish-speaking women had more resistance/ questions/ worries about the treatments than English-speaking and more fear of cancer	• None reported	• Information - Public hospital patients shared information barriers - internet overwhelming, information too detailed/confused, desired simple language	• None reported

*Partial data for themes available in this format

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Barriers to Urogynecologic Care for Non-white Women: A Systematic Review

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Introduction: Studies have sought to evaluate factors that have perpetuated disparities in health care, including urogynecologic care. However, there remains a lack of understanding of barriers to care specific to racial and ethnic minority populations.

Objective: We aimed to report identified barriers to urogynecologic care (e.g. care for symptoms/diagnoses of urinary incontinence (UI), accidental bowel leakage (ABL), pelvic organ prolapse (POP)) for non-white women in the US.

Methods: We conducted a systematic search (per PRISMA guidelines) for studies through five electronic bibliographic databases: PubMed, Cochrane Library, CINAHL Complete, SCOPUS, Web of Science. Inclusion criteria for eligible studies included: 1) studies reporting barriers to care for those with urogynecologic symptoms/diagnoses, 2) publication date year 2000 or later. Exclusion criteria included study cohorts with children, populations exclusively outside of the US, cohorts without non-white participants, and studies without qualitative research methodology. Two independent reviewers completed data extraction from full text manuscripts that met criteria and appraised methodologic quality using the Critical Appraisal Skills Program tool. Discrepancies were adjudicated by a third reviewer. Study methodology, characteristics, as well as barriers and facilitators to urogynecologic care captured as themes within categories of patient-associated barriers, physician/provider-associated barriers, and system-associated barriers were extracted using a thematic synthesis approach.

Results: There were 359 studies that were identified. Twelve studies met criteria: 6 had study populations with UI, 3 with POP, 2 on UI and/or POP, and 1 on ABL (Figure 1). There were 7 focus group studies (total 44 groups, n=330), 4 interview studies (total 160 interviews, n=160), and 1 had both (10 interviews, 6 groups, n=39). Studies occurred in 6 distinct areas: Philadelphia, Boston, Los Angeles, El Paso, Albuquerque, and Wisconsin (Table 1). There were 6 studies with Black women and 10 studies with Latina/Hispanic women. There were also 5 articles that focused on Spanish-speaking participant perspectives. 529 women were included: 94 (17.8%) Black and 258 (48.8%) Latina/Hispanic women. The remainder were White women. Notably, no other racial/ethnic groups (including Asian and Native American women) were represented. Most studies reported on patient-associated barriers (n=10/12) and physician/provider-associated barriers (n=10/12) while only half reported system-associated barriers (n=6/12) (Table 2). Themes frequently revealed as physician-provider barriers to care included communication issues and limited evaluation/management. Patient-associated barriers often included lack of knowledge, emotions (fear/mistrust), and cultural beliefs. System-associated barriers reported were access, cost, resources, and information. Barriers data were not stratified by race/ethnicity in every study. This subsequently limited interpretation of findings by race/ethnicity, particularly for Black women. Common themes reported from Hispanic/Latina cohorts included lack of confidence in translators, decreased awareness of treatment options, and cost concerns.

Conclusions: There remains a paucity of data on barriers to care for underrepresented minority populations in the US with UI/POP/ABL symptoms. In these studies, methodologic approaches may have limited adequacy of data collection and results likely do not fully reflect barriers to urogynecologic care by racial/ethnic group. Comprehensive evaluation of social determinants of health and systemic racism within studies is needed to better understand the unique barriers present for racially and ethnically diverse populations in the US.

Disclosure: No

Images:

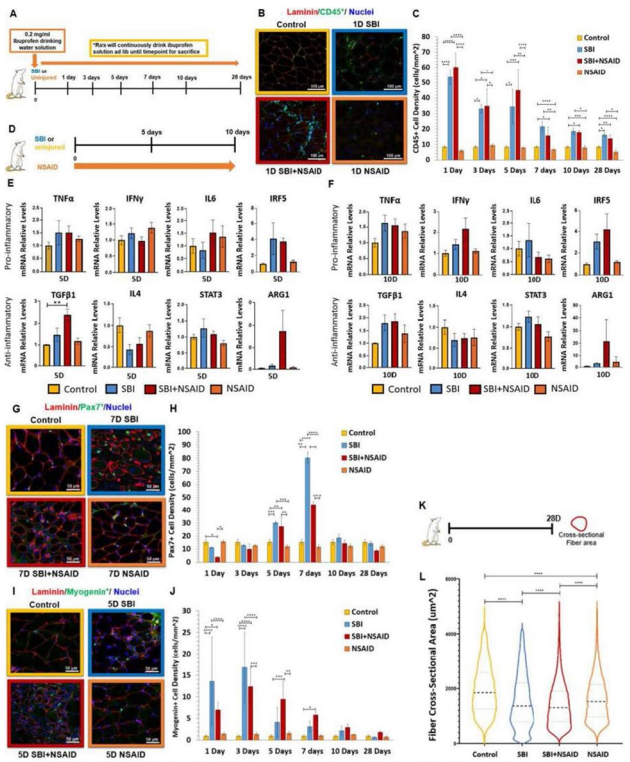

Figure. (A) Schematic representation of experimental approach in panels B-C. G-J. (B) Representative image of pubocaudalis cross-section stained with anti-CD45 (1:100; Bio-Rad) coupled to Alexa Fluor 546 goat anti-mouse IgG (1:500; Thermo Fisher Scientific) for all experimental groups. (C) Quantification of leukocyte infiltrate (CD45+ cell density) across all time points for all experimental groups (p-values derived from two-way ANOVA post-hoc Tukey) (D) Schematic representation of experimental approach in panels E and F. (E) mRNA levels of genes related to pro-inflammatory and anti-inflammatory immune responses relative to control levels for all experimental groups at 5 day time point (p-values derived from one-way ANOVA Dunnett's multiple comparisons). (F) mRNA levels of genes related to pro-inflammatory and anti-inflammatory immune responses relative to control levels for all experimental groups at 10 day time point (p-values derived from one-way ANOVA Dunnett's multiple comparisons). (G) Representative immunofluorescence staining of in situ Pax7+ cells (1:100, Developmental Studies Hybridoma Bank (DHSB), secondary: Alexa Fluor 546 goat anti-mouse IgG) at 7 days for all experimental groups. (H) Quantification of muscle stem cell (MuSC) pool (Pax7+ cell density) across all time points for all experimental groups (p-values derived from two-way ANOVA post-hoc Tukey) (I) Representative immunohistochemistry staining of in situ Myogenin+ cells (1:200, BD Pharmingen, secondary: Alexa Fluor 546 goat anti-mouse IgG) at 5 days for all experimental groups. (J) Quantification of MuSC differentiation (Myogenin+ cell density) across all time points for all experimental groups (p-values derived from two-way ANOVA post-hoc Tukey). (K) Schematic representation of experimental approach in panel L. (L) Quantification of pubocaudalis fiber size at 28 days for all experimental groups via immunohistochemistry with anti-laminin (1:100; Sigma-Aldrich – L9393) coupled to Alexa Fluor 488 goat anti-rabbit IgG and image analysis using custom software to capture fiber areas in ImageJ (p-values derived from Kruskal-Wallis post-hoc Dunn's). All data are presented as mean ± SEM. **** p < 0.0001, *** p < 0.001, ** p < 0.01, * p < 0.05.

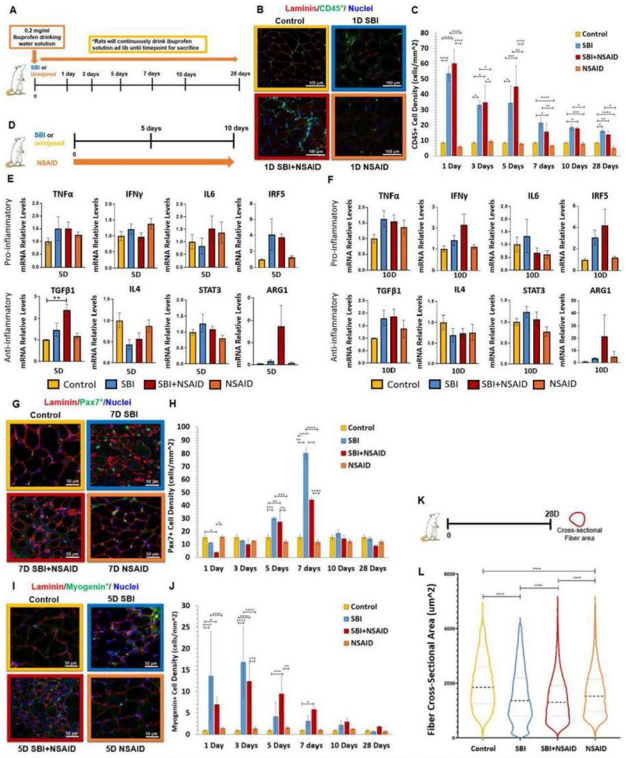

Figure. (A) Schematic representation of experimental approach in panels B-G. G-J. (B) Representative image of pubocaudalis cross-section stained with anti-CD45 (1:100; Bio-Rad) coupled to Alexa Fluor 546 goat anti-mouse IgG (1:500; Thermo Fisher Scientific) for all experimental groups. (C) Quantification of leukocyte infiltrate (CD45+ cell density) across all time points for all experimental groups (p-values derived from two-way ANOVA post-hoc Tukey) (D) Schematic representation of experimental approach in panels E and F. (E) mRNA levels of genes related to pro-inflammatory and anti-inflammatory immune responses relative to control levels for all experimental groups at 5 day time point (p-values derived from one-way ANOVA Dunnett's multiple comparisons). (F) mRNA levels of genes relative to pro-inflammatory and anti-inflammatory immune responses relative to control levels for all experimental groups at 10 day time point (p-values derived from one-way ANOVA Dunnett's multiple comparisons). (G) Representative immunofluorescence staining of in situ Pax7+ cells (1:100, Developmental Studies Hybridoma Bank (DHSB), secondary: Alexa Fluor 546 goat anti-mouse IgG) at 7 days for all experimental groups. (H) Quantification of muscle stem cell (MuSC) pool (Pax7+ cell density) across all time points for all experimental groups (p-values derived from two-way ANOVA post-hoc Tukey). (I) Representative immunohistochemistry staining of in situ Myogenin+ cells (1:200, BD Pharmingen; secondary: Alexa Fluor 546 goat anti-mouse IgG) at 5 days for all experimental groups. (J) Quantification of MuSC differentiation (Myogenin+ cell density) across all time points for all experimental groups (p-values derived from two-way ANOVA post-hoc Tukey). (K) Schematic representation of experimental approach in panel L. (L) Quantification of pubocaudalis fiber size at 28 days for all experimental groups via immunohistochemistry with anti-laminin (1:100, Sigma-Aldrich – L9393) coupled to Alexa Fluor 488 goat anti-rabbit IgG and image analysis using custom software to capture fiber areas in ImageJ (p-values derived from Kruskal-Wallis post-hoc Dunn's). All data are presented as mean ± SEM. **** p < 0.0001, *** p < 0.001, ** p < 0.01, * p < 0.05.

Gillor score	No trauma	3a	3b	3c/4	ANOVA p=
	n= 162	n=14	n=31	n=14	
Years since onset of AI symptoms	5.4 (SD 6.8)	4.5 (SD 5.2)	5.4 (SD 6.5)	4.8 (SD 5.1)	n.s.
Age at onset of AI symptoms	51.8 (SD 14.5)	58.1 (SD 13.8)	57.6 (SD 12.8)	46.2 (SD 14.9)	0.028
Interval between first birth and onset of AI symptoms*	27.5 (SD 16.3)	32.7 (SD 16.3)	33.3 (SD 15.9)	20.2 (SD 17.2)	0.054

Table 1: Associations between Gillor score on exo-anal tomographic imaging of the anal canal and onset of AI symptoms in those 221 women who were vaginally parous and had available imaging data.

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Effect of Non-Steroidal Anti-Inflammatory Drugs on the Pelvic Floor Muscle Regeneration in Preclinical Birth Injury Rat Model

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Introduction: Pelvic floor muscle (PFM) injury is a common consequence of childbirth. The most widely-used analgesics for postpartum pain are non-steroidal anti-inflammatory drugs (NSAIDs). Multiple studies in limb muscles report negative effects of NSAIDs on immunological and muscle stem cell (MuSC) processes important for muscle regeneration. However, the impact of postpartum NSAIDs on PFM recovery has never been explored.
Objective: Using the validated simulated birth injury (SBI) rat model, we assessed the effect of NSAIDs on the immune response and myogenesis in regenerating PFM.
Methods: Three-month old Sprague-Dawley rats were randomly assigned to one of 4 groups: (1) controls; (2) SBI; (3) SBI+NSAID; (4) NSAID. SBI was induced using vaginal balloon distention. Ibuprofen was added daily to the drinking water (0.2 mg/ml) with ad lib access. Animals were sacrificed at 1,3,5,7,10, or 28 days(d) and the pubocaudalis portion of levator ani, which experiences large parturition-associated strains, was harvested (N=3-9/time point/group, Fig.A). Immune infiltrate was assessed in muscle cross-sections stained with anti-CD45 antibody. To further evaluate the impact of NSAID on the immune response, qRT-PCR was performed 5 and 10d after SBI+/-NSAID or NSAID only (N=3-6/time point/group). RNA was isolated using miRNeasy Mini kit; cDNA was prepared using SuperScript IV First-Strand Synthesis System; samples were ran on BioRadCFX96 Touch RT-PCR Detection System (Rplp0=housekeeping gene). Myogenesis was evaluated using anti-Pax7 and anti-myogenin antibodies to identify activated and differentiated MuSCs, respectively. Finally, to determine whether NSAIDs impact PFM regeneration long-term, fiber cross sectional area was compared between groups at 28d timepoint.
Results: Both SBI groups showed a significant increase in the pubocaudalis immune infiltrate compared to the control and NSAID groups, without significant difference between SBI and SBI+NSAID across all time points (Fig.B-C). Expression analysis of genes related to macrophage polarization (M1□M2), a key event in constructive muscle regeneration, indicated no significant impact of NSAID on either the pro- or anti-inflammatory responses, with the exception of TGFß1 (Fig.D-E). MuSCs significantly increased at 5 and 7d post-SBI +/- NSAID compared to uninjured groups. Importantly, MuSC reservoir was substantially lower 7d post SBI+NSAID compared to SBI (Fig.F-G). Myogenin+ cells increased in both injured groups, with temporal differences observed. The increase in differentiated MuSCs was evident for 3d post SBI, whereas it persisted for 7d in the SBI+NSAIDs group, however, the differences did not reach statistical significance likely due to variation within groups (Fig.H-I). Notably, the control and NSAID groups did not differ with respect to any of the above parameters. Both injured groups demonstrated reduced fiber size compared to uninjured controls. Surprisingly, fiber size in SBI+NSAID group significantly exceeded that in the SBI group. In contrast, fibers in NSAID animals were smaller compared to controls (Fig.J-K).
Conclusions: Our findings indicate that even though NSAIDs do not appear to impact the overall immune response of injured PFMs, NSAIDs negatively affect PFMs' acute retort to birth injury. Specifically, NSAIDs reduce pelvic MuSC proliferation and delay differentiation following birth injury. Moreover, fiber atrophy induced by NSAIDs in uninjured PFM suggests that these drugs affect PFM homeostatic properties – an interesting avenue for future investigations.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Renovia
Images:

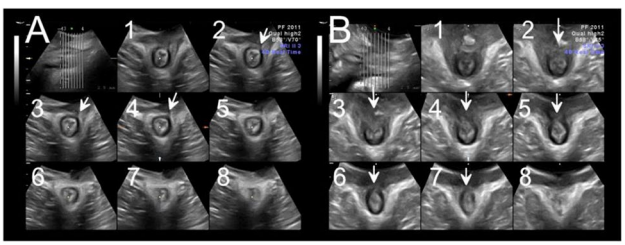

Figure 1: The spectrum of imaging findings many years after OASI: Panel A shows a well repaired 3a tear, with a small hypoechoic scar evident in slices 2-4, while Panel B demonstrates a 3c tear (defects of both EAS and IAS) in all slices. The defects in B are symmetrical, without distortion or scarring, suggesting that the tear was not repaired.

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Effect of Non-Steroidal Anti-Inflammatory Drugs on the Pelvic Floor Muscle Regeneration in Preclinical Birth Injury Rat Model

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Introduction: Pelvic floor muscle (PFM) injury is a common consequence of childbirth. The most widely-used analgesics for postpartum pain are non-steroidal anti-inflammatory drugs (NSAIDs). Multiple studies in limb muscles report negative effects of NSAIDs on immunological and muscle stem cell (MuSC) processes important for muscle regeneration. However, the impact of postpartum NSAIDs on PFM recovery has never been explored.
Objective: Using the validated simulated birth injury (SBI) rat model, we assessed the effect of NSAIDs on the immune response and myogenesis in regenerating PFM.
Methods: Three-month old Sprague-Dawley rats were randomly assigned to one of 4 groups: (1) controls; (2) SBI; (3) SBI+NSAID; (4) NSAID. SBI was induced using vaginal balloon distention. Ibuprofen was added daily to the drinking water (0.2 mg/ml) with ad lib access. Animals were sacrificed at 1,3,5,7,10, or 28 days(d) and the pubocaudalis portion of levator ani, which experiences large parturition-associated strains, was harvested (N=3-9/time point/group, Fig.A). Immune infiltrate was assessed in muscle cross-sections stained with anti-CD45 antibody. To further evaluate the impact of NSAID on the immune response, qRT-PCR was performed 5 and 10d after SBI+/-NSAID or NSAID only (N=3-6/time point/group). RNA was isolated using miRNeasy Mini kit; cDNA was prepared using SuperScript IV First-Strand Synthesis System; samples were ran on BioRadCFX96 Touch RT-PCR Detection System (Rplp0=housekeeping gene). Myogenesis was evaluated using anti-Pax7 and anti-myogenin antibodies to identify activated and differentiated MuSCs, respectively. Finally, to determine whether NSAIDs impact PFM regeneration long-term, fiber cross sectional area was compared between groups at 28d timepoint.
Results: Both SBI groups showed a significant increase in the pubocaudalis immune infiltrate compared to the control and NSAID groups, without significant difference between SBI and SBI+NSAID across all time points (Fig.B-C). Expression analysis of genes related to macrophage polarization (M1□M2), a key event in constructive muscle regeneration, indicated no significant impact of NSAID on either the pro- or anti-inflammatory responses, with the exception of TGFß1 (Fig.D-E). MuSCs significantly increased at 5 and 7d post-SBI +/-NSAID compared to uninjured groups. Importantly, MuSC reservoir was substantially lower 7d post SBI+NSAID compared to SBI (Fig.F-G). Myogenin+ cells increased in both injured groups, with temporal differences observed. The increase in differentiated MuSCs was evident for 3d post SBI, whereas it persisted for 7d in the SBI+NSAIDs group, however, the differences did not reach statistical significance likely due to variation within groups (Fig.H-I). Notably, the control and NSAID groups did not differ with respect to any of the above parameters. Both injured groups demonstrated reduced fiber size compared to uninjured controls. Surprisingly, fiber size in SBI+NSAID group significantly exceeded that in the SBI group. In contrast, fibers in NSAID animals were smaller compared to controls (Fig.J-K).
Conclusions: Our findings indicate that even though NSAIDs do not appear to impact the overall immune response of injured PFMs, NSAIDs negatively affect PFMs' acute retort to birth injury. Specifically, NSAIDs reduce pelvic MuSC proliferation and delay differentiation following birth injury. Moreover, fiber atrophy induced by NSAIDs in uninjured PFM suggests that these drugs affect PFM homeostatic properties – an interesting avenue for future investigations.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Renovia
Images:

	Local infiltration (n=60)	Control (n=60)	p-value
3 hours after surgery			
Pain level	4.4±3.1	3.2±3.4	0.07
Analgesia- all types	22 (45.8%)	18 (30.5%)	0.1
Analgesia- opioids	4 (8.3%)	0 (0%)	0.1
8 hours after surgery			
Pain level	4.0±3.3	4.2±3.0	0.8
Analgesia- all types	31 (54.2%)	35 (58.3%)	0.5
Analgesia- opioids	0 (0%)	3 (5.1%)	0.2
24 hours after surgery			
Pain level	4.0±3.3	4.9±2.3	0.06
Analgesia- all types	23 (47.9%)	47 (79.6%)	<0.001
Analgesia- opioids	1 (1.7%)	2 (4.1%)	1.0

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Anal Incontinence Symptom Onset and OASI

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Introduction: Obstetric Anal sphincter damage at the time of vaginal birth (OASI) is a major factor in the aetiology of anal incontinence (AI) in women. Early presentation with symptoms of anal incontinence may be a marker for OASI.
Objective: To compare the latency between first vaginal delivery and onset of symptoms of AI in women with evidence of OASI on imaging.
Methods: This was a retrospective study of 934 women attending a tertiary urogynecology unit between 2/19 and 11/21. All underwent a history, clinical POPQ examination and tomographic ultrasound imaging of the pelvic floor for the assessment of both levator ani and anal canal as standardised by IUGA. Patients were asked to recall the onset of symptoms of anal incontinence, quantified by the St Marks Incontinence Score. Stored ultrasound volume data were analysed at a later date, blinded against all other data, to score anal sphincter trauma, defined by the number of tomographic slices showing a defect, resulting in scores between 0 and 6. If four or more slices showed a defect, the scan was deemed to show a 'residual defect'. In addition, we used the 'Gillor score' to grade OASI. Our null hypothesis was: Evidence of OASI on tomographic exo-anal imaging is not associated with onset of AI symptoms as defined by patient age at onset or time since the first vaginal delivery.
Results: 934 women were seen during the inclusion period. Mean age at assessment was 58 (20-95), mean BMI was 30 (17-65). 677 (72%) presented with stress urinary incontinence, 686 (73%) with urgency urinary incontinence and 497 (53%) with symptoms of prolapse at a mean bother of 6.5 (0-10). None had had a secondary OASI repair or other anorectal surgery. Anal incontinence was reported by 259 women (28%), at a mean duration of 5.1 (range, 0-45) years, a mean bother of 6.2 (range, 0-10) out of ten and a mean St Mark's

score of 10 (1-22). The age at onset of AI symptoms was 52.8 (range, 19-86.4) years, with a latency of 28.3 (range, 0-59) years since a first vaginal birth. 233 of those 259 women (90%) were vaginally parous, and 75 (29%) had had at least one Forceps delivery. Tomographic analysis was possible in 221 / 233 parous women with AI, with a residual EAS defect (4/6 slices with 30 degree defects) detected in 40 women. A normal sphincter was found in 162, a presumptive 3a tear in 14, 3b in 31 and 3c in 14 women. Of those 59, there was evidence of repair (Fig. 1) in 46 (78%). The Gillor score was associated with age at onset of AI (P= 0.028) and marginally with the interval between first vaginal birth and onset of symptoms (P= 0.054) (Table 1).

Conclusions: Amongst 221 parous women with anal incontinence seen in a urogynecological clinic, we found evidence of OASI on imaging in about 1/4, and in 3/4 of those there was evidence of primary surgical repair. Higher OASI grade was associated with a shorter interval between first birth and AI symptom onset, and with younger age at symptom onset.

Disclosure: No

Images:

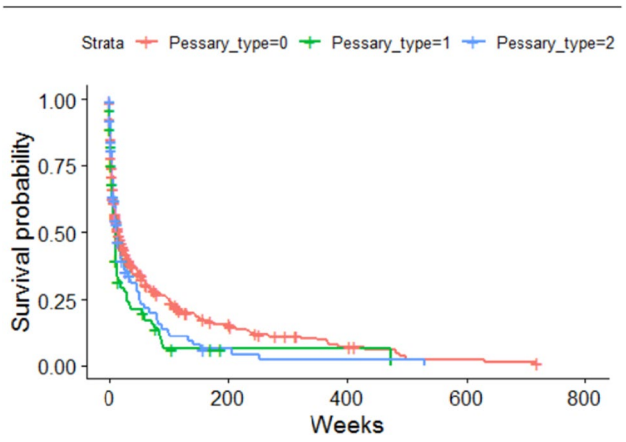

Fig. 1

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The Usage Of Gellhorn Pessary in Pelvic Organ Prolapse and Influence on Quality of Life and Effects on Symptoms : A Retrospective Study of 2 Years

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Introduction: In Malaysia, pelvic organ prolapse is a significant problem that affect post-menopausal woman. The prevalence is reported to be >40 % during outpatient visit. The commonest conservative management is pelvic floor exercise and vaginal pessaries. Pessaries can be of two varieties, one that help support while another that appear to be space-occupying type. Our study revolves around the usage of Gellhorn pessary which is a space occupying type. This form of pessary is not commonly used in Malaysia whereby support pessary are favored as the mainstay of conservative management.

Objective: To assess the usage of Gellhorn pessary indication, side effects, quality of life and user satisfaction.

Methods: This was a retrospective clinical review of symptomatic pelvic organ prolapse patient with stage 3 and 4 who were fitted with the Gellhorn pessary from October 2019 to November 2021. A total of 53 patient had initially failed ring pessary was successfully fitted with Gellhorn pessary. The patient was observed 3, 4 and 6 months. The patient symptoms, quality of life and satisfaction was assessed using Pelvic Floor Distress Inventory-20 (PFDI-20) and Pelvic Floor Impact Questionnaire-7 (PFIQ-7). All measured data was documented and charted. Logistic regression was used to identify independent predictor of discontinued pessary use. McNemar's test and paired t tests used to evaluate changes in symptom.

Results: In our study, a total of 28 (52. 8%) of patient prefer to continue the pessary after 24 months of use. A total of 25(47.2%) patient discontinued the use of Gellhorn pessary. Out of the 25 patient, 13 (24.5%) patients gave up the use of pessary for definitive surgery. 7 (13.2%) patient refused for reinsertion due to discomfort and voiding difficulties. 3 (5.6%) patient requested for ring pessary. 2 (3.77%) patient pessary was removed due to impacted pessary causing vesicovaginal fistula and rectovaginal fistula respectively. In our observation, the rate of continued use of Gellhorn pessary were 83% (44 patient) after 1st year and 52.8% (28 patient) at the end of 2 years. 42 patient (80.7%) of woman complained of pain during the initial fitting and subsequent 5 patient (9.6%) requested for removal of pessary. 10 patient (19.2%) of woman had symptoms of episodic per vaginal bleeding and discharge respectively. The average score given for satisfactory gellhorn was 7/10 (65%). Our study comparing the difference of continued and discontinued group showed no significant statistical difference (P> 0.05).

Conclusions: Gellhorn pessary was used as a second line in stage 3 and 4 pelvis organ prolapse. In our review than 50% of patient continued to use the pessary after 24 months. Side effect such as per vaginal bleeding and discharge were managed conservatively and overall recovery was satisfactory. For the patient with impacted gellhorn pessary leading to fistula, a multidisciplinary team approached had shown that conservative management had led to spontaneous resolution and recovery. Therefore, gellhorn pessary can be used as 2nd line management of stage 3 and 4 prolapse and is well accepted and tolerated.

Disclosure: No

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The Effect of Preemptive Local Infiltration on Postoperative Pain Following Vaginal Hysterectomy

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1 - Wolfson Medicl Center

Introduction: There are little data regarding the effect of preemptive local anesthesia on postoperative pain, in operations performed vaginally.

Objective: To study the effect of preemptive local infiltration of Bupivacaine or Normal Saline, on postoperative pain after vaginal hysterectomy, as compared to no infiltration at all.

Methods: This was a retrospective study. Women who undergone elective vaginal hysterectomy, indicated by apical vaginal prolapse, were included. The study group contained patients who participated in a former randomized control study, in which preemptive local infiltration of Bupivacaine-Hydrochloride 0.5%, or Sodium-Chloride 0.9%, was performed. The control group included the consecutive patients who underwent vaginal hysterectomy, for whom no local infiltration was

performed. Post-operative abdominal pain was assessed utilizing the 10 cm Visual-analogue-scale (VAS) at 3, 8, and 24 hours after surgery. The levels of pain, as well as use of analgesics, postoperatively, were compared between the groups.

Results: A total of 120 women were included: 60 patients in the local infiltration group (30 underwent Bupivacaine infiltration and 30 underwent NaCl infiltration), and 60 patients had no infiltration at all (control group). There were no differences in levels of pain in all points of time. The use of analgesia (all kinds) at 24 hours after surgery was more common in the control group (79.6% vs. 54.2%, p<0.001), as compared to local infiltration group. However, there was no difference between the groups in opioids use.

Conclusions: Preemptive local infiltration was not associated with reduced postoperative pain after vaginal hysterectomy. However, it did reduce the use of analgesics at 24 hours after surgery.

Disclosure: No

Images:

Table 1. *Patient demographics*

	Summary (N = 316)
Race	
White	159 (50.3%)
Black	26 (8.2%)
Hispanic	19 (6.0%)
Asian	2 (0.6%)
American Indian	1 (0.3%)
Other	20 (6.3%)
Unknown	89 (28.2%)
Parity	
0	99 (35.6%)
1	52 (18.7%)
2	57 (20.5%)
3	42 (15.1%)
4	18 (6.5%)
5	7 (2.5%)
6	1 (0.4%)
7	1 (0.4%)
11	1 (0.4%)
Median Parity (IQR)	1 (0 – 3)
Mean Age (SD)	44.41 (14.44)
Mean BMI (SD) (N = 307)	27.62 (7.85)
Baseline Aerobic Score (N = 228)	
0 (none)	47 (20.6%)
1 (light intensity)	67 (29.4%)
2 (moderate intensity)	21 (9.2%)
3 (vigorous intensity)	54 (23.7%)
No response	39 (17.1%)
Baseline Resistance (Strength Training) Score (N = 228)	
0 (no resistance activity)	131 (57.5%)
1 (yes resistance activity)	58 (25.4%)
No Response	39 (17.1%)
Mean Baseline PDI Recreation Score (N = 208)	5.53 (3.34)
Mean Baseline PHQ-9 Score (N = 177)	7.93 (6.58)
Mean Baseline GAD-7 Score (N = 173)	7.00 (6.48)
Note: Valid N = 316 unless otherwise noted.	

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Duration of Vaginal Pessary Use in Women with Pelvic Organ Prolapse: A Retrospective Cohort Study

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Introduction: Vaginal pessary use is a non-surgical treatment option for pelvic organ prolapse. Whereas satisfaction rates are initially high, they seem to decline over time.

Objective: To evaluate the median duration of pessary use among women with pelvic organ prolapse at our institution.

Methods: Retrospective cohort study. We included all patients who were treated with a vaginal pessary between 2007 and 2021 at our institution. Data was collected from the in-house electronic databases. Date of pelvic floor surgery was used as primary endpoint. In case of no documented surgery, the date of last follow-up visit was used as endpoint. A coxregression was performed for patients with the three most common types 0 (ring), 1(cube) or 2 (shell). A Chi Square test was performed for comparison of therapy adherence according to pessary type.

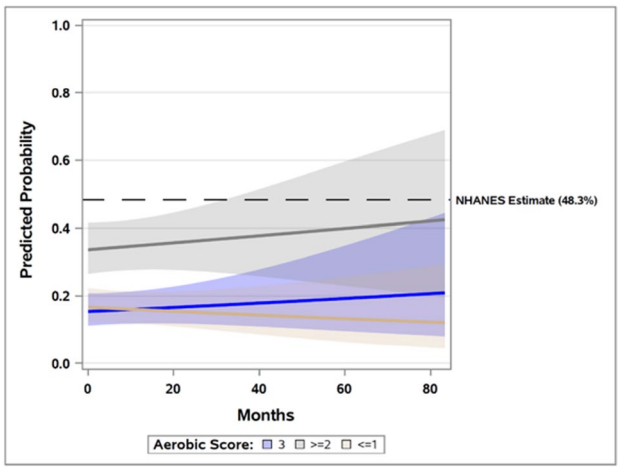
Results: Data of 772 women could be included in the statistical analysis. The median duration of documented pessary use was 14 weeks (0,95 LCL 12; 0,95 UCL 18). Hazard for type 1 (cube pessary) was increased by a factor 1.62 compared to type 0 (ring pessary) ($p < 0.05$); no difference between type 2 (shell pessary) and type 0 (ring pessary) could be identified (HR: 1.24, $p = 0.101$) (Figure 1). Women who were fitted with a ring pessary in the first place were significantly more likely to continue with pessary use than women who were fitted with a cube pessary or shell pessary in the first place (42% vs. 21% vs. 32%; p-value <0,05). Overall, 28-39% of women opted for surgery, depending on the type of pessary.

Conclusions: About one third of women who were fitted with a vaginal pessary for pelvic organ prolapse at our institution opted for surgical repair. The majority of them did so within 4 months after pessary use initation. Termination of pessary use without surgery was documented in only 4-6% of women. We assume that the majority of women fitted with a vaginal pessary for pelvic organ prolapse were satisfied and continue pessary use in the long-term.

Disclosure: No

Images:

Figure 1. *Cumulative probabilities for aerobic scores by time*



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OASIS Pivotal Trial to Evaluate the Safety and Efficacy of the RENOVA iStim System™ for the Treatment of Women with OAB

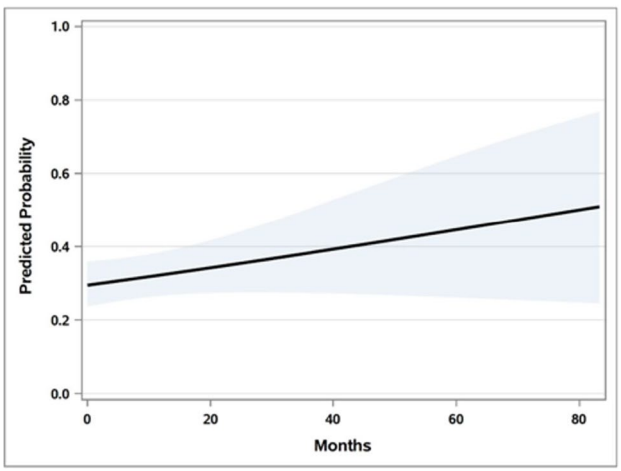
Amundsen, C[1]; Toozs-Hobson, P[2]; Benson, K[3]; Digesu, A[4]; Lane, F[5]; Ferrante, K[6]; Pezzella, A[7]

1 - duke health
2 - Birmingham Women's Hospital
3 - Sanford health
4 - Imperial
5 - UC Irvine
6 - Kaiser Permanente
7 - Southern Urogynecology

Introduction: Refractory Overactive Bladder (OAB) patients have traditionally been treated by both Sacral Nerve Stimulation (SNS) and Percutaneous Tibial Nerve Stimulation (PTNS). Although effective, SNS surgery is complicated, whereas repetitive PTNS is burdensome. The BlueWind RENOVA iStim™ System is a novel miniature, leadless, battery-less, implantable tibial nerve stimulator, which provides a minimally invasive therapy focusing on a patient-centric home

treatment. The pulse generator implant is wirelessly powered by a wearable unit that controls the therapeutic parameters and is worn by the patient during home treatment. A Clinician Programmer is used to remotely set individual stimulation parameters and assess compliance with therapy (figure 1).
Objective: A pivotal trial is being conducted to evaluate the safety and efficacy of the RENOVA iStim System for treating refractory OAB patients.
Methods: women with urgency incontinence will be enrolled in this prospective, single arm, open-label study. Inclusion criteria required at least 1 urinary urgency incontinent (UUI) episode/day for 5 days. The study is being conducted at 23 centers in the United States and Europe. The device is implanted in the lower leg during a minimally invasive procedure in which it is secured superficial to the tibial neurovascular bundle, just below the fascia. Suturing to the fascia mitigates any risk of migration and permits patients to be mobile after surgery. The implant is activated ~4 weeks after implantation. The patient is instructed to apply the wearable unit (figure 1) and perform daily stimulation treatments at home for 30-120 minutes per day. Voiding diary data, quality of life questionnaires and patient satisfaction questionnaires are collected at 6, 12, 24 and 36 months after device activation and are compared to baseline.
Results: 151 subjects, mean age 58.9 (SD: 12.3), have been implanted in 9 centers in Europe and 14 centers in the US. The subjects demonstrated mean baseline of 4.72 UUI/day and 10 voids/day. Out of the 151 subjects, 53 have 6 months follow-up and 17 have been followed for 12 months. To date, no device or procedure related Serious Adverse Events occurred. Out of 144 implanted patients whose adverse events (AEs) were adjudicated by an independent Clinical Events Committee, 7 had (4.8%) mild and 4 had (2.8%) moderate device or procedure AEs.
Conclusions: The aim of the BlueWind RENOVA iStim System is to refine the currently available therapies for refractory OAB patients, by providing a patient centric treatment that is less invasive and provides a durable response. Thus far, the implantation procedure and therapy yield a favorable safety profile and early results appear to be promising. This implantable tibial nerve technology with wireless energy potentially offers a long-term treatment option for this chronic medical condition, without the need for battery changes in the implantable component. Patient-controlled home stimulation may allow stimulation sessions, customizable to a patient's needs, and perhaps eliciting more rapid clinical improvement.
Disclosure: Yes, this is sponsored by industry/sponsor: BlueWind Medical
Clarification: Industry initiated, executed and funded study
Images:

Figure 2. *Probability of reporting a resistance score of 1 by time*



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Does the Setting for Intradetrusor OnabotulinumtoxinA Injection for Management of Overactive Bladder Matter?
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2 - MetroHealth Medical Center

Introduction: Intradetrusor OnabotulinumtoxinA (Botox) is an effective third line therapy to treat overactive bladder (OAB). Based on surgeon preference, Botox injections can be performed in the office setting with local analgesia only but can also be performed in the operating room under local and/or sedation. No studies to date compare patient outcomes following intradetrusor Botox injections performed in the office versus the operating room.
Objective: To compare symptomatic improvement in patients suffering from OAB who are undergoing treatment with intradetrusor Botox injections in an in-office versus operating room (OR) setting.
Methods: We performed a multi-center retrospective cohort study of women with the diagnosis of refractory non-neurogenic OAB who elected to undergo treatment with intradetrusor Botox injections between January 2015 and December 2020. Once patients were identified, the EMR was queried for all demographic and peri-procedural data, including report of subjective improvement post-procedure. Patients were categorized as either "in-office" versus "OR" based on the setting in which they underwent their procedure.
Results: 539 patients met inclusion criteria: 297 (55%) in-office and 242 (45%) in OR. Most patients (96%) had OAB-wet and had trialed medications (97.8%) while 13% had a previous neurostimulator (SNM) and 2.4% had trialed percutaneous tibial nerve stimulation (PTNS), with no difference in pre-Botox interventions between the two groups. Patients in the OR group were more likely to be younger (62.6 years ± 14.5 vs 65.3 years ± 12.1, p=0.01), to be Black (30.6% vs 17.5%, p=0.0004), to be a smoker (21.5% vs 5.4%, p<0.0001) and have hypertension (62.4% vs 45.8%, p=0.0001). Of the cases performed in the OR, 94.6% were due to surgeon preference, and 78.1% of those patients monitored anesthesia care. 100 units of Botox were used in 97.8% of cases with a median of 20 (range 5-30) injection sites with no difference between the groups. A total of 30 (5.6%) patients reported retention after their procedure with a larger proportion in the office group (8.1%) versus the OR group (2.5%), p=0.003. More patients in the OR group reported a urinary tract infection (UTI) within 6 months of their procedure (26.0% vs 16.8%, p=0.009). The overall subjective improvement rate was 77% (95%CI 73%-80%). Patients in the OR group had higher reported improvement compared to the office group (81.4% vs 73.3%, p=0.03). 4 (0.7%) patients from the total cohort went on to treatment with PTNS and 48 (9%) with SNM placement, with no differences between the groups. After controlling for confounders, patients who had Botox injections in the OR were still more likely to have a post-procedure UTI (aOR 3.3, 95%CI 1.7-6.6), to report subjective improvement (aOR 2.9, 95%CI 1.5-5.7) and had less urinary retention (aOR 0.1, 95%CI 0.03-0.3).
Conclusions: In this cohort study of patients with OAB undergoing intradetrusor Botox injections, post-procedural subjective improvement was high regardless of the setting in which the procedure was performed. Patients undergoing injections in the OR reported higher subjective improvement and had less post-procedural urinary retention, but were more likely to experience a UTI.
Disclosure: No

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Physical Activity in Women with Chronic Pelvic Pain in a Multidisciplinary Clinic
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Introduction: Physical activity (PA) has substantial positive effects on health and wellness, including improved quality of life and health outcomes in certain populations. Prior studies in endometriosis have shown beneficial effects of PA on symptom reduction. However, aerobic and resistance PA levels in women with varied chronic pelvic pain (CPP) diagnoses compared to national PA guidelines have not previously been reported. Additionally, no CPP studies have compared PA levels to levels of recreational disability or mood.

Objective: To evaluate aerobic and resistance (strength training) PA levels in women with CPP and to investigate the relationship of PA with recreational disability, anxiety, and depression

Methods: CPP patient charts at a tertiary care hospital outpatient clinic between 2012 and 2017 were retrospectively reviewed and followed over time. Women >18-years-old with CPP > 6 months were included. PA data was obtained from free text responses on a patient intake questionnaire. Aerobic PA responses were categorized: none, light, moderate, or vigorous, and were compared to the National Health and Nutrition Examination Survey (NHANES) estimate of aerobic PA levels in US women. Resistance PA responses were coded as binary (no or yes). The primary outcome measure was to assess CPP women's participation in aerobic and resistance PA. Secondary outcome measures included the Patient Disability Index (PDI) recreation sub-score, Patient Health Questionnaire-9 (PHQ-9), and Generalized Anxiety Disorder-7 (GAD-7). Linear and generalized linear mixed-effects models were used to measure aerobic, resistance, GAD, and PHQ scores over time using SAS version 9.4 (Cary, NC).

Results: Patients (N = 316) were White (50.3%), Black (8.2%), Other (6.3%), Hispanic (6%), Asian (0.6%), American Indian (0.3%), or Unknown (28.2%) with a mean age 44.4, mean body mass index 27.6, and mostly multiparous (64.5%) (Table 1). At baseline, 32.9% reported performing moderate (9.2%) or vigorous (23.7%) aerobic PA, falling short of the NHANES estimate of 48.3% in adult women in the USA. Further, 25.4% reported performing resistance PA. Neither aerobic nor resistance PA increased significantly over time (Figure 2). There was a trend toward reduced aerobic and resistance PA levels with increasing recreational disability, but this was not statistically significant. On multivariable analysis, every one-point increase in the PDI recreation score increased the PHQ-9 score by 0.75 points ($p < 0.001$) and GAD-7 score by a 0.41 points ($p = 0.01$).

Conclusions: Women with CPP (regardless of primary diagnosis) appeared to participate in lower levels of aerobic PA at baseline compared to the general population of adult women in the US, and did not appear to meet national guidelines for aerobic or resistance PA. The PDI recreation score was not a reliable surrogate for aerobic and resistance PA levels in this study. Recreational disability was associated with increased depression and anxiety. These conclusions should be weighed against the study limitations, including lack of validated PA outcomes measures, recall bias due to self-reported PA, and missing data in a small proportion of patients. This study will inform future prospective investigations of PA and interventional trials targeting therapeutic PA in women with CPP.

Disclosure: No

Images:

Table 1: Demographics

	Cumulative (N=140)	+DO (N=100)	-DO (N=40)	p-value
Age (mean ± SD)	63.6 ±12.9	64.5	61.1	0.1732
BMI (mean ± SD)	30.9 ±7.9	30.8	30.8	0.997
Race				
Caucasian	117	78	37	
Asian Pacific	2	1	1	
African American	18	17	1	
Hispanic	0	0		
Native American	0	0		
Unknown	1	1		
Other	2	2		
Ethnicity				
Not Hispanic/Latino	132	93	37	
Hispanic/Latino	4	2	2	
Unknown	3	3		
Missing	1			
Diabetes				0.806
Yes	26	17	7	
No	109	77	31	
Missing	5			
Smoking status				0.088
Never smoker	92	68	23	
Former smoker	28	16	11	
Current smoker	20	15	5	0.136
rUTI				0.088
Yes	36	22	14	
No	79	59	18	
Missing	25			
When was the rUTI diagnosed?				0.676
rUTI Before tx	17	11	6	
rUTI After tx	19	11	8	
Prior Procedures				
Pelvic reconstructive procedure	45	29	16	
Autologus sling	14	9	5	
Mid-urethral sling	53	34	19	
Urethropexy	4	0	4	
Cystotomy	8	6	2	
Baseline UDS Data				
PVR, mL (mean±SD)	46.3 (± 58)	38.1 ± 47.3	64.9 ± 74.5	**0.0157**
Capacity, mL (mean±SD)	296.9 (± 149.7)	276 ± 142.3	347 ± 156.9	**0.0104**
DO present	100			
Leak associated with DO	86			
SUI	63	42	21	0.259
DO+SUI	42			

DO= detrusor overactivity, SD= standard deviation, BMI=body mass index, rUTI=recurrent urinary tract infection, UDS= urodynamics, PVR= post void residual, SUI= stress urinary incontinence

Table 3: Outcome evaluations

Primary Objectives										
		OAB v8			**AUA SI**			**All surveys combined**		
		DO + (N=6)	DO- (N=5)	p-value	DO+ (N=23)	DO – (N=9)	p-value	DO + (N=100)	DO – (N=40)	p-value
DO	Mean *change in score*, n ± SD (range of change)	10 ± 12.18 (-2, 9)	2.6 ± 4.39 (-9, 21)	0.2322	5.17 ± 8.87 (-14, 19)	-0.667 ± 6.08 (-8, 18)	0.0807			
Secondary Objectives		**OAB v8**		p-value	**AUA SI**		p-value	**All surveys combined**		p-value
								DO + (N=100)	DO - (N=40)	
DO	Mean *number of treatments*, n ± SD							2.26 ± 1.94	1.98 ± 0.22	0.3984
		DO +leak (N=5)	DO - leak (N=1) *		DO + leak (N=20)	DO - leak (N=3)				
DO leak	Mean change in score, n ± SD	12.2 ± 5.46	*-1.0	NA	5.7 ± 2.20	1.67 ± 4.67	0.473			
		DM + (N=1) *	DM - (N=8)		DM + (N=8)	DM - (N=23)				
DM	Mean change in score, n ± SD	-9	8.375±8.60	NA	-2.25±8.68	5±7.5	**0.0316**			
		Tob + (N=3)	Tob - (N=8)		Tob + (N=16)	Tob - (N=16)				
Smoke Hx	Mean change in score, n ± SD	4±5.57	7.63±11.20	0.613	4.38± 9.42	2.69±7.71	0.5834			
		rUTI + (N=3)	rUTI - (N=3)		rUTI + (N=9)	rUTI - (N=19)				

rUTI	Mean change in score, n ± SD	7.33±11.84	9±7.62	0.8132	5.33±8.99	3.16±8.70	0.5461			
		After tx (N=1) *	Before tx (N=2) *		After tx (N=3)	Before tx (N=6)				
When was the rUTI	Mean change in score, n ± SD	21	0.5 ± 0.71	NA	7 ± 5.30	4.5 ± 10.75	0.7211			
								CISC+ (N=44)	CISC- (N=57)	
CISC	Mean *number of treatments*, n ± SD							1.77 ± 1.01	2.63 ± 2.30	**0.0232**
		Recon+ (N=3)	Recon (N=8)		Recon+ (N=9)	Recon- (N=22)				
Prior Pelvic Recon Surgery	Mean change in score, n ± SD	-2 ± 7	9.88 ± 8.97	**0.071**	2.44 ± 10.22	4.09 ± 8.12	0.6381			
		MUS+ (N=4)	MUS- (N=7)		MUS+ (N=16)	MUS- (N=15)				
Prior Mid-urethral sling	Mean change in score, n ± SD	1.25 ± 9.03	9.71 ± 9.50	0.1824	2.25 ± 8.07	5.07 ± 9.26	0.3733			

DO= detrusor overactivity, DM= diabetes mellitus, CISC= clean intermittent self-catheterization, Hx=history, rUTI= recurrent urinary tract infection, recon=reconstructive
***Negative scores indicate post-treatment survey results were worse than pre-treatment survey results.**

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Is Intradetrusor OnabotulinumtoxinA more Successful in Patients with Urodynamically Observed Detrusor Overactivity?

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Introduction: Intradetrusor onabotulinumtoxinA is an effective method of treating refractory urgency urinary incontinence but can have undesirable side effects. Defining pre-treatment urodynamic variables associated with successful treatment may allow clinicians to better direct therapy.

Objective: The primary objective of our study was to determine if onabotulinumtoxinA is more effective in patients who demonstrate detrusor overactivity (DO) on urodynamic testing than those without demonstrated DO. The secondary objectives include determining factors that might be associated with outcomes following treatment with onabotulinum toxin A.

Methods: We performed a retrospective cohort study utilizing a de-identified database of the electronic medical record at a single institution. Only women with the diagnosis of idiopathic overactive bladder were included in the study. Demographic data, medical history, baseline urodynamic data, previous pelvic surgical history, pre- and post-treatment survey data, and onabotulinum toxin A therapy data were extracted. To determine effectiveness in patients with DO, we assigned the proxy value for success as the mean change in pre- and post-treatment survey scores. Variables were compared using Wilcoxon rank sum test or chi-squared tests as appropriate, and means were compared with two-sample t-tests. Logistic regression was used to evaluate treatment effects. All analyses were conducted using Stata version 16.1.

Results: A total of 140 women met inclusion criteria. They were predominantly Caucasian, non-Hispanic. The average age was 63.6 years and average BMI was 31. Diabetes mellitus was present in 18%, 14% were current smokers and 20% were former smokers. Other demographic data is available in Table 1. Sixty-three percent of the women completed a symptom-based survey prior to receiving their onabotulinumtoxinA treatment, and 43% completed a post-treatment survey. However, only 31% (n=43) women completed the same pre- and post-treatment survey. The mean change in OAB-v8 score was 10±12.2 in women with DO and 2.6±4.4 in women without DO (p=0.2322). For women who completed the AUA SI, the mean difference in scores was 5.2 ± 8.9 in the DO group and -0.67 ± 6.1 in women without DO (p=0.081). The mean number of treatments was 2.26 ± 1.94 in women with DO and 1.975 ± 0.216 (p=0.3984 in women without DO). No significant difference in scores was seen between women with or without DO-associated incontinence, diabetes, smoking history, recurrent urinary tract infections, or prior pelvic reconstructive surgery or mid-urethral slings. The mean number of treatments was significantly different between patients who performed clean intermittent self-catheterizations (CISC) (1.77 ± 1.01 vs 2.63 ± 2.30 who did not require CISC, p=0.0232). For each 1-point increase in survey score difference, the odds ratio of having more than one treatment was 1.12 (95%CI – 0.94, 1.33) for the OAB-v8 group (p=0.200) and 0.96 (95%CI –0.88-1.05) for the AUA SI group (p=0.421).

Conclusions: Women with urodynamically proven DO did not have statistically better outcomes with onabotulinumtoxinA therapy as measured by difference in symptom survey scores compared to those without DO; this was possibly limited by small sample size. Clinically meaningful change may still be noted.

Disclosure: No

Images:

Table 1. Demographics

Demographics	All Surveyed Participants (N=207)
Age (years, mean SD)	44.0 18.4
Race/Ethnicity n (%)	
Black	176 (85.0%)
Hispanic, Latino, or Spanish Origin	13 (6.3%)
Two or More Races	12 (5.8%)
White alone, not Hispanic or Latino	2 (1.0%)
Other	4 (2.1%)
Education (%)	
8th Grade or less	5 (2.4%)
Some High School	14 (6.8%)
High School	62 (30.0%)
Some College	45 (21.7%)
College (Undergraduate)	59 (28.5%)
Graduate or Professional	22 (10.6%)
Parity (mean SD)	1.7 1.8
Menopause Status, n (%)	
Premenopausal	111 (53.6%)
Perimenopausal	21 (10.1%)
Postmenopausal	75 (36.2%)
Mean household income (%)	
<$10,000	65 (31.4%)
$10,000 - $49,999	86 (41.5%)
$50,000 - $100,000	52 (25.1%)
>$100,000	4 (1.9%)
Religion (%)	
Christian	136 (65.7%)
Prefer not to say	31 (15.0%)
Catholic	10 (4.8%)
Islamic	4 (1.9%)
Agnostic	4 (1.9%)

Other	22 (10.7%)
Insurance (%)	
Medicaid	89 (43.0%)
Medicare	43 (20.8%)
Insurance through a current or former employer or union	50 (24.2%)
Insurance purchased directly from an Insurance company	8 (3.9%)
Health First	2 (1.0%)
Other	15 (7.1%)
Ever seen a urogynecologist or urologist (%)	
Yes	40 (19.3%)
No	167 (80.7%)
Ever had urinary incontinence (%)	
Yes	57 (27.5%)
No	150 (72.5%)
Ever been treated for urinary incontinence (%)	
Yes	17 (8.2%)
No	190 (91.8%)
Ever had pelvic organ prolapse (%)	
Yes	18 (8.7%)
No	189 (91.3%)
Ever been treated for pelvic organ prolapse (%)	
Yes	8 (3.9%)
No	199 (96.1%)
Information-Seeking (%)	
Family and friends	14 (6.8%)
Gynecologist	80 (38.6%)
Internet	44 (21.3%)
Primary Care Doctor or General Practitioner	65 (31.4%)
Unsure	4 (1.9%)

Table 2. Binary logistic regression analysis on demographic features associated with UI and POP proficiency

	PIKQ UI Proficiency (>/=80% correct)			PIKQ POP Proficiency (>/=50% correct)		
	OR	95% CI	P-value	OR	95% CI	P-value
Ethnicity						
African American	Reference			Reference		
Afro-Caribbean	1.26	0.56-2.89	0.57	0.46	0.24-0.91	0.03
Education						
Lower (< College Degree)	Reference			Reference		
Higher (>/=College Degree)	1.71	0.73-4.02	0.22	1.91	0.92-3.97	0.08
Menopause						
Premenopausal	Reference			Reference		
Peri/Postmenopausal	0.96	0.42-2.22	0.92	1.94	0.98-3.86	0.06
Parity						
Lower Parity (</= 1)	Reference			Reference		
Higher Parity (>1)	1.01	0.43-2.39	0.98	0.91	0.46-1.83	0.80
Income						
Lower Income (<$10,000 - $49,999)	Reference			Reference		
Higher Income (>/= $50,000)	0.61	0.23-1.63	0.32	0.51	0.23-1.102	0.09

Abbreviations: PIKQ prolapse and incontinence knowledge questionnaire, UI urinary incontinence, POP prolapse, CI Confidence interval, OR Odds Ratio.

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WITHDRAWN - In Vivo Behavior of Pelvic Muscle' Stem Cells Across Pregnancy Continuum
WITHDRAWN

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WITHDRAWN - The Fate of Muscle Stem Cells During Pregnancy: Characterization of Autonomous Cellular Function in Preclinical Animal Model
WITHDRAWN

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WITHDRAWN - Pregnancy-induced Transcriptional Changes in the Rat skeletal Muscles: Pelvic Floor Muscles Present a Unique Signature
WITHDRAWN

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Vaginal and Abdominal Routes in the Treatment of Apical Pelvic Organ Prolapse

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Introduction: Despite the excessive advancements in reproductive gynecology, pelvic floor dysfunction (PFD) is still the problem, that comes always nearby. Its association with pregnancy and labor is a matter of fact, hence, with elevating reproductive success rates gynecologists should be prepared for an increase in PFD prevalence near future, especially in pelvic organ prolapse (POP). Although cystocele appears to be the most frequent and recognized type of POP, most women who suffer from cystocele at or beyond the hymen typically also have a component of apical support loss concomitantly. There are many surgical alternatives for the treatment of pelvic organ prolapse in each compartment. Methods evolved through autologous fascia reinforcement to graft implantation. At first, the latter type of surgery was met as a modern solution for all colporrhaphy limitations, but now is being prohibited in many countries for specific and hard treatable complications. Many gynecological surgeons nowadays prefer to minimize the amount of allografts to maintain optimal percent of effectiveness while lowering potential risks. And since there are no guidelines for which an apical support procedure should be performed more studies should be made to make that clear.
Objective: A comparative study for the long-term outcomes of transvaginal sacrospinous fixation using polypropylene tape with the laparoscopic and robot-assisted sacrocolpopexy was conducted. According to evaluated results, some points for surgical preference should be obtained.
Methods: Multicenter longitudinal study was conducted on 188 patients with III-IV grade apical prolapse (excluding vault prolapse) with absence or grade I-II anterior or posterior prolapse, that underwent genital prolapse surgery during 2013-2020 yy. Women were divided into two groups: in 1st group (n=56) we've performed vaginal anterior sacrospinous fixation using polypropylene tape; in 2nd group (n=132) we've performed sacrocolpopexy by mini-invasive route – laparoscopically or robotically in a standard fashion. Our long-term assessment included observation of patients each year after surgery including bimanual examination and international validated questionaries (PFDI-20, PFIQ-7, PISQ-12) for anatomical and functional outcomes respectively.
Results: Average follow-up was 15,4±3,6 and 51,9±15,7 months in I and II group respectively. There was 1,7% of apical prolapse

recurrence in sacrospinous fixation group and 3,7% in patients after sacrocolpopexy. According to questionaries and their minimal clinical important difference results, both groups showed comparable sexual life improvement (87,5% and 84,0% according to PISQ-12 questionaries in I and II group respectively) and I group showed better pelvic floor dysfunction symptom relief and social life improvement (88,1 for the PFDI-20 and 84,7% for the PFIQ-7) comparing to results in II group (79,5% for the PFDI-20 and 80,6% for the PFIQ-7).
Conclusions: Patient stratification for the route selection should be considered according to the next points: 1) Co-morbidity that can serve as contraindications for patient positioning or anesthesia type during the intervention. 2) Prior genital prolapse surgery. It's preferable to perform secondary POP surgery by a different route, if the previous one was failed. 3) Patient's intentions for preserving the uterus. 4) Age of the patients and their social, sexual status. But despite this, postoperative care and follow-up are also the same important as surgery preference.
Disclosure: No

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Anterior Sacrospinous Fixation with Adjustable Polypropylene Sling - Young Solution of a Mature Problem
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Introduction: Since the middle of the 20th century, sacrospinous fixation has come in gynecology by the effort of Armreich and Richter in Europe and Nichols in the USA. The technology evolved and through time it became a fact, that unilateral fixation is convenient as a bilateral one. Furthermore, with developing devices for sacrospinous ligament (SSL) fixation, the anterior approach becomes applicable. Since then, the need for wide dissection of the ischio-rectal fossa is disappeared. Nowadays, surgeons have polypropylene (PPL) slings, that allow us to provide a greater force of cervix fixation.
Objective: Increase the effectiveness and safety of surgical treatment in patients with apical or anterior-apical prolapse during bilateral sacrospinous fixation using an adjustable polypropylene sling.
Methods: A prospective longitudinal study was conducted in 2020. The study included 97 patients with apical prolapse (stages II-IV according to the POP-Q (Pelvic Organ Prolapse Quantification) system). The exclusion criteria were: prior hysterectomy, severe extragenital pathology, inflammatory diseases of the pelvic organs, any kind of malignancy. Bilateral anterior sling sacrospinous fixation was performed in the 1st group, sacrospinous fixation using non-absorbable sutures was performed in group II. The anatomical and functional outcomes of surgical treatment were evaluated before and after surgery. Anatomical parameters were evaluated using the POP-Q system. Functional results were evaluated using validated questionnaires PFDI-20, PFIQ-7, PISQ-12.
Results: Mean age was 53,2±9,6 and 52,5±10,9 years old in the I and II group respectively. The mean range of observation was 12,4±2,0 and 16,4±3,1 months after surgery. According to obtained recurrence rates, sacrospinous fixation with sutures had a higher risk of prolapse recurrence (14,6% vs 1,7% in the sling group). The average hospital stay in the 1st group was 2.3 days, in the 2nd group – 3.7 days. Intraoperatively organ injury was observed only in 1 case in the 2nd group (2,4%) during dissection. Functional outcomes were comparable after completing the PFDI-20 and PFIQ-7 surveys after surgery in both groups, but 1st group showed better results in reaching minimal clinically important difference according to the PISQ-12 survey (87,5% vs 73,3%).
Conclusions: Use of a synthetic sling instead of the transvaginal mesh can be one of the steps to minimize the use of polypropylene in gynecological surgery Anterior sacrospinous ligament fixation with mesh reaches a more confident result in apical prolapse correction caused by a more adhesive surface on the cervix and PPL tensile properties The anterior approach seems safer due to less need for wide opening of the SSL and more distance to the rectum Delayed time of integration of the mesh in tissues can resolve postoperative pain syndrome through tension adjustment of the cervix during early postoperative patient activity
Disclosure: No

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Knowledge of Pelvic Floor Dysfunction in African American and Afro-caribbean Women Seeking Medical Care in a Primary Care Ambulatory Setting
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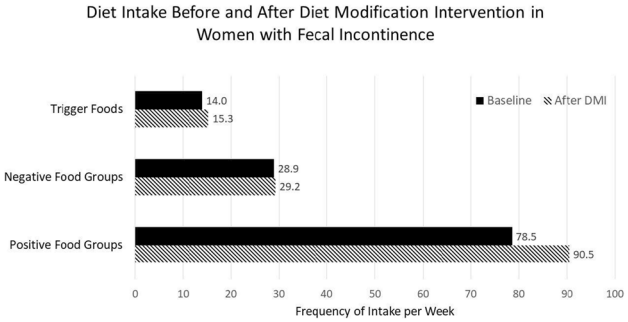
Introduction: With the United State's (US) aging population, it is estimated that approximately at least one-fourth of US community-dwelling women will develop a pelvic floor dysfunction (PFD) within their lifetime (Nygaard, 2008). A systematic review revealed that knowledge on PFD was low to moderate in the general population (Fante et al., 2019) and lower among Blacks/African-Americans. To our knowledge, this is the first study that explored the knowledge of urinary incontinence (UI) and pelvic organ prolapse (POP) within a predominately African American (AA) /Afro-Caribbean (AC) population within the United States.
Objective: This study aimed to assess knowledge and proficiency of UI and POP in adult (age >/= 18) female patients seeking medical care in our ambulatory setting. Our secondary aim was to identify demographic factors associated with UI and POP knowledge or proficiency.
Methods: We hypothesized that a statistically significant difference would exist in the knowledge base and proficiency of UI and POP within our black subethnic respondents. We performed a cross-sectional study using binary logistic regression with responses from a validated survey instrument. Inclusion criteria: adult, female (biologically female or self-identifying as female), patients seeking care in the ambulatory setting (OBGYN, internal medicine, and family medicine clinics). Exclusion criteria: Children, men, those who can not provide consent or those who could understand English. This study received IRB approval.
Results: Survey results from an ethnically diverse cohort were obtained: (N=207): black (85%), Hispanic(6.3%), multirace (5.8%), and white (1%). An analysis was performed with black respondents who identified as AA (44%) or AC (34%). Reports from the statistical analysis were based on Prolapse and Incontinence Knowledge Questionnaire (PIKQ) UI and POP mean score, UI and POP proficiency, and the knowledge of the etiology, diagnosis, and management of these conditions. We report on the following key findings: When POP proficiency was marked as >50% correct (Shah et al.), AA were more proficient in POP knowledge compared with AC (OR 0.46, 95% CI = 0.24 - 0.91). Further, while studies report lower proficiency among blacks/AA, our data suggest that our survey respondents actually performed comparable to or better than those surveyed in prior studies. (Chen et al.) Lastly, 70% of respondents reported that they would first seek information on UI and POP from a medical provider (gynecologist or primary care doctor) compared to other alternatives (e.g., the internet, 21.3%).
Conclusions: These findings highlight vulnerable subgroups that could benefit from provider-initiated discussions before and after PFD development and/or progression. And while black patients are typically homogenized in research studies, we surmise that nuance exists within subethnic groups, which could serve as an area of interest in future research.

