

# european surgery

ACA Acta Chirurgica Austriaca

55. Jahrgang 2023 · Supplement 2

Eur Surg (2023) 55 :S133–S169

<https://doi.org/10.1007/s10353-023-00815-w>

Online publiziert: 9 November 2023

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Nature 2023

## Abstracts



## 17th European Colorectal Congress – ECC, St.Gallen

3rd December – 6th December 2023

### Scientific Committee:



Prof. Dr. Bruno Schmied  
President  
Head of surgical department,  
Cantonal Hospital St.Gallen



Prof. Dr. Jochen Lange  
Vice President



Dr. Walter Brunner  
Head of Colorectal Surgery,  
Cantonal Hospital St.Gallen



Prof. Dr. Dieter Hahnloser  
Head of Colorectal Surgery,  
CHUV Lausanne  
President, Swiss College of Surgeons

## Editorial

### THE 17th ECC – the European Colorectal Congress

#### Farewell to Jochen Lange

Dear colleagues, dear reader

Colorectal surgery is one of the most common procedures in visceral surgery, with highest impact on patients, and the underlying necessity for expert skills, knowledge and decision making for us surgeons. Within the last 30 years a lot of new techniques and innovations came up, and results from scientific work all over the world contributed to better understanding and treating the various colorectal diseases.

The European Colorectal Congress was always meant to bring together experts and participants from all over the world for high level exchange of knowledge and transfer of new techniques and results.

Based and founded in St.Gallen, Switzerland, in 2007 this unique congress is one of the upmost merits of *Jochen Lange* as contribution to the worldwide colorectal community. For 17 years he managed to bring together colorectal surgeons all over the world including highly distinguished scientific boards. It is an achievement to build up a single congress, but keeping high performance for many years is unique. All attending surgeons are aware of this outstanding opportunity to join. The honorable faculty and scientific board members shared their knowledge, showed their skills, discussed their experience and became partners and even friends over all borders.

The colorectal community highly appreciates Jochen Langes efforts, with all thanks to him and of course to all contributors making this exceptional congress outstanding and a given place in the scientific calendar of every colorectal surgeon!

This year Jochen Lange will step back and hand over the congress responsibility to the new scientific committee. We all three contributed and were involved since many years in the European Colorectal Congress: from introducing first hands-on courses on Single Port and NOTES surgery starting already in 2009, or famous live surgery broadcasted from the Cantonal Hospital St.Gallen to lectures and moderations.

#### THE ECC 2023

In this supplement of European Surgery to the European Colorectal Congress you will find the program and all accepted abstracts.

As new scientific committee we renewed the idea of the Pre-congress including hands-on trainings: The Robotic Course

offers Intracorporal anastomosis techniques and bleeding management for the first time worldwide. The famous DavosCourse contributes with the Advanced Laparoscopic Course on Colorectal Surgery. All you need to know as a specialist and for board certification in colorectal surgery will be presented in the Masterclass. The Proctology Day completes the Precongress on Sunday 3rd with renowned experts discussing standards and current state of knowledge in proctology.

The Main Congress from 4th–6th of December will give updates with lectures, symposia, discussions and we also decided to bring live surgery back to the congress. Thanks to all contributing experts!

It is also a privilege to be able to present a high number of qualified abstracts to all fields in colorectal surgery within this supplement to the European Colorectal Congress. We want to thank all interested colorectal surgeons for their work! The best abstracts will be elected during the congress and full text publication will be offered. The poster presentation on Tuesday will find your interest!

Last but not least—the new scientific committee aims to keep this spirit of connecting the colorectal community, offering open hands for all who are willing to contribute and be part of it. We thank in advance the supporting colleagues, the staff around the congress organization, the industry partners and the attending participants of our future congresses. We will further develop this unique European Colorectal Congress in St.Gallen.

We wish you a great congress connecting with the experts and colleagues, an interesting reading of the European Colorectal Congress 2023 and welcome you to the ECC 2024 from 1st–4th of December, St.Gallen.

We wish you a great congress connecting with the experts and colleagues., an interesting reading of the European Colorectal Congress 2023 and welcome you to the ECC 2024 from 1st–4th of December, St.Gallen.

With kind regards  
Walter Brunner  
and the Scientific Committee

Bruno Schmied  
Head of surgical department  
Cantonal Hospital St.Gallen

Walter Brunner  
Head of Colorectal Surgery  
Cantonal Hospital St.Gallen

Dieter Hahnloser  
Head of Colorectal Surgery  
CHUV Lausanne



3 – 6 December 2023, St.Gallen, Switzerland

# European Colorectal Congress

[www.colorectalsurgery.eu](http://www.colorectalsurgery.eu)


**MASTERCLASS IN  
COLORECTAL SURGERY**  
Sunday, 3 Dec 2023

**ALL YOU NEED TO KNOW  
AS A SPECIALIST & FOR  
BOARD CERTIFICATION IN  
COLORECTAL SURGERY.  
STATE-OF-THE-ART LECTURES**

**Chair:**

Martin Hübner, Lausanne, CH  
Yasuko Maeda, Glasgow, UK

08.10

**Introduction & Course objectives**  
Dieter Hahnloser, Lausanne, CH

08.20

**How to read & discuss a paper**  
Neil Smart, Exeter, UK

09.00

**Hereditary Cancer Syndromes**  
Gabriela Moeslein, Duisburg, DE

09.40

**Retrorectal Tumors**  
Peter Sagar, Leeds, UK

10.20 COFFEE BREAK

10.45

**Intestinal Crohns**  
Antonino Spinelli, Milano, IT

11.25

**Ulcerative Colitis**  
Willem Bemelman, Amsterdam, NL

12.05

**Intestinal Failure**  
Pamela Buchwald, Lund, SE

**INTERACTIVE SYMPTOMS  
& CASE-BASED DISCUSSIONS**

**Chair:**

Pamela Buchwald, Lund, SE  
Gabriela Moeslein, Duisburg, DE

13.30

**Small Bowel Obstruction**  
Martin Hübner, Lausanne, CH

14.10

**Chronic Constipation**  
Yasuko Maeda, Glasgow, UK

14.50 COFFEE BREAK

15.30

**Ostomies and their  
complications**  
Benjamin Weixler, Berlin, DE

16.10

**Lower GI Bleeding**  
Andreas Shamiyeh, Linz, AT

16.50

**Wrap-up**  
Dieter Hahnloser, Lausanne, CH

**PROCTOLOGY DAY**  
Sunday, 3 Dec 2023

**AT PROCTOLOGY DAY  
RENOWNED EXPERTS WILL  
DISCUSS WHAT IS STANDARD  
IN DIAGNOSTICS AND  
THERAPY ACCORDING TO  
THE CURRENT STATE OF  
KNOWLEDGE IN PROCTOLOGY**

08.45

**Introduction and Welcome**  
Felix Aigner, Graz, AT  
Lukas Marti, St.Gallen, CH

**ANAL FISSURE****Chair:**

Emma Carrington, London, UK  
Lukas Marti, St.Gallen, CH

09.00

Frédéric Ris, Geneva, CH

09.40

Richard Nelson, Bristol, UK

10.20 COFFEE BREAK

**OBSTRUCTED DEFECA-  
TION SYNDROME**

**Chair:**

Felix Aigner, Graz, AT  
Frédéric Ris, Geneva, CH

11.00

Emma Carrington, London, UK

11.40

David Jayne, Leeds, UK

12.20 LUNCH

**SEXUALLY TRANSMITTED  
DISEASE – ANAL INTRA-EPI-  
THELIAL – ANAL CANCER**

**Chair:**

Stephanie Breukink, Maastricht, NL  
Phil Tozer, London, UK

13.30

Robert Siegel, Berlin, DE

14.10

Sheela Rao, London, UK

14.50 COFFEE BREAK

**THE DIFFICULT FISTULA**

**Chair:**

R. Siegel, Berlin, DE; D. Jayne, Leeds, UK

15.30

Phil Tozer, London, UK

16.10

Stephanie Breukink, Maastricht, NL

16.50

**Closing remarks**

F. Aigner, Graz, AT; L. Marti, St.Gallen, CH

**ROBOTIC COURSE**  
Sunday, 3 Dec 2023

**Instructors**

Danilo Miskovic, London, UK;  
Jim Khan, Portsmouth, UK

**Organizing Faculty:**

Walter Brunner, St.Gallen, CH;  
St. Bischofberger, St.Gallen, CH

09.00

**Introduction & course  
objectives**

Danilo Miskovic, London, UK

09.10

**Robotic colorectal surgery –  
overview**

Danilo Miskovic, London, UK

09.30

**Hands-on training I**  
Participants will be rotated  
through the following stations:

▪ **Intracorporal anastomosis**

▪ **Simulator training  
anastomosis**

▪ **Dissection & vascular  
management**

▪ **Bleeding management**

▪ **Video training**

12.30 LUNCH BREAK

13.30

**How to implement robotic colo-  
rectal surgery**

Jim Khan, Portsmouth, UK

13.50

**Hands-on training II**  
Participants will be rotated  
through the following stations:

▪ **Intracorporal anastomosis**

▪ **Simulator training  
anastomosis**

▪ **Dissection & vascular  
management**

▪ **Bleeding management**

▪ **Video training**

16.40

**Wrap up**

Danilo Miskovic, London, UK

**DavosCourse@ECC – ADVANCED**  
Sunday, 3 Dec 2023

**Instructors**

Friedrich Herbst, Vienna, AT;  
Andreas Shamiyeh, Linz, AT;  
Gerd Silberhumer, Vienna, AT  
Lana Fourie, Basel, CH;  
Marko Kraljevic, Basel, CH

**Organizing Faculty:**

Walter Brunner, St.Gallen, CH;  
St. Bischofberger, St.Gallen, CH

09.00

**Introduction & course objectives**

09.10

**Laparoscopic colorectal  
surgery – Overview**

09.30

**Hands-on training I**

▪ **Laparoscopic suture  
techniques**

▪ **Laparoscopic intracorporal  
anastomosis**

12.30 LUNCH BREAK

13.30

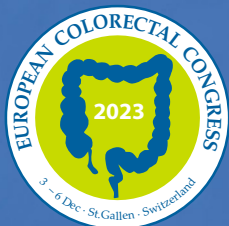
**Hands-on training II**

▪ **Dissection & vascular  
management**

▪ **Bleeding management**

16.40

**Wrap up**



3 – 6 December 2023, St.Gallen, Switzerland

# European Colorectal Congress

## Monday 4 December 2023

09.50 **Opening and welcome**  
Bruno Schmied, St.Gallen, CH

### DIVERTICULAR DISEASE

Chair: **Antonino Spinelli, Milano, IT**  
**Jurriaan Tuynman, Amsterdam, NL**

10.00 **Gut microbiome and surgery**  
Phil Quirke, Leeds, UK

10.30 **Diet in diverticular disease**  
Pamela Buchwald, Lund, SE

11.00 **Decision making in the management of acute complicated Diverticulitis beyond the guidelines**  
Seraina Faes, Zurich, CH

11.30 **Diverticular Abscess – Always drainage or who benefits from Surgery?**  
Johannes Schultz, Oslo, NO

### LUNCH

Chair: **Gabriela Möslein, Duisburg, DE**  
**Beat Müller, Basel, CH**

13.30 **Perforated Diverticulitis: Damage Control, Hartmann's Procedure, Primary Anastomosis, Diverting Loop**  
Reinhold Kafka-Ritsch, Innsbruck, AT

### SATELLITE SYMPOSIUM

**mindray**

14.30 **When to avoid protective stoma in colorectal surgery**  
Antonino Spinelli, Milano, IT

### COFFEE BREAK

### ENDOMETRIOSIS

Chair: **Pamela Buchwald, Lund, SE**  
**Phil Quirke, Leeds, UK**

15.30 **Endometriosis – what is the role of the abdominal surgeon**  
Jurriaan Tuynman, Amsterdam, NL

16.00 **Challenges in Surgery of Endometriosis – always interdisciplinary?**  
Peter Oppelt, Linz, AT  
Andreas Shamiyeh, Linz, AT

### SATELLITE SYMPOSIUM

**Medtronic**

17.00 **A gaze in the crystal ball: Where is the role of virtual reality and artificial Intelligence in colorectal surgery**  
Beat Müller, Basel, CH

17.30 **Get-Together with your colleagues**  
Industrial Exhibition

## Tuesday 5 December 2023

### MALIGNANT COLORECTAL DISEASE

Chair: **Lukas Brügger, Bern, CH**  
**Alexis Ulrich, Neuss, DE**

09.00 **Cytoreductive Surgery and Intraperitoneal Chemotherapy – facts and hopes**  
Olivier Glehen, Lyon, FR

09.30 **Metastatic Colorectal Cancer – surgical approaches and limits**  
Jürgen Weitz, Dresden, DE

### 10.00 SATELLITE SYMPOSIUM

**OLYMPUS**

### 10.45 COFFEE BREAK

Chair: **Dimitrios Christoforidis, Lugano, CH**  
**Joep Knop, Genk, BE**

11.15 **Organ preservation functional outcome in rectal cancer treatment – in line with patient's needs? (Robot – laparoscopic – open surgery?)**  
Hans de Wit, Nijmegen, NL

11.45 **Extended lymph node dissection for rectal cancer, is it still under debate?**  
Miranda Kusters, Amsterdam, NL

12.15 **Poster Presentation on-site**  
Bruno Schmied, St.Gallen, CH

### 12.30 LUNCH

### ROBOTICS

Chair: **Danilo Miskovic, London, UK**  
**Subash Vasudevan, Colchester, UK**

13.45 **Advances in Robotic Surgery and what we have learned so far**  
Amjad Parvaiz, Lisboa, PT

### 14.15 POSTER AWARD

14.45 **Challenging the market: Robotic (assistant) Devices and how to choose wisely (Da Vinci – Hugo Ras – Distalmotion ua)**  
Jim Khan, Portsmouth, UK

15.15 **TAMIS – Robotic Transanal Surgery, does it make it easier?**  
Joep Knol, Genk, BE

### 15.45 SATELLITE SYMPOSIUM

**INTUITIVE**

### 16.30 COFFEE BREAK

17.00 **EAES Presidential Lecture**  
George Hanna, London, UK



## Wednesday 6 December 2023

09.00 **LIVE SURGERY – CANTONAL HOSPITAL OF ST.GALLEN**

Chair: **Walter Brunner, St.Gallen, CH**  
**Dieter Hahnloser, Lausanne, CH**  
**Anke Smits, Utrecht, NL**  
**Matthias Turina, Zurich, CH**

Walter Brunner, St.Gallen, CH  
Bernhard Dauser, Vienna, AT  
Friedrich Herbst, Vienna, AT  
Salvatore Morales Conde, Sevilla, ES  
Amjad Parvaiz, Lisboa, PT

### 10.30 COFFEE BREAK

### 11.00 SATELLITE SYMPOSIUM

**Medtronic**

11.30 **LIVE SURGERY – VIDEO CANTONAL HOSPITAL OF ST.GALLEN**  
Dieter Hahnloser, Lausanne, CH  
Anke Smits, Utrecht, NL

### 12.00 LUNCH

13.30 **LIVE SURGERY – CANTONAL HOSPITAL OF ST.GALLEN**

### 14.15 SATELLITE SYMPOSIUM

**area9**



15.00 **Lars Pahlman lecture**  
Markus Büchler, Lisboa, PT



### 15.30 COFFEE BREAK

16.00 **SPECIAL LECTURE: Truth, Hope and Coloproctology**  
Bill Heald, Lisboa, PT



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## #1/2023

## The anatomical basis for autonomic dysfunction in colorectal surgery

Elroy Weledji

University of Buea, Limbe, Cameroon

**Background/Aim:** The quality of life (QoL) issues is important in rectal cancer surgery. These include the preservation of continence, preservation of reasonable bowel frequency and the avoidance of permanent sexual and urinary disturbance. Operative neural damage in pelvic and perineal surgery may affect bladder or sexual function with retention of urine or impotence. The study ascertained the anatomical and physiological basis for autonomic dysfunction during pelvic and perineal surgery.

Electronic searches of the MEDLINE (PubMed) database, Cochrane library and science citation index were performed to identify original published studies on urogenital dysfunction after pelvic and perineal surgery.

**Results:** More than half of patients experience a deterioration in sexual function whilst urinary dysfunction occurs in a third of patients treated for rectal cancer. Surgical nerve damage is the main cause. Total mesorectal excision (TME) with pelvic autonomic nerve preservation reduces the problem of accidental bladder denervation from 50–60% with conventional rectal cancer surgery to <20% and the problem of post operative impotence from 70–100% to <30%. Pelvic autonomic nerves are especially at risk in cases of low rectal cancer, anterior encroaching tumours and during abdominoperineal excision. Tumour location, size and diabetes mellitus are preoperative predictors for urinary dysfunction following TME and lateral pelvic wall lymphadenectomy. Continuous intraoperative monitoring of autonomic nerves enhances autonomic nerve identification and preservation by 95%. Transanal TME may facilitate preservation of autonomic nerves especially in the male, obese, pre-operatively radiated and in lower third rectal cancers. Impotence is rare after rectal excision for inflammatory bowel disease but retrograde ejaculation has been recorded. Acute urinary retention is a common post-operative complication following surgery on benign anorectal diseases.

**Conclusion:** Urogenital dysfunctions remain a common problem after rectal cancer treatment. TME for rectal cancer improves autonomic nerve preservation. Structured education of surgeons with regard to pelvic neuroanatomy and systemic registration of identified nerves intraoperatively may improve functional outcome of patients undergoing pelvic surgery. Routine pre-operative catheterization of high-risk patients until bladder function returns is prudent. Further research on the synergistic effect of radiotherapy and surgery on urogenital function is necessary.

## #2/2023

## Laparoscopic right hemicolectomy (D3+CME) for colon cancer could improve surgical and oncological outcomes simultaneously: a perspective single-center cohort study

Jianping Gong

Wuhan, Hubei, China

**Background/Aim:** Complete mesocolic excision (CME) or D3 lymphadenectomy led to survival benefits for local advanced right colon cancer, but with vague definitions and debated surgical hazard. Aiming to achieve a precise definition of it in colon cancer treatment, we proposed laparoscopic right hemicolectomy (D3+CME) as a novel procedure, which means excised right mesocolic as complete as possible in D3 field. However, people wonder to know the surgical and oncological results of this procedure.

**Methods:** We performed a cohort study involving prospective data collected from a single-center in China. Data from all patients who underwent right hemicolectomy between January 2014 and December 2018 were included. We compared the surgical and oncological outcomes between D3 + CME and conventional CME.

**Results:** D3+CME group performed better in lymph nodes harvested (25.0 [17.0, 33.8] vs. 18.0 [14.0, 25.0],  $P < 0.001$ ) and the proportion of intraoperative blood loss  $\geq 50$  mL (31.7% vs. 51.8%,  $P < 0.001$ ); no significant difference was observed in the complication rate between two groups. Kaplan-Meier analysis demonstrated that a better cumulative 5-year disease-free survival (91.3% vs. 82.2%,  $P = 0.026$ ) and a better cumulative 5-year overall survival (95.2% vs. 86.1%,  $P = 0.012$ ) were obtained in the D3+CME group. Multivariate COX regression revealed that D3+CME was an independent protective factor for disease-free survival ( $P = 0.026$ ).

**Conclusion:** In conclusion, D3 + CME could improve surgical and oncological outcome simultaneously for colon cancer compared to conventional CME.

## #3/2023

## Technical notes and short-term results of laparoscopic right hemicolectomy (D3+CME) for colon cancer

Yi-Xin Tong, Jianping Gong

Tongji Hospital of Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

**Background/Aim:** To illustrate the critical techniques and safety of laparoscopic D3+CME for right hemicolectomy, according to our previous experience.

**Methods:** Anatomical relationship and operative techniques were demonstrated. 100 consecutive patients who underwent right hemicolectomy with D3+CME procedure between December 2014 and December 2017 were included in the present study.

**Results:** Under the conception of membrane anatomy, the space between mesocolon and its surrounding structure (mesocolonic bed) was the main surgical plan. Mesenteric dissection line should be extended to the left side of SMA. The medial-

to-lateral dissection approach made D3+CME performed efficiently. In this study group, the mean volume of blood loss for each patient was  $7.2 \pm 3.6$  mL. The median operative time was  $115 \pm 19.5$  min. The mean number of harvested lymph nodes was  $24.5 \pm 9.7$ . The median proximal and distal resection margins were  $22 \pm 12.4$  cm and  $16.6 \pm 7.2$  cm. The postoperative complication rate was 11.1%. The median hospital stay was  $11.8 \pm 4.9$  days. No patients underwent conversion during laparoscopic surgery. All the patients are disease-free during the follow-up periods, the mean follow-up time is 12 months (ranges 3–20 months).

**Conclusion:** D3+CME group have lower rates of postoperative complications and better pathologic (specimen lengths, resection margin lengths, number of lymph nodes, and R0 resection rate) outcomes. Based on these results, the technique of D3+CME can be considered as a routine elective approach for right sided colon cancer.

#### #4/2023

### Variation in the rates of emergency surgery amongst emergency admissions to hospital for common acute conditions

Pierpaolo Maietta

Aversa hospital, Mercogliano, Italy

**Background:** This paper assesses variation in rates of emergency surgery (ES) amongst emergency admissions to hospital in patients with acute appendicitis, cholelithiasis, diverticular disease, abdominal wall hernia, and intestinal obstruction.

**Methods:** Records of emergency admissions between 1 April 2010 and 31 December 2019 for the five conditions were extracted from Hospital Episode Statistics for 136 acute National Health Service (NHS) trusts in England. Patients who had ES were identified using Office of Population Censuses and Surveys (OPCS) procedure codes, selected by consensus of a clinical panel. The differences in ES rates according to patient characteristics, and unexplained variations across NHS trusts were estimated by multilevel logistic regression, adjusting for year of emergency admission, age, sex, ethnicity, diagnostic subcategories, index of multiple deprivation, number of co-morbidities, and frailty.

**Results:** The cohort sizes ranged from 107.325 (hernia) to 268.253 (appendicitis) patients, and the proportion of patients who received ES from 11.0 per cent (diverticular disease) to 92.3 per cent (appendicitis). Older patients were generally less likely to receive ES, with adjusted odds ratios (ORs) of ES for those aged 75–79 versus those aged 45–49 years: 0.34 (appendicitis), 0.49 (cholelithiasis), 0.87 (hernia), and 0.91 (intestinal obstruction). Patients with diverticular disease aged 75–79 were more likely to receive ES than those aged 45–49 (OR 1.40). Variation in ES rates across NHS trusts remained after case mix adjustment and was greatest for cholelithiasis (trust median 18 per cent, 10th to 90th centile 7–35 per cent).

**Conclusion:** or patients presenting as emergency hospital admissions with common acute conditions, variation in ES rates between NHS trusts remained after adjustment for demographic and clinical characteristics. Age was strongly associated with the likelihood of ES receipt for some procedures.

#### #5/2023

### Domains of four-step-technique training program for laparoscopic colorectal surgery

Yih Jong Chern, Jeng-Fu You

Chang Gung Memorial Hospital, Linkou Branch, Kuei-Shan, Taoyuan, Taiwan

**Background/Aim:** Colorectal cancer is the common and deadly disease worldwide. Multiple randomized controlled trials have demonstrated the benefits of laparoscopic colorectal surgery. Therefore, many trainees start learning colorectal surgery from laparoscopy instead of open. Our institute designed the domains of four-step-technique (DOF) training program for laparoscopic colorectal surgery since 2011. We aimed to present our short-term outcomes and learning curve analysis in the domains of four-step-technique (DOF) training program.

