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ABSTRACTS

PLENARY SESSIONS

PL 01–04 What is the Omega-Loop Gastric Bypass and Why is it Criticized?

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The omega-loop gastric bypass (OLGBP), also called "mini-gastric bypass" or "single-anastomosis" gastric bypass is a form of gastric bypass where a long, narrow gastric pouch is created and anastomosed to the jejunum about 200–250 cm from the angle of Treitz in an omega loop fashion, thereby avoiding a jejuno-jejunostomy.
Proponents of the OLGBP claim that it is a safer and simpler operation than the traditional Roux-en-Y gastric bypass (RYGBP), easier to teach, that gives the same results in terms of weight loss than the RYGBP. One randomized study comparing the two techniques showed similar results after five years.
The OLGBP is criticized because it creates an anastomosis between the gastric pouch and the jejunum where a large amount of biliopancreatic juices travel, thereby creating a situation where reflux of the latter into the stomach and distal esophagus is likely to develop. Such a situation has clearly been associated, in several animal studies, with an increased incidence of gastric cancer, especially at or close to the gastro-jejunostomy, and with an increased risk of lower esophageal cancer. In clinical practice, omega-loop gastrojejunostomies such as those used for reconstruction after gastric resection for benign disease or distal gastric cancer have been associated with the so called classical anastomotic cancer, linked to biliary reflux into the stomach, despite the fact that epidemiological studies about this do not show uniform results. Although no evidence at the present time links OLGBP to an increased risk of gastric cancer in the human, this possibility raises a concern among many bariatric surgeons, especially in the view that bariatric surgery is performed in relatively young patients with a long life expectancy, hence prone to develop cancer if indeed the risk is increased. Another arguments used against the OLGBP is that the jejuno-jejunostomy in the traditional RYGBP is easy to perform and associated with virtually no complication.
Supporters of the OLGBP claim that the liquid that refluxes into the stomach after their procedure is not pure bile and pancreatic juice, but a combination of those with jejunal secretions, and that the latter is not as harmful. We would urge the proponents of the OLGBP to undertake the necessary animal studies to show that their assumption is indeed true before the procedure is performed widely, possibly leading to the development of hundreds of late gastric or esophageal carcinoma in the bariatric population. In the meantime, we strongly believe that RYGBP should remain the gold standard in gastric bypass surgery for morbid obesity.

PL 01–05 Antireflux Mechanism in One Anastomosis Gastric Bypass: Make it the Difference?

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Although Gastric Bypass of only One Anastomosis in contrast with the conventional Roux-en-Y of two anastomosis is easier to perform, time and costs sparing, have less complications and better weight loss and weight loss maintenance, the concern on the possibility of biliary reflux and its consequences avoid the widespread use of it.
This concern come from the indirect evidence accumulated using subtotal gastrectomy and Billroth II reconstruction.
But the present Gastric Bypass of only one anastomosis differ essentially from the old Billroth II procedure. First the gastric pouch is a continuation of the oesophagus, vertical, parallel to the shorter curvature, narrow and long. That means collapse due to the positive intra-abdominal pressure because of its reduced diameter (soft abdominal tube theory), a fact totally opposite to what happen with the Billroth II gastric pouch, bigger and horizontal, many fold greater diameter that avoid the collapse and "aspired" the biliopancreatic secretion inside. Second the biliopancreatic secretion distributed in a longer intestinal loop of between 100 and 300 cm distal to Treitz ligament and not approximately 50 cm as in Billroth II anastomosis. Third we put together the gastric pouch and the intestinal loop in more than 10 cm covering more than a half of stapler line with a continious suture, establishing a first layer of the anti-reflux mechanism. Fourth we bring up the 30 mm stapler before firing between gastric pouch and intestine trying to construct a barrier between both cavities. And fifth, we fixed the afferent loop to the gastric stomach remnant and the efferent loop to the gastric antrum, constructing a long tube parallel to the gastric pouch that make easier for the biliopancreatic secretion to go down that entry laterally in the gastric cavity.
Finally ten years evolution of several hundred of patients confirm that the described gastro-intestinal system function.

PL 01–06 Endoscopic Findings after Laparoscopic Omega Gastric Bypass

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Laparoscopic "Omega" Gastric Bypass (LOGB), also known as MiniGastric Bypass , has proved to be as effective as Roux-en-Y Gastric Bypass (RYGB), but has the advantages of a unique anastomosis and lower morbidity. The main critic against LOGB is that the bile could induce carcinogenic lesions around the anastomosis. Our objective is to evaluate endoscopically the LOGB at mid and long-term.
Patients and methods: Between October 2006 and December 2010, 451 patients (354 women) underwent LOGB. Mean age was 41.62 (±10.9), mean preoperative weight was 132.7 kg (±25) and mean BMI was 47.4 kg/m2 (± 7.43). 149 had a preoperative gastritis with HP that were eradicated. Patients were followed up at one (N=291), 2 (N=193) and 3 years (N=75). A gastroscopy was performed at two (N=76) and 4 years (N=43) with biopsies on 4 sites : oesophagus,gastric pouch, gastrojejunal anastomosis and jejunum.
Results: Early morbidity was 3.4 % (N=14).
8 patients were treated surgically: 3 intestinal obstructions,2 perigastric abscesses,2 anastomotic leaks and 1 intraabdominal hemorrhage. 2 anastomotic bleedings were treated endoscopically, 2 pulmonray embolisms, 1 purulent drainage and 1 rhabdomyolisis. Late morbidity was 2.2% (N=10). 1 patient presented with perforated excluded gastric remnant following intestinal occlusion of the biliary limb secondary to anastomotic stricture on an anastomotic ulcer. 6 peptic ulcers (1.3%), 1 anastomotic stricture endoscopically dilated and 2 symptomatic cholelithiasis. The gastroscopy at two years was normal in 75% (N=57), showed 6 peptic ulcers (8%) and 13 follicular hyperplasia, no dysplasia or metaplasia. At 4 years the gastroscopy was normal in 42 % (N=5), showed 5 peptic ulcers (42%) and 2 follicular hyperplasia, no dysplasia or metaplasia.
Conclusion: Gastroscopy at 2 and 4 years after LOGB did not show any metaplasia or precancerogenic lesions around the gastrojejunal anastomosis. The only concern is the rate of peptic ulcers which led us to give PPI on the long-

term. But all endoscopies have not been done until now and results are required in a longer-term.

PL 01–07 10 Years Experiences with Both - Roux-En-Y- and Omega-Loop-Gastric Bypass

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After a period of 6 years experiences with laparoscopic adjustable gastric banding we introduced in May 2001 the Roux-en-Y-gastric bypass (RNYGB) and in December 2001 the Omega-loop-Gastric bypass (OLGB) into our program. The indication for OLGB were seen as a staging procedure in extreme obesity. The percentage of OLGB was in all years below 5 % of all gastric bypasses. The OLGB was not a standard procedure, accepted by insurances and national guidelines. We have seen advantages and disadvantages. Advantages: surgery is faster (mean skin-to skin: 52,4 vs. 34,6 min), no complications of the entero-enterostomy, better weight loss (8 % EWL after 2 years, 12 % after 5 yrs), significant less dumping, better resolution of metabolic syndrome, no late glucopenic syndrome (!), but there are also disadvantages: The consequent endoscopic follow-up of 1908 (1861 RNGB, 47 OMLGB) patients in the period from 01/2006 until 12/2010 has shown, that the frequency of ulcerations was significant higher (RNYGB: 2,4 %; OLGB: 14,9 %,p= 0,0002). The bile reflux was not the only cause for these ulcerations. In 75 % (p< 0,0001) was abuse of alcohol, nicotin and NSAR present and 27% had heliobacter pylori infection. The persisting bile reflux with clinical symptoms of reflux or recurrent ulcerations and chronic inflammation in the gastroenterostomy were the indication for revisional surgery from OLGB into RNYGB. The enetro-enterostomy should have at least a distance of 70 cm from the GE. Side-side-anastomosis (Braun) can not solve the problem of bile reflux safely. The mild steatorrhea after OLGB should not be classified as a negative side effect. The malabsorptive effect (there is a comparison to biliopancreatic diversion) seems to be responsible for better weight loss (fat malabsorption caused by bile reabsorption, deactivation of pancreas enzymes,..) in the long- term and the lower rate of weight regain. The stronger influence on metabolic syndrome (glucose metabolism, triglycerides) needs further investigations.

PL 01–08 Banded Versus Non-Banded Laproscopic Gastric Bypass

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Background: The laparoscopic gastric bypass (LGB) is one of the most frequently performed surgical procedures for the treatment of the morbidly obese patients and is by many still considered as the gold standard. The mean excess weight loss amounts to 75 % in the first 2 till 3 postoperative years. Long term results however only show a 60 % excess weight loss and this because of an important weight regain in around 30% of the bypass patients!

Methods: Between June 2002 and August 2010, 463 GB operations were performed. A non-banded gastric bypass (NBGB) was performed in 280 patients and BGB in 183 patients. The first BGB was performed in May 2006. Both groups were similar regarding sex repartition and mean age. The BMI was 40,1 in the NBGB and 41,9 in the BGB group. We construct the GB with a vertical 7 cm long pouch around a 34 Fr bougie with a hand-sewn gastro-jejunostomy, a biliopancreatic limb of 50–75 cm and an alimentary limb of 100 cm. We only use the GaBP ring (Fobi-ring) with a fixed diameter of 6.5 cm and 7 cm (F/M). The band is placed around the pouch 1 till 2 cm above the gastro-enterostomy. The follow-up was 87 % in de NBGB and 96 % in the BGB group.

Result: Only 4% of our patients presented early complications with a 0,8 % leak rate in the non-banded group and 0,5 % in the banded group. The evolution of BMI was as follows in the NBGB and the BGB group: at 1 year 26,4 / 26,6, at 2 y 26,1 / 26,0, at 3 y 26,4 / 26,0, and at 4 y 27,1 / 25,2. The evolution of % excess weight loss: at 1 y 73 / 76, at 2 y 74 / 80, at 3 y 70 / 81, at 4 y 69 / 85 and at 5 y 59 / -. The weight loss was the same at 1 and 2 years. From the 3rd year there was a weight regain in de NBG group which continued till the 5th year. In the NBGB group the weight loss continued in the 4th year, but we have no later results. The total percentage excess weight loss and the evolution of BMI were better in the BGB group compared to the NBGB group at a 4-year follow-up. Late complications were few: 13,5 % in the NBGB group versus 7 % in the banded group. Late reoperations were necessary in 2% of the patients in both groups. There was no weight regain in the banded group. As expected, late dysphagia is more frequent in the banded group and more frequent with the smaller ring. However dysphagia was acceptable and patient appreciation was rated 'very good' in 95% of banded surgery. In 1 patient we removed the GaBP ring because of a stenosis caused by a fixation of the pouch and ring into the left liver.

Conclusions: These results show that the weight loss at 4 years is better after a BGB than after a NBGB. A recent cohort study of 160 patients with a 5-year follow-up (Salinas, SOARD 2009, 5) confirms these good results with a 83 % excess weight loss and a BMI of 27 at 5 years! Since the low percentage of band related problems (no migration in our study and only 1 band removed) we suggest always performing a BGB which is now the policy in our bariatric centre.

PL 01–09 Distal Gastric Bypass: Results in Switzerland

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Introduction: Previous studies have frequently reported on relatively high failure rates ranging between 25% and 35% (> 40% in super-super obese patients, BMI> 60 kg/m^2) after standard proximal gastric bypass surgery when failure was defined as an excess weight loss (EWL) of less than 50%. In order to improve weight loss outcomes we established a novel distal gastric bypass variant in our institution for patients that were assumed to display a high failure risk upon their individual characteristics assessed by a comprehensive interdisciplinary preoperative evaluation.

Method: Here we report on up to 5 year follow-up results of the first 355 patients (mean±SD age 41.4±10.8 years, BMI 48.5±11.5 kg/m^2) who have undergone a laparoscopic distal gastric bypass operation as a primary bariatric procedure in our institution. Of these 336 patients had a follow-up time of at least 1 year, 165 of 2 years, 86 of 3 years, 33 of 4 years, and 8 of 5 years. Average follow-up time was 1.8±1.4 years and overall follow-up rate was 97 %. The average length of the common channel was 76±7 cm, that of the biliopancreatic limb was 78±14 cm, and that of the alimentary limb was 680±100 cm.

Results: Open surgery was necessary in 16 patients so that 95.5 % of the operation could be performed laparoscopically. Thirty day mortality was zero. During the follow-up, surgical complications were observed in 46 (12.9 %) of the patients with a total of 16 major and 37 minor complications. Average %EWL at 1, 2, 3, 4, and 5 years was 62±25, 79±17, 77±17, 75±15, and 80±14, respectively and failure (% EWL<50) rates remained below 7 % across the 5-year follow up period. Of note, a total of 3 (1 %) patients required a proximalisation of the lower anastomosis, two due to severe hypoproteinemia and one due to persistent severe diarrhoea. In all 3 cases this surgical intervention could be performed laparoscopically.

Conclusion: Data indicate that the distal gastric bypass variant that we have established in our institution leads to excellent weight loss results in conjunction with acceptable surgical and nutritional risks. However, it should be emphasized that results were obtained within a structured interdisciplinary follow-up program that includes regular nutritional assessments. In our view such follow-up programs represent a prerequisite for offering severe obese patients a distal gastric bypass operation.

PL 02–01 Lap Sleeve Gastrectomy with Antral Resection and Omental Patch on the Suture-Line

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Background: LSG is not standardized yet. Long-term results are variable. Leaks at the esophageal-gastric junction (EGJ) are the most serious technical complication. Staple-line "protection" is a matter of debate. Many authors do not protect the staple-line an others use cushion allograph material. We have used a Lembert-type of sero-serosa suture in over 1200 sleeves and recently the omentum is included in the suture-line.

Technique: Six ports (1 #12, 1#10 for the camera and 4 #5 mm, are always used and 3 surgeons (six hands). The antrectomy is initiated in the pylorus, with a 12 mm

bougie and 2 firing of AMT Covidien Endo-Guia Tristapler in antrum and AVM in the rest of the stomach. A Surgipro suture of 25 cm with a C-22 needle includes the greater omentum as a patch, the posterior and then the anterior serosa of the suture-line from the EGJ down to mid stomach. A second suture is used down to the pylorus. The theoretical advantages of the omental pact are: 1 Control of bleeding; 2) Leak prevention; 3) Covering of the theoretical leak and 4) Prevention of twisting o rotation of the sleeve and better emptying.
Results: OR time<60 minutes (44–62). No a single clinical leak in last 70 cases. %EBL is >85% at 3 years.
Conclusions: Use of the suture with omental patch is quick, safe and cheaper than any other suture-line protection. A narrow sleeve, < 50 cc improves WL after the LSG. Video of 6' available.