Disclosure: No
Images:

Table 1: Comparison of different variables between groups. Legend: SD – standard deviation, *-statistically significant difference, NA – non-applicable

Variable	Group 1 (N = 8)	Group 2 (N = 10)	p-value
Age (years±SD)	78.3±6.7	68.5±11.3	0.027*
BMI (kg/m²±SD)	25.1±2.5	27.3±3.1	0.055
Use of antiplatelet drugs (No/%)	3/37.5	2/20	0.608
Use of anticoagulant drugs (No/%)	0/0	0/0	NA
Concomitant procedures (No/%)	7/87.5	10/100	0.444
Days of hospitalisation (average±SD)	2.5±2.1	5.8±1.1	0.003*
Duration of surgery (minutes±SD)	46.7±12.6	64.2±29.3	0.274
Blood loss:			
• Small (No/%)	7/87.5	9/90	1.000
• Moderate (No/%)	1/12.5	1/10	
Drop in haemoglobin levels after surgery (g/L±SD)	16.3±8.4	16.8±9.3	0.829
Intraoperative complications (No/%)	0/0	0/0	NA
Early postoperative complications (No/%)	3/37.5	2/20	0.608
Late postoperative complications (No/%)	0/0	0/0	NA
Spontaneous micturition after surgery (No/%)	8/100	10/100	NA
Maximal pain level on day of the surgery (average±SD)	3.5±1.8	3.2±2.4	0.829
Maximal pain level on postoperative day 1 (average±SD)	0.5±0.8	1.7±1.7	0.146
Maximal pain level on postoperative day 2 (average±SD)	0.7±1.1	1.3±1.8	0.692
Maximal pain level on postoperative day 3 (average±SD)	0±0	0.8±1	0.667
Total amount of consumed analgesics:			
• Piritramide (mg/day±SD)	1.9±3.5	6.75±7.7	0.083
• Paracetamol (g/day±SD)	3.8±3.4	5.4±1.8	0.173
• Metamizole (g/day±SD)	5.6±2.6	10±3.9	0.016*
• Diclofenac (mg/day±SD)	28.1±55.8	22.5±50.6	0.897
• Naproxen (mg/day±SD)	481.3±619.3	1705±1083	0.016*
Amount of consumed analgesics per day:			
• Piritramide (mg/day±SD)	1.7±3.5	1±1.1	0.315
• Paracetamol (g/day±SD)	1.7±1.7	1±0.44	0.173
• Metamizole (g/day±SD)	3.2±2.5	1.7±0.5	0.173
• Diclofenac (mg/day±SD)	28.1±55.8	3.6±8.2	0.762
• Naproxen (mg/day±SD)	252.9±391.9	289.3±154.9	0.315



Complication	Bleeding	Cervical tear	Ureteral injury	Fever	Urinary dysfunction	Pain	Unspecified	Poor healing of the vaginal stump	Cystitis	UTI	Ureterovaginal fistula	Pelvic abscess	Stroke	Pneumonia	Bladder injury	blood transfusion	Constipation	Failure to postmicturition	Infection
Number of articles reporting complication	3	12	1	5	2	2	3	1	1	3	1	1	1	2	3	1	1	1	2
Total number of complications	11	30	1	8	6	3	54	1	2	4	2	1	1	2	4	5	1	1	4
Rate	0.3157	0.8611	0.028	0.229	0.1722	0.08	1.53	0.028	0.067	0.172	0.0674	0.028	0.028	0.0674	0.114	0.0014	0.0288	0.0288	0.1148

Table 1. The vaginal natural orifice transluminal endoscopic surgery complications along with the articles reporting the complication and total number of complications reported in all articles.

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Do More Women Continue Treatment with Sacral Neuromodulation (SNM) Compared to Onabotulinumtoxin A (BTX) Injection for Overactive Bladder Syndrome (OAB)?

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Introduction: SNM and BTX are third tier treatments for patients with refractory OAB. While both SNM and BTX are effective, it is unknown whether treatment is continued long term and if there is a difference between the two.
Objective: To evaluate the continuation of treatment in women after third tier treatment for overactive bladder syndrome with injection of onabotulinumtoxin A compared to those who underwent sacral neuromodulation.
Methods: This is a retrospective cohort study of women in a national database who initiated third tier treatment for OAB with injection of BTX and/or SNM from 2013 to 2017. Included patients had at least 12 months of activity in the database for follow up. Two cohorts were identified: 1) women who underwent injection of BTX; and 2) women who underwent SNM. Our primary outcome was continuation of treatment, defined as receiving another BTX injection for the BTX cohort and no documented removal code for the SNM cohort. Demographic, pre-injection and pre-implantation, and post-injection and post-implantation data were compared between the two groups. Differences in continuous variables were assessed using t-tests and categorical variables were assessed using Fisher's exact or chi-square tests as appropriate.
Results: Two hundred eighty-eight women underwent treatment for OAB with SNM or BTX. At treatment initiation, mean age of patients was 64 years, 83% had BMI of 25 or greater, and 91% were white. There were 127/288 (44%) in the SNM group and 161/288 (56%) in the BTX group. Women in the SNM group were younger, more were overweight and obese, smoked, were from the southern region of the United States, and had more follow up time in the database compared to the BTX group. Two hundred one (70%) women continued their third tier treatment. Women with SNM were more likely to continue treatment than those with BTX (112/127 (88%) vs. 89/161 (55%), $p < 0.01$). In a logistic regression model controlling for age, BMI, smoking, UTI within 90 days, and comorbidity index, the SNM group was more likely to continue treatment (adjusted OR 7.10; 95% CI = 3.50, 14.39; $p < 0.01$). In the same model, smokers were less likely to continue treatment (adjusted OR 0.47; 95% CI = 0.23, 0.95; $p = 0.03$). Twenty-four patients crossed over with 15 BTX patients switching to SNM at a median of 434 days and 9 SNM patients switching to BTX at a median of 1,192 days.
Conclusions: Women who underwent SNM were more likely to continue treatment than those receiving BTX injections. Only 8% of patients switched treatments after initially being treated with either SNM or BTX. Many patients discontinue OAB treatment and may not seek additional treatment. Further research is needed to improve long term treatment of OAB.
Disclosure: No

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Exploring the Rationale of Performing Vaginal Hysterectomy Under Local Anaesthesia: A Single-centre Experience

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Introduction: Vaginal hysterectomy (VH) is usually performed under general or regional (spinal or epidural) anaesthesia. General anaesthesia alone represents a risk for intra and postoperative complications, especially for older patients with higher incidence of comorbidities.

Furthermore, there are some contraindications for regional anaesthesia, that are more prevalent in older population.
Objective: To explore the rationale of performing vaginal hysterectomy under local anaesthesia, we decided to compare the outcomes of patients in which VH was performed under local anaesthesia (LA) with intravenous sedation and GA.
Methods: In this retrospective study, we included all patients who underwent VH under LA at our institution (Group 1) and a comparable number of patients who had VH under GA (Group 2) in the same time frame. For each patient, the following data was obtained: age, BMI, height, duration of hospitalisation, amount of used local anaesthetic, maximal pain level for each day of hospitalisation using visual analogue scale from 0 to 10, duration of surgery, blood loss during surgery (small (<150 ml) or moderate (≥150 ml)), intraoperative, early (<30 days after procedure) and late (≥30 days after procedure) postoperative complications. Moreover, we recorded the total amount of consumed analgesics during hospitalization (piritramide, paracetamol, metamizole, diclofenac, naproxen) and the amount of same analgesics used per day of hospitalization, occurrence of spontaneous micturition and drop haemoglobin levels after surgery. For Group 1, the amount of used local anaesthetic (0.5% lidocaine) and intravenous propofol was also recorded. Statistical analysis was performed using SPSS Statistics Programme 22.0. Descriptive statistics were calculated for basic patients' characteristics. Data between groups were compared using Chi-square/Fisher's exact test for categorical and Mann-Whitney U-test for numerical data. Statistical significance was set at p-value <0.05.
Results: From July to September 2021, eight VH under LA were performed (Group 1). Additionally, ten patients were included in group 2 with surgeries performed in the same time frame. As seen from Table 1, patients in group 1 were significantly older and had shorter hospitalisation duration. Most of them had accompanying procedures such as anterior and posterior colporrhaphy or adnexectomy. In group 1, the average amount of local anaesthetic used was 39±17 ml together with 202.5±142.9 mg of propofol. There were no statistically significant differences in patients' BMI, antiplatelet/anticoagulant drugs use, maximal pain levels, duration of surgery, decrease in haemoglobin levels, blood loss, complication rate, and occurrence of spontaneous micturition after surgery between groups. Regarding analgesics use, there was no significant differences in analgesics use per day. However, there was higher total consumption of metamizole and naproxen in Group 2.
Conclusions: Our study shows that VH under LA is not inferior to VH under GA regarding pain levels after surgery, duration of surgery, blood loss, and complication rate. On the contrary, VH under LA showed possible advantages in requiring shorter hospitalisation and, to some extent, lower total analgesics consumption, probably on account of shorter hospitalisation. Therefore, VH under LA could present a viable, possibly advantageous option, especially for high-risk polymordbid patients. Moreover, intraoperative use of lidocaine could potentially decrease the need for analgesics consumption postoperatively.
Disclosure: No
Images:

Table 2. The traditional vaginal hysterectomy complications along with the articles reporting the complication and total number of complications reported in all articles.

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Diet Intake after Diet Modification Intervention in Women with Fecal Incontinence

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Introduction: In a previous study, older women with fecal incontinence (FI) who underwent a diet modification intervention (DMI) showed significant improvement in subjective FI symptoms. The DMI included educational booklets discussing FI information, healthy diet, diet strategies for managing FI, fiber intake recommendations, as well as sample meal plans and recipes. It is unclear whether improvement in subjective symptoms was associated with objective changes in dietary quality intake. The Healthy Eating Index (HEI) is a validated measure for assessing dietary quality based on the consumption of specific food components. Food groups whose consumption increases the HEI can be defined as "positive," and include total and whole fruit, total vegetables, greens and beans, whole grains, dairy, total protein, as well as seafood and plant proteins. "Negative" food components, including refined grains, sodium, added sugars, and saturated fats, are those whose consumption leads to decreased HEI score and should be consumed in moderation. Common FI triggers include caffeine, full fat dairy, fried food, alcohol, and spicy food.
Objective: The primary aim of this ancillary study was to determine if a DMI was associated with changes in dietary intake of different HEI food components. Our hypothesis was that after a DMI, participants would have increased intake of positive food categories and decreased consumption of negative food categories and common FI trigger foods. Our secondary aim was to determine if changes in consumption of different categories were associated with changes in Vaizey score, a validated patient-reported instrument used to measure the severity of FI symptoms.
Methods: This is an ancillary analysis of a single-arm pre-post intervention pilot study of women age 65 and older with FI who underwent a DMI. Individual one-week diet and bowel diaries at baseline and 6 weeks after DMI were examined for how frequently participants consumed HEI food categories and FI triggers. Paired t-test was used to compare baseline and post-intervention diet consumption. Spearman's correlation was used to determine the association between changes in food categories and changes in Vaizey score. P-value of less than 0.05 was considered statistically significant.
Results: Forty-eight women were enrolled and seventeen completed the one-week diet diaries before and after DMI and are included in this analysis. Our population had a mean age of 72.2 years and BMI of 31.7. At baseline, participants consumed positive food components an average of 78.5 times, negative food 28.9 times, and trigger foods 14.0 times. Total intake of positive food groups increased by 12 more occasions after intervention (90.5 versus 78.5 occasions), however this change was non-significant. There was no change in total consumption of negative food groups or specific trigger foods. Decreased consumption in both categories of saturated fats (r=-0.59) and fried food (r=-0.79) were significantly associated with changes in Vaizey score (p=0.0194 and p=0.0004, respectively).
Conclusions: Older women with FI changed their dietary intake after a DMI, notably increasing consumption of positive food groups. Objective decreases in saturated fat and fried food consumption were associated with subjective changes in FI symptoms.
Disclosure: No
Images:

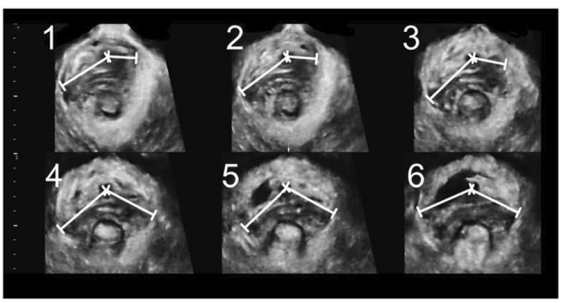

Figure: Measurement of the levator- urethra gap in a patient with complete right- sided and partial left- sided avulsion.

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Transcutaneous Electrical Nerve Stimulation Analgesia During Outpatient Operative Cystoscopy for Overactive Bladder: The TENSOB Randomized Control Trial.

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Introduction: Overactive Bladder/Urge Urinary Incontinence (OAB/UUI) is a prevalent disease that affects 17 million Americans. Cystoscopy with intradetrusor OnabotulinumtoxinA (Botox) injection is a commonly performed procedure for OAB/UUI. Outpatient cystoscopy is mostly well tolerated, but multiple interventions including oral medications, local anesthetics and environmental modifications have been attempted to reduce the amount of discomfort with the procedure. High frequency (25-150 Hz) Transcutaneous electric nerve stimulation (TENS) has been shown to provide analgesia and has been used for post-operative pain, fibromyalgia and neuropathies. A recent study noted a reduction in pain and increased patient satisfaction during office hysteroscopy when using TENS at the T10-L1 and S2-S4 Levels. There is little known about the analgesic effects of TENS during office cystoscopy with Botox chemo denervation and the impact on patient satisfaction with the procedure.
Objective: The primary outcome is a clinically significant (10-mm) difference in the visual analog scale (VAS) pain measurement in patients undergoing office Botox with TENS compared to placebo. We hypothesized that active TENS use during operative cystoscopy for Botox injections will result in a significant decrease in VAS compared to placebo during cystoscopy. Secondary outcomes include 5-point Likert Scale, Satisfaction 10-point scale, and adverse events related to the use of TENS and cystoscopy Botox injections.
Methods: This is a multicenter double-blind randomized control trial of men and women with UUI undergoing outpatient operative cystoscopy for Botox chemo denervation as third line therapy. Subjects were identified by urologists and urogynecologists. Participants were randomized into two groups: cystoscopy Botox injections with active TENS for analgesia and placebo TENS. Demographics were collected for all participants. The primary outcome was analyzed using a t-test. A power calculation was completed and it was determined that 100 patients (50 per group) would be required detect a significant difference of 10mm on the VAS scale between the two groups. Patient recruitment is estimated to end on February, 2022.
Results: A blinded interim analysis was performed when 72 patients (60 women and 12 men) were recruited by 6 different providers in 3 different clinical settings. No significant differences were noted in the demographic data between the two groups. A statistically significant reduction in VAS score was noted when comparing placebo TENS vs active TENS (48.6mm vs 32.8mm, $p = 0.007$). No significant adverse events occurred.
Conclusions: In patients with active TENS compared to placebo during office cystoscopy with Botox there was a statistically significant reduction of greater than 10-mm, the previously established minimally clinically relevant difference, on VAS pain scale. There were no adverse events reported with the use of TENS units. Our results suggest that TENS units may be a safe and valuable tool for pain control in outpatient cystoscopy with Botox injections.
Disclosure: No

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Novel Native Tissue Apical Support Procedure using Harvested Uterosacral Ligament onto Vaginal Tissue: A Cadaver Study Protocol

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Introduction: Modern times have allowed pelvic floor surgeons to assess the safety and success of a multitude of surgical prolapse procedures. Recently, the use of mesh in the pelvic floor has garnered controversy. It has never been more imperative to identify novel conservative and surgical methods to treat pelvic floor disorders. For the first time, our group presents the research protocol for the Novel Apical Suspension Harvesting the UteroSacral ligament (NASHUS) procedure.
Objective: To present the research protocol for a cadaver-based exploratory feasibility study of a novel surgical technique intended for the treatment of pelvic organ prolapse.
Methods: Sixteen fresh frozen un-embalmed female human full pelvis cadavers will be dissected and studied.All sixteen cadavers will undergo dissection and characterisation and suture pull-out strength assessment. i. Four to six cadavers will undergo dissection, characterisation and suture pull-out strength after vaginal attachments are complete ii. The rest of the cadavers will undergo dissection, characterisation and pre-vaginal attachment unilateral pull-out strength iii. Cadavers will be pre and post-hysterectomy depending on supply iv. Some of the cadavers that have intact uteri, will undergo a total abdominal hysterectomy (in standard fashion), post-hysterectomy cadavers will undergo tissue dissection to access the vagina (also in standard fashion)
Results: The surgical technique involves the creation of a uterosacral ligament (USL) flap that will be truncated with its distal-most structure expanded into leaves that will then be attached to the anterior, posterior and lateral aspects of the vagina that is hypothesised to achieve apical support. Next, we also aim to originally assess the suture pull-out strength of the distally detached USL. Tissue breakage or suture breakage should be achieved in order to assess strength. Important anatomical characteristics that have not been previously described (i.e., in Campbell's histologic or Buller et al.'s uterosacral anatomic relationship studies) or notated in vivo will be evaluated by our group using the cadaver model. Previous USL descriptors using cadaver models did not directly notate and address USL attenuation, breaks, and did not detach the USL near its distal insertion at the lower uterine segment. Additionally, pre- and post-procedure vaginal lengths will be assessed. The detachment of the USL will be performed safely cephalad and away from its interdigitation with the cardinal ligament. This distal detachment will allow us to safely distance the USL from the ureter. Even though this proposed procedure is not vaginally palpation-based, a thorough description of the detached and redesignated distal USL in relation to the ischial spine will be reported. Measurements will be inclusive of, but not limited to, the following: • Vaginal length before and after novel surgical procedure • Length and width of harvested distal USL • Distance between ureter and point of USL transection • Length, width and number of 'leaves'
Conclusions: We believe this anatomy-based study will reveal important information on the use of the USL in pelvic floor surgery.
Disclosure: No

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Observational Analysis of Complication Rate Between VNOTES and Traditional Vaginal Hysterectomy

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Introduction: Hysterectomy, one of the most common non-pregnancy-related surgical procedures performed in the United States (US), is majorly performed for benign conditions using multiple approaches such as abdominal, vaginal, laparoscopic, or robotic assisted. Vaginal hysterectomies constitute up to 13% of the total hysterectomies performed for benign conditions, compared to 68% for the laparoscopic route. One possible explanation is the challenges

that accompany the vaginal route as well as the dropping rate in surgical training for such an approach . In addition, conditions such as large uteri, nulliparity or lack of previous vaginal delivery, and prior cesarean section or pelvic surgery favor a non-vaginal approach. Furthermore, traditional vaginal hysterectomy has had challenges such as poor visualization and limited space for manipulation. As such, certain vaginal approaches have been proposed to overcome the difficulties encountered with the traditional vaginal hysterectomy taking into consideration the multiple benefits provided. An example of such approaches is the natural orifice transluminal surgery (NOTES). This vaginal approach has offered some advantages over the minimally invasive laparoscopic surgeries such as decreased pain, limitation of the magnitude of surgical trauma, decreased morbidity, decreased hospital stay and better cosmesis. Because of the scarcity of data comparing vNOTES to traditional vaginal hysterectomy, we perform a review comparing the rate of different complications of both approaches.

Objective: Determine and compare the rate of complications associated with vNOTES and vaginal hysterectomy. Demonstrate which approach between vNOTES or vaginal hysterectomy is superior in terms of surgical complications.

Methods: A PubMed search was conducted using the keywords "vNOTES" and "complications" as well as "vaginal" and "hysterectomy" for all available English literature on PubMed Central. All the case reports, case series, cohort studies, and randomized clinical trials reporting adverse effects or complications related to vNOTES and vaginal hysterectomy were included. The time limit was between 2010 and 2021. All relevant articles were included. In addition, reference lists of selected manuscripts were checked manually for eligible articles. Articles were selected to fit the scope of our topic, reporting the evidence of adverse effects after vNOTES surgery and total vaginal hysterectomy. Therefore, articles reporting risk factors for complications were excluded. Articles of study samples that consist only of complicated previous surgical interventions and reoperations were also excluded.

Results: The rate of all complications for vaginal hysterectomy was 5.8 times higher than vNOTES hysterectomies. Bleeding, transfusions, and urinary tract infections were more frequently reported with vaginal hysterectomies than vNOTES. Complications that are more commonly reported in vNOTES than vaginal hysterectomy include: conversion, 7.8 times higher, fever was reported 4.6 times higher, urinary retention was reported 8.75 times higher, pelvic abscess as a complication is 9.7 times higher and pneumonia rate was 1.8 times higher.

Conclusions: No surgical approach showed clear superiority to the other. More accurate assessment could be achieved with a prospective study, where patients are randomized, and surgeons have adequate training and skills in both approaches.

Disclosure: No

Images:

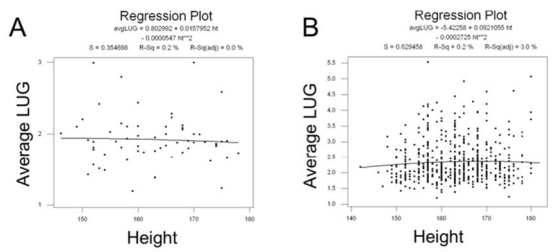

Figure 2: Lack of association between LUG and height in vaginal nulliparae, n= 64, (A) and entire population, n= 613 (B).

Table 1 Demographic and pre-operative characteristics of patients following uterine preserving prolapse repair

Parameter	age<65	age≥65	P value
No. of patients	103 (73.6%)	37 (26.4%)	
Age (years)	53.85 ±7.9	69.41 ±3.2	<0.001
BMI	25.80 ±5.2	26.30 ±3.9	0.600
Menopausal	54 (52.4%)	36 (97.3%)	<0.001
Smoking	1 (1%)	0 (0%)	1.000
Sexually active	76/86 (88.4%)	22/32 (68.8%)	0.012
Parity	4.50 ±2.5	4.73 ±2.4	0.633
Vaginal deliveries	4.28 ±2.6	4.39 ±2.3	0.831
Cesarean deliveries	0.16 ±0.4	0.11 ±0.3	0.556
Assisted deliveries	0.09 ±0.3	0.08 ±0.3	0.929
Maximal birth weight (gr)	3642.55 ±452.3	3680.57 ±589.5	0.696
Comorbidity	13 (12.6%)	16 (34.2%)	<0.001
Diabetes Mellitus	5 (4.9%)	2 (5.4%)	1.000
Hypertension	6 (5.8%)	11 (29.7%)	<0.001
Other	6 (5.8%)	9 (24.3%)	0.004
Prior pelvic surgery	14/102 (13.7%)	4 (10.8%)	0.780
Previous incontinence surgery	3 (2.9%)	1 (2.7%)	1.000
Previous prolapse surgery	4 (3.9%)	2 (5.4%)	0.655
Pre-operative POP-Q stage	3.01 ±0.4	3.00 ±0.2	0.892
Pre-operative POP-Q Ba stage	2.96 ±0.4	3.00 ±0.2	0.506
Pre-operative POP-Q C stage	2.12 ±1.0	1.81 ±0.9	0.111
Pre-operative POP-Q Bp stage	1.78 ±0.9	1.57 ±0.8	0.209
Pre-operative point Ba	3.68 ±2.6	3.74 ±1.5	0.860
Pre-operative point C	1.02 ±4.1	-0.22 ±3.3	0.100
Pre-operative point Bp	0.02 ±3.0	-0.58 ±2.2	0.268

Data presented as [mean ±SD] or [N (%)]

Note: BMI, body-mass index; POP-Q, Pelvic organ prolapse quantification.

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The Levator-urethra Gap: Is There a Need for Individualised Cut- offs?

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Introduction: Levator ani avulsion is commonly diagnosed by tomographic ultrasound imaging (TUI)[1]. Measurement of the levator- urethra gap can help in the assessment of the muscle insertion on TUI.[2] However, clearly there is great variation in this measurement even amongst nulliparous women, with a lower cut-off proposed in East Asians. [3] The latter is plausible, given generally lower biometric measurements in this ethnicity.

Objective: To determine whether age, height, weight and BMI are confounders of LUG measurements in nulliparae, and whether these factors confound the relationship between LUG and symptoms and signs of POP.

Methods: This was a retrospective study of women seen at a tertiary urogynecology unit between January 2020 and December 2021. All underwent a history, clinical POPQ examination and tomographic ultrasound imaging (TUI) of the pelvic floor for the assessment of both levator ani and anal canal as standardised by IUGA. [1] Symptoms of pelvic organ prolapse (defined as a vaginal lump or bulge) were quantified with a visual analogue scale (0-10) for prolapse bother. Trauma to the levator ani was defined as a full unilateral or bilateral avulsion and as tomographic trauma score (TTS) of 1-12. Postprocessing of saved ultrasound volume data was utilised to measure the levator- urethra gap, blinded against all other data. Organ descent and hiatal area had been

measured on maximal Valsalva maneuver at the time of presentation. Analysis was performed using Minitab v 13.

Results: A test- retest series for LUG measured by the two authors gave an ICC (single measures, absolute agreement definition) of ICC 0.832 (95% CI 0.788-0.868), signifying good to excellent agreement. The 624 women seen during the inclusion period presented mostly with stress urinary incontinence (448, 72%), urgency urinary incontinence (469, 75%) and/ or prolapse (338, 54%). Mean age at assessment was 58 (range, 20-94) years, mean height was 163 (range, 142-182) cm, mean weight 80 (41- 153) kg, mean BMI was 30 (17-65). Full avulsions were detected in 137 women (22%). LUG measurements could be obtained in 613 women, resulting in 12*613= 7356 measurements. The average LUG in individual women was 2.35 cm on the right and 2.32 cm on the left (n.s.), for an average of 2.34 cm (SD 0.63) overall. As expected, mean LUG was associated with symptoms and signs of prolapse, both on POPQ and on imaging, but not with height (r=0.037), weight (r=-0.052) or BMI (-0.069, all n.s.). This was confirmed when we repeated the analysis in nulliparae (n= 64), with near- identical numbers (r= -0.048, 0.074 and 0.1, all n.s.)

Conclusions: Levator- urethra gap measurements do not seem to be associated with height, weight or BMI in our population, obviating the need for individualisation of LUG. However, this does not exclude interethnic variability of this biometric measure which we were not able to study due to the small percentage of non- Caucasian patients in our population. References: J Ultrasound Med 2019; 38:851–864 Ultrasound Obstet Gynecol 2008; 32: 941-945 Am J Obstet Gynecol. 2011;205:232.e1-8.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Materna Medical, GE Medical, Mindray Images:

Table 2 Intra-operative and post-operative characteristics of patients following uterine preserving prolapse repair

Parameter	age<65	age≥65	P value
No. of patients	103 (73.6%)	37 (26.4%)	
Surgery type			0.530
LUSLS	65 (63.1%)	24 (64.9%)	
Uphold™ vaginal mesh	29 (28.2%)	12 (32.4%)	
Sarcohysteropexy	9 (8.7%)	1 (2.7%)	
Concomitant procedures			
TVT	58 (56.3%)	11 (29.7%)	0.006
Anterior repair	69 (67%)	24 (64.9%)	0.814
Posterior repair	73 (70.9%)	22 (59.5%)	0.202
Duration of surgery (minutes)	83.56 ±30.2	77.21 ±30.6	0.431
Duration of hospitalization (days)	3.10 ±2.6	2.65 ±1.3	0.317
Hemoglobin decreased	1.50 ±0.8	1.40 ±0.7	0.555
Intra-operative complications	1 (1%)	0 (0%)	1.000
Post-operative complications	11 (10.7%)	2 (5.4%)	0.514
Post-operative urge incontinence	16/89 (18%)	4/33 (12.1%)	0.438
Dyspareunia	1/100 (1%)	1 (2.7%)	0.469
Prolapse recurrence	13/99 (13.1%)	2 (5.4%)	0.355
Last follow-up POP-Q stage	1.27 ±0.7	1.14 ±0.4	0.160
Last follow-up POP-Q C stage	1.35 ±0.8	1.16 ±0.4	0.078
Last follow-up point C	-6.65 ±3.7	-7.74 ±1.2	0.009
Re-operation	7/100 (7%)	1 (2.7%)	0.682
Anatomical success	82/101 (81.2%)	33 (89.2%)	0.264
Clinical success	88 (85.4%)	36 (97.3%)	0.069
Composite success	74/102 (72.5%)	33 (89.2%)	0.039
PGI-I success	40/43 (93%)	24/25 (96%)	1.000
Follow-up duration (months)	26.48 ±20.9	24.03 ±19.6	0.517

Data presented as [mean ±SD] or [N (%)]

Note: LUSLS, Laparoscopic uterosacral ligament suspension; TVT, Tension-free vaginal tape; SUI, Stress urinary incontinence; POP-Q, Pelvic organ prolapse quantification; PGI-I, Patient global impression of improvement.

Table 3 post-operative outcomes of patients in menopause following uterine preserving prolapse repair

Parameter	age<65	age≥65	P value
No. of patients	54 (60%)	36 (40%)	
Surgery type			0.911
LUSLS	37 (68.5%)	23 (63.9%)	
Uphold™ vaginal mesh	16 (29.6%)	12 (33.3%)	
Sarcohysteropexy	1 (1.9%)	1 (2.8%)	
Prolapse recurrence	8/53 (15.1%)	2 (5.6%)	0.193
Last follow-up POP-Q stage	1.28 ±0.7	1.14 ±0.4	0.238
Last follow-up point C	-7.19 ±2.9	-7.74 ±1.7	0.224
Re-operation	5/53 (9.4%)	1 (2.8%)	0.395
Anatomical success	44 (81.5%)	32 (88.9%)	0.342
Clinical success	47 (87%)	35 (97.2%)	0.138
Composite success	39 (72.2%)	32 (88.9%)	0.058
PGI-I success	35/38 (92.1%)	24/25 (96%)	1.000
Follow-up duration (months)	23.20 ±18.7	24.11 ±19.9	0.826

Data presented as [mean ±SD] or [N (%)]

Note: LUSLS, Laparoscopic uterosacral ligament suspension; POP-Q, Pelvic organ prolapse quantification; PGI-I, Patient global impression of improvement.

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Outcomes Following Uterine Preserving Surgery for Treatment of Apical Prolapse: Does Age Matter?

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Introduction: A wide array of surgical procedures are available for repairing apical prolapse. In recent years women have shown growing interest in uterine preserving surgical procedures. Outcomes of such procedures have shown promising results, however, data regarding the effect of patient age on surgical outcomes is scarce.

Objective: The aim of this study was to evaluate the effect of age on surgical outcomes following surgical treatment including uterine preservation for pelvic organ prolapse. We further attempted to evaluate risk factors for failure within the entire cohort.

Methods: We performed a retrospective comparative study at a tertiary university teaching hospital. Included were all women who had surgical treatment for apical prolapse with uterine preservation between 2010-2020. Excluded were patients with follow up of one month or less and those for whom data regarding primary outcome of clinical success were missing. The cohort was divided into two groups: 1) women aged 65 and older (≥65 group); 2) Women younger than 65 years of age (<65 group). Pre-, intra-, and post-operative data were compared between groups. The primary outcome was rate of clinical success defined as no symptoms during last follow-up visit. Secondary outcomes included anatomical success rate (no prolapse beyond one centimeter above the hymen), composite outcome success rate (clinical and anatomical success and no need for reoperation) and patient satisfaction recorded using the PGI-I questionnaire.

Results: Included in the study were 140 women who underwent POP repair with uterine preservation and who met the inclusion criteria. One-hundred and three (73.6%) were in the <65 group and 37 (26.4%) in the ≥65 group. Eighty-nine (63.6%) women underwent laparoscopic uterosacral ligament suspension, 41 (29.3%) had vaginal colposuspension using the uphold lite mesh System and 10 (7.1%) had sacrohysterpexy. Mean age

for the entire cohort was 58±9.8, BMI 25.9±4.8 and duration of follow up was 25.9±21.0 months. Women in the ≥65 group had more comorbidities, were less sexually active and were less likely to have a mid-urethral sling performed during their surgery (Table 1). Intra and post-operative data are presented in Table 2. Clinical and anatomical success rates were somewhat higher in the ≥65 group though these differences did not reach statistical significance (97.3% vs 85.4%, p=0.069 and 89.2% vs. 81.2%, p=0.264, respectively). Composite outcome success was higher in the over 65 group (89.2% vs. 72.5%, p=0.039). Patient satisfaction recorded using the PGI-I questionnaire was high for both groups with 96.0% in the ≥65 group and 93.0% in the <65 group stating they were either "very much better" or "much better". A multivariate logistic regression analysis for the dependent parameter of composite outcome success was performed during which none of the parameters investigated reached statistical significance. Subgroup analysis was performed including only women who were post-menopausal (Table 3). This was done to address the possible confounding effect menopausal status may have on our results. No differences were found between groups with regards to clinical, anatomical, or composite outcomes.

Conclusions: Uterine preserving surgery is safe and efficacious in women ≥65.

Disclosure: No

Images:

Table 1: Symptoms and complications at 2 to 6 weeks following intravesical injection (n=50)

Symptoms & Complications assessment	Number	Percentage
Subjective improvement	50	100
Urgency	4	8
Nocturia	3	6
Urge urinary incontinence	4	8
Voiding dysfunction	6	12
SUI (stress urinary incontinence)	1	2
UTI	8	16

Table 2: Symptoms at 6 months following intra vesical Botox injection (n=50)

Symptoms & Complications assessment	Number	Percentage
Urgency	14	28
Nocturia	11	22
Urge urinary incontinence	14	28
Voiding dysfunction	13	26
SUI (stress urinary incontinence)	2	4
UTI	1	2
Requested repeat intra vesical Botox injection	4	8

Table 3: Symptoms and complications at 12 months following intra vesical Botox injection (n=50)

Symptoms & Complications assessment	Number	Percentage
Urgency	30	60
Nocturia	27	54
Urge urinary incontinence	29	58
Voiding dysfunction	20	40
SUI (stress urinary incontinence)	1	2
UTI	4	8
Requested repeat intra vesical Botox injection	21	42

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Outcomes of Intravesical Botulinum Toxin Injections for Refractory Overactive Bladder Syndrome in Patients Accessing the Public Healthcare Service in a Developing Country.

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Introduction: Over the past 50 years botulinum toxin has become an effective medical therapy, used in a variety of medical specialties for a range of indications. A growing body of evidence indicates its beneficial effects in treating medical refractory detrusor over activity with minimal complications, however no outcome data exists in our developing country.

Objective: Primary: 1. Determine the subjective success following intravesical botulinum toxin for refractory OABS. Secondary: 1. Describe the population of patients receiving intravesical botulinum toxin for the treatment of refractory OABS 2. Determine the rate and type of complications associated with intravesical botulinum toxin and the duration of treatment success. 3. Determine patient factors associated with shorter duration of treatment success

Methods: We conducted a quantitative, descriptive, retrospective study. A data collection sheet was used to gather retrospective demographic and clinical data with follow up at 2 weeks, 6 months and 12 months. Subjective success was defined the report of improvement in symptoms at the first follow up visit. Duration of treatment success was defined as the time that lapsed from the date of intravesical botulinum toxin to when the patient requested repeat treatment. We included patients who received intravesical botulinum toxin for OABS from 1 January 2016 - 31 December 2018. This resulted in a sample size of 50. Summary statistics for age were reported as mean and standard deviation. Categorical variables were reported as simple frequencies and percentages. Associations between categorical variables were evaluated using the Fisher's exact test. Groups were compared in terms of age using the Tow-sample Mann-Whitney test. Analyses were performed using Stata Version 16.

Results: The age of our participants ranged from 25 to 85 years (mean = 54.72). Thirty six percent were post- menopausal, 92% were para 1 or more, 52% had a BMI of more than 30 kg/m2, 30% were smokers, 40% were hypertensive and 10% had diabetes mellitus. All the patients reported improvement of symptoms at the initial follow-up visit. At 6 months follow up less than one third of the participants complained of overactive bladder symptoms with only four (8%) patients requesting repeat intravesical Botox treatment. At

12 months follow up just over half of the patients were experiencing overactive bladder symptoms with 21 (42%) requesting repeat intravesical Botox injections. There were a few complications related to the intravesical Botox injection procedure. All the procedures were performed using only topical anaesthetic gel, none of which needed to be abandoned due to pain or bleeding. Seven (14%) patients required temporary clean intermittent catheterisation (CIC). Eight (16%) patients reported having experienced a urinary tract infection (urinary tract infection) by the six week follow up visit. Hypertensive patients were significantly more likely to request repeat treatment at six months compared to non-hypertensive patients (Fisher's exact 0,020). No other patient related factors showed a significant association in relation with repeat treatment at 6 months and 12 months.

Conclusions: Our findings confirmed that the benefit of intravesical botulinum toxin treatment seen in patients with refractory overactive bladder in developed countries can be replicated in developing countries.

Disclosure: No

Images:

Figure 1. Vaginal Hysterectomy Practice Guidelines:

Jeppson et al "Comparison of Vaginal Hysterectomy Techniques and Interventions for Benign Indications: A Systematic Review" (2017)

- Suggest the follow factors need not be deterrents from a transvaginal approach (grade 2C):
  - Obesity
  - Prior cesarean delivery or other laparotomy
  - Nulliparity
  - Planned concomitant bilateral salpingopherectomy
  - Enlarged uterus
- Suggest either 4% chlorhexidine or povidone iodine to be used for vaginal surgical site antisepsis (grade 2B)
- Suggest injecting vasopressin intracervically at the start to decrease blood loss (grade 2B)
- Suggest using tissue sealing device to decrease blood loss and shorten operative times, but these benefits should be balanced against the potential risk of thermal complications and uncertain cost implications (grade 2B)
- If postoperative vaginal length is a concern, suggest a vertical cuff closure (grade 2B)
- Suggest that either peritoneum or vaginal epithelium can be used for colpotomy closure (grade 2B)
- Recommend against routine vaginal packing (grade 1B)

International Society for Gynecologic Endoscopy "Evidence-based practical guidelines of the International Society for Gynecologic Endoscopy (ISGE) for vaginal hysterectomy" (2020)

- A circular incision at the level of the cervicovaginal junction is recommended (grade IC)
- The posterior peritoneum should be opened first (grade IC)
- Clamping and cutting the uterosacral and cardinal ligaments before or after obtaining access into the anterior peritoneum is recommended (grade IC)
- Routine closure of the peritoneum is not recommended (grade IB)
- The insertion of a vaginal plug is not recommended (grade IB)

Table 2. Survey responses – Other Techniques

	Overall (N=204)	Non-fellowship trained (N=41)	Fellowship trained (N=163)	P Value
Other Techniques				
Surgeon approach				0.81
Sitting	72 (35)	15 (37)	57 (35)	
Standing	106 (52)	22 (54)	84 (52)	
Combination	26 (13)	4 (10)	22 (13)	
Any ERAS protocol used	168 (83)	36 (90)	132 (81)	0.26
Leg position				1
Candy Canes	32 (16)	6 (15)	26 (16)	
Boot-type2	172 (84)	35 (85)	137 (84)	
Apical suspension				<0.01
None	13 (6)	10 (24)	3 (2)	
Uterosacral	152 (75)	22 (54)	130 (80)	
Sacrospinous	13 (6)	3 (7)	10 (6)	
McCall	26 (13)	6 (15)	20 (12)	
Cuff closure technique				0.51
Running	89 (44)	19 (46)	70 (43)	
Interrupted	110 (54)	22 (54)	88 (54)	
Other	5 (3)	0	5 (3)	
Cuff closure suture type				0.01
Absorbable	175 (86)	41 (100)	134 (82)	
Delayed absorbable	24 (12)	0	24 (15)	
Absorbable, barbed	5 (3)	0	5 (3)	
Routine cystoscopy performed	190 (93)	31 (76)	159 (98)	<0.01
Ureteral jet visualization agent				0.21
None	61 (30)	12 (29)	49 (30)	
Pyridium	74 (37)	15 (37)	59 (36)	
Sodium fluorescein	41 (20)	5 (12)	36 (22)	
Methylene blue	0	0	0	
Other	27 (13)	12 (29)	18 (11)	
Catheter removal				<0.01
End of case	42 (21)	17 (42)	26 (16)	
In postoperative recovery	88 (43)	15 (37)	73 (45)	
Postoperative day 1	63 (31)	6 (15)	57 (35)	
Other	10 (5)	3 (7)	7 (4)	
Discharge plan				<0.01
Postoperative day 0	125 (61)	33 (81)	92 (56)	
23 hours observation	75 (37)	8 (20)	67 (41)	
Inpatient admission	4 (2)	0	4 (3)	
Use of outpatient surgery center				<0.01
Yes, usually	23 (11)	10 (24)	13 (8)	
Yes, occasionally	31 (15)	2 (7)	28 (17)	
No, no access	86 (42)	12 (29)	74 (45)	
No, not comfortable	53 (26)	11 (27)	42 (26)	
Other	11 (5)	5 (12)	6 (4)	

Data reported as N (%). Chi-squared was used unless otherwise specified. *= Kruskal Wallis

Table 1. Survey responses – Practice Guidelines

	Overall (N=204)	Non-fellowship trained (N=41)	Fellowship trained (N=163)	P Value
Practice Guidelines				
Deterring factor for vaginal route (median [IQR] scaled 1-5)				
Obesity	1.0 [1.0, 2.0]	1.0 [1.0, 2.0]	1.0 [1.0, 2.0]	0.43*
Prior laparotomy	1.5 [1.0, 2.0]	2.0 [1.0, 2.0]	1. .0 [1.0, 2.0]	<0.01*
Nulliparity	2.0 [1.0, 3.0]	2. .0 [2.0, 3.0]	2.0 [1.0, 3.0]	0.12*
Planned bilateral salpingo-oophorectomy	2.0 [1.0, 3.0]	2. .0 [1.0, 3.0]	2.0 [1.0, 3.0]	0.75*
Enlarged uterus >12 weeks	2.7 (1.0)	2.8 (1.0)	2.6 (0.9)	0.39*
Surgical antisepsis				0.71
Chlorhexidine	115 (57)	23 (56)	94 (58)	
Povidone-iodine	84 (41)	17 (42)	67 (41)	
Saline	2 (1)	0	1 (0.1)	
Use of vasoconstricting agent	161 (79)	32 (80)	129 (79)	1
Cervical incision type				0.83
Circular	77 (38)	17 (42)	60 (37)	
V incision	118 (58)	22 (54)	98 (59)	
Other	9 (4)	2 (5)	7 (4)	
Peritoneum opened first				0.68
Anterior	42 (21)	7 (17)	35 (21.5)	
Posterior	162 (79)	34 (83)	128 (78.5)	
Point of clamping uterosacral ligaments				0.72
After anterior entry	82 (40)	18 (44)	64 (39)	
Before anterior entry	122 (60)	23 (56)	99 (61)	
Vessel ligation				<0.1
Tissue sealing	33 (16)	13 (33)	20 (12)	
Clamp and suture	170 (84)	27 (67)	143 (87)	
Closure of peritoneum	93 (46)	19 (46)	74 (45)	1
Vaginal epithelium closure direction				0.18
Horizontal	175 (86)	32 (78)	143 (88)	
Vertical	29 (14)	9 (22)	20 (12)	
Use of vaginal packing	61 (30)	6 (15)	55 (34)	0.03

Data reported as mean ± standard deviation, median (interquartile range) or N (%). Chi-squared was used unless otherwise specified. *= Kruskal Wallis

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Characterization of Over Three Hundred Patients Treated with Pessaries, 10-year Experience of Non-surgical Management of Pelvic Organ Prolapse.

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Introduction: As populations grow older, pelvic organ prolapse (POP) is becoming an increasingly important health care problem. Vaginal pessaries are widely used as a conservative treatment option in POP management and have proven effective in relieving POP symptoms. There are numerous indications for pessary use, including temporizing measures pending definitive surgical repair, failed surgical treatment, and symptom relief when surgery is declined by the patient or is medically contraindicated.

Objective: To report the experience of non-surgical management of POP in elderly patients treated with vaginal pessaries.

Methods: Material and method: Case review of vaginal pessary users from 2011 to 2021, in one teaching center. Demographics, fitting and follow-up were analysed.

Results: A total of 344 patients using pessaries from 2011 to 2021, average age of 74 years, SD 67-80, BMI 28 SD 25-31, Parity 3 VD – 18% forceps. Surgical history of POP surgery in 5.5% (n=19) and hysterectomy in 12% (n=42). Prior to use of pessary, 43% reported urgency, 25% stress urinary incontinence, and 28% overactive bladder. The mean of POP-Q points Aa+3 Ba+3 C-3 gH 5 TVL 9 pB 3 Ap -2 Bp -2 D-3. 98% of the patients achieved a successful fitting on the 1st or 2nd visit. A little group with frustrated fitting was due to repetitive expulsion in 65% of cases, 8% due to vaginal pain, and 7% due to obstructive urinary and/or defecatory symptoms. The most used pessaries were 48% gellhorn long stem, 25% ring, and 11% ring with membrane. On average, size 3 SD 2-4. During follow-up, 68% of the patients achieved self-management of the pessary. 90% reported improving, more than a half reported being very much better on the patient global impression of improvement (PGI-I) scale; only 7% use anticholinergics due to persistent overactive bladder. At follow-up, the main reported events were: erosion in 32% of patients and discharge in 30%. 51% indicated the use of local estrogen and 12% required a

change in size or type of pessary. 18% discontinued the use of a pessary, among which 68% chose surgical treatment.
Conclusions: The use of a pessary as a non-surgical treatment of POP is a valid option for elderly patients who wish to obtain relief of prolapse symptoms, with an important improvement in quality of life and without the surgical risks associated with the procedure.
Disclosure: No

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Recurrent Stress Urinary Incontinence after Primary Midurethral Sling Surgery
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Introduction: Stress urinary incontinence(SUI) affects one in three women in their lifetimes. Midurethral slings (MUS) have become the gold standard for the surgical treatment of SUI. Reported subjective cure rates range from 75-94%, while objective cure rates ranges from 57-92%. However, 7-20% of treated patients experience surgical failure with persistent or recurrent SUI. Identifying risk factors would improve counseling for those women who consider anti-incontinence surgery with MUS as a therapeutic option.
Objective: To describe the incidence of recurrent SUI after primary MUS surgery, the therapeutic conduct and the reoperation rate, and to find risk factors associated with recurrent SUI.
Methods: An observational and retrospective cohort trial was conducted. Data were collected through the review of electronic medical records, identifying all patients over 18 year-old who underwent a primary anti-incontinence procedure with placement of a MUS at a tertiary hospital of Buenos Aires- Argentina, between January 1, 2011 and December 31, 2018. Patients who underwent surgery with non-standardized techniques, those with a history of previous anti-incontinence surgery, and occult SUI due to pelvic organ prolapse (POP) as well as those who did not have a follow-up of more than 45 days were excluded. Postoperative follow-up included anamnesis and physical examination.To evaluate the risk factors associated with SUI recurrence, an analysis was performed using a multiple logistic regression model. The crude and adjusted odds ratios (OR) with their 95% CI are presented.
Results: A total of 980 women who underwent a primary anti-incontinence surgery with SMU during the study period were included, of which 121 patients met at least one exclusion criteria. 859 women were selected: 223 (26%) with retropubic MUS and 636 (74%) with transobturator MUS. The mean follow-up time was 21.7 months (IQR 1-104 months). The mean age was 60.3 years (range, 30-86). The recurrent SUI rate was 5.2% (n=45) and the mean time to recurrence was 27.5 months (IQR 3-100). Of 45 patients with recurrent SUI, 31 of them opted for behavioral changes, 13 decided to start pelvic floor rehabilitation. And only 1 patient (0.11%) needed reoperation with a retropubic MUS at 47 months after primary surgery with a TOT MUS, and continued incontinent. When evaluating the risk factors for recurrent SUI, we found obesity as a risk factor, although it was not statistically significant. In contrast, the presence of concomitant POP decreased the risk by 40%.
Conclusions: The recurrent SUI rate in our study was 5.2% (45/859), compared to the current literature, we have a low rate of recurrence.The limitation of the trial is that it is a retrospective cohort with medium-term follow-up. We have not detected statistically significant risk factors associated with recurrence of SUI. However, the presence of concomitant POP has shown to be a protective factor for recurrence. This variable should be analyzed individually in future studies. We believe that the importance of our study lies in the possibility of offering our own statistics to patients.
Disclosure: No

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Total Vaginal Hysterectomy: A Survey on Clinical Practice Patterns
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Introduction: There is limited data summarizing the utilization of clinical practice guidelines for benign vaginal hysterectomy.
Objective: To determine gynecologic surgeon practice patterns regarding vaginal hysterectomy (TVH) perioperative interventions and compare adherence to clinical practice guidelines between general gynecologic specialists and fellowship trained subspecialists.
Methods: A survey was created to assess TVH practice patterns, based on a recent systematic review and clinical practice guideline (Figure 1). This survey was distributed on paper and electronically to practicing gynecologic surgeons through three surgical societies (SGS, SASCOG, AUGS). Survey respondents were asked to report their practice patterns for the majority (≥70%) of the time. Respondents were asked to rank each relative deterrent factor on a scale of 1 (no effect) to 5 (total contraindication). We compared responses between two cohorts: fellowship trained and non-fellowship trained gynecologic surgeons.
Results: 204 surgeons responded (70% female, 30% male). 20% (41/204) did not complete any post residency training, 5% (11/204) completed MIGS fellowship, 74% (150/204) completed FMPRS fellowship and 2% (4/204) "other" fellowship. Overall, 77% (157/204) reported subspecialty board certification and the majority of respondents reported they were associated with a medical training program, with only 12% (25/204) reporting no association. In terms of surgical volume, 44% (90/204) of respondents performed >50 hysterectomies in the past year, 53% (109/204) performed 10-50, and 2.5% (5/204) performed <10. When comparing the two cohorts, there were no differences between the fellowship trained and non-fellowship trained cohorts in regards to surgical volume, association with training program, or gender. Fellowship trained surgeons estimated that they performed 70% (IQR 40,90) of hysterectomies vaginally, while non-fellowship trained surgeons estimated 50% (IQR 20,80, p=0.02). When comparing adherence to practice guidelines, fellowship trained surgeons were more likely to use the clamp and suture technique for vessel ligation (88% vs 68%, p=0.004) and use vaginal packing (34% vs 15%, p=0.028) as compared to the non-fellowship trained cohort. There were no significant differences between cohorts for adherence to any of the other recommended practice guidelines. Neither cohort followed the practice guidelines recommendations for cervicovaginal incision type or vaginal cuff closure direction (Table 1). When looking at differences in other surgical practice patterns, fellowship trained surgeons were more likely to perform concomitant apical suspension and concomitant cystoscopy at time of TVH (24% vs 3% apical suspension, 98% vs 76% cystoscopy; p<0.001 for both). Fellowship trained surgeons were more likely to remove the catheter in PACU (45%) while non-fellowship trained surgeons most commonly removed the catheter at the end of the case (42%, p=0.001). When looking at factors that would deter from using a vaginal approach, the only identified statistically significant difference between cohorts was that non-fellowship trained surgeons rated prior laparotomy as more of a contraindication than fellowship trained surgeons (2 [1,2] vs 1 [1,2], p<0.01). There was no difference between respondent cohorts when considering obesity, nulliparity, enlarged uterus, or planned bilateral salpingo-oophorectomy.
Conclusions: Gynecologic surgeons were found to inconsistently adhere to clinical practice guidelines for benign TVH. Surgeons with no fellowship training were adherent to more of the guidelines as compared to fellowship trained surgeons.
Disclosure: No
Images:

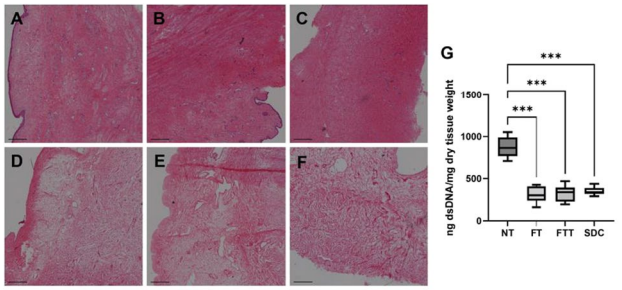

Figure 1. Proximal (A), midsection (B), and distal (C) untreated full-thickness vagina exhibited typical vaginal architecture and presence of nuclei after staining with hematoxylin and eosin in OCT. Nuclear clearing and retention of matrix fibers were observed on corresponding sections treated with SDC methods (D, E, F). PicoGreen dsDNA assay displayed significant reductions in dsDNA content after decellularization (G). Scale bars 500 μm.

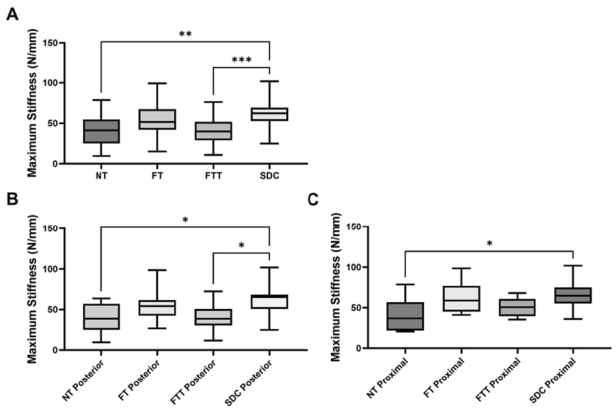

Figure 2. Maximum structural stiffness of ball-burst samples grouped based on treatment type alone (A), subdivided into posterior-oriented samples (B), and subdivided into proximal-oriented samples (C).

Table 1. Demographics and outcomes of patients who underwent AFS without and with concomitant prolapse repair

	AFS without POP repair N = 121	AFS with POP repair N = 45	P value
Age at surgery, yr median (IQR)	52.7 (46.5 – 62.1)	61.5 (52.0 – 69.6)	<0.001
Required CIC	16 (13.2%)	10 (22.2%)	0.1589
Required urethrolysis	3 (2.5%)	2 (4.4%)	0.6132
Subsequent surgery for SUI	2 (1.7%)	1 (2.2%)	0.2968

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Structural and Histologic Characterization of Decellularized Porcine Vagina

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Introduction: Decellularization is the process of selective removal of cells from a tissue to isolate the intact extracellular matrix or its components. Isolated matrix has invaluable research and clinical uses, including regenerative grafts, tissue-specific hydrogel components, and a foundation for studying matrix-specific mechanics on bulk and micro levels. For the vagina, little is known of the impact decellularization processes have on native matrix structure. Such knowledge is critical for product development and use, particularly regarding materials aiming to recapitulate native matrix structure and function.

Objective: This study aimed to compare the impact of 3 of the most common decellularization methods on critical structural properties of porcine vaginal extracellular matrix (vECM) such as DNA content and treatment or region-specific stiffening effects.

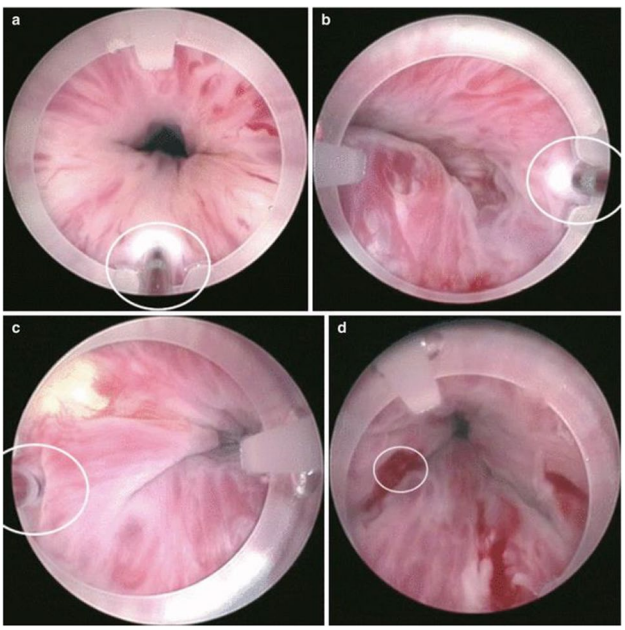
Methods: Vaginas from 20 nulliparous adult (6-9mo) domestic swine (Sus scrofa domesticus) were acquired from a local abattoir and divided into four treatment groups: no treatment (NT, N=5), 5 freeze-thaw cycles in hypotonic solution (FT, N=5), trypsin/Triton-X-100/sodium deoxycholate solution immersions (SDC, N=5), or freeze-thaw followed by Triton-X-100 immersion (FTT, N=5). Six full-thickness sections (~30x30 mm2) were isolated from each vagina representing proximal, midsection, and distal vagina on both the anterior (ventral) and posterior (dorsal) aspects (total N=120). After decellularization, tissues were subjected to elongation to failure ball burst testing using a rate of 10 mm/min and ball diameter of 10 mm on an Instron testing machine. Following ball burst testing, tissue from the center of each section (N=6 from each treatment group, total N=24) was harvested for dsDNA content analysis (PicoGreen). Separate non-burst tissue sections from the SDC group (N=3) were analyzed for residual cells (H&E). After confirming normality, analysis was performed using 1-way ANOVA followed by Bonferroni multiple comparison post-hoc correction.