**Methods:** All residents received basic laparoscopic training at the first 3-year residency in general surgery, but no experience with laparoscopic colorectal surgery. We proposed that the trainee will gain proficiency for laparoscopic colorectal surgery after completing at least 25 procedures for each domain. In this study, we aimed to compare the short-term outcome between training cases and non-training cases and discuss about the trainee's learning achievement.

**Results:** From January 2013 to April 2019, 8 trainees had completed the learning passports of Domains of four-laparoscopy-technique learning program in Chang Gung Memorial Hospital, Linkou branch. We had enrolled 2604 non-training cases and 478 training cases. In multivariable logistic regression analysis after the model adjustment, the postoperative morbidity rate, readmission rate, conversion rate and second operation rate all had no significant association with being learning case or not.

**Conclusion:** We introduced the domains of four-step-technique training program for laparoscopic colorectal surgery. Under DOE, in viewing training patients' safety, no higher rate of postoperative morbidity and mortality were found compared with cases performed by experienced surgeon. This study revealed the proficient point (passed 100 points or 30 cases) in DOE. Once the trainee passed the proficient point, the trainee can perform entire laparoscopic colorectal surgery under supervision safely without additional adverse effect on patients.

#### #6/2023

### Prognostic impact of body mass index and metabolic syndrome for asian patients with early-onset colorectal cancer

Chinock Cheong, Ji Young Kim<sup>2</sup>, Youn Young Park<sup>3</sup>, Yeonuk Ju<sup>2</sup>, Jun-Woo Bong<sup>2</sup>, Sang-Hee Kang<sup>2</sup>, Sun-Il Lee<sup>2</sup>, Byung Wook Min<sup>2</sup>

<sup>1</sup>Seoul, Republic of Korea;

<sup>2</sup>Korea University Guro Hospital;

<sup>3</sup>Kyung Hee University Hospital at Gangdong

**Background/Aim:** Because changes in lifestyle and dietary patterns are thought to contributed to the rising incidence of ECRC, it is necessary to investigate the association between BMI or metabolic syndrome for prognosis of ECRC in Asian popu-



lation. The aim of this study was to identify the relationship between BMI and metabolic syndrome and prognosis of ECRC among Asian patients.

**Methods:** This study included patients under aged 55 years who diagnosed with ECRC and underwent radical resection between 2016 and 2020 in our hospital. Patients were divided according to body mass index (BMI) of an Asian-pacific population. Metabolic syndrome is a condition when more than 3 factors among as 4 categories: elevated waist circumference (male  $\geq 90$  cm, female  $\geq 85$  cm), elevated triglyceride (TG) (150 mg/dL), elevated blood pressure (BP) (systolic BP  $\geq 130$  mmHg) or, elevated fasting glucose ( $\geq 100$  mg/dL). Multivariate analysis was performed for disease free survival (DFS) by cox regression and Kaplan-Meier method and log-rank test was done for DFS and overall survival (OS) according to BMI or metabolic syndrome.

**Results:** The ratio of abdominal obesity was significantly different in the overweight group (0 vs. 19.3% vs. 74.2%,  $p < 0.001$ ). All Patients with metabolic syndrome were in overweight group. The 3-year DFS rate was significantly different among BMI groups (50.0% vs. 71.5% vs. 87.0%,  $p < 0.001$ ). The 3-year OS rate was also significant between three groups (41.7% vs. 71.5% vs. 83.8%,  $p = 0.001$ ). When we divided patients depending on BMI plus metabolic syndrome, the results were not different. We performed a multivariate analysis, which revealed that BMI ( $\geq 23$  kg/m<sup>2</sup>), ( $p = 0.017$ ), the number of metabolic condition ( $\geq 2$ ) ( $p = 0.041$ ), CEA levels ( $< 5$  ng/dL or  $\geq 5$  ng/dL) ( $p = 0.003$ ), location of tumor ( $p = 0.016$ ), N stage ( $p = 0.006$ ), and M stage ( $p = 0.049$ ) were significant risk factors for DFS. Although metabolic syndrome was not prognostic factor for DFS, the number of metabolic dysregulations ( $\geq 2$ ) were significant factor for DFS.

**Conclusion:** This study demonstrated the prognostic impact of BMI and metabolic syndrome for patients with ECRC in Korean patients. Our finding showed underweight BMI related with poor DFS and OS for patients with ECRC. The number of metabolic dysregulations were also important for DFS. Further studies are required to establish appropriate impact of BMI and metabolic syndrome in a large-scale study.

## #7/2023

The presence of metastatic nodes (D3 Volume) in right-sided colon cancer may not indicate systemic disease. An ongoing multicenter study's subgroup analysis

Gurpreet Singh Banipal<sup>1</sup>, Bojan V Stimec<sup>2</sup>, Erik Kjaestad<sup>3</sup>, Jurate Saltyte Benth<sup>4</sup>, Jens Marius Nesgaard<sup>5</sup>, Solveig Norheim Andersen<sup>4</sup>, Bjorn Edwin<sup>6</sup>, Dejan Ignjatovic<sup>3</sup>

<sup>1</sup>Akershus University Hospital, Lorenskog, Norway;

<sup>2</sup>Anatomy Sector, Teaching Unit, Faculty of Medicine, University of Geneva, Switzerland;

<sup>3</sup>Department of Digestive Surgery, Akershus University Hospital, Norway;

<sup>4</sup>Institute of Clinical Medicine, Faculty of Medicine, University of Oslo, Oslo, Norway;

<sup>5</sup>Department of Gastrointestinal Surgery, Vestfold Hospital Trust, Tonsberg, Norway;

<sup>6</sup>Interventional Centre and Department of HPB Surgery, Rikshospitalet, Oslo University Hospital, Oslo, Norway

**Background/Aim:** An outcome assessment of right-sided colon cancer patients with metastatic disease in the D3 volume after personalized surgery.

**Background:** Patients with central lymph node metastasis (D3-PNG) are considered to have a systemic disease with a poor prognosis. A 3-dimensional definition of the dissection volume allows the removal of all central nodes.

**Methods:** D3-PNG includes consecutive patients from an ongoing clinical trial. Patients were stratified into residual disease negative (D3-RDN) and residual disease positive (D3-RDP) groups. D3-RDN was further stratified into four periods to identify a learning curve. A personalized D3 volume (defined through arterial origins and venous confluences) was removed "en bloc" through medial-to-lateral dissection, and the D3 volume of the specimen was analyzed separately.

**Results:** A total of 623 patients were included in the multicenter clinical trial, having 42/623 (6.7%) with positive lymph nodes in the D3 volume. Among these patients, D3-PNG had 42 (26 females, 63.1SD9.9 years) patients, D3-RDN:29 (17 females, 63.4SD10.1 years), and D3-RDP:13 (9 females, 62.2SD9.7 years). The mean overall survival (OS) days D3-PNG:1230, D3-RDN:1610, D3-RDP:460. The mean disease-free survival (DFS) was D3-PNG:1023, D3-RDN:1461, D3-RDP:74 days. The probability of OS/DFS in D3-PNG:52.1%/50.2%, D3-RDN:72.9%/73.1%, D3-RDP: 7.7%/0%. There is a significant change in OS/DFS in the D3-RDN from 2011–2013 to 2020–2022 (both  $p = 0.046$ ) and from 2014–2016 to 2020–2022 ( $p = 0.028$  and  $p = 0.005$ , respectively).

**Conclusion:** The results of this study indicate that removing anatomically defined and personalized D3 volumes can result in survival in most patients with lymph node metastases in the central lymph nodes. The significance of the extent of mesenterectomy and the quality of surgery are paramount. This is because a learning curve has shown significantly improved survival rates over time, even though the number of patients involved in the study was relatively small. These results implicit a place for the centralization of this patient group where achievable.

## #8/2023

To evaluate lower threshold of polyp size for tattooing routinely: a single trust observational study

Mahmud Riad

Maidstone and Tunbridge Wells NHS Trust, Tunbridge Wells, United Kingdom

**Background/Aim:** The goal of the study is to establish the lowest polyp size for clinically effective tattooing routinely.

**Methods:** Retrospective data collection of colonoscopy and flexible sigmoidoscopy for bowel screening and non-bowel screening patients; 450 patients underwent polypectomy of less than 20 mm from September 2021 to September 2022 in MTW NHS Trust. We excluded 20+ mm polyps, known FAP, lynch syndrome and other genetic predisposed colorectal polyps. Histology was obtained from electronic patient records (Allscripts). SPSS version 25.0 was used for the statistical analysis, which also included ROC curve analysis and Chi-Square test.

**Results:** A total of 450 participants, 288 males (64.0%) and 162 females (36.0%), were enrolled. Polyp sizes: 0–9 mm (42.2%) and 10–19 mm (57.8%). 8.0% were tattooed. Polyps found in right-hemicolon, transverse, left-hemicolon, sigmoid and rectum accordingly 29.78%, 20.5%, 9.1%, 28.4% and 12.22%.

Pedunculated polyps were found in 143 individuals (31.8%), while sessile polyps were observed in 256 individuals (56.9%). Furthermore, in histological analysis, 251 individuals (55.8%) exhibited tubular adenomas and the majority of the cohort (77.6%) presented with low-grade dysplasia. Malignant invasion was detected in 27 subjects (6%). Receiver operating system (ROC) curve analysis indicated that polyp size was a predictive factor for malignancy development, with a cut-off lower point identified at 8.5 mm.

**Conclusion:** The findings confirm the advice to tattoo polyps bigger than 8.5 mm to make tracing and follow-up easier.

## #9/2023

### Risk of diabetes in colorectal cancer patients: a population-based cohort study in Taiwan

Hsin Yin Hsu<sup>1</sup>, Yih-Jong Chern<sup>2</sup>, Min-Shu Hsu<sup>3</sup>, Tzu-Lin Yeh<sup>4</sup>, Ming-Chieh Tsai<sup>5</sup>, Jing-Rong Jhuang<sup>6</sup>, Cheng-Tzu Hsieh<sup>7</sup>, Chun-Ju Chiang<sup>8</sup>, Wen-Chung Lee<sup>8</sup>, Lee-Ching Hwang<sup>9</sup>, Kuo-Liong Chien<sup>8</sup>

<sup>1</sup>Mackay Memorial Hospital, Taipei, Taiwan;

<sup>2</sup>Chang Gung Memorial Hospital, Taoyuan, Taiwan;

<sup>3</sup>Mackay Memorial Hospital, Taipei, Taiwan;

<sup>4</sup>Hsinchu MacKay Memorial Hospital, HsinChu, Taiwan;

<sup>5</sup>Mackay Memorial Hospital, Tamsui Branch, New Taipei City, Taiwan;

<sup>6</sup>Institute of Statistical Science, Academia Sinica, Taiwan;

<sup>7</sup>University of California, Los Angeles, USA;

<sup>8</sup>College of Public Health, National Taiwan University, Taipei, Taiwan;

<sup>9</sup>Mackay Memorial Hospital, Taipei, Taiwan

**Background/Aim:** The relationship between colorectal cancer (CRC) and the risk of new-onset diabetes is not well understood. This study aimed to investigate the association between CRC and subsequent diabetes risk and to assess the impact of chemotherapy on diabetes risk in CRC patients.

**Methods:** A nationwide cohort study was conducted using the Taiwan Cancer Registry Database (2007–2018), linked with the National Health Insurance Research Database and National Death Registry until 2019. The study enrolled 86,268 CRC patients and an equal number of individuals from the general population. The association between diabetes risk and chemotherapy was analyzed in a subset of 37,277 CRC patients registered in the Taiwan Cancer Registry database during 2007–2016. Propensity score matching was used to match CRC patients and the general population in a 1:1 ratio. Chemotherapy exposure within the first 3 years after diagnosis was categorized as no chemotherapy, less than 90 days, 90 to 180 days, and over than 180 days. The study assessed differences in diabetes risk across these categories.

**Results:** After propensity score matching, CRC patients and the general population both consisted of 86,268 participants. CRC patients exhibited a 14% higher risk of new-onset diabetes compared to the matched general population (hazard ratio (HR): 1.14, 95% confidence interval (CI): 1.09–1.20). The diabetes risk pattern varied over time, with the highest risk occurring in the first year after diagnosis and persistently elevated thereafter. Notably, long-term chemotherapy (>180 days within 3 years) was linked to a 60–70% increased risk of subsequent diabetes (HR: 1.64, 95% CI: 1.07–2.49).

**Conclusion:** Patients diagnosed with CRC are associated with a higher risk of developing diabetes compared to the gen-

eral population. Furthermore, individuals undergoing long-term chemotherapy, particularly those receiving capecitabine, are at a greater risk of diabetes. These findings emphasize the importance of closely monitoring blood glucose levels in CRC patients, especially those undergoing extended chemotherapy durations.

## #10/2023

### Transanal approach for malignant or premalignant rectal lesions: a single centre experience

Penélope Correia, Lúcia Carvalho, Sara Lourenço, Maria Leonor Matos, António Soares, Maria Rosa Sousa, Ana Marta Pereira, Jorge Costa, Mário Nora

CHEDV—Centro Hospitalar de Entre o Douro e Vouga, Santa Maria da Feira, Portugal

**Background/Aim:** Transanal approach for rectal lesions has been widely spread as a minimally invasive alternative. Transanal excision (TAE), the classical approach, is limited to small lesions located in the lower rectum. Introduction of transanal endoscopic operation (TEO) and transanal minimally invasive surgery (TAMIS) allowed the extension of surgical indications. Nevertheless, concerns about cancer's recurrence rates and effectiveness of these approaches remains a matter of discussion.

**Methods:** Retrospective study including all patients who underwent transanal excision of rectal lesions between January 2015 and June 2022. The transanal approach was used to remove premalignant lesions and as a definitive treatment of early rectal cancers without adverse prognostic factors. Other indication was patients not fit for surgery. The aim was to analysed lesions' characteristics, morbidity and oncologic outcomes.

**Results:** Fifty five patients were submitted to a transanal excision of rectal lesions. The patients' mean age was 69 years and 51% were male. The mean distance from the anal verge was 5 cm. The procedure elected was TAE in 15 patients, TEO in 36% and TAMIS in 36% of patients. It was observed a shift towards TAMIS in recent years, whereas only 1 patient was submitted to TEO in the last 3 years. The main pathologic diagnoses were adenocarcinoma ( $n=16$ ), high-grade ( $n=14$ ) and low-grade dysplasia ( $n=13$ ), rectal neuroendocrine tumour ( $n=3$ ). Mean length of stay was 2.7 days. Complications occurred in 4 patients: abscess, rectovaginal fistula, rectal bleeding and rectal perforation. Of those with malignant diagnosis ( $n=23$ ), 3 were submitted to adjuvant QT/RT, 2 underwent abdominoperineal resection and 1 low rectal resection, with no residual tumour in the specimen and no metastatic lymph nodes identified. During follow-up (mean = 46 months), 1 case of local recurrence and 1 case of distant metastasis were identified.

**Conclusion:** Transanal approach to rectal lesions and early stages cancer is a safe and efficient alternative to more aggressive surgery. TAMIS is an attractive technique with a flat learning curve that allows excision of higher, circumferential and larger lesions. However, patient selection is important. Accurate surgery indications with an appropriate preoperative assessment are the key for an efficient procedure with low risk of cancer recurrence or need to salvage surgery.

## #11/2023

## Effect of pre-operative bowel preparation and diet on anastomotic healing on colon microbiota: an experimental model

Kaan Sunter<sup>1</sup>, Aysegul Binay<sup>2</sup>, Zeynep Ceren Karahan<sup>2</sup>, Mehmet Ali Koc<sup>2</sup>, Cihangir Akyol<sup>2</sup>, İbrahim Ethem Gecim<sup>2</sup><sup>1</sup>Ankara University School Of Medicine, Altındağ/Ankara; Turkey;<sup>2</sup>Ankara University School Of Medicine, Altındağ/Ankara; Turkey

**Background/Aim:** Anastomotic leaks remain one of the most feared complications in colorectal surgery as an important cause of morbidity and mortality. Today, there are many factors to consider anastomotic leaks, the two most recent of which are diet and colon microbiota. The aim of our study is to investigate the effect of pre-operative diet and bowel cleansing on anastomotic leaks from the point of intestinal microbiota.

**Methods:** In our study, 64 female Wistar Albino rats having a body weight between 250–300 g have been used. Rats were randomly divided into two groups and the first group was fed with a high-fiber diet, and the second group was fed with a high-fat high-protein western type diet for three weeks. Then, both groups were again randomly divided into four subgroups. No bowel cleansing was performed in the 1st group (control group). Mechanical bowel cleansing in the 2nd group, intestinal cleansing with oral antibiotics in the 3rd group, and oral antibiotic + mechanical bowel cleansing in the 4th group were performed. After intestinal transecting, all rats underwent primary intestinal anastomosis at the distal sigmoid colon-proximal rectum line. Following the operation, postoperative colonic microbiota has been analysed and correlated with anastomotic healing.

**Results:** Collagenase activity in Enterococci colonies was high in the high-fat, high-protein western type diet group compared to the high-fiber diet group ( $p=0,024$ ). In relation, anastomotic burst pressures were recorded lower in the western type diet group meanwhile no statistical difference was found. In both feeding groups which received oral antibiotics + mechanical bowel cleansing, matrix metalloproteinase-9 (MMP-9) levels and collagenase activities were measured lower than those of the other subgroups ( $p=0,045$  and  $p=0,016$ , respectively).

**Conclusion:** Our study investigated the effects of pre-operative diet and bowel preparation on anastomotic leaks on microbiota: It was concluded that the rats which have been fed on a high fiber diet starting 3 weeks before the operation and giving both oral antibiotics and mechanical bowel cleansing together, a night before the operation have provided the lowest collagenase levels. It is likely that the lowest collagenase levels might be translated as the lowest risk of leakage in colorectal anastomoses. While the experimental risk of anastomotic leak can be decreased and the clinical translation of such bowel preparation warranted human studies.

## #12/2023

## From novice to expert: tracking the learning curve for robotic assisted colorectal cancer resections

Faid Khopekar<sup>1</sup>, Carina McGuire<sup>1</sup>, Natalie McCluskey<sup>1</sup>, James Saldanha<sup>1</sup>, Segun Komolafe<sup>2</sup>, Fraser Maxwell<sup>2</sup><sup>1</sup>Hairmyres Hospital, Glasgow, United Kingdom;<sup>2</sup>University Hospital Wishaw, NHS Lanarkshire, Scotland, United Kingdom

**Background/Aim:** Robotic assisted surgery (RAS) provides a unique opportunity to assess for a surgical learning curve. Widely understood to mean increased proficiency with experience, the surgeon learning curve is most measurable when using a new technique or tool, such as with RAS. We were keen to evaluate for an early surgeon learning curve by analysing (and assessing for any reduction in) median operating times (OT) from the initiation of the RAS service for colorectal cancer (CRC) resections at our hospital to present time.

**Methods:** We retrospectively identified all RAS CRC resection cases using our database from the implementation of the service at our unit in May 2022 until April 2023. We included only the four highest volume resection types and split the cases into two chronological cohorts (1 and 2). We identified the 'knife to skin' to 'close' time for each case and calculated the median OT for each resection type. We then assessed for any time saved between the two cohorts.

**Results:** Between May 2022 and April 2023, our unit performed 72 RAS CRC resections. The four highest volume resections were anterior resection (38), APR (9), right hemicolectomy (13), and sigmoid colectomy (10). From the first to the second chronological cohort, we observed a decrease in median OT across all resection types. Anterior resections showed a median OT decrease from 429 to 381.5 minutes, APR from 555 to 528.5 minutes, right hemicolectomies from 233 to 212 minutes, and sigmoid colectomies from 410 to 111.7 minutes (which represented the most significant decrease in median OT of 4 hours 58 minutes). Overall, median OT saved was 37 minutes across all case types.

**Conclusion:** We were able to demonstrate an early surgeon learning curve by demonstrating increased proficiency (by way of decreased median OT) with experience (cases performed over time). Establishing a surgical learning curve has important implications for surgical training and practice in this upcoming field and for wider adoption of RAS in other specialities.

## #13/2023

## Obstructed defecation syndrom—ODS, our experience with TST stapler treatment and results in 111 patients

Pavel Zbořil, Tomas Rezac, Ivo Klementa, Lubomir Stary, Dušan Klos

<sup>1</sup>University Hospital Olomouc, Olomouc, Czech Republic

**Background/Aim:** Up to 20% of the adult population has problems with defecation. Women are affected three times more often than men. Diagnosis of defecation problems is com-

plex and is made in collaboration with other medical specialties such as urology, gynecology, and neurology. However, the first specialist that patients with defecation problems most often seek out is a proctologist. The most common causes include ventral rectocele, anorectal prolapse, and rectorectal intussusception. Grade III and IV hemorrhoids are also present in most cases. Several surgical techniques have been developed to treat static and dynamic disorders of the small pelvis. The resection technique using the high-capacity stapler TST seems promising. This method is based on segmental resection of the rectal wall.

**Methods:** The study aimed to compare the treatment of ventral rectocele, anorectal prolapse, and rectorectal intussusception with the TST stapler and PPH Longo. Postoperative pain, complications, and long-term outcomes were evaluated.

**Results:** From January 2016 to January 2021, 111 patients were operated on with the TST stapler. TST stapler surgery resulted in treating the underlying disease in all patients.

There was a significant postoperative reduction in pain, as assessed by the VAS score, compared to a similar group operated on with PPH Longo. On the other hand, urinary retention was higher (TST group: men 75 %, women 65 % vs. Longo group 48 % and 27 %). All due to full-thickness resection of the rectal wall and higher from the anal verge compared to the Longo method. Functionally, the number of stools was significantly adjusted after a temporary postoperative increase to mostly 1 to 3 per day at six months. Stapler failure did not occur in any of the cases. The only complication was stapler line bleeding, managed conservatively a total of 3 times.

**Conclusion:** Introducing the large-capacity circular stapler (TST 36) creates new possibilities for managing anorectal prolapse, rectal prolapse, and large hemorrhoids. These staplers provide a perfect view of the resected tissue, allowing selective resection of the required amount of tissue in each sector (asymmetric resection). Up to a 5 cm cylinder of the rectal wall and 3 cm of the prolapsed rectum can be removed with segmental resection. It is a safe and irreplaceable method of ODS management.

## #14/2023

### Treatment modalities in complex anal fistulas: Comparison of sphincter-preserving fistulectomy with laser treatment

Dogan Gonullu<sup>1</sup>, Kenan Binnetoglu<sup>2</sup>, Beyza Kavuncu<sup>3</sup>, Muzaffer Ahmet Er<sup>4</sup>, İklil Eryılmaz<sup>4</sup>

<sup>1</sup>University of Health Sciences, G. O.P Taksim Training and Education Hospital, Istanbul, Turkey;

<sup>2</sup>Kafkas University, Medical School, Kars, Turkey;

<sup>3</sup>Mediwell Clinic, London, England;

<sup>4</sup>Health University, Gaziosmanpasa Teaching and Training Hospital, Istanbul, Turkey

**Background/Aim:** The treatment of complex anal fistulas continue to be debatable; this study aims to compare the results of “sphincter preserving fistulectomy” (SPF) with Laser Ablation of Fistula Tract(LAFT) treatment.

**Methods:** A retrospective study of patients operated between January 2013—October 2021, was performed to compare the efficacy of SPF with LAFT, in regard to recurrence rates, return to work times, and factors affecting recovery; the anal continence score (Wexner score) was evaluated preoperatively and postoperatively.