PL 02–04 LSG Bougie Size Should be Larger (40FR or More)

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Laparoscopic sleeve gastrectomy (LSG) techniques vary significantly, including bougie size (32-60Fr), distance from pylorus (2-8 cm), antral preservation, proximity to GE junction, staple height/oversewing, and concurrent hiatal hernia repair. The literature is controversial regarding bougie size and weight loss after LSG, however there is certainly a trend towards the use of more narrow bougies (32Fr) with increasing surgeon experience. We have previously published a study comparing weight loss after LSG between 40Fr and 60Fr bougie and seeing no significant weight loss difference at 1 year; however the 60Fr bougie group was mainly first-stage duodenal switch patients who were primarily superobese (mean BMI 63.1 at baseline).
If one calculates the volume of the sleeve using the formula for cylinder ($\pi r^2 h$) where h=25 cm (length of sleeve), the calculated volume for 32Fr bougie is 20cc, for 40Fr bougie is 32cc and 60Fr bougie is 71cc. At our institution, we have found no correlation between calculated sleeve volume (radiographically) and weight loss up to 1 year postoperatively. We did find a correlation between smaller diameter at mid-sleeve and more rapid emptying of liquid contrast postoperatively, however the accelerated emptying did not correlate with improved weight loss.
What is the downside of using a more narrow bougie? There is conflicting literature regarding the complication rates and bougie size for LSG. There is concern that the tighter the sleeve, the higher the risk of a leak, especially near the GE junction. There are also reports of higher reflux rates with tighter bougies. Other large studies (e.g. Spanish Registry Data) have found no correlation between bougie size and complication rate.
It is difficult to compare outcomes based on bougie size due to the variability of other intraoperative factors, including how closely the stapler is applied along the bougie, the amount of posterior fundus mobilized, the distance from the pylorus where the LSG begins, the amount of stretch applied laterally on the fundus, the presence of gastritis that affects thickness and distensibility of the stomach, and the use of buttressing material. These factors combined with the accelerated gastric emptying seen after LSG (suggesting that LSG may not be solely a restrictive procedure) make evidence-based comparisons difficult to perform. Larger studies with standardized techniques are needed to determine optimal bougie size.

PL 02–05 Meta-Analysis of Leaks Following Laparoscopic Sleeve Gastrectomy

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Background: Laparoscopic Sleeve gastrectomy has become a popular bariatric operation for the treatment of morbid obesity with its associated co-morbidities. The operation has increased in popularity due to an easier execution as compared to gastric bypass, but has been associated with a staple line leak rate of 1-4% depending on the series and type of patients. The aim of the study was to perform a meta-analysis of the existing literature on the efficacy of reinforcement of the stapled line.
Methods: PubMed was searched for citations that included sleeve gastrectomy using the keywords "sleeve gastrectomy" and "vertical gastrectomy", which resulted in 364 reports. English language citations for human studies reported up until October 1, 2010 were included in the search. Studies that reported on sleeve gastrectomy were included if the study included leak data and if the type of staple line reinforcement (buttressing material, over sewing, or no reinforcement) used was made clear. Case reports, series with less than 5 patients, animal studies, and review articles were not included in this analysis. A few reports were excluded because the same or all of the data appeared to be duplicated (same group reporting outcomes for a similar period of time). Statistical analysis was performed using one tailed Fisher's Exact Test to compare the number of patients with and without leaks for the different reinforcement options compared to absorbable reinforcement. All statistical analyses were performed using JMP version 8.0.1.
Results:

Reinforcement Type	# of patients with leaks	# of patients without leaks	% of leak occurrence	p value compared to absorbable reinforcement
Absorbable Reinforcement	6	587	1.0	
No Reinforcement	28	864	3.2	0.005*
Over sewing (suture)	64	2719	2.4	0.026*
Bovine Pericardium Reinforcement	6	199	3.0	0.060

[Table 1. Leaks per reinforcement type]
*Absorbable reinforcement resulted in a significant reduction in leaks

Conclusion: The use of a Absorbable buttress material during performance of a sleeve gastrectomy reduces the incidence of postoperative leaks by 3 fold. This was also stronger than suturing alone. Intra-operative strategies have an impact on postoperative complications, including leaks after sleeve gastrectomy.

PL 02–06 Sleeve Gastrectomy: Large or Small Bougie? Butress Material?

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The sleeve gastrectomy (SL) was created initially to decrease the size of the stomach as a primary step for bariatric surgery. It has been becoming a procedure independent that surgeons use as a sole indication for treatment of bariatric surgery. Despite all the progress, there are a few things that are still being discussed.

Methods: We reviewed our experience with sleeve gastrectomy and the experience in the literature. We focused on the following issues:
1) Distance from the pylorus, 2) Type of staple used, 3) Type of bougie used from 32 to 60 French, 4) Reinforcement or not of the line of staple.
Results: We considered 200 patients with the average BMI of 53, average age of 58 176 were female. All of them underwent laparoscopic SL. Thirty percent of them underwent SL with a green staple at the level of the antrum and blue staples on the rest without reinforcement. Forty percent underwent reinforcement with suture transfixed below the staple line and the rest with absorbable biological reinforcement of the suture. Seventy percent underwent a SL with 10 cm far away from the pylorus and the rest with 5 cm away from the pylorus. Thirty percent underwent a SL with a 32 bougie, 20% with a 42 French bougie and the rest with a 29 French endoscopy. % EWL (excess weight loss) was 66% at first year and 61% at 24 months. The patients with lower size bougie had close to 70% EWL, in the first year and then close to 60% at 24 months.

Discussion: The controversy remains from the distance from the pylorus, 2 cm, 5 cm and 10 cm were considered. We have been using 5 cm lately. We initially started with a 10 cm because we thought that going to close to the pylorus (2 cm) will impair the pacemaker of the stomach. The results with a different bougie showed actually that the patient that underwent a SL with 29 French endoscopy or 32 French bougie had EWL close to 70% and with a 42 French bougie has a weight loss of around 64, but the difference between the group was not significant and the results were similar at 24 months. We evaluated the leak from the staple line. We had 2 leaks at the level of the esophageal gastric junction, which were repaired primarily and one leak at the level of the antrum. This came all with in a patient that did have any reinforcement. Therefore, in our experience we suggest reinforcing the staple with stitches or with absorbable material. We experienced 1 stenosis that we treated with endoscopic balloon dilation.
Conclusion: It appears that the 5 cm and 10 cm from the pylorus are not making much difference, therefore the technique remains controversial. It is clear that the reinforcement of the staple line decreased the leak. There is not much difference between a bougie between 29 French and 42 French since the %EWL is 60% in all these patients at 24 months. A smaller bougie will make a slight difference in the result of the first year.

PL 02–07 Leakage Rate of Sleeve Gastrectomy after Gastric Banding

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Background: Leakage rate after sleeve gastrectomy is still high. Leakage is mostly located at the angle of his. Treatment of leaks is still difficult. Stent implantation and / or long time drainage are options for treatment of leaks or fistulas.
During the last years sleeve gastrectomy has become an option after gastric banding. Only few data on leakage rate of sleeve gastrectomy after gastric banding exist. Data from German multicenter observational study analyse the incidence of leaks after sleeve gastrectomy as a revisional procedure of gastric banding.
Methods: Data collection occurred prospectively in an online data bank. All primary bariatric procedures performed were recorded, as were all re-operations in patients that had already undergone a primary operation. Specific data compiled on the sleeve gastrectomy procedure were evaluated with a focus on operative details and complication rates.
Results: The total study cohort contains more than 12.000 patients.
From January 2006 to December 2010, more than 2500 sleeve gastrectomy procedures were performed. In 91 patients removal of gastric banding and sleeve gastrectomy was carried out as the same operation. The leakage rate was 4.4% with an intraoperative complication rate of 5.5%. In 20 patients the first step was band removal and after several weeks the sleeve gastrectomy was performed. In these patients was no leak reported, but intraoperative complication rate was high.
Conclusions: Leakage rate after sleeve gastrectomy and band removal is higher than after a two-step operation. Because the higher morbidity and mortality in patients developing leakage, we suggest performing band removal and sleeve gastrectomy as a two-step procedure.

PL 02–08 A Comparative Study between Primary and Secondary Isolated Laparoscopic Sleeve Gastrectomy: Long Term Results

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Background: Laparoscopic sleeve gastrectomy (LSG) represents the restrictive component of BPD-DS. It has been performed isolated as a primary surgery either in patients with a high BMI or at high surgical risk but also as a redo surgery for failed gastric banding.
Methods: From December 1st 2001 to December 31st 2010, we have performed 430 isolated LSG: 310 primary LSG in the frame of a two stages procedure proposed to all our patients scheduled for a BPD-DS and 120 secondary LSG (simultaneously to gastric banding removal in 69 patients and delayed in 51). Band removal was done mainly for intolerance, slippage and erosion. Since January 2007, we have changed our operative technique, we have stopped oversewing, stopped using buttressing material and we have started using Endostapler 60mm: either Covidien or Ethicon (green at antrum and either blue or gold at body and fundus). For revisional LSG after LAGB, we are peeling off the fibrotic tissue.
A conversion to a gastric bypass (GBP) has been performed for persisting/relapsing leak or at patients request, for severe GERD. At patients request, an additional duodenal switch (DS) was performed for inadequate EWL (BMI>35) and persisting comorbid condition.
Results:

			Drop in BMI±SD		% EWL	@ mean FU of 39.6 Months		
430 LSG	Leaks for the whole series	Leaks since Jan 2007 (Technical modifi)cations	@ 24 Months	@ 60 Months	@ 60 Months	Conversion to GBP	Additional DS	Resleeve
310 Primary	4.2%	3.4 % for the last 205 patients	16.1±6.4	13.5±6.4	69.0±25.5	1.6 %	6.1 %	
120 secondary	12.5 %	7.7 % for the last 65 patients	15.3±4.2	15±4.2	77.1±26.5	2.5 %	8.3 %	4 %

[Results]

At 30 days, mortality is 0.2% in the revisional series.
Conclusions: Leak rate is double in revisional LSG. At 5 years, primary and revisional isolated LSG induce a remarkable and comparable weight loss. So far it seems that the late rate of re operation patients is around 10%.

*Excluding patients with an additional DS or GBP

PL 02–09 Is Sleeve Gastrectomy More Effective Than Roux En Y Gastric Bypass? Results from a Randomized Clinical Trial

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Background: Laparoscopic Roux-en-Y gastric bypass (LRYGB) is currently the gold standard bariatric procedure for the treatment of morbid obesity. Laparoscopic sleeve gastrectomy (LSG) has been lately increasingly applied as a sole bariatric procedure and long term data have not been reported. The present study was conducted in order to compare the effects of the two procedures.
Methods: Sixty patients with body mass index (BMI) ≤ 50 Kg/m^2 were randomized to LRYGB or LSG. Patients were monitored prospectively for 3 years and the two techniques were compared for weight loss, in terms of percent excess weight loss (% EWL), early and late complications, improvement of obesity related comorbidities and nutritional deficiencies. Furthermore fasting and postprandial ghrelin, peptide-YY (PYY) and GLP-1 levels were assessed in both groups.
Results: There were no deaths in either group and no significant differences in early and late morbidity. Weight loss was similar at 3 years; %EWL was 62% after LRYGB and 68% after LSG (p=0.13). There were no significant differences in the overall improvement of comorbidities and nutritional deficiencies except for vitamin B_{12} deficiency that was more common after LRYGB (P=0.05). Fasting ghrelin levels did not change significantly after LRYGP and actually the third postoperative year the levels were higher than baseline (P=0.002). On the other hand, LSG was followed by a marked reduction in fasting ghrelin levels that was sustained throughout the study (P=0.004). Ghrelin levels were suppressed significantly after

the test meal in either group. Fasting PYY levels increased after either procedure during the first year only to return to baseline at three years (P=0.91 for LRYGB and P=0.34 for LSG). After the test meal PYY levels increased significantly only in the LSG group. Finally, GLP-1 levels increased significantly after either procedure and increased further after the meal test. Appetite suppression was higher after LSG in the early period and equal to LRYGB at the completion of the study.
Conclusion: LSG and LRYGB are equally safe and effective on weight loss and amelioration of comorbidities. Furthermore, LSG is technically less demanding in comparison to LRYGB and it is associated with fewer postoperative metabolic deficiencies, without the need of supplementation.

PL 02–10 Inflammation, Insulin Resistance, Lipid Disturbances, Anthropometrics, and Metabolic Syndrome in Morbidly Obese Patients: A Case Control Study Comparing Laparoscopic Roux-En-Y Gastric Bypass and Laparoscopic Sleeve Gastrectomy

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Background: Laparoscopic sleeve gastrectomy (LSG) is a common bariatric procedure that has several advantages over Roux-en-Y gastric bypass, but data on the effectiveness of this procedure on metabolic syndrome have rarely been reported.
Methods: This case control study compared the incidence of low grade systemic inflammation, insulin resistance, anthropometrics, lipid disturbances, and metabolic syndrome in 12 patients undergoing laparoscopic Roux-en-Y gastric bypass (LRYGBP) and 10 patients undergoing LSG, matched for age, sex, body mass index (BMI), and HbA1c.
Results: At 6 months after surgery, there was no significant difference in any of the parameters investigated. Metabolic syndrome improved in all five patients undergoing LRYGBP and in four out of six patients undergoing LSG (ns). At 1 year after surgery, patients in the LRYGBP group had a significantly lower BMI (32.6±5.1 vs. 36.5±2.5 kg/m^2; p<0.05) and percent of excess BMI lost (70.1±20.5 vs. 55.3±12.8; p<0.05), and had significantly lower plasma levels of C-reactive protein (2.3±1.5 vs. 5.1±4.6 mg/L; p<0.05), total cholesterol (4.7±1 vs. 5.6±0.3 mmol/L; p<0.001) and LDL cholesterol (2.7±0.7 vs. 3.7±0.3 mmol/L; p<0.001). Remission of metabolic syndrome was significantly less common after LSG at 1 year than LRYGBP (3 vs. 0 patients; p<0.05).
Conclusions: In this study patients undergoing LRYGBP demonstrated significantly lower BMIs, improved lipid profiles, decreased systemic low-grade inflammation and less metabolic syndrome than those with LSG at 1 year follow-up.

PL 02–11 Virtual CT Images after Sleeve Gastrectomy in Different Techniques in Short and Long Term in Comparison to Bypass

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The main principle of sleeve gastrectomy (SG) and proximal Roux-en-Y-gastric bypass (RNYGB) is restriction. Restriction is the limitation for uptake of solid food. Both procedures cause several hormonal changes, which are different between both procedures. In relation to eating disorders and other factors the volume of the upper GI-tract is increasing with time after both procedures. By means of the virtual pouchography the changes were observed. Initial sleeve volume with antrum resection and calibration (32 French) can achieve a gastric volume of 38–59 ccm. With preservation of the antrum the initial volume increases from 65–80 ccm up to more than 100 cm within the first year. All increasing volume were caused in the first line by prepyloric dilatation. Significant dilatations of the fundus can be observed after surgical mistakes only. After 6–8 years after LSG the total sleeve volume reached a volume of 180 ccm, if the antrum was left in place. Weight regain in these patients is common. The option of an additional band-placement to prevent lower tube dilation was never documented.
In RNYGB patients the gastric pouch can be stretched only, if the volume was from the beginning more than 15–20 cm. Dilatation of the gastro-entero-anastomosis, extension of the blind end and dilatation of the alimentary limb are common problems in the mid-and long-term follow-up after gastric bypass. The loss of restriction can be visualized by upper endoscopy and measured by virtual pouchography. The restoration of restriction or the addition of malabsorption are treatment options, which have to be discussed with the patient. Restriction without band or ring is a solution for 5–8 years only.