Results: H&E analysis of vECM showed marked nuclear clearing after decellularization. Similarly, PicoGreen analysis demonstrated significant reductions in DNA content (average 63.1% FT, 62.4% FTT, 59.2% SDC) after all treatments ($p<0.001$, Figure 1). Maximum stiffness values (N/mm) for each group varied: 41.79 ± 17.04 (NT), 53.96 ± 20.24 (FT), 41.43 ± 17.46 (FTT), and 60.23 ± 18.51 (SDC). SDC treatment induced an increase in structural stiffness for all vaginal regions combined ($p<0.01$). Further analysis showed that samples from the posterior ($p<0.05$) and proximal ($p<0.05$) vagina had significantly stiffened after SDC treatment (Figure 2). FT and FTT decellularization did not alter matrix stiffness relative to NT.

Conclusions: Decellularization methods have varying effects on matrix properties based on tissue type and reagents used. Although decellularization strategies analyzed in this study significantly reduced DNA content, the levels were far above the 50ng dsDNA/mg dry weight benchmark used for delineating successful decellularization, likely due to large tissue dimensions which may have impeded clearing of nuclear contents. SDC treatment induced location-specific stiffening of the tissue versus NT controls, suggesting that vaginal homogeneity should not be assumed when using this method to create vECM for regenerative medicine applications. Further characterization of matrices yielded from these methods is ongoing to define tissue and location-specific treatment effects on collagen and glycosaminoglycan content, retention of growth factors, and microscopic matrix stiffness.

Disclosure: No

Images:



NYU Langone Health

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Self-Certification Form

Determining Whether Your Proposed Activity is Quality Improvement (QI)

INSTRUCTIONS:

1. Use this form:
   a. if you think your proposed activity could be considered a quality improvement (QI) project and may not require IRB review
   b. if you are unsure whether or not you need to submit your project to the IRB
2. The conditions below must be met in order for your proposed activity to be considered QI that does not require IRB review. Do not submit this form to the NYU Langone Health IRB. This form may be used as documentation that your proposed activity is QI that does not require IRB review.
3. **THIS IS NOT AN IRB REVIEW.** If your proposed activity is considered human subjects research, you will need to submit it to the NYU Langone Health IRB for review via Research Navigator.

Information for the Project Leader			
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Project Title	Effectiveness of urethral bulking procedure with polyacrylamide gel for patients with urethral hypermobility		

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Autologous Fascial Slings and Urinary Retention: Does Concomitant Prolapse Repair Increase the Risk?

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Introduction: Urinary retention can occur following autologous fascial sling (AFS) or pelvic organ prolapse (POP) repair and typically resolves after a period of intermittent catheterization (CIC).
Objective: We examined the rate of urinary retention requiring CIC and subsequent surgical intervention including sling incision following AFS compared with AFS with concomitant prolapse repair.
Methods: We retrospectively reviewed the outcomes of 166 women who underwent AFS by a single surgeon from August 2016 to June 2021 with and without concomitant prolapse repair. Urinary retention was defined as the need for CIC for greater than two weeks after surgery. Statistical analysis was performed using t-tests and Fisher exact tests.
Results: One hundred and sixty-six patients underwent AFS between August 2016 and June 2021, 45 of which (27.0%) underwent concomitant prolapse repair. Median duration of follow up was 4.0 months (IQR 1.6 – 5.3). Median age of patients was 52.7 (IQR 46.5 – 62.1) and 61.5 (IQR 52.0 – 69.6) (p<0.001). Sixteen of the 121 patients (13.2%) who underwent AFS without prolapse repair required CIC, compared with 10 patients (22.2%) who underwent concomitant prolapse repair (p=0.1589). There were 3 (2.5%) and 2 (4.4%) patients who required urethrolysis for those without and with prolapse repair respectively. Of all patients who underwent AFS, only 3 patients (1.7%) underwent subsequent urethral bulking for persistent stress incontinence.
Conclusions: Autologous fascial sling carries a known risk of urinary retention. In our cohort, those who underwent concomitant prolapse repair at the time of AFS had increased risk of urinary retention, though this was not shown to be statistically significant. The incidence of urinary retention requiring fascial sling incision remained low in either cohort.
Disclosure: No
Images:

Patient Id#	Q tip to rest angle	Post Procedure PVR ML	Patient Satisfaction at Follow-up	VAS Score 0-10	Complications	Observations
1	>30	0 at 5 months	Cured at 11 months	10 of 10	None	
2	>30	450 at 1week; 0 ML 4 weeks	Improved at 4 weeks	7	Initial Elevated PVR	Failed TOT sling 8months prior
3	>30	0 at 5 months	Cured at 11 months	10	None	Failed TVT sling 3 years prior
4	>30	142 day 0; normalized at 4 weeks IT up	Improved at 10 months	7	Initial Elevated PVR	OAB symptoms/+DO s/p Intersitim
5	>30	0 at 1 week	Cured at 10 months	8	None	OAB symptoms/+DO on Meds
6	>30	0 at 5 months	Cured at 11 months	10	None	OAB symptoms on Meds
7	<30	18 at 1 week	Cured at 10 months	7	None	OAB Failed Meds; how s/p Bladder Botox
8	>30	55 at 2 months	Cured at 2 months	10	None	
9	>30	0 at 1 week	Cured at 2 weeks; Improved at 7 Months	8	None	Failed TOT sling 2018/+OAB on Meds
10	>30	0 at 1 week	Cured at 1 months	9	None	Concomitant Bulkamid and Bladder Botox
11	>30	Foley cath for 4 days; 0 at 1 week	Cured at 5 months	10	Urinary retention Foley cath 4 days; Normal PVR 1 week	Failed TOT sling 1 years prior
12	>30	0 at 1 week	Cured at 5 months	10	None	
13	>30	150 at 1 week; Normal last follow-up	Cured at 4 months	10	Initial Elevated PVR	ISD
14	>30	0 at 1 week	Improved at 3 months	7	None	
15	>30	15 at 1 week	Cured at 3 months	10	None	
16	>30	0 at 1 week	Cured at 1 months	8	None	
17	>30	61 at 1 week	Improved at 1 week/Cured at 2 months	8	None	
18	>30	0 at 1 week	Cured at 1 week/Unchanged at 3 weeks	0	None	ISD
19	>30	0 at 1 week	Cured at 2 months	10	None	s/p Robotic SCH/SCP 1.5 years ago
20	<30	0 at 1 week	Cured at 1 month	9	None	
21	>30	0 at 1 week	Cured at 1 month	10	None	ISD
22	>30	20 at 5 months	Improved at 11 months	5	None	OAB symptoms on Meds
23	>30	0 at 1 week	Cured at 1 month	10 of 10	UTI post procedure IN PO ABX	s/p Robotic SCH/SCP Oct 2021
24	>30	20 at 1 month	Improved at 1 month	7	None	OAB symptoms of Meds/ISD

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Pregnancy Outcomes in Patients with Congenital and Pediatric Onset of Neurogenic Bladder

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Introduction: There is limited data on pregnancy and pregnancy outcomes in patients with congenital and/or pediatric onset of neurogenic bladder, especially those with prior lower urinary tract reconstruction. There is also a wide range of independence and mobility in those with neurogenic bladders. As fertility is usually not affected, there is need for further investigation in this challenging patient population.
Objective: The objectives were to determine the outcomes of pregnancy of women with congenital or pediatric onset of neurogenic bladder.
Methods: We performed a retrospective study of all female patients from our neurogenic bladder clinic over the last ten years. The following data was collected for those with pregnancies and a history of congenital or pediatric onset neurogenic bladder: urological and obstetrical history, mobility status, history of reconstruction, type of delivery method, and complications during delivery.
Results: We screened 586 female neurogenic bladder patients, identified 147 with congenital or pediatric onset neurogenic bladders, and further narrowed to 28 patients who completed pregnancy. Neurogenic bladder diagnoses were secondary to spina bifida (68%), Chiari malformation (7%), spinal cord injury (7%), bladder exstrophy (7%), neuroblastoma (3.5%), and bladder agenesis (3.5%). Nine of the 28 patients are wheelchair confined and 14 of the 28 patients had prior bladder augmentations prior to delivery. Our institution had a combined collaboration of urologists and obstetricians assisting together in 4 of the 14 bladder augmented patients, with a total of 6 cesarean deliveries. One of the 6 deliveries was indicated for intrauterine fetal demise. Intraoperative complications included small bowel injury, need for removal of antegrade colonic enema, and ureteral injury requiring reimplantation. Post-operative complications included abdominal dehiscence and enterocutaneous fistulas.

Conclusions: Women with congenital or pediatric onset neurogenic bladder have high rates of complications, especially with route of delivery. Close collaboration and multi-specialty involvement prenatally, intra-operatively, and post-operative is imperative to improving pregnancy outcomes in this challenging patient population. Due to the limited data in women with neurogenic bladders and pregnancy, further studies are needed to develop recommendations to approach this complex patient population.
Disclosure: No

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Effectiveness of Urethral Bulking Procedure with Polyacrylamide Gel for Patients with Urethral Hypermobility
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Introduction: Urethral bulking is a minimally invasive in-office procedure used to treat Stress Urinary Incontinence (SUI) or stress predominant Mixed Urinary Incontinence (MUI) in the setting of urethral hypomobility and/or intrinsic sphincteric deficiency. Multiple agents are used in this treatment modality, including the FDA approved polyacrylamide hydrogel (PAHG; 2.5% polyacrylamide and 97.5% water) that is a non-biodegradable homogeneous gel free of particles. This data reports outcomes of treatment with PAHG on SUI and MUI predominantly for those with urethral hypermobility.
Objective: The aim of this quality improvement project is to report on the patient centered efficacy of urethral bulking with polyacrylamide hydrogel for stress urinary incontinence. Patients are predominantly those with urethral hypermobility, a less reported application of this modality.
Methods: This is single-center retrospective data of female patients with SUI or stress-predominant MUI, who underwent injection with PAHG from March 2021, when this modality was implemented in our institution as standard of care. The primary endpoint was patient satisfaction measured on a four-point scale as cured, improved, unchanged, or worse. Secondary outcomes included the Visual Analog Scale Quality of Life (VAS QoL), reinjection rates, and perioperative and postoperative complications. Patients with active UTI, and elevated urine post-void residual (PVR, >100mL on bladder ultrasound during follow up visits) were excluded from the data. Patients were confirmed to have stress urinary incontinence with positive cough stress test and/or urodynamic testing. Urethral hypermobility was defined as urethral Q-tip > 30 degrees from resting position. Urethral bulking was performed in the office after peri-urethral local anesthetic injection of 10mL 1% lidocaine, and 2mL total PAHG solution was injected trans-urethrally at 2, 4, 8 and 10 o'clock in the urethral submucosa in the proximal urethral 0.5-1 cm distal to the bladder neck. Successful treatment was defined as patient report of a consistent cure, or improvement of SUI symptoms at the follow-up visits.
Results: Between March 2021 and January 2022, 24 patients underwent in-office urethral bulking procedure with PAHG. Follow-up of patients ranged between 2 weeks to 11 months. 22 patients had urethral hypermobility, and 2 patients had urethral hypomobility (urethral Q-tip < 30 degrees from resting position). For patients with urethral hypermobility, 20 patients (83%) experienced successful treatment outcome with PAHG with regards to SUI symptoms at the follow-up visits. Success rate for SUI patients with urethral hypomobility was 100%. Elevated urine PVR after the procedure occurred in 4 (17%) patients within 1 week after the procedure, mean PVR value was 150 ML, all patients were asymptomatic, and PVR normalized at subsequent follow-up visits. One patient required indwelling urinary catheterization with a Foley catheter for 4 days after urethral bulking procedure, followed by complete return of urinary function. One patient experienced recurrence of SUI symptoms within one month after procedure, and chose to proceed with a repeat urethral bulking with PAHG. One patient developed a UTI, and was successfully treated with antibiotics.
Conclusions: This data suggest that urethral bulking with polyacrylamide gel is a patient centered and effective minimally invasive option for patients with SUI and urethral hypermobility. More data is needed, but this may be considered a safe first line option, especially for poor surgical candidates.
Disclosure: No
Images:

Table 1. Risk factors for subjective failure after single treatment of PAHG for stress urinary incontinence

	Subjective cure[a] (36/82, 44%)	Subjective fail (46/82, 56%)	p
Age	59 (15.1)	65 (12.3)	0.07
Insurance			0.14
Medicaid	13 (36%)	18 (39%)	
Medicare	6 (17%)	11 (24%)	
Employer based	13 (36%)	7 (15%)	
Self-pay	4 (11%)	10 (22%)	
Race/ethnicity			
Hispanic	11 (31%)	19 (41%)	0.73
Black	3 (8%)	3 (7%)	
White	15 (42%)	18 (39%)	
Other	7 (19%)	6 (13%)	
Socioeconomic status[b]			0.011
<19%	24 (67%)	25 (54%)	
19-27.7%	9 (25%)	5 (11%)	
>27.7%	3 (8%)	16 (35%)	
BMI (kg/m^2)			0.08
BMI 18.5-24.9	6 (17%)	13 (28%)	
BMI 25-29.9	16 (44%)	10 (22%)	
BMI ≥ 30	14 (39%)	23 (50%)	
Parity (median, IQR)	2 (1-3)	2 (2-4)	0.19
Postmenopausal	27 (75%)	42 (91%)	0.045
Diabetes	8 (22%0	7 (15%)	0.42
Current smoker	2 (6%)	0 (0%)	0.19
Recurrent UTI	4 (11%)	6 (13%)	1
Prior stress urinary incontinence treatment			
Sling	5 (14%)	8 (17%)	0.67
Urethral bulking	2 (6%)	1 (1%)	0.58
Vaginal estrogen	10 (28%)	9 (20%)	0.38
Urinary urgency	28 (80%)	34 (74%)	0.52
Concurrent surgery	5 (14%)	18 (39%)	0.012

Data are presented as mean (SD) or n (%) unless otherwise noted.
[a] Subjective cure, self-reported dryness after single treatment.
[b] Socioeconomic status, mean percent living below poverty level based on zip code from US Census data.

Table 2. Risk factors for objective failure after single treatment of PAHG for stress urinary incontinence

	Objective cure[a] (25/63, 40%)	Objective fail (38/63, 60%)	p
Age	65 (14.7)	67 (11.0)	0.55
Insurance			0.62
Medicaid	13 (52%)	16 (42%)	
Medicare	2 (8%)	7 (18%)	
Employer based	6 (24%)	7 (18%)	
Self-pay	4 (16%)	8 (21%)	
Race/ethnicity			0.26
Hispanic	7 (28%)	12 (32%)	
Black	0 (0%)	4 (11%)	
White	15 (60%)	15 (40%)	
Other	3 (12%)	7 (18%)	
Socioeconomic status[b]			0.44
<19%	19 (76%)	23 (61%)	
19-27.7%	3 (12%)	6 (16%)	
>27.7%	3 (12%)	9 (24%)	
BMI (kg/m^2)			0.8
BMI 18.5-24.9	6 (24%)	12 (32%)	
BMI 25-29.9	9 (36%)	13 (34%)	
BMI ≥ 30	10 (40%)	13 (34%)	
Parity (median, IQR)	2 (1-3)	2 (2-3)	0.66
Postmenopausal	19 (76%)	36 (95%)	0.0498
Diabetes	5 (20%)	6 (16%)	0.74
Current smoker	0 (0%)	0 (0%)	-
Recurrent UTI	4 (16%)	5 (13%)	1
Prior stress urinary incontinence treatment			
Sling	4 (16%)	5 (13%)	1
Urethral bulking	1 (4%)	1 (3%)	1
Vaginal estrogen	7 (28%)	11 (29%)	1
Urinary urgency	19 (76%)	25 (66%)	0.42
Concurrent surgery	6 (24%)	17 (45%)	0.11

Data are presented as mean (SD) or n (%) unless otherwise noted.
[a] Objective cure, negative CST after single treatment.
[b] Socioeconomic status, mean percent living below poverty level based on zip code from US Census data.

Table 3. Postoperative complications of urethral bulking with PAHG for stress urinary incontinence

Immediate postoperative retention requiring foley catheter	20/104 (19%)
Postoperative urgency	
Denovo[a]	3/67 (4%)
Persistent[b]	27/67 (40%)
Resolution[c]	23/67 (34%)
Acute urinary tract infection	8/81 (10%)

[a] Postoperative denovo urgency, new urinary urgency after treatment.
[b] Postoperative persistent urgency, urinary urgency that persisted after treatment.
[c] Postoperative urgency resolution, urinary urgency that resolved after treatment.

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Outcomes of Polyacrylamide Hydrogel Urethral Bulking for Treatment of Stress Urinary Incontinence among a Diverse Urban Patient Population

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Introduction: Midurethral sling (MUS) surgery is accepted as the gold standard for the surgical management of stress urinary incontinence (SUI). Recently urethral bulking agents, particularly polyacrylamide hydrogel (PAHG), have demonstrated patient satisfaction rates in the 60-80% range and may be preferred for patients who are considered high-risk for surgical intervention. Our cohort is from a racially and socially diverse urban population with multiple medical comorbidities which has been lacking in the existing literature.
Objective: Our primary aim was to describe cure rates of polyacrylamide hydrogel urethral bulking (PAHG) for women with stress urinary incontinence in a diverse urban patient population. Our secondary aims were to identify potential risk factors for treatment failure and complications.
Methods: We conducted a retrospective chart review of women > 18 years who underwent urethral bulking with PAHG at a tertiary health system from January 1, 2020 to October 29, 2022. Patient characteristics including sociodemographic, treatment outcomes, and complications were recorded. Subjective cure was defined as no recurrent symptoms of SUI and objective cure was defined as negative cough stress test (CST) after the first treatment. Descriptive analysis was performed for categorical and continuous variables. Risk factors were compared between outcome groups using t-tests or Wilcoxon rank-sum and Fisher's exact or chi-square test for continuous and categorical variables, respectively. Logistic regression modeling was performed to examine the relationship between treatment failure, controlling for patient characteristics with a significant association in bivariate analyses.
Results: One hundred and four women were treated for SUI with PAHG from January 1, 2020 to October 29, 2021. Participants represent a racially and socially diverse population; 59% reported government health insurance, 23% live more than 27.7% below the poverty level, 37% percent self-identified as Hispanic and 7% as Black. Many participants reported risk factors for failure including 43% obese, 20% failed prior treatment for SUI, and 74% complained of urinary urgency. After the first treatment, 44% (36/82) reported being cured, 40% (25/63) had negative CST, 32% obtained a second injection, and 1 patient obtained a MUS. SES, postmenopausal status and concurrent surgery were the only potential risk factors associated with subjective cure and only postmenopausal status was associated with objective cure ($p<0.05$). In a multivariate regression model, the odds of subjective cure for the highest SES was 8.68 (95%CI 2.1, 36.1) and those without a concurrent surgery was 6.31 (95%CI 1.9, 20.7); postmenopausal status was not significant in the multivariate regression model. Post-operative complications were rare including, 19% with acute urinary retention and 10% acute UTI. Few participants reported denovo urinary urgency (4%) while 34% reported resolution of symptoms.

Conclusions: Our racially and socially diverse patient population reported lower cure rates and slightly more complications compared to previously cited studies. Women with higher SES may have more access to care or disparate counseling due to implicit bias. Further research is needed to evaluate racially and socially diverse patient outcomes, satisfaction, and counseling for PAHG treatment.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Axonics
Images:

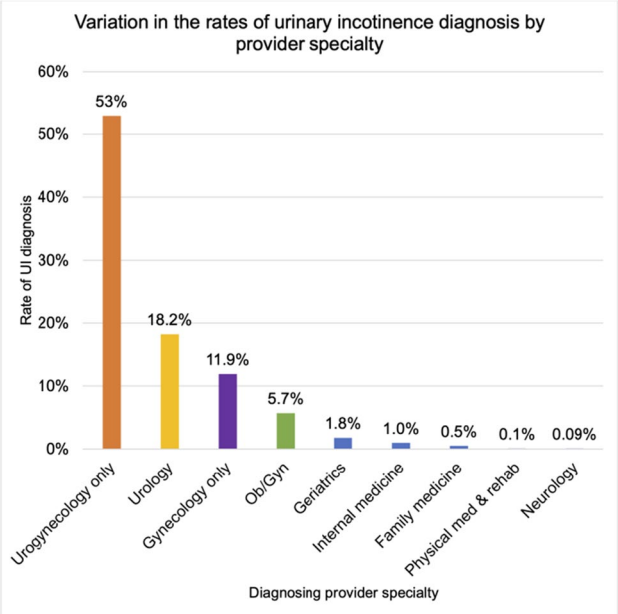
Table 1: Demographic composition of patients with new urinary incontinence diagnosis and variation in the rates of urinary incontinence diagnosis

Demographic composition of patients with UI diagnosis (n=27,872)		Rate of UI diagnosis (Number of patients with UI in the subgroup/Total number of patients the in subgroup)
Patient age		Patient age
<40 years-old	1,424 (5% = 1424/27872 x 100)	218,755 (0.7% = 1424/218755 x 100)
40-65 years-old	10,985 (40%)	318,809 (3.4%)
>65 years-old	15,463 (55%)	273,579 (5.6%)
Patient race		Patient race
White	14,271 (51%)	512,610 (2.8%)
Black	6,000 (22%)	164,944 (3.6%)
Hispanic	524 (1.9%)	20,906 (2.5%)
Asian	521 (1.8%)	29,937 (1.7%)
Unspecified or unknown	6,556 (23%)	N/A
Estimated household income; Additionally stratified by race		Estimated household income; Additionally stratified by race
Below the Federal Poverty Line (FPL) for a four-person household in 2019	6,159 (22%)	212,563 (2.9%)
White	1,588 (25%)	65,845 (2.4%)
Black	3,926 (64%)	111,406 (3.5%)
Hispanic	203 (3.3%)	9,022 (2.3%)
Asian	137 (2.2%)	7,750 (1.8%)
Unspecified or unknown	206	N/A
Between FPL and Median Household Income for the region	11,932 (43%)	511,251 (2.3%)
White	9,319 (78%)	381,446 (2.4%)
Black	1,450 (16%)	51,119 (2.8%)
Hispanic	230 (1.9%)	11,185 (2%)
Asian	276 (2.3%)	17,065 (1.6%)
Unspecified or unknown	657 (5.5%)	N/A
Above the Median Household Income for the region	2,311 (8.3%)	74,983 (3.1%)
White	2,001 (87%)	58,730 (3.4%)
Black	90 (3.9%)	2,364 (3.7%)
Hispanic	21 (0.9%)	1,064 (1.9%)
Asian	84 (3.6%)	4,911 (1.7%)
Unspecified or unknown	115 (5%)	N/A
Estimated household income unspecified or unknown	7,470 (26%)	N/A
Reported health insurance coverage		Reported health insurance coverage
Commercial insurance	9,120 (33%)	486,451 (1.9%)
Medicare	9,050 (32%)	191,486 (4.7%)
Self-pay	5,830 (21%)	159,564 (3.7%)
Medicaid	2,053 (7%)	70,520 (2.9%)
State medical assistance program	654 (2%)	12,869 (5%)
Military	154 (0.5%)	7,002 (2.2%)
Unspecified or unknown	1,011 (3.5%)	N/A

Table 2: Demographic composition of diagnosing providers and variation in the rates of urinary incontinence diagnosis

Demographic composition of providers who diagnosed patients (n=27,872) with UI		Rate of UI diagnosis (Number of patients with UI in the subgroup/Total number of patients the in subgroup)
Provider specialty		Provider specialty
Urology	4,544 (16% = 4544/27872 x 100)	25,003 (18.2% = 4544/25003 x 100)
Obstetrics and gynecology	13,676 (49%)	237,908 (5.7%)
Gynecology only	12,971 (47%)	114,964 (11.9%)
Urogynecology only	8,141 (29%)	15,352 (53%)
Geriatrics	447 (1.6%)	25,406 (1.8%)
Internal medicine	3,536 (13%)	335,532 (1%)
Family medicine	1,752 (6%)	331,381 (0.5%)
Physical medicine and rehabilitation	44 (0.1%)	31,582 (0.1%)
Neurology	63 (0.2%)	72,822 (0.09%)
Other	3,810 (14%)	N/A
Provider type		Provider type
Physicians	18,150 (65%)	634,397 (2.9%)
Nurse practitioners	1,185 (4%)	42,986 (2.8%)
Physician assistants	236 (0.8%)	12,157 (1.9%)
Unspecified or unknown	8,301 (30%)	N/A

Figure 1: Graphical representation of the variation in the rates of urinary incontinence diagnosis by diagncsing provider specialty



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Enhanced Recovery After Surgery (ERAS) Protocol in Gynecology and Urogynecology: 4 years of follow-up after implementation
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Introduction: The Enhanced Recovery After Surgery (ERAS) protocol for perioperative care recommends a series of positive interventions to accelerate postoperative recovery, such as preoperative fasting abbreviation and prevention of thrombosis. Although applied in other surgical areas, data on its recommendations in urogynecological surgeries are scarce.
Objective: The aim of this study was to evaluate the impact of implementation of ERAS recommendations in urogynecological surgeries.
Methods: After approval by the ethics committee, a purely observational study was carried out under abbreviation for preoperative fasting with 400 ml of clear liquid enriched with carbohydrate and protein 4 hours and thromboprophylaxis approaches in urogynecological surgeries, from 2016 to 2020 in a medium complexity hospital, with analysis of parameters such as thrombotic events, length of stay and patient satisfaction on recovery after surgery. For outpatient urogynecologic procedure such as midurethral sling, colporrhaphy in a low risk patient, the recommended thromboprophylaxis was to wear anti-thrombosis stockings at night before surgery and during hospitalization in addition to early ambulation, based on ERAS protocol. Pharmacologic prophylaxis was based on Venous Thromboembolism (VTE) risk Caprini

score recommended by ERAS, which scores and classifies for very low, low, moderate and high risk for VTE.
Results Of the 283 patients, 280 (98.93%) were elective surgeries with abbreviation for preoperative fasting. The most frequent were: 85(24.42%) posterior colpoplasties, 67(19.25%) minor labioplasties and 36(10.34%) midurethral slings. For venous tromboembolism prophylaxis (0,5mg/Kg) of subcutaneous enoxaparina was used in 170(60.07%) patients at moderate risk for thrombosis and mechanical measures for those at low risk, without thromboembolic complications. Mean hospitalization time was of one day.
Conclusions The abbreviation of preoperative fasting as described, adequate thromboprophylaxis among other ERAS recommendations can be stimulated in urogynecological surgeries to accelerate the postoperative recovery. The methodology and consensus described above ensure consistency in the development of guidelines that, in turn, can be used and updated continuously to inform perioperative care across multiple surgical specialties, including Urogynecology.
Disclosure: No

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Impact of Lower Urinary Tract Symptoms on Fall Risk in a Diverse Urogynecologic Patient Population
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Introduction Urinary Incontinence is a strong risk factor for falls in older women. Less information is known about the unique contributions of lower urinary tract symptoms (i.e., frequency, nocturia, urgency, leakage, overactive bladder) on fall risk.
Objective The objective of this study was to investigate the impact of lower urinary tract symptoms (LUTS) on risk of falling among treatment seeking women with a wide range of underlying pelvic floor disorders and to better understand how age and comorbid burden might influence this association.
Methods We conducted a retrospective medical records review on 348 consecutive women presenting to a Urogynecology & Pelvic Health Center over 6-months. Fall risk was determined by the Centers for Disease Control and Prevention (CDC), Stopping Elderly Accidents, Deaths, and Injuries (STEADI) fall risk screening tool which was included among the intake questionnaires all patients completed prior to their scheduled appointment. Clinical and sociodemographic measures were abstracted from each patient's electronic medical record.
Results Of the 348 women (mean age=58.7±15.8) who completed the fall risk screen, 124 (36%) screened positive for increased fall risk. Two hundred and fifty-seven of the 348 (74%) had at least one LUTS. There was clear gradient of association between risk of falling and the presence or absence of LUTS and increasing age (≤65 vs. >65) and number of comorbidities. Older age, more comorbidities, and the presence of LUTS increased the prevalence of a positive fall risk screen over three-fold: 58% for those with all three risk factors (i.e., older age, high comorbidities, and LUTS) vs. 18% for those with none. The presence of LUTS increased the likelihood of a positive fall risk screen across all combinations of age and comorbid burden.
Conclusions The presence of LUTS likely increases fall risk independent of age, comorbid burden, and underlying urogynecologic diagnosis. Targeting the reduction of individual LUTs may lower overall risk of falling in this patient population.
Disclosure: No

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Patient and Provider Variation in Urinary Incontinence Diagnosis in Women
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Introduction: There is paucity of data on the specialty and type of healthcare providers who diagnose urinary incontinence (UI) in women and demographics of women diagnosed with UI. Understanding these patterns may help identify a need for provider education or community outreach.
Objective: Our objective was to use electronic medical records to determine the rate of UI diagnosis in women and identify variation in the demographics of UI patients and diagnosing providers.
Methods: This was a retrospective study using the electronic medical records of a multicenter academic health system from January 1, 2010 to January 1, 2019. Female patients 18 years and older who sought ambulatory care for annual, routine health maintenance, problem-based new or problem-based return visits were identified. New encounter or billing diagnoses of stress urinary incontinence (SUI), urgency urinary incontinence (UUI), mixed urinary incontinence (MUI) or unspecified urinary incontinence (UI NOS) were identified using International Classification of Disease (ICD) 9 and ICD 10 codes [UUI (788.31, N39.41), SUI (625.6, N39.3), MUI (788.33, N39.46) and UI NOS (788.30, R32]. The following data were extracted: provider specialty and type, patient age, race, estimated household income and type of health insurance coverage. Household income was stratified into: below the federal poverty level (FPL) ($25,750 for a 4-person household in 2019), between FPL and median household income (MHI) ($63,463 for the region), and above the MHI. The income groups were further stratified by race. Data were compared using descriptive statistics.
Results: There were 811,143 patients captured during the study period. The overall proportion of patients with new UI diagnosis was 3.4% (27,872). Among patients with UI, 34% (9,496) had SUI, 35% (9,838) UUI, 23% (6,471) MUI and 7% (2,067) UI NOS. Table 1 summarizes the demographics of patients diagnosed with UI. Most patients with UI were older than 65, White, had income between the FPL and MHI, and had commercial insurance or Medicare. The rate of UI diagnosis was higher for patients who were Black, older than 65, and on state medical assistance or Medicare. While the income group above the MHI had a higher rate of diagnosis than the other two income groups, the degree of differences was small. When income groups were stratified by race, Black patients had the highest rate of diagnosis in all categories. Table 2 summarizes the demographics of diagnosing providers. Most of the diagnoses were made by providers in obstetrics and gynecology (47%) followed by urology (16%). The rate of diagnosis was highest in urogynecology (53%) followed by urology (18.2%) (Figure 1). The rate of diagnosis was lower than 2% in geriatrics, family medicine and internal medicine.
Conclusions: While our study has limitations inherent to retrospective database studies, it highlights the need for strengthening the partnership between primary care providers and specialty providers to help diagnose women with UI. While the high rate of diagnosis for patients who are Black, older than 65, or have state medical assistance potentially supports equity in the diagnosis of UI, future work should focus on variation in access to care and treatments offered.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: C.H. is a consultant for Cosm Medical on a topic unrelated to the abstract
Images:

Table 1. Rates of SUI Surgery by Race, n (%), p<.001 for whole group comparison

CPT/ Surgery	White 41294 77.43%	Hispanic 7505 14.07%	Black 2107 3.95%	Asian 1693 3.17%	American Indian 435 0.82%	Pacific Islander 299 0.56%
57288: sling operation for stress incontinence	39261 (95.08%)	7007 (93.36%)	1966 (93.31%)	1615 (95.39%)	423 (97.24%)	287 (95.99%)
51992: laparoscopic sling operation for stress incontinence	945 (2.29%)	207 (2.76%)	61 (2.90%)	43 (2.54%)	6 (1.38%)	8 (2.68%)
51840/51841: simple or complicated anterior vesicourethropexy or urethropexy	523 (1.27%)	184 (2.45%)	39 (1.85%)	21 (1.24%)	5 (1.15%)	2 (0.67%)
51990: laparoscopic urethral suspension for stress incontinence	478 (1.16%)	91 (1.21%)	30 (1.42%)	13 (0.77%)	0 (0.00%)	2 (0.67%)
51845: abdomino-vaginal vesical neck suspension	73 (0.18%)	15 (0.20%)	8 (0.38%)	0 (0.00%)	1 (0.23%)	0 (0.00%)
53445: insertion of inflatable urethral/ bladder neck sphincter	14 (0.03%)	1 (0.01%)	3 (0.14%)	1 (0.06%)	0 (0.00%)	0 (0.00%)

Table 2. Logistic Regression Analysis of Racial Breakdown for Types of SUI Surgery, non-Hispanic White Race and Sling procedures as reference values, Odds Ratio (Confidence Interval)

CPT/Surgery	Hispanic	Black	Asian	American Indian	Pacific Islander
51992: laparoscopic sling operation for stress incontinence	1.23* (1.05, 1.43)	1.29 (0.99, 1.68)	1.11 (0.81, 1.51)	0.59 (0.26, 1.32)	1.16 (0.57, 2.34)
51840/51841: simple or complicated anterior vesicourethropexy or urethropexy	1.97* (1.66-2.34)	1.49* (1.07-2.07)	0.98 (0.63-1.51)	0.89 (0.37-2.15)	0.52 (0.13-2.11)
51990: laparoscopic urethral suspension for stress incontinence	1.07 (0.85, 1.34)	1.25 (0.86, 1.82)	0.66 (0.38, 1.15)	-	0.57 (0.14, 2.31)
51845: abdomino-vaginal vesical neck suspension	1.15 (0.66, 2.01)	2.19* (1.05, 4.55)	-	1.27 (0.18, 9.17)	-
53445: insertion of inflatable urethral/ bladder neck sphincter	0.40 (0.05, 3.04)	4.28* (1.23, 14.90)	1.74 (0.23, 13.21)	-	-

Race reference: White
Procedure reference: 57288, sling operation for stress incontinence
Blank boxes indicate insufficient data to calculate
*p<.05

Major Themes	Illustrative Excerpts
Safety of Intercourse	"You can resume sex now because things have healed." "Do not put anything into your vagina (sex, tampons, etc.) until you have healed from your surgery – usually about 6 weeks after surgery."
Specific Suggestions	"I recommend positions where you can control the depth and the strength of penetration, such as you on top or both laying on your side." "Use lubricants, even if you have not needed to in the past." "Take it slow and easy at first." "We also discuss that digital-vaginal penetration may help her and her partner 'warm up' to penile-vaginal penetration."
Surgical Sequelae	"If you find that the vagina feels tight at the opening, be patient, as this will likely resolve with repeated activity. If not, please call the office." "The scars are stiff early and will become more flexible over time."
Patient Control	"You're in control of position and pace of thirgs." "You can start having sex if you would like."
Partner Related	"She should have open communication with her partner about any unusual or uncomfortable sensation during penetration." "...there are sutures at the top of the vagina that may feel pokey to their partners."
Changes in Experience	"Most women find sexual function either unchanged or improved postop." "...the first few times are likely not going to be comfortable." "I try to explain that the first few times may feel very different than pre-op and that is ok."
No Communication	"I usually do not go into details and sexual activity."

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Cough Induced Detrusor Overactivity – Outcome after Conservative and Surgical Treatment

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Introduction: Cough induced detrusor overactivity (CIDO) is found in 2,2% of patients with or without urinary leakage. It is mostly found in patients with mixed urinary incontinence but generally classified as stress urinary incontinence (SUI). Both conservative and surgical management have been proposed, yet pharmacological treatment proved to be ineffective to date. Bulking agents and midurethral polypropylene slings are a treatment option for SUI with high success rates and low complications. There is a paucity of data regarding treatment and outcome in CIDO.
Objective: This quality control single-centre study assesses clinical outcome and improvement of leakage in patients with CIDO after conservative or surgical treatment.
Methods: We included 35 patients with CIDO, treated at the division of Urogynaecology, a tertiary centre (January 2018 - July 2021). Follow-Up was six months. Detection of a phasic contraction of the detrusor < 5 seconds after a cough with or without leakage diagnosed CIDO by multichannel urodynamic testing (Sedia ® S1) according to ICS/IUGA recommendations. Primary outcome was pad test before/ after treatment (in grams) defined as > 2 g in 30 min after moderate body activity, according to the ICS protocol. Secondary outcome was defined as: cured, improved no needing/needing further therapy, same, worse than before as determined by the patients' rating. All patients received behavioural therapy and anticholingeric/betamimetic treatment as initial step. If leakage persisted, physiotherapy was advised. In case of non-success, bulking with polyacrylamide hydrogel (Bulkamid®) or midurethral polypropylene sling (TVT exact ®) was suggested and patients choosed the method to their liking. Statistics were performed using students' t-test.
Results: Thirty-five patients met the inclusion criteria of CIDO. Mean bladder volume when CIDO occurred was 197ml (+/-58.5 SD). All women presented a positive pad test (mean 27g, +/- 22.5 SD) and showed after all treatments a significant improvement (mean 5.7 g) (P=0.00000021) without significant difference between PAD test after bulking (mean 7.4 g +/-8.8 SD) and midurethral polypropylene sling treatment (mean 4.8 g +/-7.8 SD). Twenty-two patients (62.7%) underwent physiotherapy. Twenty-one patients (60%) required surgery, twelve (34.2%) received bulking and nine (25.7 %) a midurethral polypropylene sling. From all patients 13 (37%) were cured or needed no further treatment after conservative therapy. Outcome was more favourable after bulking than midurethral polypropylene sling (P = 0.00063). After bulking therapy seven patients (20%) were cured, four patients (11.4%) showed improvement with no need for further therapy and one patient (2.8%) needed further therapy. In the case of midurethral polypropylene sling, only two patients (5.7%) showed an improvement and needed no further therapy, three (8,5%) noticed no improvement and four (11.4%) worsened after therapy.
Conclusions: This is currently the largest prospective study on the therapeutic outcome of CIDO. Thirty-seven percent of patients had no need for further therapy after conservative treatment demonstrating this a valuable first step. Bulking agents seem to be superior to physiotherapy and to midurethral propylene sling in cases requiring surgical treatment. Bulking should be considered as treatment of choice for CIDO. Further larger studies are needed for confirmation of these preliminary findings.
Disclosure: No

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Racial Disparities in National Practice Patterns for Stress Urinary Incontinence Surgery

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Introduction: Racial disparities exist in types of surgery performed for pelvic floor disorders and in rates of postoperative complications. There is a paucity of data assessing whether patient race is associated with differences in type of surgical interventions performed for stress urinary incontinence (SUI).
Objective: Our objective was to assess for racial disparities in the rate of the types of surgeries performed for SUI.
Methods: Using the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database, we conducted a retrospective cohort analysis of women undergoing surgery for SUI from 2010 to 2019, based on select current procedural terminology (CPT) codes. Women were included if their race was recorded. Women were excluded if they had malignancy, ascites, or multiple procedures for SUI coded within one surgery. The primary outcome was the type of SUI surgery performed by race. The secondary outcome was the rate of adverse events within 30 days of surgery by race.
Results: We identified 68,237 women who underwent a surgery for SUI by the primary surgical team from 2010 to 2019 in the ACS NSQIP database. Our final study cohort included 53,333 women. Of these, 14,696 were excluded due to unknown categorization of race; 145 were excluded for having multiple CPT codes for SUI procedures; and 63 were excluded due to malignancy or ascites. Most women were non-Hispanic White women (Table 1). Non-Hispanic Black women had a higher BMI and ASA class, and increased frequency of overall diabetes and hypertension requiring medication. Non-Hispanic Asian and Pacific Islander women had higher rates of non-insulin dependent diabetes. For our primary outcome assessing the rate of each SUI procedure type by race, we found a significant overall difference when comparing the distribution of different surgeries performed by race ($p<.001$). See Table 1. Hispanic and non-Hispanic Black women underwent more non-midurethral sling procedures when compared to non-Hispanic White women. Additionally, more Hispanic and non-Hispanic Black women underwent anterior vesicourethropexy/urethropexy compared to non-Hispanic White women. We then performed logistic regression to specifically compare the rate of sling versus other SUI surgeries for non-Hispanic White women versus minority women, with sling and non-Hispanic White race used as the reference values (Table 2). Compared to non-Hispanic White women, Hispanic women underwent more laparoscopic slings [OR1.23 (CI 1.05, 1.43)] and more vesicourethropexy/urethropexy procedures [OR 1.97 (CI 1.66, 2.34)]. Compared to non-Hispanic White women, non-Hispanic Black women underwent more vesicourethropexy/urethropexy procedures [OR 1.49 (CI 1.07, 2.07)], more abdomino-vaginal vesical neck suspension procedures [OR 2.19 (CI 1.05-4.55)], and more inflatable urethral slings [OR 4.28 (CI 1.23-14.90)]. For our secondary outcome of adverse events, non-Hispanic White women had lower rates of inpatient stay and blood transfusion rates compared to minority women.
Conclusions: We observed racial differences in types of surgical procedures performed for SUI and rates of postoperative complications. While causality cannot be proven in this retrospective study, our results mirror findings in other studies indicating racial disparities in care. Future studies should better elucidate racial disparities, specifically in the urogynecologic patient population.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Dr. Geller is an unpaid speaker and has received a grant from Boston Scientific as well as provides freelance expert testimony.

Images:

Table 1. Long-term complications of the 28 patients during the study period.

Variables	N (%)
Prolapse recurrence	5(17.9)
Cystocele	2(7.1)
Vault prolapse	3(10.7)
Rectocele	0
Time to recurrence(month), median (IQR)	48(36, 96)
Tape exposure	8(28.6)
Anterior mesh exposure	3(10.7)
Vault mesh exposure	2(7.1)
Posterior mesh exposure	3(10.7)
Time to mesh exposure(month), median (IQR)	27(6, 120)
New-onset urinary symptoms	5(17.9)
Postoperative pelvic floor pain	1(3.6)

Table 1: **Surgical failures as per outcomes criteria between two groups**

Outcomes criteria for surgical failure	Burch colposuspension group	Retropubic MUS group	Comments	P value
Ongoing SUI reported on last follow-up	57/336(17%)	151/1008(15%)		NS
Latest ICIQ-UI SF score of > 6	50/208(24%)	169/606(27.9%)	This information was available at the last point of contact (either clinic followup or phone or mail-in questionnaire responses) for 208/336 (61.9%) BC patients and 606/1008 (60.1%) RP-MUS patients.	NS
PGI-C score of Minimally Improved / No Change /Minimally Worse / Much Worse /Very Much Worse	46/289(15.9%)	143/794(18%)	This information was available at the last point of contact (either clinic follow-up or phone or mail-in questionnaire responses) for 289/336 (86.0%) BC patients and 794/1008 (78.8%) RP-MUS patients.	NS
Needing subsequent stress incontinence surgery	13/336(3.8%)	35/1008(3.5%)		NS
Either of above	75/336(22.3%)	202/1008(20%)		NS

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Surgeon Counseling Regarding Return to Sexual Activity After Pelvic Reconstructive Surgery

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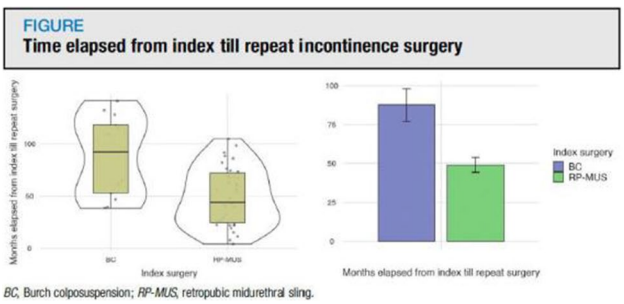
Introduction: The first sexual encounters after pelvic reconstructive surgery may be associated with conflicting emotions and changes in sexual experiences. Although patients place significant value on surgeon counseling, little is known about how to optimally counsel patients regarding the return to sexual activity following reconstructive surgery.

Objective: We aimed to perform a qualitative analysis of major themes in surgeon counseling regarding the return to sexual activity after pelvic reconstructive surgery.
Methods: Pelvic reconstructive surgeons participating in a multicenter trial of postoperative structured counseling were recruited for this study. Surgeons provided a written description of their usual patient counseling regarding the return to sexual activity after surgery for pelvic organ prolapse (POP) and/or urinary incontinence (UI). Counseling narratives were coded for major themes by two independent reviewers; disagreements were arbitrated by the research team. Analysis was performed utilizing Dedoose software and continued until thematic saturation was reached.
Results: Twenty-two surgeons from multiple regions of the United States and Canada participated and thematic saturation was reached. Six major themes were identified and included "Safety of Intercourse", "Specific Suggestions", "Surgical Sequelae", "Patient Control", "Partner Related", "Changes in Experience", and "No Communication" (Table 1). Surgeons included an average of 3.5 major themes in their counseling (range 1-6). Nearly all participating surgeons included counseling on the safety of the return to intercourse and reassurance that intercourse would not harm the surgical repair. Specific suggestions included different positions, use of lubrication, vaginal estrogen use, specific products/vendors, alternatives to intercourse, and the importance of foreplay. Surgical sequelae discussion often centered around a plan for further follow up and possible intervention for any complications, such as persistent suture, abnormal bleeding or de novo dyspareunia. Counseling regarding changes to the sexual experience ranged from suggestion of improvement following surgery to an anticipated negative experience in the patients' initial sexual encounters. Surgeons more commonly advised patients that their sexual experience would be worsened or different from baseline, while discussion of improvement was less frequent.
Conclusions: Surgeon counseling regarding the return to sexual activity after surgery for POP and/or UI varies among pelvic reconstructive surgeons. Major themes in surgeon counseling mirror those of the patient experience of the first post-operative sexual encounters as previously reported. Further investigation of optimal patient counseling on this topic is needed.
Disclosure: Yes, this is sponsored by industry/sponsor: This project was financially assisted by The Patty Brisben Foundation for Women's Sexual Health.
Clarification: Industry funding only - investigator initiated and executed study
Images:



BC, Burch colposuspension; *RP-MUS*, retropubic midurethral sling.

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Ten-year Prospective Clinical Study of Transvaginal Mesh Repair in Severe Pelvic Organ Prolapse
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Introduction: The effect of transvaginal mesh (TVM) surgery was disputable. However, there is still a lack of high-quality data reports on long-term clinical outcomes of TVM.
Objective: To evaluate the long-term efficacy and safety of transvaginal mesh using the total Prolift mesh kit.
Methods: This was a prospective study conducted at the National Clinical Research Center for Obstetrical and Gynecological Diseases of China. All consecutive women who chose transvaginal mesh repair with the total Prolift mesh kit were included. Data regarding composite surgical success rate, subjective outcomes, objective cure, Pelvic Organ Prolapse Quantification (POP-Q) score, and adverse events were collected during follow-up.
Results: Between August 2008 and November 2011, 36 patients with POP-Q stage III or higher were prospectively included; 77.8% (28/36) of patients completed over 10 years of follow-up. The composite success rate at the final follow-up was 78.6% (22/28), the anatomic success rate was 82.1% (23/28), and the symptomatic success rate was 78.6% (22/28). Meanwhile, 17.9% (5/28) women had symptomatically anterior or apical recurrence. Anterior (Aa, Ba), apical (C), and posterior (Ap, Bp) wall measurements showed significant improvements at the final follow-up. The Urinary Distress Inventory-6 and Urinary Impact Questionnaire-7 indicated significant postoperative improvement. In total, 28.6% (8/28) of patients presented with mesh exposure; 21.4% (6/28) of exposure cases resolved with conservative treatment; 7.1% (2/28) had repeated mesh exposure and persistent symptoms. Both Pelvic Floor Distress Inventory-20 and Pelvic Floor Impact Questionnaire scores improved postoperatively. The subjective success rate of our medical care (Patient Global Impression of Improvement ≤ 2) was 78.6%.
Conclusions: Our results showed that total Prolift implantation is a valuable option for non-sexually active older patients with stage POP III. Long-term clinical outcomes were stable with a modest complication rate during a 10-year follow-up.
Disclosure: No
Images:

[redacted]

Statistics Table for All Outcome Measures

Outcome Measure	Mean (Before)	Mean (After)	SD (Before)	SD (After)	T-score	P-Value
FGPI Score	25.3	6.1	12.3	5.4	t(7) = 5.3	p < .001
VAS Score	7.9	1.4	2.3	1.5	t(7) = 8.3	p < .001
O'Leary/Sant Score	19.3	5.8	8.2	4.9	t(7) = 5.8	p < .001
TTU	70	41.4	56.6	41.6	t(7) = 2.7	p = .016
Change in Urinary Volume	90.6	187.5	94.4	118.7	t(7) = -2.7	p = .016

[redacted]

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Predictors of Surgical Failure of Open Burch Colposuspension vs. Retropubic Midurethral Sling for Stress Urinary Incontinence—Results From a Secondary Analysis of a Large Comparative Matched Cohort Study
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Introduction: Midurethral sling (MUS) and Burch colposuspension (BC) are both considered a gold standard surgical treatment for female stress urinary incontinence.

Objective: Our aim was to identify predictors for 'surgical failures' for these two procedures and compare them.
Methods: A secondary analysis of matched cohort study of 1344 women with urodynamic stress incontinence (without intrinsic sphincter deficiency) who underwent surgery for stress urinary incontinence. Women had either open BC or the retropubic MUS, from January 2000 to June 2018, in a tertiary center. Follow-up was by chart review and one-time phone follow-up until 2019, using a dedicated database. Owing to disproportionately more subjects in the RP-MUS group than BC, subjects in each group were matched (3:1) with respect to these minimum compulsory variables obtained from current literature to avoid confounding: (1) age, (2) parity and mode of delivery, (3) body mass index at the time of surgery, (4) presence and type or absence of pelvic organ prolapse, and (5) presence of urodynamic features of detrusor overactivity or low bladder compliance. After the ascertainment of the index surgery (first procedure for SUI), we selected 3 RP-MUSs for each BC case. Surgical failure was defined as either of: • Ongoing SUI reported on last follow-up • Latest International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form (ICIQ-UI SF) score of > 6 • Patient Global Impression of Improvement (PGI-I) score of Minimally Improved / No Change / Minimally Worse / Much Worse /Very Much Worse • Needing subsequent stress incontinence surgery Multivariate analysis was performed to identify independent risk factors for failure. This study was not powered to look at predictors of mesh exposure and long term post-operative pain.
Results: The study included 1344 women who had eitherBC (336) or retropubic MUS (1008). Mean follow-up was 13.1 years for and 10.1 years respectively. Surgical failure was defined in 75/336(22.3%) of BC group and 202/1008(20%) of retropubic MUS (P=0.35), Table 1. Multivariate analysis revealed that BMI>30 (OR=3.6), mixed incontinence needing anticholinergic medications preoperatively (OR=2.6), previous continence surgery (OR=2.3), current smoking (OR= 2.5) diabetes mellitus (OR=1.8), trainee primary operator (OR=2.6) are significant independent predictors for retropubic MUS failure. BMI>25 (OR=3.2), age>60 at surgery (OR=2.6), mixed incontinence needing anticholinergic medications preoperatively (OR=2.8), previous continence surgery (OR=2.5), Trainee primary operator (OR=1.5), failure to attend for>5 years (OR=2.1) are significant independent predictors for BC failure. Concomitant prolapse surgery decreased the likelihood of surgical failure after MUS (OR=0.5). Need for prolapse surgery on follow-up of BC did not increase likelihood of surgical failure with incontinence. Overall, 3.6% needed repeat incontinence procedures (13 in BC group [3.8%] vs. 35 in retropubic MUS group [3.5%]; P= 0.73) As shown in figure repeat surgery occurred later when the index procedure was BC versus retropubic MUS.
Conclusions: Predictors of surgical failure between Burch colposuspension and retropubic midurethral sling were not significantly difference with obesity, mixed incontinence, previous continence surgery and surgeon's experience being the most important. Reoperation rates for incontinence were similar in both groups.
Disclosure: No
Images:

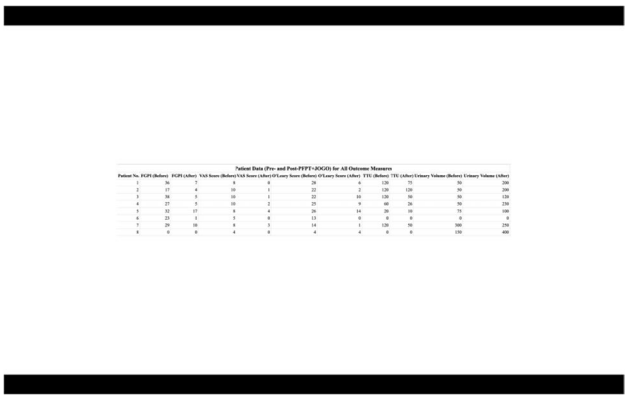

Table 1. Demographic, past medical/surgical history, and urogynecological history data for patients in the Uphold group and native tissue sacrospinous hysteropexy (SSLF) group. P-Value < 0.05 determined statistical significance.

Medical History	Uphold	Native tissue SSLF	P-Value
Age (years)	68.5 ± 8.5	71.1 ± 8.3	0.095
Race	White 36 Black 4 Hispanic 0 Asian 0 Other 0	White 52 Black 4 Hispanic 0 Asian 1 Other 0	0.999
Body Mass Index	27.11 ± 3.43	27.8 ± 4.8	0.347
Menopausal Status	Menopausal: 39 Pre-menopausal: 1	Menopausal: 56 Pre-menopausal: 1	0.999
Vaginal Delivery History (Median deliveries with range)	2 [0-5]	2 [0-4]	0.711
Charleston Co-morbidity	3.1 ± 1.45	3.1 ± 1.3	0.994
Smoking History	8 (20.0%)	20 (35.1%)	0.106
Sexually Active	18 (45.0%)	20 (35.1%)	0.325
Sling History	6 (15.0%)	1 (1.8%)	0.015
Prolapse Repair History	8 (20.0%)	1 (1.8%)	0.003
Abdominal Surgical History	18 (45.0%)	12 (21.1%)	0.015
Bowel Surgical History	4 (10.0%)	5 (8.8%)	0.999
Concomitant Overactive Bladder	22 (55.0%)	28 (49.1%)	0.569
Concomitant Stress Incontinence	20 (50.0%)	29 (50.9%)	0.932
Pre-operative POP-Q Stage	Stage 0: 0 Stage I: 0 Stage II: 17 Stage III: 22 Stage IV: 1	Stage 0: 0 Stage I: 0 Stage II: 19 Stage III: 32 Stage IV: 4	0.489

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The New Classification and Clinical Outcomes of Complete Vaginal Aresia Complicated with Cervical Aplasia

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Introduction: Congenital vaginal atresia (VA) is a rare congenital reproductive tract abnormality, which can be classified as complete and partial atresia. The complete atresia refers to atresia of total vaginal, usually complicated with cervical abnormalities. Compared to partial VA, complete VA is usually associated with severer obstruction symptoms, higher difficulty of surgical interventions and poorer postoperative and reproductive prognosis, so the management of complete VA remains challenging. In the past Hysterectomy has been considered as the standardized treatment for complete VA. With the advance of surgical technique, conservative surgeries have been a rational choice to preserve the patient's fertility and restore anatomy. Uterovaginal Canalization has been proved a comparatively easy, effective surgical management for complete VA. However, the successful rate of this technique varies among VA cases and the heterogeneity of their clinical traits is still not clearly depicted. Therefore, we retrospectively analyzed VA cases surgically treated at our center from January 2016 to December 2021, aiming to reveal the clinical differences of VA cases complicated with different cervical anomalies and indicate the choice of surgical management for individual settings.
Objective: To access clinical characteristics and surgical outcomes of complete vaginal atresia (VA) with different types of cervical aplasia and to suggest a possible classification of complete VA indicating clinical presentation and surgical management.
Methods: We retrospectively analyzed 58 cases from Peking Union Medical College Hospital of the past 5 years. According to the imaging characteristics under MRI and verification during Surgery, we subclassified cases into 3 groups: Complete VA cases complicated with external os obstruction, cervical agenesis and cervical atresia or fibrous cord. Clinical factors and surgical parameters were compared among the three groups.
Results: Among the cases included, 29(50%) complicated with external cervical os obstruction, 20 cases (34.5%) with cervical agenesis , while the rest(15.5%)with cervical atresia or fibrous cord. Our results showed that the cases complicated with external os obstructions were

significantly younger than the rest 2 groups(P=0.005)Moreover, they also presented with significantly milder signs of menstrual blood reflux under preoperative imaging evaluation: hematosalpinx 11.5% vs. 45% and 44.4%)and ovarian cysts(11.5% vs.50% and 44.4%. Besides, under MRI evaluation. The atretic vaginal segment of cases complicated with external cervical os obstruction was significantly wider and shorter than other cervical anomalies(P<0.001) and presented with larger enlargement of cervical canal, and the differences between the other two groups were insignificant. Of note, cases complicated with external cervical os obstructions had significantly higher rate of successful uterovaginal canalization (82.8% vs. 35% and 25%, P<0.001) and the other two groups had no significant differences in canalization rate.
Conclusions: As conclusion, Complete VA complicated with obstruction of external cervical os presents with distinct clinical characteristics compared to other cases and has significantly higher rate of successful uterovaginal canalization. Therefore, complication of external cervical os obstruction (enlargement of cervical canal) may be a potential factor to classify complete VA cases correlating with clinical traits and possibility of conservative surgical correction.
Disclosure: No

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WITHDRAWN - Urinary Incontinence, The Price to Pay for Pregnants
WITHDRAWN

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AI based Biofeedback for Detrusor-External Sphincter Dyssynergia
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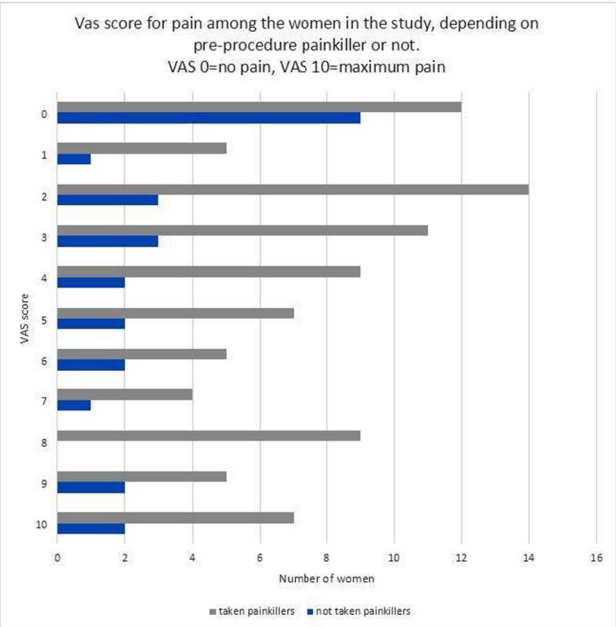
Introduction: JOGO is an AI based Digital therapeutics (DTx) system that uses the foundational science of EMG-biofeedback. DTx, or software as a medical device(SaMD) is a newly created FDA segment. JOGO uses wearable sensors and AI to facilitate neuromuscular retraining. JOGO can be used in a clinic or via telemedicine. Detrusor-external sphincter dyssynergia (DESD), commonly known as voiding dysfunction (VD), caused typically by overactive pelvic floor muscles or nerve problems at the detrusor, is a term used to describe dyssynergia between the muscles surrounding the detrusor and the urethra. Many VD patients are prescribed anticholinergic medication for short periods of time to promote muscle relaxation, reduce urinary retention, or suppress symptoms of an overactive bladder. However, anticholinergic medications have side effects such as bladder pain, diarrhea, and abdominal cramps and long term use has shown to cause dementia. Clinicians also utilize conventional therapy exercises to improve synergy; however, these exercises only aggravate the issue as they increase tone in urethral muscles where it should be decreased. JOGO's AI based biofeedback improves muscle coordination, rehabilitating patients with VD. Complementing conventional therapy, JOGO may be beneficial in improving symptoms of voiding dysfunction.
Objective: The purpose of this study is to determine the efficacy of JOGO DTx on patients with voiding dysfunction.
Methods: Each voiding dysfunction patient was assessed based on pain (VAS and O'Leary/Sant scales), ability to void (measure of urinary volume, female genito-urinary pain index (FGPI)), and pelvic floor relaxation (mvS) at the outset of using PFPT + JOGO. After their telehealth consultations, each patient was re-assessed using these outcome measures to identify improvement and the efficacy of JOGO-guided PFPT (See Table 1). The therapy sessions were structured as a 10 week program, consisting of clinician-guided PFPT and home exercises which were recorded using bladder diaries. JOGO differs from other EMG BF systems by giving patients an AI based gamified mobile app and telemedicine options, resulting in greater patient engagement and adherence.
Results: All patients who underwent the 10-week program saw statistically significant overall improvements in all outcome measures: FGPI ($t(7) = 5.30842$, $p<0.001$), VAS scale ($t(7) = 8.34196$, $p < .001$), O'Leary/Sant ($t(7) = 5.75642$, $p < .001$), TTU ($t(7) = 2.65167$, $p = 0.01643$), and Change in Urinary Volume ($t(7) = -2.68596$, $p = 0.01563$). (See Table 2)
Conclusions: As demonstrated by the presented cases, the utilization of JOGO's AI based biofeedback and telemedicine option allows for improvement in patients with voiding dysfunction. Adding JOGO to PFPT, there has been a collective reduction in symptoms such as nocturia, and an overall improvement in detrusor-urethral muscle coordination. Further randomized controlled clinical studies are needed to validate the approach in larger patient populations.
Disclosure: Yes, this is sponsored by industry/sponsor: JOGO Health Inc.
Clarification: Industry funding only - investigator initiated and executed study
Any of the authors act as a consultant, employee or shareholder of an industry for: JOGO Health Inc.
Images:

Table 2. Intra-operative, complication, and follow-up data for patients in the Uphold and native tissue sacrospinous hysteropexy (SSLF) group P-Value < 0.05 determined statistical significance.