**Results:** There are a total of 64 patients: 56 (87.5%) were high transsphincteric, 6(9.4%) suprasphincteric, and 2(3.1%) extrasphincteric types. There was no statistical difference between two groups in terms of fistula length (“ $p=0.194$ ”), fistula diameter (“ $p=0.898$ ”). The mean healing time in the SPF group was  $49.6 \pm 28.3$  days, while in the laser group was  $12.14 \pm 3.01$  days; this time was significantly shorter in the laser group “ $p<0.001$ ”. The mean time to return to work significantly short in LAFT group (“ $p<0.001$ ”). In the SPF application group 7(17%) patients recurred, there were 3 recurrences in LAFT group (primary healing: 60.8% secondary healing: 86.9%; overall recurrence 13%).

The Wexner score of the recurrent group was found to be significantly higher.

**Conclusion:** The laser approach provides a more comfortable healing process, wound healing and return to work are shorter. However, has a higher recurrence/non-recovery rate than sphincter-sparing fistulectomy and allows for a second procedure.

## #15/2023

### Mesorectal nodes harvesting associated with transanal minimally invasive radical resection for early rectal cancer

Ilaria Benzoni<sup>1</sup>, Martina Fricano<sup>2</sup>, Andrea Celotti<sup>1</sup>, Barbara Frittoli<sup>2</sup>, Gian Luca Baiocchi<sup>1</sup>

<sup>1</sup>ASST Cremona, Cremona, Italy;

<sup>2</sup>Università degli studi di brescia

**Background/Aim:** Total mesorectal excision (TME) is the standard of care in rectal cancer; its treatment remains challenging both in terms of surgery invasiveness, medium and long term quality of life and radicality. The spread of colorectal cancer screening has increased the percentage of patients with early-stage cancer; at least 20% of patients are diagnosed with a clinical stage cT1, and another 20% have a pathologic stage pT1 after endoscopic excision. In this subgroup of patients, the real advantage of TME over local excision (LE) is the ability of removing mesorectal nodes, which are metastatic in less than 20% of cases. To solve the need of correct nodal staging in patients with cT1cN0 rectal cancer, we designed this observational study that associates LE with mesorectal ICG-guided nodal sampling, in order to minimize the risk of undertreatment of LE.

**Methods:** Endoscopic injection of 1: 5 ml of ICG (0.125 ml/mg) in 10% glycerol was performed near to the tumor or near the residual tumor scar. Surgical procedure started with a laparoscopic exploration of the peritoneal cavity; the mesorectal fascia was opened and a mesorectal nodal excision guided by the indocyanine green fluorescence was performed. In all cases, the search for nodes was also driven by MRI imaging. Peritoneum was then closed on both sides. Transanal local excision was performed. A full thickness excision (including perirectal fat) was performed with a macroscopic free margin > 1 cm. Rectal defect was closed with continue reabsorbable barbed suture or left open, on the basis of surgeon attitude.

**Results:** From November 2018 to November 2022 we enrolled a total of 7 patients with cT1N0M0 rectal cancer at ASST Cremona, Italy that were treated with transanal local excision and laparoscopic mesorectal nodal sampling. In 5 cases, the neoplasm was treated by endoscopy and pathology report showed features needing a further treatment. In the remaining 2 cases,

staging after endoscopic diagnosis suggested a T1N0 cancer that was treated directly by surgery. The median (IQR) distance of the tumor from the anal verge was 61,85 mm.

**Conclusion:** In selected cases of cT1cN0 rectal cancer, transanal local excision plus ICG lymph nodal sampling is a feasible minimally invasive surgical option that increases the rate of organ preservation reducing the need of ostomy and eliminating the functional sequelae. Further studies are needed to identify the patients most likely to benefit from this minimally invasive strategy.

## #16/2023

### Surgically managed right-sided diverticulitis: Is it still an oriental mirage for the western world?

Dario Palmisano<sup>1</sup>, Andrea Pisani Ceretti<sup>2</sup>

<sup>1</sup>Università degli studi di Milano bicocca, Milano, Italy;

<sup>2</sup>ASSTMilano nord- Ospedale, Bassini, Italy

**Background/Aim:** We here aimed to investigate short and long-term outcomes and Quality of Life (QoL) of surgically managed patients with right-sided colonic diverticulitis (RCD).

**Methods:** We conducted an ambidirectional cohort study of patients with RCD undergoing surgery between 2012/2022. All patients received a colonoscopy at one year post-surgery. The enrolled patients completed the EuroQoL (EQ-5D-3L) during a regular follow up visit at 12 and 24 months after surgery.

**Results:** A population of 319 patients with RCD was selected: 223 (70%) patients underwent non-operative management (NOM) while 33 patients underwent surgery. Acute diverticulitis occurred in 30 patients: 9 with (27.2%) uncomplicated and 21 (63.6%) with complicated diverticulitis. Chronic diverticulitis occurred in 3 cases (9.2%). According to WSES guidelines, 27 patients were classified by CT as 1a (81.8%) and 6 patients as 3 (18.2%). Right hemicolectomy was performed in 30 patients (90.8%), ileo-caeectomy in 3 (9.2%). Nine (27.27%) experienced postoperative complications: 7 (77.7%) were Clavien-Dindo grade I-II, and 2 (22.2%) grade III. No disease recurrence or colorectal cancer (CRC) was detected on colonoscopy. Thirty (90.8%) patients completed the 24-month follow-up. A statistically significant difference between preoperative and 24-months QoL index value (median 0.72; IQR=0,57-0.8 vs. median 0.9; IQR=0.82-1;  $P=0.0003$ ) was observed.

**Conclusion:** This study demonstrates positive short and long-term outcomes in patients who underwent surgery for RCD. Specifically, no disease recurrence or CRC was observed at colonoscopy one year postoperatively.

## #17/2023

### Standardization for colorectal surgery procedures with the CMR Versius system, a new robotic platform: our initial experience

Andrea Pisani Ceretti<sup>1</sup>, Dario Palmisano<sup>2</sup>

<sup>1</sup>ASSTMilano nord- Ospedale Bassini, Milano, Italy;

<sup>2</sup>Università degli studi di Milano bicocca (I)

**Background/Aim:** The article describes our initial experience using CMR Versius platform for colorectal surgery.

**Methods:** Between September 2022 and April 2023, twenty-one patients underwent robotic colorectal procedures in a multi-robotic referral center (San Paolo University Hospital, Milan, Italy). Surgeons with only laparoscopic experience performed 7 right hemicolectomies, 11 left hemicolectomies, 1 sigmoidectomy, 1 ileocecal resection and 1 ventral rectopexy.

**Results:** All surgeries were full-robotic. The short length of stay and low rate of severe morbidity are promising findings. Although operative time was lengthened, clinical outcomes were not affected. No procedure was converted to an open or laparoscopic approach. For right hemicolectomy all ileocolic anastomoses were intracorporeal, semi-mechanical, isoperistaltic and side-to-side; for the left one, although due to the lack of a robotic energy device and robotic stapler, the final part of the rectal dissection and stapling of the distal margin were performed by conventional laparoscopy. Overall, there were no mortalities, no serious morbidities and all malignant cases had negative resection margins

**Conclusion:** Our experience demonstrates that the adoption of Versius system is safe and feasible in colorectal surgery. The standardization of port placement and BSU setup can certainly reduce the operative time.

## #18/2023

### Fascin, cortactin and survivin immunoeexpression in colorectal adenocarcinoma

Franciszek Burdan<sup>1</sup>, Dorota Lewkowicz<sup>2</sup>, Lech Wronecki<sup>2</sup>, Justyna Szumilo<sup>2</sup>

<sup>1</sup>St. John Cancer Center, Lublin, Poland;

<sup>2</sup>Medical University of Lublin, Lublin, Poland

**Background/Aim:** Cortactin and fascin are cytoplasmic proteins that affect intercellular interactions and cells migration while survivin is one of the inhibitors of apoptosis. Studies have revealed important role of molecules in progression of some cancers, facilitating infiltration and metastasis formation, and their overexpression can be regarded as unfavorable prognostic factor. The aim of the study was the evaluation of fascin, cortactin and survivin immunoeexpression in colorectal adenocarcinoma.

**Methods:** The study was based on archival paraffin blocks with colorectal cancer samples derived from 96 patients (F:M=35:61, age Me=65 years) treated with surgery alone. The following morphological features were assessed: location and longitudinal dimension of primary tumor, depth of invasion, lymph node metastases, histological subtype and grade of carcinoma, vascular and perineural invasion, and intensity of mononuclear infiltrate. Immunohistochemical reaction for fascin-1, cortactin and survivin was performed manually. The results were statistically analyzed and correlation between the presence/intensity of immunostaining and clinicopathological features was evaluated.

**Results:** Positive cytoplasmic immunostaining for fascin-1 was found in 25 out of 96 primary tumors (26.04%). Positive cytoplasmic staining for cortactin was seen in all 96 tumors, however of various intensity. Positive nuclear staining for survivin was observed in 65 tumors (67,7%), but in 14 cases a homogeneous cytoplasmic staining was also noted. There was no significant correlation between immunohistochemical reaction for fascin-1, cortactin and survivin and all clinicopathological parameters evaluated. It was found, however, that simultaneous positive reaction on fascin and survivin is a risk factor for

metastasis to regional lymph nodes in patients with colorectal adenocarcinoma.

**Conclusion:** Immunostaining for fascin-1, cortactin and survivin showed no direct association with progression of colorectal adenocarcinoma, but synchronous positivity for fascin and survivin in primary tumor can be regarded as risk factor for regional lymph node metastasis.

## #19/2023

### Colorectal cancer in the pandemic—was there a difference?

Hui Yu Tham<sup>1</sup>, Jia Yi Yeo<sup>1</sup>, Christopher Hang Liang Keh<sup>2</sup>, Choon Sheong Seow<sup>2</sup>, Surendra Mantoo<sup>1</sup>, Daniel Jin Keat Lee<sup>1</sup>, Kok Yang Tan<sup>1</sup>, Gregory Kang Ee Heng<sup>1</sup>

<sup>1</sup>Khoo Teck Puat Hospital Singapore, Singapore;

<sup>2</sup>Ng Teng Fong Hospital, Singapore

**Background/Aim:** The COVID-19 pandemic had resulted in significant adverse effects on various socioeconomic aspects globally, including population health. In Singapore, more resources were channeled towards COVID-19 patients in response to the pandemic. Hence, various outpatient services were reduced, and referrals were delayed. Meanwhile, health-seeking behaviours of patients towards non-respiratory tract disease were altered, resulting in delayed presentations of colorectal cancer. This study aims to determine if COVID-19 had a deleterious effect on our patients' initial presentation for colorectal cancer.

**Methods:** Two tertiary institutions (Khoo Teck Puat Hospital and Ng Teng Fong General Hospital) maintained a prospective database for all colorectal cancer surgery since 2016. Pooled retrospective analysis was performed, including patient's demographics, tumour characteristics, tumour-related complications and nature of surgery. The data was compared between the pre-pandemic period (January 2018—December 2019) and the pandemic period (January 2020—March 2022).

**Results:** 1200 patients were retrospectively identified involving 527 patients in the pre-pandemic period and 673 patients in the pandemic period. Patients' demographics were similar with a median age of 67 years (IQR 60–75 years vs IQR 59–74 years) in the pre-pandemic group and the pandemic group. While more patients were observed to present with malignant obstruction during the pandemic period, this did not reach statistical significance (20.5% vs 24.8%,  $p=0.07$ ). No significant differences were observed in tumour characteristics, emergency surgeries performed (26.4% vs 29.4%,  $p=0.24$ ), tumour perforation (6.5% vs 4.2%,  $p=0.08$ ), overall tumour-related complications (24% vs 26.3%,  $p=0.38$ ), stage of colorectal cancer and initial presentation of metastatic colorectal cancer (14.5% vs 15.1%,  $p=0.79$ ).

**Conclusion:** We did not observe significant differences in patients' presentations for colorectal cancer or stage on initial presentation during the pandemic. These findings could be a result of a readily available healthcare service and the prompt recognition of red flag symptoms by primary care. This allows for expedient referral to a colorectal unit thereby reducing the risk of emergency presentations. Nonetheless, further studies could be carried out to better understand the long-term effects of the pandemic on colorectal cancer.

## #20/2023

### Comparing outcomes of right colectomies from a single-surgeon high volume center: a shift from laparoscopic to robotic surgery

Erik Domas, Matthew Jacobsson, Kiefer Starks, Toni Caldon, Shalini Kanneganti

St. Joseph Medical Center, Tacoma, Washington, United States

**Background/Aim:** Robotic surgery represents an innovative approach for minimally invasive colon resection. Similar outcomes have been demonstrated between laparoscopic and robotic approaches, but there is limited information regarding outcomes during the critical transition period for expert laparoscopic surgeons.

**Methods:** In this retrospective chart review we identified all robotic right colon resections performed in the year before and after adopting a robotic approach. Patient demographics, oncologic outcomes, and perioperative outcomes were reviewed.

**Results:** 84 patients were identified with 51 and 34 patients undergoing laparoscopic and robotic resection, respectively. Both groups had a 100% negative margin rate. Readmission and length of stay was not different (0% vs 3%,  $p=0.222$  and 4.04 days vs 3.35 days,  $p=0.103$ ). Operative time was significantly higher in the robotic group (202 min vs 154 min,  $p=0.0001$ ), while BMI was equivocal in each group (27.8 laparoscopic, 27.5 robotic,  $p=0.833$ ). There were no conversions to open laparotomy in either group. Additionally, morphine milliequivalents, readmission rates, and negative margin status were not significantly different between the two groups.

**Conclusion:** Our results demonstrate that even during the transition period from laparoscopic to robotic surgery at a teaching hospital, patient and oncologic outcomes for right colon resection are similar with no significant difference between groups. These results match the official ASCRS Clinical Practice Guidelines regarding the preference for minimally invasive surgery for elective colon cancer resections. Although there was increased operative time in the robotic group, this may be due to the learning curve associated with robotic surgery and the implementation of intracorporeal anastomoses.

## #21/2023

### Colitis cystica profunda: an unexpected mimicker of colorectal malignancy

Sofia Gaspar Reis<sup>1</sup>, Duarte Gil Alves<sup>2</sup>, Constança Azevedo<sup>3</sup>, Catarina Rolo Santos<sup>4</sup>, Patrícia Bernardo<sup>4</sup>, Frederico Nazareth<sup>4</sup>, Nuno Mendonça<sup>4</sup>, Hélder Além<sup>4</sup>, Zara Caetano<sup>4</sup>

<sup>1</sup>Centro Hospitalar Barreiro Montijo, Lisboa, Portugal;

<sup>2</sup>Hospital Dr. Nélio Mendonça, Portugal;

<sup>3</sup>Centro Hospitalar Universitário Cova da Beira, Cova da Beira, Portugal;

<sup>4</sup>Centro Hospitalar Barreiro Montijo, Lisboa, Portugal

**Background/Aim:** Colitis Cystica Profunda (CCP) is a rare pathological condition that affects the colonic mucosa, characterized by the formation of multiple cystic submucosal lesions within the colon and rectum. This enigmatic disorder presents

a diagnostic challenge, as its clinical manifestations can mimic those of other common gastrointestinal conditions, such as inflammatory bowel disease or colorectal carcinoma.

**Methods:** We present a case of intestinal occlusion resulting from a rare medical condition. We describe the patient's clinical history, diagnostic assessments, treatment interventions, and clinical outcomes.

**Results:** We report the case of a 66-year-old woman who was admitted to our hospital's emergency room with epigastric colicky abdominal pain, vomiting, and obstipation persisting for two days. The patient's medical history included arterial hypertension, a stroke (14 years ago), and a malignant uterine neoplasm, which is currently in complete remission. Abdominal and pelvic CT Scan revealed colonic distension (cecum measuring 77 mm in diameter), associated with a sudden reduction in caliber in the high rectum without apparent thickening of its wall. Notably, a dense 8 mm intraluminal ring-like image was observed. These findings were indicative of a bowel obstruction, prompting the decision for surgical intervention. Intraoperative examination revealed homogeneous circumferential thickening of distal sigmoid and high rectum walls, raising initial suspicions of colon carcinoma. The surgical team proceeded with an anterior rectal resection with primary anastomosis and protective ileostomy. Later, histopathological analysis confirmed the diagnosis of Colitis Cystica Profunda.

**Conclusion:** This case highlights the diagnostic challenges posed by this rare condition, which can mimic common gastrointestinal conditions, emphasizing the need for a collaborative, multidisciplinary approach to ensure precise diagnosis and effective management. Promoting greater awareness of CCP among the medical community is imperative to prevent unwarranted interventions and uphold the highest standards of patient care.

## #22/2023

### Transvaginal versus transabdominal specimen extraction in laparoscopic surgery: A systematic review and meta-analysis

Jasmine Hui Er Chang<sup>1</sup>, Hong Yun Xu<sup>1</sup>, Zhao Yun<sup>2</sup>, Joella Xiaohong Ang<sup>1</sup>, Emile John Tan<sup>1</sup>, Isaac Seow En<sup>1</sup>

<sup>1</sup>Singapore General Hospital, Singapore, Singapore;

<sup>2</sup>Singapore Health Services, Singapore, Singapore

**Background/Aim:** Natural orifice specimen extraction surgery (NOSES) via either the transvaginal (TV) or transrectal approach has been increasingly used for the retrieval of specimens in surgery. This study aims to compare the outcomes between TV NOSES and transabdominal (TA) extraction in laparoscopic surgery for women.

**Methods:** An electronic database search of PubMed, Embase and CENTRAL was performed from inception up till March 2023. Comparative studies that included adult female patients who underwent either laparoscopic surgery with TV NOSES or TA extraction were included. Patients who underwent transcolonic or transrectal NOSES were excluded. Data analysis was performed using R (version 4.3.1). Weighted mean differences (WMD) and odds ratio (OR) were estimated for continuous and dichotomous outcomes respectively. Primary outcomes were post-operative day 1 (POD1) pain and length of stay (LOS). Secondary outcomes were the use of rescue analgesia, post-operative complication rate and cosmetic outcome.

**Results:** A total of 13 studies comprising 1094 patients were included in the final analysis, of which 2 were randomized controlled trials (RCTs), and 11 were retrospective cohort studies. 583 patients had specimens removed transabdominally while 511 had specimens removed transvaginally. Patients who underwent TV NOSES showed significantly reduced POD1 pain assessed by visual analogue scale (MD 1.08, 95% CI: 0.49, 1.68) and reduced LOS (MD 1.18 days, 95% CI: 0.14, 2.22). The TV NOSES group also demonstrated significantly reduced use of rescue analgesia, lower post-operative complication rate, and increased cosmetic score compared to the TA group.

**Conclusion:** TV NOSES shows improved postoperative outcomes with decreased morbidity. It can potentially be a better and viable option compared to TA extraction of specimens. Further large scale studies ideally in the form of RCTs should be conducted to establish our findings.

## #23/2023

### Redo ileocolic resection for crohn's disease—does it palliate the patients as good as the primary resection?

Lior Segev

Tel-Aviv, Israel

**Background/Aim:** We questioned how does redo ileocolic resection in Crohn's disease alleviate the patients in the long-term compared with the primary resection?

**Methods:** A single center retrospective analysis of patients that underwent an elective ileocolic resection without diversion between the years 2010–2022. The cohort was divided to two groups; redo ileocolic resection (R-ICR), and primary ileocolic resection (P-ICR).

**Results:** The study included 181 patients, of which 30 patients in the R-ICR group (mean age 42.3 years), and 151 patients in the P-ICR group (mean age 32.6 years). The R-ICR patients were operated more via an open approach (76.7% versus 25.2% respectively,  $p=0$ ), had a significantly longer operations (mean 200.9 minutes versus 157.2 minutes,  $p=0.002$ ), and higher EBL (mean 350 ml versus 267.4 ml,  $p=0.043$ ). The groups were similar in overall post-operative morbidity, severe post-operative complications (10% versus 13.2%,  $p=0.762$ ), and median length of hospital stay (12.1 days versus 7.4 days,  $p=0.214$ ). After a median follow-up of 64.2 months there were no significant differences between the groups in terms of endoscopic recurrence (43.3% versus 60.9% in Group B,  $p=0.104$ ) nor in clinical recurrence (43.3% versus 55.6% respectively,  $p=0.216$ ), but the R-ICR had a significant higher rate of surgical recurrences (23.3% versus 5.3% respectively,  $p=0.004$ ).

**Conclusion:** Although technically more challenging, the R-ICR doesn't result in higher post-operative morbidity compared with P-ICR. Crohn's disease patients that undergoing a redo-ICR are more susceptible to a future surgical recurrence than those having primary-ICR, hence the decision to perform a redo-ICR should be heavily considered.

## #24/2023

## Eliminating the need for a reoperation—a discussion of an alternative non maturation method for end colostomies creation

Jia Yi Yeo, Hui Yu Tham, Joon Lan Chong, Gregory Kang Ee Heng

Khoo Teck Puat Hospital, Singapore, Singapore

**Background/Aim:** End colostomy creation is frequently performed in colorectal surgery. Traditionally, the colon is pulled to the skin surface and the stoma is matured by suturing the colonic edge to the dermal layer of the skin. Early complications of stoma creation include ischemia, necrosis and retraction while late complications includes prolapse and parastomal hernias. These complications are more commonly seen in colostomy creations than ileostomies with incidence as high as 5.9%. (1) The incidence of ischemia and necrosis is also higher after emergency surgery and is associated with proximal vessel ligation, insufficient collateral supply or tension over the mesentery (2). Necrosis beyond the fascia often necessitates operative reintervention.

**Methods:** We present an interesting case of a patient who underwent emergency Hartmann procedure for perforated and obstructed sigmoid diverticulitis who subsequently developed superficial stoma necrosis. The stoma was intentionally created by a non-maturation technique, where the stump was exteriorized 5 cm beyond the skin surface. The sides of the colon were sutured to the dermis and the colonic edge was left alone. The patient was septic perioperatively and required high inotropic support and intensive care management post procedure. On the 3rd post operative day, necrosis of the colonic stump was noted but colonic stump viability was assessed to be adequate after debridement of the necrotic material and through an endoscopy. Over the next few weeks, the mucosa of the stump everted with complete epithelization of the stump. He had no stoma complications on discharge.

**Results:** N.A

**Conclusion:** The non-maturation technique reduces the risk of retraction and facilitated the management of stoma necrosis by allowing bedside debridement, thereby avoiding revision surgery for the stoma.

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## #25/2023

## Mckittrick-wheelock syndrome (MWS)—a rare life-threatening giant villous adenoma resected with transanal minimally invasive surgery (tamis)

Nelson Chen, Ian Ong, David Chung, Asiri Arachchi, Andrew Bui

Austin Health, Balwyn North, Victoria, Australia

**Background/Aim:** MWS is a rare constellation of symptoms including chronic diarrhoea, acute kidney injury (AKI) and electrolyte disturbance secondary to large secretory villous adenomas in the rectosigmoid. Prompt diagnosis and resection on index presentation after aggressive metabolic resuscitation is the mainstay of management. Its size and diagnostic complexity can delay treatment. We present our unique experience of MWS by TAMIS which has only been reported once in literature.

**Methods:** Case Report

A 63-year-old female presented with two years of worsening diarrhoea, vomiting and intermittent haematochezia. She was hypovolaemic and a large rectal mass was palpable on digital examination. Investigations demonstrated severe AKI, hyponatraemia and hypokalaemia. Endoscopy revealed a large benign-appearing polyp near the dentate line. Computed tomography and magnetic resonance imaging showed no local invasion, metastasis or lymphadenopathy.

As MWS, more commonly a benign pathology was suspected, we proceeded with TAMIS for an R0 resection of the giant 149 mm polyp after metabolic resuscitation. Histology revealed tubulovillous adenoma with high-grade dysplasia and no invasive malignancy. The patient's metabolic imbalances normalised post-operatively and she was discharged without complications.