PL 03–02 Prevention of Diabetes Over Up to 20 Years after Bariatric Surgery. Data from the Controlled, Prospective Intervention Study Swedish Obese Subjects, SOS

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Background: Weight loss is associated with short-term improvements of glucose and insulin but whether these benefits persist over long periods of time is not known.
Methods: Diabetes was a predefined endpoint in the prospective, controlled SOS study. In this report we use the 1771 obese controls and the 1658 bariatric surgery patients who had not diabetes at baseline. Available 0, 2, 10 15 and 20 year examinations have been updated until January 2011.
Results: The number of diabetic cases actually observed over up to 20 years was 400 in the control group and 106 in the surgery group corresponding to a Kaplan-Meier estimated cumulative 20 year diabetes incidence of 48 % in controls and 18% in the surgery group [HR=0.18 (95% CI: 0.15-0.23), p<0.0001].
Fasting glucose at baseline was strongly associated with the subsequent diabetes incidence but there was no significant glucose-treatment interaction. In relative terms, the surgical treatment effect was thus very similar in those non-diabetic subjects with the highest baseline glucose values as compared to those with the lowest values.
Conclusion: As compared to usual care, bariatric surgery reduce the incidence of diabetes with 82 percent over 20 years. No bariatric surgery data are available for comparison while available meta analyses on lifestyle changes over 4 years suggest a reduction of the diabetes incidence with 37 to 45 percent. Thus the diabetes preventive effect of bariatric surgery is stronger and probably more long-lasting than any other treatment during real life conditions.

PL 04–01 Preoperative Predictors of Long Term Success of Obesity Surgery

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Introduction: Weight loss surgery results in improvement or cure of an array of the co-morbidities and most patients report improvement in psychosocial functioning and quality of life. However, bariatric surgery does not lead to equal results in every patient; some patients, after initial success, regain their weight or have a poor quality of life. Many attempts have been made to coin the preoperative predictors of success in bariatric candidates.
Methods: Predictors may be divided into several domains, the most important of them are procedure-related, patient-related and surgeon-related.
Discussion: Procedure-related factors, purtain to the biological mechanism of action, such as purely restrictive or malabsorptive operations differ immensely in their success rates, and it is unclear if the predictors of outcome in gastric banding patients are legitimate to use in BPD candidates. In addition to medical-somatic factors (such as endocrine influences and changes in metabolism), surgical-technical factors (such as size of pouch and stoma, length of bypassed intestine may have an effect.
A plenty of data exist in this regards for gastric banding and gastric bypass procedures, almost none are available for sleeve gastrectomy anf biliopancreatic diversion.
Patient related factors are the most diverse group. They can be divided into psychological, demographic, socioeconomic, physical and medical features. Bariatric surgery is a behavioral intervention, in addition to surgery, a number of nonsurgical and psychological factors have been shown to play a role in its long-term results. Many attempts have been made to evaluate patients' personality characteristics, preoperative psychological and psychiatric status, BMI, age, gender and socioeconomic status in order to find indices of success.

Greater success following bariatric surgery appears to occur in patients who are young and female, and have a high self-esteem, good mental health, a satisfactory marriage, and high socio-economic status, who are self-critical and cope in a direct and active way, are not too obese, were obese before the age of 18, suffer from and are concerned about their obesity, have realistic expectations and undisturbed eating behaviors.
The higher the facility volume, the more experienced personnel of the facility, and the surgeon that have all overcame their learning curve are not only important in complication and mortality rate reduction, but in an excess weight loss extent.
Conclusion: There is a general lack of large-scale, prospective, controlled research. The existing literature about potential lpredictors of success after bariatric surgery is far from conclusive; it is still uncertain which factors can predict success. Therefore, each team generally proposes its own algorithm for patient and procedure selection.

PL 04–02 Outcome Prediction in Laparoscopic Gastric Banding

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Background: Parameters predicting a positive outcome in morbid obese patients following laparoscopic adjustable gastric banding (LAGB) are a prerequisite for a sufficient preoperative patient selection. In the present single centre study criteria predicting postoperative success or failure were analyzed on the basis of long term results
Methods: From 1997 till 2008 morbidly obese patients with a BMI >40 kg/m^2 or patients with a BMI of 35 kg/m^2 with comorbidities were operated with LAGB as one of the bariatric surgical methods offered. Success of this method was defined as excess body weight loss (EBWL)>50% without band removal, failure was defined as EBWL<20% and/or band removal. A prospective data base of all patients was analyzed with regard to success or failure of gastric banding.
Results: 183 patients (149 female, 34 male) were operated with LAGB. Mean age of all patients was 39y (17-65y), mean BMI 47.5 kg/m^2 (35-76 kg/m^2). Mean EWL over all years was 49%. In 21.3% of all patients (39/183) a revision operation due to different reasons (e.g. slippage, infection, and penetration) was necessary. Predictors of a favourable postoperative course were female sex and low baseline weight, whereas predictors for failure were male sex and high baseline weight.
Conclusion: According to our data female patients with a low BMI (< 50 kg/m^2) have the best chance of success following LAGB whereas male sex seems to be an indicator for a different surgical procedure. Taken together the rate of revision operations is quite high so that a precise preoperative patient selection in view of an improved postoperative course seems mandatory.

PL 04–03 Which Procedure for Which Patient? Restriction Versus Malabsorption

PRESENTER: L. Lemmens[1]

[1]AZ Nikolaas, Surgery, Sint-Niklaas, Belgium

Since the start of bariatric surgery, more than 50 years ago, this discussion is going on, with still no answer. Considering the actual number of procedures performed yearly, most of the procedures are restrictive!
But a lot of concerns exist considering the long term results and complications of the purely restrictive operations! All depends of the expectations we and the patient have of the bariatric procedure. How important is the weight loss for the remission of the metabolic comorbidities? Some still pretend that with 10 % excess weight loss comorbidities will do better. We know that weight loss matters, also for the comorbidities.
Every surgeon has his own algorithm depending on the preferred technique. Why surgeons choose for a particular technique? Some restrictive procedures are easier with less complications but what about the late complications of these “harmless” procedures?
Mal-absorptive procedures give better long term results in weight loss and in remission of the comorbidities. But in some patients these procedures can cause long term socially important side-effects and even life threatening complications. Even if it concerns only a small percentage of these patients and even if a good follow-up could prevent or treat these problems, we know that most of these patients don’t do the necessary follow-up. We can ask the question if the good results justify the possible complications?
Maybe the mal-absorptive procedures are the best answer in case of failed restrictive procedures?
Do we, surgeons, decide or has the patient a vote in this? I strongly believe that we have to listen to the patient and that it is our duty to correct him/her in case of an objectively wrong choice. Pushing the patient in any decision against his/her idea will definitely cause a bad feeling, a higher failure rate and an early demand for conversion to another procedure.

PL 04–05 Which Procedure after Failed Restrictive Procedures

PRESENTER: M. Daskalakis[1]

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The dilemmas generated by the inevitable failures present complex challenges for every bariatric surgeon. The readiness, with which these should be undertaken, depends not only on the condition of the patient and the nature of the first operation, but also on the risks and effectiveness of the second operation. Nevertheless, the high rates of improvement in co-morbidities, in conjunction with an acceptable mortality rate, justify performance of revisional bariatric operations in patients with unsatisfactory weight loss after a primary procedure. Available data show that a higher BMI is a predictor of operative morbidity and mortality and co-morbidities tend to increase with both chronic duration and severity of obesity. Thus, revisional surgery in case of failed bariatric operations should be implemented as soon as the irreversibility of weight regain by means of dietary or medical management is noticed, in any case after a meticulous preoperative evaluation.
Conversion, due to failure of previous restrictive procedure, namely VBG, to a Roux-en-Y gastric bypass (RYGB), has been the most common surgical strategy associated, though, with increased early postoperative morbidity. On the other hand, biliopancreatic diversion (BPD) is one of the most effective bariatric procedures available. It is a well-known technique with the best long-lasting results in terms of weight loss and improvement of obesity-related co-morbidities. Conversion to BPD, in such a group of patients, is a wise alternative, as it may reduce operative risks. It can be performed without entering the previous staple line. Both the RYGB option as well as the DS may be technically challenging, since the formation of the pouch or the sleeve requires division of the sometimes scarred and fibrotic proximal stomach, where the different staple lines can generate frustrating situations. Moreover, creating a gastrojejunostomy as part of an RYGB, in the presence of serosal fibrosis, particularly in cases of multiple previous interventions, can lead to increased concern about the potential for an anastomotic leak.
As with any other restrictive bariatric procedure, a subgroup of patients who receive adjustable gastric band (AGB) fail to lose enough weight. In the setting of inadequate weight loss after band placement, RYGB appears to be the revisional procedure mostly used. When revisional surgery is performed by experienced hands, creation of laparoscopic RYGB after failed AGB can have similar complication rates as primary laparoscopic RYGB surgery. DS is another interesting option in this patient population, but larger series are still needed. Laparoscopic BPD can also be done. Another option is to remove the band and proceed with a sleeve gastrectomy without the DS.
With the demand for bariatric surgery likely to continue to increase, it is inevitable that reoperations due to failures will be an essential part of bariatric surgery practice.

PL 04–07 How we can Develop the Individual Concept?

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Different factors (strategic, anatomical, individual surgical preference, etc.) can influence the choice of bariatric procedures. Variety of this factors make difficult to develop standards in bariatric surgery, the closer one looks, the more details and variation can be found. Otherwise evidence-based data are available only for the most basic decisions. Due to the often unplanned nature of peri- and intraoperative decisions, individualised surgery does not lend itself to be studied in comparative clinical trials. Therefore, the large-scale, sometimes superficial nature of clinical

studies cannot help in understanding and solving difficult surgical situations. In addition, many individualising decisions in surgery concern rare situation, so that sample size will be insufficient for any formal study. As an alternative, registry studies could be used to collect information on surgical desicions. The basic principle for such register is a collection of an individual expert's experience. We therefore propose that current registries also analyse the apparent outliers contained in the registry. In addition, new registries might be necessary for those fields where no large scale evaluation has yet been established. During development of such register we contacted to 50 bariatric surgery experts and asked their answer the following questions:

1. What kind of bariatric procedures do you performed?
2. My criteria of choice for bariatric procedures
3. Description of your individual bariatric surgical technique step by step
4. What kind of difficult/unusual intraoperative situations I've known to happen
5. How I solved these situations

Collected data were used for development of the register an individual bariatric surgery

PL 04–08 Bariatric Surgery and Reinventing the Wheel

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Through many phases of development and technique refinement, bariatric surgery has suffered from the phenomenon of reinventing the wheel which is the rediscovery of an old idea in surgery abandoned for a variety of reasons that is then added to or modified, putting it into practice once again while usually overlooking the past experience and weak points of the old technique. Aim of work: to illustrate the reasons for reinventing the wheel and define the lifecycle of the phenomenon then applying these lifecycle phases to current procedures.

Materials and methods: The historic up rise and downfall of simple gastric restriction using the vertical banded gastroplasty model is studied and analyzed. Two examples of the phenomenon of reinventing the wheel will be illustrated in details, the adjustable gastric banding and the sleeve gastrectomy. Applying the lifecycle phases of the phenomenon to them using literature review will give an insight of how the future of these procedures looks like.

Conclusion: In bariatric surgery our focus should be on results and long-term outcomes and in that sense, BPD, DS, and a restrictive gastric bypass should be the more frequently performed procedures than simple restrictive procedures. Working on existing good procedures to make them reproducible anywhere by emphasizing standardization, is a better approach than resurrecting old flawed ideas.

PL 04–09 Esophago-Gastric Pathology in Morbid Obese: Preoperative Diagnosis and Influence in Technique Selection

PRESENTER: R. Sanchez-Santos[1]

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Background: The difficulty to diagnosis of future gastric pathology in patients who underwent gastric bypass suggests that a proper study of the stomach prior to surgery may be useful. Here we present the results of preoperative gastric endoscopy in patients seeking bariatric surgery and the influence of these results in technique selection.

Patients and methods: We performed a retrospective review of a prospective database of patients consecutively submitted to bariatric surgery in a single centre. Preoperative upper endoscopy was performed in all patients. H. Pylori presence was assessed systematically by the urease test. Gastric biopsy was performed when macroscopic lesions were found. Endoscopy findings were registered in the database. Gastric bypass was considered as the technique of choice to most of the patients before performing upper endoscopy. Sleeve gastrectomy was considered when patients presented gastric pathology. Also was offered to patients with BMI around 40, or BMI more than 55 with severe comorbidities. Hiatal hernia was considered contraindication to perform sleeve gastrectomy. Changes in bariatric technique were registered when endoscopic findings were causing the change.

Results: 200 consecutive patients who received bariatric surgery in our centre were included (03/2006 to 12/2010). 84.4% were women. Mean BMI 48.1±7,14 kg/m^2. Mean age 39.3±10,4 years. Endoscopic findings: H.pylori was detected in 33% of patients and treatment before surgery was given. 31% showed macroscopic findings at the upper endoscopy: 18.5% hiatal hernia. 1.5% duodenitis, 0.5% gastric ulcer, 2% incompetence of cardias, 1% gastric hyperplasia, 2% metaplasia (1% in cardias and 1% antrum), 0.5% Barret oesophagus, 3.5% gastric polyps, 0.5% papiloma, 0.5% xantoma. 1 patient was diagnosed of gastric carcinoid with node metastasis. Gastric polyps, papiloma and xantoma were endoscopically removed before surgery. In 10 patients (5%) technique was changed because of endoscopic findings. In 5 cases sleeve gastrectomy was rejected because of hiatal hernia with oesophageal reflux and gastric bypass was performed; in 5 cases gastric bypass was rejected and sleeve gastrectomy was performed in 4, (2 with antral metaplasia, 1 gastric ulcer, 1 with multiple gastric polyp). In the patient with gastric carcinoid with node metastasis a total gastrectomy with D2 linfadenectomy was performed. 174 gastric bypass; 25 sleeve gastrectomy and 1 total gastrectomy with D2 linfadenectomy were performed

Conclusion: The inclusion of upper endoscopy in the study prior to bariatric surgery has demonstrated to be useful in the diagnosis of gastric pathology and provide the opportunity to remove lesions preoperatively. In some cases the bariatric technique must be changed because of endoscopic findings to prevent further complications.

PL 04–10 IFSO-APC Consensus Statement 2011

PRESENTER: K. Kasama[1]

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Background: The definitions of overweight (BMI >25) and obesity (BMI>30) are based essentially on criteria derived from studies that involved populations of European origin. It has been suggested that the associations of BMI with body composition and health outcomes may differ between Asian and European populations. Asian populations have also been shown to have an elevated risk of type 2 diabetes, hypertension, and hyperlipidemia at a relatively low level of BMI. On the basis of these observations, it has been proposed that BMI cutoff point for overweight and obesity should be lower for Asian population than they are for European populations. Number of bariatric surgery in Asia is increasing recently. New indication for Asian patients should be discussed by the expert of this field.

Method: Forty four bariatric experts in Asia Pacific and other countries were chosen to have a voting privilege for IFSO-APC consensus at 2nd IFSO APC congress on 24th February 2011 in Rusutsu, Hokkaido, Japan. Computerized audience-response voting system was used to analyze the agreement or disagreement with the sentence of the consensus.