	Uphold	Native tissue SSLF	P-Value
Intra-operative data			
Concomitant Anterior Repair	40 (100%)	54 (94.7%)	0.266
Concomitant Posterior Repair	35 (87.5%)	45 (78.9%)	0.416
Concomitant Sling Placement	22 (55.0%)	24 (42.1%)	0.211
Intra-operative Complication	0	Urethral injury 1 Blood transfusion 1 Ureteral injury 1	0.999
ASA Score	1: 1 2: 18 3: 21 4: 0 5: 0	1: 0 2: 35 3: 22 4: 0 5: 0	0.325
Surgery Time (minutes)	102.4 ± 31.4	109.8 ± 19.6	0.124
Follow Up Data			
Thirty Day Complications	Urinary tract infection: 1 Non-UTI Infection: 1 Hematoma: 2 Blood transfusion: 1 Emergency Visit: 1	Urinary tract infection: 1 Non-UTI Infection: 3 Hematoma: 3 Blood transfusion: 1 Re-operation: 1 Sepsis: 2	0.775
Subjective success (No bulge symptoms)	38 (95.0%)	54 (94.7%)	> 0.999
Post-operative POP-Q Stage	Stage 0: 35 Stage I: 15 Stage II: 7 Stage III: 0 Stage IV: 0	Stage 0: 23 Stage I: 13 Stage II: 4 Stage III: 0 Stage IV: 0	0.349
Anatomic success	40 (100.0%)	57 (100.0%)	1
Re-treatment for Prolapse	Pessary: 1	Pessary: 2 Repeat Surgery: 1	0.639

Figure 2.



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LeFort versus Total Colpocleisis: Are Outcomes Different?

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Introduction: As the US population ages and the prevalence of pelvic organ prolapse increases, more women will seek treatment and subsequently undergo surgical management including obliterative vaginal surgeries- LeFort colpocleisis (LC) or total colpocleisis of the vaginal vault (TC). The choice of obliterative procedure is typically made based on the presence or absence of the uterus and whether there is an indication for concomitant hysterectomy, but other factors may be considered. Some surgeons favor LC due to decreased tissue dissection and shorter operating time while others favor TC due to perception of decreased failure rate.
Objective: The objective of this study is to compare outcomes between LC and TC to inform surgical planning and patient counseling.
Methods: This is a retrospective review of women who underwent obliterative vaginal surgery for the treatment of pelvic organ prolapse between 5/2015-11/2020 at a single institution across two clinical sites. Cases were identified using CPT codes and verified to be consistent with LeFort colpocleisis (LC) or Total Colpocleisis (TC) by chart review. Patient demographics, operative characteristics, medical history, and peri-operative data were extracted from the medical records. Comparisons were performed using chi-square, Fisher's exact test, Wilcoxon rank test, and odds ratios as appropriate.
Results: 197 patients met inclusion criteria; 99 (50.25%) underwent LC and 98 (49.75%) underwent TC. In each group, 11% of patients underwent concomitant sling placement. 40% of TC patients underwent concomitant posterior colporrhaphy versus 31% of LC patients (p=0.04). There were no significant differences in peri-operative and post-op operative parameters, including no significant difference in EBL (LC 84 cc vs. TC 101 cc, p=0.09) or in pre-operative anticoagulation status (LC 11 % vs. TC 18%, p=0.16%). In both groups, the majority of patients were discharged home on the day of surgery (LC 68% vs. TC 73%, p=0.40). There was no difference between groups in 30-day complication rate, readmission, ED visit, wound infection/hematoma, ICU admission, or death. The recurrence of prolapse rate was not different between procedures (LC: 3 vs. TC: 4, p=0.12). There was no difference in postoperative rectal prolapse (LC: 2 vs. TC: 3, p=0.067), postoperative SUI (LC: 8 vs. TC: 12, p=0.40), or acute postoperative urinary retention (LC: 11 vs. TC: 9, p=0.59).
Conclusions: There is no difference between LC and TC in peri-operative and postoperative parameters, including EBL, postoperative complications, time of discharge, and prolapse recurrence. With this in mind, further research in a larger population is needed to determine if there are other factors to be considered apart from a history of prior hysterectomy or indication for concomitant hysterectomy when considering a surgical approach for colpocleisis.
Disclosure: No

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Impact of the COVID-19 Pandemic on the Sexual Function of Patients Seeking Fertility Care

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Introduction: The COVID-19 pandemic and subsequent public health response resulted in unprecedented changes to society, including recommendations for social and physical distancing. Sexual dysfunction is best understood within a biopsychosocial framework, and it is reasonable to predict that biological, psychological, and social aspects of the COVID-19 pandemic may impact sexual function, particularly in a patient population actively planning pregnancy.
Objective: The aim of this study was to understand the impact of the COVID-19 pandemic – including COVID-19 infection, COVID-19 vaccination, and psychosocial conditions of the pandemic – on the sexual function of women receiving fertility care.
Methods: Eligible patients aged 18 or older were identified using ICD codes related to female infertility and fertility testing and invited to complete an online survey regarding COVID-19 infection and vaccination status, fertility planning, and the impact of pandemic conditions on sexual function. Participants were recruited from a large academic-based fertility center and received care between April 2020 and April 2021. $\chi 2$ was used for between-group comparisons.
Results: Of the 738 eligible patients, 197 participants completed the survey. Seventy-four (37.5%) participants had been pregnant within the past year and 168 (85.3%) participants had attempted to conceive in the past year. Forty-four (22.3%) participants reported prior COVID-19 infection, with 29 confirmed diagnoses and 15 suspected diagnoses. Further, 107 (54.2%) participants had been vaccinated against COVID-19, 35 (17.8%) were planning on being vaccinated, and 52 (26.4%) were not planning on being vaccinated. Participants declining vaccination cited concerns with health, fertility, pregnancy, breastfeeding, and a lack of vaccine safety data as common reasons for declining. Most (n=180; 91.4%) participants were sexually active at the time of survey, but only 25 (12.7%) reported their sex life was improved as a result of the pandemic; this did not differ in patients with or without a prior COVID-19 infection (15.9% vs. 11.8%, p=NS). These participants cited having more time with their partner, working from home, fewer outside stressors and social obligations, improved relationship dynamics and emotional bonding, and shared feelings about pandemic-related policies as reasons for improved sexual function. Of the 44 participants who had experienced COVID-19 infection, the majority (52.3%) expressed interest in returning to sexual activity within two weeks of infection. An additional 20.5% reported interest in sexual activity between two and four weeks after infection. Most (81.8%) stated that they were "not at all" or "not really" concerned about infecting their partner through intimacy or intercourse and 70.5% stated that

their interest in sex was "not at all" or "not really" affected by their COVID-19 infection. Finally, 68.2% of participants reported that their ability to enjoy sex was "not at all" or "not really" affected by their COVID-19 infection.
Conclusions: The majority of participants in this study did not experience improved sexual function during the pandemic, but those who did may offer insight into psychosocial and environmental factors that contribute to sexual function. The majority of participants who experienced COVID-19 infection did not report significant disruption to their sexual function as a result of their infection.
Disclosure: No

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Sacrospinous Hysteropexy: Native Tissue Compared to Mesh Augmented Repair for the Surgical Management of Uterovaginal Prolapse
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Introduction: The anterior approach to sacrospinous hysteropexy was popularized by transvaginal mesh kits such as the Uphold Lite Vaginal Support System™. Following withdrawal of these kits from the United States market, we hypothesized that similar efficacy could be achieved with native tissue anterior repair, reattachment of the pubocervical fascia to the cervix, and then fixation of the anterior cervix to the right sacrospinous ligament using 1 permanent and 1 delayed absorbable suture. Few comparative studies of the safety and efficacy profiles of an anterior approach to sacrospinous hysteropexy using native tissue versus a mesh-augmented repair with Uphold Lite exist.
Objective: The primary aim was to compare success rates of an anterior approach to sacrospinous hysteropexy using native tissue compared to transvaginal mesh. The secondary aim was to assess intra- and post-operative complications.
Methods: A retrospective cohort analysis of women with uterine prolapse who underwent transvaginal sacrospinous hysteropexy between 01/01/2016-12/31/2020 at a tertiary care referral center was performed. Women were analyzed in two groups: Uphold and native tissue hysteropexy (SSLF). Demographic, past medical/surgical history, associated urogynecological symptoms, and intra- and post-operative data were reviewed. Success and complication data were compared through all available follow up data. Composite success was defined as the following: 1) No subjective vaginal bulge symptoms, 2) No retreatment for prolapse, and 3) No recurrent prolapse beyond the hymen and the apex not descended > 1/3 of the total vaginal length. Descriptive and bivariate statistics were performed as indicated.
Results: A total of 97 women, 40 Uphold and 57 SSLF patients, met inclusion criteria and were compared. All demographic and past medical/surgical history data are included in Table 1. Women in the Uphold group were more likely to have undergone a prior pelvic organ prolapse surgery (p=0.003) and have a history of prior intra-abdominal surgery (p=0.015). Median pre-operative POP-Q was Stage III in each group. There were no differences in surgical time (102.4□31.4 vs 109.8□19.6 minutes, p=0.211) or ASA classification (p=0.211) between groups. Post-procedure, the median follow-up time was 8.2 months. The overall composite success rate was 95% in each group: Anatomic success was demonstrated in 100% of patients; vaginal bulge symptoms were reported by 2 women in the Uphold group compared to 3 in the SSLF group (p=0.999); and one woman in the Uphold group underwent re-treatment with a pessary compared to 3 women in the SSLF group who underwent re-treatment (2 pessary, 1 repeat surgery; p=0.639). Three intra-operative complications were reported in the SSLF group: 1 ureteral injury, 1 urethral injury, and 1 blood transfusion. There were no reported intra-operative complications in the Uphold group. There was no difference in 30-day complication rates between groups (p=0.775; Table 2). No mesh related complications in the Uphold group were reported.
Conclusions: For women undergoing sacrospinous hysteropexy through an anterior approach, 95% achieved surgical success and the use of a mesh-augmented repair did not confer any benefit in terms of efficacy or complications when compared to native tissue repair only. Further long-term data is needed to continue assessment of native tissue sacrospinous hysteropexy.
Disclosure: No
Images:

Table 1. Specific Changes in Patient 1 Assessments

	Before JOGO DTx Sessions	After JOGO DTx Sessions
PFR	20 mvS	8-12mvS in crooklying position and 5mvS in supine position
FGPI	10/45	0/45
Visual analog score	4/10	0/10
TTU	Minimal natural voiding every 4-5 hours K90 voiding every 2 hours of 130-500 mL	Naturally passing 200-400 mL without K90

Table 2. Specific Changes in Patient 2 Assessments

	Before JOGO DTx Sessions	After JOGO DTx Sessions
Urination Frequency	30-40 Minutes	3-4 Hours
Daily Change of Underwear	12	4
ICIQ-CLUTS	11/30	5/30
IIQ	2/21	0/21

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WITHDRAWN - A Randomized Controlled Trial of Vaginal Cryotherapy for the Treatment of Pelvic Floor Myofascial Pain
WITHDRAWN

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Treatment of Stress Urinary Incontinence with Polyacrylamide Hydrogel in an Office Setting: Patient Perspectives
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Introduction: Office setting (OS) provides the opportunity for surgeons to perform specific procedures more efficiently than in an operating theatre (OR). Consequently, health care systems are interested in altering surgical services from OR to OS. The impact on patient's satisfaction is more challenging to estimate. Injections with polyacrylamide hydrogel, bulking procedure (BP), is an intervention for urinary stress incontinence. It was originally performed in the OR in general anesthesia (GA) or sedation. Today, BP is mostly done in local anesthesia and hence altering the setting from OR to AS became possible.
Objective: The main aim of this study was to assess patient satisfaction when moving BP from OR to OS. Secondary to investigate the reasons behind the satisfaction or dissatisfaction.
Methods: From 15th of September 2020 to 1st of June 2021, 115 women underwent BP in the OS. Follow-up three months post-surgery for quality assurance is mandatory. Concurrently to routine follow-up, the OS experience was assessed.

Results: A total of 95.6 % (110/115, P<0.001) preferred the BP being performed in the OS. Main reason was the short waiting time 61.8% (68/110). Pain was the main reason not to prefer the OS. On a Visual Analogue Scale (VAS) from 0 to 10, (0 equals no pain, 10 maximum pain) the mean VAS for pain was 4.1. There was no significant difference in the VAS score whether the patients had taken pre-procedure painkillers or not. In fact, though not significant (p=0,19), the mean VAS was higher among those who had taken pre-procedure painkillers (VAS 4.3) than those who had not (VAS 3.2).
Conclusions: The OS provides a patient friendly and comfortable place for the BP and is generally preferred over the OR. Pain is the main reason not to prefer the OS, and further means need to be taken to minimize pain during procedure in the OS. Important for the OS preference is the accessibility and minimal waiting time. The OS is therefore both convenient and efficient for surgeon and patient.
Disclosure: No
Images:

Table1. Number of the cases presenting rapid fluctuations in intra-rectal pressure and /or enhancement of perineal electromyogram in the preoperative pressure-flow study.

		enhancement of EMG	
		+	-
rapid fluctuations in intra-rectal pressure	+	47	28
	-	15	13

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AI Based Biofeedback Solution For Voiding Dysfunction and Incontinence in Spinal Bifida Patients
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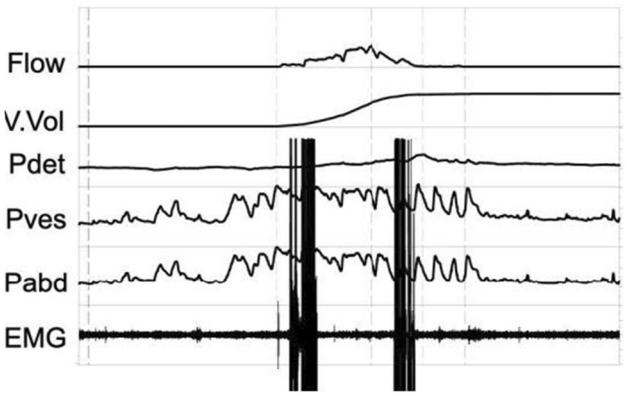
4 - New York University

Introduction: JOGO is an AI based Digital therapeutics (DTx) system that uses the foundational science of EMG-biofeedback. DTx, or software as a medical device(SaMD) is a newly created FDA segment. JOGO uses wearable sensors and AI to facilitate neuromuscular retraining. JOGO can be used in a clinic or via telemedicine. Unlike traditional EMG biofeedback solutions, JOGO uses a mobile app, which adjusts its therapy plan based off of patient feedback, producing more productive results than EMG biofeedback devices, which do not have machine learning capabilities. JOGO can be used to treat voiding dysfunction and incontinence in Spina Bifida patients.
Objective: This study aimed to determine the efficacy of JOGO DTx relative to conventional treatments in treating opposite extremes of symptoms in VD and incontinence in Spina Bifida patients.
Methods: Each patient was given benchmark examinations in a host of indices for pain/discomfort, voiding ability, and other conditions prior to beginning JOGO DTx. The patients underwent JOGO DTx involving bladder training and pelvic floor muscle training sessions weekly for ten weeks in the clinic. This program utilized structured pelvic floor relaxation, bladder daily retraining, and stretching programs to treat the patients. After patients underwent therapy sessions, the initial examinations were redone; the improvements in these indices and the change in the severity of related conditions were used to evaluate the efficacy of treatment.
Results: Overall, patient 1 previously went from experiencing consistent fullness of bladder with incomplete voiding to showing an improvement of 80% voiding function after 13 JOGO sessions. This process demonstrated downward training of the pelvic floor muscles. Patient 2 saw improvements in being able to do a stop test and hold urine without dribbling, no SUI, no urgency, no bedwetting. Overall, after 10 sessions of JOGO EMG BFB, the patient has shown a 95% improvement in voiding with control. Furthermore, after JOGO therapy, prescription of Mirabegron and Tropan were discontinued. This process demonstrated upward training of control in the patient.
Conclusions: JOGO DTx demonstrated significant improvement through optimized patient training via machine learning. JOGO can be used in both upward and downward training, using PFRT and PFMT training, respectively. The reduction in severity and quantity of symptoms, as well as restoration of significant function, demonstrates the treatment's efficacy in comparison to conventional treatments. Larger studies are needed to confirm the efficacy of the treatment on a wider scale.
Disclosure: Yes, this is sponsored by industry/sponsor: JOGO Health
Clarification: Industry funding only - investigator initiated and executed study
Any of the authors act as a consultant, employee or shareholder of an industry for: JOGO Health
Images:

Figure1. Voiding totally dependent on abdominal pressure and pelvic floor muscle contraction. The variation in voiding muscle pressure is negligible.



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Examining the Role of Frailty on Treatment Patterns and Complications Among Older Women Undergoing Procedure-based Treatment for Urinary Incontinence

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Introduction: Urinary incontinence and frailty are increasingly prevalent with aging beyond 65 years. Procedure-based interventions for the treatment of urinary incontinence and procedure-related complications have only been previously associated with aging. It is plausible that frailty instead of biologic aging may mediate post-procedure complications. We hypothesize that pre-procedure frailty may be a predictor of less invasive procedures received for the treatment of urinary incontinence in older women and for greater procedure-related urologic complications. Frailty is a complex condition that independently increases risk of post-procedure complications; however, its association with urinary incontinence procedures in older women is under-explored.
Objective: We aim to examine pre-procedure frailty status as a predictor of procedure-based treatment patterns and post-procedure complications that may arise after treatment of urinary incontinence in older Medicare-eligible US women.
Methods: In this retrospective cohort study, we identified women undergoing procedure-based interventions for urinary incontinence between 2011-2018 in the 5% limited data set from the Center for Medicare and Medicaid Services. Frailty status was determined utilizing a validated Claims-based Frailty Index (CFI) based on claims from one year prior to the index procedure. Demographic and clinical characteristics and index procedure-based treatments received were abstracted. Urologic outcomes were assessed within the 12-month period following the index procedure date. CFI total scores of ≥ 0.25 defined the pre-procedure presence of frailty. Univariate and bivariate analyses examined between group differences in demographic and clinical characteristics. Using the CFI as the primary predictor, chi-square analyses were applied to estimate the odds of having a procedure-based complication based on frailty status with 95% confidence intervals. Logistic regressions were applied to model the prevalence of post-procedure urologic complications based on pre-procedure frailty status and to estimate the odds ratio of multi-variate adjusted relationships for age, race, and region.
Results: We identified 21,783 women who underwent a procedure-based intervention for urinary incontinence symptoms between 2011-2018. Of these women, 3,826 (17.5%) had CFI ≥ 0.25 and thus were classified as 'Frail'. Among all procedures performed to treat SUI, frail women were 2.6 times more likely to have having periurethral bulking, 95% CI 2.26-2.95, p<0.001. Women with frailty had 42% lower odds of having a sling (OR 0.42, 95% CI [0.37, 0.48]) and 51% lower of having a Burch colposuspension (OR 0.51, 95% CI [0.28, 0.94]), p<0.001. (Figure 5) Frail women with urgency UI or OAB had 70% lower odds of having posterior tibial nerve stimulation, {OR 0.70, 95% CI [0.64, 0.78], p<0.001}. However, they had 21% higher odds of sacral neuromodulation (SNM) {OR 1.21, 95% CI [1.11, 1.33], p<0.01} and 16% higher odds of intravesical Botox {OR 1.16, 95% CI [1.06, 1.28]}. Women with frailty had 1.63 higher odds of having a urologic complication within 1 year of the procedure with a 95% CI of [1.47, 1.81], p<0001.
Conclusions: Frailty was not associated with patterns of less invasive treatments for urinary incontinence among older women. However, frailty was an independent predictor of urologic complications in the year following procedure-based treatments for urinary incontinence in older women.
Disclosure: No

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Prolapse-Associated Pain Improves with Surgical Treatment of Pelvic Organ Prolapse

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Introduction: Pelvic organ prolapse (POP) traditionally presents with symptoms of vaginal pressure or fullness, but has rarely been associated as a pain etiology. The characteristics of individuals reporting prolapse-related pain and the impact of POP surgery on these symptoms has not been well-defined.
Objective: To define the incidence and characterize prolapse-related pain in patients presenting with POP, as well as determine the impact of surgery and factors associated with pain resolution postoperatively.
Methods: This is a retrospective cohort study of patients presenting for initial POP evaluation from April 2019 to May 2020 at an academic institution. Using a standardized intake questionnaire, patients were asked "Do you have pain associated with your prolapse (not pressure or fullness)?" and to indicate the pain severity and location(s). All patients received a POP-Q examination. Patients who underwent POP surgery were asked at their postoperative visit if their POP-related pain resolved. Demographic and clinical variables were extracted from the electronic medical record.
Results: 795 patients met inclusion criteria. Patients had a mean age of 59.9±13.5 years and a mean BMI of 28.4±6.3 kg/m2. 698 (87.8%) patients were white, 599 (75.3%) were postmenopausal, 414 (52.1%) were sexually active, and 740 (93.1%) had ≥ stage 2 POP. POP-related pain was reported by 106 (13.3%) patients. Patients reporting POP-related pain were more likely to have undergone prior urogynecologic surgery (30 [28.3%] vs 129 [18.7%], p=.022), prior transvaginal mesh procedure (11 [36.7%] vs 62 [47.7%], p=.021), report sexual dysfunction (36 [69.2%] vs 160 [44.2%], p<.001) and/or dyspareunia (25 [48.1%] vs 90 [24.9%], p<.001), carry a diagnosis of chronic pelvic pain (6 [5.7%] vs 12 [1.7%], p=.024) and use muscle relaxants (20 [18.9%] vs 65 [9.4%], p=.003) and gabapentinoids (6 [5.7%] vs 7 [1.0%], p<.001) at baseline. No significant differences in POP-Q stage, prior hysterectomy, sexual abuse history, chronic opioid use, pelvic floor dysfunction, or chronic pain conditions were found between patients with and without POP-related pain. Patients with POP-related pain reported a median pain level of 5 (IQR 4-8) out of 10. POP-related pain locations included: vagina (58, 54.7%), lower abdomen (39, 36.8%), back (30, 28.3%), legs (6, 5.7%), and other (18, 17.0%). 34 (32.1%) patients reported POP-related pain in multiple locations. 57 (53.8%) patients subsequently underwent surgery, and 40 (70.2%) reported their POP-related pain resolved post-operatively. 10 (17.5%) reported their POP-related pain did not resolve, however five reported a decrease in pain level. Patients with postoperative resolution of POP-related pain were less likely to be sexually active at baseline (16 [40.0%] vs 8 [80.0%], p=.04). Baseline pain severity and location(s) were not associated with resolution. Surgical approach of prolapse repair, including the use of mesh, was not significantly different in patients with and without pain resolution.
Conclusions: Pain is a symptom experienced by more than 1 in 8 patients presenting with POP. Nearly 4 out of 5 women with POP-related pain reported resolution or improvement after surgery. Baseline POP stage, surgical approach and mesh utilization during surgery had no impact on the likelihood of postoperative POP-related pain resolution.
Disclosure: No

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Improvement of Abdominal Pressure Measurement in Voiding Cystometry for Pelvic Organ Prolapse and Stress Urinary Incontinence: Report on the New Findings Revealed After Gas Venting.

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Introduction: The International Continence Society Good Urodynamic Practices and Terms 2016 (hereafter referred to as "the ICS guidelines) recommends that abdominal pressure be measured using a balloon catheter placed in the rectal ampulla, and no mention of gas in the rectum is made. But often there is some gas in the rectum, so the change in pressure transmitted from the pelvic cavity to the inside of the rectum is attenuated. In the voiding cystometry for pelvic organ prolapse and stress urinary incontinence (referred to POP and SUI, respectively), approximating intra-abdominal pressure by intra-rectal pressure may lead to non-negligible errors.
Objective: Our aim is first to present our improvements in measuring intra-rectal pressure during voiding cystometry, and then to report on the potentially harmful voiding patterns that were frequently revealed by our improvements.
Methods: We use an air-filled catheter system to measure pressures in multichannel urodynamics and in other respects follow the International Continence Society Good Urodynamic Practices and Terms 2016. We started placing a rigid urethane catheter of Ch12 in the anal canal In September 2020. This catheter connects rectal ampulla to the extracorporeal space, allowing gas in the rectum to pass freely to the outside of the body. We retrospectively reviewed the records of voiding cystometry performed as preoperative evaluation of POP and SUI during the first 9 months of the transanal venting procedure.
Results: There were 103 voiding cystometry records that were appropriately registered and available for analysis. In these records, rapid fluctuations in intra-rectal pressure, possibly caused by repeated brief abdominal pressure loading, and enhancement of perineal surface EMG were common findings, observed in 75 and 62 cases respectively (72.8%, 60.2%). Table 1 shows the number of cases classified by the presence or absence of rapid rectal pressure fluctuations and of enhancement in the perineal surface EMG. In some of the cases where no rectal pressure fluctuations were observed, blockage of the venting tube by stool or mucus was documented. Marked weakening of detrusor contraction during voiding was also frequently observed. Figure 1 is the cystometry record of a 41-year-old parous woman with severe SUI. This presents the three common components of our patients: forceful abdominal pressure loading, pelvic floor muscle contraction, and diminished detrusor activity.
Conclusions: As long as the catheter was patent, the transanal venting system was a useful measure for accurate abdominal pressure monitoring during voiding. Abdominal pressure loading and pelvic floor muscle contraction are not originally necessary to expel the bladder contents. On the contrary, these movements may be among the harmful factors that accelerate the progression of pelvic organ prolapse and increase the severity of abdominal stress urinary incontinence.
Disclosure: No
Images:

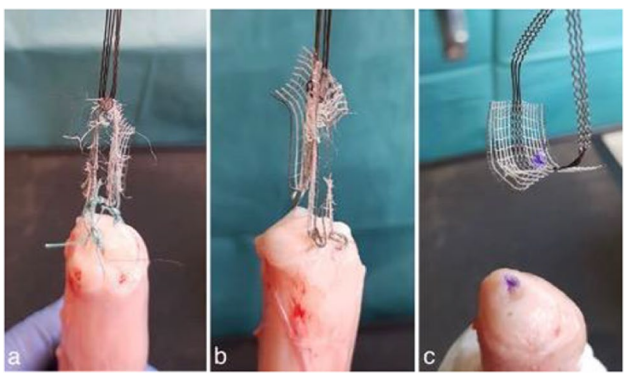

Table 1: Number of patients for which Urinary Dipstick on a clean catch (CC) correlated with Urinalysis RBC of a catheterized specimen (CS) (n=163).

Urinary dipstick CC	Urinalysis RBC CS	Total
Trace	2-5	19
Small	5-10	18
Moderate	10-25	0
Large	25-50	6
Too numerous to count	>50	1
		44 (26.9%)
Kappa Correlation*		0.346

Kappa results interpreted as follows: values ⩽0 indicate no agreement, 0.01-0.20 as none to slight, 0.21-0.40 as fair, 0.41-0.60 as moderate, 0.61-0.80 as substantial, and 0.81-1.00 as almost perfect agreement.

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Subjective Outcomes of Pain Following Mid-Urethral Sling Surgery – A 10 Year Post-operative Questionnaire

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Introduction: Stress urinary incontinence (SUI) is common, affecting 10-20% of adult women(1). Mid-urethral slings (MUS) are a widely studied and effective procedure for the treatment of SUI. MUS procedures have been placed under scrutiny in association with enquiries into surgical mesh implants, and audit to assess surgical outcomes is essential(2). Complications, that may necessitate MUS removal, include mesh erosion and pain(3). There is limited data regarding persistence of long-term pain, however the rate is likely low, affecting 1% or fewer women over six months after surgery(4).
Objective: To assess subjective long-term rates of pain for women who have undergone a MUS procedure.
Methods: All women who underwent a MUS procedure at a single centre in 2009-2010 were included in this audit. A de-identified follow-up questionnaire was posted to participants with a return addressed, postage paid envelope. The questionnaire contained ten questions. Three were the ICS Incontinence Questionnaire-Urinary Incontinence Short Form assessing current symptoms. Four assessed pre- and post-operative symptoms including pain, one reviewed additional post-operative treatments and two assessed satisfaction. The questionnaire took approximately 10 minutes to complete. The primary outcome was development of new reported pain following the MUS procedure
Results: 7 women (10.3%) reported development of pain following their MUS. 6 of these were followed up in clinically, 1 was uncontactable. 4 women had pain symptoms unrelated to the MUS; lichen sclerosis, vaginal atrophy, levator myalgia and episodes of self-limiting pelvic pain. Two patients that reported new onset of pain experienced complications necessitating mesh removal. Both had a history of two MUS prior to symptom onset. The uncontactable patient indicated in her questionnaire that no further treatment was needed following the procedure. The revised rate of long-term pain secondary to MUS procedure was 2/68(2.9%).
Conclusions: This post-operative questionnaire assessing long-term outcomes for the MUS procedure shows a 2.9% rate of chronic pain likely caused by the procedure itself. The women reporting persistent pain following MUS both underwent two procedures. A repeat procedure may be a risk factor for the development of chronic pain, and should be taken into account when assessing patients with recurrent stress urinary incontinence after a MUS. This results suggests that the rate of persistent pain following a single MUS is low. The initial rate of reported long-term pain was 10.3%. On review, the majority were found to have alternative causes for pain, not related to the MUS procedure. This highlights a difficulty with

questionnaires assessing patient-reported outcomes in accurately gathering information, and reminds us to be cautious when interpreting results. This study was a cross-sectional audit at ten years post-procedure. The study strength is the ability to assess long-term subjective outcomes. Weaknesses include recall and non-response bias. In addition, there is loss to follow up; 50.4% response rate and a small number uncontactable. These factors support the establishment of a prospective registry to record and follow up outcomes of MUS procedures.
Disclosure: No

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A Biomechanical Analysis of Cervical Fixation Methods (Tacks vs. Sutures) for Laparoscopic Apical Fixation in a Porcine Model
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Introduction: The incidence of apical uterine prolapse increases with age. After conservative treatment options have been exhausted, surgical correction with the use of alloplastic material often follows. Laparoscopic cervicosacropexy is often performed, and different materials (tacks vs. sutures) can be used to fix the mesh material to the cervix for apical fixation.
Objective: The aim of this in-vitro study was to compare the biomechanical properties for fixation of the mesh to the cervix with single-button sutures (group 1), non-absorbable tacks (group 2) and absorbable tacks (group 3).
Methods: The biomechanical in-vitro testing was performed on porcine, non- embalmed, fresh and unfrozen cadaver uteri (Fig. 1). In a two-column material testing machine (Instron 5565®) a total of 28 trials were conducted in three groups on fresh porcine uteri. Each group evaluated the cervical mesh fixation with a different fixation device: Group 1 (n=10) evaluated three interrupted sutures, group 2 (n=10) three titanium tacks (ProTack), and group 3 (n=8) three absorbable tacks (AbsorbaTack) (Fig. 2). The mesh used for cervical fixation are composed of nonabsorbable, biostable polyvinylidene-fluoride (PVDF) monofilaments. All trials were conducted until failure of the mesh, tissue or fixation device occurred. Primary endpoints were biomechanical properties maximum load (N), displacement at failure (mm) and stiffness (N/mm). Mode of failure was evaluated as a secondary endpoint.
Results: Significant differences were found between all three groups in terms of maximum load: Group 1 (three single-button sutures) showed a maximum load of 64 ± 15 N, Group 2 (three titanium tacks) 41 ± 10 N and Group 3 (three absorbable tacks) reached a maximum load of 15 ± 8 N. The most common mode of failure for group 1 and 2 was a net tear or rip under 80-times of maximum load. In group 3, the limiting factor in all tests was a pull-out of the absorbable tacks.
Conclusions: Fixation of the PVDF mesh with three single-button sutures is superior to fixation with three titanium tacks as well as absorbable tacks in terms of maximum load. The suture carries 1.5 times the load of titanium tacks and 4.2 times the load of absorbable tacks. All three fixation options can withstand the physiological load of 10 N, but absorbable tacks are the weakest fixation methods. Single-button sutures are the significantly stronger and less expensive, but could increase operating time (when fixating the mesh) by factor 9 compared to tacks. Possible risks of the tacks are not considered in this in vitro analysis.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: FEG Textiltechnik mbH Aachen, Germany
Images:

Table: Urinary incontinence evaluation questionnaire scores at baseline and 3 months after radiofrequency therapy

	Baseline	3 months	Mean Differences	P value
Age *years* *mean±SD, (range)*	53.6±10.9, (37-77)			
MESA total score *mean±SD, (range)*	33.4±6.6, (19-44)	15.25 ±9.6 (2-38)	18.18	< 0.001
MESA stress score *mean±SD, (range)*	21.2±4.3, (11-27)	10.57±6.4 (1-25)	10.68	< 0.001
MESA urge score *mean±SD, (range)*	12.2±2.8, (7-17)	4.70 ±3.6 (0-13)	7.57	< 0.001
I-QoL total *mean±SD, (range)*	38.6±25.8, (5.7-95.9)	78.29± 20 (26.1-100)	39.73	< 0.001
Net Pad weight *gram* *mean±SD, (range)*	10.3±11.4(2-49)	2.65 4.6(0-18)	7.61	< 0.001

**: Statistically significant at p ≤ 0.05*

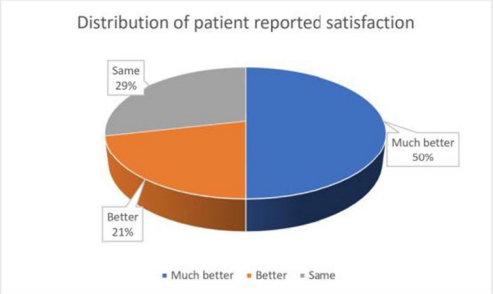
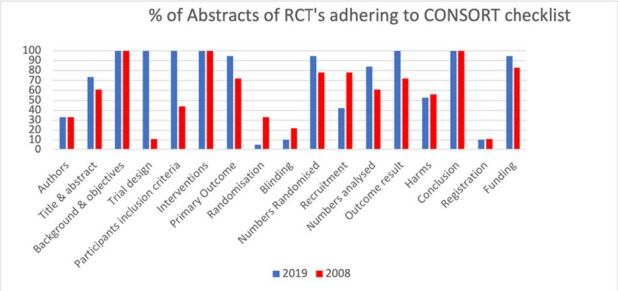


Figure: Distribution of patient reported degree of satisfaction after Fractional bipolar Radiofrequency



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Which One is Worse? Nocturnal Enuresis Only in Childhood or Only in Adulthood

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Correlation Between Hematuria Findings on Clean Catch Urine Dipstick and a Catheterized Specimen Urinalysis in Women
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Introduction: Asymptomatic microscopic hematuria found on routine screening is an important early clinical sign of urinary tract malignancy. Often, its presence triggers an extensive and invasive workup which includes radiation exposure to further investigate the possibility of renal, ureteral, or bladder malignancy. It is widely accepted that the most important risk factors for developing urinary tract malignancy are patient's history of gross hematuria, age ≥60 years, smoking history, family history of genital urinary malignancy, and the presence of >25 RBC/HPF on urinalysis. In women, there are other confounding factors that lead to false positive tests, which may cause unnecessary interventions. Identifying how the urine dipstick correlates to the level of hematuria in a urinalysis may help guide clinicians in decision making during hematuria screening.

Objective: This study aims to assess the correlation between hematuria on a urine dipstick from a clean catch (CC) to a microscopic urinalysis of a catheterized specimen (CS) in women.
Methods: A retrospective chart review of patients with hematuria based on a positive urine dipstick was performed. Patients were derived from a urogynecology clinic from October 2018 to February 2021 (n=310). Exclusion criteria included: <18 y/o, pyelonephritis, or current urinary tract infection (n=163). Demographic data was collected. Patients with a positive urine dipstick from a CC were compared to results found on a urinalysis of the CS. The association between a positive urinalysis and malignant pathology on cystoscopy or renal imaging was also evaluated. Means were used to analyze continuous data and percentages were used to analyze categorical data. The kappa correlation was calculated to compare the agreement between the level of hematuria identified on the urine dipstick and the urinalysis.
Results: 163 women were included in our study. The average age was 60.2 years old. 144 (88.3%) patients were white, 8 (4.9%) were black, 1(0.6%) was Native American/Hawaiian, 1 (0.6%) was Asian, and 9 (5.5%) were unknown race. Of these, 133 (81.6%) patients identified as Hispanic, 24 (14.7%) were non-Hispanic, and 6 (3.7%) were unknown. The average parity was 2 and the majority of patients (86.5%) did not have a prolapse. 141(86.5%) patients were reported to be post-menopausal and 76 (46.6%) patients were positive for genitourinary syndrome. Only 3 (1.8%) patients had a family history of urologic cancer. Tobacco use was low in our cohort : 103 (63.2%) never smoked, 48 (29.4%) had a history of smoking, and 12 (7.4%) were current smokers. Of the current and past smokers, 11 (18.3%) patients had 30 py, and 31 (51.7%) were unknown. The kappa correlation between urine dipstick results of a CC and the urinalysis results of the CS was fair (0.346) as seen in Table 1. There were no new urologic cancers identified in any of the patients.
Conclusions: Our study suggests that CC urine dipstick is a reasonable predictor of the presence of RBCs found on CS urinalysis. Further studies are needed to identify if CC urine dipstick is an effective screening tool for hematuria in women.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Coloplast
Images:

Table 1. Demographic Variables in Those With and Without Urinary Incontinence Symptoms Addressed

Variable	Urinary Incontinence Symptoms Addressed (n = 12)	No Urinary Incontinence Symptoms Addressed (n = 153)	P-value
Age, median (IQR), years	48.0 (32.0)	33.0 (19.0)	**0.05**
BMI, median (IQR), kg/m^2	30.2 (5.0)	27.8 (12.2)	0.97
Distance to clinic, median (IQR), miles	3.7 (2.5)	4.6 (5.5)	0.49
Race			0.25
Black	6 (50.0)	97 (63.4)	
White	6 (50.0)	43 (28.1)	
Other, Declined	0 (0)	13 (8.5)	
Insurance Type			0.95
Commercial	5 (41.7)	73 (47.7)	
Medicaid	5 (41.7)	52 (34.0)	
Medicare	1 (8.3)	13 (8.5)	
Self-pay, Other	1 (8.3)	15 (9.8)	
Post-Menopausal	7 (58.3)	25 (16.3)	**<0.01**
Hypertension	6 (50.0)	41 (26.8)	0.10
Glaucoma	1 (8.3)	3 (2.0)	0.26
Diabetes	1 (8.3)	20 (13.1)	1.00
Depression	5 (41.7)	54 (35.3)	0.76
Peripheral Arterial Disease	0 (0)	1 (0.7)	1.00
Other Pelvic Floor Disorder	5 (41.7)	9 (5.9)	**<0.01**
Estrogen Use			0.54
Current Systemic	0 (0)	2 (1.3)	
Current Vaginal	1 (8.3)	2 (1.3)	
Prior systemic	0 (0)	0 (0)	
Prior vaginal	0 (0)	1 (0.7)	
Current Contraception	2 (16.7)	30 (19.6)	
Prior contraception	0 (0)	21 (13.7)	
Unknown	9 (75)	97 (63.4)	

Data is presented as n (%) except where otherwise specified

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Risk Factors of Labial Synechiae in Post-pubertal (Reproductive Aged) Women: a case series
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Introduction: Labial synechiae is defined as the complete or partial fusion of minor or major labia in the midline. It is believed to occur in a low estrogen state, thus, rarely found in reproductive age (post-pubertal) women. Reproductive aged women who develop labial synechiae usually have a history of genital trauma or irritation and other aggravating risk factors.
Objective: To report rare cases of labial synechiae in post-pubertal (reproductive aged) women and its associated risk factors.
Methods: This case series is an observational descriptive study.
Results: We report four cases of labial synechiae in post-pubertal (reproductive aged) women with various genitourinary complaints and risk factors, including poor genital hygiene, recurrent genital or urinary tract infections, lack of sexual activity, genital trauma during vaginal delivery, and hypoestrogenic state in Turner syndrome. All the four patients were managed by surgical incision and corrective perineorrhaphy without sequelae, and were given education about maintaining perineal hygiene.
Conclusions: Labial synechiae rarely occurs in post-pubertal (reproductive aged) women due to sufficient levels of estrogen and can present with various genitourinary complaints. Post-pubertal women who develop labial synechiae often have various risk factors promoting the formation of adhesion.
Disclosure: No

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Service Evaluation of Urodynamic Studies: Preliminary Results
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2 - NHS GG&C

Introduction: Urodynamic studies (UDS) assesses lower urinary tract function, replicating patient symptoms to allow determination of the underlying mechanism of incontinence. The UK Continence Society (UKCS) recognised deficiencies in UDS service regulation and acknowledged ongoing concern around the standards of urodynamics (UDS). In 2018 the UKCS-MS-UDS was published with recommendation for quality of UDS test.
Objective: To provide a service provision audit of urodynamic tests, through review of patient satisfaction and quality review of urodynamic traces.
Methods: UKCS-MS-URODS recommendations were used to create a two section pro forma: A. Testing conduct and patient satisfaction Women attending UD clinics over a three week period were considered for participation and followed up within one week regarding urinary tract infection (UTI) symptoms following UDS. B. Evaluation of UD output quality Retrospective supplementary UD outputs were compared to 12 recommended test parametrics.
Results: 10 females participated, mean age 55, primarily presenting with mixed urinary incontinence symptoms (60%, n=6). 80% (n=8) previously trialed conservative incontinence management; physiotherapy or anticholinergics (63% n=5). 60% (n=6) suffered from a UTI within the past year. UD was effective in reproducing patient symptoms and thus answering the posed UD question (90%, n=9). Two women had received a leaflet (from their referring clinician) prior to investigation thus felt well informed prior to UDS (20%, n=2). Of the remaining group, 50% (n=4) felt ill-informed and desired additional information prior to appointment, as the procedure was not as they expected. No urine dipsticks for UTI testing were performed prior to UDS (0%, n=0).

Post test UTI prevention information was provided and recorded on each account (100%, n=10). 80% (n=8) were contactable allowing UTI enquiry post UDS. Two had symptoms following testing (25%), with neither requiring treatment for infection, both self resolving through increased fluid intake. 40 additional retrospective urodynamics traces were evaluated (total = 50). Urodynamic output was of a high standard with 75% (9) of parametrics being met in >90% of traces. Two area performed less than optimal; 'did printing scales permit a clear display of trace features' (75%, n=37) and 'noted voided volume, post-void residual, flow time and voiding time' (82%). Most notably, in 78% (n=39) of traces Pves and Pabd were not zeroed to atmosphere.

Conclusions: UDS is a useful tool for recreating patient symptoms to determine the underlying cause of incontinence. There is an unmet need for UDS information provision, with a lack of defined plan for leaflet distribution. Patients were also not screened for a UTI prior to investigation. UD traces were of a high quality with four areas of improvement were identified with the most prominent being 'ensuring Pves and Pabd are zeroed to atmosphere.'

Disclosure: No

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Safety, Tolerability and Short-Term Efficacy of Micro-needling of the Vaginal Canal with Fractional Bipolar Radiofrequency for Treatment of Mixed Urinary Incontinence

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2 - Institute for Female Pelvic Medicine Knoxville, Tennessee
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4 - The Christ Hospital , University of Cincinnati, OH

Introduction: The treatment of mixed urinary incontinence (MUI) patients is challenging as leakage is caused by a combination of urethral sphincteric incontinence as well as a detrusor compliance abnormality. We hypothesize that there may be a dual mechanism of action of this therapy involving strengthening and support of periurethral connective tissue as well as modulating afferent nerves responsible for detrusor compliance.

Objective: To report the first study of micro-needling radiofrequency of the vaginal canal in treatment of MUI

Methods: A prospective study of 29 patients with MUI who did not respond to conservative treatment was conducted between October 2020 and May 2021. Participants were required to have at least score ≥3 in Sandvik Test. Each patient underwent a single intravaginal fractional bipolar radiofrequency treatment session using the Empower platform and the Morphus V applicator (Inmode). Radiofrequency energy is delivered via 24 microneedles to the entire vaginal canal at depths of 1,2, and 3 mm. At baseline, one month and three months following treatment, participants completed the Medical, Epidemiologic, and Social Aspects of Aging (MESA), the Urogenital Distress Inventory (UDI-6), and the Incontinence Quality of Life (I-QOL) questionnaires. The outcomes were determined by comparing changes in reported questionnaire scores prior to and throughout the three months following treatment. Degree of satisfaction was also reported through non validated self-reported 5 points Likert score.

Results: The mean (SD) MESA total score at baseline was 33.4 (6.6), with the mean stress and urge subscale scores were 21.2 (4.3) and 12.2 (2.8), respectively. Baseline UDI-6 scores were 47.3 (17.2) while preoperative net pad weights were 10.3(11.4). Three months after treatment, both MESA stress and urge subscale scores improved significantly ($p < 0.001$), with mean differences of 10.68 and 7.57 respectively. The mean net pad weight decreased significantly from 10.26±11.4 to 2.65± ($p< 0.001$). In three months, the improvement in I-QOL was doubled, from 38.6±25.8 to 78.3±20 (p 0.001). 50% of our participants reported the highest degree of satisfaction (much better) in satisfaction questionnaire following therapy. (Figure) All patients tolerated the procedure in an office setting with no adverse events reported.

Conclusions: This pilot study showed micro-needling fractional bipolar radiofrequency improved both subjective and objective measures of MUI. Larger prospective studies with longer follow up are currently underway to further evaluate this treatment modality

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Inmode

Images:

Table 2. Interventions Offered to Subjects With Urinary Incontinence

Subject Number	No Treatment	Kegel Exercises	PFPT	Lifestyle Modifications	Pessary	Medications	Referral Placement	UA, Urine Culture
1		X		X				X
2			X					
3				X				X
4		X		X	X	X	X	
5	X							
6	X							
7								X

PFPT- pelvic floor physical therapy, UA- urinalysis

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HIFEM Procedure for Treatment of Persistent Urinary Incontinence After Pelvic Organ Prolapse and Anti-incontinence Surgery

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Introduction: Physical therapy is a known therapeutic option for women with lower urinary tract symptoms and pelvic organ prolapse (POP). However, there is limited data to support the role of physical therapy in women who have recently undergone surgical treatment for POP and urinary incontinence (UI). High Intensity Focused Electromagnetic Technology (HIFEM) is a novel non-invasive method where both involuntary and voluntary muscles of the pelvic floor contract, improving overall strength of the pelvic floor thereby reducing UI.

Objective: Our study evaluated the effectiveness of HIFEM as a form of postoperative pelvic floor physiotherapy in women who have undergone POP and UI surgery.

Methods: Fifty females who underwent POP and UI surgery received a total of six HIFEM procedures after their six week postoperative visit. Treatments were scheduled twice a week over three weeks with two follow-up visits at 3 and 6 months. Bristol's Female Lower Urinary Tract Symptoms Questionnaire (BFLUTS-SF) was used to evaluate UI and quality of life (QoL) before and after treatment. Cumulative and subdomain scores were calculated and statistically evaluated through a paired t-test.

Results: The mean combined score pre-treatment was 17.4±10.5 points. Subdomain scores were: Filling (3.6 ± 3.1), Voiding (1.0 ± 2.0), Incontinence (2.8 ± 4.8), Sex (0.1 ± 0.3), and QoL (4.0 ± 4.8). Changes in the scores were statistically significant in Filling, Incontinence, and QoL subdomains at 3 months and 6 months consistently. The combined BFLUTS-SF score decreased significantly ($p<0.05$) at 3 and 6 months to 11.9±10.2 (-5.5 points) and 12.6±11.7 (-4.8 points) respectively. The greatest decrease was observed in the Incontinence domain (-2.0 points, p=0.0001) and Filling domain (-1.4 points, p=0.0004) at six months and QoL domain at three months (-1.5 points, p=0.006). Data was analyzed based on parity, the women with three and more childbirths had a statistically significant improvement of average BFLUTS-SF score showing a reduction of -7.0 points at 3 months ($p=1.1\cdot10^{-5}$) compared to -4.4 points (p=0.0065) in women with a maximum of two deliveries. In addition, subjects were also divided based on major (≥ Stage 3) or minor (≤ Stage 2) surgery for prolapse. There was a significant improvement in the major ($p=3.3\cdot10^{-6}$) and

minor (p=0.001) categories for the filling, voiding, and incontinence domains regardless of severity of prolapse.
Conclusions: The data indicates that the HIFEM procedure significantly reduces the severity of lower urinary tract symptoms including UI while improving the QoL in subjects with persistent post surgery incontinence.
Disclosure: No

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Dyspareunia and Urodynamics Parameters
Patel, M[1]; Bhide, A[1]; Tailor, V[1]; Rahim, A[1]; Digesu, A[1]; Fernando, R[1]; Vik, K[1]; Asfour, V[2]
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2 - Northwick Park

Introduction: Dyspareunia is defined by genital pain that can be experienced before, during, or after intercourse1, having a significant effect on physical and mental health, as well as quality of life. The prevalence of dyspareunia varies from 3 to 18% worldwide2, and it can affect 10 to 28% of the population in a lifetime3. The aetiology of superficial and deep dyspareunia is multi-factorial, with urological contributors like bladder/pelvic floor dysfunction.
Objective: To identify differences in objective urodynamic (UDS) parameters in women with dyspareunia as a secondary symptom.
Methods: This retrospective cross-sectional study of women attending UDS at a large tertiary centre. Women were evaluated with a comprehensive history, use of validated symptom questionnaire, physical examination, urodynamics (flowmetry and dual channel cystometry using air charged catheters with a filling speed of 100 ml / min) and cystoscopy.
Results: 2, 992 UDS were evaluated, with 1, 264 (42.3%) patients complaining of dyspareunia and 1,728 (57.7%) reporting no dyspareunia. The mean age was 52 years (24-91). Women with dyspareunia were more likely to present with a great number of lower urinary tract symptoms (mean 5 vs 1) and bladder pain (mean 2 vs 1) ($p< 0.005$). 98% complained of voiding dysfunction. During urodynamics, women with dyspareunia were more likely to have a reduced maximum cystometric capacity (MCC) (480 ml v 503 ml $p<0.0005$) but no statistical difference in first sensation to void (212 ml v 214 ml). Compared to the women who did not report dyspareunia, urodynamic stress incontinence (UDSI) and detrusor overactivity (DO) were more frequently diagnosed for women reporting dyspareunia (59% v 54% $p<0.005$) and (19.8% v 17.1% $p<0.005$) respectively. Women with dyspareunia were more likely to have normal UDS (20.9% v 18.3%) but complained more of irritative symptoms (83.7% v 62.1 % $p <0.005$). When comparing the cystoscopy findings, women with dyspareunia were interestingly less likely to have bladder trabeculations (7.99% v 10.3 % $p<0.05$).
Conclusions: Our results show that dyspareunia is common in the urogynaecology population, with varying symptoms including bladder pain and voiding dysfunction. Dyspareunia as a secondary symptom is associated with reduced MCC and increased diagnoses of UDSI and DO.
Disclosure: No

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Bladder Nodule Endometriosis
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Introduction: Endometriosis to the bladder is a relatively rare phenomenon, with low level evidence to support its management. Bladder endometriosis can be located superficially, in the wall of the bladder or on the lining of the bladder mucosa. Full thickness bladder nodules penetrate through all layers or the bladder. Partial thickness bladder nodule endometriosis may be superficial on the surface of the bladder or in the mucosal lining of the bladder. Bladder endometriosis makes up more that 85% of all urinary tract endometriosis. Clinical diagnosis is very challenging due to nonspecific signs and symptoms.
Objective: This study evaluates the outcome of patients who have undergone various forms of management in relation to bladder nodule endometriosis.
Methods: A observational study of all patients diagnosed with bladder nodule endometriosis between 2016 and 2020 within the Lothian region of Scotland. Only 14 patients were identified with a diagnosis of having bladder nodule endometriosis. Diagnostic criteria were based on findings from cystoscopy or diagnostic laparoscopy. Management of these patients were analyzed to look at outcomes after surgical, medical, or conservative approaches. The study also investigated recurrence rates, complication rates, quality of life and bladder function post laparoscopic surgical excision of bladder nodule endometriosis.
Results: Six patients out of the those found with bladder nodules had treatment with laparoscopic excision and one bladder nodule removed during cystoscopy. One patient who was trying to conceive opted for conservative management with only fertility sparing treatment. Out of the remaining 6 patients diagnosed with bladder nodule endometriosis, two were pending surgery and 4 were being managed medically. Patients who were managed medically with GnRH agonist and analgesics seemed to have improved quality of life overall but shorter symptom free intervals. Those who underwent surgical excision typically had recurrence rate of symptoms after one to two years, except one patient who did not have any change in symptoms post-op. Bladder symptoms were reported with two patients after surgical management in the form of urge incontinence and stress incontinence. Two of the patients managed medically had recurrence of bladder pain symptoms when they decided to discontinue GnRH agonist in order to conceive.
Conclusions: Laparoscopic excision of Bladder nodules in this group of patients had low complication rates but lower recurrence of symptom and longer symptom free intervals in comparison to conservative or medical management. However, most patients reported better higher satisfaction rates after 1 year of being managed with GnRH agonist. Patients generally had satisfactory outcomes post laparoscopic surgical removal of bladder nodule endometriosis without intra and post-operative complications. Bladder function was generally well maintained with minimal evidence of long-term issues with bladder capacity. It is notable that the low complication rate may be due to the involvement of a multidisciplinary team of specialists who provide the necessary expertise during these complex procedures.
Disclosure: No

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Has the Quality of IUGA Abstracts Reporting Randomised Controlled Trials Improved over the Last Decade?
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Introduction: RCTs are the gold standard in scientific evidence and form the cornerstone of clinical decision making in healthcare, therefore ensuring the quality of abstracts reporting RCT's, is imperative. Abstracts need to be transparent and detailed to allow readers and systematic reviewers to assess the validity and the applicability of the results. Frequently, they provide the only permanent information accessible to most readers too, and hence, in healthcare systems with limited funding, decisions may be made based on abstracts of randomized trials alone. In 2008 IUGA introduced a new guide for authors regarding the format of abstracts with the aim to improve their accuracy and concision for reporting Randomised Control Trials (RCT's). The CONSORT (Consolidated Standards of Reporting Trials) statement, comprising of a 17-item checklist, provides evidence based, minimum set of recommendations for reporting of RCTs in abstracts of

conferences. CONSORT is endorsed by prominent scientific journals, and leading editorial organizations. It is a key tool for assessing RCT methodological quality.

Objective: To assess the change in the quality of abstracts reporting RCT's against CONSORT recommendations between 2008 and 2019.

Methods: Published RCT abstracts for IUGA 2019 Annual meeting were identified and reviewed. Results were compared with a previous assessment of compliance from the 2008 (1) checklist by two examiners separately. Each of the items was scored as met or not met. The checklist item abbreviates a fuller minimum standard of clarity recommended by the CONSORT statement.

Results: In the 2008 and 2019 IUGA meetings, 18 and 19 abstracts reporting RCT's were presented, respectively. The mean score for compliance in 2008 was 10/17 (59% compliance). The review of the 2019 IUGA abstracts of RCT's demonstrated an increase in compliance with the CONSORT criteria, with a mean of 11.73/17 (69% compliance). Randomisation, blinding, numbers analysed and registration remain poorly reported.

Conclusions: The accepted RCT's for presentation at IUGA remain methodologically challanged. Whilst reporting has improved, the overall quality is still suboptimal. There is sufficient clarity regarding objectives, trial design, intervention and outcomes. Areas of weakness include detailing randomisation, blinding and registration which have been consistently poor over the years. Areas of improvement over the last decade have been the use of the word ''randomised" in the title to identify and index the abstracts as RCT's, the declaration of inclusion and exclusion criteria, trial design, numbers randomised, numbers analysed and primary outcome result. We would suggest that the submission process needs to be reviewed in future years to ensure compliance with internationally agreed standards. Requiring RCT's to be registered prior to abstract submission, would ensure compliance with these criteria. Providing reference to the RCT registration with a link would allow easy access to more detailed information and avoid duplication for reviewers. Higher quality of abstracts reporting RCT's is needed for the benefit of the clinician, the patient and the systematic reviewer.

Disclosure: No

Images:

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Factors Associated With Addressing Urinary Incontinence and Outpatient Referral Patterns During Well-Woman Care in an Academic Resident Practice

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Introduction: Approximately 50% of adult women experience urinary incontinence (UI), however it is estimated that only 25% seek care for the condition.(1,3) Screening for UI symptoms is recommended during well-woman care for women age 18 and older.(1,2) Upon identification of UI, referral for diagnostic evaluation and treatment is recommended.(2)

Objective: To describe the factors associated with addressing UI symptoms during well-woman care within an academic resident clinic practice. Secondarily, we sought to examine subspecialty referral patterns for patients with UI.

Methods: This was a retrospective chart review of all outpatient well-woman preventive care examinations performed by Obstetrics and Gynecology (OBGYN) resident physicians at an academic center from 1/1/2019 to 12/31/2019. Women 18 years and older were included. Charts were reviewed for demographics, insurance payor, zip code, and medical history. Descriptive statistics, chi-squared, and Fisher's exact tests were used for comparison and logistic regression was used to control for confounders.

Results: Resident physicians performed 165 well-woman visits in 2019. The median age of subjects was 34.0 years (IQR 21.0) and the majority identified as Black (103/165, 62.4%). Seventy-eight (47.3%) had commercial health insurance and 71 (43.0%) had Medicare or Medicaid insurance. Only 12 (7.3%) women had UI symptoms addressed at their visit. Those with UI addressed were older [median age 48.0 years (IQR 32.0) vs 33.0 years (IQR 19.0), p=0.05] and more likely to be post-menopausal [7/12 (58.3%) vs 25/153 (16.3%), p 0.05), Table 1. Those with UI addressed were more likely to have other pelvic floor disorders [5/12 (41.7%) vs 9/153 (5.9%), p<0.01]. On logistic regression, there was a 6.1-fold increased odds of having UI addressed in those with other pelvic floor disorders (aOR 6.1, 95% CI 1.4-26.3, p=0.02) when adjusting for post-menopausal status (aOR 4.2, 95% CI 1.1-16.3, p=0.04). Seven of the 12 (58.3%) subjects who had UI addressed reported symptoms of UI. Of these 7 women, 4 (57.1%) identified as Black and 3 (42.9%) identified as White. Two (28.6%) of the 7 did not have UI addressed in their plan at the conclusion of their visit. Table 2 describes the interventions offered for UI. Only one (14.3%) subject had a referral placed for Urogynecology. One subject was offered Urogynecology referral, however the patient declined and had lifestyle modifications offered. Another subject had referral discussed, but there was concern from the patient about insurance coverage related to seeing a subspecialist.