**Results:** Discussion

MWS is life-threatening but can be treated with early surgical intervention once significant metabolic imbalances have resolved. Most cases involve benign villous adenomas but can also undergo malignant transformation. Symptoms are due to prostaglandin secretion and its large surface area causing secretory diarrhoea and large volume fluid loss. Indomethacin can help reduce secretions but is not recommended in AKI.

Resection is the mainstay of definitive treatment for MWS. Approaches include anterior, abdominoperineal, trans-anal and endoscopic resection. Our patient's tumour extended to the dentate line. Given her young age and the likelihood of benign pathology, we opted for a rectal-preserving approach with TAMIS.

**Conclusion:** We report a viable rectal-preserving option for tumours in MWS that involve the dentate line. MWS is a rare phenomenon requiring early surgical intervention after appropriate metabolic resuscitation. Therefore, it is important to be aware of this life-threatening syndrome and its management options.



## #26/2023

## Comparative analysis of right-sided colectomy for colonic cancer: open, laparoscopic and robotic approaches

Krzysztof Nowakowski, Zsolt Madarasz, Leonie Wesselmann, Konstatin Schürheck, Wolfgang Hiller

Klinikum Lippe, Detmold, Germany

**Background/Aim:** The primary endpoints assessed were the time to the first stool passage and the time to discharge. Secondary endpoints included the quality of Complete Mesocolic Excision (CME) graded by the Benz-Tannapfel system, the number of harvested lymph nodes, and postoperative C-reactive protein (CRP) levels.

**Methods:** In the period spanning from July 19, 2018, to December 1, 2022, we conducted a retrospective analysis of the last 89 performed right-sided colectomy procedures for colonic cancer in three different approaches. These surgeries encompassed open, laparoscopic, and robotic-assisted methods. Emergency procedures and extended right colectomies were excluded from the study. Our study included 30 patients in the open colectomy group, 29 patients in the laparoscopy group, and 30 patients in the robotic-assisted group.

**Results:** Our findings revealed that the mean time to first stool passage was 3.5 days for robotic surgery, 4 days for laparoscopy, and 5 days for open surgery. In terms of the time to discharge, the shortest durations were observed in the robotic and laparoscopic groups (8 days), while the open surgery group had a slightly longer hospital stay (9 days) ( $p$ -value  $> 0.05$ ).

The CME quality grading showed a dominance of Grade 0 in all groups. The highest percentage of Grade 0 specimens was found in robotic-assisted right colectomies (80%), followed by the laparoscopic group (72.4%), and the open surgery group (66.7%) ( $p$ -value  $> 0.05$ ).

The median number of harvested lymph nodes in postoperative specimens was highest in the open surgery group (33.5), followed by the laparoscopic group (32), and the robotic group (31) ( $p$ -value  $> 0.05$ ).

Notably, the measured CRP levels on the first postoperative day were lowest in the robotic group (4.9 mg/dL), followed by the laparoscopic group (5.1 mg/dL), and the open surgery group (7.1 mg/dL) ( $p$ -value = 0.021).

**Conclusion:** In our retrospective monocentric cohort study, we observed shorter postoperative hospital stays and earlier time to first stool passage in minimally invasive surgery groups, indicative of quicker recovery. However, these differences were not statistically significant. The lower postoperative CRP levels in the robotic group suggest reduced intraoperative tissue trauma. Importantly, all three groups exhibited similar outcomes in postoperative specimen grading and lymph node counts, indicating comparable oncological results.

## #27/2023

## Retrospective comparative analysis of surgical treatment options for rectal cancer: comparison between open, laparoscopic, and robot-assisted rectal resections with primary anastomosis

Madarasz Zsolt, Krzysztof Nowakowski, Konstatin Schürheck, Leonie Wesselmann, Wolfgang Hiller

Klinikum Lippe, Bielefeld, Germany

**Background/Aim:** Compare three surgical approaches used in rectum surgery in our department.

**Methods:** In our retrospective study, we identified a cohort of 213 patients who underwent rectal resection with anastomosis for histologically confirmed rectal cancer in our department between January 1, 2012 and December 31, 2021. Patients with synchronous metastasis and those who underwent resection without anastomosis and emergency surgery were excluded from the study. The cohort was divided into three subgroups, with 63 undergoing robotic-assisted procedures, 68 undergoing laparoscopic procedures, and 82 undergoing open techniques. The primary endpoints included the duration of surgery, length of hospital stay, and the quality of Total Mesorectal Excision (TME). Secondary endpoints included the conversion rate of minimally invasive procedures, 30-day morbidity, and 30-day mortality.

**Results:** Surgery duration analysis ( $p < 0.001$ ) revealed significant differences between techniques. Robotic-assisted surgeries had the longest duration, averaging 307 minutes ( $\pm 72.62$ ). Laparoscopic and open techniques had similar durations, approximately 223 minutes. Hospital stay duration ( $p = 0.0011$ ) was shortest for robotic surgeries (under 16 days). Laparoscopic and open technique patients averaged around 17 and just under 19 days, respectively. Quality of TME showed no significant difference among the three groups ( $p = 0.658$ ). Laparoscopic surgeries had a higher conversion rate at 14.7%, while the robotic-assisted group had a lower rate at 3.2% ( $p = 0.047$ ). For 30-day morbidity, open surgeries resulted in more cases of pneumonia ( $p = 0.0144$ ) and bladder dysfunction ( $p = 0.0379$ ). There were no statistically significant differences observed in bowel atony ( $p = 0.2029$ ), impaired wound healing ( $p = 0.0876$ ), urinary tract infection ( $p = 0.1874$ ), kidney failure ( $p = 0.4668$ ), anastomotic insufficiency ( $p = 0.391$ ), surgical revision ( $p = 0.5109$ ), or 30-day mortality ( $p = 0.6366$ ) among the three groups.

**Conclusion:** In our retrospective single-center cohort study, we observed statistically significant shorter hospital stays, lower conversion rates, and reduced 30-day morbidity in patients who underwent robotic-assisted rectal resection. However, it is important to note that the robotic-assisted technique significantly prolonged the duration of the operation when compared to laparoscopic and open techniques. Additionally, the robotic-assisted technique was preferred over the laparoscopic technique for tumors located closer to the anus.

## #28/2023

**Beyond nodal status: Is the lymph node ratio a better predictor of survival in patients with anorectal cancer undergoing abdominoperineal resection?**

**Andrea Carolina Quiroga-Centeno<sup>1</sup>, Juan Paulo Serrano Pastrana<sup>2</sup>, Sergio Alejandro Gómez-Ochoa<sup>3</sup>**

<sup>1</sup>Universidad Industrial de Santander, Dossenheim, Germany;

<sup>2</sup>Universidad Industrial de Santander, Bucaramanga, Colombia;

<sup>3</sup>University Hospital Heidelberg, Dossenheim, Germany

**Background/Aim:** Anorectal Cancer (ARC) constitutes a significant proportion of colorectal malignancies. While nodal status (pN-stage from AJCC) has traditionally been employed to predict survival and guide adjuvant therapy, recent studies in other contexts suggest the Lymph Node Ratio (LNR) as a more accurate prognostic indicator. In this study, we aimed to evaluate the predictive value of LNR compared to the AJCC stage in patients with ARC undergoing Abdomino-Perineal Resection (APR).

**Methods:** We searched the Surveillance, Epidemiology, and End Results database (SEER) for patients with diagnosis of primary anal canal and anorectal junction cancer during the period 2000–2020. We included only individuals that underwent APR and had at least five resected lymph nodes for pathological assessment. We excluded all the patients with distant metastases (Stage IV), unclear histological diagnosis or with incomplete staging and follow-up information. The prognostic value of LNR for cancer-specific mortality (CSM) was evaluated using multivariate Cox proportional hazards models adjusted by age, sex, tumor histologic type, TNM stage, and adjuvant therapy and the predictive performance of the models was determined using the Harrell's C-index.

**Results:** 982 patients were included (mean age: 61.5 years; 53.6% females). Most of the patients were classified as Stage II (38.1%), being adenocarcinomas (53.8%) the most frequently observed neoplasms. After a mean follow-up time of 56 months, 456 patients reached the end-point of CSM. The survival analyses suggested that 5% and 45% were the optimal threshold values of LNR for predicting CSM, therefore, patients were classified according to the LNR as follows: "LNR <5%" (Low Risk,  $n=679$ ), LNR 5–45% (Intermediate Risk,  $n=187$ ), and "LNR >45%" (High Risk,  $n=116$ ). The Cox model including this LNR classification showed a significantly higher discriminative ability compared to the one including the TNM staging (0.68 vs 0.65. " $p<0.001$ ").

**Conclusion:** Our findings favor the LNR as a better predictor of prognosis in patients with Anorectal Cancer treated with APR, not only compared to the pN-stage but also to the pTNM stage. This finding should be validated in prospective studies, as well as considered in prognostic tools.

## #29/2023

**The successful pathway from laparoscopic to robotic surgery of a colorectal surgeon at a high-volume teaching hospital with discussion of outcomes—a model for success**

**Jamie Whisler, Matthew Jacobsson, Kiefer Starks, Shalini Kanneganti**

Virginia Mason Franciscan Health, Tacoma, United States

**Background/Aim:** Technology is changing the face of colorectal surgery as robotic surgery grows exponentially. The Da Vinci Robotic Surgical System was approved in 2001 in the US and boasts many benefits such as a stable camera, 3D view, improved ergonomics, and articulating wristed instruments. Although this system has been present for 22 years there is no standardized certification available in the U.S. and individual hospitals set the criteria for a surgeon to obtain robotic privileges.

**Methods:** An extensive literature review was completed regarding the transition from laparoscopic to robotic surgery along with the credentialing process for robotic surgery in the US. After IRB approval, the attending colorectal surgeon, involved residents, and the Da Vinci robotic representatives were surveyed to describe the process, demographics, and outcomes of these cases. A retrospective chart review was performed to analyze outcomes.

**Results:** The transition from laparoscopic to robotic surgery with completion of 100 robotic cases occurred in just over 6 months. The process began with self-paced simulation training followed by travel with a team for simulations and case observations. The first five cases were proctored and began with an appendectomy followed by segmental resections; low anterior resections (LARs) began at two weeks and abdominoperineal resections (APRs) at the three month mark.

These first 100 patients had a median age of 65 years old and 51% were female. The procedures included 35 sigmoid resections, 22 right hemicolectomies, 2 left hemicolectomies, 15 LARs, 5 APRs, 11 ostomy creations, and 10 miscellaneous cases. 64 of these surgeries were for oncologic disease and 63 out of 64 had a lymph node harvest greater than 12; negative margins were achieved in all cases. The median length of stay was 3 days with a 5% readmission rate and 0% 30-day mortality rate. There were no anastomotic leaks or re-operations.

**Conclusion:** This graduated but fast-paced model appears to be an appropriate way for an attending colorectal surgeon to transition from laparoscopic to robotic surgery with excellent and safe results.

## #30/2023

## Nature inspired nanofibrous materials for healing support of colorectal anastomosis in a CT monitored model of anastomotic leakage

Jachym Rosendorf<sup>1</sup>, Marketa Klicova<sup>2</sup>, Lenka Cervenkova<sup>3</sup>, Petr Hosek<sup>4</sup>, Richard Palek<sup>4</sup>, Andrea Klapstova<sup>5</sup>, Jana Horakova<sup>5</sup>, Vaclav Liska<sup>4</sup>, Eva Korcakova<sup>4</sup>, Jiri Chvojka<sup>5</sup>, Hynek Mirka<sup>4</sup>

<sup>1</sup>Faculty of Medicine in Pilsen, Charles University, Czech Republic, Pilsen, Czech Republic;

<sup>2</sup>Faculty of Textile Engineering, Technical University in Liberec, Czech Republic (I);

<sup>3</sup>Faculty of Medicine in Pilsen, Charles University, Pilsen, Czech Republic (I);

<sup>4</sup>Faculty of Medicine in Pilsen, Charles University, Pilsen Czech Republic;

<sup>5</sup>Faculty of Textile Engineering, Technical University in Liberec, Czech Republic

**Background/Aim:** Anastomotic leakage occurs in colorectal surgery despite all used precautions as a severe postoperative complication. Nanofibrous materials showed in previous studies a positive effect on the healing process in various applications. Our team developed several versions of these materials in recent years with promising results. However, peritoneal adhesions burdened the area of application at higher rates.

**Methods:** In this study, a polycaprolactone nanofibrous patch with ultra-hydrophobic surface finishing was developed and applied in two versions on a model of a defective anastomosis on the colon of a pig ( $2 \times n=8$ ) against control without materials ( $n=8$ ). CT scans were performed preoperatively and on the 3rd, 7th, and 14th postoperative day. Samples were taken on the 21st postoperative day, scored for adhesions and anastomotic complications, and processed histologically for healing assessment.

**Results:** No clinical signs of anastomotic leakage occurred during 21 days of postoperative observation. Yet, radiological signs of anastomotic leakage were present in one animal from the Control group and signs of local perianastomotic peritonitis were present in two animals from the Control group. The differences in the level and quality of peritoneal adhesions were not statistically significant.

**Conclusion:** Therefore we find these materials suitable for the prevention of anastomotic leakage in colorectal surgery, yet the capacity to prevent peritoneal adhesions was not proven in the model.

## #31/2023

## Natural orifice specimen extraction following proctectomy, promoted by single-stapling techniques, reduces operative time and postoperative incisional hernia rate

Silvio Lamberti, Michele Carvello, Antonio Luberto, Annalisa Maroli, Stefano De Zanet, Caterina Foppa, Antonino Spinelli

Humanitas Clinical and Research Center, Rozzano, Milan, Italy

**Background/Aim:** Natural Orifice Specimen Extraction (NOSE) does not imply any additional abdominal incision in minimally invasive colorectal procedures. When a proctectomy/Total Mesorectal Excision (TME) is accomplished, Single-stapling (SS) techniques may promote the adoption of NOSE by mean of transanal rectal transection as opposed to double stapling (DS) approach. We address the potential advantages of NOSE, in the setting of minimally invasive proctectomy with different anastomotic techniques including SS and DS.

**Methods:** In this retrospective, case-control study we have compared the outcomes of patients undergoing proctectomy followed by NOSE and SS anastomosis versus proctectomy followed by standard abdominal incision and DS anastomosis. Primary endpoints were wound complications and incisional hernia rate. Secondary endpoints were overall complications rate, postoperative pain score, need of rescue opioid drugs.

**Results:** Between 2015 and 2022, 529 patients underwent minimally invasive proctectomy (236 NOSE-SS and 293 std-DS). Operative time was shorter for the NOSE group ( $262 \pm 71$  vs  $277 \pm 83$ ) ( $p=0.002$ ). We did not find difference in terms of wound complications rate (4% vs 2%[NOSE group]) ( $p=0.086$ ), postoperative pain, rescue opioid use and overall surgical complications. The rate of incisional hernia was lower for the NOSE group compared to the standard one (3% vs 9%) ( $p=0.008$ ).

**Conclusion:** NOSE, in the setting of minimally invasive proctectomy, promoted by SS techniques, reduces operative time and postoperative incisional hernia rate.

## #32/2023

## Evaluation of the introduction of a colorectal bundle in left sided colorectal resections (EvaCol study)

Benjamin Wiesler<sup>1</sup>, Jörn-Markus Gass<sup>2</sup>, Jule Liesenberg<sup>2</sup>, Jürg Metzger<sup>2</sup>, Urs Zingg<sup>3</sup>, Alex Ochsner<sup>3</sup>, Carsten T. Viehl<sup>4</sup>, Alexandra Müller<sup>4</sup>, Mathias Worni<sup>5</sup>, Mark Henschel<sup>5</sup>, Lukas Eisner<sup>6</sup>, Martina Pabst<sup>7</sup>, Robert Rosenberg<sup>8</sup>, Raffaele Galli<sup>8</sup>, Markus von Flüe<sup>9</sup>, Ra

<sup>1</sup>Clarunis, Department of Visceral Surgery, University Centre for Gastrointestinal and Liver Diseases, University Hospital Basel, Basel, Switzerland;

<sup>2</sup>Cantonal Hospital Lucerne, Lucerne, Switzerland;

<sup>3</sup>Limmattalspital, Schlieren, Switzerland;

<sup>4</sup>Spitalzentrum Biel, Biel, Switzerland;

<sup>5</sup>Lindenhofspital, Bern, Switzerland;

<sup>6</sup>Cantonal Hospital Olten, Olten, Switzerland;

<sup>7</sup>Chirurgieaarau AG, Aarau, Switzerland;

<sup>8</sup>Cantonal Hospital of Baselland, Liestal, Switzerland;

<sup>9</sup>Chirurgie Zentrum Lucerne, Lucerne, Switzerland;

<sup>10</sup>Clarunis, Department of Visceral Surgery, University Centre for Gastrointestinal and Liver Diseases, University Hospital Basel, Basel, Switzerland

**Background/Aim:** Complications such as anastomotic leakage or surgical site infections after colorectal surgery remain a major concern. Several individual perioperative quality improvement measures have been found to reduce postoperative complications. The aim of this study was to evaluate the introduction of a combination of nine perioperative interventions in a colorectal bundle (CB) for the reduction of postoperative complications.

**Methods:** This prospective, multicenter, observational study was performed in nine Swiss cantonal and tertiary referral centers. Data on left sided colorectal resections was collected 6 months prior and 6 months after the implementation period of one month for the CB. The primary endpoint was the median comprehensive complication index (CCI) at 30 days. The trial was registered at [ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT04550156) (NCT04550156).

**Results:** Between October 2020 and December 2022, 1142 patients were included of which 198 had to be censored due to pandemic related capacity reductions, leaving 944 for final analysis ( $n=552$  controls,  $n=392$  CB). In this preliminary analysis median age was 66 years, gender distribution was equal (50/50%). Median ASA score was 2 in both groups while 16% of cases were emergencies in controls and 7.7% during the CB phase. In the control group, 45% were teaching procedures and 35.7% oncological resections (42% and 45% during the CB phase, respectively).

The median CCI in controls was 11.7 vs. 10.4 in CB ( $p=0.33$ ). Twelve patients (2.1 %) of the controls vs. 11 (2.8 %) in the CB group developed an anastomotic leakage ( $p=0.53$ ) while surgical site infections occurred in 45 (8.1 %) controls and 35 (8.9 %) patients in the CB group ( $p=0.72$ ). The mortality was 1.6 % vs. 0.8 % ( $p=0.37$ ) in controls and CB patients, respectively.

**Conclusion:** EvaCol is the first prospective Swiss, multicenter, cohort study in colorectal surgery in a decade. Considering the already low complication rates in the control group, the study failed to show a clinically relevant and statistically significant reduction of complications with the introduction of the CB.

### #33/2023

#### Characteristics of tumor-infiltrating lymphocytes in colorectal cancer and their correlation with prognosis

**Bruno Perotti, Federica Petrelli, Matteo Palmeri, Matteo Bianchini, Geri Fratini, Maria Raffaella Ambrosio, Marco Arganini**

Versilia Hospital—AUSL Toscana Nord-Ovest, Camaiore, Italy

**Background/Aim:** Tumor microenvironment (TME) is complex and dynamic web composed of various elements, including cancer cells, immune cells, extracellular matrix, cytokines, mesenchymal cells and endothelial and lymphatic cells, all involved in tumor growth and progression as well as in mechanisms responsible of host response to cancer. This study aims to explore the composition of TME in colon cancer and analyze its correlation with prognosis.

**Methods:** A retrospective cohort study was used to analyze the clinicopathological features of 203 patients (153 colon cancer; 50 rectal cancer) that underwent surgery for colorectal cancer between January 1st 2013 to January 1st 2018 in General Surgery Unit—Versilia Hospital, AUSL Toscana Nord-Ovest. Many cellular indicators of immune response were assessed: authors evaluated lymphocytic infiltration, macrophage polarization, natural killer and antigen-presenting cells, thus cell-mediated immunity which is primarily responsible for the cancer response. We applied already well-known scoring systems for the evaluation of the immunohistochemistry. Log-rank test was used to compare the overall survival and Cox regression analysis to adjust the prognostic significance of each parameter.

**Results:** Preliminary results showed that a greater number of CD8 lymphocytes (CYTOTOXIC—score 3) both intratumoral

and at the up front of the tumor can be observed in patients with stage I-II, N-, without lymphovascular invasion and with major OS ( $p<0.05$ ). On the other side, a greater number of CD8/PD-L1 double expressor (T-EXHAUSTED LYMPHOCYTES—score 2) can be observed in patients at higher stage, with lymphovascular invasion and N2+; T-exh higher score is correlated with poor OS. ( $p<0.05$ ). Therefore, M2 polarization has been observed in stage IIIC-IV and N2+ and superior. However, the transformation of MDSc cells into TAM-M2 occurs during the metastatic process and the epithelial to mesenchymal (EMT) transition, therefore in a very advanced stages of the disease.

**Conclusion:** Preliminary results show a direct correlation between TME and OS in CRC, specifically overexpression of CD8 cytotoxic and lower CRC stage, and overexpression of T-exhausted Lymphocytes and higher CRC stage. M2 polarization is suggested to be correlated with higher CRC stage, however more data analysis is still going on in order to better relate TME and OS.

With the accumulating knowledge about TME in CRC progression and metastasis, promising therapeutic strategies that modulate TME are emerging.

### #34/2023

#### Posterior pelvic exenteration as curative rescue treatment in locally advanced rectal cancer

**Kiefer Starks, Matthew Jacobsson, Shalini Kanneganti**

Virginia Mason Franciscan Health, Tacoma, WA, Switzerland

**Background/Aim:** Rectal cancer is the 8th most incident cancer the third leading cause of cancer related deaths when combined with colon cancer. Cases of colorectal cancer continue to rise with increased screening, but with better treatment modalities long term survival has improved. Standard treatment for advanced rectal cancer is neoadjuvant chemoradiation and surgery. This case highlights the role of pelvic exenteration for the rescue treatment of a locally advanced rectal cancer.

**Methods:** Chart Review

**Results:** 59-year old healthy female without prior colonoscopy presents for abdominal discomfort for 8 months. Colonoscopy revealed a rectal mass with biopsies demonstrating invasive adenocarcinoma of the rectum. Staging MRI confirmed at least 3 pelvic lymph nodes suspicious for metastasis and suspected vaginal, uterine, and pelvic sidewall invasion declaring at least T4N2MX disease.

She completed 5 cycles of chemotherapy with FOLFOX without treatment response and transitioned to FOLFIRINOX with concurrent radiation therapy. Restaging MRI revealed an incomplete response to therapy. She was referred to gyn/onc and colorectal surgery and was consented for an open posterior pelvic exenteration with end colostomy. The entire posterior pelvic structures and perineum were removed en-bloc sparing her urethra, bladder and anterior vagina. An R0 resection was achieved and pathology revealed a moderately differentiated colorectal adenocarcinoma and 0/15 lymph node involvement. She progressed well without any immediate postoperative complications and discharged on post-op day 5. Mild separation of her perineal wound was noted on follow up. She was referred to wound care and was released with a completely healed perineal wound after 6 weeks. One year later she remains disease free with normal CEA and CT scan.

**Conclusion:** Locally aggressive rectal cancer can be difficult to treat. Standards provided by NCCN recommend that rectal

cancer beyond stage II is treated with neoadjuvant chemoradiation followed by resection if possible. Pelvic exenteration for the treatment is a viable option for curative intent, but the morbidity and likelihood of obtaining an R0 resection are limitations that should be stratified to the patient. The complication rate of pelvic exenteration has been reported around 60% with a mean hospital stay of 14 days and an R0 resection rate that varies about 67%. Our case is an example of how this option can be a rescue cure to otherwise healthy patients with incomplete response to neoadjuvant therapies.