"Consensus" was established with agreement 75% and more of the delegates and "Viewpoint" was recognized with agreement between 66% and 75%.

Results: Ninety five percent of the delegates agreed with necessity of establishment of IFSO-APC consensus statement, and 98% agreed with necessity of new indication for Asian patients.

IFSO-APC Consensus statements 2011

Bariatric surgery should be considered for the treatment of obesity for acceptable Asian candidates with BMI≥35 with or without co morbidities
Agree 75%Consensus

Bariatric/ GI metabolic surgery should be considered for the treatment of T2DM or metabolic syndrome for patients who are inadequately controlled by lifestyle alternations and medical treatment for acceptable Asian candidates with BMI≥30
Agree 76.7% Consensus

The surgical approach may be considered as a non-primary alternative to treat inadequately controlled T2DM, or Metabolic syndrome, for suitable Asian candidates with BMI≥27.5.
Agree 67.5% Viewpoints

Any surgery for T2DM, or metabolic syndrome, for Asian patients with a BMI ≤ 27.5 should be strictly performed only under clinical study protocol with an informed consent from the patient and prior approval from the ethics committee. .
Agree 88.1% Consensus
And other seven sentences are agreed with by majority of the voting delegates to form IFSO-APC consensus statements.
Conclusion: IFSO-APC consensus statements 2011 were established at 2nd IFSO-APC congress in Rusutsu, Japan. This consensus statement should be updated every two years at IFSO APC congress according to new evidences. This will help to make safe and wholesome progress of bariatric and metabolic surgery in Asian region.

PL 05–03 Long-Term Results with the Duodenal Switch

PRESENTER: B. Metcalf[1]
Co-authors: J. Rabkin[1], J. Metcalf[1]

[1]Pacific Laparoscopy, San Francisco, United States

Background: Long term results (>10 years) with the Duodenal Switch (DS) remains controversial. This report summarizes results after ten years of patients who had the DS, most of whom had been lost to follow-up.
Methods: Follow-up was attempted on all 210 patients who had the DS from 1993 through 1999 in a community practice. Information was obtained on 96 (46%). Initial weight loss, weight loss maintenance, co-morbidity resolution, new onset anemia, osteoporosis, and quality of life (QOL) data was collected.
Results: Ten of the 96 had expired, none due to morbidity from the DS. Of the 86 surviving patients (67 F/ 19 M; ages 18–66) average pre DS BMI was 52 and average current post DS BMI is 31 (EWL 77%.) Co-morbidity percentage resolution/improvement included: Type II diabetes mellitus 95% / 5%, hypertension 82% / 15%, hypercholesterolemia 100% / -, sleep apnea 87% / 7 %, asthma 67% / 33%, GERD 87% / 7%, depression 73% / 20%, degenerative joint disease 52% / 33%, stress urinary incontinence 50% / 25 %. Post DS anemia was reported by 40%, two requiring parenteral iron and three blood transfusions. Osteopenia/osteoporosis was diagnosed in 34%. Self-reported QOL on a ten point scale rose from 3.1 to 8.9.
Conclusion: DS patients benefit from durable weight loss, sustained resolution of most obesity related co-morbidities, and a marked enhancement in QOL. Anemia and osteoporosis aren't prohibitive. Despite lack of consistent bariatric team follow-up, these patients are happy, healthy and competently managed by their primary care providers.

PL 05–04 BPD and BPD-DS for Weight Regain and Failure of Treatment after Proximal Gastric Bypass

PRESENTER: L. Lemmens[1]

[1]AZ Nikolaas, Surgery, Sint-Niklaas, Belgium

Background: The gastric bypass (GBP) is one of the most frequently performed surgical procedures for the treatment of the morbidly obese patients and is by many still considered as the gold standard. The mean excess weight loss amounts to 75 % in the first 2 till 3 postoperative years. Long term results however only show a 60 % excess weight loss and this because of an important weight regain in around 30% of the bypass patients! The cause of the weight regain after the standard gastric bypass is not clear at this moment and is multi-factorial: loss of restriction because of dilatation of the gastric pouch and especially of the proximal jejunum, disappearance of dumping, re-appearance of hunger and others. Surgical solutions are few: 1) resize the pouch in case of dilatation with or without adding a band. 2) adding mal-absorption: conversion of the GBP into a distal gastric bypass (DGBP), which is equal to a biliopancreatic diversion (BPD) with just a smaller gastric pouch, or changing the GB into a sleeve gastrectomy (SG) and if necessary later into a bilipancreatic diversion with duodenal switch (BPD-DS). Adding mal-absorption can only be advised in case of complete disappearance of any restriction. Adding mal-absorption to gastric restriction is potentially dangerous because of the risk of protein malnutrition.
Methods: Changing the GBP into a DGBP is a technically easy and safe procedure. The conversion of a GBP into a sleeve gastrectomy (SG) is technically more demanding with a higher leak risk. The BPD-DS can be performed in a 2nd step. The results on weight loss are very good, but the patient has to accept the side effects and the follow-up of the mal-absorptive surgery.
Conclusion: Data from literature confirm our own results that after conversion to a DGBP, patients can achieve the same weight loss as in a primary operation. The procedure is safe without anastomotic or other complications. Conversion of GBP into a SG and eventually later into a BPD-DS is technically more demanding with a certain leak risk. The late complications are the same as in the primary mal-absorptive surgery.

PL 05–05 Laparoscopic BPD-DS for Weight Regain and Failure of Treatment after Proximal Gastric Bypass

PRESENTER: M. Gagner[1,2]

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Background: A recent study from Norway and Sweden compared laparoscopic gastric bypass and BPD/DS in sixty patients with a BMI between 50 and 60. After randomization to laparoscopic Roux-en-Y gastric bypass (RYGB) or laparoscopic DS, both groups were found comparable, with mean operative time twice as long in LDS compared to RYGB (206 vs. 91 minutes, $p<0.001$). However, the mean BMI at 1 year was dramatically lower after LDS (32.5) vs. RYGB (38.5), with a greater % EWL (75 vs. 55%, $p<0.001$). Weight loss after DS is superior to gastric bypass in super-obese patients. This has enormous consequences in USA, where half of the patients operated have a BMI more than 50 kg/m^2, and will undoubtedly lead to a higher failure rate long-term (for gastric bypass). Despite long-term efficacy establishment, the operation has been adopted by few surgical practices and RYGB is still the most common bariatric procedure performed in USA. Weight loss failure after RYGB is a challenging problem facing bariatric surgeons today. Despite popular revisional plans which increase restriction, laparoscopic conversion of failed RYGB to BPD-DS may provide the most durable weight loss of all revision surgeries currently available.
Results: The RYGB has a long-term failure rate (inability to achieve a BMI of ≤ 35) of 20% to 35%, but it can increase as high as 60% in super-obese patients. Revision surgery after failed RYGB has also been associated with a high morbidity of up to 50%.
More recently, I reported data from 12 patients who underwent laparoscopic conversion of failed RYGB to BPD-DS. The mean age and BMI at conversion was 40.7 years and 41 kg/m², respectively. Six patients were super-obese at the primary RYGB; 7 had undergone laparoscopic RYGB and 5, open RYGB (2 banded RYGB and 1 nondivided RYGB). Four (33%) of the 12 patients had undergone revision surgery for weight regain (lengthening of the Roux limb, resizing the gastric pouch, placement of adjustable band on pouch or distal gastric bypass) before conversion. Eight patients (66%) still had obesity-related co-morbidities that reappeared with weight regain. Seven (58%) patients underwent conversion in 1 stage, 4 underwent conversion in 2 stages and 1 underwent SG only. No leaks or death were reported. At a mean follow-up of 11 months after conversion, the mean BMI and %EWL was 30.7 kg/m² and 62.7%, respectively, and all co-morbidities resolved. These short-term outcomes resemble those mid-term results reported by Keshishian. One patient required laparotomy and 4 (33%) patients developed stricture at the gastrogastrostomy. No malnutrition was observed.
Conclusion: Laparoscopic conversion of failed RYGB to BPD-DS is technically feasible, safe and can be performed in 1 or 2 stages.

PL 05–07 Additional Duodenal Switch for Failed Gastric Banding

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Background: Biliopancreatic duodenal switch (BPD/DS) has 2 components: a restrictive one the sleeve gastrectomy (SG) and a malabsorptive one the duodenal switch (DS). Each of the two components can be performed separately.
Method: Between May 2003 and July 2008, 38 patients with an uncomplicated and well tolerated adjustable gastric banding (AGB) sustained an additional DS for an inadequate initial excess BMI loss (IEBMIL) (BMI >30) or for persisting curable co-morbid condition. Most of the bands were kept deflated.

Results: So far, 16 patients remained with the band associated to the DS while 22 patients had a later band removal for convenience, intolerance or IEWL (6 patients had a conversion to SG and 16 patients are free of any restriction). All glycemic and high cholesterol problems were resolved.

BMI before AGB	BMI before DS	Type of restriction	Differential evolution of BMI		% IEBMIL	
			At 1 Y	At 2 Y	At 1 Y	At 2 Y
		AGB	32.3±5	30.6±4.5	67.5±22.8	65.9±18.9
46.9 (35.4 - 61.7)	40.9±6.9	SG	29.9±7.6	28.6±3.8	77.2±16.2	81.9±11.9
		Without restriction	33.7±5.5	32.9±6.0	61.8±24.8	64.9±29.5

[results]

Conclusion: Additional DS is feasible. With or without any restriction, it contributes to patients weight loss and to resolve curable co-morbid condition. Although AGB+DS, isolated DS or debanding and SG and are options for failure AGB further studies are needed.

PL 05–08 BPD and BPD-DS: Surgical Reinterventions

PRESENTER: W.K. Karcz[1]

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The number of bariatric operations performed each yearis growing continuously. Furthermore,we will probably experience a surge of metabolicoperations in the near future. Not all of our procedures were well chosenin the past, and some were not adequate for patientneeds, behavior, or metabolic disease. Some patientsneeded re-operations to improve the primary outcome.We do not know how many patients have undergoneredo bariatric and metabolic surgery worldwide. Eachclinic has its own percentage of re-operations, and therange is said to be between 2 and 20%. The introduction of malabsoption or re-restriction could be one of the surgical answers. The spectrum is very wide from DS after sleeve, re-sleeve after the BPD-DS to the most difficult revisionary operation creation BPD-DS after Gastric Bypass or creation of Gastric Bypass after the BPD. The development and improvement of diagnostic-procedures and guidelines prior to revisionary surgeryis still one of our main objectives. Choosing the rightrevisionary procedure and discussing it with the patientis of highest importance. The operative theoretical options will be discussed.

PL 05–09 Biliopancreatic Diversion with Duodenal Switch in Patients with A BMI Under 50 kg/M^2

PRESENTER: F.S. Hould[1]
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Background: Biliopancreatic diversion with duodenal switch (DS) is often limited in use to the treatment of super-morbidly obese patients (BMI≥50 kg/m2). The aim of this study is to present our long-term experience with DS in patients with an initial BMI under 50 kg/m^2.
Method: All non-super-obese patients who underwent a DS in our institution between June 1992 and May 2005 were assessed. Data are reported as a mean (SD).
Results: 810 consecutive patients, with an initial BMI of 44.2±3.6 kg/m^2, were reviewed. Mean follow-up was 103±49 months. Major perioperative complications occurred in 5.8%, with a 30-days mortality rate of 0.6%. Initial excess weight loss (EWL) is 76±22% and EWL is above 50% in 89% of patients. Among patients with Type II diabetes initially, 92.5% (210/227) were cured. 60% (180/302) had ceased medication for hypertension and only 2% (5/205) were still using a breathing apparatus for sleep apnea. Readmission for malnutrition was required in 4%, and in 90% the hospitalization occurred within the first year after surgery. Surgical revision was required in 1.5% of the patients. The prevalence of severe albumin deficiency (< 30 g/l) was 1.1%; in haemoglobin (< 100 g/l) 1.6%; in iron (< 4 mmol/l) 2.1%; and calcium (< 2 g/l) 3%. The percentage of patients "very satisfied" with the global results of the surgery was 91%.

Conclusion: Duodenal Switch in non-super-obese patients is highly efficient in terms of weight loss in non-super-obese patient, bringing great satisfaction to the patients. Long-term risks of malnutrition and nutritional deficiencies exist but are usually manageable with medical treatment.

PL 06–01 Laparoscopic Sleeve Gastrectomy Versus Laparoscopic Gastric Bypass for Morbid Obesity (Bmi<50)

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Introduction: Laparoscopic sleeve gastrectomy (LSG) that was initially intended, as part of the biliopancreatic diversion with duodenal switch, has now become a common bariatric procedure. On the other hand the laparoscopic gastric bypass (LRYGBP) remains the gold standard of bariatric surgery. The aim of this study was to compare the results of LSG with those obtained with LRYGBP for morbidly obese patients with a BMI<50.
Patients and methods: Data on 100 consecutive patients with a BMI<50 undergoing LSG were matched with 100 patients undergoing LRYGBP for age, sex and BMI. Data were collected prospectively and included: excess weight loss (EWL), evolution of comorbidities, postoperative morbidity and mortality.
Results: There were 70 women and 30 men in each group with a mean age of 37.3 years and 40.2 years in the LSG and LRYGBP respectively. Mean BMI was 45.1 and 44.1 in LSG and LRYGBP respectively. EWL was 56.7 % in the LSG group versus 64 % in the LRYGBP group at 1 year. There was no mortality in this study. Postoperative complications rate was 9% in the LSG group versus 22 % in the LRYGBP group respectively. Three cases of anastomotic leak at the gastrojejunal anastomosis and three cases of deep abdominal collection at the gastrojejunal anastomosis were recorded in the LRYGBP group. Four cases of high leak at the level of the staple line were recorded in the LSG group. Blood hypertension was resolved in 59 and 67%, and type 2 diabetes in 75 and 82 % of patients in the LSG and LRYGBP groups respectively.
Conclusions: The results of LSG and LRYGBP are comparable in terms of EWL and improvement of comorbidities while the rate of postoperative complications are significantly more important after LRYGBP.

PL 06–03 Treatment of Leaks – Early Endoscopic Treatment

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Leaks in gastric bypass and sleeve gastrectomy are among the worst and maybe the most fearful complications in bariatric surgery. After the initial diagnosis and sepsis stabilization a endoscopic therapeutic plan should be assigned. From the healing perspective, it seems like the two procedures has different outcomes in term of leakage. On the gastric bypass most of the leaks heals up to 30 days and a conservative approach is advisable. After this period and endoscopy should be performed having in mind the observation of he pouch itself with close attention to the staple line at were the greater curvature was stapled and transected, the gastro-jejunostomy (GJ) and the alimentary limb. The master statement that a to treat a digestive leak the obstructions (stenosis) have to be removed always applies and if the endoscope do

not pass trough the GJ, a dilation should be done as first move. Traditional therapeutic endoscopy like biological glue, clips and meshes should be used to complement the dilation, in combination or as single therapy. Some situations like staple line disruption, gastro-pleural and His angle leaks predicts that the leak will not respond well to this approach and demands a more advanced approach like the use of stents with healing rates over 90% (23 patients) with around 40d of implant as our group hap presented on Argentina IFSO meting in 2008.