Conclusions: In this OBGYN resident practice patient population, UI symptoms are screened for at exceedingly low rates. Given the high prevalence of UI, urogynecologists should educate OBGYN residents to elicit symptoms of UI through questionnaires or review of systems so they can seize the opportunity to educate this younger population of women on UI prevention. Future research should further evaluate outpatient referral patterns to identify and eliminate barriers to care, particularly in populations with limited access to care.

Disclosure: No

Images:

Table 1: Demographic characteristics for women with FI undergoing anorectal manometry by race and ethnicity

Characteristics	All participants n=58	White n=26	Black n=13	Hispanic n=19	p
Age	63.9 ± 11.5	64.3 ± 10.5	63.2 ± 12.6	64.0 ± 12.7	0.9
Parity, median (IQR)	2 (1 - 3)	2 (1 - 2)	3 (1 - 4)	2 (2 - 4)	0.4
BMI (kg/m^2)	30.7 ± 6.7	27.9 ± 5.8	35.4 ± 7.0	31.2 ± 6.1	0.003
Socioeconomic status[a]	17.9 ± 12.6	8.5 ± 5.2	21.7 ± 12.6	28.4 ± 10.1	0.0001
Diabetes	27 (46.6)	1 (3.9)	11 (84.6)	15 (79.0)	<0.001
Current smoker	29 (50.0)	11 (42.3)	6 (46.5)	12 (63.2)	0.4
Constipation	20 (34.5)	6 (23.1)	5 (38.5)	9 (47.4)	0.2
Loose stools	9 (15.5)	0 (0)	4 (30.8)	5 (26.3)	0.004
Urinary incontinence	18 (31.0)	6 (23.1)	4 (30.8)	8 (42.1)	0.4
History of anorectal surgery	12 (20.7)	7 (26.9)	2 (15.4)	3 (15.8)	0.7
Predominant symptom					0.5
Fecal incontinence	41 (70.7)	20 (76.9)	9 (69.2)	12 (63.2)	
Fecal incontinence with constipation	15 (25.9)	6 (23.1)	4 (30.8)	5 (26.3)	
Fecal incontinence with fecal urgency	2 (3.5)	0 (0)	0 (0)	2 (10.5)	

Data are presented as mean (SD) or n (%) unless otherwise noted.
[a] Defined as percent living below poverty line by zip code based on US Census data.

Table 2: Differences in anorectal manometry values by race and ethnicity

	All participants n=58	White n=26	Black n=13	Hispanic n=19	p
Mean anal resting pressure (mmHg)	23.8 ± 11.6	24.0 ± 10.4	25.8 ± 12.4	22.2 ± 13.0	0.6
Mean squeeze pressure (mmHg)	58.2 ± 27.9	49.2 ± 21.3	75.1 ± 33.7	59.1 ± 27.5	0.03
Volume at first sensation (mL)	39.8 ± 30.7	52.7 ± 31.2	26.3 ± 21.4	30.3 ± 29.1	0.003
Volume at normal urge (mL)	89.5 ± 38.8	81.6 ± 28.3	109.6 ± 56.3	87.2 ± 34.7	0.4
Volume at strong urge (mL)	135.6 ± 41.1	120.0 ± 10.0	154.4 ± 49.5	129.1 ± 38.7	0.4
Maximum tolerated volume (mL)	137.0 ± 70.9	126.4 ± 58.9	164.0 ± 112.8	185.0 ± 77.8	0.4

Data are presented as mean (SD) or n (%) unless otherwise noted.

Figure 1. Surgery-free, closed-loop wearable bladder modulation and digital health system with objective confirmation of nerve activation.

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Differences in Anorectal Manometry Values Among Women With Fecal Incontinence in a Racially, Ethnically, and Socioeconomically Diverse Population

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Introduction: Fecal incontinence (FI) is a prevalent pelvic floor disorder with considerable potential to adversely impact quality of life. Anorectal manometry (ARM) is a valuable diagnostic tool to assess sensory and sphincteric function of the anorectum that can aid in elucidating contributory mechanisms to FI. ARM can also be used during biofeedback, and values may inform treatment response. Consensus on standard reference range values for ARM has not been established, and women of varying racial/ethnic backgrounds are not well-represented in the current available literature.
Objective: We aimed to compare ARM values between women of different racial and ethnic groups with FI.
Methods: We conducted a retrospective chart review of women >18 years old with ICD-9 or ICD-10 diagnosis codes for FI who underwent ARM at a tertiary health system in an urban underserved community between January 1, 2016 and November 1, 2021. Women were excluded if they had neurogenic FI, colorectal malignancy, rectal prolapse, and inflammatory bowel disease. We collected demographic information as well as clinical risk factors for FI from the medical record including age, parity, BMI, presence of constipation or loose stools, history of anorectal surgery, diabetes, smoking, and urinary incontinence. Socioeconomic status (SES) was represented by the percent of the population living below the poverty line according to zip code using US census data. We abstracted the following ARM values from the medical record: mean anal resting pressure, mean anal squeeze pressure, volumes at first sensation, normal urge, and strong urge, and maximum tolerated volume. ARM values were compared between racial/ethnic groups using ANOVA or Kruskal-Wallis for continuous variables and Fisher's exact or Chi-square test for categorical variables. Multivariable logistic regression was conducted to control for patient characteristics.
Results: Fifty-eight women were included in the analysis: 45% White, 33% Hispanic, and 22% Black (Table 1). Black women had higher BMI than other groups. Hispanic and Black women had higher rates of diabetes and loose stools and were of significantly lower SES compared to White women. The majority of women underwent ARM for the indication of fecal incontinence without constipation or fecal urgency, with no significant differences between groups. Black women had significantly higher mean anal squeeze pressures than other groups, and Black and Hispanic women had lower thresholds for volume at first sensation compared to White women. These differences were maintained after controlling for BMI, diabetes, SES, and presence of loose stools (p=0.03 and p=0.01, respectively). Other ARM values were not significantly different between groups.
Conclusions: Racial and ethnic differences in ARM values among women with FI exist. Our findings suggest that utilizing different targets for pelvic floor physical therapy and biofeedback based on race and ethnicity may be useful in order to optimize efficacy of these treatments. Further research is needed to investigate whether these differences are due to biologic, genetic, socioeconomic, or disease-specific elements as well as whether they impact treatment outcomes and patient satisfaction.
Disclosure: No
Images:

	Avation Medical Wearable System	Urgent PC PTNS	Nuro PTNS	Intersim SNS	Axonics SNS
		Peters et al. (2010)[3]	Kobashi et al (2019)[2]	Siegel et al. (2015)[6]	Benson et al. (2020)[4]
# Subjects	96	220	120	147	129
% Global Responders	84% 12 weeks	64% 12 weeks	76.6% 12 weeks	76% 24 weeks	89%* 24 weeks

Table 1. A wearable neuromodulation system compares favorably with more invasive therapies for treatment of OAB and UUI

*Data excludes non-responder patients.

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Antimicrobial Activity in Red Ginger as a Treatment for Women's Urinary Tract Infections: A Systematic Review and Meta-analysis of Experimental Study

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Introduction: Urinary tract infection is considered a common infection in humans. The location of the female reproductive organs is a susceptibility factor for urinary tract infections. Most of the treatments use a pharmacological diagnostic approach.
Objective: This study aims to identify and analyze previous research on the effect of giving red ginger as a treatment for urinary tract infections in women. The benefit of this study is to examine non-pharmacological approaches that can relieve symptoms.
Methods: A systematic review and meta-analysis was carried out using the PRISMA guidelines. The research approach uses PICOS. Search literature in the PubMed, Science Direct, Scopus, ProQuest databases using data from the 2011 until 2020 and using relevant keywords.
Results: Most studies found that the cause of urinary tract infections was mostly Escherichia Coli bacteria. There is antimicrobial activity in red ginger even with different types of applications and can be combined with other plants. The results of the analysis of the effect of giving red ginger to Escherichia Coli were obtained from 5 articles that were carried out by meta-analysis with p value <0.001 so that it showed that there was an effect of ginger on Escherichia Coli bacteria.
Conclusions: Red ginger has antimicrobial activity which can be useful in the management of urinary tract infections but needs to be clarified more about how to apply ginger appropriately.
Disclosure: No

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A Personalized, Surgery-free Wearable Bladder Modulation and Digital Therapy System to Treat OAB Shows Comparable Results to More Invasive Treatments

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Introduction: Despite the availability of several different physician-prescribed treatment options to address the symptoms of overactive bladder (OAB) and urgency urinary incontinence (UUI), low rates of patient adoption and poor therapy compliance persist[1]. Pharmacologic agents, while simple to administer, carry unpleasant side effects and undesirable interactions with other medications. Injection of botulinum toxin can be effective in up to 70% of cases; however, it requires use of a cystoscope and comes with side effects causing up to 40% of patients to discontinue therapy[2]. In addition, the effect of botulinum toxin is temporary, requiring additional procedures every 4 to 9 months. Peripheral tibial nerve stimulation (PTNS) has been shown to be 64-76% effective at reducing symptoms and has few side effects [3], [4] but requires insertion of a needle-electrode and that the patient travel to the clinic weekly. Sacral nerve stimulation (SNS) has been shown to be an effective treatment with up to 89% reported to be responders[5]. However, this responder rate does not include those patients who failed a temporary trial of SNS. Further, SNS is a more invasive neuromodulation therapy option, carries a high rate of re-operation and poses the risk of serious adverse events[6].
Objective: Although these therapies have shown good effectiveness, they all have major drawbacks which have limited their adoption. OAB and UUI patients remain in need of safe and effective therapies that are surgery-free, convenient and eliminate the side effects of current treatment options. A surgery-free, wearable bladder modulation and digital therapy system (Avation Medical, Columbus, OH, Figure 1) has been developed to address these issues. The wearable system uses neuromodulation of the tibial nerve and allows the patient to conduct therapy at home using a mobile application on the patient's own device. The wearable system utilizes closed-loop physiologic sensing to objectively confirm activation of the target nerve and automatically adjust the signal to maintain an optimal therapeutic range for each patient's needs. The system is also connected with a digital health platform to track symptoms and therapy data in a HIPAA-compliant cloud server available to both patient and physician, creating a comprehensive therapy system.
Methods: A prospective, multicenter study evaluated the safety and effectiveness of the system by comparing subjects randomized into two arms for a total of 12 weeks: therapy for thirty minutes either one-time or three-times per week. Objective confirmation of stimulation of the subject's tibial nerve was achieved and an individualized therapeutic range was set for each subject. Therapy sessions were performed by the subject at home.
Results: Ninety-six subjects were enrolled with ninety-three evaluable. Three subjects were dropped due to unreliable data at baseline. All subjects found the garment and sensation comfortable. At 12 weeks, the wearable system demonstrated an 84% responder rate. Efficacy was similar in both arms. No serious device-related adverse events were reported. These results compare favorably with other therapies (Table 1).
Conclusions: A surgery-free, drug-free, wearable bladder modulation and digital therapy system can be an effective and feasible treatment alternative for the treatment of symptoms of OAB and UUI.
Disclosure: Yes, this is sponsored by industry/sponsor: Avation Medical
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: Avation Medical
Images:

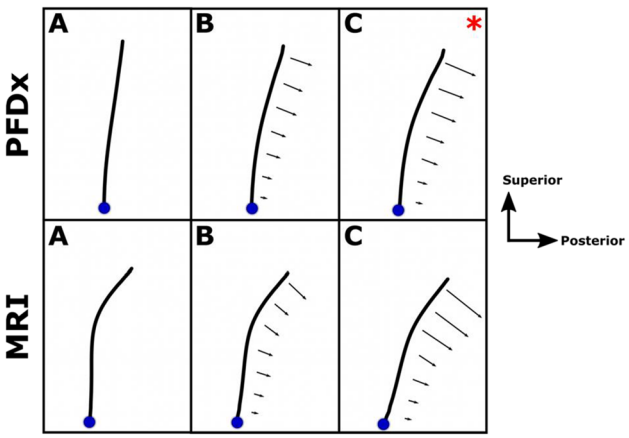

Figure 1: Average trace (black) of the different maneuvers in both modalities. The origin of the shape (the first sensor in the PFDx, or the vaginal hymen in MRI) was denoted by a blue dot. Arrows on the figure show shape change relative to the rest configuration. The top row is the shapes that were measured at A) rest, B) squeeze, C) strain using the PFDx and the bottom row shows the traces at A) rest, B) squeeze, and C) strain using MRI. Red astricts indicated a statistically different shape from rest. The shape change that was observed in both modalities was similar. Overall, we saw the most motion of the vagina at strain. Squeeze resulted in motion in the same direction but to a lesser amount.

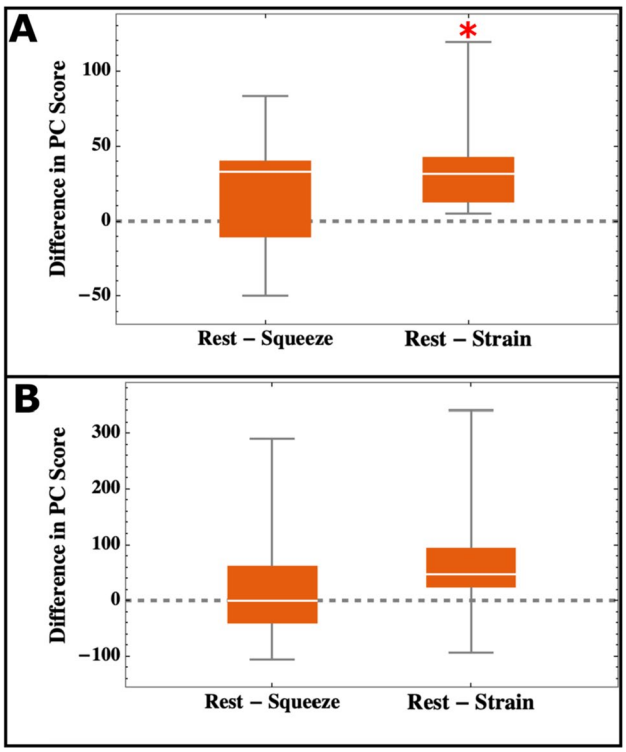

Figure 2: Boxplot of the difference in PCS between rest and the two maneuvers for both modalities A) PFDx, B) MRI. The difference in PC scores between rest and each maneuver with a value greater than zero indicating more motion of the vaginal apex. Red asterisks indicate statistically significant differences. Values equal to zero indicate that the shape for that

Table 1: Demographics and Intraoperative Characteristics of Study Group

	Delayed Absorbable (n=46)	Permanent Only/Combination (n=63)	p-value
Baseline Demographics			
Age, years	66.7 ± 9.1	63.7 ± 8.5	0.67
Race			0.11
White	38 (82.6)	59 (93.7)	
Black	6 (13.0)	4 (6.3)	
Other	2 (4.3)	0 (0)	
BMI, kg/m^2	28.7 ± 6.0	28.5 ± 5.6	0.84
Hypertension	25 (54.3)	32 (50.8)	0.71
Diabetes Mellitus	7 (15.2)	6 (9.5)	0.37
Prior hysterectomy	35 (76.1)	47 (74.6)	0.86
Advanced prolapse	25 (54.3)	51 (81.0)	**<0.01**
Intraoperative Characteristics			
Hysterectomy	3 (6.5)	10 (15.9)	0.14
Hysteropexy	8 (17.4)	9 (14.3)	0.66
Concomitant anterior repair	32 (69.6)	26 (41.3)	**<0.01**
Concomitant posterior repair and/or perineorrhaphy	38 (82.6)	53 (84.1)	0.83
Concomitant Midurethral sling	1 (2.2)	3 (4.8)	0.48
No. of SSLF sutures			**<0.01**
≤2	22 (47.8)	13 (22.0)	
>2	24 (52.2)	46 (78.0)	
Follow-up (days)	124.5 (177)	342.0 (782)	**<0.01**

BMI, body mass index; SSLF, sacrospinous ligament fixation

Advanced prolapse defined as ≥stage 3 pelvic organ prolapse on POPQ exam

Data presented as either n (%), mean ± SD, median (intercuartile range)

Student *t* test for continuous variables, chi-square test for proportions and Mann-Whitney U for ordinal variables.

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Multimodal Measurement of Vaginal Shape during Squeeze and Strain in Nulliparous Women

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Introduction: Vaginal shape is influenced, in part, by the anatomical support of its connective tissues and the function of its surrounding muscles. Thus, shape descriptions based on imaging have been used as a proxy for diagnosing inadequate vaginal support. Connective tissue defects or muscular dysfunction can be more identifiable if the patient is performing dynamic maneuvers (e.g. strain or squeeze). While significant changes in vaginal shape have been observed in patients with pelvic floor disorders, these shape changes can be difficult to contextualize because the shape changes of healthy, nulligravid women have not be well characterized.
Objective: This study aimed to measure changes in vaginal shape within healthy, nulligravid women who are performing strain and squeeze maneuvers. To robustly characterize changes in shape, dynamic MRI and a flexible insertion device based on accelerometers (PFDx, Renovia Inc.) were used to collect changes in shape while supine and standing, respectively.
Methods: Nine nulligravid subjects – all of whom demonstrated completed maneuvers during both exams – with no history of pelvic organ disorders were recruited for this prospective cohort study. Subjects were instructed to rest (to allow the capture of their rest shape) then perform the maneuvers (squeeze then strain). Using a custom python code, the positions of the PFDx sensors and the shape of the vaginal lumen during dynamic MRI were converted to 2D polylines. A statistical shape model (SSM) was performed on each set (PFDx and MRI) of 27 polylines to elucidate any difference in shape between maneuvers. The modalities were processed separately due to the difference in patient position. The SSM calculates a principal component (PC) score for each shape which quantitatively explains each shape's difference from the overall mean shape. A self-paired t-test was conducted on the PC scores to determine if either modality was able to distinguish between rest and either of the maneuvers.
Results: The general shape of the vagina was similar between the two modalities. When comparing within modalities, the vaginal lumen had a straighter shape during rest compared to both maneuvers the vaginal apex bent posteriorly towards the levator plate (Figure 1). Vaginal apex motion was most pronounced during strain. Figure 2 illustrates the difference in PC scores between rest and each maneuver with a value greater than zero indicating more motion of the vaginal apex. The maneuver that resulted in a shape that was significantly different from rest was detected by the PFDx device for strain (p=0.013), all other changes were not statistically different.
Conclusions: In both modalities the shape of the vaginal lumen bent towards the levator plate. Strain had larger amounts of shape change which was likely due to the additional increase in intraabdominal pressure that accompanies strain. However, the relatively small amount of shape change in these nulliparous women made these differences difficult to detect with only the PFDx device detecting differences resulting from strain. In the future, these data will be compared to shapes in women with diagnosed pelvic floor disorders to determine the clinical utility of this approach.
Disclosure: Yes, this is sponsored by industry/sponsor: Renovia Inc. Clarification: Industry funding only - investigator initiated and executed study
Images:

Table 2: Pelvic Organ Prolapse Outcomes

	Delayed Absorbable (n=46)	Permanent Only/Combination (n=63)	p-value
Composite Prolapse Recurrence	5 (10.9)	12 (19.0)	0.25
Anatomic Recurrence	4 (8.7)	9 (14.3)	0.37
Anterior	4 (8.7)	7 (11.1)	0.68
Posterior	0 (0)	1 (1.6)	0.39
Apical	0 (0)	1 (1.6)	0.39
Retreatment for POP	1 (2.2)	3 (4.8)	0.49
POPQ			
Ba	-2.0 (-3.0, -0.5)	-2.0 (-3.0, -1.0)	0.25
Bp	-3.0 (-3.0, -2.5)	-3.0 (-3.0, -2.5)	0.81
C	-7.0 (-8.0, -6.0)	-6.5 (-8.0, -5.5)	0.20
TVL	8.0 (7.0, 8.75)	8.0 (7.0, 8.5)	0.36
Postoperative Complications (4-6 weeks from surgery)*	14 (31.1)	20 (31.7)	0.94
Urinary Tract Infection	3 (6.5)	3 (4.8)	
Wound Infection	0 (0.0)	2 (3.2)	
Pain	7 (15.2)	12 (19.0)	
Suture exposure	0 (0.0)	0 (0.0)	
Other (i.e., granulation tissue)	6 (13.0)	8 (12.7)	

POPQ, pelvic organ prolapse quantification scale

* Could have more than one complication

Data presented as n (%) or median (interquartile range)

Chi-square test for proportions, students t-test for continuous and Mann-Whitney U for ordinal variables.

Table 2: Pelvic Organ Prolapse Outcomes

	Delayed Absorbable (n=46)	Permanent Only/Combination (n=63)	p-value
Composite Prolapse Recurrence	5 (10.9)	12 (19.0)	0.25
Anatomic Recurrence	4 (8.7)	9 (14.3)	0.37
Anterior	4 (8.7)	7 (11.1)	0.68
Posterior	0 (0)	1 (1.6)	0.39
Apical	0 (0)	1 (1.6)	0.39
Retreatment for POP	1 (2.2)	3 (4.8)	0.49
POPQ			
Ba	-2.0 (-3.0, -0.5)	-2.0 (-3.0, -1.0)	0.25
Bp	-3.0 (-3.0, -2.5)	-3.0 (-3.0, -2.5)	0.81
C	-7.0 (-8.0, -6.0)	-6.5 (-8.0, -5.5)	0.20
TVL	8.0 (7.0, 8.75)	8.0 (7.0, 8.5)	0.36
Postoperative Complications (4-6 weeks from surgery)*	14 (31.1)	20 (31.7)	0.94
Urinary Tract Infection	3 (6.5)	3 (4.8)	
Wound Infection	0 (0.0)	2 (3.2)	
Pain	7 (15.2)	12 (19.0)	
Suture exposure	0 (0.0)	0 (0.0)	
Other (i.e., granulation tissue)	6 (13.0)	8 (12.7)	

POPQ, pelvic organ prolapse quantification scale

* Could have more than one complication

Data presented as n (%) or median (interquartile range)

Chi-square test for proportions, students t-test for continuous and Mann-Whitney U for ordinal variables.

Table 3: Adjusted Hazards Regression Model of Composite Anatomic Failure after Vaginal Sacrospinous Ligament Fixation

	Adjusted HR (95% CI)	*P*
Suture Type		
Absorbable	Reference	
Permanent	0.38 (0.96 - 1.49)	0.17
Advanced preoperative prolapse	1.32 (0.26 - 6.68)	0.74
Anterior colporrhaphy	0.56 (0.15 - 2.07)	0.38
Posterior colporrhaphy and/or perineorrhaphy	1.27 (0.27 - 5.99)	0.76
Suture number (≤2 sutures vs >2 sutures)	0.49 (0.14 - 1.69)	0.26

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Vaginal Sacrospinous Ligament Fixation: A Retrospective Cohort of Absorbable and Permanent Suture Groups

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1 - Magee Womens Hospital/University of Pittsburgh Medical Center

Introduction: A systematic review suggests similar anatomic outcomes after vaginal uterosacral ligament suspension with absorbable and permanent suture, but there is currently no data on outcomes by suture type for sacrospinous ligament fixation (SSLF).

Objective: The aim of this study was to compare composite prolapse recurrence after vaginal SSLF with absorbable versus permanent suture.

Methods: We performed a retrospective cohort study of women who underwent vaginal SSLF from 1/2017-6/2021 completed by 8 different female pelvic medicine and reconstructive surgeons. We compared 2 groups: (1) absorbable suspension suture and (2) permanent suspension suture (including if used in combination with absorbable suture). Our primary outcome was composite prolapse recurrence defined as (1) recurrent prolapse in any compartment past the hymen and/or (2) retreatment for prolapse with either surgery or pessary. We excluded patients without a documented pelvic organ prolapse quantification (POPQ) score on follow up exam. We defined advanced prolapse as ≥Stage 3 prolapse on POPQ exam and described number of SSLF sutures as a binary variable (>2 sutures total or ≤2 sutures total). Baseline and intraoperative variables were compared between groups. We evaluated suture group differences using log-rank tests for composite prolapse recurrence. Adjusted Cox proportional hazards regression models examined associations between suture group and composite prolapse recurrence controlling for relevant confounders.

Results: The cohort of 109 patients had a mean age of 65.0 ±8.9 years and mean body mass index of 28.5 ± 5.7 kg/m2. On preoperative POPQ exams, 76 (69.7%) women had advanced prolapse. Forty-six (42.2%) patients underwent SSLF with only delayed absorbable sutures and 63 (57.8%) with permanent sutures. All surgeons who used permanent suture used polypropylene, and all of the delayed absorbable suture was polydioxanone. At baseline, the permanent suture cohort was more likely to have advanced prolapse ($P < 0.01$) and to have greater than 2 SSLF sutures placed ($P < 0.01$), while the delayed absorbable cohort was more likely to have a concomitant anterior repair ($P < 0.01$). Additionally, there was longer median follow-up in the permanent group as compared to the absorbable group ($P < 0.01$) (Table 1). Overall, there were no differences in composite prolapse recurrence (10.9% vs 19.0%, $P = 0.24$), anatomic failure (8.7% vs 14.3%, $P = 0.37$), retreatment with pessary or surgery (2.2% vs 4.8%, $P = 0.49$), or median postoperative POPQ measurements between the delayed absorbable vs permanent suture groups (Table 2). There was also no difference in 6-week postoperative complications between groups (31.1% v 31.7%, p=0.94). When adjusting for differential characteristics, there remained no difference in the hazards of composite prolapse recurrence between suture groups (aHR 0.38, 95% CI 0.10-1.49; $P = 0.17$) (Table 3).

Conclusions: n our retrospective study, vaginal SSLF using only absorbable suture affords similar anatomic outcomes in the medium term as compared with suspension with permanent suture. Furthermore, concomitant anterior repair, posterior repair and number of sutures do not seem to be associated with differential outcomes. Future research with larger studies is needed to confirm our findings.

Disclosure: No

Images:

	LSCS (n=20)		Vaginal birth (n=16)	
	Emergency (11)	Elective (9)	SVD 9	FD 7
Intrapartum VD	2		6	
Postpartum VD	18		10	

* LSCS = lower segment caesarean section, SVD = spontaneous vaginal birth, FD = forceps delivery

Peripartum voiding dysfunction: identifying causal factors

O'Kane M, DaSilva A, Araklitis G, Davis D, Rantell A, Robinson D, Cardozo L

Introduction

Peripartum bladder care is essential to prevent urinary tract dysfunction caused by overdistension injuries, which can lead to permanent damage to the detrusor muscle. This may result in long-term morbidity including upper urinary tract damage, incontinence, detrusor underactivity and recurrent urinary tract infections secondary to permanent voiding difficulties [1,2,3,4]. In recent years there has been a perceived increase in the number of women suffering from peripartum voiding dysfunction (VD). The cause of this is poorly understood. NHS England's new initiative 'Perinatal Pelvic Health' aims to improve the prevention, identification and treatment of pelvic floor dysfunction following birth, of which lower urinary tract symptoms are an important aspect [5]. Understanding current intrapartum and postpartum bladder care is an important initial step in achieving this national ambition.

Objective

Peripartum bladder care was reviewed to determine the prevalence of underlying risk factors in cases of VD, and to identify whether substandard care is contributing to the incidence of VD in this cohort.

Methods

A retrospective study was conducted to assess the management of women in a tertiary care hospital in London with a delivery rate of approximately 5500 per year. The demographics and care of thirty-six women who developed peripartum VD between January 2020 and June 2020, defined as those who either developed spontaneous intrapartum acute urinary retention, or those who failed a postpartum 'Trial without catheter' (TWOC), were examined. Cases were identified from the appointment diary of the hospital's Urogynaecology Department. Care was assessed against standards outlined in the unit's Obstetric Bladder Care Guideline. Data were collected using electronic patient records and handwritten notes.

Results

94% of cases had risk factor(s) for developing voiding dysfunction. Of these, the most common was regional analgesia.

Table 1. Incidence of VD according to mode of delivery

	LSCS (n=20)		Vaginal birth (n=16)	
	Emergency (11)	Elective (9)	SVD 9	FD 7
Intrapartum VD	2		6	
Postpartum VD	18		10	

* LSCS – lower segment caesarean section, SVD – spontaneous vaginal birth, FD – forceps delivery

Overall 78% of women developed VD postpartum compared to 22% where it occurred intrapartum (Table 1). Of the women who developed postpartum VD, 66% of them had indwelling catheters in situ, and therefore required postpartum TWOC procedures. Of the seven women who developed intrapartum voiding dysfunction, none of them had care that met the standards outlined in the Bladder Care Guideline. The TWOC protocol and guidance for postpartum bladder care were not followed in 54% of the women who experienced postpartum VD. In the period following discharge home with a catheter, 19% of women encountered complications with an indwelling catheter. At follow up 97% of women had successful TWOCs and only 6% of women experienced ongoing lower urinary tract symptoms.

Conclusion

This study highlights the frequency of underlying risk factors in cases of VD. Further studies are required to identify whether intervention can mitigate the impact of these risk factors, and therefore reduce the incidence of VD. It also demonstrates poor adherence to the Obstetric Bladder Care Guideline, and as a result exposes women to significant risk of voiding dysfunction and the associated long term morbidity. Such studies highlight the need for the NHS's long-term plan and provide a baseline to develop and improve care provided to women.

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Table 1.

Specialty	Total Number of Payments	Mean Payment Amount ($ +/- Standard Deviation)	Sum of Payments ($)
General Surgery	2,317	184 +/- 736	606,346
Obstetrics and Gynecology	1,360	121 +/- 409	165,716
Ophthalmology	917	325 +/- 1,014	298,039
Orthopedic Surgery	3,505	1,606 +/- 13,102	5,629,031
Otolaryngology	373	184 +/- 736	68,948
Urology	1,528	246 +/- 1,109	376,899

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Peripartum Voiding Dysfunction: Identifying Causal Factors

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1 - King's College Hospital

Introduction: Peripartum bladder care is essential to prevent urinary tract dysfunction caused by overdistension injuries, which can lead to permanent damage to the detrusor muscle. This may result in long-term morbidity including upper urinary tract damage, incontinence, detrusor underactivity and recurrent urinary tract infections secondary to permanent voiding difficulties [1,2,3,4]. In recent years there has been a perceived increase in the number of women suffering from peripartum voiding dysfunction (VD). The cause of this is poorly understood. NHS England's new initiative 'Perinatal Pelvic Health' aims to improve the prevention, identification and treatment of pelvic floor dysfunction following birth, of which lower urinary tract symptoms are an important aspect [5]. Understanding current intrapartum and postpartum bladder care is an important initial step in achieving this national ambition.
Objective: Peripartum bladder care was reviewed to determine the prevalence of underlying risk factors in cases of VD, and to identify whether substandard care is contributing to the incidence of VD in this cohort.
Methods: A retrospective study was conducted to assess the management of women in a tertiary care hospital in London with a delivery rate of approximately 5500 per year. The demographics and care of thirty-six women who developed peripartum VD between January 2020 and June 2020, defined as those who either developed spontaneous intrapartum acute urinary retention, or those who failed a postpartum 'Trial without catheter' (TWOC), were examined. Cases were identified from the appointment diary of the hospital's Urogynaecology Department. Care was assessed against standards outlined in the unit's Obstetric Bladder Care Guideline. Data were collected using electronic patient records and handwritten notes.
Results: 94% of cases had risk factor(s) for developing voiding dysfunction. Of these, the most common was regional analgesia. Overall 78% of women developed VD postpartum compared to 22% where it occurred intrapartum (Table 1). Of the women who developed postpartum VD, 66% of them had indwelling catheters in situ, and therefore required postpartum TWOC procedures. Of the seven women who developed intrapartum voiding dysfunction, none of them had care that met the standards outlined in the Bladder Care Guideline. The TWOC protocol and guidance for postpartum bladder care were not followed in 54% of the women who experienced postpartum VD. In the period following discharge home with a catheter, 19% of women encountered complications with an indwelling catheter. At follow up 97% of women had successful TWOCs and only 6% of women experienced ongoing lower urinary tract symptoms.

Conclusions: This study highlights the frequency of underlying risk factors in cases of VD. Further studies are required to identify whether intervention can mitigate the impact of these risk factors, and therefore reduce the incidence of VD. It also demonstrates poor adherence to the Obstetric Bladder Care Guideline, and as a result exposes women to significant risk of voiding dysfunction and the associated long term morbidity. Such studies highlight the need for the NHS's long-term plan and provide a baseline to develop and improve care provided to women.
Disclosure: No
Images:

Figure 1. Mean Payment Amount by Specialty

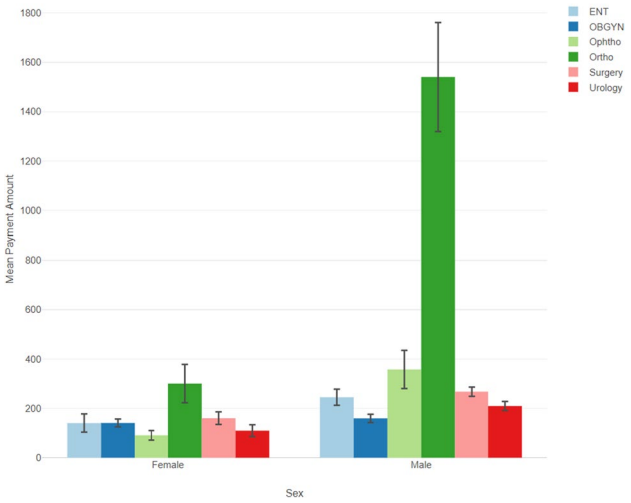
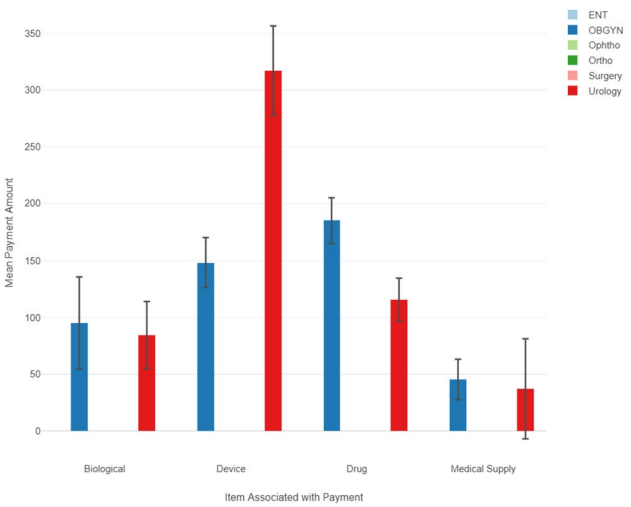


Figure 2. Mean Payment Amount for Item Associated with Payments for OBGYN vs. Urology



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Industry Payments to Surgical Subspecialty Residency Program Directors

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2 - Saint Joseph Hospital Denver OBGYN Residency
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Introduction: Residency program directors have a unique opportunity to educate and influence the physicians they train. It is no mystery that the skills, techniques, and nuances which are learned throughout residency mold the practices of trainees;(1) (2) and they also have a professional working relationship with drug or device manufacturers. (3) (4) Thus, it is plausible to deduce that the resources and funding provided by drug or device manufacturers, indirectly shape the future practices of residents. (5)
Objective: To examine the magnitude of payments which residency program directors of surgical subspecialty programs (general surgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, urology) accepted from drug or device manufacturers between 2013 and 2020.
Methods: For this retrospective, cross-sectional study, a list of non-research payments from drug or device manufacturers to program directors of surgical subspecialty residency programs was obtained through the Centers for Medicare and Medicaid Services Open Payments Database from August 1, 2013 to December 31, 2020. These data were cross referenced to a list of fellowship directors from the Accreditation Council of Graduate Medical Education. Characteristics of the non-research payments and the fellowship directors were analyzed with student's t-test and ANOVA test.
Results: A total of 53,691 payments, totaling $31,036,220 were made to 1,129 residency program directors (table 1). Residency program directors who tended to receive higher payment amounts were male orthopedic surgery residency program directors (figure 1), aged 56 to 60 years old, and those who practice in the New England region ($p<0.01$ for all). The mean payment amount to men was over four times that given to women ($658 [SD $7,726] vs. $151 [SD $574]), and the mean payment amount to orthopedic surgery program directors was nearly seven times that of all other surgical specialties ($1,469 [SD $13,137] vs. $222 [SD $1,084]). Three-quarters of all payments were for food and beverage (40,529 payments totaling $1,749,325), however those payments comprised only 5% of the total dollar amount. Nearly half of the total dollars were received by orthopedic surgery residency program directors for royalties and licensure (631 payments totaling $14,143,463). When compared to other surgical subspecialties, program directors of obstetrics and gynecology (OBGYN) and urology programs received the lowest mean payment amounts ($150 [SD $499] and $200 [SD $910] respectively) (figure 2). The manufacturer who provided the highest mean payment amount to OBGYN residency program directors was Applied Medical Corporation ($597 [SD $936]), while urology received their highest mean payment amount from NeoTract, Inc. ($573 [SD $1,555].
Conclusions: Residency program directors of surgical subspecialty residency programs have substantial varying relationships with drug and/or device manufacturers based on gender, surgical specialty, and area of the country which they practice. These relationships have potential to impact the education and future practice of their residents in the drugs and devices that they are exposed to in their training. These relationships should be transparent to residency applicants.
Disclosure: No
Images:

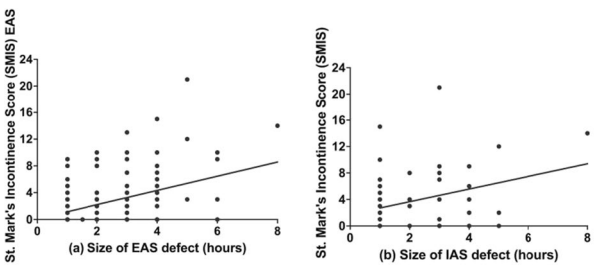

Figure 1: Correlation (shown with regression line) between severity of anorectal symptoms expressed as SMIS and extent of residual defects in EAS (a) and IAS (b) with evidence of defect on EAUS expressed in hours. There was a weak positive correlation present (r= .3723) (p<.0001) (a) and (r= .3122) (p=.0180) (b).
OASIS: Obstetrical Anal Sphincter Injuries; EAS: external anal sphincter; IAS: internal anal sphincter; SMIS: St. Mark's Incontinence Score

Table 1: Association of pain and adenomyosis, patients with fibroids excluded

	N	Overall N=93	N	Adenomyosis N=47	N	No Adenomyosis N=46	p
Any pain		27 (29.3%)		18 (38.3%)		9 (19.6%)	0.047
Pain at more than one visit		10 (10.8%)		7 (14.9%)		3 (6.5%)	0.11
Median pain score (visit 1)	7	4 (3, 7)	4	6.5 (3.5, 9)	3	6 (3, 7)	0.59
Median pain score (visit 2)	13	6 (4, 7)	10	6 (4, 7)	3	5 (2, 8)	0.73
Worst pain score overall	17	6 (4, 7)	12	6 (4, 7.5)	5	5 (3, 6)	0.43

Categorical variables reported as frequency (%), chi-square test.
Pain score reported as median (IQR), Wilcoxon rank sum test.

Table 1. Demographics of study participants

	All (n=50)	Pessary (n=30)	Controls (n=20)	p-value
Age	69 ±10.8	70.1 ±10.0	69.1 ±12.2	0.751
Race				0.442
White	29 (59.2%)	19 (63.3%)	10 (50%)	
Black	13 (26.5%)	6 (20%)	7 (35%)	
Hispanic	7 (14.3%)	4 (13.3%)	3 (15%)	
Postmenopausal				0.331
Yes	47 (94.0%)	29 (96.7%)	18 (90%)	
No	3 (6.0%)	1 (3.3%)	2 (10%)	
Vaginal estrogen use				0.003
Yes	14 (28.0%)	13(43.3%)	1 (5%)	
No	36 (72.0%)	17(56.7%)	19 (95%)	
Yeast infection in the past 12 months				0.594
Yes	6 (12.0%)	3 (10%)	3 (15%)	
No	44 (88.0%)	27 (90%)	17 (85%)	
Diabetes				0.430
Yes	13 (26.0%)	9 (30%)	4 (35%)	
No	37 (74.0%)	21 (70%)	16 (80%)	
Recent HbA1c	6.55 ±1.13	6.64 ±0.83	6.78 ±1.76	0.890
Pessary management				
Self-management	N/A	15 (50%)	N/A	N/A
Office management		15 (50%)		
Smoking				1.00
Yes	1 (2.0%)	0 (0%)	1 (5%)	
No	49 (98.0%)	30 (100%)	19 (95%)	
Sexually Active				0.895
Yes	13 (26.0%)	8 (26.7%)	5 (25%)	
No	37 (74.0%)	22 (73.3%)	15 (75%)	
BMI	32.1 ±9.0	31.2 ±8.7	33.4 ±9.6	0.421
Fungi detected	15 (30%)	9 (30%)	6 (30%)	0.482
Vagina only	10 (20%)	5 (55.6%)	5 (83.3%)	
Urine only	1 (2%)	1 (11.1%)	0 (0%)	
Vagina and Urine	4 (8%)	3 (33.3%)	1 (16.7%)	

*Data shown as n (%) or mean ± SD unless otherwise noted

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Role of Pelvic Floor Tanslabial Ultrasound Risk Factors for Recurrence in Reconstructive Vaginal and Abdominal Laparoscopic Sacrocolpopexy Surgeries for Apical Prolapse

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Introduction: Introduction Female pelvic organ prolapse is a common condition with a multifactorial etiology. Little is known about factors associated with surgical failure. Pelvic Floor translabial ultrasound (PFUS) can identify levator ani avulsion (LAA) and ballooning, which some studies showed to be possible risk factors for prolapse recurrence. It is important to identify risk factors for recurrence to provide preoperative consultation and realistic patient expectations after vaginal or abdominal reconstructive surgery.

Objective: Objective To determine if PFUS can identify risk factors for composite outcome recurrence (symptoms or prolapse beyond the hymen or reoperation) in patients undergoing vaginal and abdominal apical repair.

Methods: Methods A retrospective observational study from a prospectively collected database was performed. All patients with vaginal apical repair with sacrospinous ligament fixation (SSLF) or hysteropexy with uterosacral ligament suspension (HUS), and abdominal laparoscopic sacrocolpopexy (SCP) with preoperative PFUS were included. Demographics, clinical characteristics, follow-up and composite outcome were analyzed.

Results: Results 206 patients met the inclusion criteria. 118 (57.2%) patients underwent vaginal repair and 88 (42.8%) abdominal repair. All patients had a symptomatic vaginal bulge. On physical examination, of the group with vaginal repair, 18.6% had grade II prolapse, 76.3% grade III and 5.1% grade IV. Surgical techniques were 62.7% SSLF (Anchorsure 46,7%, Splentis 29.3%, Deschamps 17.3% and 5.3% free needle driver) and 37.3% HUS. On physical examination of the group with abdominal repair 23.9% had grade II prolapse, 65.9% grade III and 10.2% grade IV. The Median follow up was 14 months (IQ: 3-32). 40.2% had LAA in vaginal repair and 70.9% in abdominal repair. 33.3% had moderate-severe ballooning (MSB) in vaginal repair and 48.8% in abdominal repair. Anatomic recurrence rate by compartment in vaginal and abdominal repair was: apical compartment 8.3% and 3.4%, anterior compartment 3.7% and 3.4%, posterior compartment 19.6% and 13.8% respectively. Symptomatic recurrence rates were 2.9% and 5.8% respectively for vaginal and abdominal repair. Reoperation rates were 2.9% and 5.8%, respectively. Composite recurrence rates were 16.8% for vaginal repair and 8.0% for abdominal procedure without statistically significant differences between groups.

Conclusions: Conclusions Our results showed that findings on PFUS do not make a difference in composite recurrence rates in vaginal or abdominal procedures for apical prolapse. It is necessary to promote PFUS availability and to understand more about its findings and how they can influence surgical decisions for each patient.

Disclosure: No

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50 Unit Dose of OnabotulinumtoxinA for Initial Treatment of Idiopathic Overactive Bladder in Older Women

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2 - Northwell Health
3 - Overlake Medical Center

Introduction: First-line treatment for overactive bladder (OAB) consists of lifestyle modifications and pelvic floor physical therapy, followed by second-line pharmacotherapy. However, anticholinergic therapy has low compliance rates due to medication side effects and polypharmacy, particularly in older patients. Given increasing evidence that high anticholinergic load is linked to the development of cognitive impairment and even dementia, alternative therapies should be considered. OnabotulinumtoxinA (BTX) is a third-line therapy that has demonstrated efficacy, however patients are less likely to undergo repeat injection after an adverse event, such as post-procedural bladder infection or urinary retention requiring clean-intermittent catheterization (CIC). The efficacy of low-dosage (50 units) of BTX has been previously demonstrated, and here we sought to determine if 50u BTX for the treatment of patients with idiopathic OAB may be an efficacious therapeutic option for patients 65 years of age and older with a lower risk of urinary retention.

Objective: To determine if 50u BTX for the treatment of patients with idiopathic OAB may be an efficacious therapeutic option for patients 65 years of age and older with satisfactory efficacy and decreased risk of bladder infection or urinary retention requiring CIC.

Methods: We conducted a retrospective analysis of idiopathic OAB patients 65 years of age and older who received 50u intravesical BTX between June 2017 and October 2021 by a single provider. All patients had subobpimal response to first-line therapy failed second line therapy due to lack of efficacy, intolerable side effects, or contraindications. All patients had confirmed negative urinalysis prior to BTX and were treated with a single dose of prophylactic antibiotics within 30 minutes of the procedure. For this study, urinary retention requiring CIC was defined as the subjective sense of incomplete bladder emptying with an elevated post-void residual (PVR) confirmed by bladder scan or catheterization. All patients were asked about their subjective duration of effect at subsequent follow up visits or at the time of repeat chemodenervation scheduling.
Results: A total of 32 patients with median age of 75 (IQR 71-81) received 50u intravesical BTX. No patients required post-procedural CIC. Median PVR was 50ml (IQR 30-115). A total of 1/32 patients (3.13%) were treated with a course of antibiotics for post-procedural urinary tract infection within two weeks of the procedure. Patients reported a subjective median duration of effect of 6 months (IQR 4-9). One patient reported 0 months of symptom improvement. Follow up data was available for 18/32 patients, with all 18/32 (56.25%) receiving a second dosage of BTX, and 7/18 (38.89%) received 50u BTX at the time of their second treatment.
Conclusions: Our cohort demonstrates that 50u BTX at first intravesical injection for idiopathic OAB in older patients can provide a reasonable duration of effect with minimal risk of urinary retention requiring CIC. We observed a lower median duration of effect than prior literature for 100u BTX, but similar rates of repeat injection as previously reported for 100u BTX. Future studies with larger recruitment and longer follow up would strengthen this study. However, our findings suggest that 50u BTX may be a potentially efficacious treatment option for patients 65 years of age and older with a low rate of post-procedural UTI and no patients with urinary retention.
Disclosure: No

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Implementation of Episcissors-60TM for Prevention of Obstetrical Anal Sphincter Injuries (OASIS) in a Centre with Low Episiotomy Rates

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2 - College of Medicine, University of Saskatchewan
3 - Saskatchewan Health Authority Research Department
4 - Department of Obstetrics and Gynaecology, University of Saskatchewan

Introduction: Obstetrical Anal Sphincter Injuries (OASIS) are perineal lacerations which involve disruption of the anal sphincter complex and can extend into the anal mucosa. In Canada, the incidence of OASIS has been increasing. Mediolateral episiotomy is protective against OASIS. Episcissors-60 TM is the first pair of scissors designed to cut at a fixed incision angle of 60 degrees, starting 4.5mm laterally from the midline, to reduce human error in estimating episiotomy angle during delivery.
Objective: The purpose of this study was to determine whether introduction of Episcissors-60 TM into Labour and Birth unit would decrease the incidence of OASIS.
Methods: A before and after quality improvement study was conducted between April 1, 2020 and March 31, 2021. This study was approved by the Research Ethics Board. Data from patients who had a vaginal delivery was included in this study. Data was collected from both electronic database and medical charts. All healthcare providers who perform vaginal deliveries on Labour and Birth unit were offered an educational session on the use of Episcissors-60TM. Episcissors-60TM were then made available in every room on Labour and Birth unit to perform mediolateral episiotomies. The primary outcome measure was the change in incidence of OASIS before and after introduction of Episcissors-60TM. Secondary outcome measures were episiotomy rates before and after introduction of Episcissors-60TM, device-related adverse events, and provider satisfaction and feedback. Data was analyzed using Chi-square tests, independent t-tests, and Mann-Whitney tests where applicable.
Results: A total of 1,383 vaginal deliveries occurred prior and 1,254 vaginal deliveries after introduction of Episcissors-60TM. There was no statistically significant difference between groups for all baseline characteristics and risk factors for OASIS ($p>.05$). There was a statistically significant decrease in the total OASIS rate from 7.37% of all vaginal deliveries prior to 5.37% after introduction of Episcissors-60TM ($p=.037$). The episiotomy rate was 11.42% prior to and 9.97% after introduction of Episcissors-60TM ($p=.228$). Episcissors-60TM use was documented in 51.20% of episiotomies. Episcissors-60TM were almost exclusively used by obstetricians and had poor uptake in family physician and midwife provider groups. The OASIS rate in women who had an episiotomy was 12.02% before and 13.60% after introduction of Episcissors-60TM ($p=.421$). Provider feedback was obtained from 18 providers and 55.6% of providers were very satisfied or satisfied with use of Episcissors-60TM. Three providers reported an adverse event.
Conclusions: Although introduction of Episcissors-60TM into Labour and Birth unit resulted in a statistically significant decrease in total OASIS rate, there was no statistically significant difference in OASIS rates within the subgroup that received an episiotomy. Therefore, reduction in the total OASIS rate in this study cannot be attributed to the use of Episcissors-60TM.
Disclosure: No

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Correlation of Anorectal Symptoms and Endoanal Ultrasound Findings after Obstetrical Anal Sphincter Injuries (OASIS)

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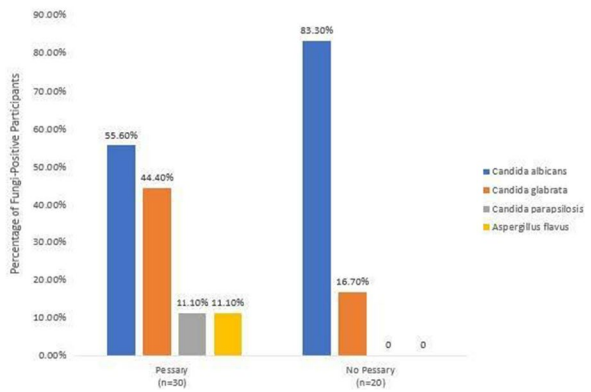
Introduction: Obstetrical Anal Sphincter Injuries (OASIS) are severe perineal lacerations that predispose to development of anorectal symptoms with significant maternal morbidity that compromise women's quality of life. Endoanal ultrasound (EAUS) is the gold standard for morphological assessment of the anal sphincter complex. It is used to assess the anal sphincter integrity and detect any persistent anal sphincter defects post repair.
Objective: The purpose of this study was to determine correlation between EAUS findings and anorectal symptoms in women after primary OASIS repair; to determine incidence of residual anal sphincter defects on EAUS after primary OASIS repair; and to determine the rate of clinical overdiagnosis of OASIS.
Methods: A retrospective cohort study was conducted for all women with singleton vaginal deliveries who had a primary repair of OASIS and attended the Postpartum Perineal Clinic at a large tertiary care centre between July 1st 2017 and December 31st 2020. Exclusion criteria consisted of women who had EAUS outside the institution, did not undergo EAUS, rectovaginal fistula, or had incomplete data. This study was approved by the Research Ethics Board. Records were reviewed for baseline characteristics, risk factors for OASIS, severity of anorectal symptoms based on St. Mark's Incontinence Score (SMIS), and findings on EAUS. Data was analyzed using descriptive statistics. Pearson correlation coefficient was used to assess correlation between anorectal symptoms and EAUS findings.

Results: A total of 330 participants with clinical diagnosis of OASIS met the inclusion criteria. From these participants, 156 (47.3%) had sonographic evidence of OASIS on EAUS. The rate of overdiagnosis was 52.7%. A 3rd degree tear was identified in 126 (38.2%) participants. Of these, 60 (18.2%) participants had 3a perineal tear, while 39 (11.8%) participants had 3b perineal tear, and 27 (8.2%) participants had 3c perineal tear. Fourth degree tear was identified in 30 (9.1%) participants. In participants with sonographic evidence of OASIS on EAUS, there was a statistically significant weak positive correlation (r= .3723) between the size of the residual defect of external anal sphincter (EAS) and SMIS (p<.0001). There was also a statistically significant weak positive correlation (r=.3122) between the size of residual defect of the internal anal sphincter (IAS) and SMIS (p=.0180). Residual defect in the anorectal sphincter complex >1 hour was present in 82 (65.1%) participants with 3rd degree tear and 26 (86.7%) participants with 4th degree tear.
Conclusions: This study demonstrates that the size of residual defect of EAS and IAS have a weak positive correlation with anorectal symptoms, emphasising the importance of EAUS for counselling about subsequent mode of delivery. The results of this study emphasize the importance of accurate diagnosis and adequate primary OASIS repair.
Disclosure: No
Images:

Figure 1. Fungal species detected on fungi-positive participants



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Prolapse Composite Recurrence in Vaginal and Abdominal Surgery for Apical Prolapse. Comparison between Groups of over Two Hundred Patients at a Unique Center

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Introduction: Pelvic organ prolapse (POP) is a highly prevalent condition, affecting approximately 30 to 50% of women. The lifetime risk for POP surgery has been documented as high as 10-20%. Surgical treatment includes pelvic reconstructive procedures with a vaginal approach including sacrospinous ligament fixation (SSLF) and hysteropexy with uterosacral ligament suspension (HUS), and abdominal approaches like laparoscopic sacrocolpopexy (SCP). Recurrence of POP after reconstructive surgery is difficult to estimate because of a lack of an agreed definition, but it's common in up to one-third of all procedures performed and known to have a high reoperation rate.
Objective: To compare various reconstructive surgeries for apical prolapse, and report composite recurrence rates between vaginal and abdominal approaches.
Methods: Material and method: A retrospective observational study from a prospectively collected database was performed. All patients with vaginal approach apical repair (SSLF or HUS) and laparoscopic abdominal approach (SCP) were included. Demographics, clinical characteristics and follow-up time with a composite outcome of anatomic or symptomatic recurrence and reoperation rate, were analyzed.
Results: 421 patients met the inclusion criteria. Median age was 66 years (IQ: 59-73). All patients had a symptomatic vaginal bulge. On physical examination, 16.8% had grade II prolapse, 74.0% grade III and 9.2% grade IV. 54.1% of the patients had a vaginal approach repair surgery. Of these, 58.1% were SSLF and 41.9% HUS. 45.9% of the patients had an abdominal approach repair surgery (SCP). Median follow up was 14 months (IQ: 3-32). Anatomic recurrence rates by compartment were: 2.6% apical, 7.6% anterior and 14.5% posterior. Symptomatic recurrence rate was 3.4% and reoperation rate was 3.3%. Composite recurrence rate was 13.6% without difference between groups. In Cox regression analysis no variable persisted as a statistically significant risk factor for recurrence.Results: 421 patients met the inclusion criteria. Median age was 66 years (IQ: 59-73). All patients had a symptomatic vaginal bulge. On physical examination, 16.8% had grade II prolapse, 74.0% grade III and 9.2% grade IV. 54.1% of the patients had a vaginal approach repair surgery. Of these, 58.1% were SSLF (45% Anchorsure, 33.6% Splentis, 15.3% Deschamps, 4.6% free needle driver) and 41.9% HUS. 45.9% of the patients had an abdominal approach repair surgery (SCP). Median follow up was 14 months (IQ: 3-32). Anatomic recurrence rates by compartment were: 2.6% apical, 7.6% anterior and 14.5% posterior. Symptomatic recurrence rate was 3.4% and reoperation rate was 3.3%. Composite recurrence rate was 13.6% without difference between groups. In Cox regression analysis no variable persisted as a statistically significant risk factor for recurrence.
Conclusions: Our study showed no difference in composite recurrence between vaginal and abdominal approaches in apical repair surgeries. It is important to acknowledge that POP recurrence implies a series of factors, because of that, there are different surgical techniques and all are good options for each individualized patient to maintain a slow rate of recurrence.
Disclosure: No

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Is the Type of Fixation to the Sacral Promontory Important for Recurrence of Prolapse? Analysis with Two Hundred Patient Underwent Laparoscopic Sacrocolpopexy

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Introduction: Pelvic organ prolapse affects around 50% of women. The majority will need surgical treatment during their lifetime. Laparoscopic sacrocolpopexy (SCP) is associated with better anatomical and subjective outcomes and lower recurrence rates. However, there

are different ways to carry out this procedure. Until now, the impact of these technique modifications on surgical success is unknown.
Objective: To analyze different types of fixation to the sacral promontory in laparoscopic sacrocolpopexy for apical prolapse.
Methods: Material and method: A retrospective observational study from a prospectively collected database was performed. All patients with laparoscopic abdominal approach (SCP) with description of details of the fixation to the sacral promontory were included. Demographics, clinical and surgical characteristics and follow-up time with a composite outcome of anatomic or symptomatic recurrence and reoperation rate, were analyzed.
Results: 129 patients met the inclusion criteria. We excluded six patients because they did not have follow up. Median age at time of surgery was 60 years (IQ: 55-64). All patients had a symptomatic vaginal bulge. On physical examination, 20.3% had grade II prolapse, 67.2% grade III and 12.5% grade IV. 71.4% of the patients had a free needle driver fixation to sacral promontory, of this group 71% used Ethibond® and 28.2% Prolene®. 23.6% had a fixation to sacral promontory with anchorage, 87% used Protac® and 8.5% Uplift®. Median time of surgery was 200 min (IQ:180-215) in the anchorage group and 210 min (IQ: 180-215) in the free needle driver group. Overall median follow up was 14 months (IQ: 3-38). Anatomic recurrence rates with anchorage and free needle driver by compartment was: 5.7% and 6.4% apical, anterior 4.3% and 5.0%, 4.3% and 2.1% posterior respectively. Symptomatic recurrence rates were 8.9% in the anchorage group and 13.5% in the free needle group. Composite recurrence rates were: 15.5% in the free needle drive group and 8.5% in the anchorage group without a statistically significant difference between groups.
Conclusions: Our study showed no difference in composite recurrence rates between different types of fixation to sacral promontory. It is highly likely that our study has a low statistical power to find differences. Further analysis is needed with a higher sample size to test the hypothesis that anchoring a system of the mesh to the promontorium could be a protective factor for composite outcome in laparoscopic sacrocolpopexy.
Disclosure: No

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WITHDRAWN - Pregnancy-Induced Morphological Alterations Influence the Biomechanics of Vaginal Childbirth
WITHDRAWN

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Effect of a Pessary Simulation on Provider Confidence
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Introduction: Pessaries are medical devices that reduce prolapse. Typically, the skills of evaluating, fitting, and maintaining pessaries have been learned "on the job" or not at all. Furthermore, providers are often consulted on patients who already have pessaries in place and need to be familiar with different types as well as common complications. While professional societies have released webinars that are only available to members, there are no educational simulations available. To address this gap in training, we have developed a curriculum module that combines didactic material with a high fidelity simulation.
Objective: This pilot study examined the effect of a pessary simulation on provider confidence and knowledge. The primary outcomes were changes in provider confidence immediately post-simulation and at a follow up visit within 6 months. The secondary outcomes were changes in provider knowledge immediately post simulation as well as evaluation of the simulation. We hypothesized that a hands on simulation would increase provider confidence and comfort in pessary management as well as increase provider knowledge.
Methods: Participants were assigned a unique identifier. They completed pre- and post-simulation knowledge and confidence surveys as well as a simulation survey. They were given an interval confidence survey to complete prior to assessing a patient for a pessary within 6 months. The confidence surveys were analyzed with a Wilcoxon's t-test. The knowledge tests were graded and analyzed with a paired t-test. The simulation survey data was summarized with descriptive statistics.
Results: 12 providers participated in the pre-and post-simulation surveys. 1 provider completed the interval confidence survey. Resident confidence scores increased after the simulation. There were significant increases regarding pessary placement (n=12, p=0.002) and regarding on-going pessary management (n=12 p=0.004). Overall knowledge scores increased pre-simulation (n=11 6.2 +/- 1.4) to post simulation (n=11 7.4 +/- 1.1 p=0.009). The pessary simulation evaluation had 41.7% of respondents state that no improvements were necessary and 50% state that it should be improved slightly.
Conclusions: The pessary simulation improved provider confidence and knowledge a significant amount. Learners gave the simulation an overall positive rating.
Disclosure: No

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Sexual Function in Long-term Users of Pessary for Management of Pelvic Organ Disorders
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Introduction: A significant number of patients elect conservative management with pessaries for the treatment of pelvic floor disorders, including pelvic organ prolapse (POP) and stress urinary incontinence (SUI). There are many quality-of-life considerations involved in making a decision about management options, particularly with regards to sexual health and function.
Objective: The primary aim of this study was to evaluate sexual satisfaction with regard to sexual functioning in patients who are current and long-term users of vaginal pessaries for the management of pelvic floor disorders.
Methods: This is an interim analysis of a retrospective and cross-sectional study of patients with POP and/or SUI who are current users of a pessary device. Participants were enrolled at their routine office pessary check visits and completed a 14-item survey capturing demographic information and pessary experience, the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire IUGA-Revised (PISQ-IR), and the Pelvic Floor Disability Index- 20 (PFDI-20). The PISQ-IR is a validated instrument for sexual function assessment in both sexually active and non-sexually active patients. Additional health information and demographics were collected through medical records. Cohorts were defined based on length of pessary use > or < than 12 months and prolapse stage </= stage 2 or >/= stage 3. The primary outcome was measured using a single question item from the PISQ-IR questionnaire: "For the following, please circle the number between 1 and 5 that best represents how you feel about your sex life". Descriptive analysis was reported as means (standard deviation), medians (interquartile range), or percentages where appropriate. Mann-Whitney test and Pearson or Spearman correlations were used for determining factors associated with the primary outcome.
Results: Of the 50 participants, the majority were white (53.1%), had a mean age of 73.62 years old (+/- 10.55), and a mean of BMI 25.72 kg/m2 (4.65). The median length of pessary use was 40 months (19.34-85.13). Most participants were "very satisfied" or "somewhat satisfied" with the use of a pessary for the management of PFD (90%). Abnormal vaginal discharge was the most common complication (19%). Forty percent reported that using the pessary did not impact their sexual function, and 8% stated that the pessary worsened their sexual function.