### #35/2023

#### Avoidance of stoma by implantation of the VACStent—a potential “game changer” in the treatment and prophylaxis of colorectal anastomotic insufficiency

Jonas Lange, Judith Knievel, Ulrich Hügle, Arno Dormann, Claus Eisenberger, Markus Heiss

Kliniken Stadt Köln, Köln, Germany

**Background/Aim:** Clinical applications of the VACStent in the upper GI tract show that reliable closure of an intestinal wall leak or anastomotic insufficiency with simultaneous drainage of a wound cavity by intraluminal endoscopic vacuum (EVT) is very well possible. The suction of the sponge cylinder on the intestinal wall reliably immobilizes the VACStent and leaves the intestinal passage open. This principle should now be transferred to the lower GI tract and initial experience gained.

**Methods:** Within the prospective VACStent registry study, 9 patients with colorectal resections have been treated in a pilot study. First, in 2 patients with synchronously established ileostoma, the insufficiency was first treated with the endocavitary sponge and then the residual cavity was treated with the VACStent. In 4 patients, the insufficiency was treated exclusively with the VACStent, without installation of a stoma. In 3 high-risk patients, the VACStent was implanted prophylactically immediately after anastomosis was established.

**Results:** The results showed that the use of the VACStent in the lower GI tract was unproblematic and complications (migration, ulcers, bleeding) occurred in less than 5% of patients. Vacuum drainage at  $-125$  mmHg could be installed in all patients so far. The main finding was that stool passage is preserved, but the stent diameter must be adapted to the colon size. Anastomosis healing occurred in all patients after a median treatment time of 9 days and 2 VACStents. Secondary stoma creation or surgical revision had not become necessary in any case. Anastomotic stenosis has also not been observed to date.

**Conclusion:** These experiences show that the VACStent is also stably anchored in the colorectum due to the suction effect on the intestinal wall and can thus safely cover and heal perforations and insufficiencies via the EVT effect. The open stool passage thus makes it possible to heal an insufficiency even without surgical creation of an anus praeter. This endoluminal anastomosis treatment and stoma prevention has a great clinical potential and needs to be further validated and verified by studies.

### #36/2023

#### Usage of ICG in colorectal surgery: the experience of a colorectal unit in a tertiary centre

Konstantinos Bouchagier, Georgios Skroubis, Georgios Theofanis, Ioannis Maroulis

General University Hospital of Patras, Patras in Rio, Greece

**Background/Aim:** Fluorescence-guided visualization is a recently proposed technology in colorectal surgery. This technique may be used for evaluating perfusion, navigating lymph nodes and searching for hepatic metastases and peritoneal spread. It has gained credit among colorectal surgeons because it offers significant information during surgery at a low cost and considerable safety. However, its clinical usage has not been widely reported yet.

**Methods:** In the colorectal Unit of University Hospital of Patras, 299 colorectal resections with primary anastomosis were conducted between 1/8/2021 and 26/9/2023. In 123 randomly selected cases (40%) ICG fluorescence was used intraoperatively to examine the perfusion of the anastomosis and all patients were appointed on an outpatient basis to check their clinical status. Finally a crosstabs statistical analysis was performed to assess a possible statistical correlation between the usage of ICG and the anastomotic leak occurrence.

**Results:** In University Hospital of Patras between 1/8/2021 and 25/9/2023, 153 right colectomies, 2 subtotal colectomies, 5 left colectomies, 70 sigmoidectomies and high anterior resections and 69 low anterior resections were performed. In 20 cases (6.6%) there was an anastomotic leak and specifically in 4 right colectomies, 1 left colectomy, 4 high anterior resections and 11 low anterior resections. The anastomotic leak after R colectomy was treated with relaparotomy due to septic shock, as this was the case after a low anterior resection. All the other cases were treated conservatively. Only in 2 cases of anastomotic leak, ICG fluorescence had been used intraoperatively with positive perfusion evaluation. Crosstabs statistical test showed positive correlation between the usage of ICG fluorescence and the decrease of anastomotic leak occurrence. ( $p=0.01$ )

**Conclusion:** Intraoperative ICG perfusion evaluation before and after the creation of anastomosis, is a valuable tool for the Surgeon that aims to minimize the anastomotic leak and its clinical side effects. It is safe and easily can be performed in the operation theatre. A statistical effect between the usage of ICG and the decrease of anastomotic leak exists but more studies need to be accomplished.

### #37/2023

#### The role of pre-treatment inflammatory biomarkers in the prediction of response to cetuximab therapy in metastatic colorectal cancer

Alexandru Necula<sup>1</sup>, Andrei Belu<sup>2</sup>, Claudia-Cristina Burz<sup>2</sup>

<sup>1</sup>“Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca, Romania;

<sup>2</sup>“Prof. Dr. Ion Chiricuta” Institute of Oncology, Cluj-Napoca, Romania

**Background/Aim:** Targeted therapies have shown remarkable outcomes in disease control and survival for metastatic colorectal cancer (mCRC). Discerning the patients who stand to have a better treatment response remains a difficulty. Our retrospective single-center study aimed to evaluate the prognostic utility of inflammatory biomarkers when implementing Folfex/Folfiri chemotherapy plus Anti-EGFR monoclonal antibodies (Cetuximab) and share our center's experience.

**Methods:** Out of 226 mCCR patients for which Folfex/Folfiri + Cetuximab was initiated at our center between 2014 and 2023, 38 cases met inclusion criteria: KRAS-wt status, 3 months follow-up CT imaging, accessible histology, and availability of laboratory data. We focused on assessing the role of Neutrophil-to-Lymphocyte(N/L) and Platelet-to-Lymphocyte(P/L) ratios, which were quantified prior to the commencement of the Folfex/Folfiri + Cetuximab protocol. To evaluate treatment response, we relied on follow-up CT conducted at the three-month mark. We used three distinct disease control(DC) criteria: remission(R), stable disease(SD), and progressive disease(PD). Additionally, we tested for any potential correlations between the tumor site, patient demographic variables and their treatment response.

**Results:** We observed the lowest N/L ratio values in the R group, followed by progressively increasing values in the SD group and the PD group. Noteworthy was the presence of outlier values featuring elevated L/R ratios, associated only with the PD group (N/L > 6). Conversely, in the context of the P/L ratio, a distinct upward trend from the R group to the PD group wasn't as evident, however with lowest values corresponding to the R group. Left-sided tumors exhibited a more favorable treatment response, accounting for 80% of tumors in the R group and 85% in the SD. Male patients demonstrated an improved treatment response, with 15% achieving remission compared to 11% in the female subgroup. We found no discernible correlation between patient age and treatment response ( $p=0.96$ ).

**Conclusion:** Inflammatory biomarkers hold value in managing systemic treatment for mCRC patients. A low N/L ratio corresponds with better response and remission, while higher values, especially exceeding N/L > 6, correlate with progressive disease. Additionally, left-sided tumors exhibit a more favorable response to the Folfex/Folfiri + Cetuximab scheme. These findings emphasize the utility of biomarker use in the therapeutic strategy as seen in our center's experience.

## #38/2023

### Giant colonic diverticulum—a case report

Alexandre Luiz Fiuza Alves, Leonardo Fiuza Alves, Beatriz Sattler Salgado, Fernanda Silva Rodrigues

Hospital Municipal Salgado Filho, Rio de Janeiro, Brazil

**Background/Aim:** The giant colonic diverticula (GCD) is a complication of the colonic diverticula, defined as a diverticulum larger than 4 cm in diameter located at the anti-mesenteric border of the sigmoid colon.

Colonic diverticula are the most common structural abnormality of the bowel in the Western society, and a rare, but possible complication of this condition, is the giant colonic diverticula (GCD). It is so rare, that since its first mention in 1946 by Bouvin and Bonet, less than 200 cases were reported.

**Methods:** A 62-year-old male presented to the emergency department with a two month history of abdominal pain associated with weight loss. Physical examination revealed a flaccid

abdomen, painful and a palpable mass in the left lower quadrant.

CT scan demonstrated a large 13×12×10 cm diverticular formation containing air and fecal matter in the rectalsigmoid transition.

A week after, the patient was submitted to an exploratory laparotomy. Intraoperative findings showed an inflammatory mass adherent to the sigmoid colon and abdominal wall. The treatment consisted on an en bloc resection of the mass associated with segmental colectomy and primary anastomosis. The postoperative recovery was uneventful and the patient was discharged on day four.

**Results:** The GCD usually reaches between 4 and 9 cm in diameter and mostly arises in the anti-mesenteric border of the sigmoid colon (90% of the cases) 2,3,4,5,7. They might be isolated, but in 85% of the cases, GCDs are associated with concomitant diverticular disease<sup>2</sup>.

Even though it was discovered in 1946, its pathology is still unclear. One of the theories is a unidirectional ball-valve, in which gas enters, but is unable to leave the diverticulum.

**Conclusion:** The giant colonic diverticula is a rare medical condition, that can bring important symptoms and complications. Therefore, when diagnosed, it should always be treated.

The patient presented in the case consisted in a male with the most common symptoms and findings in the literature. He also presented a diverticulum bigger than usually found in other patients, in the main location mentioned in our references. His treatment was adequate, as noted in the reviewed literature.

## #39/2023

### Laparoscopic intra-corporeal ileo-transverse anastomosis—a case series

Munir Rathore, Atif Latif, Florin Suru

United Lincolnshire Hospitals NHS Trust, Boston, United Kingdom

**Background/Aim:** Intra-corporeal ileo-transverse anastomosis (ICA) is, as yet, a non-established technique. It is gaining popularity.

Primary aim: Examine the anastomotic leak rate

Secondary aim: Abscess, ileus, conversion, extraction wound length, obstruction, length of stay (LOS) and Clavien-Dindo outcome

**Methods:** Lap caudo-cranial approach

Retro-mesenteric tunnel

Dissection over D3,2,1 and pancreas

Dissection broke into lesser sac from below

Lateral attachments released

TC and TI division with 60 mm and 45 mm Endo-GIA

Specimen freedom confirmed

Latero-lateral juxta-position of TI and TC

Hitch stitch 6-7 cm from the stump

Monopolar diathermy entero-colotomy made 2 cm from the end

Endo GIAx60 mm fired and common channel made

V-Loc 2/0 used for Connell stitch for the first layer

Started at the important mesenteric end

Running second layer: Hemolock at the terminal

Omentum placed over the anastomosis

**Results:** Consecutive  $n=18$  (11 m, 7 f)

Median age = 72 (iqr 62, 80)

Single layer = 9, Double layer = 9

Median wound length = 4 cm (range = 3-6 cm)

Clavien-Dindo score: 1 ( $n=17/18$ ), 2 ( $n=1/18$ )  
 Median LOS=7 (iqr=5,9)  
 Cancer=16/18  
 Adenoma=2/18  
 Lost swab in one: - X-ray brought in to retrieve  
 Anastomotic leak=0  
 Abscess, ileus, conversion, obstruction, return to theater=

All 0

Clavien-Dindo outcome=1 (17/18), 2(1/18)

**Conclusion:** Lap ICA was safe: It avoids, tension, torsion, de-vascularization

Shorter extraction length

Single or double layer did not make a difference

The ergonomics required to reach far. However safe

All swabs should be removed before flipping the specimen left-right

At 18 cases safety and developmental curve were improving

Further proficiency (unconscious competence) is needed esp with Connell stitch

For Lambert stitch the learning curve is shorter

Philosophically, intra-corporeal anastomosis may be the way forward

## #40/2023

### Perianal Paget's disease: clinical case

Filipe Reis Neves, Sheila Martins

Instituto Português de Oncologia de Coimbra, Coimbra, Portugal

**Background/Aim:** In 1874, Sir James Paget published, in a report on breast cancer patients, pathologic findings involving the areolar tissue of the nipple. Extramammary Paget's disease (EMPD) is a rare condition. EMPD usually affects Caucasians, nevertheless it might occur scarcer in other races. Mostly it affects people aged 45-75 with peak age incidence varying based on anatomical location.

Perianal Paget's disease (PPD) is one of the rarest subtype of EMPD. The most common symptoms are analogous to chronic perianal eczema, what often leads to misdiagnosis and to worst prognosis. It derives from intraepidermal stem cells of the perianal region and does provide a potential malignancy risk outside this zone. Histopathology still is the gold standard to a proper diagnosis of PPD with the findings of Paget cells containing pale clear cytoplasm, large circles of hyperchromatic nuclei and clusters in the tissue.

**Methods:** We present the case of a 68-year-old female referred to our institution for a chronic eczema-like rash of the skin around all the perianal region with a vulvar prolongation.

**Results:** The patient had local pain and itching, with mild response to local anti-inflammatories. At physical evaluation, there was an erythematous and papular lesion with circumferential perianal manifestation, with a radius of 3 to 4 cm. We decided to make a biopsy of the lesion, which confirmed the diagnosis of EMPD. Despite no mass identified at the rectal exam, we opted to do a MRI and a PET-CT to exclude any cancer.

The patient was submitted to wide local excision of PPD with reconstruction with „S“ skin flap on April 1st 2022. The wide local excision (WLE) of PPD is usually a feasible decision, regardless of the circumferential skin defect might lead to anal stricture and aesthetic dissatisfaction. The best way to avoid these complications can be the WLE plus skin flap transfer, the choice we ended up opting in our case.

**Conclusion:** The patient was hospitalized for three weeks due to a covid infection. After this period the surgical incision seemed almost completely healed without any inflammatory signs. There was no affection of gastrointestinal or urinary transit. A post operative surveillance in a semiannual General Surgery appointment had been kept. After 18 months, there are no signs of any surgical complication and no signs of recurrence. She has resumed to the physical activity level had before surgery.

## #41/2023

### Routine postoperative endoscopy after low anterior rectal resection for rectal cancer—improving surgical outcome

Jonas Herzberg<sup>1</sup>, Shahram Khadem<sup>1</sup>, Stephan Falck<sup>1</sup>, Salman Yousuf Guraya<sup>2</sup>, Tim Strate<sup>1</sup>

<sup>1</sup>Krankenhaus Reinbek St. Adolf-Stift, Reinbek, Germany;

<sup>2</sup>College of Medicine University of Sharjah, Sharjah, United Arab Emirates

**Background/Aim:** To minimize the rate of postoperative anastomotic leakage (AL) in colorectal surgery, we established a fail-safe-concept for colorectal surgery and could reduce the AL rate to below 4%.

In the literature, low anterior rectal resections still come with the highest AL risk of up to 29%. Several steps have been taken to lower this rate including intraoperative colonic irrigation and early postoperative visual examination by endoscopy after rectal resection.

**Methods:** A flexible endoscopy on postoperative day 4 is part of the fail-safe-concept for evaluation of the anastomotic integrity. To analyze the use of this step, all low anterior resections for rectal cancer between January 2015 and June 2023 were retrospectively analyzed. Occurrence of anastomotic leakages, their treatment and potential procedure-specific complications were evaluated.

**Results:** Within the study period, 148 patients with a mean age of  $51.36 \pm 31.74$  years were treated with a low anterior resection, end-to-end reconstruction and loop-ileostomy following the fail-safe-concept for rectal cancer. 145 (98%) of these procedures were performed laparoscopically. All these patients received an endoscopy on postoperative day 4 to evaluate the anastomosis. The anastomotic leakage rate within the first 30 days was 1.4% (2 patients). No procedure-specific complication like perforation or bleeding occurred within the study period.

**Conclusion:** Within the fail-safe-concept, the early endoscopic evaluation of the anastomosis after low anterior rectal resection comes with a low risk and can ensure an immediate treatment to minimize postoperative morbidity.

## #42/2023

### “Tricky lipoma or bad neighbourhood”: a case of ileocolic intussusception

Margarida Rouxinol, Sílvia Silva, Pedro Costa, Herculano Moreira, João Pinto-de-Sousa

Centro Hospitalar de Trás-os-Montes e Alto Douro, Vila Real, Portugal

**Background/Aim:** A 42-year-old Portuguese woman with no relevant personal or family past history and no usual medication with multiple admissions to the emergency service due to intermittent abdominal pain, initially periumbilical and then generalized to all abdomen associated with anorexia. No other symptoms such as fever or change in bowel habits.

On physical examination with painful abdomen to palpation at the transition of the right quadrants and mild pain on decompression, without other changes.

**Methods:** Blood tests showed no anemia, leukocytosis, neutrophilia or significant elevation of inflammatory parameters. Due to persistent pain, an abdominopelvic CT scan was performed with an image compatible with ileocecal intussusception conditioned by the presence of an expansive formation of lipomatous nature measuring approximately 54 mm in longest axis and some ileocecal lymph node images with a larger pericentimetric axis of a probable inflammatory nature.

She was admitted for surveillance and further investigation. A colonoscopy was performed on the 2nd day of hospitalization, which was inconclusive due to poor preparation. Due to worsening of the clinical condition, she underwent a right hemicolectomy and resection of 10 cm of ileum on the 4th day of hospitalization, and was discharged on the 9th day of hospitalization, without perioperative complications.

**Results:** Colonic lipomas are a relatively rare and frequently an incidental finding. Most gastrointestinal lipomas are asymptomatic and arise intramucosally from the lipocytes of the colon submucosa. The colon is commonly affected, followed by the small intestine and then the stomach.

Large lipomas can cause complications such as intussusception or intestinal bleeding.

**Conclusion:** Gastrointestinal lipomas are benign intramucosal tumors and are most common in the colon. Colon lipomas are generally asymptomatic and, in most cases, incidental findings on colonoscopy. In rare cases, they can lead to colon obstruction due to intussusception. Treatment is surgical with resection of the colonic segment involved.

## #43/2023

### Multimodal prehabilitation in colorectal oncological surgery: relationship between nutritional status and functional physical capacity versus postoperative complications

David Sanchez-Relinque, Jara Díaz Jimenez, Alejandro García García, Manuel Saavedra Chacón, María García Gausí, Eugenia Valenzuela Mateos, Luis Argüeso Camacho, Luis Tejedor Cabrera, Eduardo Sánchez-Sánchez

Punta de Europa University Hospital, Algeciras, Spain

**Background/Aim:** To analyze functional physical capacity and nutritional status prior to colorectal oncological surgery and its relationship with the appearance of postoperative complications within a multimodal rehabilitation program.

**Methods:** A prospective study is carried out in a unique cohort including all patients who are going to undergo surgery in our Service between February 1 and June 30, 2023 for colorectal oncological pathology. Weight loss and the Malnutrition Screening Tool (MST) will be used to assess the risk of malnutrition, and the Short Performance Battery Test (SPPB) and dynamometry will be used to measure functional physical

capacity. The data is collected in the consultation prior to surgery colorectal.

**Results:** 43 patients have been included with a mean age of  $66.20 \pm 12.56$  years. In the visit prior to surgery, 51.16% did not present weight loss. 4.65% had loss <5%, 20.93% had loss between 5–10% and 23.23% had loss >10%. The MST results showed that 32.56% of patients were at risk of malnutrition. 16.28% of the subjects presented a dynamometry result below p10, 30.23% below p50 and 53.49% above p50. The results in the SPPB showed that 4.65% of the participants presented a very low or low performance, 37.21% a moderate performance and 53.49% a high performance. This last result coincides with the  $p > 50$  result in dynamometry. 18.6% of the patients presented some type of postoperative complications, with surgical bed infection being the most prevalent (13.95%), followed by intestinal ileus (4.65%) and urinary infection (2.33%), they did not present other types of complications. Of them, 62.5% did not present previous weight loss, 62.5% were  $p > 50$  in dynamometry, 87.5% had no previous risk of malnutrition, and 50.0% presented moderate performance and good performance. There were no statistically significant differences in the patients, according to weight loss ( $p = 0.376$ ), their nutritional status ( $p = 0.179$ ), their functional physical capacity measured through dynamometry ( $p = 0.805$ ) and the SPPB ( $p = 0.719$ ).

**Conclusion:** Although the sample is not representative, the results show that there is no relationship between nutritional status and functional physical capacity with the appearance of postoperative complications. The sample size must continue to be expanded to be able to offer a conclusion with greater statistical power.

## #44/2023

### It is possible avoiding routine splenic flexure mobilization during left hemicolectomy and anterior rectal resection? A single center experience compared to the surgical reality

Giovanni De Nobili<sup>1</sup>, Paolo Panaccio<sup>1</sup>, Fabio Francesco Di Mola<sup>2</sup>, Pierluigi Di Sebastiano<sup>2</sup>

<sup>1</sup>Ospedale Renzetti Lanciano, Lanciano, Italy;

<sup>2</sup>Casa di Cura Pierangeli, Pescara, Italy

**Background/Aim:** Routine splenic flexure mobilization (SFM) during left hemicolectomy and anterior rectal resection guarantees a well perfused and tension-free anastomosis, respecting current oncological criteria. According to the recent literature, only 70% of laparoscopic colorectal surgeons considered routine SFM mandatory. Because of its difficulty, SFM increases morbidity including surrounding organs injuries. The goal of the study is to report our experience in avoiding routine SFM during colorectal resection compared to the current surgical state of art.

**Methods:** Data were collected retrospectively on elective laparoscopic left hemicolectomy without routine SFM performed in our unit between January 2015 to April 2020. 110 Patients were recruited according to diagnosis, histopathology, operative time, ASA score, post-operative morbidity and mortality.

**Results:** 97 of 110 patients (75 oncological, 22 diverticular disease), underwent to surgery without SFM. The other 13 patients underwent to SFM due to technical issues. The mean operative time was  $160,2 \pm 44,7$  mins, significantly shorter than in patients whose SFM occurred (210,3 mins). The morbidity rate was 1%, reintervention occurred in 1 patient. 18-months



median follow-up morbidity was 11% while mortality was 3%. Among cancer cases recurrence rate was of about 5%.

**Conclusion:** As results from study data analysis, left colectomy can be conducted safely in both laparoscopic and laparotomic approach without SFM in selected cases. As reported in a recent metanalysis, benefits of avoiding SFM concern reduced operative time without compromising postoperative outcome and respecting oncological criteria, as emerged by our results. Colorectal resection without SFM when is feasible, improves surgical approach reducing technical difficulties and avoiding splenic injuries.

## #45/2023

### HAL-RAR procedure for patients with hemorrhoids; retrospective analysis of 89 patients in a single center

Seung Yeob Lee

Uijeongbu St. Mary's Hospital, Uijeongbu-si, Gyeonggi-do, Republic of Korea

**Background/Aim:** Hemorrhoidal artery ligation and rectoanal repair (HAL-RAR) is a minimally invasive surgical procedure that has certain advantages over conventional hemorrhoidectomy. This procedure involves ligating the arterial blood supply to the hemorrhoids, resulting in their shrinkage without any excision of tissues. The purpose of this study is to evaluate the safety of the HAL-RAR by checking post operative pain and complications.

**Methods:** Between April 2011 and July 2022, 89 patients with symptomatic hemorrhoids who were treated with HAL-RAR at a single institution and had medical records for more than 6 months were included in the study. The patients underwent ultrasound identification and suture ligation of 4–8 distal branches of the superior rectal artery above the dentate line.

**Results:** There were 52 males and 37 females (mean age 49.2 ± 12.5 years). The mean operative time was 50 minutes (20–90min). The mean hospital stay after surgery was 2 days. Of 89 patients, we have 54 patients with grade 3, 15 with grade 2, and 20 with grade 4. Common preoperative symptoms were bleeding ( $n=75$ , 84%), protrusion ( $n=62$ , 69%), pain ( $n=23$ , 25.8%), and tenesmus ( $n=8$ , 9.0%). 15 Patients (16.8%) needed oral analgesics for more than 2 weeks, and all of them were treated well after 2-month follow-up. Complications were seen in 6 patients, 4 patients had protrusion recurrence, and 2 patients had anal bleeding. One of them underwent re-operation due to protrusion recurrence on the 45th postoperative day. The other two patients with recurrent bleeding were treated well without surgical treatment. No patient has late complications.