If the gastric bypass has a well-established endoscopic approach, the sleeve gastrectomy leaks points in another direction in terms of healing outcomes specially when it comes from his angle and is performed with primary bariatric intention using thinner boogies like 32 to 36fr. On opposite of the gastric bypass that tends to heal with conservative approach, the his angle fistula (the most frequent one) of sleeve gastrectomy tends to become chronicle and demands an alternative endoscopic approach that can be divided in early (up to 30d) and late. Besides the medical literature is poor in addressing papers over this matters the clinical practice on reference centers that receive those complications acknowledge that the traditional endoscopic approach of "closing the hole" do not achieves a high leak healing rate. The His angle leak has a specific group of conditions that collaborates to its unusual pattern as follows; the His angle itself with poor irrigation, the absence of the remnant stomach to "block" the leak, the "physiologic" obstruction of the pylorus, the real narrowing at the level of incisura angularis, the body-antrun axis deviation and the helix sleeve" possibilities, the longest staple line on bariatric surgery, the fact that being so "high" that it is under negative pressure of the thorax and the fact that the sleeve gastrectomy is high pressure "closed" system instead of a "drainage" procedure like the bypass. That said, on the sleeve gastrectomy leaks our first line approach for early leaks are the stents and if we receive the patients after 30d the patients are treated by endoscopy with pneumatic dilation and associated septomy. Both approaches releases the pressure on the lumen by dilating the pylorus (pneumatic dilation), the incisura and the gastric body, also correcting the body-antrum axis. If the endoscopic treatment fail in-between 6 m, surgical approach should be considered. At our service this strategy was successfully used to treat 32 patient except one that was referred to surgical treatment after 8 m.

PL 06–04 Endoscopic Treatment of Leaks after Gastric Bypass and Sleeve Gastrectomy - Does Defect Size Matter?

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Leaks after bariatric surgery are serious, potentially life threatening complications with a risk of local infection and sepsis prolonging hospitalisation. Beside surgical treatment there are different endoscopic treatment options, i.e. sealing with tissue or fibrin glue, clipping and temporary endoluminal stenting, depending on the time of diagnosis, the defect size and the type of previous bariatric surgery. For small leaks the injection of tissue or fibrin glue can be a successful treatment option. Alternatively, leak closure with clip-application may be considered in leaks<10–12 mm in diameter. However, these concepts are not sufficient for the endoscopic occlusion of larger defects. During the last years an increasing number of case reports and small patient series has been published indicating that temporary endoluminal stent implantation combined with effective fluid drainage may be a promising treatment strategy avoiding re-operation in the majority of these patients. In most patients partial or fully covered self expanding metal stents were used. Even leaks of approximately up to 50% of the luminal circumference can be treated successfully by endoluminal stenting. The optimal time length of endoluminal stenting has yet not been well defined and varies in most reports from 4–8 weeks. However, stents are not approved for the treatment of postoperative leaks or fistulas neither in the European Union nor in the United States. Major complications of endoluminal stenting are hematemesis, stent dislocation and perforation as well as mucosal dissection. Stent dislocation occurs more frequently in patients after gastric bypass. Modifications of stent designs considering the special needs of patients with leaks after gastric bypass are needed. Further minor complications are nausea, vomiting and local pain which can be resolved by symptomatic treatment in most patients. Despite the possible complications of endoluminal stenting mortality rates of postoperative leaks can be reduced significantly compared to the outcome reported for surgical procedures. Further advantages of stent implantation are an immediate leak closure allowing early oral nutrition and hydratation thus shortening hospitalisation time.

In conclusion the treatment of leaks after bariatric surgery can be improved significantly by a multidisciplinary approach considering the different surgical and endoscopic treatment options. Beside the time of diagnosis and the clinical state of the patient the defect size is one of the most important determinants for the selection of the adequate endoscopic treatment strategy.

PL 06–07 Treatment of Leaks - If Chronic Resect Everything

PRESENTER: A. Ramos[1]

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Laparoscopic sleeve gastrectomy was used initially by some surgeons as a first-stage procedure followed by biliopancreatic diversion or RYGBP in super-obese high-risk patients.[1,2] Moreover, recent series have shown that LSG could be effective as sole treatment in many patients with severity obesity and, therefore, it has become a more popular procedure among the surgeon community.[3,4,5,] However, long-term experience, evidence of weight loss and complication data, are still pending.

Due to the fact that many countries are using sleeve gastrectomy for the treatment of severe obesity[6], an increase in the number of complications is also expected. One of the major postoperative complications after LSG is the fistula, resulting occasionally in death of the patient. The diagnosis may be difficult, and the management is carried either by reoperation or by medical treatment.[7, 8] The fistula can be present all along the staples line and when it is close to the gastroesophagical junction, treatment becomes challenging.

Several therapeutic modalities have been proposed to treat fistulas in this site [9, 10, 11], however, none of them has been standardized and others have become a matter of debate.

Despite bariatric surgery societies like ASMBS and Brazilian Metabolic and Bariatric Society (SBCBM) advocate the Sleeve Gastrectomy (SG) only in selected patients under restricted protocols, it has become very common for popular considerations, as well as an easy and low- morbidity procedure. High-volume centers which are used to receive and treat bariatric complications are increasingly admitting patients with SG complications. Among them His angle fistula, which is sometimes very difficult to heal. Total Gastrectomy with Roux and Y restoration done by laparoscopy can grant resolution in all these cases.

The authors collected data on 15 referred patients that were submitted to laparoscopic total gastrectomy (LTG) due to chronic post-SG Hiss angle fistula that could not be solved by surgery or endoscopic means.

10 of the patients were female with age ranging from 18–62 years. All patients were submitted to surgical and endoscopic (fibrin glue, meshes, clips and prosthesis) treatment attempts prior to surgery. Mean time from SG to LTG ranged from 6–18 months (M=12 m). Surgical time of the LTG ranged from 4–7 hours with a mean hospital stay of 7 days. There was one conversion to open surgery. No deaths were reported and complications occurred in 2 cases, with pneumonia in one case and intestinal obstruction in another.

Despites other options like conservative, endoscopic and drainage procedures, the resection can pose as a risky but valid option since SG fistulas are more difficult to manage and heal with a longer recovery time. When fistulas do not heal with neither conservative surgery nor endoscopic treatment after 6 months, more aggressive surgical alternatives as LTG could be necessary. LTG for the treatment of SG fistula may be the only alternative in some cases and can be performed safely with low rates of complications.

PL 06–08 Treatment of Leaks - If Chronic Keep Everything

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There are different types of leaks after seleeve gastrectomy (SG): Time related A1: early (within 48 hrs) and A2: late (> 48 hrs). From the location (B) are more than 90 % in the angle of His (B1) and rare (< 5 %) in the antrum area (B2). The combinations are extremely rare (case reports only). From the size of staple-line

disruption (C1) we have less the small leak (C1: 5mm). Most of all leaks were reported between 0,5 - 2 cm (C2). Extreme long disruptions (C3: > 2 cm) needs special considerations in respect to the size of the sleeve lumen. Important for the prognosis is the presence of abscesses (D1) or chronic fistulas (D2)
The successful surgical solution by oversewing we have recognized in early stages (A1) in all locations (B1 and B2), but in small defect (C1) only. The experience of treatment based on 17 leaks after 1047 SG in the own department and 14 leaks from other institutions in 4 different countries. All last cases have long-term existing fistulas and abscesses. From 2003–2007 we performed the primary surgical solution by laparoscopy successful in 3 of 5 cases (A1,B1,C1 and C2). No success we noted in all cases C2 or more, independent from B (4/4). In a total series of 31 leaks after SG we never performed a gastrectomy. The early treatment can be successful in C1 situations, endoscopically by clipping or by laparoscopy. All other cases should be treated by stenting with drainage of the infected area (with intermittend suction). Indications for Endosponge (vacuum-therapy) we have seen in A2,B1,C3-D1 or D2, if there was large abcess formation with large communication to the gastric lumen. The mean time for treatment was in all cases with D1 and or D2 1,6 months (0,5-11 months). The gastrectomy can shorten the hospital stay, but with potential higher mortality.

PL 07–02 Roux-En-Y Gastric Bypass Affects Fat Intake but Not Oral Fat Perception in Rats

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Patients after Roux-en-Y gastric bypass (RYGB) surgery often report changes in taste perception and a selective voluntary intake reduction in food high in fat and sugar. We and others (Shin et al., IJO, 2010; Hajnal et al., AJP, 2010) reported similar findings in rats. Now, we tested whether reduced fat intake is due to altered taste perception at the gustatory system.
Male Wistar rats underwent RYGB or sham operation; all rats were fed standard chow. Rats were tested in two bottle preference tests with ascending concentrations of Intralipid (IL; 0.005 - 5%) versus water. Other rats were tested in a Davis Rig (DR) lickometer brief access test (BAT) using the same IL concentrations versus water. To test whether reduced intake of fat may be due to negative postingestive or -absorptive effects, we performed a classical two bottle preference (saccharine versus water) conditioned taste aversion (CTA) test using 1ml corn oil or water given by gavage as stimulus.
A strong preference (>90%) for increasing IL concentrations was observed in sham but not RYGB rats in the two bottle preference test; however, there was no difference in the number of licks for IL (absolute or relative to water) in the BAT between RYGB and sham rats tested under ad lib, food or water deprived conditions. The oral gavage of 1ml of corn oil induced CTA of similar magnitude as the GLP-1 agonist exendin-4 (2 μg/kg) but less than the positive control LiCl.
We conclude that RYGB rats seem to find higher concentrated IL solutions less attractive than sham rats. However, the experiments in the DR lickometers suggest that this effect seems unrelated to different taste perception in the (oral) gustatory system. Further, negative postingestive or -absorptive side effects after IL ingestions may partly be responsible for reduced fat intake after RYGB.

PL 07–03 Gut Hormonal Changes in Humans after Gastric Bypass Surgery

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Bariatric surgery is currently the only evidence-based treatment for morbid obesity. However, we have limited knowledge regarding the mechanism of action in the procedures used.
The gut hormone response in gastric bypass operated demonstrates a postprandial 'supra-physiological' release of GLP-1, PYY and several other gut hormones promoting satiety, but most of them are not elevated in fasting/ baseline state. The possible role of Ghrelin in the mechanism of action in gastric bypass has been more controversial. Some studies has shown a decrease in Ghrelin levels after gastric bypass while others have demonstrated increased and yet others unaltered levels. These effects along with changes in GIP, glucagon, etc. might contribute to weight independent improvements in type 2 diabetes after gastric bypass surgery. Furthermore, it is likely that it is the broad changes in many separate pathways that as an "orchestra" enable patients to acquire a new "steady state" for weight.
Conclusion: Gastric bypass surgery is associated with substantial and sustained long-term weight loss. The mechanism of action in gastric bypass surgery appears to be complex and includes altered gut hormonal response to a meal in several hormonal systems (PYY, GLP-1, GIP, Oxyntomodulin, Glucagon) as well as probably changes in many other regulatory systems. A "mimicking" medical strategy where gut hormones (single or in combination) are used appears to be an interesting approach to a "medical bypass".

PL 07–04 Salivary Ghrelin in Healthy Subjects and Morbidly Obese, and its Changes Following Weight Loss Surgery

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Ghrelin has been demonstrated to be produced and released by salivary glands. Little is known about the behavior of salivary ghrelin compared to serum ghrelin. Furthermore, no data exist regarding its changes following bariatric surgery. Obtaining saliva for metabolism studies would be preferable for patients since the procedure is non-invasive.
In a first analysis, serum and salivary ghrelin levels in morbidly obese subjects and healthy controls were examined by using a commercial radioimmunoassay. Secondly, salivary ghrelin was determined in morbidly obese subjects undergoing three different types of bariatric surgery.
When comparing serum and salivary ghrelin levels under fasting conditions, ghrelin levels were significantly higher in saliva for morbidly obese and healthy subjects. A significant correlation between salivary and serum ghrelin could only be demonstrated for healthy subjects. There was a significant inverse correlation between BMI and serum ghrelin, but not for salivary ghrelin. There was no significant difference in serum and saliva ghrelin concentrations between men and women. Following the standardized meal, no significant suppression of serum ghrelin levels in morbidly obese was observed, however salivary ghrelin concentrations were significantly decreased. Changes in both, fasting and postprandial salivary ghrelin greatly varied between all three procedures with no similarities to changes in serum ghrelin reported in the literature.
The results support the hypothesis that there is an autonomous production of ghrelin in salivary glands irrespective of nutritional status and weight loss. Further research should focus on factors involved in the regulation of salivary ghrelin.

PL 07–05 Changes in Hormones and Energy Expenditure after Bariatric Surgery

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Currently, the most powerful therapy for obesity is bariatric surgery both in terms of significant weight loss and long-term efficacy. However, the underlying mechanisms by which RYGB induces and sustains weight loss are poorly understood. Mechanisms include reduced hunger and increased satiation, which are presumably mediated by alterations in gastrointestinal and central neuroendocrine circuits. As these circuits may also regulate total energy expenditure (TEE), it has been hypothesized that RYGB increases TEE. Supporting this, we have demonstrated a higher TEE in rats after RYGB compared to ad libitum fed and body weight-matched sham controls. After a 5 g test meal RYGB rats had a greater cumulative increase in TEE suggesting that differences in diet-induced thermogenesis may play a role. Furthermore, the postoperative TEE increase potentially represents a higher energy requirement, as the small intestine showed significant morphometric changes with a 72% increase of total small bowel weight postoperatively. The gut is metabolically very active and gut hypertrophy potentially explains a higher maintenance energy requirement that contributes to body weight loss. We also investigated fourteen

women with similar resting energy expenditure that were randomised to Roux-en-Y gastric bypass or Vertical Banded Gastroplasty (VBG). Energy expenditure was measured over 24 hours in weight stable patients 9.4 years (range 8.7-10.3years) postoperatively. We found that morbidly obese patients treated with gastric bypass have higher overall 24h energy expenditure (p=0.048) and meal induced energy expenditure compared to patients treated with vertical banded gastroplasty (p=0.024).These findings may partly explain why gastric bypass provides superior long term body weight loss compared to other bariatric operations.

PL 07–07 New Adipocytokines and their Putative Role in Bariatric Surgery

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Background: Adipocytokines are cell-to-cell signaling proteins that are secreted by the adipose tissue. They play an important role in the development of diabetes, atherosclerosis, chronic inflammation, thrombosis, Nonalcoholic fatty liver disease and other obesity-associated diseases.
Methods: The role of several recently detected adipocytokines in the development of obesity-associated diseases will be discussed
Result: There is growing evidence that obesity is associated with a dysregulation of adipocytokines. Recently detected adipocytokines like Retinol Binding protein-4, vaspine, pigment epithelium derived factor, Resistin and Lipocalin-2 contribute to the development of obesity-associated diseases.
Conclusion: Visceral fat acts as an extremely active endocrine organ. Understanding the (dys)regulation of adipocytokines in obesity may give further insight in the development of obesity associated diseases.