Of the 48 patients who responded to the PISQ-IR screening question for sexual activity, 66.7 % were not sexually active and 33.3% were sexually active. Of those who responded to the primary outcome measure, 40.5 % (15/37) were satisfied with their sex life, 27% (10/37) were dissatisfied and 32.4 % (12/37) were neutral. There was no difference in satisfaction or PISQ-IR subscale scores for both sexually active and non-sexually active patients based on length of pessary use or prolapse stage. There were no significant correlations between PDFI score, age, pessary type, history of chronic pain, and sexual satisfaction.
Conclusions: Most pessary users expressed being satisfied or neutral with regard to their sexual function. Length of time with a pessary, prolapse stage, age, pessary type, and PFDI did not correlate with better or worse satisfaction.
Disclosure: No

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The Correlation Between the Thickness Change Rate in Kegel and Injury Score of Levator Ani Muscle
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Introduction: Various symptoms of pelvic organ prolapse (POP) are caused by levator ani muscle (LAM). Women with POP can have abnormal appearing LAM with a loss of muscle thickness and contractility. The levator ani deficiency (LAD) scoring system that was developed to grade LAM injury was used to express the specific extent and severity of LAD.
Objective: The primary aim of this study was to investigate the association between LAM thickness change rate in Kegel and injury score of LAD.
Methods: 140 women with and without normal pelvic support were recruited. The mean age was (60.2±13.7) years. Dynamic pelvic MRI were obtained with all patients in the supine position at rest and Kegel. We measured the thickness of LAM on rest and Kegel axial images. The change in LAM thickness (Kegel-rest) and thickness change ratio [(Kegel-rest)/rest × 100] were calculated. LAD were graded by a score ranging from 0 to 6 and categorized as follows: 0 classified as having no defect, 1 to 3 classified as having minor defects, and 4 to 6 classified as having major defects. The injury score of LAM was assessed by two physicians. Correlation of LAM thickness change rate in Kegel and injury score of LAD was assessed.
Results: The change in LAM thickness and thickness change ratio increased with decreasing mean injury score of LAD. We found a significant negative correlation between change of LAM thickness from rest to Kegel and the injury score of LAD both in terms of absolute change ($r = -0.205$, $P = 0.008$) and in terms of proportional change (Pearson's $r = -0.256$, $P = 0.013$).
Conclusions: Women with higher increase of the thickness change rate of LAM from rest to Kegel have a smaller score of LAD. The thickness change rate can be integrated into MRI evaluation of LAM function.
Disclosure: No

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The Association of Pain and Adenomyosis in Patients Undergoing Hysterectomy for Pelvic Organ Prolapse
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Introduction: Adenomyosis is a common gynecologic disease affecting women, though the symptoms and clinical significance remains poorly understood, as adenomyosis is typically diagnosed at the time of hysterectomy on pathology, and has a high co-incidence with fibroids, endometriosis, and uterine bleeding.
Objective: To study the association between preoperative pain and adenomyosis in patients undergoing hysterectomy for pelvic organ prolapse (POP).
Methods: This is a retrospective cohort study of premenopausal patients who underwent hysterectomy for POP between July 1, 2007 and July 1, 2019 at a large safety net, academic hospital. Post-menopausal women and women with adnexal masses were excluded. Cases were identified from adenomyosis on histology; controls were normal uterine histology. Medical records were reviewed for demographic information, medical history, pain history, Wong-Baker pain scale and final pathology. Pain prevalence and pain scores between cases and controls were compared with Chi-square test or Wilcoxon rank sum test, as appropriate. Assuming a pain prevalence of 49%, 92 cases and 46 controls were required to detect a 50% reduction in pain. This study was IRB approved.
Results: 250 premenopausal patients during the study period: 117 cases (with adenomyosis) and 46 controls (no adenomyosis) were reviewed. The frequency of adenomyosis in this population was 49.6%. Mean (SD) age of patients was 46.2 (5.0) years and mean BMI was 29.8 (5.6) kg/m2). Pain was reported in 44 cases (37.6%) and 9 (19.6%) controls (p=0.03). Concomitant fibroids were found among 55.6% of the patients with adenomyosis. After excluding the patients with fibroids, pain was still more common in cases vs controls (38.3% vs 19.6%, p=0.047). Among patients who reported pain, the median and worst pain scores were similar between cases and controls.
Conclusions: In patients who had a hysterectomy for POP, adenomyosis is common. We were able to show that pain is associated with adenomyosis, compared to normal uterine histology. Pain associated with adenomyosis in this population may contribute to the symptoms of pain sometimes associated with pelvic organ prolapse.
Disclosure: No
Images:

Table 1. Characteristics of the participants. Data are presented in absolute and relative frequency [n(%)]

Characteristics	Total (n=621)	No sexual dysfunction (n=424)	With sexual dysfunction (n=197)	*P*
Age, years [mean (SD)]	29.8 (8.9)	29.5 (8.6)	30.5 (9.3)	0.17
Educational Level				0.39
Middle School	6 (1.0)	3 (0.7)	3 (1.5)	
High School	107 (17.2)	68 (16.0)	39 (19.8)	
Undergraduate degree	305 (49.1)	216 (50.9)	89 (45.2)	
Graduate degree	203 (32.7)	137 (32.3)	66 (33.5)	
Marital Status				0.05
No marital life	347 (55.9)	248 (58.5)	99 (50.3)	
With marital life	274 (44.1)	176 (41.5)	98 (49.7)	
Performs physical activity	362 (58.3)	**263 (62.0)**	99 (50.3)	**0.01**
Pregnancies				0.16
None	374 (60.2)	267 (63.0)	107 (54.3)	
1	111 (17.9)	67 (15.8)	44 (22.3)	
2	94 (15.1)	62 (14.6)	32 (16.2)	
3 or more	42 (6.8)	28 (6.6)	14 (7.1)	

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Is the Mycobiome of the Bladder and Vagina Affected by Pessary Use?

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Introduction: There is a growing body of research investigating the urinary microbiome, its influence on urogenital health, and the consequences of its dysbiosis. Most of this research has focused on bacteria while the fungal component, known as the mycobiome, has yet to be explored in detail. This may be explained by the difficulty of culturing fungi (i.e., need for specialized growth media and extended incubation times). There is still much to be understood about the mycobiome and its role in clinical symptoms.
Objective: To compare the fungal composition of bladder and vagina in women with and without pessaries.
Methods: We conducted a cross-sectional study of women with and without pessary use and assessed the mycobiome of both groups. Enrollment was planned for 30 participants in each group. Vaginal swabs and catheterized urine samples were collected from each participant. Both specimen types were processed with the Expanded Quantitative Urine Culture (EQUC) procedure with the addition of plates that are specialized for fungal cultivation (Inhibitory Mold Agar, G-BHI, and ChromCandida). Descriptive statistics of continuous variables were analyzed with means and standard deviation, whereas categorical variables were analyzed with frequency and proportions. T-test and chi-square were conducted for independent continuous and categorical variables, respectively, with a significance set at $p < 0.05$.
Results: Except for estrogen use, demographics were similar between the two groups (Table 1). Enrollment is ongoing with 30 participants enrolled in the pessary group and 20 in the control group. In the pessary group, EQUC detected fungi in nine out of thirty participants (30%). Of these, five (55.6%) had growth only in the vaginal swab, three (33.3%) had fungi in both the catheterized urine and vaginal swab, and one (11.1%) had fungi only in the catheterized urine. Candida albicans was detected in 55.6% of all fungi-positive participants in this group. Other species detected were Candida glabrata (44.4%), Candida parapsilosis (11.1%) and Aspergillus flavus (11.1%). In the control group (n = 20), EQUC detected fungi in six participants (30%). Of the six participants with detectable fungus, five (83.3%) had fungi only in the vaginal swab and one participant (16.7%) had fungi in both the catheterized urine and vaginal swab. There were no patients in this group who had fungus solely in the catheterized urine. The fungal species detected were C. albicans (83.3% of group participants) and Aspergillus species (16.7%).
Conclusions: Preliminary analysis suggests that participants with and without pessaries may have a similar likelihood of fungi detection in their urogenital tract. There were some differences in the fungal species detected between groups on fungi-positive participants. Performing internal transcribed spacer (ITS) sequencing and co-culture analysis could help to better determine which bacterial and fungal microbes are most frequently detected together.
Disclosure
Any of the authors act as a consultant, employee or shareholder of an industry for: Cooper Surgical
Images:

Table 1. Participants' socio-demographic and clinical characteristics.

n= 73	Mean (SD)	
Age (years)	24.1 (3.0)	
Self-reported cycle length (days)	28.2 (3.4)	
	Number of participants	**Percentage (%)**
Education		
High School	36	19.3
College	34	16.5
Education level not reported	3	4.1
Menstrual flow		
Light	12	16.4
Moderate	43	58.9
Intense	17	23.2
Menstrual flow not reported	1	1.3
Duration of menstrual flow		
Up to 3 days	7	9.5
3 to 5 days	48	65.7
More than five days	18	24.6
Duration of menstrual cramps		
Less than 24 hours	26	35.6
24 hours to 48 hours	33	45.2
48 hours to 72 hours	14	19.1
Use of over-the-counter medication for dysmenorrhea		
Yes	61	83.5
No	12	16.4

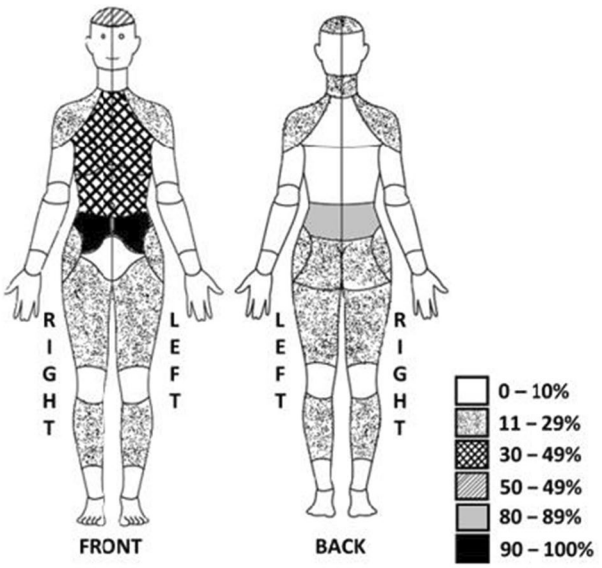

Figure 1. Percentage of dysmenorrhea-related pain reports per body location among participants with primary dysmenorrhea.

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Risky Business – Defining Factors that Contribute to Urinary Tract Injuries in Gynaecology

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Introduction: Gynaecology surgery is a major risk factor for urinary tract injury, accounting for more than 50% of all surgical urinary tract injuries. Rates of urinary tract injury are quoted at 0.33% in benign gynaecological surgery with increased rates found during hysterectomy up to 1.8%. A 12 month review at our hospital of major surgery found that urinary tract injuries occurred in 1.87% of cases, higher than other published data. Numerous studies retrospectively examine risk factors in patients who sustained injuries, however authors were unable to identify any studies that examined the risks across all gynaecology surgical patients, hence reinforcing the high-risk nature of gynaecological surgery. Risk factors for urinary tract injuries identified in the literature include coexisting pelvic adhesion, distortion of normal anatomy, irradiation therapy, previous pelvic surgery, and the type and extent of surgery performed.
Objective: The primary outcome of this study is to identify the prevalence of known risk factors for urinary tract injuries at major gynaecological surgery.
Methods: A retrospective cohort review was conducted a single tertiary centre from July 2019 – July 2020. Data was collected from operation notes and electronic medical records. Participants were included in the study if they underwent a major gynaecological surgery (elective or emergency) in this period. Risk factors of interest are BMI, past surgical history (caesarean section, laparoscopy, hysterectomy, urinary tract surgery, pelvic floor surgery), surgical risk factors (mass causing ureteric compression, endometriosis, PID), congenital risk factors and procedure performed. A descriptive analysis was conducted using RedCap Project Manager.
Results: A total of 695 cases were identified for inclusion. One or more risk factors were found in 397 patients (57.12%). Our patients recorded a mean BMI of 27. Previous surgery rates were 49.1%; previous caesarean section 20.9%, previous laparotomy (non-caesarean section) 0.8%, previous laparoscopy 47.33%, previous hysterectomy 5.4%, previous pelvic floor surgery 3.3%. There was a small number with specific urological risks including 1 previous bladder injury, 4 previous bladder or ureteric surgeries and 2 known congenital renal anomalies. Surgical complexities found included pelvic mass causing potential compression 4.3%, known endometriosis in 12.3%, PID 1.3%.
Conclusions: Gynaecology patients are inherently high-risk patients for complications at surgery considering the rates of pelvic masses, concomitant pelvic disease such as endometriosis and high rates of pelvic adhesions, contributed by the increasing caesarean section rate. It is vital to consider this when considering major gynaecological surgery and counsel patients appropriately.
Disclosure: No

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Genitourinary Tract Injury Gynaecological Surgery

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Introduction: Urinary tract injuries at gynaecological surgery are an event gynaecologists are constantly trying to avoid. Bladder injuries are more common than ureteric injuries and have a more favourable outcome. Intraoperative diagnosis significantly improves long term morbidity, hence common use of cystoscopy at hysterectomy. More complex interventions may include pre or intraoperative urology involvement and ureteric catheterisation by either gynaecology or urology.
Objective: To review the current rates of urinary tract injuries during gynaecological surgery in a tertiary centre including the prevention (e.g. pre-operative multi-disciplinary team [MDT], ureteric catheterisation) diagnosis (e.g. methylene blue tests, cystoscopy) and management of injuries.
Methods: This was a retrospective audit of surgical data over 12 months (July 2019- July 2020), with a total of 695 cases. Information collected from operation notes and electronic medical records included type of injury, timing of diagnosis, and method of diagnosis, specialty who repaired injury and follow up of injury. Data on pre-operative MDT review with urology and preop investigations were collected as well as frequency of intraoperative preventative measures such as ureteric catheters and routine cystoscopy.
Results: Seven cases of 695 had a urological MDT prior to surgery. In our cohort there were 13 (1.87%) confirmed urinary tract injuries. All case (100%) were diagnosed intra-operatively by direct visualisation and subsequently confirmed with cystoscopy. Methylene blue was not used in any case. There were 12 bladder injuries and one ureteric injury. Of these cases with injury, two (15%) had MDT prior with intraoperative urological attendance and ureteric catheterisation. Repair was completed by gynaecology in 9 cases (69.2%) and all cases were followed up by gynaecology except for one patient who did not attend follow up. All patients had a formal TOV and 9 had a cystogram prior to this. 11 cases have made a complete recovery while 2 are having ongoing follow up for mild symptoms (urinary frequency and pain).
Conclusions: It is important to be aware of the preventative measures available for urinary tract injuries (ie: MDT, ureteric catheters), particularly in those with major risk factors. Of note, all cases with injury were suspected intra-operatively and confirmed with cystoscopy, with no cases of delayed diagnosis. A majority of injuries were managed by a gynaecologist with a high rate of complete recovery.
Disclosure: No

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Investigation of the Effectiveness of a Pelvic Floor Muscle Training Mobile Application in Women with Stress Urinary Incontinence: Randomized Controlled Trial

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2 - Baskent University
3 - Ankara University

Introduction: It has been reported that pelvic floor muscle training (PFMT) treatment is the most effective treatment with evidence A level in SUI. However, problems in adherence to exercise are the biggest obstacle to the success of PFMT today. Exercise diaries or reminders are used to increase this compliance, but their usability in daily life is controversial.
Objective: The aim of this study is to develop a PFMT mobile application for individuals with urinary incontinence and to examine its effectiveness on incontinence symptoms and quality of life in women with SUI.
Methods: 26 volunteer women who were diagnosed with SUI were randomly divided into two groups as mobile application and control group. This mobile health application software was developed by the research physiotherapist monitors the patient's body mass index and records the amount of fluid that should be taken during the day. The exercise program determined by the physiotherapist is saved in the application, and it sends an audible notification to the patients to remember the exercises during the day. It records the number of exercises performed by the patient. In addition, this application also includes a notification system that sends lifestyle changes recommendations to patients to reduce urinary incontinence episodes during the day. A 6-week pelvic floor rehabilitation was applied to the patients in the application group with this software. The patients in the control group applied the

same rehabilitation program for 6 weeks with a booklet given to them. "Incontinence Impact Questionnaire" and "Urogenital Distress Inventory" to evaluate the severity of incontinence symptoms, "Incontinence Severity Scale" to evaluate urinary incontinence complaint, "3-day bladder diary" to evaluate lower urinary tract symptoms, "Incontinence Quality of Life" for urinary quality of life, "Nottingham Health Profile" to evaluate quality of life, and "Patient Global Recovery Scale" to asses general recovery were applied to all participants at the baseline and at the end of the 6th week. The "System Usability Scale" questionnaire was applied only to the mobile application group to measure the usability of developed mobile application.
Results: It was concluded that pelvic floor rehabilitation performed with both mobile application and classical method had a significant effect on incontinence severity, urogenital distress, incontinence effect, incontinence quality of life and global patient recovery scores ($p<0.05$) . When both groups were compared at the end of the treatment, PFMT with mobile application significantly decreased urinary symptoms and increased the quality of life compared to the control group ($p<0.05$).
Conclusions: PFMT was performed with the mobile application improved incontinence symptoms and quality of life more than the classical PFMT. The mobile application provides the opportunity to reach more patients, can reduce the costs of treatment, increase the compliance of patients with exercise programs, treat diseases by gaining regular exercise habits and increase the quality of life. This mobile health application that we have developed can be safely recommended as a first-line treatment to SUI patients.
Disclosure: No

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Association Between the Practice of Physical Activity and the Presence of Sexual Dysfunction in Brazilian Women
Beleza, ACS[1]; Fabricio, AMF[1]; Da Silva, SG[1]; Poli, GG[1]; Silva, CMdA[2]; Padovez, RdFCM[1]; Driusso, P[1]; Sato, TdO[1]
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Introduction: According to the World Health Organization (WHO), sexual health is defined as a state of physical, emotional, mental and social well-being in relation to sexuality [1]. Therefore, any change in these factors can negatively affect sexual function [2]. It is known that an active lifestyle has a positive effect on several aspects. Sedentarism is associated with risk factors for non-communicable chronic diseases that have a high impact on the individual and the health system [3]. Studies with middle-aged women have shown that the higher prevalence of sexual dysfunction in this population is not only related to hormonal changes, but also to a sedentary lifestyle [4]. The regular practice of physical activity promote emotional well-being, satisfaction with body image, reduce sexual discomfort, control the body weight and increase the vascularization of the clitoris [3]. Thus, the practice of physical activity may be associated with sexual function in women.
Objective: To verify the association between the practice of physical activity and the sexual function in Brazilian women.
Methods: A cross-sectional study was carried out with Brazilian women aged ≥ 18 years. Data collection involved filling out an online questionnaire with personal, sociodemographic, general health and lifestyle questions, in addition to applying the Female Sexual Function Index (FSFI) to evaluate sexual function. Data were analyzed descriptively and the participants were divided into two groups, with and without sexual dysfunction. The criterion used to identify the presence of sexual dysfunction was to achieve a score of less than 26.55 points on the FSFI [5]. The two groups were compared using the t test for independent samples (continuous variables) and the chi-square test (categorical variables). The association between sexual function and the physical activity was verified through the analysis of binomial logistic regression, considering sexual dysfunction (present or absent) as the dependent variable and the practice of physical activity as the independent variable. Data were analyzed using the SPSS program (version 22.0), and the significance level adopted was 5%.
Results: 621 women participated in the study and the prevalence of sexual dysfunction was 31.7% (95% CI = 28.2% – 35.5%); a lower proportion of women with sexual dysfunction reported physical activity practice (Table 1). The practice of physical activity was inversely associated with the presence of sexual dysfunction (OR=0.62 95% CI 0.43-0.87, p=0.01).
Conclusions: The practice of physical activity was associated with a lower chance of female sexual dysfunction in Brazilian women. More studies should be performed to elucidate the physiological and biomechanical factors involved in this finding. A limitation of this study is the absence of instruments to assess the intensity of physical activity.
Disclosure: Yes, this is sponsored by industry/sponsor: São Paulo Research Foundation (FAPESP).
Clarification: Industry funding only - investigator initiated and executed study
Images:

Table 1: Quantification of fiber area, myofibroblasts, and TGF-β1

	Fiber Area (mm^2)	Myofibroblasts per Number of Fibers (count)	TGF-β1 active to pro (units/units)
Tension	3.6 ± 2.8	237.4 ± 223.9	1.02 (0.53 – 1.58)
No Tension	7.3 ± 2.7	48.2 ± 28.6	0.44 (0.36 – 0.48)
P-value	0.012[a]	0.006[b]	0.001[b]

[a]P-value obtained via Independent samples t-test.
[b]P-value obtained via Mann-Whitney t est.

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Identifying Body Areas of Dysmenorrhea-related Pain in Women with Primary Dysmenorrhea
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Introduction: Primary dysmenorrhea (PD) is a common gynecological disorder characterized by pain in the abdominal region in the absence of pelvic disease. Evidence suggests that PD-related pain may occur not only in the pelvic area. Body mapping is a clinical tool that can be used to accurately reference which body part(s) is(are) experiencing pain. This tool can be easily used in clinical settings to identify the subjective location, intensity, and distribution of painful areas on the body.
Objective: This study aimed to identify body sites of pain among women with PD using the body map tool.
Methods: This cross-sectional study consists of a web-based survey for adult women self-reporting menstrual pain in the previous three menstrual cycles. Each participant was instructed to mark the areas with dysmenorrhea-related pain in the body map along with its intensity level. The pain intensity was assessed by the 11-point Numerical Rating Scale (NRS). This scale ranges from zero to ten, with zero representing no pain and ten the most extreme pain. Data analysis was performed using the statistical software SPSS 21.0. Categorical variables were expressed as frequencies and percentages, and continuous variables were expressed as mean and standard deviation.
Results: Seventy-three women (24.1 ± 3.0 years old) participated in the study. Table 1 shows the socio-demographic and clinical characteristics of the participants. Figure 1 shows the percentage of dysmenorrhea-related pain reports per body location among participants with primary dysmenorrhea. The mean pain intensity across participants reported by NRS was 6.7 ± 1.8 points. A high proportion of participants reported painful muscle cramps in the lower abdomen (90.4%) and pain in several body areas, such as the low back (82.1%) and head (54.6%).

Conclusions: As our findings show, women with primary dysmenorrhea present additional PD-related pain outside the uterine referral area during their period. We strongly recommend using the body map to identify such pain sites.
Disclosure: No
Images:

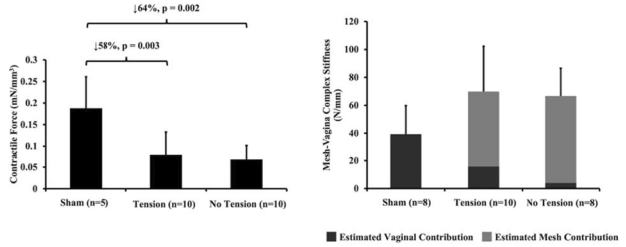

Figure 1: The contractile force, or force per volume (mN/mm²) of the vagina following stimulation with 120 mM KCl (left). The stiffness (N/mm) of the mesh-vagina complexes (MVCs) obtained via ball-burst testing. The estimated contributions of the vagina (dark grey) and mesh (light grey) to the overall MVC stiffness are delineated in dark grey and light grey, respectively (right).

Table 2: Biochemical analysis of vaginal structural components

	Total Collagen Content (% of dry weight)	GAG Content (% of dry weight)	Total Collagenase Activity (μg/min)
Sham	50.6 ± 13.4	1.49 ± 0.28	1.38 ± 0.22
Tension	34.4 ± 6.7	1.25 ± 0.27	1.49 ± 0.19
No Tension	36.9 ± 5.7	2.19 ± 0.65	1.86 ± 0.13
Overall p-value	0.002[a]	<0.001[a]	<0.001[a]
Sham vs Tension	0.003[b]	0.557[b]	0.553[b]
Sham vs No Tension	0.017[b]	0.010[b]	<0.001[b]
Tension vs No Tension	0.913[b]	<0.001[b]	0.001[b]

[a]P-value obtained via one-way ANOVA followed by [b]Gabriel post-hoc testing.

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Urodynamic Findings in Patients with Multiple Sclerosis and its Association with Magnetic Resonance Imaging

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Introduction: Patients with Multiple Sclerosis (MS) who develop lower urinary tract dysfunction have a significant negative impact on their quality of life. Lower urinary tract symptoms (LUTS) are present in up to 90% of patients with MS, with storage symptoms being the most commonly reported symptom and detrusor overactivity representing the most frequent urodynamic abnormality. However, up to 40% of these patients manifest voiding difficulty. Even though a few groups have tried to understand the pathophysiology of LUTS in MS patients using functional magnetic resonance (fMRI), until now, it is not clear why some patients develop voiding difficulty while others experience storage phase dysfunction predominantly.
Objective: To characterize urodynamic and MRI findings in patients with multiple sclerosis.
Methods: We carried out a retrospective observational study using a prospectively collected database from two teaching centers between 2016 to 2022. We included all patients with MS and Urodynamic Study. Demographics, clinical history, urodynamic and MRI findings were analyzed.
Results: We included 22 patients. The average age was 40 years (26 - 65 yo), 68% had Relapsing-Remitting MS, 22% had Primary Progressive MS, and 9% had Secondary Progressive MS. The predominant urological manifestation was voiding symptoms in 95% of the patients; irritative symptoms were present in 65%. Urodynamic study findings were as follows: 15 patients had Detrusor Overactivity, with a Detrusor Leak Point Pressure (DLPP) >40cmH2O in 6 patients (range of 10-160cmH2O), cervical spinal cord lesions on MRI were present in 5 of the patients with a DLPP >40cmH2O, and in 75% of the patients with a DLPP <40cmH2O. Median Non-invasive Qmax was 16.3ml/seg (Range 8 - 37); Median Pdet-Qmax was 40cmH2O (Range 15 - 85). Detrusor-sphincter dyssynergia was suspected in 9 patients; all had cervical spinal cord lesions on MRI. When analyzing MRI reports, 17 patients had brainstem lesions, 17 cervical spinal cord lesions and 18 dorsal spine/cone lesions.
Conclusions: Patients with MS and lower urinary tract symptoms can present different clinical and urodynamic findings. It is relevant to highlight the high DLPP in some of these patients and the possible risk of kidney damage. There could be a relationship between cervical cord injury with both a high DLPP and voiding dysfunction; however, not all the patients with cervical spinal cord lesions have these findings in urodynamic studies. A more significant sample is needed to clarify these results. Baseline urodynamics could be substantial in MS patients with cervical cord injuries and lower urinary tract symptoms.
Disclosure: No

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Impact of Tension and Mesh Deformation on Vaginal Structure and Function

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Introduction: Fibrotic encapsulation of an implant is a normal part of the foreign body response; yet, excessive fibrosis can be painful, requiring excision. Meshes implanted in urogynecologic surgeries often have collapsed pores and wrinkles in areas of complications that are associated with two distinct responses – stress shielding and fibrosis. Recent studies have shown that the myofibroblast, a pathologic cell type, mediates implant fibrosis. The mechanism of fibroblast to myofibroblast transition is not clear and could be related to 1) increased local tissue stress induced by an increased mesh burden vs 2) tension conferred by attachment of the mesh to the sacrum or pelvic side wall.
Objective: Here we provide insight into the fibroblast to myofibroblast mechanism by comparing the host response to deformed mesh implanted in the presence and absence of tension.
Methods: Twenty rhesus macaques underwent laparotomy with total hysterectomy and transection of level I and II support (IACUC 16088646). A lightweight polypropylene mesh intentionally deformed via the introduction of collapsed pores and wrinkles was implanted onto the vagina in the presence (Tension or T) and absence (No Tension or NT) of tension to the sacrum at 10N (N=10 per group). Sham operated animals served as controls (N=8). After 12 weeks, mesh-vagina complexes (MVCs) were excised en bloc and analyzed for total collagen (hydroxyproline), collagenase activity, glycosaminoglycans (GAG, Blyscan assay), TGF-β1 (ELISA), vaginal contractility, MVC stiffness (ball-burst testing), and myofibroblast proliferation. Groups were compared using one-way ANOVA and Kruskal-Wallis tests with post-hoc testing or independent t-tests and Mann-Whitney tests when appropriate.
Results: Overall, the area of fibers within the NT adventitia was 2 times greater than the T group (p=0.012). Myofibroblasts were abundant in the adventitia of both groups. However, there were 5 times as many

myofibroblasts per fiber with T relative to NT (p=0.006). The ratio of active to latent TGF-β1 was 2 times higher for T versus NT consistent with the observed increase in myofibroblasts (p=0.001) (Table 1). Relative to Sham, vaginal contractility decreased 58% (p=0.003) and 64% (p-0.002) for the T and NT groups, respectively (Figure 1 left) with no difference between groups. The structural integrity of the vagina was significantly compromised with the vagina contributing only 22% (T) and 10% (NT) to the overall MVC stiffness (Figure 1 right) with an associated decline in total collagen for both groups (Table 2). GAG, a sign of tissue injury, and collagenase activity were significantly increased for the NT group relative to both Sham and T (Table 2).

Conclusions: Pore collapse and mesh wrinkling drive two competing host responses that are impacted by the presence of tension. While both the T and NT groups show evidence of stress shielding, this response predominates when no tension is present. In contrast, tension increased myofibroblast formation resulting in less collagenase activity and GAG formation likely mediated by increased levels of the profibrotic cytokine TGF-beta1. The presence of tension and not increased mesh fiber area induced this myofibroblast response. Research into the role of local stress variations on the fibroblast response is currently ongoing.

Disclosure: No

Images:

Return to theatre	Re-admitted	Vault hematoma	Prolonged catheterisation >10 days	Wound infection	Vaginal discharge	UTI	Pain
0	0.5% (1/214) 1x TAH	1% (2/196) 2x TAH *(conservative management)*	16% (32/196) 2% (4/196) catheter at follow-up	1.5% (3/196)	1.5% (3/196)	8% (16/196)	2% (4/196)

Table 1

Table 1: Demographics, Preoperative & Intraoperative Considerations, and Postoperative Complications

	Outpatient (n = 23)	Inpatient (n = 142)	p-value
Demographics			
Age (mean)	57.91	64.74	0.0051
Race (%)			
White	91.30	92.26	0.8740
Black	8.70	4.23	0.3547
Asian	0	0.70	0.6873
Other	0	0.70	0.6873
Unknown	0	1.41	0.5667
Ethnicity (%)			
Non-Hispanic	100	97.89	0.4820
Hispanic	0	0.70	0.6873
Unknown	0	1.41	0.5667
BMI (mean)	28.81	28.79	0.9884
Language (%)			
English	100	99.30	0.6873
Non-English speaking	0	0.70	0.6873
Insurance (%)			
Commercial	69.56	42.13	0.0143
Medicare	26.09	50.71	0.0282
Other Governmental	4.35	5.71	0.7911
Medicaid	0	1.41	0.5667
Preoperative Considerations			
Comorbidities (%)			
Asthma	17.39	11.27	0.4042
Anxiety	8.70	19.01	0.2281
COPD	0	2.82	0.4149
DVT	0	2.11	0.4820
Dementia	4.35	1.41	0.3278
Depression	8.70	16.90	0.3167
Diabetes	4.35	17.61	0.1054
HTN	26.09	52.82	0.0174
Hypothyroid	21.74	15.49	0.4522
Migraine	8.70	5.63	0.5670
Tobacco use (%)			
Current	0	7.04	0.1892
Former	8.70	26.06	0.0691
No	91.30	66.90	0.0175
Narcotic use (%)	8.70	1.47	0.0385
Charleston Co-morbidity Index (mean)	1.78	2.65	0.0462
ASA Class (mean)	2.35	2.67	0.0067
Intraoperative Considerations			
Length of Surgery (mean, minutes)	75.53	126.28	<0.001
Length of anesthesia (mean, minutes)	138.17	188.5	<0.001
Estimated Blood Loss (mean, minutes)	92.39	138.62	0.0142
Concurrent Hysterectomy (%)	8.70	17.73	0.2788
Postoperative Complications			
Postop Complication (%)	4.35	20.42	0.0638
Reoperation within 30 days (%)	0	1.42	0.5653
Readmission within 30 days (%)	0	1.42	0.5653
Transfusion within 72 hours (%)	0	0.70	0.6873

	Burch Colposuspension (n=44)		TVT (n = 19)	
	n	%	n	%
UTI	4	9	6	31
Abdominal Pain	1	2	2	10.5
Groin/Hip Pain	1	2	0	0
Vaginal discharge	4	9	0	0
Vaginal bleeding	1	2	0	0
Wound infection	2	4.5	0	0
Death within 6 months	1 (VTE)	0	0	0
Prolonged catheterisation >10 days	15	34	5	26
Persistent voiding dysfunction requiring catheterisation at follow-up	3	6.8	3	15.8

Table 2

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Burch Colposuspension for Management of Stress Urinary Incontinence. The Safety Profile

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1 - King's College Hospital
2 - King's College London

Introduction: Burch colposuspension (Burch 1961) is a traditional technique for surgical management of stress urinary incontinence (SUI) and was considered "gold standard" until the invention of the minimally invasive midurethral sling (MUS) (Sohlberg et al., 2019). Burch colposuspension aims to elevate the bladder neck and the proximal urethra back in the intraabdominal pressure area behind the pubic symphysis (Burch 1961) . Following reports about the safety of urogynaecological mesh implants which led to an official "pause" in vaginal mesh surgery in England in July 2018, many surgeons may be driven to revert to older techniques such as Burch colposuspension (Veit-Rubin et al., 2019). Continued monitoring of outcomes is essential to enable adequate patient counselling.

Objective: To investigate safety and efficacy of the Burch colposuspension as primary surgery for SUI.

Methods: Data from patient files who underwent surgical procedures for SUI by a single surgeon in the private sector were analysed from 1985 to 2005.

Results: Four hundred and thirty-one women underwent SUI surgery. Burch colposuspension was performed in 317 cases, 214 were primary procedures and 51 for recurrent SUI following previous failed SUI surgery. Mean age of women was 52 years with a range of 33-78. 99% of women had confirmed urodynamics stress incontinence. 74.6% of women with a uterus had concomitant total abdominal hysterectomy or cervical stumpectomy performed at the time of the Burch colposuspension. Suture PDS No 1 was used in all cases, 99% of cases had 4 sutures placed on each side. A suprapubic catheter and redivac drain were inserted in 98.5% and 95.3% of cases respectively. Intraoperative complications occurred in 3% (7/214) of cases; 2 women sustained a bladder injury, and 5 women had a blood loss of >500ml. All of these women had concomitant total abdominal hysterectomy (TAH) at the time of Burch colposuspension. 92% (196/214) attended follow-up within 3 months, of these, 91% and 9% reported SUI was cured or improved respectively. On examination, in the posterior compartment, prolapse severity grading increased in 16% (23/142). Transient voiding dysfunction requiring catheterisation for greater than 10 days occurred in 16% of cases, with persistent voiding dysfunction at 3-month follow-up in 2% of cases. Table 1 summaries early complications at 3-month follow-up.

Conclusions: Intraoperative and early complication rates are low. Intraoperative blood loss of greater than 500ml was the most common complication but no patient required a blood transfusion. Post-operative voiding dysfunction requiring prolonged catheterisation is common, however

most patients were catheter free at follow-up. Early subjective cure rate is high. Longer-term follow-up is required.
Disclosure: No
Images:

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Evaluation of Musculofascial Defect in Individual Anatomical Levels of the Pelvis in Patients with Symptomatic Descent - MRI Study.

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1 - Institute for the care of mother and child

Introduction: The reason for failure of reconstructive surgery for POP may be insufficient diagnosis of damage to the structures responsible for normal pelvic floor function.
Objective: To analyze the degree of damage to the suspension and support structures of the pelvis in patients with symptomatic prolapse.
Methods: Retrospective cohort study in women who underwent surgery for prolapse. Patients had urogynecological examinations including POP-Q classification and standardized high resolution 3T MRI examination. The examinations were performed at rest; in the axial, sagittal and coronal planes from the apex of the hip bones to the sciatic hump and dynamic sequence during the maximal Valsalva maneuver in the mediosagital plane.
Results: 129 women were included, average age 59 years (min. 32, max. 86). In 38 women (29.5%) the uterus was present. In 97 cases (75.2%) patients underwent at least one reconstruction procedure. Descent stages: 39 (30.2%) stage II, 82 (63.6) stage III and 8 women (6.2%) stage IV descent. A group of 39 patients (30.2%) had a defect in all compartments. A defect in the anterior compartment was present in 17 women (13.2%) and a group of 17 women (13.2%) showed a defect in the anterior and middle compartments. An isolated defect in the middle was present in 2 women (1.6%). 10 women (7.8%) showed a descent in the posterior and middle compartment. In 17 cases (43.6%), patients with an isolated posterior compartment defect (N-39) had a levator defect that was not accompanied by a lateral defect of the endopelvic fascia. The isolated posterior wall defect was caused by damage to the rectovaginal septum in the mediosagittal, parasagittal or transverse plane. In another 17 cases (43.6%) a lateral fascia defect was present with a muscle defect. In the remaining 5 patients (12.8%), the defect was caused by damage to the fascia in the mediosagittal, parasagittal or transverse plane. Patients with an isolated anterior and / or anterior / middle compartment defect had an isolated levator defect without a lateral defect of the endopelvic fascia in 10 cases (29.3%). In another 19 cases (55.8%), a lateral fascia defect (paravaginal defect) was present with muscle injury. In the remaining 4 patients (11.8%), the defect was caused by damage to the pubocervical fascia in 3 planes. In this subgroup, 19 women (55.9%) had a hysterectomy and 10 women (29.4%) with a uterus had an atypical appeareance of the sacrouterine ligaments. Patients with a defect in all three compartments (N-39) had isolated levator damage in 5 cases (12.8%) without a lateral defect of the endopelvic fascia. A paravaginal defect was also present in 23 cases (58.9%). In 9 patients (23.1%) the defect was caused by isolated fascia trauma. In this subgroup, 28 women (71.8%) had a hysterectomy and 8 women (20.5%) with a uterus had an atypical appearance of the sacrouterine ligaments.
Conclusions: Defective level I is considerably involved in the defect of the posterior compartment, but also participates in the defect of the anterior and central compartments. In patients with a defect in all three compartments, level I is damaged in 93%.
Disclosure: No

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Mid-urethral Tape versus Burch Colposuspension for Recurrent Stress Urinary Incontinence

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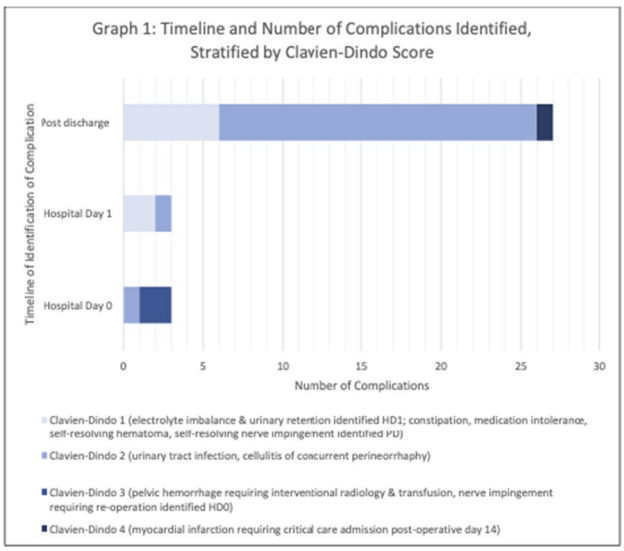
Introduction: Management of recurrent stress urinary incontinence (rSUI) when conservative measures fail can be a challenge for the urologist and urogynecologist. There is a paucity of literature on the optimal management for stress urinary incontinence (SUI) following a primary SUI procedure. Burch colposuspension (BC) and mid-urethral slings have been two of the options for women with rSUI. Reporting of outcome data is essential to aid clinicians, authorising bodies, and patients alike about treatment safety and efficacy
Objective: To investigate and compare the safety and efficacy of the Burch Colposuspension (BC) and Transvaginal Tape (TVT) for women with rSUI.
Methods: Data from patient files who underwent surgical procedure for rSUI were analysed from 1985 to 2005. All procedures were performed by a single surgeon in the private sector.
Results: Seventy-one women underwent surgery for rSUI. 51 had BC and 20 had a TVT inserted. Past surgical history is summarised in table 1. All women had confirmed urodynamic stress incontinence. Of those women with a uterus, 89.5% (17/19) had total abdominal hysterectomy at the time of BC, no women had a vaginal hysterectomy during TVT insertion but 6 had a pelvic floor repair. One woman had a bladder injury and another had a blood loss of >500ml during BC given an intraoperative complication rate of 2%, there were no intraoperative complications during TVT insertion. 86.3% and 90.5% of women were followed-up within 3 months following BC and TVT respectively. Subjective cure rate was 83.7% (BC) and 84.2% (TVT) and improved rate is 7.4% (BC) and 15.7% (TVT). Table 2 lists complications reported at 3-month follow-up.

Conclusions: Burch colposuspension and TVT are options for the treatment of rSUI with short-term favourable cure rates in both cohorts. Intra-operative and early complication rates remain low but favouring TVT. Longer and subjective data is required to determine treatment efficacy and safety.
Disclosure: No
Images:



	Pre-op	Post-op	p-value
Maximum flow (mL/s)	Median 24 (9-48)	Median 15 (6-33)	<0.001
Voiding pattern			0.02
Smooth continuous	13 (76%)	16 (94%)	
Fluctuating continuous	3 (18%)	0	
Intermittent	1 (6%)	1 (6%)	
Post void residual (mL)	Median 30 (5-210)	Median 63 (0-750)	0.19
UDI-6 (out of 24)	Median 11 (0-20)	Median 2 (0-10)	0.02

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Establishing the Safety of Outpatient Retroperitoneal Sacrospinous Ligament Fixation – A Retrospective Review at a Large Academic Healthcare Center

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Introduction: With the strain placed on the medical system by the ongoing surges of the Covid-19 pandemic, inpatient surgery is often suspended, and same day discharge rates are increasing. Sacrospinous ligament fixation (SSLF) is an apical suspension procedure performed retroperitoneally; retroperitoneal hemorrhage and nerve injury are potential severe complications. Given these risks, providers vary in their preference for same day discharge vs. routine overnight admission after this procedure.
Objective: To establish the safety of outpatient SSLF and evaluate the frequency of complications identified during the hospital stay.
Methods: This is a retrospective cohort study of women who underwent SSLF by Urogynecologists at our large, academic institution between March 2018 and October 2021. Patients were identified from the Gynecologic Enhanced Recovery Surgical database, which includes all surgical patients in the department of OBGYN. The data was collected from the electronic medical record (EMR) to track compliance and outcomes in real time for quality improvement purposes during implementation of our enhanced recovery protocol. Institutional IRB approval was obtained. Descriptive statistics were performed. Student's t-test and two-sample tests-of-proportions were used, with a p-value <0.05 denoting statistical significance.
Results: A total of 165 patients underwent SSLF; 23 were outpatient, and 142 were admitted for at least one night. Over 90% of patients in both groups identified as white, non-Hispanic, and English-speaking. The mean BMI for both groups was 28.8kg/m2. The outpatient group was younger (57.9 years compared to 64.7 years; p=0.0051); outpatients were more likely to have commercial insurance (p=0.0143) and inpatients to have Medicare (p=0.0282). Almost double the proportion of those in the inpatient group had anxiety and depression, but this did not achieve statistical significance. Outpatients were more likely to be never smokers (p=0.0175) and use narcotics preoperatively (p=0.0385). They had a lower mean ASA score (p=0.0067), Charleston Comorbidity Index score (p=0.0452), total length of surgery (p<0.001), total length of anesthesia (p<0.001), and estimated blood loss (p=0.0142). Those who went home the same day were more likely to have been the first case (p=0.0123), and same-day discharge rates increased significantly after the onset of the Covid-19 pandemic (p=0.0039). Both complications that required operative intervention were identified in the post-anesthesia care unit on the day of surgery. Notably, 30-day post-operative complications were proportionally lower in the outpatient group, but this did not achieve significance. Most of the complications were urinary tract infections, including the sole complication identified in the outpatient group.
Conclusions: With the ongoing Covid-19 pandemic and rapidly evolving practice patterns, it is important to establish the safety of outpatient surgery. Our study demonstrates that outpatient SSLF is safe for appropriately selected patients after routine post-operative monitoring including serial vital signs and assessment of neuropathic pain. Severe complications requiring reoperation can often be identified immediately after surgery. Thirty-day post-operative complication rates did not significantly differ between patients undergoing outpatient versus inpatient SSLF.
Disclosure: No
Images:

Table 1 - Objective cure of the anterior and apical compartments

	6-month		6 years		P-value *
	N	%	N	%	
Cured	14	87.5	6	60	0.2888
Not cured	2	12.5	4	30	

* Bilateral McNemar's test

Table 2- ICIQ-VS score during follow-up

ICIQ-VS	6 years		6 months			Preoperative			
	Mean	SD	Mean	SD	p-value*	Mean	SD	p-value*	p-value**
Vaginal symptoms	11.6	14.6	8.2	10	0.5625	21.2	11.4	0.04732	0.001404
Sexual Symptoms	8.6	18.6	9.5	25.9	0.8728	11.5	21.4	0.7702	0.6478
Quality of life	3	4.4	1.5	2	0.7391	7.6	3.4	0.0057	<0.005

ICIQ-VS: International Consultation on Incontinence Questionnaire - Vaginal Symptoms; SD: standard deviation.

*Wilcoxon Mann-Whitney test compared to 6 years follow-up

** Wilcoxon Mann-Whitney test compared to the 6 months follow-up

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Cost-Effectiveness Analysis: Autologous Rectus Fascial Sling versus Retropubic Midurethral Sling for Female Stress Urinary Incontinence

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Introduction: Surgeries for female stress urinary incontinence can be divided into mesh and non-mesh procedures. One of the most commonly performed mesh procedures is retropubic midurethral sling. Non-mesh procedures include pubovaginal sling, Burch and urethral bulking. Current controversies involving mesh procedures have led to a recurrent interest in non-mesh treatments. Pubovaginal sling has similar effectiveness as midurethral sling but different rates of complications. Limited data exist on the cost effectiveness between midurethral sling and pubovaginal sling.

Objective

This study aims to evaluate the cost-effectiveness of autologous rectus fascial sling (ARFS) to retropubic midurethral sling (RMUS) from both hospital and healthcare perspectives.

Methods: A decision tree model comparing the costs and effectiveness between ARFS and RMUS was developed. The model was based on 1 year of follow-up. We included the following variables in the model: objective success rate, rates of complications, subsequent treatments for complications, and retreatment for stress urinary incontinence. The model included the index procedure and one retreatment for subjects who had persistent stress urinary incontinence. Cost estimates were calculated from both hospital system and healthcare payer perspectives. The outcomes from the model were expressed in incremental cost-effectiveness ratio (ICER), or cost per quality-adjusted life year (QALY). An ICER of less than $50,000 per QALY was considered cost-effective.

Results: From the hospital perspective, the overall cost of retropubic midurethral sling was higher than autologous rectus fascial sling ($2,348.94 vs. $2,114.06), but was more effective (0.82 vs. 0.80 QALYs). The incremental cost-effectiveness ratio was $17,622 per quality-adjusted life year, which was below the threshold of $50,000/QALY. From a healthcare perspective, the overall cost of autologous rectus fascial sling was higher than retropubic midurethral sling ($4,656.63 vs. $4,630.47) while also being less effective. Retropubic midurethral sling was thus the dominant strategy. Sensitivity analyses showed that the overall cost of retropubic midurethral sling surgery and the success rate of autologous rectus fascial sling had an impact on the incremental cost-effectiveness ratio. If the overall cost of retropubic midurethral sling surgery exceeds $2654.36, it would no longer be considered cost-effective compared to autologous fascial sling at a willingness-to-pay threshold of 50,000/QALY. Similarly, if the success rate of autologous rectus fascial sling exceeds 84.39%, autologous rectus fascial sling would become cost-effective compared to retropubic midurethral sling. Other variables that affected the outcomes were the probability of urinary retention after RMUS, and the utility score for urinary continence.

Conclusions: Based on our economic model and cost data, retropubic midurethral sling is cost-effective compared to autologous rectus fascial sling from the hospital and healthcare perspectives. However, if the cost of retropubic midurethral sling were to increase or the success rate of autologous rectus fascial sling were to improve, autologous rectus fascial sling may become more cost-effective.

Disclosure: No

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Uroflow Changes Following Mid-Urethral Sling (MUS) Procedure

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Introduction: Stress urinary incontinence (SUI) and its treatments can greatly impact quality of life. (1) In current literature, some women who underwent SUI operations were found to develop obstructive symptoms or voiding dysfunction, with a reported incidence of 2-25% of cases following MUS procedures. (2-3) Assessment of urine flow pattern before and after surgery can potentially provide valuable information of the changes that MUS operations pose. (4) There is limited evidence describing predictive values of uroflowmetry changes on voiding function after sling placement, however this could improve procedural outcomes and patient satisfaction. (5) Investigating uroflow pattern changes due to MUS procedures can potentially identify predictors of post-operative success and adverse outcomes, such as voiding dysfunction or overactive bladder. (5-9) We hypothesized that even slings deemed to be successful have an impact on the flow of the urinary stream.

Objective: To investigate the changes in uroflowmetry parameters following retropubic MUS sling.

Methods: Eligible subjects included women undergoing MUS with pre-and post-operative uroflowmetry (max flow, voiding pattern, post void residual) and UDI-6 data. Uroflowmetry was considered adequate if voided volumes were greater than or equal to 150 mL. Continuous data was reported as medians (ranges) and comparisons made with Wilcoxan Rank test. Categorical data was reported as counts (percentages) and compared with McNemar's test.

Results: 17 patients underwent retropubic MUS sling with median 2.5 (0.3 to 114) weeks follow-up and met eligibility criteria. 8/17 (47%) had concomitant prolapse surgeries. 6/17 (35%) were discharged home with a Foley and 4/17 (24%) had a post-op UTI during their follow up period. Overall, median maximum flow significantly decreased after sling surgery [24 mL/s (9-48) vs 15 ml/s (6-33), p<0.001], while PVR was not significantly different after surgery [30 mL (5-210) vs 63 mL (0-750), p= 0.19]. Patients symptomatically improved on UDI-6 after surgery when compared with pre-op values (11 vs 2, p=0.02). No patients needed a sling revision in the first 12 weeks and 1 patient had a sling revision over 2 years later for persistent elevated PVRs and urgency incontinence.

Conclusions: Retropubic MUS slings do significantly impact maximum flow (and flow pattern) on uroflowmetry, but with no significant difference in post-void residual. This is important information, as we can counsel patients that successful slings are likely to slow their urine stream but that objective emptying parameters remain normal.

Disclosure: No

Images:

Table 3 - ICIQ-SF and ICIQ-OAB scores during follow-up

	6 years		6 months			Preoperative			
	Mean	SD	Mean	SD	p-value*	Mean	SD	p-value*	p-value**
ICIQ-SF	5.7	7.1	2.1	4.5	0.05937	11.1	6.2	0.07201	<0.005
ICIQ-OAB	14.0	8.9	10.8	5.2	0.5673	20.6	10	0.12590	0.005542

ICIQ-SF: International Consultation on Incontinence Questionnaire - Short Form; ICIQ-OAB: International Consultation on Incontinence Questionnaire – Overactive Bladder; SD: standard deviation

*Wilcoxon Mann-Whitney test compared to 6 years follow-up

** Wilcoxon Mann-Whitney test compared to the 6 months follow-up

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WITHDRAWN - Improving Pelvic Malignancy Survivorship through Sacral Neuromodulation: A Retrospective Case Series

WITHDRAWN

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Concomitant Salpingo-oophorectomy at the Time of Vaginal Hysterectomy for Genital Prolapse

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Introduction: Prophylactic salpingo-oophorectomy has been performed at the time of hysterectomy for prevention of ovarian cancer or treating concomitant adnexal pathology. Vaginal hysterectomy for genital prolapse is a common procedure and the majority of the women were postmenopausal. There are potential difficulties in performing concomitant salpingo-oophorectomy during vaginal hysterectomy when compared to other operative routes.
Objective: This study was carried out to find out the prevalence of having concomitant salpingo-oophorectomy at the time of vaginal hysterectomy for genital prolapse, as well as the reasons why the women chose it or did not choose it.
Methods: This is a retrospective study performed in a university hospital from 1st January 2017 to 31st December 2019. The subjects were identified from the electronic operation record system. All women who underwent vaginal hysterectomy and pelvic floor repair for genital prolapse during the study period were included. Total 90 women were studied. The primary outcome is the number of women choosing to have salpingo-oophorectomy at the time of vaginal hysterectomy for genital prolapse. The secondary outcomes are the reasons they chose to have salpingo-oophorectomy and the reasons they did not choose to have salpingo-oophorectomy.
Results: Among the 90 women, 50 (55.6%) had concomitant bilateral salpingo-oophorectomy (BSO) during vaginal hysterectomy and pelvic floor repair (BSO group) while 40 (44.4%) did not (no BSO group). The mean age of BSO group was 66.8 who were 2.3 years younger than the no BSO group. 64% of BSO group and 63% of no BSO group had Pelvic Organ Prolapse Quantification System (POP-Q) stage 3. The mean operation time in the BSO group was 175.8+/-50.4 minutes while in the no BSO group was 138.4+/-34.0 minutes. 41 (82%) women who had concomitant salpingo-oophorectomy could had it done vaginally. The remaining ones required laparoscopic assistance. The reasons that required laparoscopic assistance included adhesions at adnexae and the infundibulopelvic ligament was located high up. In the BSO group, there were 2 patients who had intra-operative blood loss >500ml or requiring blood transfusion due to blood loss. 1 patient had pelvic or vault haematoma/abscess. In the no BSO group, there were 1 case of pelvic or vault haematoma/ abscess and 1 case of intra-operative bladder injury. 42 (84%) women had concomitant prophylactic salpingo-oophorectomy performed as they worried about future adnexal pathology. 7 (14%) had known adnexal mass during pre-operative assessment and 1 was found to have adnexal mass during operation. 24 (60%) women did not have salpingo-oophorectomy performed as they worried about the possibility of requiring laparoscopic assistance and possible additional operative risks for this prophylactic procedure. 14 (35%) thought it was not necessary to have the ovaries and tubes removed if they were normal looking intra-operatively. 2 (5%) were surgeon's intra-operative decision of not removing the ovaries and tubes due to anticipated difficulty in performing BSO vaginally. All the ovaries and tubes removed were benign on histological assessment.
Conclusions: Majority of women undergoing vaginal hysterectomy for genital prolapse could have salpingo-oophorectomy performed vaginally without major complications.
Disclosure: No

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Long-term Outcomes after Transvaginal Mesh Repair for Anterior and Apical Vaginal Prolapse: A Secondary Analysis

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2 - Ebserh
3 - Universidade Estadual de Campinas
4 - Universidade Federal de Uberlândia

Introduction: Transvaginal mesh for pelvic organ prolapse repair was developed in order to improve the declining long-term success rates of native tissue repairs. Due to reports of adverse events and lack of evidence to support its superiority, its use was suspended in many countries. Whilst, continuous follow-up of the patients submitted to the procedure was recommended. The safety and efficacy of a macroporous monofilament polypropylene mesh for the correction of anterior and apical vaginal prolapse (Calistar A®, Promedon, Cordoba, Argentina) were evaluated in a multicenter prospective study. It demonstrated an anatomical cure rate of 88.7% in a median follow-up time of 12 months and a very low complication rate.
Objective: Evaluate the anatomical support, quality of life and complications related to the use of polypropylene transvaginal mesh for the surgical correction of anterior and apical vaginal prolapse (Calistar A®) after a mean follow-up time of six years.
Methods: This was a long-term prospective secondary analysis from one center, after a multicentric prospective single arm study. The inclusion criteria to the original study were anterior and/or apical vaginal prolapse stage ≥2. For the long-term analysis, we included patients from one of the centers, who were able to be contacted and agreed to participate. Objective cure was defined as POP-q points Aa, Ba and C ≤ 1. Secondary outcomes included evaluation of symptoms and quality of life through the validated questionnaires: International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF); International Consultation on Incontinence Questionnaire - Overactive Bladder - Short Forms (ICIQ OAB - SF) and International Consultation on Incontinence Questionnaire Vaginal Symptoms (ICIQ-VS). We also evaluated long-term mesh-related complications. McNemar test was performed for categorical variables and Wilcoxon Mann-Whitney test was performed for continuous variables. The significance level adopted was 0.05 (5%).
Results: Of the 19 participants originally recruited in the study, 11 (57.9%) agreed to be evaluated at the 6-year assessment. Objective cure was observed in 60% of the participants at 6-years and there was not statistically significant difference when compared to the six-month follow-up ($p=0.2888$). There was a significant difference in POP-q points Aa ($p<0.05$), Ba ($p<0.05$), C ($p<0.05$) and gh ($p<0.05$) compared to the preoperative assessment, but no difference to the six month-follow-up. The ICIQ-VS questionnaire demonstrated a sustained improvement in vaginal symptoms ($p<0.05$) and quality of life ($p<0.05$) scores. ICIQ-SF and ICIQ-OAB also demonstrated improvement when compared to preoperative scores ($p<0.05$). No mesh-related complications were observed in the long-term follow-up.
Conclusions: Despite of the study limitations, including the reduced sample size and lack of control group, the polypropylene transvaginal mesh (Calistar A®) seems to provides satisfactory anatomical support, with improvement in quality of life and no major complications in patients evaluated at 6 years after surgery.
Disclosure: No
Images:

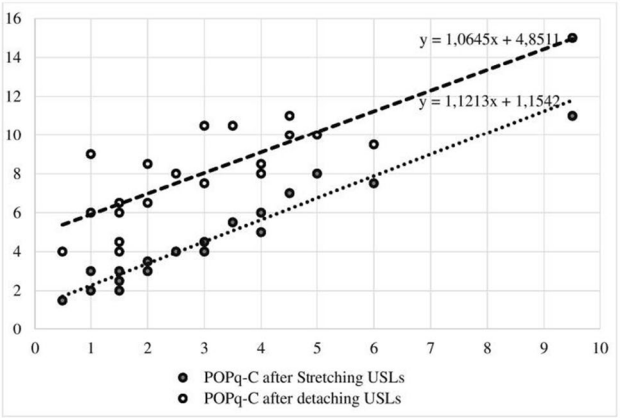
	Menopausal status	USI Mean value	Percentage %	DO Mean Value	Percentage %
Vol-Day	post	1320.05mls	71.61%	1214.14mls	67.17%
	pre	1496.60mls	73.17%	1391.22mls	74.77%
	P value	0.99		0.002	
Vol-Nt	post	523.51mls	28.39%	593.59mls	32.83%
	pre	548.88mls	26.83%	469.61mls	25.23%
	P value	0.514		<0.01	
Vol-24H	post	1843.57mls		1807.74mls	
	pre	2045.49mls		1860.83mls	
	P value	0.089		0.809	
Ratio (N/D) of volume	Post	0.396		0.488	
	Pre	0.366		0.337	
Freq-Day	post	7.62	89.98%	7.73	84.49%
	pre	8.47	91.02%	8.33	89.38%
	P value	0.145		0.005	
Freq-Nt	post	0.85	10.02%	1.42	15.51%
	pre	0.94	9.98%	0.99	10.62 %
	P value	0.984		<0.01	
Freq-24H	post	8.48		9.15	
	pre	9.41		9.32	
	P value	0.137		0.570	
Ratio (N/D) frequency	post	0.111		0.183	
	pre	0.110		0.118	

Table 1. Demographic and clinical characteristics at baseline and during surgery

		VH (n = 21)
Age at time of surgery (y)		61.9 ± 8.2
Parity		2.8 ± 1.1
Previous abdominal surgery*		8 (38.1%)
POPq (cm)	TVL	8.7 ± 1.2
	Ba	2.7 ± 1.3
	Bp	1.9 ± 0.5
	C – Before stretching USLs	3.0 ± 2.1
	C - After stretching USLs	4.6 ± 2.4
	C - After detaching USLs	8.1 ± 2.7
General anesthesia		18 (85.7%)
Weight of the uterus (gr)		119.3 ± 92.7
Volume of the uterus (cm^3)		53.5 ± 71.0
Length of uterine cervix (cm)		4.0 ± 0.8

*Caesarean section, Appendectomy, BSO, Cholecystectomy, Sleeve Gastrectomy

Figure 1. Correlation between measurements of the POPq-C before stretching the USLs to the measurements following stretching the USLs and detaching both USLs.