**Conclusion:** Hemorrhoidal artery ligation and rectoanal repair seem to be a safe, less painful, and uncomplicated procedure. In the long term, recurrence rates are also reasonable. This procedure can be a good alternative for patients with hemorrhoids.

## #46/2023

### Is dissection of the superior mesenteric vein essential in complete mesocolic excision for right colon cancer? Incidence of nodal positivity in the surgical trunk of gillot

Ashwin Desouza, Devesh Ballal, Snigdha Kamini, Yajushi Desiraju, Dhaval Vasa, Mufaddal Kazi, Avanish Saklani

Tata Memorial Centre and Homi Bhabha National Institute, Mumbai, India

**Background/Aim:** There is a consensus on the requirement of resecting the surgical trunk of Gillot (STG) to expose the superior mesenteric vein (SMV) for a procedure to qualify as complete mesocolic excision (CME) for right colon cancer. However, SMV dissection increases the complexity of the procedure and is associated with a higher incidence of vascular injury.

**Methods:** This is a single-centre, prospective, observational study of consecutive CME right colon resections, with dissection of the specimen by the surgeon to isolate the middle colic, ileocolic and intervening STG tissue, which was processed individually for nodal involvement. The primary end point was the incidence of nodal positivity in the STG. A sample size of 110 was calculated based on the 5% reported incidence of positive central nodes and assuming a margin of error of 3%, (anticipating a minimum yield of 2% to be clinically meaningful) with 85% confidence

**Results:** Of the 110 consecutive patients selected, 70% were male with a median age of 55yrs (22–81). 28.2% underwent a laparoscopic resection with 34.5% undergoing an extended right colectomy. 76.4% were radiologically node positive but only 45.5% were pN +ve. Poorly differentiated cancers were 36.4% (signet ring-10%, mucinous-19.1%). Majority of lesions were T3 (T1-0.9%, T2-7.3%, T3-69.1%, T4-22.7%) with 5 patients receiving neoadjuvant chemotherapy. The mean nodal yield was 37.25 (SD 12.82). The incidence of nodal positivity was 41.8% in the paracolic nodes and 11.8% in the root nodes (ileocolic-8.2%, middle colic-5.5%), with just 5 patients (4.5%) having positive nodes in the STG. 3 patients (2.7%) had skip metastasis with negative paracolic and positive root nodes. There was no isolated metastasis in the STG nodes. Amongst the 5 patients with STG nodal positivity there were no T1/T2 cancers [T3(2);T4a(3)], 3 patients had N2 disease (No. of +ve nodes 19–35), 4 had poorly differentiated cancers and all were MSI-Stable.

**Conclusion:** The low incidence of STG nodal positivity requires a large sample size to effectively identify a patient subgroup in whom SMV dissection is recommended. Exposing the SMV as part of CME for right colon cancer could probably be avoided in T1/T2 lesions and considered in patients with poorly differentiated, MSI-stable cancers with high nodal burden.

## #47/2023

## Patient selection for a successful same day discharge colectomy program

Daniel Aillaud<sup>1</sup>, Andrea Hernandez<sup>1</sup>, Ria Bhatia<sup>2</sup>, Diego Marines<sup>1</sup><sup>1</sup>Houston Methodist Willowbrook Hospital, Houston, United States;<sup>2</sup>The University of Texas at Austin, Austin, United States

**Background/Aim:** Enhanced recovery after surgery (ERAS) has shown to decrease inpatient length of stay (LOS) and improve surgical outcomes on elective abdominal colorectal procedures. A patient being successfully discharged on the same calendar day after colorectal surgery is a multifactorial decision that takes into account the patient's baseline condition, social factors, intraoperative findings, and condition in the recovery room. Identifying suitable candidates for same-day discharge (SDD) remains a challenge. To shed light on this matter, a comprehensive one-year retrospective observational review of SDD cases within our institution was conducted. This analysis aims to offer valuable insights into the selection criteria and outcomes associated with SDD implementation.

**Methods:** This is a retrospective chart review study, in which all consecutive elective robotic and laparoscopic colorectal cases performed by a single senior author in a teaching community hospital from April 2022 to April 2023 were reviewed. These included patients diagnosed with colorectal masses, diverticulitis, who required colectomy and end stoma reversals. Differences between specific groups were compared using the Fisher's Exact Test and Wilcoxon-Rank Sum Test. A *p*-value of <0.05 was considered statistically significant. This study shows our initial one year experience with SDD.

**Results:** During the retrospective observational period, 97 patients were analyzed. The most frequently performed surgeries were, segmental colectomy, total colectomy, low anterior resection, and end stoma reversal. The review observed zero readmissions on the patients that were discharged home the same day, and 3 readmissions on patients that stayed one or more nights. Among the variables analyzed, longer LOS and higher intraoperative fluids exhibited statistically significant associations with readmissions. Additionally, diverticulitis demonstrated statistical significance for patients to be discharged early. Intraoperative factors displaying statistical significance against early discharge were higher operative time and estimated blood loss.

**Conclusion:** SDD in colon and rectal surgery is feasible when there is a well established ERAS protocol and there is adequate education for patients and staff. Adequate patient selection is crucial. We recommend excluding patients with multiple comorbidities, lack of a support network, patients undergoing extensive lysis of adhesions, among others.

## #48/2023

## Immunological changes with colorectal cancer growth in the peritoneal cavity

Seung Chul Heo<sup>1</sup>, Kyung Won Chung<sup>1</sup>, Jin Sun Choi<sup>1</sup>, Rumi Shin<sup>1</sup>, Hye Seong Ahn<sup>1</sup>, Byeong Geon Jeon<sup>2</sup><sup>1</sup>SMG-SNU Boramae Medical Center, Dongjak-gu, Seoul, Republic of Korea;<sup>2</sup>Bundang Jesaeng Hospital Bundang-gu, Seongnam-si, Gyeonggi-do

**Background/Aim:** This study was performed to identify the changes of immune characteristics according to the intraperitoneal tumor growth (pathological stage:  $\leq$ T3 -> T4 -> M1c) of colorectal cancer (CRC).

**Methods:** Ascites and peritoneal cells were collected from CRC patients during operations. Fifty-four immune proteins were assayed in ascites and compared among 3 groups, comprising patients of  $\leq$ pT3 (no tumor cells in the peritoneal cavity), those of pT4 (microscopic tumor cells in the peritoneal cavity) and those of pM1c (gross tumors in the peritoneal cavity) stage. Transcriptome analysis (RNAseq) of the 3 peritoneal cells (CD14+, CD3+CD8+ and CD3+CD4+) and single cell transcriptome analysis (scRNAseq) of entire peritoneal cells were performed and compared between patients of  $\leq$ pT3 and M1c.

**Results:** Peritoneal tumor growth made abundance of ascites. Concentrations increased in 11, decreased in 7 and did not change in 12 immune proteins from ascites during peritoneal tumor growth ( $\leq$ T3 -> T4 -> M1c), while 24 proteins could not be evaluated due to lower levels than the reference ranges. Increased proteins in pM1c (for example IL10, TGF $\beta$ 1, VEGFA, CCL20, CXCL16) were mainly (7 of 11 proteins) expressed in CD14+ cells. Among those, concentration of IL10 and VEGFA in pT4 patients were prognostic marker for postoperative peritoneal recurrence.

RNAseq showed elevated gene expression in CD14+ (499 genes upregulated and 155 downregulated) and CD8+ T (275 up and 57 down) cells in M1c than  $\leq$ pT3, while gene expressions were depressed in CD4+ T cells (43 upregulated and 241 down-regulated).

scRNAseq (4,494 peritoneal cells from  $\leq$ T3 and 3,370 from M1c) revealed remarkable expansion of T cells in pM1c, which were featured by CD8+PD1+, FOXP3+IL2RA+, IFNG+NKG7+ and etc. Proportion of CD14+ (macrophage) cells decreased and most CD14+ cells in pM1c expressed IL10 and VEGF (important marker of M2 polarization), which were minor portion in  $\leq$ pT3.

**Conclusion:** Peritoneal tumor growth made CD8 T cells activated and diversified as well as made CD14 macrophages activated and M2 polarized. This means that peritoneal tumor growth induced active immune response as well as immune suppression by M2 polarized macrophage. Considering the 2 major proteins (IL10 and VEGFA) of CD14 cells as prognostic markers, peritoneal macrophages can be a target of immunotherapy of peritoneal carcinomatosis of CRC.

#49/2023

**Late-onset anastomotic leakage following anterior rectal resection: a case series****Nicolas Zucchini<sup>1</sup>, Paola Germani<sup>2</sup>, Selene Bogoni<sup>2</sup>, Marina Troian<sup>2</sup>, Nicolò de Manzini<sup>1</sup>, Nicolò de Manzini<sup>2</sup>**<sup>1</sup>University of Trieste Italy, Trieste, Italy;<sup>2</sup>Ospedali riuniti di Trieste-Cattinara, Trieste, Italy

**Background/Aim:** Anastomotic leakage (AL) is a well-known complication following colorectal surgery, typically appearing during the first year after surgery. Although rare, late-onset AL can occur years later and presents diagnostic and management challenges. This paper aims to highlight this condition, addressing clinical dilemmas and management questions.

**Methods:** In the last year, 5 cases of late-onset AL were treated after anterior rectal resection (ARR) for rectal cancer at our Institution. Data were retrospectively collected and analyzed. Median onset time was 12(7–15) years.

**Results:** All patients were admitted for pelvic abscess many years after ARR. Late-onset AL was diagnosed using CT scan, magnetic resonance imaging, and endoscopy. Treatment was primarily surgical, such as diverting stoma and abscess drainage for source control, and secondarily endoscopic. Only one patient had cancer recurrence. All patients were discharged after clinical and radiological improvement.

**Conclusion:** The underlying cause of very late fistulas remains unclear. The most probable hypotheses are linked to chemotherapy [1], radiation therapy [2], or previously unrecognized asymptomatic early fistulas [3]. Plausibly, the common etiology could be attributed to an early fistula. Whether unnoticed or clinically apparent, if left unsolved it can lead to a pro-inflammatory state over time. This may result in the formation of chronic pelvic sinus and collections of significant size. Nonetheless, the possibility of a recurrence in neoplastic patients should not be underestimated.

#50/2023

**Mimicry of colonic tumour: colonic abscesses****Jing Wen Ong, Gregory Heng<sup>2</sup>, Hwei Yee Lee<sup>3</sup>**<sup>1</sup>Singapore, Singapore;<sup>2</sup>Khoo Teck Puat Hospital (I);<sup>3</sup>Tan Tock Seng Hospital (I)

**Background/Aim:** Colonic wall abscesses are rare entities that can occur along the gastrointestinal tract and often may mimic tumours. Few cases have been reported in literature and these have been treated with either conservative management or surgical resection.

**Methods:** We present a case of a previously healthy 39-year-old female with abdominal pain. Computed Tomography scan of the abdomen and colonoscopy showed a large 3 × 5 cm polypoidal mass in the distal ascending colon with biopsy showing inflammatory infiltrates. Despite conservative management with antibiotic treatment, inflammatory markers were persistently elevated.

**Results:** Hence, decision was made for a laparoscopic right hemicolectomy. Histologic examination showed ulceration and inflamed granulation tissue in the mucosa and submucosa

with no evidence of malignancy, as well as focal invaginations of large bowel mucosa into the submucosa, suggestive of early diverticulum.

**Conclusion:** Colonic wall abscesses can present as diagnostic challenges with features mimicking malignant lesions. The clinical presentation can be subtle or overt, with symptoms ranging from mild abdominal discomfort to severe sepsis. This case serves to highlight the consideration of mucosal and submucosal abscesses as a differential diagnosis in the assessment of colonic masses, especially in young or immunocompromised patients. Potential causes of colonic abscesses include inflammatory bowel disease, foreign bodies, or diverticulitis such as in the case of our patient.

Surgical treatment can be considered in cases of large symptomatic masses, failure of conservative management with antibiotic or when the diagnosis is unclear. Our patient recovered well post-operatively with no further episodes of abdominal pain and resolution of raised inflammatory markers.

#51/2023

**Surgical strategies for preventive anastomotic leakage and no local recurrence after colorectal surgery "All surgical techniques for a good outcome"****Chanyut Turanon, Pornthep Prathanvanich**

Taksin Hospital, Bangkok, Thailand

**Background/Aim:** Colorectal surgery is a cornerstone of treating colorectal malignancies, and the choice of surgical technique, whether laparoscopic or open. This comprehensive research study aims to investigate and compare clinical outcomes between laparoscopic and open surgery in colorectal procedures, with a specific focus on anastomotic leakage and local recurrence. The primary endpoint was anastomotic leakage after operative treatment and secondary endpoint was the tumor recurrence incidence

**Methods:** This prospective cohort study included patients diagnosed with colorectal cancer who underwent either laparoscopic or open surgery between October 2017 to October 2019. All laparoscopic colorectal surgery within those 2 years was performed the procedure by single colorectal surgeon. Data on patient demographics, tumor characteristics, surgical details, postoperative complications, and oncological outcomes were collected and analyzed

**Results:** A total of 150 patients were included in the study with 75 patients in the laparoscopic group and 75 patients in the open surgery group. The laparoscopic group demonstrated a shorter length of stay (5.76 day vs. 7.75 day,  $p < 0.001$ ), no perioperative blood transfusion (0 patient vs. 37 patients,  $p < 0.001$ ), and a shorter postoperative pain scale (4.48 point vs. 8.20 point,  $p < 0.001$ ) and shorter mean of flatus (36.0 hr vs. 49.47 hr,  $p < 0.001$ ). The overall postoperative complication rate was lower in the laparoscopic group (0%) compared to the open surgery group (8.0%,  $p = 0.006$ ). Anastomotic leakage was lower in laparoscopic group (0%) compared to open surgery group (5.3%,  $p = 0.004$ ). Local recurrent tumor was lower in laparoscopic group (0%) compared to open surgery group (9.3%,  $p = 0.003$ ). DFS of 6 yrs follow up was more in laparoscopic group (100%) and (90.7%,  $p = 0.007$ ). Including the concurrent CCRT, surveillance CT scan and colonoscopy, protective stoma were not difference significant between the two groups.

**Conclusion:** Laparoscopic surgery for colorectal cancer demonstrated superior clinical outcomes compared to open surgery. Laparoscopic surgery was associated with shorter length of stay, no post-operative blood transfusion, shorter postoperative pain scale, and shorter mean of flatus and more number mean lymph nodes. Importantly, anastomotic leakage and local recurrent tumor was lower in laparoscopic group compared to open surgery group. These findings support the use of laparoscopic surgery as a safe and effective alternative to open surgery for colorectal cancer.

## #52/2023

### Microscopic colitis in patients referred for change in bowel habit on the cancer pathway: is flexible sigmoidoscopy sufficient?

Shahbaz Zafar<sup>1</sup>, James Francombe<sup>2</sup>, Denise Yeung<sup>2</sup>

<sup>1</sup>Warwick Hospital, SWFT NHS Foundation Trust, Warwick, United Kingdom;

<sup>2</sup>Warwick Hospital, Warwick, United Kingdom

#### Background/Aim: Introduction

Our hospital is referred approximately 70 patients per week with a change in bowel habit or other 'red flag' symptoms for urgent two-week investigation for colorectal cancer (CRC). The majority of these patients will have invasive endoscopic investigations.

Patients with a negative faecal immunochemical test „(FIT) < 10 ug blood/g“ faeces and a change in bowel habit to looser and/or more frequent stool are recommended by the British Society of Gastroenterology to undergo a colonoscopy with right and left sided biopsies to exclude microscopic colitis.

We wanted to investigate if there was a correlation between left sided and right sided biopsies to determine if only flexible sigmoidoscopy rather than full colonoscopy would be diagnostically sufficient in this patient group.

**Methods:** A retrospective single-centre UK study of colonoscopy results for patients referred on the two week cancer pathway with diarrhoea and negative FIT over 12 months to December 2022.

**Results:** 720 patients were referred for diarrhoea and negative FIT. 692 patients underwent colonoscopy and biopsies (28 patients excluded-polyps only or no biopsies taken). 40 (5.7%) patients were diagnosed with microscopic colitis on histopathological examination. Age range 51–85 years (median 68.9). Male 13 (32.5%): Female 27 (67.5%). 29 (72.5%) had lymphocytic microscopic colitis, 10 (25%) had collagenous microscopic colitis and 1 (2.5%) mixed microscopic colitis. 31 (77.5%) patients with microscopic colitis had biopsies taken from both the right and left colon; 9 (22.5%) were biopsies only from the left colon. 1 (3.2%) patient with right and left colon biopsies had microscopic colitis diagnosed only in the right-sided colon samples. 39 (96.8%) patients with microscopic colitis were diagnosed on left-sided biopsies.

**Conclusion:** 5.7% of patients investigated endoscopically for diarrhoea with negative FIT were diagnosed with microscopic colitis. 96.8% of positive biopsies were taken from the left side of the colon. A full colonoscopy only increased the positivity by 3.2%.

Patients referred with looser/more frequent stools and a negative FIT should be considered for flexible sigmoidoscopy and left-sided colonic biopsies only. This would facilitate more patients per endoscopy list and save histopathology time and expense.

## #53/2023

### Pelvic exenteration for rectum adenocarcinoma: results and prognostic factors

Carlos Frederico Sparapan Marques<sup>1</sup>, Sergio Carlos Nahas<sup>2</sup>, Caio Sergio Rizkallah Nahas<sup>2</sup>, Rodrigo Ambar Pinto<sup>2</sup>, John Tapia Bacca<sup>2</sup>, Dariane Sampaio Piatto<sup>2</sup>, Paulo Afonso de Carvalho<sup>2</sup>, Fabio de Freitas Busnardo<sup>2</sup>, Victor Grillo<sup>2</sup>, Bruno Damico Terada<sup>3</sup>, Felipe G

<sup>1</sup>ICESP/HCFMUSP, São Paulo, Brazil;

<sup>2</sup>ICESP/HCFMUSP (I);

<sup>3</sup>fmsp (I)

**Background/Aim:** Identify prognostic factors of pelvic exenteration for locally advanced rectum adenocarcinoma regarding: overall survival, postoperative complications, reoperation, length of hospital stay and 90-days mortality.

**Methods:** IRB-approved prospective cohort study, with non-metastatic locally advanced rectum adenocarcinoma patients from São Paulo Brazil largest public hospital.

Variables: patients demographics, disease characteristics, neoadjuvant treatment, surgery, surgical specimen, postoperative complications, time of hospitalization, reoperations, rehospitalization, pathological staging, adjuvant treatment, recurrence, rehabilitation, palliation, pain, outpatient clinic return and death.

Outcomes: overall survival, postoperative complication, reoperation rate, length of hospital stay, and 90-days mortality.

**Results:** From March 2012 to November 2017, 109 patients had a mean FU time of 19.8 mo.

Overall survival was 59: 3% and 42.5 mo: associated with male gender ( $p=0.03$ ), age over 70 years ( $p=0.001$ ), surgery R1/R2 ( $p=0.001$ ), hospitalization ( $p=0.02$ ) and ICU time ( $p<0.0001$ ), moderate post-operative complications ( $p=0.03$ ), rehospitalization ( $p=0.04$ ) and reoperation ( $p=0.004$ ), palliative ( $p=0.03$ ) and relapse surgery ( $p<0.001$ ). Overall survival was independently associated with disease-free margin (76.9%,  $p<0.001$ ) and age under 70 years ( $p<0.001$ ).

Post-operative complications was 62.9% (60% treated without surgery), and independently related to age over 70 years ( $p=0.003$ ) and intraop transfusion ( $p=0.001$ ). Rate of reoperations was 17.8%, associated with age over 70 years ( $p<0.001$ ) and prolonged hospitalization periods (ICU or ward) ( $p<0.001$ ).

Hospital stay was associated with surgery for recurrence ( $p=0.005$ ), moderate complications ( $p<0.001$ ) and pain group appointment ( $p=0.003$ ).

90-days mortality was 5.6%, associated with longer ICU stay ( $p<0.002$ ).

**Conclusion:** Overall survival was high, related to R0 surgery and age under 70 years of age

Intraoperative blood transfusion increased risk of postoperative complications

Rate of reoperation was influenced by prolonged length of hospital and ICU stay

Length of hospital stay was associated with recurrence, severe complications and difficult pain control

Mortality at 90 days was correlated with prolonged ICU stay  
Patients over 70 years of age due to their reduced overall survival, higher rates of complications and reoperations deserve careful selection to surgery and intense attention after pelvic exenteration.

## #54/2023

## Exploring the immunological potential of HLA-G and IL-4 in colorectal cancer: genetic associations and serum biomarkers

Khadija Zouari Limayem<sup>1</sup>, Behaeddin Garrach<sup>2</sup>, Abdelwaheb Ben Othmen<sup>2</sup>, Sonia Yatouji<sup>2</sup>, Sonia Zaied<sup>1</sup>, Mohamed Hammami<sup>2</sup>, Sonia Hammami<sup>2</sup>

<sup>1</sup>University Hospital Fattouma Bourguiba, Monastir, Tunisia;

<sup>2</sup>Faculty of Medicine, University of Monastir, Monastir, Tunisia

**Background/Aim:** Colorectal cancer is a growing global public health concern with increasing incidence and mortality rates, particularly in developing countries. This study delves into the genetic aspects of colorectal cancer, specifically focusing on HLA-G and IL-4 polymorphisms and their serum expression.

**Methods:** The study involved 114 participants in a case-control design, including 50 patients from Tunisian university hospitals and 64 age, gender, and region-matched controls. Genetic polymorphisms in HLA-G and IL-4 were analyzed using a PCR-based assay, while serum expression levels were measured using ELISA.

**Results:** The findings indicate a significant association between HLA-G polymorphism (rs371194629) and colorectal cancer risk, with an odds ratio of 1.83 ( $p=0.033$ ). The genetic dominant model also showed significance ( $p=0.038$ ; OR=2.55). However, no significant association was observed with IL-4 rs79071878 polymorphism. Additionally, higher serum levels of sHLA-G were detected in the CRC group.

**Conclusion:** This research suggests that HLA-G polymorphism rs371194629 may serve as a predisposing factor for colorectal cancer (CRC). Additionally, higher serum levels of sHLA-G were detected in the CRC group, indicating its potential as a biomarker for CRC. Further investigation and validation methods are necessary to establish sHLA-G as a reliable biomarker in CRC. Understanding the functional implications of HLA-G could provide insights into its role in CRC development, potentially identifying new targets for prevention and treatment.

## #55/2023

## Endoscopic stent versus surgical intervention as an initial management for malignant colonic obstruction; a retrospective cohort study

Abdulrahman Alzamil, Noura Alhassan, Hadeel Helmi, Sulaiman Alshammari, Salman Batais, Yazeed Alkhayyal, Mansour Altuwaijri, Suliman Alshankiti, Ammar Alotaibi, Thamer Bin Traiki

KSU, Riyadh, Saudi Arabia

**Background/Aim:** Malignant colonic obstruction (MCO) occurs in 10–18% of colorectal cancers. The management options include emergency surgical intervention or endoscopic stenting. In this study we aimed to evaluate the success and complication rates of stent placement in patients with MCO as well as compare short-term outcomes to those managed with initial surgery.

**Methods:** We conducted a retrospective cohort study including all patients with MCO between March 2015 to September 2021. Patients were divided into groups according to the initial treatment they received; stent versus surgery, as well as the intent of treatment; curative versus palliative. Data was collected from medical records.