PL 07–08 Preoperative Predictors of Remission of T2DM after BPD/BPD-DS

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Background: The choice of a specific bariatric procedure in a patient with metabolic diseases is highly dependent on the severity of the metabolic diseases, on risks of surgery and on the metabolic aims achievable. The primary goal in patients with longstanding type 2 diabetes mellitus (T2DM) particularly when diabetes is poorly controlled may be complete and enduring remission of diabetes to prevent incidence or progression of complications of diabetes. Therefore, the prediction of the individual chance of remission is of utmost importance for the recommendation to the most suitable surgical procedure. The effects of preoperative BMI, age at surgery, mode of antidiabetic therapy, duration of medical treatment of diabetes and duration of insulin treatment as well as preoperative C-peptide on remission rate of T2DM were analyzed.
Methods: Biliopancreatic diversion with duodenal switch and sleeve gastrectomy (BPD-DS) was performed in n=92 patients with type 2 diabetes mellitus (T2DM). Mean age of the patients was 51 years, range 26–68; 53 patients were females; mean BMI was 47 kg/m^2, range 26–71. Preoperative BMI and age at surgery were determined and compared with duration of diabetes treatment. In a subgroup of n=56 patients, fasting C-peptide was measured preoperatively and 3, 6, and 12 months after surgery. Primary endpoint was complete remission of diabetes. Similarly, criteria of prediction of remission of T2DM were evaluated in n=13 patients undergoing a biliopancreatic diversion according to Scopinaro (BPD).
Results: Of the 105 patients with T2DM undergoing BPD-DS or BPD, 87 patients (83%) were insulin-dependent (mean duration [range] 6.5 years [0.3-25] in 74 BPD-DS patients and 9.7 years [1–25] in 13 BPD patients). Complete remission rate of T2DM (no antidiabetic agents, HbA1c below 6%) was observed in 91% (84 of 92 patients) after BPD-DS and in 77% (10 of 13 patients) after BPD. Freedom of antidiabetic medication was observed in 96% and 92% after BPD-DS and BPD, respectively. All patients who used OAD only or insulin less than 5 years experienced complete remission. All patients who continuously required insulin one year after surgery had been insulin-dependent since more than 10 years (mean 19 years, range 13–25, n=5). All patients with a C-peptide level of>1.5 ng/ml experienced a complete remission irrespective of duration of insulin-dependence (mean duration 6 years, range 0.5-25). In n=9 patients with C-peptide<1.5 ng/ml, 4 patients failed to achieve complete remission (mean duration 11 years, range 8–13).
Conclusions: BPD-DS/BPD reliably causes remission of T2DM as long as pancreatic beta cell function is not deteriorated to a vast amount. Duration of insulin therapy of less than 10 years and less than 5 years suggest sufficient beta cell reserve to achieve remission of T2DM and even complete remission, respectively. However, the best predictor of success seems to be a preoperative fasting C-peptide of more than 1.5 ng/ml.

PL 07–09 The Role of the Gut Hormones

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A good model to investigate appetite reduction in humans and rodents with associated major weight loss is bariatric surgery. Gastric bypass, but not gastric banding caused increased postprandial PYY and GLP-1 favouring enhanced satiety. An early and exaggerated insulin response mediated improved glycaemic control. The rodent model of bypass showed elevated PYY, GLP-1 and gut hypertrophy compared with sham-operated rats. Moreover, exogenous PYY reduced food intake while blockade of endogenous PYY increased food intake. A prospective follow-up human study of gastric bypass showed progressively increasing PYY, enteroglucagon, and GLP-1 responses associated with enhanced satiety. Blocking these responses in animal and human models lead to increased food intake. Thus, following gastric bypass, a pleiotrophic endocrine response may contribute to improved glycaemic control, appetite reduction, and long-term lowering of body weight.

PL 08–04 Why Diabetes Does Not Resolve in Some Patients after Bariatric Surgery

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After the jejunoileal (JI) bypass operation, diabetes resolved rapidly due to the absence of glucose in the extensively bypassed small bowel; the oral glucose tolerance curve was almost flat. After gastric restrictive operations, hyperglycemia decreases rapidly, *often within the first week after surgery;* in the first few days postoperatively, there is inability to take in more than 550 calories/day due to the restrictive pouch and edematous channel, so that there is rapid up-regulation of insulin receptors. In the ensuing months, the diabetes resolves with the loss of adipose tissue.
After the JI bypass, gastric bypass and duodenal switch, rapid entry of nutrients to the distal ileum results in the release of GLP-1, stimulating pancreatic beta-cell function. The persisting elevation of GLP-1 results in amelioration of type 2 diabetes. After the sleeve gastrectomy, not only is there restriction by the sleeve, but also rapid gastric emptying and intestinal passage of nutrients with elevation of incretins.
In untreated type 2 diabetes, hyperinsulinemia and insulin resistance are present. However, in *longstanding uncontrolled* type 2 diabetes, muscle cells and adipocytes are starved for glucose - signalling compensatory increase in insulin production, leading to beta-cell apoptosis, which can result in permanence of the diabetes.
Failure of cure of diabetes after bariatric surgery can result from weight regain due to: 1) chronic over-indulgence in high-caloric foods; 2) inadequate patient compliance; 3) surgical technique creating too large a gastric pouch and stoma.
After the gastric bypass and the duodenal switch, failure of resolution of diabetes has been reported in at least 10% of patients, and in a greater number after gastric restrictive operations. One cause may be that the patient actually had ***latent autoimmune diabetes in the adult*** (LADA). This type 1 diabetes, with onset age 30–55, is due to slow autoimmune beta-cell destruction, and makes up 9-25% of adult diabetics. It can have onset at any weight. LADA should be diagnosed by low plasma insulin, very low fasting and meal-stimulated C-peptide, and antibodies to GAD, insulin and/or islet cells. These patients may initially respond to oral anti-diabetic medication or GLP-1 (when 20% of beta cells are still functioning), but will progress to insulin-dependent diabetes. If these patients are to undergo bariatric surgery, it should be explained to them that they will eventually require insulin.
There are morbidly obese type 1 diabetics, often due to taking excess insulin, then suffering hypoglycemia, then eating more, requiring more insulin - a vicious cycle, making their diabetes difficult to control. The exogenous insulin also inhibits lipolysis and causes lipogenesis. If these patients cannot be controlled by dietary and insulin surveillance, they can benefit from bariatric surgery for weight loss and decreased insulin requirement.

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SYMPOSIA

SY 01–05 Eating to Optimize Effectiveness of the Gastric Band

PRESENTER: P. O'Brien[1]

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Laparoscopic adjustable gastric banding is a unique surgical procedure as the placement of the band is just the first step of a process of care that continues permanently. Adjustment of the tightness of the band to achieve and maintain optimal control of appetite is a crucial role for the medical attendants. For the patient, eating correctly is a prime responsibility.

Five of our eight golden rules deal with eating.

1. Eat three or less small meals per day: Three is fine, two are common and even one may do. If you are not hungry, do not eat. Breakfast is optional. Each meal should be the amount of food that can be compressed into half a glass (125ml; 125g). Allow something for the water content of vegetables and fruit. Use a small plate, small fork and small spoon.

2. Do not eat anything between meals: No snacks, no treats, no extras. If you are in the Green Zone, you can do that. If you need a snack, take fruit or vegetable instead of a chocolate bar or cookies. And then make an appointment to tell us about it.

3. Eat slowly and stop when no longer hungry. Chew each small bite well, maybe for 20 seconds. Enjoy the tastes and textures as the bite is turned into mush. No lumps to be swallowed. After swallowing, wait for one minute before swallowing again.

Stop eating when no longer hungry. Never eat until full. Usually 20 small bites is sufficient to induce satiety. Usually 20 minutes is sufficient time to achieve this.

4. Focus on nutritious foods: Half of the half a glass should be a good protein-containing food - 60g of fish, other meats, eggs, dairy, such as cheese and yoghurt, lentils, chick peas and others. The other half of the glass is best as vegetables with some fruit. Avoid the starches - bread, cereals, rice, pasta, potato. Take a good multivitamin/mineral supplement each day.

5. Avoid calorie-containing liquids: Drink as much water, mineral water, tea, coffee, low calorie sodas as desired. The food needs to be squeezed across the band to give satiety. Liquids do not generate the same level of satiety as well chewed solid food. Exceptions are low fat milk (up to 500 ml per day) and alcohol (up to a glass of wine a day).

Outcomes: With these rules guiding them, 180 patients were studied at 12 months after LAGB (Obesity Surgery, 2008; 18:833–40). They were doing well, having lost 50% of their excess weight already. At that time, they were eating a mean of 52g protein, 35g fat and 98g carbohydrates per day. They were taking a mean of 1020 kcal / day. And their hunger score, measured by the Three Factor Eating Questionnaire, had dropped from 9 to 2. They were happier and healthier and on their way to a good outcome.

SY 01–07 Role and Value of Psychological Assessment

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Background: Despite over 30 years of research exploring psychological factors and, this relationship remains unclear. It has been suggested psychological factors can inhibit successful weight loss and maintenance. Thus, identification of psychological factors associated with weight loss success would facilitate identification of patients most able to benefit from surgery. Identification of those unlikely to achieve significant weight loss facilitate offering targeted assistance aimed at reducing psychological distress and improving weight loss outcomes An understand of the psychological factors likely to enhance or inhibit weight loss success would assist in maximising weight loss outcomes. This research program aims to improve understanding of the psychological profile of the obese individual seeking bariatric surgery, and to identify psychological predictors of weight loss outcomes following bariatric surgery.

Method: 271 new patients at a bariatric clinic in Melbourne, Australia were invited to participate in the study by their consulting surgeon. 230 agree to participate (response rate of 85%) and 203 completed both the clinical interview and the questionnaire components. The majority of participants were female (82% female) they had an average BMI of 42.82±6.31 (31–66) and weight 118.75 kg±21.41 (76–221). The average age was 45±12 years (19–71). All patients were assessed using the Structured Clinical Interview for DSM-IV Disorders (SCID) to screen and identify AXIS I psychological disorders. In addition to the SCID, a battery of psychological questionnaires measuring stress, social support, mood and anxiety, coping, motivation and self-efficacy was completed.

Results: 43.9% of the 203 bariatric patients met the criteria for a current AXIS I disorder. Mood disorders were the most prevalent (27.5%), followed by anxiety disorders (23.2%) and binge eating disorder (13.5%). Alcohol(%) and substance abuse(%) disorders were uncommon. There was no significant difference in the percentage of patients with AXIS I disorders by BMI or BMI class, gender differences were present for anxiety disorders.

Conclusion: AXIS I psychiatric disorders are highly prevalent in Australian bariatric surgery candidates. Prevalence rates were significantly higher than those in the general population. Psychopathology did not increase with increasing BMI within the obese classes in the current sample. The impact that an AXIS I disorder may have on surgery and weight loss outcomes is continuing to be investigated and the on-going follow up of these patients should inform the utility of routine psychological assessments prior to bariatric surgery.

SY 01–10 Management of Gastric Banding: Defining and Treating Hiatal Hernia

PRESENTER: C. Ren-Fielding[1]

[1]NYU School of Medicine, Surgery, New York, United States

The presence of a hiatal hernia was previously thought to be a contraindication to adjustable gastric banding. Consistent experience and research has shown that on the contrary, the presence of a hiatal hernia indicates gastric banding with simultaneous hiatal hernia repair. Hiatal hernias are difficult to diagnose preoperatively and need to be aggressively identified and repaired, in order to significantly decrease reoperation for reflux and band slippage.

SY 01–11 Gastric Banding - Outpatient Techniques and Outcomes

PRESENTER: C. Cobourn[1]

[1]Surgical Weight Loss Centre, Mississauga, Canada

Gastric band surgery is performed as an ambulatory surgery procedure in an increasing number of centres around the world. We will present our results in more than 2500 consecutive gastric band procedures. Greater than 98% are performed in our free standing ambulatory centre with a very low rate of complications and very low rate of unplanned admission to hospital. The key to successful and safe ambulatory gastric band surgery is an experienced team committed to the ambulatory process. Modifications of anaesthesia and post operative care minimize risks associated with cardiac disease and obstructive sleep apnea.

SY 01–13 Radiological Adjustment

PRESENTER: A.B. Smith[1]

[1]Fort Worth Lap-Band, Fort Worth, United States

Background: Results from adjustable gastric banding vary region to region and surgeon to surgeon. This leads one to speculate that operative techniques results

depend on the post-operative management. We present methodology based on over 700 postoperative visits per month to improve outcomes.

Methodology: The post-operative care is important to the success of the Laparoscopic adjustable gastric banded patient. Where the agreement ends is what constitutes the best practice for management of the patient.

We prefer to utilize fluoroscopy to adjust, diagnose, and manage our 3000 post-operative patients. The utilization of technology is no substitute for the clinical evaluation of the patient; we use it to optimize the postoperative visit.

Results: The advantages of fluoroscopy include, ability to access the adjustment port with fewer traumas and with more precision. Allowing assess of the pouch and band for orientation, ruling out a prolapse or malposition. The opportunity for earlier diagnosis of regurgitation, as well as symmetrical dilation of the pouch/esophagus. Utilizing the clinical interview alone, any clinician can occasionally make the wrong assumption. Patients who we may think are simply non-compliant may have pathology with atypical symptoms. The diagnosis of these patients enables the clinician to get these patients back on track, in some cases intervening before a problem becomes emergent. In our experience the diameter of the stoma is not as critically important as the absence of regurgitation during the fill. Simply filling by a recipe does not optimize that patients clinical progress as well as utilizing both the clinical interview as well as imaging technology. In our practice, the patient has a clinical interview, if there are no abnormal symptoms other than decreased restriction and lack of satiety they are taken to the fluoroscopy suite where their port is accessed, an appropriate volume of saline is added, they drink 30ml of dilute barium while being dynamically imaged fluoroscopically. If no obstruction or regurgitation is present the patient then retires to a relaxation room to consume water prior to departing. During this time, the dietician is available for reinforcement, education of eating behaviors.

There is added expense by using the technology, in our experience this offsets the expense of port revisions, failed patients, and frustration of the clinician.

Radiation exposure to the patient and clinician isn't high enough to be problematic when using short low power bursts of exposure and protection.

Conclusion: C-arm fluoroscopy is a useful tool to optimize postoperative management of the Lap-Band™ patient.

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SY 02–01 Intragastric Balloon Treatment for Conservative Resistant Obesity: Safety, Tolerance, and Efficacy

PRESENTER: R. Blanco-Engert[1]

Co-Authors: Sylvia Weiner [2] Richard Merkle [3] Rudolf Weiner[2] Sami Ahmad[2]

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[4]Gastriccenter GmbH Adipositaszentrum Stuttgart

Background: Since 1997 the BIB-Intragastric Balloon (Bioenterics) is a helping tool in our Bariatric Experience. Indications for BIB Placement are Patients BMI range 30–40 with / without comorbidities, those who refuse Bariatric Surgery (35- >40) or would benefit for a bridge to bariatric Surgery while considering their options. Even Patients who need cardiovascular, orthopedic or other surgery but whose excessive weight puts them at risk and or reduces likelihood of a good outcome.