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A Closer Look: Outcomes of Intradetrusor Injection of OnabotulinumtoxinA (BTX-A) in the Elderly Population

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Introduction: Overactive bladder (OAB) is a common condition in patients older than 70 years of age and its prevalence increases with age. AUA guidelines recommend oral anticholinergics and b-3 agonists as second line therapy. However, these medications have been associated with negative cognitive effects and may negatively affect the blood pressure in elderly respectively. Furthermore, b-3 agonists do not have an acceptable formulary medication coverage, additional concern for elderly with limited insurance coverage. Currently there is lack of evidence assessing the outcomes of OnabotulinomtoxinA (BTX-A) injection as a third line OAB therapy, evaluating its efficacy and safety in the elderly population.
Objective: To evaluate the outcomes of intradetrusor OnabotulinumtoxinA (BTX-A) in the elderly population, including efficacy, safety.
Methods: A retrospective chart review of patients seen at the Urology clinic who underwent intradetrusor BTX-A from May 2015 to September 2021 was obtained. Patients older than 70 years of age at the time of their first injection were selected. Baseline characteristics, assessment of overactive bladder symptoms based on self-reported symptoms before and after injection were retrieved.
Results: 103 patients over 70 years of age who had intradetrusor BTX-A were selected. 86(83%) were female. Prior to injection 91% (94) were voiding spontaneously. Urinary urgency was the most common symptom in 98.1%, followed by urinary incontinence, daytime frequency in 91% and 83% respectively. The most common medications initially prescribed were anticholinergic in 66%, followed by b-3 agonist in 26.2%. The amount of BTX-A injected was 100U (88.3%) and 200U (8.7%). Subgroup analysis by OAB symptom domain after BTX-A showed that there was a significant improvement in 87% for incontinence, 73% for urinary urgency, 65% daytime urinary frequency and 57% in nighttime frequency. Temporary de novo intermittent catheterization was initiated in four patients and one needed indwelling catheter placement. 56.3% returned for repeated injections due to good symptom response. Nineteen (20%) had a symptomatic

UTI at follow-up and 88% were not needing OAB medications after follow-up.
Conclusions: BTX-A is well tolerated in patients older than 70 with significant improvement in all OAB symptom domains and significant reduction of their oral OAB medication needs. This provides an option for patients to limit oral medications with unwanted side effects for this special population potentially at an earlier time in the OAB management algorithm.
Disclosure: No

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The role of large data sets and the impact of menopause in women with Detrusor Overactivity and Urodynamic Stress Incontinence.
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Introduction: Declining oestrogen levels at menopause is commonly identified as a factor which affects the pelvic floor and lower urinary tract function. It also leads to reduced production of anti-diuretic hormone (ADH) during night-time in postmenopausal women. These hormonal changes could play an important role in the manifestation and exacerbation of OAB symptoms in women with detrusor overactivity (DO), however their effect in urodynamic stress incontinence (USI) is uncertain.
Objective: To investigate the impact of menopause in women with DO & USI and explore the role of bladder diaries in the assessment of large data sets.
Methods: Bladder diaries of women with DO and USI were identified from a database of electronic bladder diaries and collated over a 9-year period in a tertiary Urogynaecology centre in the UK. Menopausal status was set with a cut-off of 51 years of age due to limitations in the data set. Test for normality & Statistical analysis of the nonparametric data was undertaken on SPSS software version 28 using a Mann Whitney-U test.
Results: A total of 970 bladder diaries were identified. Of those, 672 belonged to women with DO and 298 to women with USI. From the 672 women with DO, 425 formed the postmenopausal and 247 the premenopausal DO group, respectively. Mean age was 66.38 years and 40.54 years ,respectively. A total of 298 bladder diaries of women with USI were analysed. Of those 233 formed the postmenopausal and 65 the premenopausal group, respectively. Mean age was 60.77 years and 40.54 years, respectively. As detailed in table 1, in women with detrusor overactivity, increasing age is associated with higher night-time frequency and night-time urine volume production ($p<0.01$). Premenopausal Women with DO experience relatively higher daytime frequency ($p=0.005$) and urine volume production ($p= 0.002$) in comparison to their postmenopausal counterparts. The bladder diaries of women with USI did not exhibit any statistically significant difference as a result of age and therefore menopausal status.
Conclusions: Ageing and therefore menopause, exacerbates the impact of DO at night. This could be at least partially related to the reduced ADH production with increasing age & declining oestrogen. It is also likely that results may reflect the difference in fluid habits between the two cohorts, as women fluid restrict more with increasing age. On the other hand, aging and therefore menopause does not appear to have the same impact in women with USI. This could be partially attributed to the fact that women with USI have a higher bladder capacity than their counterparts with DO and hence cope better. Information from large data sets remain an important tool as part of larger term phase 4 studies. Further analysis in order to produce more accurate conclusions is required.
Disclosure: No
Images:

Table 1. Cytology results

Normal	Atypia	Low-grade urothelial malignancy	Acute inflammation	Inadequate	Crystals
70.7% (162/229)	4.8% (11/229)	0.9% (2/229)	20.5% (47/229)	1.7% (4/229)	0.4% (1/229)

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The Efficacy of Uterosacral Ligament Stretching and Detaching Prior to Vaginal Hysterectomy
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Introduction: Vaginal hysterectomy (VH) is commonplace among woman with symptomatic uterine prolapse. The main limitation of preforming a VH lies in there not being sufficient uterine prolapse, thus posing a difficulty in accessing the surgical area. The uterosacral ligaments (USLs) are crucial in supporting and anchoring the vaginal apex and uterine the pelvic side walls and the sacrum. In 1972, Joel Cohen was the first to describe the efficacy of stretching of the uterosacral ligaments under anesthesia prior to the vaginal hysterectomy as a way for achieving greater prolapse, thus allowing better surgical access.
Objective: Examining the efficacy of uterosacral ligament stretching and detaching under anesthesia prior to VH in order to reach greater uterine prolapse.
Methods: Retrospective, single center study. 21 women which underwent VH for uterine prolapse from 2021-2022 were analyzed. In every VH performed, three measurements POPq-C: before stretching of the USLs, after stretching of the USLs on both sides and after detaching both USLs. The measurement was preformed by clutching the cervix with a Kugelzange and stretching was done by sliding the index finger on the vaginal area at 4-5 and 7-8 o'clock from the cervix towards the fornix area. After preforming a circular cut around the cervix, holding, cutting, and sewing the USLs on both sides, the third measurement was performed.
Results: Six patients had stage 2 uterine prolapse, 14 had stage 3, and one patient had stage 4 of uterine prolapse. The rest of the demographic and clinical characteristics at baseline and during surgery are summarized in table 1. POPq-C was increased in 1.5 ± 0.6 by stretching the USls, and in 3.5 ± 1.3 following detaching both USLs. There was a positive correlation between measurement of the POPq-C before stretching the USls to the measurement following stretching the USls ($r = 0.966$, $p <0.001$) and following detaching both USLs ($r = 0.788$, $p <0.001$) (Figure 1). There was no correlation between the differences of POPq-C measurements to uterine weight, uterine volume, and uterine cervix length. Conclusion: Stretching and detaching USLs before VH increase the POPq-C, which can facilitate the performance of the procedure.
Conclusions: Stretching and detaching USLs before VH increase the POPq-C, which can facilitate the performance of the procedure.
Disclosure: No
Images:

Is screening for Atypia, atypical? The role of urine cytology

O'Kane M, DaSilva A, Araklitis G, Davis D, Rantell A, Robinson D, Cardozo L

Introduction

Non-visible hematuria (NVH) is a relatively common clinical finding that may be indicative of significant urinary tract disease. A recent meta-analysis revealed an overall pooled urinary tract malignancy rate of 3.3% in patients presenting with haematuria [1]. Urinary cytology, which was first described by Papanicolaou and Marshall, is frequently employed to investigate NVH. Urine cytology has a specificity of >95%, but a sensitivity ranging between 38–84% in high-grade bladder cancer, and an even lower sensitivity for low-grade disease (20–53%) [2]. For that reason, there is no consensus among guidelines regarding the inclusion of urinary cytology in the assessment of NVH. In addition, there are concerns that false positive results may lead to over-investigation and undue anxiety for patients.

Objective

To review the results of urine cytology in patients with non-visible haematuria presenting to an outpatient urogynaecology clinic.

Methods

Between January 2020 and October 2021, patients with lower urinary tract symptoms, presenting to an outpatient urogynaecology clinic, who were found to have non-visible haematuria on urinalysis, had samples sent for urine cytology. Electronic patient records were retrospectively reviewed to obtain demographic details, data regarding primary presenting symptom and the results of both urine cytological examination and further diagnostic testing.

Results

The urine cytology results of 229 patients were reviewed. The mean age of patients was 59.2 years (range 25-94). No cases of urinary tract malignancy were identified.

Table 1. Cytology results

Normal	Atypia	Low-grade urothelial malignancy	Acute inflammation	Inadequate	Crystals
70.7% (162/229)	4.8% (11/229)	0.9% (2/229)	20.5% (47/229)	1.7% (4/229)	0.4% (1/229)

A total of 173 patients underwent cystoscopic evaluation, 55 patients had already been investigated previously and therefore required no further follow up. Table 1 shows the urine cytology results of the cohort. Among those with normal cytology results, 50 patients underwent rigid cystoscopy and had bladder biopsies taken, 69 patients had a flexible cystoscopy. All bladder biopsies identified chronic inflammation only. 54% of flexible cystoscopies demonstrated normal bladder appearance. The remaining 46% showed evidence of infection, atrophic changes and detrusor overactivity. In the 'Atypia' group, eight out of eleven patients underwent rigid cystoscopy and bladder biopsies were taken. The remaining 3 patients had a flexible cystoscopy. Both patients in the 'Low grade urothelial malignancy' group underwent rigid cystoscopy and had bladder biopsies taken. 100% of bladder biopsies demonstrated chronic inflammation. All patients in both the 'Atypia' and 'Low-grade urothelial malignancy' groups had further imaging in the form of either CT urogram or ultrasound of the renal tract. All were negative for urinary tract malignancy.

Conclusion

The low incidence of atypia on cytological testing in this cohort, and the absence of urinary tract malignancy on subsequent investigation, echoes the findings of previous studies challenging the value of urine cytology compared to cystoscopy and upper tract imaging [3]. If further diagnostic evaluation is indicated by the presence of lower urinary tract symptoms, urine cytological testing could be rationalized without compromising diagnostic accuracy. This would reduce the risk of causing unnecessary anxiety among patients and avoid over-investigation.

Call into

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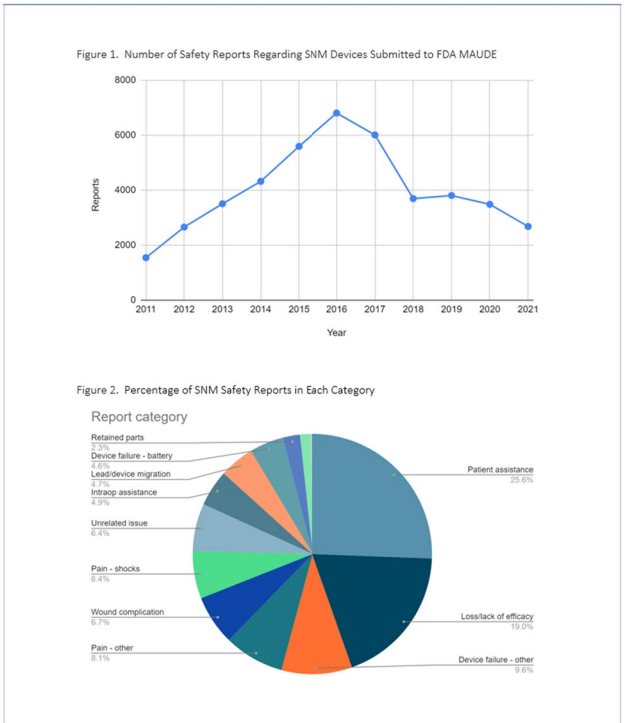

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Is Screening for Atypia, Atypical? The Role of Urine Cytology

O'Kane, M[1]; Da Silva, A[1]; Araklitis, G[1]; Davis, C[1]; Rantell, A[1]; Robinson, D[1]; Cardozo, L[1]
1 - King's College Hospital

Introduction: Non-visible hematuria (NVH) is a relatively common clinical finding that may be indicative of significant urinary tract disease. A recent meta-analysis revealed an overall pooled urinary tract malignancy rate of 3.3% in patients presenting with haematuria [1]. Urinary cytology, which was first described by Papanicolaou and Marshall, is frequently employed to investigate NVH. Urine cytology has a specificity of >95%, but a sensitivity ranging between 38–84% in high-grade bladder cancer, and an even lower sensitivity for low-grade disease (20–53%) [2]. For that reason, there is no consensus among guidelines regarding the inclusion of urinary cytology in the assessment of NVH. In addition, there are concerns that false positive results may lead to over-investigation and undue anxiety for patients.
Objective: To review the results of urine cytology in patients with non-visible haematuria presenting to an outpatient urogynaecology clinic.
Methods: Between January 2020 and October 2021, patients with lower urinary tract symptoms, presenting to an outpatient urogynaecology clinic, who were found to have non-visible haematuria on urinalysis, had samples sent for urine cytology. Electronic

patient records were retrospectively reviewed to obtain demographic details, data regarding primary presenting symptom and the results of both urine cytological examination and further diagnostic testing.

Results: The urine cytology results of 229 patients were reviewed. The mean age of patients was 59.2 years (range 25-94). No cases of urinary tract malignancy were identified. A total of 173 patients underwent cystoscopic evaluation, 55 patients had already been investigated previously and therefore required no further follow up. Table 1 shows the urine cytology results of the cohort. Among those with normal cytology results, 50 patients underwent rigid cystoscopy and had bladder biopsies taken, 69 patients had a flexible cystoscopy. All bladder biopsies identified chronic inflammation only. 54% of flexible cystoscopies demonstrated normal bladder appearance. The remaining 46% showed evidence of infection, atrophic changes and detrusor overactivity. In the 'Atypia' group, eight out of eleven patients underwent rigid cystoscopy and bladder biopsies were taken. The remaining 3 patients had a flexible cystoscopy. Both patients in the 'Low grade urothelial malignancy' group underwent rigid cystoscopy and had bladder biopsies taken. 100% of bladder biopsies demonstrated chronic inflammation. All patients in both the 'Atypia' and 'Low-grade urothelial malignancy' groups had further imaging in the form of either CT urogram or ultrasound of the renal tract. All were negative for urinary tract malignancy.

Conclusions: The low incidence of atypia on cytological testing in this cohort, and the absence of urinary tract malignancy on subsequent investigation, echoes the findings of previous studies challenging the value of urine cytology compared to cystoscopy and upper tract imaging [3]. If further diagnostic evaluation is indicated by the presence of lower urinary tract symptoms, urine cytological testing could be rationalized without compromising diagnostic accuracy. This would reduce the risk of causing unnecessary anxiety among patients and avoid over-investigation.

Disclosure: No

Images:

Table 1- Elastogram characteristics in subjects with Fecal Incontinence

Variables		All n=115	Fecal Incontinence (FI) n=46	No Fecal Incontinence n=69	P value
Bladder	Rhabdosphincter	36.15±17.12	34.29±15.30	37.42±18.27	0.34
	Suburethra	34.62±15.31	33.29±13.77	35.54±16.33	0.45
	Trigone	25.79±14.12	29.03±15.76	23.55±12.51	0.05
Para-Anus	External anal sphincter	55.63±22.97	56.08±24.97	55.30±21.57	0.87
	Perineum Axial	54.33±25.80	54.57±24.76	54.15±26.77	0.94
	Perineum sagittal	47.61±27.41	50.84±28.81	45.12±26.27	0.30
	Levator plate sagittal	54.09±22.25	53.91±24.21	54.23±20.94	0.94
Levator ani	Right Levator ani enthesis (eLAM)	27.42±12.89	27.15±12.40	27.63±13.35	0.85
	Left Levator ani enthesis (eLAM)	25.23±13.31	25.41±13.30	25.10±13.42	0.42
	Right mid levator ani (mLAM)	35.74±20.81	33.82±19.69	37.16±21.65	0.90
	Left mid levator ani (mLAM)	32.15±18.03	30.12±17.81	33.65±18.20	0.33

Table 2-Elastogram characteristics in subjects with Fecal Incontinence according to menopausal status

Variables		Menopause group n=41			Premenopausal group n=74		
		Fecal Incontinence n= 26	No Fecal Incontinence n=15	P value	Fecal Incontinence n=20	No Fecal Incontinence N=53	P value
Bladder	Rhabdosphincter	35.15±12.65	35.26±15.38	0.98	33.16±18.48	37.99±19.05	0.33
	Suburethra	36.29±14.72	28.78±10.47	0.10	29.38±11.64	37.36±17.21	0.06
	Trigone	29.35±15.77	22.14±10.92	0.15	28.59±16.19	23.92±12.98	0.23
Para-Anus	External anal sphincter	60.87±25.97	50.37±15.05	0.19	50.33±23.05	56.70±23.03	0.31
	Perineum Axial	60.03±25.62	52.02±24.93	0.37	48.02±22.59	54.76±27.52	0.34
	Perineum sagittal	55.00±31.79	48.12±22.00	0.49	45.84±24.63	44.23±27.57	0.83
	Levator plate sagittal	51.56±24.00	58.67±24.60	0.40	56.85±24.76	53.07±19.99	0.51
Levator ani	Right Levator ani enthesis (eLAM)	29.13±13.48	29.00±20.27	0.98	24.57±10.63	27.29±11.32	0.36
	Left Levator ani enthesis (eLAM)	26.14±11.73	28.18±18.44	0.68	24.50±15.31	24.28±11.85	0.95
	Right mid levator ani (mLAM)	36.82±22.47	41.12±27.41	0.61	29.72±14.70	36.19±20.23	0.21
	Left mid levator ani (mLAM)	30.76±14.69	34.19±24.30	0.59	29.27±21.65	33.50±16.45	0.39

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Understanding Two Decades of Safety Reporting for Sacroneuromodulation: An Analysis of the FDA MAUDE Database

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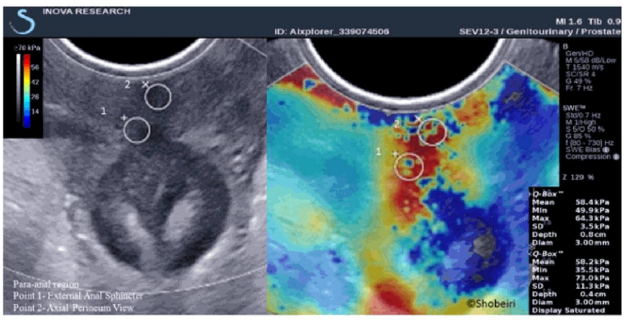
3 - UCSD

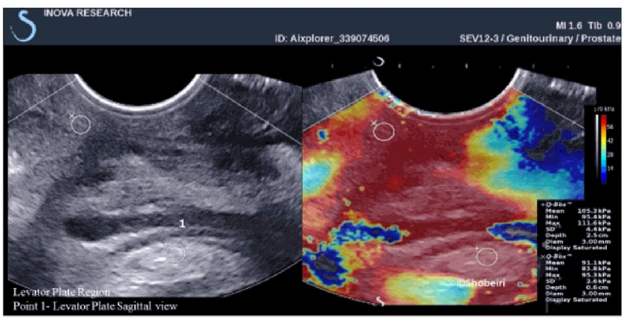
Introduction: Sacral neuromodulation (SNM) was first FDA-approved for the treatment of urinary urge incontinence (UUI) in 1998 and has gone through many modifications over time. As of 2021, more than 350,000 SNM devices have been implanted.1 The clinical applications of this treatment modality have evolved over time, as has the SNM technology, with little update in the safety information beyond the initial clinical trials. Two prospective trials found the most common adverse events (AEs) for patients with SNM devices to be undesirable change in stimulation (12% of subjects), pain (6-7%), infection (3-4%), battery failure (5%), and user error (5%).2,3

Objective: To generate a more recent and "real-world" understanding of SNM complications outside the confines of a clinical trial we analyzed the U.S. Food and Drug Administration (FDA) Manufacturer and User Facility Device Experience (MAUDE) database. The MAUDE database is a repository for medical device safety reports submitted by mandatory and voluntary reporters.4 The purpose of this work is to provide a comprehensive analysis of the SNM safety data and how it

has evolved with the expanded clinical indications and technological advancements. Specifically, we sought to determine what AEs are the most common in general practice.
Methods: The FDA MAUDE database was searched using the brand name InterStim on the simple search form for the dates 1/1/11 through 9/30/21 and the categorical search from 1/1/1998 through 12/31/2010. The data extracted included report number, event date, event type, date reported, and event description for 44,122 reports. A random sample of 1000 reports were analyzed. The event description for each report was reviewed and the report was labeled as pertaining to one of 13 general categories. See Table 1 for categories and definitions.
Results: 44,122 reports related to the SNM were registered in the MAUDE database from 1/1/98 through 9/30/21. Key word search does not allow review of data beyond ten years prior and our categorical search from 1998-2010 did not return any results. The distribution of total reports by year is illustrated in Figure 1. Table 1 provides representative quotations from safety reports in each category. Most safety reports fell into the category of a patient's need for assistance with using the device, closely followed by a loss or lack of efficacy and other device failures. Figure 2 illustrates the relative frequency of each category of report in the random sample. Interestingly, a notable percentage of the reports related to non-shock pain (32%), painful shocks (27%), and lead or device migration (30%) also mentioned that the patient fell prior to onset of symptoms.
Conclusions: Consistent with literature, the complications reported from SNM were minor. This review confirms the "real-world" safety of the SNM device with no serious events identified in our random sample. Many of the reports submitted as "adverse events" are not truly adverse events, but rather need for support from device manufacturer representative or known limitations of the device, such as battery life. This finding points to the need for better and ongoing patient education efforts regarding this treatment modality.
Disclosure: No
Images:

Figure 1- Elastogram measurements for para-anal region





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Comparison of Elastic Properties of the Pelvic Floor Muscles in Patients with Fecal Incontinence Compared to a Control Group
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Introduction: Fecal incontinence (FI) is prevalent in up to 15% of all individuals and more prevalent in women with other pelvic floor disorders. FI has been found in association with obstetrical trauma, particularly obstetric injury to the anal sphincter. Ultrasound shear wave elastography (SWE) is an imaging method that quantifies tissue stiffness and elasticity using sound waves. We hypothesized FI patients have distinct SWE characteristics when compared to non-FI patients.
Objective: Assess SWE and ultrasound characteristics in FI compared to non-FI patients
Methods: Our single-center observational study included all comers to urogynecology clinic. Data collection included baseline characteristics, physical examination data, questionnaire scores, PDFI and PFIQ, pelvic floor sonographic measurements, and elastography measurements. The SWE was carried out using the Aixplorer® (Supersonic Imagine) ultrasound machine with the 12-3 MHz endocavity probe. The measurements were reported in Kilopascal (kPa). The SWE measurements were taken over the paraurethral region, the levator ani, the anal canal and perineum. The study population was defined by the Colorectal-Anal Distress Inventory 8 (CRADI-8) questionnaire, question 9 regarding the loss of well-formed stool.
Results: A total of 115 subjects were included in the study, 46 with FI and 69 without. The FI group was significantly older and had higher prevalence of hypertension; all other baseline characteristics, were similar. The FI group had higher scores in the PFIQ the PFDI and the CRADI questionnaires. The two groups have equivocal POPQ measurements in all points. The two groups differed in the sonographic measurements, with a larger minimal levator hiatus (MLH) (13 vs. 11, p=0.05) and a more positive levator plate decent angle (LPDA) in the FI group (-4.3 vs. -9.7, p=0.02). The vaginal probe to the levator plate distance (LIFT), both in rest, in squeeze and the delta of the two were higher in the FI group, albeit, not statistically significant. SWE measurements for the two groups are presented in Table 1. The higher measurement in the trigone area reached statistical significance (p=0.05). Higher measurements were also found in the sagittal view of the perineum and lower measurements were found in the Rhabdosphincter and the mid levator ani views on both sides, but without statistical significance. All other measurements were equivocal. A subgroup analysis according to menopause was performed, while statistical significance was not reached, higher SWE measurements were found in the postmenopausal group in the suburethra zone (36 vs 29), the external anal sphincter (61 vs. 50), both axial and sagittal views of the perineum (60 vs 48 and 55 vs 46, respectively), and the Levator ani enthesis and mid views of the right levator ani (29 vs 24 and 37 vs 30, respectively). When comparing patients with FI according to menopausal state, no statistically significant differences were found. Measurements are presented in Table 2.
Conclusions: Tissue elastic properties of the pelvic floor change in patients with fecal is promising. Further exploration is needed to utilize the elastography as part of patient assessment.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant to MEMIC, COSM, TRACKIMED
Images:

Table 1. Demographics.*

	All patients (n=107)	Sexually active (n=37)
Age, years	34.2 ± 6.7	35.0 ± 7.1
BMI, kg/m²	21.3 ± 2.3	21.1 ± 2.3
Parity		
0	4 (3.7%)	0 (0%)
1-3	50 (46.7%)	13 (35.1%)
4-6	25 (23.4%)	10 (27.0%)
7-9	20 (18.7%)	10 (27.0%)
≥10	8 (7.5%)	4 (10.8%)
Marital Status		
Single	4 (3.7%)	1 (2.7%)
Married	84 (78.5%)	35 (94.6%)
Divorced	12 (11.2%)	1 (2.7%)
Widowed	7 (6.5%)	0 (0%)
Pelvic pain	40 (37.4%)	10 (27.0%)
Duration of prolapse symptoms		
<1yr	2 (1.9%)	0 (0%)
1-2yrs	39 (36.4%)	17 (46.0%)
2-5yrs	52 (48.6%)	15 (40.5%)
6-8yrs	9 (8.4%)	3 (8.1%)
>8yrs	5 (4.7%)	2 (5.4%)
Stress incontinence	52 (48.6%)	15 (40.5%)
Urge incontinence	42 (39.3%)	11 (29.7%)

*Data are presented as mean ± SD or numbers of women (% of cohort or subgroup).

Table 2. Pelvic organ prolapse/urinary Incontinence Sexual Questionnaire-12 (PISQ-12) results.*

	All patients (n=107)	Sexually active (n=37)
Sexual desire (never/less than once a month)	42 (39.3%)	11 (29.7%)
Orgasm during intercourse (never/seldom)	61 (57.0%)	21 (56.8%)
Sexual excitement (never/seldom)	59 (55.1%)	20 (54.1%)
Satisfaction with sex life (never/seldom)	53 (49.5%)	21 (56.8%)
Dyspareunia (always/usually)	48 (44.9%)	6 (16.2%)
Urinary incontinence during intercourse (always/usually)	12 (11.2%)	0 (0%)
Fears of incontinence which restrict sexual activity (always/usually)	34 (31.8%)	3 (8.1%)
Avoidance of sexual activity due to bulging in the vagina (always/usually)	66 (61.7%)	9 (24.3%)
Negative emotional reactions during intercourse (always/usually)	52 (48.6%)	7 (18.9%)
Partner with problems with erections (always/usually)	11 (10.2%)	1 (2.7%)
Partner with problems with premature ejaculation (always/usually)	17 (15.9%)	2 (5.4%)
Intensity of orgasms compared to the past (much less intense/less intense)	66 (61.7%)	7 (18.9%)
Total score (mean ± SD)[μ]	23.9 ± 6.3	23.9 ± 7.1

*Data are presented as numbers of women (% of cohort or subgroup).
[μ]Total PISQ-12 scores range from 0 to 48.

URINARY INCONTINENCE BY WORK AREA

Work area	No Urinary Incontinence	Stress UI	Urgency UI	Mixed UI	Total UI
Doctors	62 (73.82)	11 (13.09)	6 (7.14)	5 (5.95)	22 (26.18)
Nursing Staff	41 (35.66)	42 (36.52)	13 (11.30)	19 (16.52)	74 (64.34)
Administrative	24 (47.1)	18 (35.3)	3 (5.9)	6 (11.7)	27 (52.9)
General Services	6 (30)	13 (65)	0 (0)	1 (5)	14 (70)
TOTAL	133 (49.3)	84 (31.1)	22 (8.1)	31 11.5)	

*Urinary Incontinence (UI)

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How do you do it? Heterogeneity in Technique for Uterosacral Ligament Suspension for Apical Prolapse

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Introduction: Uterosacral ligament suspension (USLS) is a durable surgical treatment for apical prolapse. The utilization of the USL was first described with the McCall's culdoplasty prolapse repair in 1957. Several modifications to McCall's procedure were subsequently developed. Further adoption in USLS in the United States followed the publication of the high USLS technique in 2000 by Shull et al. While incorporation of the USL is a well-known step in the treatment of apical prolapse, there likely exists significant variability in specific technique amongst practices nationally and internationally.

Objective: To describe the practice patterns and particular techniques for performing USLS for the treatment of apical prolapse.
Methods: A web- based IRB exempt survey was sent to surgical societies whose membership who focused on the treatment of pelvic organ prolapse; the American Urogynecologic Society, American Association of Gynecologic Laparoscopists urogynecology special interest group, and the Urogynaecological Society of Australasia. Data was collected in RedCap and descriptive statistical analyses were performed.
Results: Survey results were collected via RedCap® and yielded 242 responses. The majority of respondents were from the United States (68.3%), followed by Brazil (10%) and Australia (5.8%). There was a bimodal distribution with the majority of surgeons being 20 years in practice. Fifty-four percent of respondents perform >100 surgeries per year with a mean of 71.5% of cases being for apical prolapse support. The USLS was the most common apical support procedure performed by respondents, in addition to being the most common procedure taught during their fellowship. Responses revealed that the USLS is performed by nearly half (45.9%) of respondents >40% of the time for apical support, while 14.2% and 21.9% performed sacrospinous ligament suspension and sacral colpopexy, respectively. Vaginal access and the ipsilateral high uterosacral ligament technique were the most common route and technique performed. When placing sutures vaginally, 52% of respondents reported using 2 sutures per side, while 28.3% used 3 sutures per side. Only 31.5% of respondents use some type of permanent suture vaginally. Midline uterosacral plication was less common, with 22.8% of respondents performing this technique preferentially. When performing midline plication, 1 or 2 sutures were used 82% of the time. When placing sutures robotically, 40% of surgeons use permanent suture. There was a similar response rate between placing sutures at (45.1%) or above the level of the ischial spine (44.3%). The remainder of respondents placed the sutures more distally.
Conclusions: Standardization of the optimal surgical technique is important in any specialty, especially in the setting of performing and publishing clinical trials. This study has revealed significant heterogeneity in the techniques to perform USLS for apical prolapse and represents a first step in better understanding how surgical outcomes for patients can improve.
Disclosure: No

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Sexual Function among Premenopausal Women with Pelvic Organ Prolapse Presenting for Surgical Repair in Democratic Republic of the Congo

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Introduction: Pelvic organ prolapse (POP) is a global problem that impairs physical, psychological, social, and sexual aspects of women's lives. Most of the literature on POP has been generated from data in high-income countries, majority of whom are postmenopausal. In the Democratic Republic of the Congo (DRC), a significant proportion of patients who present for surgical management of POP are premenopausal. However, little is known about the impact of POP on sexual function in this population.
Objective: To assess the impact of POP on female sexual function among premenopausal women presenting for POP surgery in the Democratic Republic of the Congo (DRC).
Methods: We performed a prospective study of symptomatic premenopausal patients presenting for POP surgery to a large referral hospital for gynecologic care in the DRC. POP was assessed using the Pelvic Organ Quantification (POPQ) system. Sexual function was evaluated using the validated French-language version of the Pelvic organ prolapse/urinary Incontinence Sexual Questionnaire-12 (PISQ-12). Demographic data were extracted from patient intake forms. A sub-group analysis was performed amongst women who reported being sexually active within the previous 3 months. Data are presented as means with standard deviations (SD) or as numbers of women and percentages.
Results: A total of 107 patients were recruited between April 2019 and December 2021. Of these, 102 (95.3%) had stage III and 5 (4.7%) had stage IV prolapse. Age was 34.2±6.7 years; 84 (78.5%) were married (Table 1). Almost two-thirds of the women (70, 65.4%) reported no longer being sexually active, and 80% of these women stated that they were not sexually active because of the POP. The remaining 37 (34.6%) reported being sexually active within the previous 3 months, and majority reported significant sexual impairment due to the prolapse, with only 4 women reporting that they were not affected. Overall PISQ-12 scores in this cohort were 23.9±6.3 (total score 48). For the 37 patients who reporting being sexually active, the PISQ-12 scores were 23.9±7.1. Overall, 52 (48.6%) reported usually or always having a negative emotional reaction during intercourse, and 66 (61.7%) reported avoiding sexual activity because of bulge symptoms (Table 2). Among the 37 women who reported being sexually active within the previous 3 months, 20 (54.1%) reported that they were never/seldom sexually excited and 21 (56.8%) were never/seldom satisfied with their sex lives.
Conclusions: These results highlight the devastating effects on sexual function associated with POP for premenopausal women in western Sub-Saharan Africa. Overall, our findings suggest that sexual function should be addressed in this population and attention to treatment of POP should be a priority for women in the DRC.
Disclosure: No
Images:

CHARACTERISTICS OF FEMALE PERSONNEL WITH URINARY INCONTINENCE

Personal con IU (n°)	DOCTORS(22)	NURSE (74)	ADMINISTRATIVE(27)	GENERAL SERVICES(14)
Age	36.05 (10.6)	41.14 (9.2)	42.44 (7.3)	39.07 (5.5)
IMC kg/m2	26.18 (3.7)	28.24 (4.5)	28.4 (3.6)	29.21 (8.09)
Smokers n(%)	3 (13.6)	7 (9.4)	3 (11.1)	1 (0.7)
Alcohol cosumption (%)	3 (13.6)	8 (10.8)	3 (11.1)	0 (0)
Constipation n (%)	9 (40.9)	35 (47.2)	14 (51.8)	8 (57.1)
Diarrhea	3 (13.6)	8 (10.8)	4 (14.8)	1 (0.7)
Exercise	14 (63.6)	26 (35.1)	5 (18.5)	4 (28.5)
Chronic diseases n(%)				
Diabetes	0 (0)	7 (9.4)	4 (14.8)	0 (0)
Hypertension	1 (4.5)	6 (8.1)	2 (7.4)	2 (14.2)
Pulmonary Diseases	3 (13.6)	6 (8.1)	3 (11.1)	1 (0.7)
hypothyroidism	3 (13.6)	9 (12.1)	6 (22.2)	1 (0.7)
Gestational n (%)	10 (45.4)	59 (79.7)	24 (88.8)	12 (85)
Childbirth	3 (13.6)	23 (31)	10 (37)	8 (57.1)
Cesarean section	7 (31.8)	45 (60)	15 (55.5)	7 (50)
Miscariage	6 (27.2)	12 (16.2)	2 (7.4)	2 (14.2)
Macrosomia n (%)	1 (4.5)	4 (5.4)	1 (3.7)	3 (21.4)
Forceps n (%)	1 (4.5)	4 (5.4)	3 (11.1)	0 (0)
Episiotomy n (%)	3 (13.6)	14 (18.9)	6 (22.2)	8 (57.1)

Table 1: Patients with OAB and PCP Referral Patterns By Race/Ethnicity From 01/2018 to 01/2020			
Race/ Ethnicity	Referral For OAB	No Referral For OAB	Total OAB Pts
White	6211 (6214.04) [0.00]	578 (574.96) [0.02]	6789
Black	336 (340.50) [0.06]	36 (31.50) [0.64]	372
Hispanic	156 (154.69) [0.01]	13 (14.31) [0.12]	169
Asian	214 (207.78) [0.19]	13 (19.22) [2.02]	227
Total	6917	640	7557

The p-value is .384. The result is not significant at p < .05.

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Prevalence of Urinary and Fecal Incontinence in Female Staff in a High Specialty Hospital in Guadalajara México

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Introduction: Pelvic floor disorders, mainly urinary incontinence and fecal incontinence are problems that affect a large part of women regardless of their age, due to the presentation and severity of the symptoms, it will depend on multiple risk factors that might influence the patient. Affecting their quality of life in all aspects, and in some cases it may become a reason for absenteeism from work, sexual dysfunction or social isolation;However, despite of the morbidity of these pathologies, they are underdiagnosed because a large part of the patients are afraid of being singled out or socially rejected and consequently do not look for the necessary medical attention.
Objective: To determine the prevalence and clinical characteristics of urinary and fecal incontinence in female staff in a high specialty hospital in Guadalajara México
Methods: The present study will be carried out as a descriptive cross-sectional study, within the facilities of a high specialty hospital in Guadalajara México,in non-pregnant women of legal age who are within the 2021 workforce and who agrees to participate in the study through an informed consent.A sample of 261 women is estimated based on the number of workers and, in a calculation regarding of the prevalence described in the literature. The study was implemented with the application of the 3IQ test and wexner test respectively.Besides of a simple questionnaire that includes the patient's background that could be related to these pelvic floor pathologies.
Results: 270 women who are part of the staff were included. We group them globally into 4 categories according to their job position: Medical 84 (31%), Nursing 115(42.6%), Administrative staff 51 (18.9%) and General Services 20 (7.4%). Regarding urinary incontinence, we found that 137 women(50.7%) reported some involuntary loss of urine. 84 women(31.1%) referred involuntary loss of urine with stress characteristics, 22 (8.1%) urgency and 31(11.5%) with symptoms of mixed urinary incontinence. According to the sandvick classification we found 79 of this woman(57.6%) had a mild degree of severity, 53(38.7%) moderate and 5(3.7%) were classified as severe. According to the labor area, urinary incontinence were present in 22 women (26.18%) of the medical area,nursing staff 74 of them (64.34%),administrative staff 27(52.9%) and 14(70%) women for the general services personnel. Regarding fecal incontinence, only 20 women (7.4%) presented fecal incontinence, of which 18 of them (6.7%) according to the Wexner score a mild fecal incontinence, and 2 women (0.7%) a moderate. 15 of them (75%) are nursing personnel, 5 (25%) administrative. Of the 270 women included in our protocol, 18 (6.6%) have dual incontinence.
Conclusions: We found a high prevalence of pelvic floor problems, especially urinary incontinence in female staff of the UMAE GINECO-OBSTETRICIA.And it is noteworthy that it is a young, economically active population. And despite of being in the health care environment, the search for consultation by female staff to follow up on these problems is low.
Disclosure: No
Images:

Table 1. Sociodemographic characteristics of women with surgical intervention for apical pelvic organ prolapse			
Characteristics	**Laparoscopic/Robotic Repair N (%)**	**Vaginal Repair N (%)**	**p-value**
Total	27 (19.01)	115 (80.99)	
Age	57.74 (9.24)	60.25 (12.16)	0.23
Gravidity	3.51 (1.65)	3.53 (2.10)	0.76
Parity	2.63 (1.28)	2.78 (1.54)	0.69
Ethnicity			
Hispanic	20 (17.86)	92 (82.14)	0.73
Non-Hispanic	6 (20.69)	23 (79.31)	
Primary Language			
English	14 (25.45)	41 (74.55)	0.15
Spanish	13 (15.48)	71 (84.52)	
Insurance type			
Medicare/aid	2 (8.33)	22 (91.67)	0.05
Private/commercial	24 (20.51)	93 (79.49)	
Other	1 (100.0)	0 (0.0)	
Body Mass Index (BMI)			
Normal	7 (19.44)	29 (80.56)	0.06
Overweight	12 (31.58)	26 (68.42)	
Obese	8 (12.31)	57 (87.69)	
Stage of prolapse			
Stage 1	9 (16.07)	47 (83.93)	0.78
Stage 2	14 (21.21)	52 (78.79)	
Stage 3	3 (18.75)	13 (81.25)	
Stage 4	1 (25.00)	3 (75.00)	
Prior Hysterectomy	6 (15.00)	34 (85.00)	**0.4**

Table 2. Logistic Regression of Factors Influencing Surgical Approach of POP Repair			
Characteristic	**Adjusted OR**	**95% CI**	**p-value**
Prior Hysterectomy	1.57	0.51-4.68	0.428
Age	1.03	0.98-1.08	0.236
Gravidity	0.88	0.62-1.24	0.465
Parity	1.17	0.68-2.00	0.571
Stage of prolapse (ref=stage 1)			
Stage 2	0.65	0.21-2.04	0.465
Stage 3	0.43	0.08-2.26	0.321
Stage 4	0.24	0.05-30.64	0.323
Primary language (ref=English)			
Spanish	1.27	0.42-3.82	0.670
Insurance (ref=Medicare/aid)			
Commercial/Private	0.28	0.04-1.63	0.159
Ethnicity (ref=Hispanic			
Non-Hispanic	0.53	0.14-2.10	0.368
BMI (ref=Normal)			
Overweight.	0.46	0.13-1.57	0.214
Obese	2.14	0.60-7.60	0.239

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PCP Referral Patterns to Urogynecologic Care Based on Race/Ethnicity For OAB

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Introduction: Overactive Bladder (OAB) is a prevalent condition that affects up to 30% of US women. The literature does not describe a racial difference in the prevalence of OAB, yet patients of color are disproportionately under-represented in treatment for OAB by subspecialists. Primary Care Providers (PCPs) are often the gatekeepers to subspecialty care and understanding their referral patterns is fundamental in better articulating health disparities in access to subspecialty care.

Objective: The primary aim of this research is to evaluate if health disparities exist in the diagnosis and referral patterns of PCPs affiliated with an urban academic center for OAB based on race and ethnicity. The secondary aim is to determine whether there are racial/ethnic differences in the utilization of third-line OAB treatments that may indicate disparities in access to care.
Methods: The data was derived from the electronic medical record system database at a racially diverse academic urban center. We identified female patients who were diagnosed with OAB at their PCP appointment between 01/2018 and 01/2020. Of those patients with a diagnosis of OAB, we evaluated who had a referral placed with subspecialty care with Urogynecology or Urology. These patients were then stratified based on their racial and ethnic groups, which were identified as White, Black, Hispanic, and Asian. Among this cohort of patients, those who had received percutaneous tibial nerve stimulation (PTNS) or sacral neuromodulation (SNM) were further stratified. These two treatments were selected due to the relatively increased need for transportation and time off work associated with accessing these options.
Results: A total of 7757 patients were diagnosed with OAB at their PCP visit. Of these patients, 6917 were referred to urogynecologic or urologic care. When these patients were stratified by race/ethnicity, 89.8% identified as White, 4.9% Black, 2.2% Hispanic, and 3.0% Asian. There was no statistically significant difference in referral rates with p-value of 0.384 (Table 1). Among this cohort of patients, it was also evaluated which patients received 3rd line treatment. 108 patients (1.56%) had received PTNS or SNM, all of whom identified as white.
Conclusions: Diagnosis of OAB in this cohort occurred more frequently among White patients who comprised 89.8% of the patients identified. As such, patients of color are not proportionally represented in this cohort diagnosed with OAB, and it is unclear why. More research is needed to understand this disparity. However, this research does suggest that once OAB is diagnosed by PCPs at this institution, these patients are referred at equal rates based on race/ethnicity. Finally, utilization of PTNS or SNM among OAB patients at this institution is not common with only 108 patients identified. Of these patients, all identified as White. This trend could be due to the low rates of these procedures and the low representation of patients of color in this cohort. However, our findings could also indicate disparate access to these 3rd line treatments among patients of color. More research is needed to understand these findings.
Disclosure: No
Images:

Table 1- Elastogram characteristics in subjects with POP

Variables		All	POP n=43	Other n=66	P value
Bladder	Rhabdosphincter	35.65±16.49	33.45±13.31	37.01±19.13	0.20
	Suburethra	33.89±15.91	35.41±13.05	32.93±17.48	0.39
	Trigone	26.15±14.79	25.67±15.16	26.48±14.63	0.77
Para-Anus	External anal sphincter	53.52±23.34	46.83±17.19	57.83±25.75	0.01
	Perineum Axial	50.55±25.44	42.78±19.22	55.72±27.79	0.01
	Perineum sagittal	47.85±28.37	37.65±23.15	54.69±29.63	0.001
	Levator plate sagittal	54.23±22.27	48.60±20.21	57.81±22.89	0.02
Levator ani	Right eLAM	27.36±13.04	23.31±10.82	30.06±13.74	0.01
	Left eLAM	25.20±13.34	22.83±12.13	26.78±13.95	0.11
	Right mLAM	33.77±20.16	28.70±13.95	36.83±20.50	0.03
	Left mLAM	31.68±17.86	32.01±18.30	31.45±17.68	0.87

* mLAM- mid levator ani, eLAM- the Levator ani enthesis

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A Digital Health Program for Conservative Treatment of Urinary Incontinence: A Retrospective Review of Commercial User Data

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Introduction: Urinary incontinence (UI) is highly prevalent, with over 28 million women in the Untied States experiencing moderate to severe symptoms. Challenges of first-line therapy for UI include the correct performance of pelvic floor muscle training (PFMT), as well as consistent performance of PFMT for the duration needed to achieve results.
Objective: To evaluate outcomes and adherence to pelvic floor muscle training with a digital health program prescribed for the treatment of stress, urgency, and mixed UI among a cohort of commercial users.
Methods: This is a retrospective cohort study of commercial data from users of a digital health program between July 1, 2020-July 1, 2021. The primary outcome was the change in UI symptoms as reported on the Urogenital Distress Inventory (UDI-6). The program includes twice daily exercises with an intra-vaginal device that detects motion during pelvic floor muscle exercise, paired with a smartphone application to provide visual feedback about pelvic floor muscle performance. UDI-6 surveys were administered via the app, and data was cloud- captured. This study received an IRB exemption. Included subjects were female, >/= 18 years with a diagnosis of stress, urgency, or mixed UI who completed the UDI-6 at baseline and 8-weeks. Demographic, symptom, and adherence data was summarized. Paired t-test was used to analyze change in outcomes from baseline to 8-weeks, and ANOVA was used to evaluate differences in outcomes between adherence groups.
Results: Of 271 subjects identified with a UI diagnosis, 140 provided baseline and 8-week data and were included in the final analysis. Excluded subjects did not differ significantly in age or reported demographics. Mean age was 50.1 (SD 11.8, n=126) and mean BMI was 27.5 (SD 6.3, n=46). Mean UDI-6 score at baseline was 43.9 (SD 19.6) and at 8-weeks was 28.6 (SD 18.2); absolute mean change was 15.3 (SD 16.0, p<0.0001). Sixty-three percent (82/130) reached or exceeded the minimum clinical important difference of 11 points by 8-weeks (29.1, SD 30.3, p<0.0001). Cumulative adherence was 70% at 4-weeks and 66% at 8-weeks (14 uses/week = 100%). Subjects who used the device 7 or more times per week demonstrated greater improvement compared with those who used the device </= 6 times per week (UDI-6 absolute mean change 17.0 vs 9.3; p=0.0209).
Conclusions: This study demonstrates effectiveness of a digital health program in reducing UI symptoms among this cohort of users in a real-world setting. Users achieved statistically and clinically significant symptom improvement over an 8-week period. Those who used the device at least once daily on average achieved greater improvement. More complete data collection, particularly relevant demographic and clinical information will enhance the value and applicability of the data.
Disclosure: Yes, this is sponsored by industry/sponsor: Renovia Inc.
Clarification: Industry initiated, executed and funded study
Any of the authors act as a consultant, employee or shareholder of an industry for: Renovia Inc.

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Transvaginal versus Abdominal Surgical Repair for the Correction of Apical Pelvic Organ Prolapse: Do Socioeconomic Factors Predict Surgical Approach?

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Introduction: Pelvic organ prolapse affects close to 50% of parous women and has a diverse range of treatment options. When non-surgical interventions, such as pelvic floor physical therapy and pessary use, fail to improve symptoms of prolapse, it is common for patients to opt for surgical intervention. Apical vaginal prolapse can be surgically managed via a transvaginal or abdominal approach. Mesh-based abdominal approaches offer greater durability in terms of prolapse recurrence however are associated with mesh-specific complications. National trends indicate a growing public distrust of mesh utilization. While many factors contribute to selecting a surgical approach, the influence of patient clinical and sociodemographic factors such as race/ethnicity, history of prior hysterectomy, and insurance type have not been well described.
Objective: To determine if patient clinical and sociodemographic factors predict patients electing to undergo a transvaginal versus laparoscopic/robotic abdominal repair for treatment of apical pelvic organ prolapse.
Methods: A retrospective chart review of patients in the Urogynecologic practice at our tertiary care center was conducted through an IRB approved protocol. We identified patients between October 2019 and March 2021 with apical prolapse who underwent surgical repair via a transvaginal versus laparoscopic/robotic abdominal approach. Type of prolapse repair and patient clinical and sociodemographic variables were collected. Patients who were not offered both approaches were not collected. Contingency tables were created, and statistical significance was analyzed using the chi-square test. A logistic regression model was used to identify predictors of surgical approach for prolapse repair. A p-value of < 0.05 indicated statistical significance. All analysis was conducted using STATA MP 16.1 (College station, Texas).
Results: Among 943 pelvic organ prolapse patients, 142 (15.1%) underwent surgical prolapse repair over our study period. 30% underwent laparoscopic/robotic mesh-based sacrocolpopexy, laparoscopic/robotic 8% suture-based abdominal apical suspension, and 62% transvaginal hysteropexy. Sociodemographic details are reported in Table 1. Although patients with a history of prior hysterectomy were more likely to undergo a transvaginal approach (85% vs 15%, p=0.04), this did not remain predictive of approach on multivariate analysis (Table 2). There were no statistically significant differences in surgical approach by race/ethnicity, primary language spoken, BMI category, or stage of prolapse. Odds ratios are reported in Table 2.
Conclusions: Despite a growing national mistrust of mesh-based abdominal repairs, we found 30% of our patients with apical prolapse elected for a laparoscopic/robotic mesh-based sacrocolpopexy. In our population, patient clinical and socioeconomic factors were not predictive of undergoing laparoscopic/robotic abdominal versus transvaginal surgical correction of apical prolapse. Further investigations are needed to understand patient attitudes and perceptions towards abdominal versus vaginal based repairs, as well as the influence of surgeon counseling on surgical approach selected.
Disclosure: No
Images:

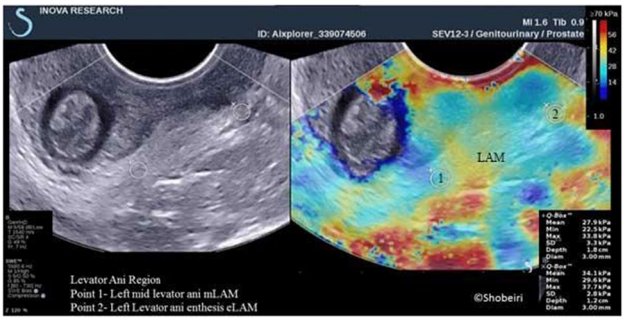

Table 1. Demographic and clinical characteristics at baseline

		TAH (n = 117)	TLH (n = 94)	*p*
Age at time of surgery (y)*		49.2 ± 6.8	49.2 ± 6.7	*0.99*
Age, present (y)*		57.1 ± 6.4	56.7 ± 7.3	*0.49*
Parity*		2.2 ± 1.3	2.7 ± 1.3	*0.01*
Previous vaginal deliveries *		2.1 ± 1.3	2.4 ± 1.4	*0.11*
Previous CS		15 (13%)	22 (23%)	*0.04*
Smoking		36 (30.7%)	28 (29.7%)	*0.87*
Menopause		21 (17%)	25 (26.5%)	*0.16*
Previous benign adnexal surgery		18 (15%)	13 (14%)	*0.75*
Presenting symptom:	- Vaginal bleeding	46 (68%)	28 (78%)	*0.36*
	- Abdominal Pain	6 (9%)	3 (8%)	*1.0*
	- Asymptomatic	7 (10%)	0	*0.15*
	- Urinary	4 (7%)	1 (3%)	*0.09*
Surgery indication:	- Leiomyoma and uterine bleeding	66 (97%)	36 (100%)	*0.54*
	- Molar pregnancy	2 (2%)	0	*0.54*

*mean ± SD

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Comparison of Elastic Properties of the Pelvic Floor Muscles in Patients with Pelvic Organ Prolapse Compared to a Control Group

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Introduction: Pelvic organ prolapse is a common morbidity with a prevalence of about 10% in all women. Advanced age, menopause, and vaginal delivery have been identified as the leading risk factors. Pelvic floor tissue characteristics have been previously examined using different modalities, including sonographic 3D characterization of the pelvic floor, pressure measurements of the pelvic floor structure using the Vaginal Tactile Imager, and manometry imaging. Ultrasound shear wave elastography (SWE) is a sonographic imaging technique that maps tissue stiffness. We hypothesized that the patients with POP have decreased elasticity as measured by SWE in the pelvic floor structures.
Objective: To assess if the patients with POP have decreased tissue elasticity as measured by SWE

Methods: Our single-center observational study included all comers to urogynecology clinic. Data collection included baseline characteristics, physical examination data, questionnaire scores, PDFI and the PFIQ, pelvic floor sonographic measurements as well as elastography measurements. SWE was carried out using the Aixplorer® (Supersonic Imagine) ultrasound machine with the 12-3 MHz endocavity probe. The elastography measurements in Kilopascal (kPa) were taken over the bladder area, the levator ani muscles, and over the anal area. The study population was defined by the POPQ physical exam results; if a (-1) result was recorded on any of the compartments, the prolapse was designated as stage 2 or above.

Results: A total of 133 subjects were included in the study, out of which 50 suffered from POP and 83 did not who made up the control group. The two groups had similar baseline characteristics: age and BMI; the POP had higher parity (2.4 vs. 1.3) and forceps deliveries (20 vs. 8%). The POP group had higher scores in the questionnaires, with a 119 vs. 86 score in the PFDI (p=0.01) and 46 vs. 29 in the POPDI (p<0.001). The POPQ measurements were higher for all three compartments in the POP group (p<0.001). The EVUS measurements differed between the two groups, including the distance measured between the pubic bone and the levator plate, a larger minimal levator hiatus, and a more positive levator plate decent angle. Figure 1 shows an example of the SWE examination and Table 1 summarize elasticity measurement results. The SWE measurements were found to be significantly lower for the POP group compared to the control group in all areas measured in both the levator ani zone and the para anus zone, showing lower measurements in the POP group. In contrast, the areas measured in the bladder zone had equivocal measurements between the two groups.

Conclusions: The patients with POP have significantly decreased elasticity as measured by SWE in the perineal and the levator ani muscle regions.

Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant for MEMIC, COSM, TRACKIMED

Images:

Table 2: Operative and Perioperative Findings

		TAH (n = 117)	TLH (n = 94)	*p*
Adnexectomy		37 (31.6%)	26 (27.6%)	*0.84*
Adhesions		24 (20.5%)	29 (30%)	*0.08*
Size of the uterus (week)*		17.0 ± 3.9	10.6 ± 3.1	*<0.001*
Additional procedure:	- Hernia Repair	5 (4%)	2 (2%)	*0.3*
	- TOT/BURCH	7 (6%)	12 (12%)	*0.23*
Complications:	- Fever / Infection	10 (8.5%)	7 (7.4%)	*1.0*
	- Re-Laparotomy	4 (3.4%)	1 (1%)	*0.65*
	- Urinary (ureter injury)	2(1.7%)	1 (1%)	*1.0*

*mean ± SD

Table 3. Long term outcomes

		TAH (n = 117)	TLH (n = 94)	*p*
Follow up (y)*		9.2± 1.6	8.3 ± 1.9	*0.01*
PFDI 20		29.6±40.0	44.0±55.3	*0.08*
POPDI-6*		6.5±12.5	9.5 ± 16.5	*0.12*
CRADI-8*		7.2 ± 14.2	13.3 ± 21.5	*0.04*
UDI-6*		15.9 ± 21.8	21.2 ± 25.0	*0.25*
General satisfaction (scale 1 -5)		3.1 ± 1.3	2.6 ± 1.2	*0.003*
Subsequent operations:	- TOT	7 (6%)	12 (12%)	*0.09*
	- POVH repair	5 (4%)	2 (2%)	*0.27*

*mean ± SD

PFDI-20 = Pelvic Floor Distress Inventory (questions 1 – 20)

POPDI-6 = Pelvic Organ Prolapse Distress Inventory (questions 1 – 6)

CRADI-8 = Colorectal-Anal Distress Inventory (questions 7-14)

UDI-6 = Urinary Distress Inventory (questions 15 – 20)

TOT = Trans-Obturator Tape

POVH = Post-Operative Ventral Hernia

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Difference in Pelvic Floor Related Symptoms and Patient's Satisfaction According to the Type of Hysterectomy

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Introduction: Hysterectomy techniques have evolved with advances in laparoscopic technologies, in an attempt to minimize patient morbidity. Because of technical difficulties, prolongation of operative time, or increased tissue trauma, some surgical steps are different at the time of laparoscopic hysterectomy. The type of hysterectomy performed may effect patient's pelvic floor related symptoms and general satisfaction.