**Results:** Among 112 patients, 24 had stenting as a bridge to surgery (SBTS) and 16 underwent palliative stenting. The technical success rate was 95%, with failure in two patients due to complete obstruction and perforation. Two patients (5.3%) who underwent stenting had clinical failure with persistent symptomatic obstruction beyond 48 hours. Complication rate following stent insertion was 12.5%, most commonly migration. Among curative patients, SBTS did not affect laparoscopic approach or stoma creation rate. However, it was associated with longer hospital stay. Half the patients who received stent in the palliative group required re-stent due to re-obstruction with mean stent patency of 7 months.

**Conclusion:** Management of MCO varies based on the patients' clinical presentation, as well as tumor site and surgeon preference. Stent placement, whether as a bridge to surgery or as a palliative measure, is a safe option with good clinical and technical success.

## #56/2023

## Path to Precision: is robotic-assisted surgery the key to superior pathological outcome in recto-sigmoid cancer resections?

Zeeshan Ali-Qazalbash, Faid Khopekar, Chin Kiat Tan, Carina McGuire, James Saldanha, Arijit Mukherjee

Hairmyres Hospital, Lanarkshire, United Kingdom

**Background/Aim:** Robotic-assisted surgery (RAS) has proven effective in overcoming many technical challenges associated with open (OP) and laparoscopic-assisted (LAP) recto-sigmoid cancer (RSC) resections. It has shown favourable results- low conversion rates and improved patient outcomes. However, its ability to achieve improved pathological outcomes remain unexplored. We aimed to evaluate pathological and peri-operative outcomes of patients undergoing RSC resections using all three surgical techniques.

**Methods:** We retrospectively identified all RSC resection cases since 2019 at our centre offering OP, LAP, and RAS services using hospital database. We audited length of stay (LoS), complications, readmission rates, margin clearance status, and lymph node yield according to the Scottish Cancer Taskforce Quality Performance Indicators.

**Results:** Since 2019, there were 37 OP, 77 LAP, and 35 RAS (with only 1 RAS surgeon at our centre) resections performed. The median LoS for OP resections was 12 days, whereas it was 8 days for LAP resections ( $p=0.02$ ). Median LoS was lowest for RAS resections (3 days,  $p=0.005$ ). Readmission rate was highest for OP resections (27%) and similar for LAP and RAS resections (14.2% each). Complications (OP 40.5%, LAP 38.9%, RAS 40%;  $p>0.05$ ) were categorized using Clavien-Dindo (CD) classification. LAP resections had the lowest complication rate but the highest proportion of severe complications [CD-IVb (6.6%) and CD-V (6.4%)], whereas RAS resections had no severe complications (CD-IVa/IVb/V). Pathologically, 89% OP resections achieved R0 status. LAP and RAS resections demonstrated competitive rates of R0 status (97.4%, 97.1% respectively). The

median lymph node yield was 14, 15, and 20.5 for OP, LAP, and RAS resections respectively.

**Conclusion:** Our analysis demonstrates RAS resections have emerged as a promising technique with shorter hospital stays and better complication rates when compared to OP and LAP resections. Pathologically, RAS and LAP RSC resections have high rates of achieving R0 status, with RAS showing superior lymph node yield potential. These results suggest RAS as a viable, efficient alternative to conventional approaches, encouraging its continued integration into colorectal surgical practice. Further studies with larger cohorts are warranted to comprehensively elucidate these findings.

## #57/2023

### Radioguided occult lesion localization technique in metastatic colorectal cancer

Inês Filipa Rodrigues Aranha de Sousa<sup>1</sup>, Pedro Martins<sup>2</sup>, Francisco Girão<sup>2</sup>, José Flávio Videira<sup>2</sup>, Nuno Rama<sup>1</sup>, Joaquim Abreu de Sousa<sup>2</sup>

<sup>1</sup>Centro Hospitalar de Leiria, EPE, Leiria, Portugal;

<sup>2</sup>IPO—Porto, Portugal

**Background/Aim:** An isolated metachronous recurrence in the mesorectum from a primary transverse colon cancer is a rare finding, that can be related to the increase in the survival rate of patients with metastatic colorectal cancer. The Radioguided Occult Lesion Localization (ROLL) technique has been widely used to identify the sentinel lymph node and occult lesions in patients with breast cancer. However, few studies have reported the use of this technique for non-breast cancers.

**Methods:** We present a case of a 58-year-old man diagnosed in 2018 with a transverse colon adenocarcinoma with synchronous hepatic metastasis that was submitted initially to right colectomy and left lateral sectionectomy (pT4aN2M1). Four years later, a follow-up CT scan showed a suspicious nodule in the vicinity of the right internal iliac vessels, with intense uptake in the 18F-FDG PET/CT scan. One month later, the patient was submitted to a right iliac lymphadenectomy for which histopathology revealed no metastatic involvement. Five months later, a reassessment with an 18F-FDG PET/CT scan was performed, showing a persistent hypermetabolic lesion in the same location. Due to the inability to identify the lesion in the previous surgery, it was then decided by a multidisciplinary team to reoperate the patient performing a Radioguided Occult Lesion Localization (ROLL) technique. Two hours before the surgery, the lesion was CT-guided labelled with Technecium-99 m Albumine Macroagregates.

**Results:** After a median laparotomy, the surgeons were able to identify the metastatic lesion using a gamma probe, which was in the mesorectum, in the proximity of the iliac vessels. An anterior rectal resection was performed. The postoperative course was prolonged because of fever (no focus identified), with a hospital stay of 11 days. Final pathology confirmed a metastatic tumor deposit in the recto-sigmoid subserosa of the previously diagnosed transverse colon adenocarcinoma.

**Conclusion:** The ROLL technique can be useful in selected cases where suspect lesions may be difficult to identify intraoperatively. This case report demonstrates the importance of a multidisciplinary teamwork between General Surgery, Interventional Radiology and Nuclear Medicine to provide the most effective treatment for the patients.

## #58/2023

### Fascial-oriented versus vascular-oriented surgical approaches in rectal cancer: a comparative analysis of lateral lymph node dissection efficacy

Fuqiang Zhao<sup>1</sup>, Liling Huang<sup>2</sup>, Zhijie Wang<sup>3</sup>, Wei Zhao<sup>3</sup>, Fangze Wei<sup>4</sup>, Fei Huang<sup>3</sup>, Tixian Xiao<sup>3</sup>, Qian Liu<sup>3</sup>

<sup>1</sup>Department of Colorectal Surgery, National Cancer Center/National Clinical Research Center for Cancer/Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China; <sup>2</sup>Department of Medical Oncology, National Cancer Center/National Clinical Research Center for Cancer/Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing Key Laboratory of Clinical Study on Anticancer Molecular Target, Baltimore, United States; <sup>3</sup>Department of Colorectal Surgery, National Cancer Center/National Clinical Research Center for Cancer/Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College (I); <sup>4</sup>Department of Clinical Laboratory, National Cancer Center/National Clinical Research Center of Cancer/Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College (I)

**Background/Aim:** To compare the impact of different anatomical approaches (fascial-oriented vs. vascular-oriented) in rectal cancer LLND surgery on postoperative function and efficacy, including short- and long-term outcomes.

**Methods:** A retrospective cohort study gathered clinical data from rectal cancer patients who underwent TME + LLND at a cancer hospital from January 2016 to December 2021. Inclusion criteria: confirmed rectal cancer diagnosis, preoperative MRI indicating resectable advanced rectal cancer with suspected lateral lymph node metastasis, pre-treatment MRI showing lateral lymph nodes  $\geq 5$  mm. All patients had simultaneous TME + LLND surgery. Exclusion criteria: prior pelvic surgery, urogenital diseases, preoperative sexual dysfunction, LLND for recurrent lateral nodes, distant metastasis, and incomplete clinical data. Among 63 patients, 25 were in the fascial-oriented group. Primary outcomes included postoperative function (urinary and male sexual dysfunction rates), short- and long-term efficacy, lateral lymph node numbers, and positivity rate. OS and PFS were assessed via Kaplan-Meier, with differences analyzed using the log-rank test

**Results:** Both patient groups completed surgery successfully with no significant differences in surgical factors or postoperative outcomes ( $P > 0.05$ ). In the entire cohort, postoperative urinary dysfunction affected 41.3% (26/63) of patients, while 64.7% (22/34) of male patients experienced sexual dysfunction. The median retrieved lateral lymph nodes were 7.0 (4.0, 10.0), with a 20.3% (13/63) positivity rate. Comparing fascial-oriented to vascular-oriented groups, the former had lower rates of postoperative urinary dysfunction [16.0% (4/25) vs. 65.8% (25/38),  $\chi^2 = 6.166$ ,  $P = 0.013$ ], male sexual dysfunction [15.3% (2/13) vs. 76.2% (16/21),  $\chi^2 = 4.219$ ,  $P = 0.040$ ], and retrieved more lymph nodes (median: 8.5 vs. 5.0). Lymph node positivity did not significantly differ between the groups [20.0% (5/25) vs. 21.1% (8/38),  $\chi^2 = 0.007$ ,  $P = 0.935$ ]. Over a median 33-month follow-up, 3-year progression-free survival (PFS) and overall survival (OS) were 68.5% and 86.3%, respectively. The log-rank test showed no significant differences in 3-year PFS (77.6% vs. 63.1%,  $P = 0.177$ )

and 3-year OS (91.4% vs. 86.2%,  $P=0.341$ ) between the fascial-oriented and vascular-oriented groups ( $P>0.05$ ).

**Conclusion:** Fascial-oriented LLND in rectal cancer reduces postoperative urinary and male sexual dysfunction and enhances lymph node retrieval without significant improvement in long-term survival.

## #59/2023

### Quality assessment of outcomes in emergency laparotomy and compliance with NELA recommendations

Chin Kiat Tan, Shou Kee Ng, Mayurakshya Roy, Arijit Mukherjee

NHS Lanarkshire, Glasgow, United Kingdom

**Background/Aim:** The National Emergency Laparotomy Audit (NELA) score in UK was introduced to identify high-risk patients listed for an emergency laparotomy (EL) to allow for preoperative care planning. Clinical outcomes and perioperative care process variations have been highlighted as part of an ongoing national quality improvement programme initiative. NELA recommendations aim at achieving excellence in clinical outcome.

The aim was to evaluate the impact and outcome of surgical management in EL and if NELA recommendations have been followed.

**Methods:** A retrospective study of patients who underwent EL in 2021 was carried out. Retrospective analysis of NELA scores of the cohort was undertaken and the primary end point was 48-hour and 30-day mortality. Further analysis was undertaken to ascertain the influence of demographics, comorbidities, clinical diagnosis, time to surgery, intraoperative findings, operating time and consultant input on surgical outcome.

**Results:** 100 patients were included in this study and documented NELA scores noted in 22%. Retrospective calculation of undocumented NELA scores showed a median mortality and morbidity risk of 3.5% and 72.3% respectively. The median age was 67, median BMI was 26. Pre-operative CT imaging conducted in 97%. Median time to theatre was 3 hours. The common intraoperative findings were mechanical obstruction (51%), perforation (28%) and ischaemia (18%). Malignancy noted in 27%. All operations had consultant anaesthetist and surgeon present. Overall mortality rate was 16%; 48-hour mortality rate 5% and 30-day mortality rate 11%.

**Conclusion:** EL remain associated with high mortality risk especially in the multi-morbid patient. The mortality rate observed in this cohort is in keeping with the observed range of 9–15% in established healthcare systems. Half of the deceased patients had a predicted mortality rate of more than 10% which emphasises the need for routine NELA scoring and this will be re-audited. Consultant participation, preoperative CT and access to operating theatre were in keeping with NELA recommendations. However, preoperative NELA scoring was noted in only a fifth of the cohort. Although this had not adversely affected the overall surgical outcome, the role of pre op NELA scoring cannot be overemphasised. It is a valuable adjunct to clinical assessment in surgical decision making and informed consenting. It is imperative that we be mindful that the decision to operate should not be solely based on NELA scores but the clinical picture of the patient.

## #60/2023

### Sphincter-preserving resection in low rectal cancer—does tumor location affects outcome?

Che Lok Felix CHOW<sup>1</sup>, Carol Pui-Yang Chien<sup>1</sup>, Pak Chiu Wong<sup>1</sup>, Dominic Chi-Chung Foo<sup>2</sup>

<sup>1</sup>Queen Mary Hospital, Hong Kong SAR, Hong Kong, China;

<sup>2</sup>The University of Hong Kong, Hong Kong, China

**Background/Aim:** Surgical management of low-lying rectal cancer is challenging, particularly in the context of sphincter preservation. We aim to analyse whether these tumour's anatomical relationship with the sphincter complex affects their oncological outcome.

**Methods:** This is a single-centre retrospective review on consecutive patients who underwent sphincter-preserving operation for low rectal cancer, within 5 cm from the anal verge and 2 cm from the anorectal junction, between 2012 and 2021. Pre-operative MRI films were reviewed by a specialised radiologist and a colorectal surgeon to define tumours' local staging and anatomical characteristics using Rullier's classification. Correlation and survival analyses were performed using the Chi-square and Kaplan-Meier tests.

**Results:** Ninety-five patients, 71.6% being male with a median age of 64 years (range 33 to 90), were enrolled. According to the Rullier classification, 33 tumours were supra-anal (type I), 42 were juxta-anal (type II), 15 were intra-anal (type III) and 5 were transanal (type IV). MRI classified 33.7%, 48.4%, 10.5% and 7.4% tumors as T1/2, T3ab, T3cd and T4 respectively, while 49.5% had regional nodal involvement.

Sixty-two (65.3%) patients received neoadjuvant chemoradiation. 50 had inter-sphincteric resection, while 31 had top-to-bottom low anterior resection and 14 had transanal TME. A distal margin greater than 5 mm was achieved in all operation. Microscopically, a >5 mm distal margin and a clear radial margin were attained in 85.2% and 93.7% cases.

After a median follow-up of 70 months (range 7–135), local and distal recurrences occurred in 13 (13.7%) and 19 (20%) cases. The 5-year overall survival for stage I, II and III diseases were 81.5%, 85.0% and 77.0%, while 5-year disease-free survival were 70.6%, 60.0% and 60.4% respectively.

Rullier staging was a significant predictor for local recurrence (type I 3.0%, type II 9.5%, type III/IV 40.0%) but not distant recurrence. Other predictors for local recurrence include pathological positive lymph node status, lymphovascular permeation and anastomotic leak. The 5-year overall and disease-free survivals were similar across the four Rullier types.

**Conclusion:** Sphincter-preserving resection is feasible for ultra-low rectal cancers (Rullier type III and IV), provided negative margins can be attained. This was, however, associated with a higher local recurrence rate; the overall and disease-free survivals were similar to other low rectal cancers.

## #61/2023

## Is measuring CRP levels post colorectal surgery a useful indicator of an anastomotic leak?

Samuel Bloomer, Colin Lukasik, Mohammed Edilbe

NHS, Brampton, United Kingdom

**Background/Aim:** Nationwide anastomotic leak rates post colorectal surgery are reported to be between 2.6% and 19% which is highly dependent on the site of surgery and population demographics. The mortality rate following an anastomotic leak can vary between 10% and 20% which makes it paramount to identify a leak early to provide sufficient timely management. A method to monitor for leaks is to measure the CRP levels regularly. A significantly raised CRP can indicate the possibility of a leak post-surgery and can warrant further investigations. The study aimed to determine the rates of anastomotic leaks post colorectal surgery; whether measuring CRP levels at day 1, 3 and 5 aided in identification of anastomotic leaks; and CRP measurement compliance at day 1, 3 and 5.

**Methods:** Local policy advises that if CRP measurements are >100 mg/L at day 3 then a CT of the abdomen and pelvis should be requested to investigate for a leak. The study included all patients in Cumberland Infirmary hospital (NCIC) that underwent bowel surgery with an anastomosis over a 12-month period. The study was prospective with 117 cases used (60 male, 57 female) with 124 of the cases being elective and 3 emergencies. The data was collected using post-operative notes and digital information systems ICE and clinical portal. The data was analysed using Excel. Anastomotic leaks were categorised as being radiological or clinical leaks.

**Results:** There was a total of 10 leaks out of 117 cases, with 1.71% radiological and 6.84% clinical leaks. For 75% of clinical anastomotic leaks the CRP at day 3 was >100 mg/L (mean = 227). CRP compliance at day 1, 3 and 5 was 90%, 77% and 48% respectively.

**Conclusion:** This study demonstrated the leak rate at NCIC was within the national leak rate. There was acceptable adherence of CRP measurements at day 1 and 3, with poor adherence at day 5. The CRP measurement >100 mg/L at day 3 demonstrated to be a useful indicator of an anastomotic leak.

## #62/2023

## Transanal transection and single-stapled anastomosis: TTSS, initial experience

María Orellana León, Alfredo Vivas, Oscar García Villar, Rafael Restrepo, Jose Perea García, Francisco Javier García Borda, Lucia Lavin Montoro, Blanca Otero Torrón, Kléber Falcón Bonilla, Silvia Fernández Noel, Pablo Vázquez Beltrán, Eduardo F

Hospital 12 de Octubre, Boadilla del monte, Spain

**Background/Aim:** Transanal Transection and Single-Stapled Anastomosis (TTSS) surgery for rectal cancer combines the advantages of total mesorectal excision by abdominal approach with the benefits of the transanal approach, ensuring adequate control of the distal section of the rectum (TT) and anastomosis with a single staple load (SS). with a shorter learning curve compare with other techniques like TaTME, making it reproducible among colorectal surgeons. For all these reasons, it has

been introduced as a recent technique in our center to assess its feasibility.

**Methods:** The first 21 low and ultra-low anterior resections using the TTSS technique were performed between December 2022 and September 2023 in two hospitals of Madrid. These patients had rectal neoplasms located between 9 and 3 cm from the anal margin.

**Results:** A total of 21 patients, 12 males and 9 females, underwent laparoscopic surgery with the TTSS technique. The average surgery time was 206 minutes (170–320). All cases involved a protective ileostomy. The average postoperative stay was 6.2 days (4–21). Two cases of partial anastomotic leak were observed in the series, which were managed with a transanal approach and had favorable postoperative outcomes. There were no mortalities in the series. Pathological examination results were available for all patients, showing complete mesorectal excision and clear margins in all cases, with a distance between the tumor's lower margin and the midsection of 15 mm (12–25).

**Conclusion:** Despite the early stage of the series and the learning curve, the initial results of the TTSS technique suggest that it is safe for patients, with possible advantages in surgical time, oncological outcomes, and the rate of complications.

## #63/2023

## When is distal sigmoid cancer actually rectal cancer? A retrospective analysis of distal colorectal cancer presentation

Aiswarya Sukumar, Jamie Patel, Viswa Rajalingam, Peter Waterland

Russell Hall Hospital, Dudley, Taunton, United Kingdom

**Background/Aim:** Accurate staging of distal colorectal cancer is important as there are key differences in management between distal colon and rectal cancer such as the use of neo-adjuvant therapy and need for a potential stoma. Early sigmoid lesions may not be visible on computed tomography with tumour location solely deduced during endoscopy with potential for error.

This study aims to assess the accuracy of distal sigmoid tumour localisation.

**Methods:** An electronic database of distal colorectal cancer from January 2014 to January 2023 was created. Demographics, staging investigations, endoscopy reports and operative findings were recorded.

Outcomes were assessed to determine disparity between initial endoscopic and final staging of tumour location.

**Results:** A total of 212 patients were localised to distal sigmoid cancer via endoscopy.

Regarding CT staging: 25.1% (52/207) were non-visible tumours, 74.9% (155/207) were visible of which: 38.2% (79/207) were sigmoid, 17.4% (36/207) rectosigmoid, and 19.3% (40/207) rectal.

Pre-operative MRI was performed in 42.5% (90/212) patients and showed 84 tumours: 6.0% (5/84) sigmoid, 9.5% (8/84) rectosigmoid and 83.3% (70/84) rectal cancers (upper 34, mid 26, lower 10), 1 anal cancer.

42.3% (22/52) of patients with non-visible lesions had MRI of which 68.2% (15/22) had rectal cancer (upper 10, mid 4, low 1). Of the remaining 30 patients who did not undergo MRI imaging, 46.7% (14/30) had sigmoid cancer, 16.7% (5) rectosigmoid cancers and 33.3% (10) rectal at operation.



Overall 30: 7% (65/212) of patients presenting with distal sigmoid cancer location by endoscopy actually presented with rectal cancer (rectosigmoid lesions excluded).

**Conclusion:** Endoscopic location of distal colorectal tumours is unpredictable and cannot be relied upon for accurate staging. A pre-operative MRI should be considered for all patients, especially those with lesions not visible on CT imaging to improve staging accuracy.

## #64/2023

### Two years experience with robotic rectal resection for cancer at the University Hospital in Pilsen

Robert Polak, Ondrej Vycital, Jan Gaiger, Petr Novák, Vaclav Liska, Jachym Rosendorf, Jiri Molacek

Faculty of Medicine in Pilsen, Charles University, Czech Republic, Pilsen, Czech Republic

**Background/Aim:** Low anterior robotic rectal resection is already a globally established technique, verified in multicenter studies as a safe method. The objective of this publication is to share our initial experience with robotic rectal cancer surgery and to compare our results with published data to date.

**Methods:** This is a retrospective study, 82 patients after robotic rectal resection operated at the Department of Surgery of the University Hospital in Pilsen were included. Basic clinical data were evaluated to determine rate of postoperative complications, morbidity, mortality and hospital stay length.

**RESULTS:** A group of 30 women and 52 men operated on by three surgeons, the average age was 64.1 years  $\pm$  11.01 (range 36 to 85 years). 23.2% underwent neoadjuvant concomitant therapy. The average operating time was 205 min  $\pm$  72 (range 84 to 487 min). No conversion needed. R1 resection in 1.2%. Protective ileostomy established in 12.2% of patients, 30-day postoperative mortality 1.2%. Postoperative morbidity—Clavien—Dindo score  $>$  2, 12.2%. Anastomotic leak type C in 10.8%. The average length of hospitalization was 11.2 days  $\pm$  5 days, (median 9 days, range 7 to 35 days).

**Conclusion:** We were able to embrace this new technique, which is already established by many. Our results are comparable to the literature in terms of complications and hospital stay. We value as positive the fact that no conversion was needed during the whole period, which is something unusual for the previously preferred laparoscopically assisted technique. As a low volume center we present here with rather longer learning curve and therefore we anticipate our complication rates to get gradually better over time.

## #65/2023

### Choice of surgical modality in right hemicolectomy and impact on the frequency of anastomotic leaks

Tanja Sandra Blaufjell Holwech, Lars Thomas Seeberg

Sykehuset i Vestfold, Tonsberg

**Background/Aim:** The last decade has seen a shift in choice of surgical modality for right hemicolectomy from being majorly open to laparoscopic, with gradual addition of the robotic platform. The aim of this study was to determine whether this shift has had an impact on the frequency of anastomotic leaks.

**Methods:** A retrospective single-center analysis of all patients undergoing right hemicolectomy with a primary anastomosis in the years 2011–2022 was performed.

**Results:** 872 patients (388 male and 484 female) met the inclusion criteria. Open surgery was performed in 369 (42.3%) patients, laparoscopic in 466 (43.4%) and robotic in 37 (4.2%). In 2022, open surgery was performed in 20.7%, laparoscopic in 68.7% and robotic in 11.5%, compared to 2011 with 82.3% open and 17.7% laparoscopic. There was no significant difference in the frequency of anastomotic leaks between open (7.3%), laparoscopic (4.9%) and robotic (0%). There was no significant difference in anastomotic leak between 296 hand sewn (4.7%) and 576 machine sewn (6.2%) anastomoses, nor between 537 extracorporeal (5.8%) and 335 intracorporeal (5.7%) anastomoses. There was a significant difference ( $p < 0.001$ ) between the length of stay for the open (8 days mean) compared to the laparoscopic and robotic group (both 4 days mean), and a significant higher number ( $p < 0.001$ ) of emergency surgeries in the open (14.4%) group than the laparoscopic (3.7%) and robotic (0%).