Results: 987 patients have been treated with the BIB Intragastric Balloonsystem under supervision and multidisciplinary care . Mean weight loss was 20.8 KG (44.3Pounds) in mean with 225 days BIB in place . Complications were divided in mayor 0.5% and minor 2.2% , mortality was 0%

SY 02–03 Trans-Oral Endoscopic Restrictive Implant System (TERIS) for the Treatment of Morbid Obesity: A Phase I Trial

PRESENTER: F.S. Hould[1]

Co-authors: L. Biertho[1], S. Lebel[1], S. Marceau[1], O. Lescelleur[1], F. Moustarah[1], S. Biron[1]

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Background: With the current obesity epidemic, new investigational devices are being developed to try to further decrease complication rate of standard obesity surgery. Endoscopic surgery theoretically offers an ideal approach by avoiding any injury to the abdominal wall.

Method: This is a prospective Phase I trial of a new endoscopic device for the treatment of morbid obesity. Five gastric anchors are placed endoscopically at the level of the cardia, to attach a prosthesis and create a small reservoir at the upper part of the stomach. Group A (n=12) received a first generation device, Group B (n=10) received a second generation prosthesis to try and decrease the rate of clogging of the device and plication failures that we experienced in Group A. The two groups were compared and data was analyzed using a Student-t Test or Chi-square test where applicable. Data is reported as Mean±Standard Deviation comparing Group A to Group B.

Results: The two groups were similar in terms of initial weight (123 versus 122 kg, NS) and BMI (44 kg/m2 in both groups). There was one intra-operative complication in Group A (a gastric leak that required a surgical repair, NS). Operative time was 183±66 min versus 136±50 min (p=0.2). There was a significant drop in terms of clogging of the device (42% versus 0%, p=0.03) but 5 patients in each group still experienced a failure of at least one of the gastric anchors. At 12 months, excess weight loss was 35±17% versus 31±17% (NS).

Conclusion: Advanced endoscopic surgery is feasible with minimal peri-operative risks. However, the efficacy of the TERIS procedure is still limited by gastric plication failure. New endoscopic approaches are needed for the treatment of selected morbidly obese patients.

SY 02–05 Single Site Case Series Experience Using an Endoscopic, Transoral Tissue Anchoring System for an Incisionless Primary Weight Loss Intervention

PRESENTER: T.E. Lavin[1]

Co-authors: M.J. Thomas[2]

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Background: The gastric fundus has long been understood to play a key role in hunger and fullness signaling. We report on our single site experience with the POSE procedure (Primary Obesity Surgery, Endolumenal) using an Incisionless Operating Platform (IOP) comprising four instruments: TransPort®, g-Prox®, g-Lix™, and g-Cath™ (USGI Medical, San Clemente, CA, USA). The POSE procedure places g-Cath anchors in the fundus to create tissue plications at specific locations designed to trigger earlier fullness, reduced capacity and less hunger to facilitate weight loss. The IOP device has been safely utilized in over 700 cases for repair of a dilated gastric stoma and pouch in gastric bypass patients and shown to produce durable tissue remodeling at 12+ months. We offered the POSE procedure to patients who required surgical intervention for weight loss but did not want laparoscopic surgery.

Methods: A total of 37 consecutive patients (95% female) underwent POSE after giving consent. Based on a retrospective chart review, mean age was 45.4 years old with a mean BMI of 33.8 kg/m^2. The first 9 cases were performed with the g-Prox-16 device while the subsequent 28 cases were completed with a larger g-Prox-33 device. The g-Prox-33 device has a grasping jaw approximately twice as large as the g-Prox-16 device.

Results: Mean procedure time was 99.7 min for g-Prox-16 cases and 74.5 min for g-Prox-33 cases. Mean number of anchors placed in the fundus was 14.4 with g-Prox-16 and 8.5 with g-Prox-33. Majority of patients were discharged the same day. Most common adverse event was pharyngitis, which resolved in 1–2 days. There were two complications: one small gastric perforation, which was repaired intra-operatively, and one intra-gastric bleed, which was diagnosed in post-op recovery and treated

with endoscopic cautery. Two patients were re-admitted within the first 2 weeks post-op for abdominal pain, treated conservatively and discharged in 1–2 days. At 6 months after POSE, 80% (12/15) of patients reported increased satiety (less hunger, capacity, and/or earlier fullness) and excess weight loss (EWL) of 37% (n=17). Early results at 9 months suggested 41% EWL (n=12).
Conclusions: The POSE procedure appeared to be safe and resulted in a clinically significant weight loss of 37% EWL at 6 months and 41% EWL at 9 months. The majority of POSE patients reported decreased hunger similar to those reported by our gastric bypass and sleeve gastrectomy patients. They also reported less food capacity. The use of g-Prox-33 reduced the procedure time and number of anchors per case. Our initial results support the use of the POSE procedure as a safe and effective alternative treatment option for weight loss.

SY 02–06 Endobarrier™ Duodenal-Jejunal Bypass Treatment Results in Excess Weight Loss and Rapid Improvement of Diabetes in Obese Type 2 Diabetic Patients

PRESENTER: N.D. Bouvy[1]
Co-authors: C. de Jonge[1], J. Greve[1]

[1]Innovative Surgical Techniques Robot Surgery, Endoscopic and Endocrine Surgery, Department of General Surgery, Masstricht, Netherlands

Introduction: Excluding the proximal intestine from nutrients by malabsorptive bariatric surgical techniques improves Type 2 Diabetes (T2DM) within days. In the current study we investigated the effects of the EndoBarrier™ Duodenal-Jejunal Bypass Liner (DJBL), a new minimally invasive bariatric technique, on obesity and diabetes parameters.
Materials and methods: We included 17 obese T2DM patients who received the DJBL in combination with a low calorie diet for 24 weeks. Patients were studied prior to and one week after implantation, and prior to and 1 week after explantation. Weight was measured and blood was sampled before and 10, 20, 30, 60, 90 and 120 minutes after a liquid 500 kcal test meal. HbA_{1c}, glucose, and insulin concentrations were measured.
Results: At explantation, after 24 weeks, patients showed a mean loss of excess weight of 29.8±3.5% (mean±SEM) while HbA_{1c} had improved significantly from 8.4±0.2% to 7.0±0.2% ($p<0.01$). Furthermore, anti-diabetic medication was lowered in most patients (16/17). Interestingly, within one week after implantation, fasting and AUC glucose concentrations were improved (11.4±0.5 mmol/L vs. 8.9±0.4 mmol/L and 1,999±88 vs. 1,535±53, both $p<0.01$). Both at the time of explantation, and one week thereafter fasting and AUC glucose concentrations remained significantly decreased. No significant changes in insulin were observed throughout the study, indicating increased insulin sensitivity.
Conclusion: DJBL treatment resulted in significant weight reduction and rapid and long lasting improvement of T2DM, due to increased insulin sensitivity. Further research is warranted to elucidate the underlying factors.

SY 02–07 Different Endoscopic Devices for Revisional Bariatric

PRESENTER: G. Dapri[1]

[1]European School of Laparoscopic Surgery, Saint-Pierre University Hospital, Department of Gastrointestinal Surgery, Brussels, Belgium

In the recent years thanks to the advent of the Natural Orifices Transluminal Endoscopic Surgery (NOTES), we assisted to an increased develpment of endoscopes and new devices for Transluminal and Endoluminal Surgery. In bariatric, different devices were developed and are still under development especially for Endoluminal Surgery. Hence obese patients can be submitted to primary procedure or treated for revisional means endoluminally. The main objective is to reduce the invasivity and for patients already submitted to obesity surgery to avoid a new operation by laparoscopy or open surgery, but also metabolic aspects (type II diabetes) have been showed to be involved as well. Actually, revisional bariatric surgery can be performed using these devices: StomaphyX® (Endogastric Solution), Endocinch® (Bard), Spiderman® (Johnson&Johnson), g-prox® (USGI), Flexible Endocinch® (Covidien), OESS® (Apollo Endosurgery), and ovesco® (Ovesco Endoscopy AG). Complications like pouch dilation, gastrojejunostomy dilation, sleeve dilation, and postoperative bleedings and leaks can be treated endoluminally. Feasibility and early results of these endoluminal techniques are stimulating. In the future other devices, mainly developed for NOTES, will be probably introduced also for revisional bariatric, like DDES® (Boston Scientific) and Anubis® (Karl Storz-Endoskope). Finally, the future robotic application will complete this scenario as it happened for laparoscopy.

SY 03–01 Overview of Changes in Chronic Diseases after Surgery for Obesity - Based on Metaanalysis

PRESENTER: H. Buchwald[1]

[1]University of Minnesota, Surgery, Minneapolis, United States

Metaanalyses have been placed at the top of the evidence-based pyramid because of the use of uniform systematic methodology to reduce bias and error, and to increase reproducibility and transparency of the process. The weakness of these analyses, as for all literature reviews, is incomplete reporting, i.e., inadequacy of follow-up, and under reporting by the worst surgeons and certain of the best surgeons.
In 2004, we published a systematic review and metaanalysis of the results of metabolic/bariatric surgery on type 2 diabetes, hyperlipidemia, hypertension, and obstructive sleep apnea (Buchwald et al, JAMA, 2004;292:1724–1737). The mean percentage of excess weight loss was 61.2% for all patients; 47.5% for patients who underwent gastric banding; 61.6% for gastric bypass; and 70.1% for biliopancreatic diversion/duodenal switch. Diabetes was completely resolved in 76.8% of patient and resolved or improved in 86.0%. Hyperlipidemia improved in 70% or more of patients. Hypertension was resolved in 61.7% of patients and resolved or improved in 78.5%. Obstructive sleep apnea was resolved in 85.7% of patients and was resolved or improved in 83.6%.
Maggard et al, in 2005, published their review, which evaluated the same four comorbidities we assessed in 2004, with essentially the same findings (Maggard et al, Ann Inter Med 2005;142:547–559). In 2008, Cunneen et al, in their review of gastric banding showed resolution rates of about 60% for type 2 diabetes and hypertension (SOARD 2008;4:174–185). In a pediatric population metaanalysis in 2008, Treadwell et al again confirmed resolution of type 2 diabetes, hypertension, and obstructive sleep apnea after metabolic/bariatric surgery (Ann Surg 2008;248:763–776). A unique metaanalysis by Greenburg et al, in 2009, concentrated on obstructive sleep apnea and showed a significant resolution in the apnea hypopnea index from 54.7 events/hour to 15.8 events/hour (Greenburg et al, Ann J Med 2009;122:336–542).
The most discussed effect of metabolic/bariatric surgery has been its impact on type 2 diabetes. In 2009, we performed a metaanalysis solely concentrating on this comorbidity. In 621 studies, with 888 treatment arms, and 135,246 patients, we found that 78.1% of diabetic patients had complete resolution, and diabetes was resolved or improved in 86.6%. Weight loss and diabetes resolution were parallel and greatest for biliopancreatic diversion/duodenal switch, followed by gastric bypass, and least for banding procedures (Buchwald et al, Am J Med 2009;122:248–256).

SY 03–02 Hypertension and Cardiac Function

PRESENTER: C. Ren-Fielding[1]

[1]NYU School of Medicine, Surgery, New York, United States

Morbid obesity contributes to the development of hypertension and cardiac disease. Bariatric surgery has proven to not only treat the disease of obesity, but improve cardiac function and hypertension. We review the detrimental effects of obesity on cardiovascular health and the beneficial effects of bariatric surgery.

SY 03–06 Gastroesophageal Reflux Disease after Bariatric Surgery

PRESENTER: T. Rogula[1]

[1]Cleveland Clinic, Bariatric and Metabolic Institute, Cleveland, United States

Background: Obesity significantly increases prevalence and severity of GERD. Traditional antireflux therapies do not provide satisfactory results in obese patients.
Methods: A systematic data review was conducted using Medline, EMBASE, Cochrane, Scopus, and the grey literature for the words: “bariatric surgery”, “gastroesophageal reflux” and equivalent.

Results: A total of 117 reports were retrieved; 47 gastric bypass (45 improved, 2 unchanged), 9 adjustable gastric banding (4 worsening, 3 de novo, 2 improved) , 15 vertical banded gastroplasty (10 worsening, 1 improved, 4 no effect), 15 sleeve gastrectomy (4 worsening, 7 improved and 3 de novo). GERD was analyzed as a primary outcome in 7 reports and in remaining as a secondary. Improvement in GERD has been observed in conversions of the VBG to the gastric bypass.
Some bariatric procedures have proven efficacy against GERD in addition to weight loss and comorbidity reduction. Roux-en-Y gastric bypass and duodenal switch results in excellent control of GERD in long term. Gastric banding may improve GERD, but in long observation some patients experience various gastro-esophageal problems. Studies on the effect of sleeve gastrectomy on GERD showed differing outcomes. Some patients may improve GERD in long term and successful weight loss following sleeve gastrectomy. Vertical banded gastroplasty may induce GERD and should not be offered. Many patients with VBG require revisions because of increased prevalence or accentuated GERD. New bariatric procedures: gastric plication, nerve stimulation and endoluminal restrictive/malabsortive surgeries have not been well studied for their effect on GERD.
Conclusions: The outcomes and durability of traditional antiriflux procedures in the setting of severe obesity are unsatisfactory. Selective bariatric procedures have been suggested as a potential alternative for obese patients with GERD.

SY 03–07 The Problem of Osteoporosis after Bariatric Surgery

PRESENTER: M. Deitel[1]

[1]Editor-in-Chief Emeritus & Founding Editor, Obesity Surgery, Toronto, Canada

Obese individuals have increased bone calcium and bone mineral density (BMD). However, when they reach *morbid* obesity, they usually have decreased BMD, partially as a response to inactivity. Moreover, obese individuals tend to avoid skin exposure to sunlight, so that they receive inadequate UV-B rays, which are necessary to convert vitamin D in the deep layers of the epidermis to the active form, 1,25-OH vitamin D_3. Lack of vitamin D_3 leads to decreased intestinal absorption of calcium, secondary hyperparathyroidism and bone resorption. Following those bariatric operations that bypass the duodenum and proximal jejunum (where calcium is absorbed), there is rapid transit of nutrients and steatorrhea with fat-soluble vitamin D malabsorption. Unabsorbed calcium is free to bind with the fatty acids, forming insoluble (unabsorbable) calcium soaps. Furthermore, many "bypassed" individuals have lactase enzyme deficiency, and avoid milk. Also, H2-receptor antagonists and PPIs produce achlorhydria, so that ingested calcium salts cannot be broken down to absorbable, ionized calcium.
PPIs especially can lead to osteoporosis and fractures, because they inhibit osteoclastic proton pump receptors, decreasing osteoclast formation which is necessary for regeneration of new healthy bone. After sleeve gastrectomy, use of PPIs, either short- or long-term, has been reported in 30-50% of patients for acid reflux and "indigestion". A decrease in BMD has even been reported after gastric banding.
Following bariatric operations, supplemental vitamin D_3 and calcium must be prescribed. Serum calcium and vitamin D should be monitored and, if low, serum PTH should be measured. If PPIs are necessary, a baseline BMD study should be repeated at 1–2 years to be sure that calcium and vitamin D replacement is adequate.