Objective: The purpose of this study was to assess long term subjective and objective outcomes of pelvic organ prolapse following total abdominal hysterectomy (TAH) and total laparoscopic hysterectomy (TLH).

Methods: All cases of hysterectomies performed for benign indications, in a single tertiary medical center, between the years 2006 and 2016 were reviewed. Minimal follow up period was 5 years. Cases of TAH were compared to cases of TLH with regard to early postoperative course, subsequent urologic or gynecologic surgeries reported by the patients, and patients' current symptoms based on pelvic floor distress inventory-short form (PFDI-20) questionnaire.

Results: A total of 117 patients underwent TAH, and 94 patients had TLH for benign indications during the study period. There was no difference between the groups in terms of demographic characteristics (Table 1). The most common indications for hysterectomy were enlarge uterus due to leiomyomas and symptomatic uterine bleeding. Uterine size was bigger in the TAH group (Table 2). Although all components of pelvic floor symptoms were higher in patients who had TLH compared to patients who underwent TAH, only gastrointestinal symptoms were statistically significant. Overall general satisfaction rate was higher in the TAH group. There was no difference in the rate of repeat surgery between the two groups (Table 3).

Conclusions: Women undergoing TLH for benign indications, experienced higher rate of gastrointestinal symptoms, as compared to women undergoing TAH.

Disclosure: No

Images:

Fig1: Flow chart of the evaluation of patients at the RECOUP clinic

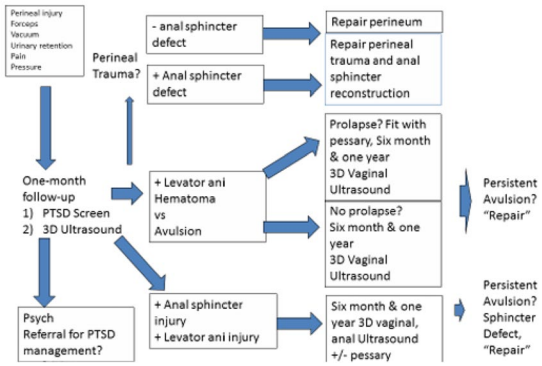

Table 1: Summary of clinical studies investigating methenamine for prevention of UTIs in women

First Author, Year	Number of Women	Mean age, years	Study Design	Study Setting	Methenamine dose and duration	Comparison
Methenamine Hippurate						
Parvio, 1976	52	84.7 (Range 65-96)	Prospective Cohort	Geriatric Population with chronic urinary infections	1 gm twice daily for 6 months	None
Murray, 1977	104	Unknown	Randomised prospective Case-Control	Women undergoing pelvic floor surgery	1 gm twice daily peri-operatively, varied duration	Sulphamethizole 200mg 5 times per day peri-operatively, varied duration
Tyreman, 1986	109	64 (Range 61 - 67)	Randomised prospective Case-Control	Women undergoing surgery for uterovaginal prolapse	1 gm twice daily for 5 days	No MH
Cronberg 1987	21	Unknown (Range 40-80)	Randomised crossover	Women aged 40-80 years with recurrent UTIs	1 gm twice daily, varied duration	Placebo, varied duration
Schiotz, 2002	150	58.3 (Range 30-87)	Randomised double-blind, placebo-controlled	Women undergoing routine gynaecologic laparotomy or pelvic floor surgery	1 gm twice daily for 5 days	Placebo for 5 days
Chu, 2016	85	MH 62.2 +/- 10.04, Ciprofloxacin 61.5 +/- 12.1	Randomised blinded non-inferiority trial	Women with catheterisation for longer than 24hours after major urogynaecological surgery	2 doses of MH 1gm	2 doses of Ciprofloxacin 500mg
Brumfitt, 1981	99	MH 35.9 +/- 16.7, Nitrofurantoin 31.3 +/- 13.2	Randomised prospective	Women with recurrent UTIs	1 gm twice a day for 1 year	Nitrofurantoin 50mg twice a day for 1 year
Methenamine Hippurate in combination with other agents						
Thomlinson, 1968	100	Unknown	Case-control prospective	Prevention after major gynaecological surgery	MH 1 gm 12hrly + sodium acid phosphate	Placebo
Brumfitt, 1983	64	Trimethoprim-39.9 +/- 20.5, MH-38.2 +/- 18, Povidone iodine-31.7+/- 14.3	Randomised control	Women with recurrent UTIs	1000mg MH every 12 hours for 1 year	100mg Trimethoprim at night for 1 year, Cleansing perineum with Povidone Iodine for 1 year
Quintero, 2019	14	59.5 (both men and women), (25% quartile:50 - 75% quartile:65)	Retrospective Cohort	Kidney transplant patients	MH 1 gm twice daily + Ascorbic acid 1gm twice daily for 2 years	None
Methenamine Mandelate						
Brumfitt, 1974	100	34.5	Randomised control	Women with recurrent UTIs	MM 1gm 6 hourly for 1 year, MH 1gm 6 hourly + supplementary fluids 1.5 litres for 1 year	Placebo to acidify the urine to a pH of <5.5 for a year

Table 2: Summary of clinical studies investigating methenamine for prevention of UTIs in both men and women

First Author, Year	Number of Patients	Mean age in years	Study Design	Study Setting	Methanamine dose and duration	Comparison	Prevention/ Treatment	Overall
Lee, 2007	305	43.5 (+/- 13.5), Range 16-82 years	Double Blinded RCT	Neuropathic bladder following a spinal cord injury	MH 1gm twice a day + a placebo for MH	MH 1gm twice a day + Cranberry 800mg twice daily, Cranberry 800mg twice daily with a placebo for MH, Placebo for both	Prevention	No benefit
Hollyer, 2018	38	50 (Range of 40 - 58)	Retrospective Cohort	Renal transplant patients	MH 1gm daily with Vitamin C	N/A	Prevention	Beneficial
Khan, 2014	4	Unknown	Retrospective cohort	Renal transplant patients	MH 1 gm twice a day	N/A	Prevention	Beneficial
Kasanen, 1982	290	50.5	Randomised Placebo Controlled Trial	Adults with recurrent urinary infections	MH 1gm once at night	Nitrofurantoin 75mg once at night, Trimethoprim 100mg once at night, Placebo once at night	Prevention	Beneficial
Hollyer, 2018	46	Unknown	Retrospective cohort	Renal transplant patients	MH - dose unknown	NA	Prevention	Beneficial
Banovac, 1991	56	Overall 35.15, MH 36.8 (+/-15), Control 33.5(+/-16)	Prospective case-control	Neurogenic bladder following a spinal cord injury	MH 1gm daily	No treatment	Prevention	Beneficial
Gow, 1974	73	40	Randomised cross-over	Adults with recurrent urinary infections	MH 1gm twice daily for 3 months and MM 1gm four times daily for three months	NA	Prevention	Beneficial
Kostiala, 1982	123	75	Prospective case-control	Elderly adults with long term catheters	MH 1gm twice daily + Ascorbic acid 500mg three times daily	Nitrofurantoin 50mg three times daily, no medication to control group	Prevention	Beneficial
Nilsson, 1975	24	51 (Range 26 - 67)	Prospective cohort	Adults with recurrent infections	1gm MH twice a day for 16 months	NA	Prevention	Beneficial
Norberg, 1980	36	Unknown	Randomised Placebo Controlled Trial	Hospitalised adults with indwelling catheters	MH 1gm three times a day	Placebo three times a day	Treatment Prevention	No benefit Beneficial
Geller, 2008	60	52.5 (+/- 8.82)	Retrospective Cohort	Adults with recurrent urinary infections	Methenamine, methylthioninium chloride or combination of both, varied duration	NA	Prevention	Beneficial

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The Role of a Dedicated Program in Psychologic Evaluation of the New Mothers with Obstetric Pelvic Floor Trauma: A Call to Action

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Introduction: Childbirth is usually perceived as a positive predictable event, while the postpartum period is known to be an emotional and challenging time for the mother. The prevalence of postpartum psychological and psychiatric disorders is high, especially among women who suffered from physical or psychological trauma before or during labor. Many go undiagnosed because of shame to declare the problem or the lack of knowledge or access to resources by the support staff. Postpartum depression and PTSD are particularly debilitating for both mother and the infant. Early diagnosis and treatment can improve the well-being of mothers and prevent catastrophic deterioration of psychologic trauma. Women benefit from referral to a dedicated resource skilled at a holistic approach to perineal trauma during labor, immediate or delayed postpartum pelvic floor disorders.
Objective: Emphasize the importance of early diagnosis of mothers at risk and evaluate the relationship between pelvic floor trauma and postpartum mood disturbances
Methods: We reviewed the literature regarding postpartum mood disturbances, including the whole mood spectrum from "baby-blues" to PTSD and psychosis, and their relationship to pelvic floor trauma using the PUBMED/NIH and GOOGLE SCHOLAR searching engines. Various models of care were reviewed and analyzed to create the best theoretical model.
Results: Evaluation and management of PTSD hinge on an accurate diagnosis of the inciting factor. In women who have vaginal birth-related pelvic floor trauma, the symptoms of normal postpartum recovery and pelvic floor trauma-related discomfort frequently overlap. Accurate diagnosis of pelvic floor trauma requires pelvic floor imaging. A theoretical model for 'motheRs' pElviC flOor sUpPort (RECOUP) clinic' employs a point of care ultrasound and mood disturbance screening tools such as Edinburg and CITI questionnaires. 3D-endovaginal ultrasound (EVUS) allows visualizing the entire pelvic floor musculature to make an accurate diagnosis and tailor the precise treatment for these patients. This theoretical approach allows us to treat our patients holistically with a deeper understanding of psychological and physiological impairments.
Conclusions: Women that have sustained pelvic floor injury postpartum are vulnerable and at- risk for postpartum mood disorders. Appropriate postpartum treatment, in a multidisciplinary manner, will have an optimal effect on women's physiological and psychological condition, and hopefully will accelerate the recovery in all aspects.
Disclosure: Any of the authors act as a consultant, employee or shareholder of an industry for: Consultant of MEMIC, COSM, TRACKIMED
Images:

Table 1. Baseline Cohort Demographics (n=514)	
	n (%)
Race	
White	412 (80.2)
Black	81 (15.8)
Other	21 (4.1)
Hispanic	17 (3.3)
Age	
18-39	45 (8.8)
40-49	40 (7.8)
50-59	93 (18.1)
60-69	106 (20.6)
70-79	137 (26.7)
80-89	93 (18.1)
Elixhauser Comorbidity Index	
0	87 (16.9)
1	97 (18.9)
2	94 (18.3)
3+	236 (45.9)
Insurance	
Managed Care	106 (20.6)
Medicare	142 (27.6)
Medicare HMO	199 (38.7)
Other	67 (13.1)
During COVID-19 Pandemic (2020)	
Yes	207 (40.3)

504

Systematic Review on the Use of Methenamine Salts and its Combinations with Other Agents for the Prevention and Treatment of Urinary Tract Infections in Non-pregnant Women

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3 - Glasgow Caledonian University

Introduction: The prevalence of urinary tract infections (UTIs) in women places it among the most common ailments encountered in medical practice causing a significant burden on the healthcare system. Given the high rates of UTI occurrence, recurrence, and concerns for multidrug-resistant infections, alternative antimicrobial sparing options for UTIs should be evaluated.

Objective: Although studies demonstrate varying support for the use of Methenamine for prevention and treatment of recurrent UTIs, there have not been any systematic reviews looking at the use of this in women with or without the use of antibiotics which this review aims to do.

Methods: Randomised controlled trials (RCTs) and observational studies conducted in non-pregnant women over 18 years of age who have used either Methenamine Hippurate (MH) or Mandelate alone, or in combination with other non-antibiotic and antibiotic agents for the prevention or treatment of UTIs were selected. Studies that involved pregnant women and children (less than 18 years of age) as well as laboratory or animal-based research and study protocols were excluded. PRISMA guidelines were followed, and this was registered prospectively on the PROSPERO database (Registration:CRD42020215713). The Cochrane Collaboration tool for assessing risk of bias[1] was used to evaluate the methodological quality of the included studies.

Results: Eleven studies involving 898 women (Table 1) were divided in to three groups, those with Methenamine Hippurate used alone (6), with Methenamine Hippurate in combination with other agents (4) and with Methenamine Mandelate used alone (1). 11 studies with 1055 adults which included adult females but did not analyse the results of men and women separately (Table 2) and two papers looking at MH in combination with antibiotics to prevent of UTIs were analysed. Overall, Methenamine demonstrated a beneficial effect in UTI prevention in most studies. This was better than placebo and at least at par with antibiotics. This was similar in women alone as well as in studies with men and women. However, there was no benefit in treatment of an acute UTI with methenamine salts. No major side effects due to these agents were noted in any of the studies analysed.

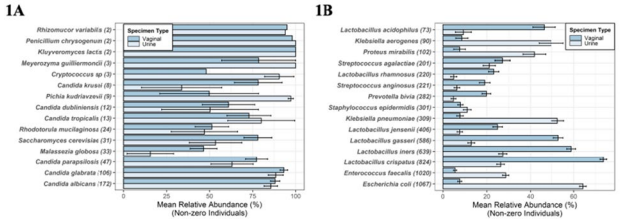
Conclusions: There has been a Cochrane review looking at Randomised controlled trials (RCT) and quasi-RCTs in the use of Methanamine Hippurate for preventing urinary tract infections [2] which did not look at the results in women specifically and concluded that while this may be effective in preventing UTI in patients without renal tract abnormalities, there was a need for further large well-conducted RCTs. A study looking at alternatives to prophylactic antibiotics for the treatment of recurrent urinary tract infection in women has been completed and is awaiting publication [3]. This review demonstrates that there is a role for methenamine salts in prevention of UTIs in women who are susceptible to developing UTIs which is better than no treatment or placebo only. High quality large RCTs are required to further evaluate this and help define their role in current guidelines for UTIs.

Disclosure: No

Images:

Table 2. Likelihood of a Referral to Specialty Care (Urology/Urogynecology or PFPT) in the year after Primary Care Incontinence Diagnosis	
	Adjusted Odds Ratio (95% CI)
Race	
White	Referent
Black	0.63 (0.33-1.19)
Age	
18-39	Referent
40-49	1.06 (0.41-2.79)
50-59	0.93 (0.40-2.17)
60-69	1.10 (0.44-2.74)
70-79	1.09 (0.41-2.86)
80-89	0.55 (0.20-1.54)
Elixhauser	
0	Referent
1	1.08 (0.55-2.13)
2	1.35 (0.68-2.66)
3+	1.42 (0.78-2.58)
Insurance	
Managed Care	Referent
Medicare	0.71 (0.34-1.48)
Medicare HMO	0.79 (0.39-1.61)
Other	0.75 (0.35-1.65)
During COVID-19 Pandemic	
No	Referent
Yes	0.29 (0.19-0.45)

Figure 1: Barplots showing the mean relative abundance of the top 15 fungal species (1A) and mean relative abundance of the top 15 bacteria species (1B) in paired vaginal and urine specimens from women with corresponding ICD-10 codes indicating bothersome urogenital symptoms. Error bars indicate the standard error. The number in parentheses reports the number of samples in which each species was detected.



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Incidence and Risk Factors for the Development of Urinary Tract Infections after Urogynecologic Procedures Diagnosed in the Immediate Postoperative Period: An Analysis of the National Surgery Quality Improvement Program (NSQIP) Database

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Introduction: Postoperative urinary tract infections (UTIs) have been identified as a common adverse event following urogynecologic surgery.
Objective: The objective of this study was to identify risk factors associated with 30-day postoperative UTI following urogynecologic surgery.
Methods: This is a retrospective cohort study performed using the procedure targeted files for urogynecologic procedures of the National Surgery Quality Improvement Program (NSQIP) Database from 2015 to 2019. The procedure files for the study period were used to identify women who underwent urogynecologic surgery and developed a UTI. The incidence of UTI was determined. Multivariable logistic regression models were used to analyze putative risk factors that included race, age, primary procedure, history of diabetes, dyspnea, steroid use, hypertension, prior abdominal and prior pelvic surgery to predict odds ratio risk of 30-day postoperative UTI. Model fit was assessed through the Hosmer-Lemeshow test, and the model was then validated using internal validation methods.
Results: Between 2015 and 2019, a total of 5156 urogynecologic procedures were identified in the database. The overall rate of 30-day postoperative UTI in this patient cohort was 5.5% (n=281). Race (p=0.0001) and procedure (p=0.0384) were both found to associated with UTI in the model. Black race was associated with a slightly lower odds of postoperative UTI (OR: 0.995, 95% CI: 0.960-1.031) whereas race other than white or black was associated with an increased odds of UTI (OR: 1.009, 95% CI: 0.971-1.049) when compared with whites. Both abdominal colpopexy (OR: 0.969, 95% CI: 0.942-0.997) and vaginal implantation of prosthetic mesh (OR 0.959, 95% CI: 0.923-0.997) had lower odds of UTI when compared to vaginal extraperitoneal colporrhaphy. The most common primary procedure performed in this cohort was the vaginal anterior repair, accounting for 42.1% of cases. Finally, a history of prior pelvic surgery was associated with an increased odds of postoperative UTI (OR: 1.029, 95% CI 1.015-1.042, p <0.0001). No other variables in the model were found to be associated with postoperative UTI. Model diagnostics were performed, and the model was found to be of good fit by the Hosmer -Lemeshow test (p=0.065), and was internally validated using bootstrap techniques.
Conclusions: In this cohort study 30-day postoperative UTI following urogynecologic surgery was identified in only 5.5% of cases between 2015 through 2019. Risk factors significantly associated with postoperative UTI were race, and history of prior pelvic surgery. The primary procedures associated with the lowest risk of postoperative UTI were the abdominal colpopexy and vaginal implantation of prosthetic mesh. Continued analysis is needed to provide more information regarding risk factors for the development of UTI after urogynecologic procedures and potential benefits from postoperative prophylactic antibiotics.
Disclosure: No

506

Primary Care Referral Patterns for Patients with Urinary Incontinence in an Academic Health System from 2018-2020

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Introduction: While an estimated 50% of adult women experience urinary incontinence (UI), the majority will never receive treatment. Most studies of incontinence care delivery have been limited to administrative (billing) data following treatment. Much less is known about earlier steps in evaluation, including primary care intentions to refer to specialty care.
Objective: To better understand the gaps and barriers to receiving care, we examined referral patterns from primary care providers for patients with new diagnoses of urinary incontinence between 2018-2020 and the extent to which such referrals changed during the COVID-19 pandemic.

Methods: Electronic health records (EHR) from 24 primary care practices within a single academic medical system were queried to identify a cohort of adult (18 – 90-year-old) female patients first diagnosed with urinary incontinence during primary care (family or general internal medicine) outpatient visits between January 2018 and December 2020. Demographics were determined from appropriate EHR fields, and diagnoses pulled from problem lists, past medical histories, and office visit diagnosis fields. EHR referral fields were utilized to ascertain referral dates, types, and associated diagnoses. Electronic prescription fields were used to record treatment information including medication class, name, and prescription dates. Subjects were excluded if there was EHR evidence of urinary tract infection at diagnosis, UI in the prior year based on diagnosis or medication usage (anticholinergic, B3 agonists), or presence of conditions for which incontinence management might differ substantially in the prior year (pregnancy, spinal cord injury). Referrals to specialty physicians (urology/urogynecology) and pelvic floor physical therapy (PFPT) were examined for the year after UI diagnosis. Logistic regression was then used to assess for associations between referrals and patient demographics, comorbidity, and diagnosis dates (pre- vs during-COVID-19).
Results: The study identified 514 women with a newly diagnosed urinary incontinence diagnosis (Table 1). In the year following UI diagnosis, 31.91% were referred to specialty care for management - 29.0% to urology/urogynecology and 3.5% to pelvic floor physical therapists. Women diagnosed with UI during the COVID-19 pandemic, starting January 2020, were less likely to be referred with an odds ratio of 0.29 (95% CI 0.19, 0.45) compared to those diagnosed before (Table 2). There was no association of referrals with patient age, race, or number of comorbidities (Elixhauser Comorbidity Index), but confidence intervals were wide. Patterns were similar for models that examined specialty physician or PFPT referral separately.
Conclusions: Less than 1 in 3 women were referred to specialty care for UI by their primary care provider with less than 1 in 25 referred to PFPT. There was a significant decrease in likelihood of referrals during 2020 suggesting that the COVID-19 pandemic interfered with UI patients receiving quality care. Future studies aiming to improve incontinence care should examine other aspects of nonsurgical UI care delivery, including barriers to behavioral self-management, medication use, and completion of specialty referrals.
Disclosure: No
Images:

Figure 2. Histogram showing the distribution of samples by age group. Yellow indicates a negative fungal result. Blue indicates a positive fungal result. Fungal positivity was not related to age (logistic regression, p=0.831).

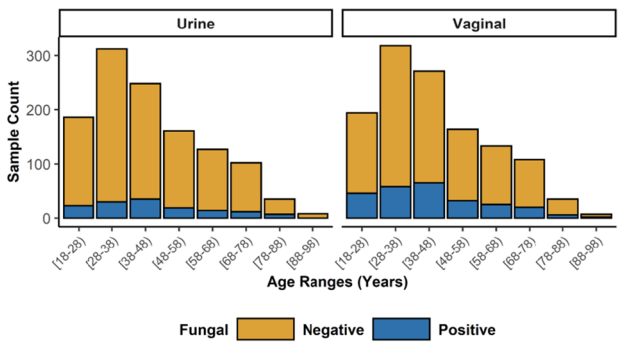
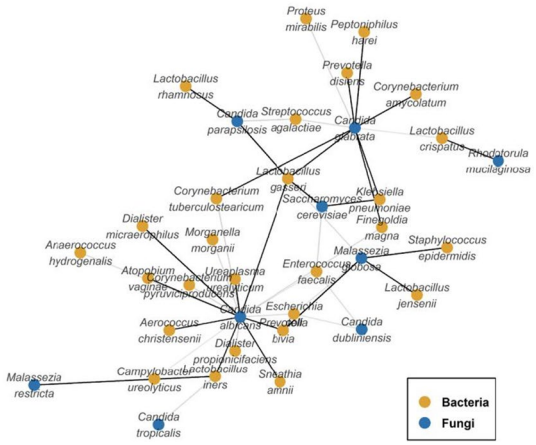


Figure 3. Network plot visualizing associations between bacteria and fungi that were detected using the probabilistic model of species co-occurrence. Nodes indicate species, which are labeled and colored by kingdom. Links are shaded dark or light, indicating a positive or negative association, respectively.



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WITHDRAWN - Myofascial Pelvic Floor Pain Syndrome and Sexual Function in Women with Endometriosis and Chronic Pelvic Pain
WITHDRAWN

508

WITHDRAWN - A Comparison of Intravesical Cocktail Therapy and Oral Pentosan Polysulfate as a Possible Choice of Treatment for Bladder Pain Syndrome in a Developing Country.
WITHDRAWN

509

WITHDRAWN - Registry Data for a Novel Vaginal Bowel Control Device for the Treatment of Fecal Incontinence in Women
WITHDRAWN

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Usefulness of Mesh Adjustment 24 Hours after Retropubic Mesh Insertion in Patients Undergoing Stress Urinary Incontinence Surgery. A Prospective Randomized Multicenter Study
Naser, M[1]; Vallejos, G[2]; Guzman, R[3]; Castro, D[4]; Boldrini, P[5]; Peragallo, J[5]; Castillo, N[5]; Schlageter, F[5]; Najera, M[6]; Manriquez, V[4]
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Introduction: Currently, retropubic tension-free suburethral mesh (TVT) placement is considered the first-line treatment for stress urinary incontinence (SUI). Due to regional and general anesthesia to perform urinary incontinence procedures, it is difficult to carry out an intraoperative stress test. In 2012, at the 37th IUGA Congress held in Brisbane, a study was presented that performed stress tests and mesh adjustment 24 h after the procedure in patients undergoing trans-obturator mesh, with a success rate. However, there are no data for the retropubic technique.
Objective: The main objective is to assess the usefulness of mesh adjustment 24 h after TVT placement in patients with SUI.
Methods: A prospective multicenter randomized double-blind study was conducted. Patients from two hospital centers in Santiago de Chile were enrolled. The sample calculation was made to detect a difference of 10%, considering an error $\alpha<5\%$ and an error $\beta<20\%$, one-tailed, with 20% oversampling in case lost. A stress test was performed 24 hours after the procedure in all patients who received TVT. Surgeons were blinded. Those patients who presented urine leakage in the stress test were randomized into the interventional group and the control group. For the intervention group, mesh adjustment was performed if urine leaked. In the control group, no adjustment was made. Sandvik index and stress test were measured at 3 and 12 months after surgery.
Results: The results obtained are preliminary because the study is ongoing. A total of 32 subjects are presented, 18 in the interventional group and 14 in the control group. The analyst was blind to the data obtained. From the results found, at 3 months in the intervention group, there were 14 subjects with mild Sandvik index (14/18), 2 with moderate (2/18), 1 severe (1/18), and one without escape (1/18), while in the control group there were 12 patients with a mild Sandvik index (12/14), 1 moderate (1/14), none severe (0/14), and 1 without escape (1/14). The differences between both groups were not significant (p=0.801). In the intervention group, there were 4 who presented escape to the stress test (4/18) and 4 in the control group (4/14), not finding differences between them either (p=0.496). At 12 months post-surgery, in the intervention group, there were 15 subjects with a mild Sandvik index (15/18), 1 moderate (1/18), 2 severe (2/18), and none without escape (0/18), while in the control group there were 12 patients with mild Sandvik index (12/14), 2 moderate (2/14), none severe (0/14) and none without escape (0/14). The differences between both groups were not significant (p=0.333). In the intervention group, there were 4 who continued to escape the stress test (4/18) and 4 in the control group (4/14), with no differences being found between them (p=0.496). The test used was chi-square.
Conclusions: The preliminary results of this study allow us to infer that there is no difference between adjusting the mesh 24h after in patients who leak urine in the stress test performed 24h after TVT in subjective or objective terms. A larger number of recruited subjects will be expected to obtain more solid conclusions.
Disclosure: No

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Characterizing Urogenital Fungi in Women with Bothersome Urogenital Symptoms Compatible with Inflammation and/or Infection: A Retrospective Cohort Analysis

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2 - RTL Genomics, MicroGenDx Laboratories
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4 - Queens University, Department of Urology
5 - University of California Los Angeles, Department of Urology, Division of Pelvic Medicine and Reconstructive Surgery

Introduction: Culture-independent methods of microbial profiling, such as next-generation sequencing (NGS), have transformed our understanding of the urogenital microbiome in health and disease. While fungi have been increasingly appreciated in modulating inflammatory pathologies in multiple other organ systems, their role in urogenital disease remains largely understudied.
Objective: To characterize urogenital fungi in a subset of symptomatic women with paired urinary and vaginal samples.
Methods: Paired urine samples and vaginal swabs were collected from 1251 women with ICD-10 codes indicating bothersome urogenital symptoms suggestive of being infectious or inflammatory in nature. The most common ICD-10 codes included urinary tract infection and vaginitis. Samples were sent to MicroGenDx for analysis between October 2018 and December 2021. Quantitative polymerase chain reaction was initially used to screen for bacteria and fungi in each sample. Samples that screened positive were analyzed by NGS of the 16S and ITS ribosomal loci to identify bacterial and fungal species, respectively. Fungal and bacterial prevalence and mean relative abundance were calculated and compared between sample types using the Chi square test and logistic regression. The probabilistic model of species co-occurrence was used to investigate associations between species of the urogenital microbiome.
Results: Of 1251 paired urine and vaginal samples, there were 565 bacterial and 102 fungal species detected. While most samples were positive for bacteria alone (83.6%), approximately one-sixth of all samples detected fungi as part of mixed communities with bacteria (15.9%). Only 12 samples had detectable fungi in the absence of bacteria (0.5%). The most common fungal species identified were Candida albicans, Candida glabrata, Candida parapsilosis, Malassezia globosa, and Saccharaomyces cerevisiae (Figure 1). Fungal positivity was significantly higher for vaginal swabs than for urine samples (20.3% versus 11.0%, X2=33.3, p<0.0001) (Figure 2). Urine samples were significantly more likely to be positive for fungi if the paired vaginal specimen was positive (OR: 42.4, p<0.0001; Spearman Rho = 0.57); the same was not true for bacteria. Fungal positivity was not related to either age or collection date. Between paired samples, both the prevalence and mean relative abundance for the most common fungal species were similar between urinary and vaginal specimens. Analysis of species co-occurrence suggests that specific fungi frequently co-associate with distinct patterns of bacterial species (Figure 3).
Conclusions: In this cohort of women with bothersome inflammatory-type pelvic symptoms, urogenital fungi were detectable in a clinically significant subset of subjects. While Candida species are the most well-studied in urogenital disease, the dominant fungal species detected in this report include genera other than Candida. The overlap of fungal, not bacterial, species detected between vaginal and urinary specimens and the significantly higher likelihood of one site being fungal positive if the other is positive suggests that these fungal communities may be related. Further, distinct positive and negative associations between specific fungi and bacteria may suggest that these fungi are emblematic of different environments or community states. Prospective controlled studies are required to validate these findings and further investigate the relationship between the urogenital mycobiome and disease states.
Disclosure: Yes, this is sponsored by industry/sponsor: MicroGenDx
Clarification: No industry support in study design or execution
Any of the authors act as a consultant, employee or shareholder of an industry for: MicroGenDx
Images:

Figure 1: Barplots showing the mean relative abundance of the top 15 fungal species (1A) and mean relative abundance of the top 15 bacteria species (1B) in paired vaginal and urine specimens from women with corresponding ICD-10 codes indicating bothersome urogenital symptoms. Error bars indicate the standard error. The number in parentheses reports the number of samples in which each species was detected.

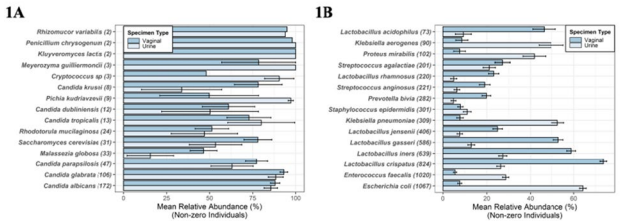


Figure 2. Histogram showing the distribution of samples by age group. Yellow indicates a negative fungal result. Blue indicates a positive fungal result. Fungal positivity was not related to age (logistic regression, p=0.831).

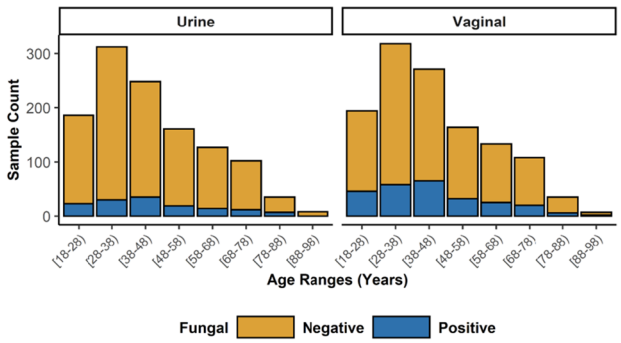
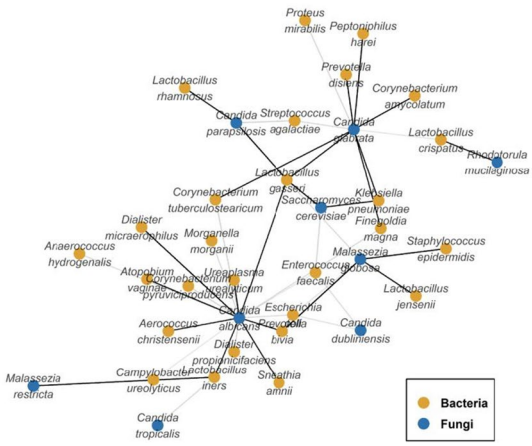


Figure 3. Network plot visualizing associations between bacteria and fungi that were detected using the probabilistic model of species co-occurrence. Nodes indicate species, which are labeled and colored by kingdom. Links are shaded dark or light, indicating a positive or negative association, respectively.



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Characterizing Urogenital Fungi in Women with Bothersome Urogenital Symptoms Compatible with Inflammation and/or Infection: A Retrospective Cohort Analysis

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Introduction: Culture-independent methods of microbial profiling, such as next-generation sequencing (NGS), have transformed our understanding of the urogenital microbiome in health and disease. While fungi have been increasingly appreciated in modulating inflammatory pathologies in multiple other organ systems, their role in urogenital disease remains largely understudied.
Objective: To characterize urogenital fungi in a subset of symptomatic women with paired urinary and vaginal samples.
Methods: Paired urine samples and vaginal swabs were collected from 1251 women with ICD-10 codes indicating bothersome urogenital symptoms suggestive of being infectious or inflammatory in nature. The most common ICD-10 codes included urinary tract infection and vaginitis. Samples were sent to MicroGenDx for analysis between October 2018 and December 2021. Quantitative polymerase chain reaction was initially used to screen for bacteria and fungi in each sample. Samples that screened positive were analyzed by NGS of the 16S and ITS ribosomal loci to identify bacterial and fungal species, respectively. Fungal and bacterial prevalence and mean relative abundance were calculated and compared between sample types using the Chi square test and logistic regression. The probabilistic model of species co-occurrence was used to investigate associations between species of the urogenital microbiome.
Results: Of 1251 paired urine and vaginal samples, there were 565 bacterial and 102 fungal species detected. While most samples were positive for bacteria alone (83.6%), approximately one-sixth of all samples detected fungi as part of mixed communities with bacteria (15.9%). Only 12 samples had detectable fungi in the absence of bacteria (0.5%). The most common fungal species identified were Candida albicans, Candida glabrata, Candida parapsilosis, Malassezia globosa, and Saccharaomyces cerevisiae (Figure 1). Fungal positivity was significantly higher for vaginal swabs than for urine samples (20.3% versus 11.0%, X2=33.3, p<0.0001) (Figure 2). Urine samples were significantly more likely to be positive for fungi if the paired vaginal specimen was positive (OR: 42.4, p<0.0001; Spearman Rho = 0.57); the same was not true for bacteria. Fungal positivity was not related to either age or collection date. Between paired samples, both the prevalence and mean relative abundance for the most common fungal species were similar between urinary and vaginal specimens. Analysis of species co-occurrence suggests that specific fungi frequently co-associate with distinct patterns of bacterial species (Figure 3).
Conclusions: In this cohort of women with bothersome inflammatory-type pelvic symptoms, urogenital fungi were detectable in a

clinically significant subset of subjects. While Candida species are the most well-studied in urogenital disease, the dominant fungal species detected in this report include genera other than Candida. The overlap of fungal, not bacterial, species detected between vaginal and urinary specimens and the significantly higher likelihood of one site being fungal positive if the other is positive suggests that these fungal communities may be related. Further, distinct positive and negative associations between specific fungi and bacteria may suggest that these fungi are emblematic of different environments or community states. Prospective controlled studies are required to validate these findings and further investigate the relationship between the urogenital mycobiome and disease states.

Disclosure: Yes, this is sponsored by industry/sponsor: MicroGenDx
Clarification: No industry support in study design or execution
Any of the authors act as a consultant, employee or shareholder of an industry for: MicroGenDx
Images:

Table 2. Multiple Logistic Regression Predicint Opioid Administration in PACU

Characteristic	aOR (95% CI)
	Opioids in PACU
age	1.11 (1.03-1.20)*
pain score	1.27 (0.79-2.05)
gravidity	0.61 (0.41-0.90)*
parity	1.32 (0.77-2.26)
Race (ref=White)	
Black	0.34 (0.06-2.10)
Other	5.87 (0.40-87.16)
Ethnicity (ref=Non-hispanic)	
Hispanic	3.76 (0.63-22.32)
Primary language (ref=English)	
Spanish	0.14 (0.03-0.70)*
Insurance type (ref=Medicare/Medicaid)	
Commercial	1.73 (0.38-7.90)
Menopause status (ref=premenopausal)	
perimenopausal	0.95 (0.07-12.37)
postmenopausal	0.55 (0.08-3.51)
Prolapse stage (ref=0)	
stage 1	2.53 (0.30-21.70)
stage 2	0.42 (0.55-3.16)
stage 3	0.89 (0.08-9.48)
stage 4	1.27 (0.37-43.07)
*significant at p < .05	

Table 1. Descriptive Statistics of Patients Undergoing Pelvic Reconstructive Surgery

Characteristics§	Overall	No Opioids in PACU	Opioids in PACU	p-value*
age (mean, SD)	60.3 (0.88)	56.74 (1.45)	61.40 (1.05)	0.024†
pain score (median, IQR)	1 (0-2)	1 (0-2)	1 (0-2)	0.569**
gravidity (median, IQR)	3 (2-4)	3 (2-4)	3 (2-4)	0.584**
parity (median, IQR)	2 (2-3)	2 (2-3)	2 (2-3)	0.800**
Race				
White	136 (85.5%)	32 (20.1%)	104 (65.4%)	0.267
Black	15 (9.4%)	6 (3.8%)	9 (5.7%)	
Other	8 (5.0%)	1 (0.6%)	7 (4.4%)	
Ethnicity				
Non-Hispanic	37 (23.0%)	9 (5.6%)	28 (17.4%)	0.906
Hispanic	124 (77.0%)	29 (18.0%)	95 (59.0%)	
Primary language				
English	68 (42.2%)	14 (8.7%)	54 (33.5%)	0.357
Spanish	93 (57.8%)	25 (15.5%)	68 (42.2%)	
Insurance type				
Medicare/Medicaid	29 (17.8%)	6 (3.7%)	23 (14.1%)	0.713
Commercial	134 (82.2%)	32 (19.6%)	102 (1.2%)	
Menopause status				
premenopause	23 (14.6%)	6 (3.8%)	17 (10.8%)	0.800
perimenopause	7 (4.4%)	2 (1.3%)	5 (3.2%)	
postmenopause	128 (81.0%)	28 (17.7%)	100 (63.3%)	
Prolapse stage				
stage 0	10 (7.0%)	2 (1.4%)	8 (5.6%)	0.700
stage 1	42 (29.4%)	8 (5.6%)	34 (21.5%)	
stage 2	70 (49.0%)	21 (14.7%)	49 (31.0%)	
stage 3	17 (11.9%)	4 (2.8%)	13 (9.1%)	
stage 4	4 (2.8%)	1 (0.7%)	3 (1.9%)	

§values are expressed as no. patients (%) unless otherwise noted
**p-values* denote Pearson chi-square unless otherwise noted
†t-test
** Wilcoxon rank-sum

Table 2. Perioperative Surgical Data

	Total	Intraperitoneal	Extraperitoneal	p-value
	N=29	N=13	N=16	
Operative Time (ITT minutes)	162.00 (141.00-173.00)	164.00 (156.00-173.00)	144.00 (132.00-180.00)	0.072
Operative Time (PP minutes)[a]	159.00 (140.50-174.00)	164.00 (156.00-173.00)	144.00 (132.00-180.00)	0.074
Estimated Blood Loss (mL)	70.00 (50.00-75.00)	75.00 (50.00-75.00)	60.00 (45.00-100.00)	0.96
Duration of hospitalization (hours)	10.00 (9.00-11.00)	10.00 (9.00-13.00)	10.00 (9.00-11.00)	0.78
Concomitate procedures				
Sling	7 (24.14%)	0 (0.00%)	7 (43.75%)	**0.026**
Anterior repair	28 (96.55%)	13 (100.00%)	15 (93.75%)	0.27
Posterior repair	29 (100.00%)	13 (100.00%)	16 (100.00%)	---
Other	2 (6.90%)	0 (0.00%)	2 (12.50%)	0.51

Data are medians (interquartile ranges) or n (%).
ITT intention-to-treat analysis, PP per-protocol analysis excluding 1 crossover patient
[a] Excluding 1 crossover patient

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#Kegels: Identifying Social Media's Influence as a Platform for Patient Education

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Introduction: Social media usage has skyrocketed and has brought a unique means of communication and an educational forum for users across the globe. The ability of platforms like Instagram to disseminate healthcare information holds great promise. Within Urogynecology, kegel exercises, which engage pelvic floor muscles, are among the most popular therapies given their success and ability to

be easily implemented. However, there is no fixed protocol regarding performing these exercises without professional assistance, so many turn to other outlets to seek guidance and instruction. A review of Instagram hashtags for kegels can reveal the variety of authorship and associated user engagement behind these posts in order to demonstrate the need for increased quality of healthcare information on these platforms.

Objective: To identify the prevalence and authorship of Instagram posts pertaining to kegel exercises and assess user engagement via content analysis.

Methods: An Instagram search for "kegel" revealed the top 4 most popular hashtags: "kegel," "kegels," "kegelexercise," and "kegelexercises". Searches were limited to female patients and English language posts. The 100 most recent posts for these 4 hashtags were reviewed for the following 3 criteria: authorship, type of post and primary content. User engagement with posts was analyzed by comparing number of posts, likes and comments within these subclassifications.

Results: Our search yielded 154,437 posts. Authorship of the top 4 hashtags were as follows: companies 37.5%, physical/occupational therapists (PT/OT) 18.7%, holistic/physiotherapy 16.8%, physicians 9.5% and patients 4.8%. Regarding authorship, analysis of user engagement revealed companies had the most comments overall 28.2%, followed by holistic/physiotherapy 18.6% and PT/OT 16.4%. While patients had the fewest posts, theirs had the greatest engagement by likes across all hashtags, at 31.3%. Posts authored by physicians had 4.2% of likes and 11.5% of comments, compared to all authors. Content analysis of posts revealed 33.3% were composed of advertisements, 22.2% photos and 17.7% quotes. Quotes had the most comments 30.8%, followed by photos 17% and advertisements 14.9%. Videos had the most likes at 61.6% while being 9% of all posts. Posts regarding medical education accounted for only 7.5% of the total, with 7.3% of likes and 10% of comments. The majority of primary content was regarding pelvic floor muscles (51.8%). These received the most comments, 46.1% and likes, 38.6% compared to posts relating kegels to pregnancy/postpartum, sex or bladder symptoms/incontinence.

Conclusions: Over 100,000 posts related to kegel exercises were identified on Instagram. The majority of posts were authored by companies as advertisements soliciting their products. Less than 10% of posts were authored by physicians. Our data suggest that regardless of authorship, Instagram users interact and engage with the content, supporting a need for dissemination of quality educational information. Greater contributions from physicians and allied health professionals may improve the quality of educational posts and offer us an opportunity to connect with patients on this global platform.

Disclosure: No

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Language-Related Disparities in Acute Postoperative Pain Management Following Pelvic Floor Reconstructive Surgery: Does English Proficiency Matter?

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Introduction: Current literature suggests racial and ethnic disparities exist in acute pain management, where Black and Hispanic patients are often less likely to receive opioid medication. Lower English language proficiency is correlated with minority race/ethnicity in the United States, however limited data exists on the relationship of language proficiency and opioid administration during PACU stay. Our tertiary care center serves a unique, Hispanic minority-majority community of patients with pelvic floor disorders that allows us the opportunity to assess sociodemographic and patient characteristics as contributors to opioid administration in the acute postoperative setting following pelvic floor reconstructive surgery.

Objective: In this study, we seek to determine if sociodemographic factors as well as patient characteristics including primary language spoken predict the administration of opioids as postoperative analgesics in the PACU setting following pelvic floor reconstructive surgery.

Methods: A retrospective chart review of 3,511 patients who presented between October 2019 and March 2021 to a tertiary referral center at a Urogynecologic practice was performed via an IRB approved protocol. Patients who underwent outpatient surgeries were included in analysis for pelvic organ prolapse repair (CPT codes 57240, 57250, 57260, 57265, 57268, 57282, 57425, 58571, 57280) and anti-incontinence surgery (CPT codes 57288, 57287). Sociodemographic data, patient characteristics, medications received in the PACU, and day 0 pain scores were manually extracted. Continuous and categorical variables were analyzed using the t-test and chi-squared test, respectively. Non-parametric data was analyzed using Wilcoxon rank-sum tests. A Multinomial logistic regression model was fitted to identify independent predictors of opioid use in the PACU setting. A p-value <0.05 was considered statistically significant. All analyses were conducted using STATA MP 16.2 (College Station, Texas).

Results: Our analysis included 164 women who underwent pelvic floor reconstructive surgery. Sociodemographic details are outlined in Table 1. Older age (aOR 1.11, 95% CI: 1.03-1.20) was associated with an increased likelihood of receiving opioids in the PACU setting, while Spanish as a preferred language (aOR 0.14, 95% CI: 0.03-0.70) and increased gravidity (aOR 0.61, 95% CI: 0.41-0.90) were associated with a decreased likelihood. Patient race, self-reported pain score, parity, insurance type, menopausal status, and prolapse stage were not predictive of receiving opioids in the PACU (Table 2).

Conclusions: In women undergoing pelvic floor reconstructive surgery, Spanish speaking patients were less likely to receive opioid medication in the PACU. Previously reported disparities in postoperative opioid use including race and ethnicity did not appear to exist in our unique Hispanic minority-majority patient population. Instead, our study implicates the importance of communication in acute postoperative pain management. The etiology of this language-related disparity is complex and future studies to investigate are warranted.

Disclosure: No

Images:

Table 3. Perioperative Complications*

	Total	Intraperitoneal	Extraperitoneal	p-value
	N=29	N=13	N=16	
Urinary tract infection	4 (13.79%)	2 (15.38%)	2 (12.50%)	0.62
Prolonged postoperative urinary retention**	7 (24.14%)	2 (15.38%)	5 (31.25%)	0.68
Visceral injury	2 (6.90%)	2 (15.38%)	0 (0.00%)	0.14
Blood transfusion	0 (0.00%)	0 (0.00%)	0 (0.00%)	---
Wound Infection	0 (0.00%)	0 (0.00%)	0 (0.00%)	---

Data are n (%).

* Perioperative complication was defined as any documented complication encountered intraoperatively through the sixth postoperative week.

** Prolonged postoperative urinary retention (POUR) beyond 72 hours

Table I: Demographic and Clinical Characteristics of the Study Population

Age (years)	35.7 ±4.5
Gravidity	0.53±0.9
	0 (4-0)
Parity	0.2±0.4
	0 (1-0)
BMI (kg/m2)	26.3±5.9
Indications of IVF	
Infertility	17/32 (53%)
Fertility preservation	15/32 (47%)
Baseline Estradiol (Pg/mL)	148.7±63.4
Baseline Progesterone (ng/mL)	1.5±0.6

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Comparison of Vaginal Intraperitoneal and Extraperitoneal Uterosacral Ligament Suspensions for Post-Hysterectomy Vaginal Vault Prolapse: A Randomized Clinical Trial

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Introduction: Uterosacral ligament suspension surgery is commonly utilized to correct post-hysterectomy vaginal vault prolapse (VVP). Vaginal intraperitoneal uterosacral vault suspension (IUSVS) is a viable option, but intraperitoneal access can be challenging. An alternative approach is an extraperitoneal uterosacral vault suspension (EUSVS) which has been shown in previous studies to have similar efficacy on cure. Avoiding peritoneal entry may also decrease operative time and complications, such as cystotomy. The aim of our study was to compare surgical operative times, as a surrogate marker for surgical complexity, of IUSVS and EUSVS in patients with post-hysterectomy VVP.
Objective: The primary objective was to compare operative time between the two approaches. Secondary objectives were to compare hospital length of stay (LOS), estimated blood loss (EBL), perioperative complications, and short-term surgical success between the two groups.
Methods: A single-center, randomized, single-blind trial with the primary objective to compare operative time between vaginal IUSVS and EUSVS for post-hysterectomy VVP at our institution. Secondary outcomes included EBL, duration of hospitalization, short-term surgical success, and perioperative complications. Women were randomized 1:1 to IUSVS or EUSVS. Fisher's exact test or Chi-square test was used for discrete variables and Wilcoxon signed-rank test for continuous variables. Paired t-test was used to compare preoperative and postoperative patient-centered questionnaire scores.
Results: 33 patients were enrolled and randomized. Groups had similar baseline characteristics. The proportion of preoperative POPQ stage 3 and 4 did differ significantly between the groups. Our primary outcome data of operative time in the ITT and PP analysis, which excluded 1 crossover patient, did not differ significantly between the groups. Median operative time difference was not statistically significant between the IUSVS [164 minutes (156, 173)] and EUSVS [144 minutes (132, 180)] (ITT p=0.072, PP p=0.074). Mid-urethral sling was the only observed concomitant procedure to differ significantly between the groups (IUSVS 0.00 % vs EUSVS 43.75%, p=0.26). Additionally, in the adjusted analysis, using a two-way ANOVA, we observed no significant effect on operative time when controlling for mid-urethral sling (p=0.1173). Secondary outcomes of EBL, hospital LOS, perioperative complications, patient centered questionnaire scores, and perioperative complications did not differ significantly between the groups.
Conclusions: There was no significant difference in operative time between EUSVS and IUSVS for post-hysterectomy VVP. Additionally, there were no differences in EBL, hospital LOS, perioperative complications, and short-term surgical success related to the surgical approach. EUSVS is a viable alternative to IUSVS.
Disclosure: No
Images:

Table II correlation of sex plasma levels and LUTS

Peak Estradiol (Pg/mL)	4729.1±5217.5			
Peak Progesterone (ng/mL)	1.9±1.9			
Length of Gonadotropins treatment days	10.5±2.8			
Total Gonadotropins dose (IU)	2956.5±1317.5			
UDI-6 Sum score	Estradiol levels (pg/mL)	P	Progesterone levels (ng/mL)	P
No change (9)	3421.7±2386.3		1.6±1.1	
Improvement (9)	4446±3454.3		2.2±3.2	
Worsening (14)	5751.6±7334.6		1.8±1.4	
Total (32)	4729.1±5301	0.9	1.9±1.9	0.4
IIQ7 Sum score	Estradiol levels (pg/mL)	P	Progesterone levels (ng/mL)	P
No change (20)	4276.2±3271.4		2.1±2.2	
Improvement (7)	4145.7±3648.7		2.2±3.2	
Worsening (5)	7357.8±11692.5		1.8±1.5	
Total (32)	4729.1±5301	0.9	1.9±1.9	0.5
QoL question score	Estradiol levels (pg/mL)	P	Progesterone levels (ng/mL)	P
No change (20)	3768.4±3190.4		1.6±1.2	
Improvement (1)	11010		4.2	
Worsening(11)	5904.9±7775.6		2.2±2.9	
Total (32)	4729.1±5301	NA	1.9±1.9	NA

Values are presented as mean ± SD, median (range) or (no)
NA=Not applicable

UDI-6 Sum score	Treatment duration Gonadotropins (days)	P	Gonadotropins total dosage (IU)	P
No change (7)	10±2.2		2664.3±1295.9	
Improvement (8)	10±2.3		2740.6±1415.2	
Worsening (12)	11.3±3.5		3270.8±1369.1	
Total (27)	10.5±2.8	0.45	2956.5±1342.6	0.45
IIQ7 Sum score	Treatment duration Gonadotropins (days)	P	Gonadotropins total dosage (IU)	P
No change (19)	10.9±3.3		3221±1420	
Improvement (6)	9.8±0.9		2204.2±1052.4	
Worsening (2)	9±1.4		2700±424.3	
Total (27)	10.5±2.8	0.2	2956.5±1342.6	0.4
QoL question score	Treatment duration Gonadotropins (days)	P	Gonadotropins total dosage (IU)	P
No change (18)	10.9±3.4		2975±1593.9	
Improvement (1)	10		3000	
Worsening(8)	9.7±1.6		2909.4±722.2	
Total (27)	10.5±2.8	NA	2956.5±1342.6	NA

Values are presented as mean ± SD, median (range) or (no)

NA= Not applicable

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Outcomes of Concurrent Urethral Bulking during Robotic Sacrocolpopexy

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Introduction: Stress urinary incontinence (SUI) and pelvic organ prolapse (POP) are common co-morbid conditions. SUI may be obvious pre-operatively or unmasked by surgical repair of POP. Midurethral slings (MUS) are often placed at time of robotic sacrocolpopexy (RSCP) for treatment or prevention of masked SUI. However, MUS placement may not be ideal in patients with previous sling complications, voiding difficulty, or desire to avoid mesh. Urethral bulking agents are an alternative, minimally invasive treatment for SUI in such patients. We present a case series of women who underwent simultaneous RSCP and urethral bulking and examined their outcomes.
Objective: To evaluate the efficacy and safety of concurrent urethral bulking during RSCP.
Methods: We conducted a retrospective chart review of all patients who underwent RSCP and simultaneous urethral bulking at our institution between December 2013 and August 2021. We evaluated demographics, past surgical history, POP staging, pre-operative urodynamics (UDS) testing, operative time, blood loss, peri-operative complications, and outcomes at 1 month and last follow up appointment.
Results: 8 patients were found to have undergone urethral bulking agent injection at time of RSCP. Injectable silicone elastomer in a water soluble gel was used as the bulking agent in all patients. Mean age was 68 ± 5.5 and the majority was Caucasian (87%), with a mean BMI at 27 ± 6.3. 75% of these patients had a previous prolapse repair and all had undergone a previous incontinence procedure. Half had a history of sling excision. 75% of the patients had pre-operative UDS performed. 83.3% of these patients used valsalva maneuvers during voiding. All had post-void residuals less than 200cc. There were no intra-operative complications. There were no > Clavien-Dindo grade 2 complications at 30 days after surgery. 2 patients failed an initial voiding trial, though all were able to void adequately at 1 month after surgery. At 1 month, 62.5% of patients reported resolution or improvement of SUI compared to before surgery. Median follow-up was 8 months. 87.5% of patients reported resolution or improvement of SUI at their last follow-up. None underwent additional incontinence procedures.
Conclusions: Urethral bulking may be a safe and effective alternative to mid urethral slings in patients with SUI and POP undergoing RSCP. While long term and prospective studies are needed, this treatment modality may be especially appealing to patients with a history of failed incontinence surgery.
Disclosure: No

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The Correlation Between serum Sex Hormone Levels and Lower Urinary Tract Symptoms in Women Undergoing Fertility Treatments

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Introduction: The effect of sex hormones (Estrogen and progesterone) on lower urinary tract symptoms (LUTS) such as frequency, urgency, urge incontinence and stress urinary incontinence (SUI), is controversial. Despite the presence of Estradiol receptors in human female urinary system including bladder and urethra, the correlation between quantitive levels of Estradiol and urinary symptoms during different phases of female life, is not clear yet. LUTS increase with age, one hypothesis assumes a relationship between a drop in estradiol levels and functional disorders of the lower urinary tract. While local vaginal estrogen therapy may improve urinay symptoms at postmenopausal women suffering from vaginal atrophy, systematic estrogen treatment is not equally efficeint. Overactive bladder (OAB) describes a combination of lower urinary tract symptoms such as frequency, urgency and nocturia, with or without incontinence. Overall prevalence of OAB among non-pregnant women age 20 years and above has been reported to range from 5%-20%. Ovarian stimulation during fertility treatment and in-vitro fertilization (IVF) is characterized by sharp increase in Estradiol levels in serumand consequently in Progesterone levels after ovulation.

Objective: To examine the relationship between elevated serum sex hormones levels and OAB and SUI symptoms among women undergoing ovarian stimulation.
Methods: A prospective study comparing clincal symptoms before and after ovarian stimulationcycle in fertility treatments.Two validated questionnaires on urinary urgency, urinary incontinence, and lower urinary tract symptoms and quality of life (UDI-6, IIQ7) were used to evaluate patient's symptoms before treatment (baseline Estradiol level) and around ovum pickup (peak Estradiol level at IVF treatment or day of intra-uterine insemination (IUI)).
Results: Thirty two women were recruited for the study with a mean age of 35.7 ±4.4years and average parity of 0.2±0.4, mean BMI 26.3 ±5.9. Main indication for treatment was fertility preservation (15/23 47%) Table I. Average Baseline Estradiol level (pg/ml) (148.6875±63.3455), average baseline progesterone level (ng/mL) 1.496552±0.607132), mean peak Estradiol level (pg/mL) 4729.1± 5217.5) and mean progesterone level at ovum pickup day or IUI (ng/mL) (1.9±1.9). Mean Gonadotropin's treatment days (10.5 ±2.8) and gonadotropins dose (IU) 2956.5±1317.5. we comapre every individual question and the sum score of every quastionnare before and immediately after treatment as correlation of sharp increase in estradiol serum levels and progesterone levels. There is no significant correlation between sex hormones plasma levels and LUTS before and after treatment (Table II), we also investigate the relationship between gonadotropins treatment duration and total dose and LUTS (Table III) without significanlty impact.
Conclusions: There is no realtionship between serum hormone levels, the sharp increase in estradiol around ovarian ovulation and LTUS. Large-scale prospective studies are warranted to better define the relationship between sex hormone levels and urinary tract symptoms, and to clarify its clinical implications.
Disclosure: No
Images:

Lower Urinary Tract Symptoms	Perceived IBE	True IBE	p-value
Frequency	2.69 ± 0.97	2.52 ± 1.15	0.385
Urgency	2.15 ± 1.10	1.86 ± 1.38	0.205
Nocturia	1.96 ± 1.20	1.71 ± 1.08	0.305
Hesitancy	1.15 ± 0.98	1.66 ± 1.17	0.013*
Intermittency	1.23 ± 1.12	1.90 ± 1.23	0.004*
Strain	0.96 ± 1.06	1.66 ± 1.40	0.002*
Weak Stream	1.38 ± 1.20	1.83 ± 1.17	0.064*
Urinary Leakage	2.06 ± 1.17	1.62 ± 1.47	0.072
Post void	1.68 ± 1.20	1.24 ± 1.27	0.073
Urge	2.02 ± 1.32	1.55 ± 1.43	0.08
Stress (cough/laugh/sneeze)	1.78 ± 1.32	1.17 ± 1.28	0.022*
Stress (physical activty)	1.59 ± 1.41	0.97 ± 1.30	0.026*
Nocturnal	0.86 ± 1.13	0.41 ± 0.68	0.04*
Insensate	1.35 ± 1.24	0.93 ± 1.30	0.097

Table 1: Comparison of LUTS as reported by responses to the Lower Urinary Tract Symptoms Tool.

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Sensation of Incomplete Bladder Emptying: A Marker of Pelvic Organ Prolapse versus Pelvic Floor Dysfunction Pending Post Void Residual

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Introduction: The sensation of incomplete bladder emptying (SIBE) is a lower urinary tract symptom (LUTs) that does not correlate well to actual post void residual (PVR) in women. A previous small cohort study has suggested true incomplete bladder emptying (tIBE) may be present in women with bladder outlet obstruction or detrusor underactivity, but perceived IBE (pIBE) may represent pelvic floor dysfunction.
Objective: Here, we seek to investigate this finding against a large national multicenter cohort.
Methods: Deidentified data from the NIH/NIDDK-sponsored Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN) was obtained from the NIDDK repository. These include data for women with LUTS of varied etiology and their corresponding pelvic exams; PVR; and reported urinary, pelvic floor, and bowel symptoms. We identified women who affirmed SIBE on the PFDI-20 questionnaire, and defined pIBE as PVR <100 mL tIBE as PVR≥100 mL. We used chi square and t-test to assess differences of each group.
Results: A total of 216 women (187 pIBE; 29 tIBE) were included in this multicenter dataset. Women with tIBE reported more vaginal bulge than patients with pIBE (1.23 ± 1.61 vs. 0.56 ± 1.31; p=0.02). Women with tIBE also had more severe anterior vaginal wall and apical prolapse than women with pIBE (Ba -0.72 vs -1.64, p=0.037; C -3.20 vs -5.94, p=0.008). Both groups reported similar rates of urinary frequency, urgency, and nocturia. However, women with tIBE reported significantly more urinary hesitancy, intermittency, strain, weak urinary stream, while women with pIBE reported incontinence in the form of stress and nocturnal incontinence (Table 1).
Conclusions: Our study confirms previous findings that women with tIBE suffer from pelvic organ prolapse. Women with tIBE have more vaginal bulge, anterior vaginal wall prolapse, and apical prolapse than women with pIBE. Furthermore, women with tIBE have more obstructive voiding symptoms of urinary hesitancy, intermittency, strain, and weak urinary stream consistent with anatomic obstruction than women with pIBE. Women with pIBE demonstrate more stress and nocturnal incontinence than women with tIBE. This suggests a component of pelvic floor dysfunction in the pIBE population. Further work is needed to help patients symptomatically differentiate between tIBE and pIBE on questionnaires.
Disclosure: No
Images:
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