**Conclusion:** No significant difference in frequency of anastomotic leaks was found between the surgical modalities. Interestingly, there was a statistically insignificant propensity in the later years towards a higher frequency of anastomotic leaks in the open group. As a majority of patients now is operated laparoscopic or robotic in our center, open right hemicolectomy today is primarily done in emergency settings on morbid patients or in anatomically difficult cases. This warrants an extra preoperative consideration on whether patients requiring an open right hemicolectomy should receive a primary anastomosis with the risk of an anastomotic leak in mind.

## #66/2023

### Colonic diverticulosis survey, a safe treatment alternative

Marco Antonio Crespo Alvarez<sup>1</sup>, Lucía Lavín Montoro<sup>1</sup>, Alfredo Alejandro Vivas Lopez<sup>1</sup>, María Orellana León<sup>1</sup>, Alberto García Picazo<sup>2</sup>, Blanca Otero Torrón<sup>1</sup>, Pablo Vázquez Beltrán<sup>1</sup>, Viviana Vega Novillo<sup>1</sup>, Mercedes Bernaldo de Quiros Fernández<sup>1</sup>, Sofía Lorenzo M

<sup>1</sup>Hospital 12 Octubre, Madrid, Spain;

<sup>2</sup>Centro Medico Teknon, Barcelona, Spain

**Background/Aim:** Colonic diverticulosis is showing an increasing global prevalence. Surgical intervention today has

taken a back seat, with the need for individualized consideration based on the patient's personal risk factors, risk of recurrence, symptoms, and the morbidity and mortality associated with surgery. Our aim is to demonstrate that the surgical approach is a safe, long-term effective option with low rates of complications and morbidity.

**Methods:** We used a retrospective descriptive study of patients with diverticulosis who underwent scheduled sigmoidectomy over a 2-year period (10/2020–10/2022). We compared demographic variables, co-morbidities, operative time, approach type (open or laparoscopic), incidence of anastomotic leak (AL), surgical site infection (SSI), length of hospital stay, and the need for readmission. We also assessed the number of prior episodes of diverticulitis or diverticular bleeding, their severity (according to Hinchey's classification), if there were subsequent incidents of stenosis or fistulas, and the time from the first episode to the indication for surgery. A 6-month post-operative follow-up was conducted.

**Results:** Out of 88 sigmoidectomies performed, 13 were the focus of our study due to diverticulosis. They had an average age of 50 years; 6 were smokers, and none had a history of alcohol consumption. The most common concomitant pathology was hypertension, followed by diabetes mellitus. Eleven patients (84.6%) had a pre-operative ASA score  $\leq$  II. 38% had experienced only one prior episode of diverticulitis, 24% had two, and the remaining 38% had three or more. 46% required only one hospitalization before the intervention, with predominant involvement being Hinchey Ib. Only one patient had pre-operative evidence of colonic fistula/stenosis, and another experienced episodes of diverticular bleeding. 69% of surgeries were performed within 2 years of the first episode. 100% were done laparoscopically, with an average operative time of 220 minutes. Only one patient had a clinically insignificant AL which was successfully managed with conservative treatment. No patients had SSI. The average hospital stay was 7 days, and no patients required re-admission.

**Conclusion:** Surgery in patients with diverticular disease is safe. The morbidity and mortality associated with the procedure are low, allowing for the prevention of recurrences and improvement in the long-term quality of life for the patient.

## #67/2023

### Laparoscopic right colectomy with complete mesocolic excision—single-center experience in establishing a challenging technique

Markus Mann<sup>1</sup>, Michael Pauthner<sup>2</sup>

<sup>1</sup>Kelkheim, Germany;

<sup>2</sup>SANA Klinikum Offenbach, Offenbach, Germany

**Background/Aim:** Right-sided colectomy with complete mesocolic excision (CME) is widely used and often represents the standard of surgical therapy for right-sided colon carcinoma. In Germany, this technique is still mainly performed using open surgery. We present the results and experiences after the introduction of laparoscopic right colectomy with CME in our institution.

**Methods:** Starting in 2019, right-sided colon carcinomas were increasingly operated on laparoscopically at our institution. All patients received laparoscopic CME in a standardized "bottom-up" approach. All procedures were performed by 3 surgeons experienced in the open CME technique. Data were retrospectively collected and analyzed from 2019 to 2023. Perioperative morbidity and mortality, conversion rate, lymph node

yield(LK), use of anastomotic technique, and intraoperative blood perfusion monitoring with indocyanine green (ICG) were the variables assessed.

**Results:** A total of 53 patients underwent laparoscopic right colectomy with CME during the evaluation period. The average operating time was 167 min(range100–352) and the conversion rate was 9.4%. Revision surgery was required in 13.2%, the anastomotic leakage rate was 3.8%. The average hospital length of stay was 10.4d(range 4–36). On average, 27 LKs (range 11–66) were dissected. During the observation period the length of hospital stay and the dissected LK did not change significantly. R0 resection was achieved in 100% of patients. Perfusion control with ICG was performed in 79.2% with significant increase during the observation period ( $p=0.005$ ). Using ICG, no anastomotic leakage due to ischaemia was found in our collective. Intracorporeal anastomosis technique was used within 30.2% with significant increase during the observation period ( $p=0.005$ ). Neither technique resulted in a significant change in the operating time.

**Conclusion:** Laparoscopic right colectomy with CME can be used safely and with good oncologic quality. With increasing experience, challenging techniques such as intracorporeal anastomosis can be established safely.

## #68/2023

### Perforation of jejunal diverticulum secondary to foreign body

Alberto García Picazo<sup>1</sup>, Lucía Lavín Montoro<sup>2</sup>, Nuria Lara Martín<sup>2</sup>, Marco Antonio Crespo Alvarez<sup>2</sup>, María Orellana León<sup>2</sup>, Felipe Chacón Lázaro<sup>2</sup>, Silvia Fernández Noel<sup>2</sup>, Francisco Javier Pardo Díaz<sup>2</sup>, Viviana Vega Novillo<sup>2</sup>, Blanca Otero Torrón<sup>2</sup>, Kleber Falcon

<sup>1</sup>Centro Medico Teknon, Barcelona, Spain;

<sup>2</sup>Hospital 12 Octubre, Madrid, Spain

**Background/Aim:** Jejunal diverticula have a low prevalence (0.05–5%) and are more common in the sixth and seventh decades of life. While they are most frequently found in the duodenum, they tend to have more complications in the jejunum and ileum. Diagnosis is often incidental due to nonspecific symptoms or the presence of complications (10–30%), mainly lower gastrointestinal bleeding or perforation. The aim of this study is to describe the diagnostic and therapeutic management of a jejunal diverticulum with associated perforation caused by a foreign body.

**Methods:** An 87-year-old male with a history of hypertension, dyslipidemia, ischemic heart disease, hypothyroidism, and open cholecystectomy approximately 40 years ago for acute cholecystitis presented to the Emergency Department with a 12-hour history of epigastric abdominal pain, vomiting, general deterioration in health, and a feeling of warmth. Physical examination revealed generalized peritoneal irritation. Blood tests showed an increase in acute-phase reactants without anemia. An urgent abdominopelvic CT scan was performed, which revealed signs of jejunal perforation in two locations with an undetermined cause, possibly due to complicated diverticular disease.

**Results:** Given the radiological findings and clinical presentation, emergency surgery via laparotomy was decided upon. Abundant purulent free fluid was observed along with generalized peritonitis and multiple jejunal diverticula, two of which

were perforated, and a foreign body in the intestinal lumen causing retrograde dilation of proximal loops with associated intestinal ischemia. An intestinal resection of the jejunum was performed 15 cm from the Treitz angle, followed by an anastomosis. The pathological report described a segment of the small intestine with acute diverticulitis and signs of acute perforation without malignancy, along with a lithiasic foreign body. The postoperative period proceeded without complications.

**Conclusion:** Jejunal diverticulosis is a rare cause of abdominal pain. It should be suspected in patients in their sixth decade of life who experience frequent abdominal pain, especially in the left lower abdomen. In case of complications, the treatment of choice is usually surgical resection of the diverticulum or involved segment with primary anastomosis.

## #69/2023

### SAPESUCA: A novel tool for quantifying cytoreduction in patients with peritoneal metastasized colorectal cancer

Tarkan Jäger<sup>1</sup>, Philipp Schredl<sup>1</sup>, Daniel Neureiter<sup>1</sup>, Jaroslav Presl<sup>1</sup>, Stefan Regenbogen<sup>2</sup>, Klaus Emmanuel<sup>1</sup>, Jan Philipp Ramspott<sup>3</sup>

<sup>1</sup>University Hospital Salzburg, Salzburg, Austria;

<sup>2</sup>BG Traumacenter Murnau, Murnau, Germany;

<sup>3</sup>University Hospital Muenster, Muenster, Germany

**Background/Aim:** Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) revealed promising results in peritoneal metastasized colorectal cancer patients. Surgeons are confronted with a high inter- and intra-individual cytoreduction variability due to individual tumor spread. So far, a standardized quantification of the CRS extent in peritoneal metastasized colorectal cancer patients was not possible. Here, we present the first tool enabling this standardized quantification: The Salzburg Peritoneal Surface Calculator (SAPESUCA).

**Methods:** Twenty-three peritoneal metastasized colon cancer patients who underwent 27 cytoreductive procedures and closed oxaliplatin-based HIPECs between 2016 and 2020 in a tertiary peritoneal cancer care center were included in the study. Individual cytoreductive surgery extent was assessed by SAPESUCA. SAPESUCA was programmed using R-Shiny framework. The programming-algorithm incorporates patient's body surface area and its correlated peritoneal surface area (PSA) based on the 13 Peritoneal Cancer Index (PCI) regions. Url: <https://taja.shinyapps.io/sapesuca-app/>

**Results:** Patients' median age was 56 years. Median PCI was 9. In 26 patients (96%) optimal CRS with Completeness of Cytoreduction (CC) 0 was achieved. Before CRS, SAPESUCA revealed a mean PSA of  $18,613 \text{ cm}^2 \pm 1,951$  of all peritoneal metastasized colon cancer patients compared to  $13,681 \text{ cm}^2 \pm 2,866$  after CRS. The Central PCI region revealed highest mean peritonectomy extent ( $1,517 \text{ cm}^2 \pm 737$ ) whereas Upper Jejunum had lowest peritonectomy extent ( $13 \text{ cm}^2 \pm 32$ ). The PCI score correlated significantly with peritonectomy extent ( $R=0.63$ ,  $p=0.00047$ ). Furthermore, cytoreductive surgery extent correlated with postoperative morbidity ( $R=0.43$ ,  $p=0.02358$ ).

**Conclusion:** SAPESUCA is the first free web-based application to determine cytoreductive surgery extent in a standardized fashion. Therefore, SAPESUCA could improve the lacking inter- and intra-individual and inter-institutional comparability of cytoreductive surgery extent in colorectal cancer patients with peritoneal metastases.

## #70/2023

### Appendiceal polyps: diagnostic and therapeutic management of an atypical pathology

Lucía Lavín Montoro, Alberto García Picazo, Viviana Vega Novillo, María Orellana Leon, Pablo Vazquez Beltran, Sofia Lorenzo Mañas, Silvia Fernandez Noel, Ines Marcos Cortes, Paola Fernandez Revuelta, Francisco Javier García Borda, Eduardo Ferre

Hospital 12 Octubre, Madrid, Spain

**Background/Aim:** Appendiceal polyps are infrequent. Occasionally, they can be neoplastic, especially those that are serrated or exhibit high-grade dysplasia. Therefore, the discovery of an appendiceal polyp is an indication for resection, preferably endoscopically if complete resection is achievable. However, technical difficulties or the morphology of the lesion may necessitate surgical resection, typically via an appendectomy with cecal base resection.

**Methods:** Case 1: A 61-year-old male with no significant medical history, under surveillance for multiple colonic polyps, including an unresectable appendiceal polyp of 10 mm in size in 2018. Previously, two appendiceal polyps measuring 4 and 6 mm had been resected with diathermy loop in a colonoscopy in 2017.

Case 2: A 50-year-old female with no relevant medical history, having an appendiceal polyp that could not be removed endoscopically. The diagnosis of this polyp was made during an evaluation for diarrhea caused by norovirus. The lesion measured 12 mm and occupied the entire appendiceal orifice.

**Results:** Case 1: Since endoscopic resection of the appendiceal polyp was not feasible, and considering the histology of previously resected appendiceal polyps, which showed tubulovillous adenoma with low-grade dysplasia, a laparoscopic appendectomy with resection of the appendiceal base of implantation was performed. The histological report confirmed high-grade adenoma.

Case 2: The histopathological evaluation of the polyp revealed tubulovillous adenoma with low-grade dysplasia. An open appendectomy with resection of the appendiceal base of implantation was performed. The histopathological analysis showed serrated adenoma with extensive dysplasia.

In both cases, the postoperative recovery proceeded without complications, and no new incidents were observed in the follow-up endoscopies.

**Conclusion:** Appendiceal polyps are mainly incidental findings; however, due to their potential for malignancy, especially in cases with serrated features or high-grade dysplasia, their resection, either endoscopic or surgical, is justified.

#71/2023

### May some trace dietary elements help in the prediction of length of stay among surgically treated colorectal cancer patients?

Aleksander Galas, Malgorzata Augustyniak

Jagiellonian University Medical College, Krakow, Poland

**Background/Aim:** Colorectal cancer (CRC) is amongst the top three cancers worldwide, and surgical treatment remains the optimal treatment option for almost all patients. Although continuous improvements in surgical strategies, patient's status remains among main determinants of short term treatment effects as length of stay (LOS). Selenium is one of trace dietary elements essential for body functioning being a part of selenoproteins, taking part in oxidoreduction, redox signaling and antioxidative defense. The aim was to investigate whether selenium status measured by its content in habitual diet may help in the prediction of LOS among CRC surgical patients.

**Methods:** A cohort study of 671 incident cases of newly diagnosed colorectal cancer treated surgically recruited at the University Hospital in Krakow, Poland. Data on demographics, habitual diet and clinical features including length of stay were collected. Based on dietary data the content of dietary selenium consumed daily was calculated. Next, by the logistic regression modelling it was tested whether selenium may be associated with LOS. For the purpose the "success" had been defined as a case who was discharged within 9 days (literature based as the mode of LOS after CRC surgery) and successfully survived at least 3 months after discharge.

**Results:** After adjustment for some key covariates (age, sex, Duke's grading, dietary components, comorbidities) the content of dietary selenium was associated with the increased odds of success (shorter LOS associated with survival). The increase in the content of dietary selenium by 10ug/d led to the increase success odds by approximately 17% (OR = 1.171; 95%CI: 1.003–1.367;  $p=0.045$ ). Similar results were obtained were the analysis was limited to patients who underwent radical surgery (OR = 1.174; 95%CI: 1.008–1.369;  $p=0.040$ ).

**Conclusion:** The primary results of the study suggest dietary selenium as a dietary marker which may be associated with shorter LOS. More investigations are needed to verify the possible impact of selenium and to create a predictive scoring (project no N41/DBS/001072).

#72/2023

### Indocyanine green fluorescence assisted colorectal surgery—a district General Hospital experience

Gulzar Ahmad

Barnsley District General Hospital, Barnsley, United Kingdom

**Background/Aim:** The aim of this study was to evaluate the usefulness and practicability of routine ICG usage in assessment of perfusion before anastomosis in elective laparoscopic colorectal surgery in a District General Hospital setup.

**Methods:** Prospective data was collected for patients who underwent elective colorectal resection. Surgery was performed

using laparoscopic 3D stack (Einstein Vision® 3.0—B. Braun). ICG- FA was performed before and after anastomosis in both colonic and rectal cases. The primary outcomes assessed were safety and anastomotic leak rate. Other reported outcomes are lymph node yield, length of stay, conversion rate, complications, 30 days readmission and 90 days mortality.

**Results:** A total of 25 patients underwent colorectal surgery, all performed laparoscopically using 3D stack. 12 had anterior resection (48%), 10 right hemicolectomies (40%), 2 sigmoid colectomy (8%) and 1 abdominoperineal resection (4%).

There were no allergic reactions to ICG administration and no anastomotic leaks recorded. However, in 2 patients (8%), the distal part of proximal bowel (both anterior resection for cancer) had poor perfusion as assessed by fluorescence intensity. In these two patients, proximal bowel was resected further by another 6 cm and ICG check was performed before anastomosis. Both these patients had no clinical leak.

The lymph node yield was  $18.36 \pm 5.82$ . 20% of patients had Clavien Dindo 2 post op complications resulting in increase in their length of stay for over 6 days.

There was no reported mortality or 30 days readmission.

**Conclusion:** ICG guided FA colorectal surgery is useful in providing intraoperative bowel perfusion information, that may help to decide the site of resection and anastomosis, thereby possibly decreasing the leak rate. It is found to be safe, easy to use with short learning curve and feasible in small hospitals.

#73/2023

### Management & surveillance for rectal neuroendocrine tumors: a single-centre retrospective analysis and comparison with ENET guidelines

Paige Barnard

Sunshine Coast University Hospital, Sunshine Coast, Australia

**Background/Aim:** Rectal neuroendocrine tumors (rNETs) are rare but are increasing in incidence. Current management and surveillance recommendation are primarily based on low-grade evidence. Follow up practices in our hospital are inconsistent and costly, reflecting the limited understanding. This retrospective study analyses our centre's experience with rectal NETs to assess incidence trends, management practices, outcomes, adherence to and the appropriateness of current ENET surveillance recommendations.

**Methods:** This is a single-centre retrospective study from Queensland, Australia, spanning from 2012 to 2023. Of 36 cases of rNET identified, 30 met inclusion criteria, whilst 6 were omitted due to insufficient data. Examined parameters included incidence, management, outcomes, and adherence to ENET follow-up guidelines. We also specifically assessed the rate of R1 resection at initial endoscopy and the association of this with rNET recognition and endoscopic resection technique. Rate of recurrence was also assessed in the portion of the cohort who underwent surveillance following an R1 resection.

**Results:** Our data showed an increase in the incidence of rNETs during the study period, reflecting a global trend. The rate of R1 resection at initial endoscopy was high at 80%, there was no clear association identified between failure to recognise the lesion as an rNET or endoscopic resection technique ( $p < 0.05$ ). There was however noted to be a general lack of advanced endoscopic techniques utilised and poor recognition. The majority

of patients who underwent an R1 resection had a subsequent resection to render the result R0, however 27% underwent surveillance following R1 resection with no reports of recurrence on follow-up. Surveillance practices in our cohort were inconsistent and did not adhere to the guidelines with 72% of patients being either over or under surveilled.

**Conclusion:** rNETs are increasing in incidence, emphasising the need for standardised management and surveillance. Further education is required with regards to follow up guidelines and endoscopist training for rNET recognition and resection techniques. Further research is required to assess long-term outcomes in R1 cases without subsequent resection.

## #74/2023

### Oxaliplatin-based adjuvant chemotherapy for primary colorectal cancer may reduce post-lung metastasectomy survival

João Pedro Bandovas, Carmo Girão, Catarina Figueiredo, Zenito Cruz, Catarina Moita, Ana Rita Costa, João Santos Silva, João Maciel, João Eurico Reis, Paulo Calvino

Centro Hospitalar Universitário de Lisboa Central, Lisboa, Portugal

**Background/Aim:** Adjuvant therapy can eradicate tumors in a stage of microdissemination which would be incurable after manifestation of overt metastases. But it is also known that many of the adjuvantly treated tumors will relapse. We hypothesized that lung metastases from colorectal cancer (CRC) have a different biology after failure of an oxaliplatin-based adjuvant therapy compared to other regimens.

**Methods:** Retrospective cohort study conducted in a tertiary care center. Included all patients with oligometastatic CRC who underwent lung metastasectomy between 2017 and 2020. Kaplan-Meier survival analysis along with log-rank test were completed.

**Results:** Thirty patients were included. Of them, 73.3% were men with a median age of 64 years. For 36.7% the primary tumor was located in the rectum and 23% had stage IV at diagnosis. 33.3% had a history of liver metastases. Only 6.7% had synchronous lung metastases and the median time for lung relapse after primary treatment was 25.5 months. 63.3% of patients had unilateral lung disease and 46.7% had only one lesion at diagnosis. The median overall survival (OS) after lung metastasectomy was 55 months and it was not influenced by history of liver metastases. OS after lung metastasectomy was worse in patients treated with adjuvant FOLFOX vs. fluoropyrimidine alone (mean: 41 vs. 59 months,  $p=0.033$ ).

**Conclusion:** The reported OS after lung metastasectomy falls within the range described in the literature. Oxaliplatin-based adjuvant chemotherapy for primary CRC is associated with inferior survival after treatment of lung relapse.

## #75/2023

### Proteomic analysis is able to identify potential molecular mechanisms mediating resistance to chemoradiation in rectal cancer

Tobias Zott<sup>1</sup>, Andrea Bileck<sup>2</sup>, Günter Plessl-Walder<sup>2</sup>, Christopher Gerner<sup>2</sup>, Gerd Silberhumer<sup>1</sup>

<sup>1</sup>Department of Surgery, Medical University of Vienna, Vienna, Austria;

<sup>2</sup>University Vienna, Department of Analytical Chemistry, Vienna, Austria

**Background/Aim:** Chemoradiation prior to surgery in locally advanced rectal cancer results in reduced local recurrence rates and increased rates of sphincter preservation. Unfortunately, this neoadjuvant therapy is not effective in all colorectal cancer patients. Prognostic marker molecules regarding the sensitivity to radiation in each individual would be of great interest, because patients not responding to radiation could be protected from side effects of radiation and selected for other treatment options.

**Methods:** Aim of this study was to assess the suitability of formalin fixed paraffin embedded (FFPE) samples for LC-MS based proteomics analysis by evaluating known tumor markers and searching for marker molecules potentially distinguishing responders from non-responders. Therefore, a comprehensive LC-MS based proteomics study was performed on FFPE colorectal ( $n=50$ ) and control ( $n=39$ ) tissue samples of patients having received neoadjuvant chemoradiation before surgery.

**Results:** Out of 50 patients, response to radiation was observed in 27 patients, whereas 23 patients did not show any response to radiation. As a result, a total number of 1680 robustly expressed proteins were identified in FFPE tissues samples. Forty-nine proteins were significantly higher in tumor samples compared to 17 proteins enriched in control samples. Regarding the comparison of responders and non-responders, a total number of 281 significantly regulated proteins were identified. Thereof, 277 proteins were up-regulated in non-responders whereby the carcinoembryonic antigen-related cell adhesion molecules (CEACAM) 1, 5 and 6 showed the best significance scores. Gene Ontology term enrichment analysis revealed cytoplasmic translation as the main enriched biological processes with a  $p$ -value of  $1.2E-19$ . Furthermore, proteins belonging to the minichromosome maintenance protein complex (MCM), i. e. MCM2, MCM3, MCM4, MCM6 and MCM7 were found to be significantly higher in non-responders compared to responders. MCM3 has been already describe to promote radio-resistance in hepatocellular carcinoma by activating the NF- $\kappa$ B pathway.

**Conclusion:** This study clearly demonstrates the suitability of FFPE samples for proteomic analysis in order to investigate molecular mechanisms mediating resistance to radiotherapy. Significant differences were analysed between tumor and control samples as well as responders and non-responders to neoadjuvant treatment.