SY 03–08 Thyroid Hormone Metabolism in Morbid Obese Subjects with Steatohepatitis (NASH)

PRESENTER: M. Nannipieri[1]

[1]University of Pisa, Internal Medicine, Pisa, Italy

Extensive data from literature have documented the key role of thyroid hormones (THs) in regulating lipid and carbohydrate metabolism. THs exert their physiological effects namely by their binding to specific nuclear receptors (TR) called α and β TR, both widely distributed throughout the body although, in different species, the β isoform is thought to be maximally expressed in the liver.
Furthermore, TH tissue availability and action strictly depend on the activation or inactivation of iodothyronines by deiodinase (Dio) family (i.e. Dio 1; Dio 2; Dio 3) in the extrathyroidal tissues. Dio isoform expression differs among species, so extrapolation of their effects from animal studies to human physiology should be done carefully.
Potential beneficial effects of TR activation include lowering of lipoprotein cholesterol, reduction of adipose tissue and body weight.
Non alcoholic fatty liver disease (NAFLD) is one of the most common forms of chronic liver disease, that can progress to non alcoholic steatohepatitis (NASH), cirrhosis and hepatocellular carcinoma. NAFLD occurs frequently in obese, type 2 diabetic and dyslipidemic subjects. Although the specific mechanisms leading from simple steatosis to NASH are under investigation, it has been demonstrated in rodents that TR β activation in hepatocytes, by selected agonists, decreased hepatic steatosis by decreasing lipid content in the liver. Furthermore, TR agonists reduced plasma FFA and triglycerides. This effect is likely attributable to an increased metabolic rate in the liver and mitochondrial β−oxidation. In contrast to TR agonists, T3 induced adipocyte lipolysis in vitro and in vivo, lipogenesis in liver, either of which could lead to deposition of lipids in the liver.
However, data concerning TR and Dio expression and activities in humans and in particular in subjects with NAFLD are lacking. Recently, in morbid obese subjects with various degrees of NAFLD, we found no changes in circulating TH concentrations and the expression of all three types of Dio in the liver biopsies. On the contrary, the TH inactivating Dio 3 expression increased significantly with the progression of NAFLD, thus suggesting a potential association between an altered TH intra-liver metabolism and evolution of NASH. These preliminary data open the way to further investigations looking at the role of TH/TR and Dio actions in the pathogenesis of NASH

SY 03–09 Long-Term Mortality after Different Bariatric Operations

PRESENTER: L. Busetto[1]

[1]University of Padova, Department of Medical and Surgical Sciences, Padova, Italy

A large body of epidemiologic studies evidenced that morbid obesity is associated with a large reduction in life-expectancy. In men and women 50–71 years old enrolled in the NIH-AARP Diet and Health Study, the multivariate relative risk of death in morbid obese patients who never smoked was 2.52 (95%CI: 2.20-2.88) in women and 2.59 (95%CI: 2.30-3.06) in men, as compared to normal weight subjects (Adams et al. N Engl J Med 2006;355:763–78). Excess relative risk may be even higher in younger patients, obviously at a lower absolute risk of death. One of the major goals of bariatric surgery is the reduction of such death risk. The Swedish Obese Subjects (SOS) study is a large prospective study in which total and cause-specific 10-years mortality was compared in morbid obese patients treated by several types of bariatric procedures (1369 VBG, 376 gastric banding, 265 gastric by-pass) and in well-matched morbidly obese controls not choosing surgical treatment. Total mortality was significantly lower in surgical than in the control group (RR: 0.76; 95% CI: 0.59-0.99; P=0.04) (Sjostrom et al. N Engl J Med 2007;357:741–52).
The reduction in total mortality after bariatric surgery observed in the SOS study has been confirmed by an additional seven retrospective studies. Two studies were specifically conducted in patients treated with gastric banding and five studies involved patients treated with gastric by-pass. The results of the SOS and the seven retrospective studies has been recently meta-analyzed by Pontiroli & Morabito (Ann Surg 2011;253:1–4). Main results of the meta-analysis was that surgery, compared with controls, was associated with a reduced risk of global mortality (RR: 0.55; 95% CI: 0.49-0.63), CV mortality (RR: 0.58; 95%CI: 0.46-0.73) and non-CV mortality (RR: 0.70; 95%CI: 0.59-0.84). The effect of gastric banding and gastric by-pass (3797 vs 10,255 interventions) was similar for global and non-CV mortality (RR: 0.57 vs 0.55, and 0.66 vs 0.70, respectively), different for CV mortality (RR: 0.71 vs 0.48). However, no studies directly compared mortality after different surgical procedures and the results of the comparison derived from the meta-analysis should be interpreted cautiously given the high heterogeneity of the studies. Large differences in the relative risk of deaths has been indeed observed between the studies and they appear to be more related to differences in absolute mortality in the control groups than to differences in crude mortality rates in the surgical groups.
In conclusion, bariatric surgery is to date the only treatment with a demonstrated effect on total mortality in morbid obese patients. Reduction in total mortality is proven after both the most frequently performed bariatric procedures, gastric banding and gastric by-pass.

SY 04–03 Hybrid Technics in Bariatric Surgery

PRESENTER: M. Büsing[1]
Co-authors: M. Utech[1]

[1]Klinikum Vest; Knappschaftskrankenhaus Recklinghausen, Klinik für Allgemein- und Viszeralchirurgie, Recklinghausen, Germany

Since the development of natural orifice transluminal endoscopic surgery (NOTES) initially hybrid surgical technics were processed combining NOTES and laparoscopic procedures. The advantages of a hybrid NOTES approach in bariatric surgery might include: easier access to the peritoneal cavity, reduced number of ports and related complications, improved cosmetics, and others. Initial experiences in human cadavers were described by Hagen et al in 2008 performing hybrid natural orifice transluminal endoscopic surgery for Roux-en-Y gastric bypass. In 2008 Ramos et al first described the attempt using the vagina as a natural orifice in the form of a hybrid NOTES transvaginal sleeve gastrectomy (SG). In our series hybrid NOTES transvaginal SG were performed in 16 female patients. The average age of the patients was 42 years (range 32–50 years) and the mean BMI 39.3 kg/m² (range 35.5-46.8 kg/m²). The transvaginal technique allowed the reduction of the required ports to an average number of 3.2.The mean operation time was 98 minutes (range 75–140 minutes). The intraoperative preparation respectively transvaginal assistance was limited due to the intra-abdominal fat distribution. In all cases the specimen was salvaged via the transvaginal access. In one case an ovarian teratoma was observed. Postoperative no pain, bleeding or infection occurred in the transvaginal access. One major complication, a proximal leakage, occurred in one patient. Mortality was not observed. Preparation of the stomach or creating the stapler line was not possible to perform transvaginally in all patients. One reason was the pronounced intra-abdominal fat distribution, which did not allow achieving the upper abdomen without continuously changing between Trendelenburg and anti-Trendelenburg position. For a final establishment of a hybrid NOTES transvaginal SG, longer transvaginal ports and longer staplers have to be developed.

SY 04–04 Current State of Neuromodulation in the Treatment of Obesity and other Metabolic Disorders

PRESENTER: S.A. Shikora[1]

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Background: Neuromodulation represents a group of new surgical approaches to the treatment of obesity and associated metabolic disorders that involves the application of a small patterned electrical impulse to a target organ. The target organ may include the stomach, duodenum, small intestine, vagus nerves, the adrenal glands, or the brain. Changing the pattern and amount of energy delivered can also alter the desired effect. The impulse can augment or modify normal physiologic responses or block them.

There is a growing body of research to suggest that the technology is safe. In addition, at least some of the neuromodulatory technologies have the potential to provide beneficial weight loss and positive effects on the associated metabolic conditions.

Methods: This presentation will review and analyze the latest published research evaluating neuromodulation

Results: To date, the published data with neuromodulation suggests that there may be potential for benefit with some of these technologies. Thus far, promising results have been reported in small open label trials with short follow up. The few large prospective, randomized, blinded trials have not yet demonstrated clinically relevant efficacy.

Conclusion: Neuromodulation offers safe and less complex options to the conventational surgical approaches to morbid obesity. However, the early data does not support its clinical application. More study would be required before the technology is deemed efficacious.

SY 04–06 New Technologies for the Future Talk: Micro-Orifice Surgery - Future Aspects

PRESENTER: H. Buchwald[1]

[1]University of Minnesota, Surgery, Minneapolis, United States

As the volume and scope of metabolic/bariatric surgery increases, there is a definite trend towards the development and utilization of simpler and safer procedures. The laparoscopic approach has certain disadvantages that can be avoided by a technique for abdominal access of a micro-orifice incision (6 cm-7 cm) under intravenous (IV) sedation/local anesthesia, without general anesthesia, abdominal insufflation, and tracheal intubation. We have developed a porcine model in which a steady state of normal pulse rate, blood pressure, respiratory rate, and blood gases can be maintained, without movement by, or apparent distress, of the subject, during the performance of metabolic/bariatric surgery procedures. To-date, we have studied three operations: implantation of gastric electrodes (Tantalus System, MetaCure Inc), adjustable gastric banding, and sleeve gastrectomy. Next, under IRB approval, we studied the micro-orifice incision in patients scheduled for standard open duodenal switch. Before the extension of the sub-xiphoid incision to standard open surgery length, the peritoneal cavity was entered, and, over the course of a few minutes, visualization of the stomach, including the esophagogastric junction, and the small intestine was achieved. We have now initiated a series of sleeve gastrectomies at the University of Minnesota, and plan to schedule Tantalus System implantations outside of the United States. If the micro-orifice model proves to be successful, it will allow for the safe performance of metabolic/bariatric surgery, possibly in an outpatient setting, in patients with a lower BMI, at considerable cost savings. It may also make metabolic/bariatric surgery feasible and affordable in rural communities in emerging nations.

SY 05–01 LAGB: Safety-Operation Critical Steps

PRESENTER: L. Lantsberg[1]

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Getting started

Patient lies on the operating table in the "French position",.A Five trocar approach is used (three 10 mm and two 5 mm) to obtain pars flaccida retrogastric blunt dissection to create a tunnel for the band. Have a constant contact with the anesthesiologist; if patient shows bradycardia, hypotension or desaturation reduce or deflate completely the abdomen. Instrument requirements: One "Gold finger", two atraumatic graspers, two needle holders and a 45° scope. Suction and electrocautary are needed in rare cases and should be requested only if necessary during the procedure.

The procedure

Veress needle usually inserted in left upper quadrant, 3–10 mm and 2-5 mm trocars should be inserted at the appropriate places.First step - left crus identification achieved by disruption of gastrophrenic ligament through a small 1–1.5 cm dissection created by "gold finger". Tip - the size of the dissection is crucial since a preserved gastrophrenic ligament is used as a band-anchor, in attempt to minimize slippage. Second step - tear of pars flaccida just anterior to the caudate lobe of liver followed by the identification of the right crus.

Create a retrogastric tunnel under direct vision by using a "gold finger" and a needle holder. Only when reaching the fat pad will the surgeon bend the "gold finger" The tip of the "gold finger" should appear superior and posterior to the fundus **without any additional tissue on it**.

The preparation of the band on the bedside table before insertion should include examination of band's integrity (water filling or vacuum tests).After extraction of the 10mm left upper sided trocar the flattened band should be mounted on a needle holder and inserted intrabdominaly through the same inlet.

Positioning of the band

Anchor the thread loop on the "gold finger" groove, pull the "gold finger" under direct vision of the exit site. Tip - be sure that no excessive tissue exists between the band and the gastric wall at the point of exit. Band closure should be accomplished using its mechanism followed by a visual and manual confirmation of a good seal In my experience, no gstro-gastric or gastrophrenic sutures are required for band fixation since it does not seem to reduce anterior slippage rate and further more even increase the risk of intragastric band migration.

Be sure it is positioned in a loose and appropriate manner so that no additional structures are incarcerated between the band and the stomach. Retrieve the connecting tube through the epigastric port. . A good positioning of the port in the pocket will not require additional sutures for fixation.

SY 05–02 Pressure Guided Adjustments after Laparoscopic Adjustable Gastric Band

PRESENTER: M. Fried[1]

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Introduction: A great variability of long-term results of adjustable gastric bands are reported throughout the world. There are several reasons for such differences, such as but not limited to - regional/ethnic differences, expectations set up among individual patients as well as among a larger population groups, etc. A great variability is reported as well in adjustment strategies ending in objecively unmeasurable, uncomparable degrees of restriction achieved during the entire period of bariatric treatment.
Material and methods: Pressure guided adjustments which have been proven to deliver similarily accurate information as manometries are capable of providing more physiological adjustments. This feature may help to substantially enhance the effectivity and safety of gastric bands mainly due to fine tuning adjustments in more objective way as well as being able to detect even at that time clinically silent, early stages of band, esophageal and gastric disorders which, if not treated adequately soon usually end-up in complications neccessitating reoperation.
Pressure guided, physiological adjustments mean that the band is aiming at patient anatomy and the real physiological status of esophagus and stomach. Therefore pressure applied by the band at stoma region does not adversly affect normal peristaltic activity (propulsive capability) of abdominal esophagus / stomach pouch. Through the means of pressure readings early signs of esophageal / stomach pouch exhaustion (dilatation) may be detected with a very similar accuracy compared to e.g. esophageal manometry. Technical failures of the band system can be more easily detected as well.
Different clinical cases, based on results of a prospective, randomized multi-centre pressure readings study are going to be presented with focus on some of the most common gastric banding complications, such as gastric pouch dilatation/band slippage as well as on over- and under-restriction providing a view on how swift detection and correction is enabled through pressure adjustment readings.
Conclusion: Through pressure guided adjustments and measurements it may be possible to detect precisely and early certain band-related pathologies/irregularities such as band overfilling (over-restriction), band-tubing disconnection (kinking), esophageal motility dysfunctions, esophageal dilatation, pouch dilatation, band slippage and others. Thus in gastric banding patients it may be possible to achieve more physiology in adjustments, resulting in early pathology detection, less complications, and potentially higher overall weight loss.

SY 05–03 Predictors of Outcome with Laparoscopic Gastric Banding.

PRESENTER: J. Brocklehurst[1]
Co-authors: C. Magee[1], S. Saha[1], R. Macadam[1], S. Javed[1], D.D. Kerrigan[1]

[1]Gravitas, Wirral, United Kingdom

Background: Excess weight loss following a Laparoscopic Gastric Band (LAGB) procedure is more variable than with other bariatric procedures and patient selection is important for a successful outcome. We investigated whether pre-operative factors could be used to predict the outcome of LAGB.
Methods: 105 patients with two year follow up data were analysed from the bariatric database. Median excess weight loss (EWL) at year one and year two was 39% and 62% respectively. By year three this had increased to 71%. Median age was 41 years and median BMI was 42kgm^2. Data was analysed using multivariate logistical regression. Age, gender, arthritis, pre-op BMI, physical activity history and a sweet or savoury snacking pattern were analysed. The dependant variables were >60% and <50% EWL at two years.
Results: Logistical regression showed that the pre-operative factors associated with >60% EWL were a history of physical activity in previous attempts to lose weight and consumption of both sweet and savoury snacks less than three times per week (p=0.03, 0.02 and 0.03 respectively) . Female patients also had a better outcome (p=0.03).The factors associated with<50%EWL were BMI> 50 kgm^2, arthritis, consumption of sweet snacks greater than three times per week and no history of physical activity in previous attempts to lose weight (p=0.04, < 0.01, < 0.01 and<0.01 respectively). Age did not influence EWL outcome.
Conclusion: BMI, gender, arthritis, physical activity history and the types of snacks patients choose can be can be used at pre-operative assessment to predict the outcome of LAGB.

SY 05–04 Body Composition Changes after Adjustable Gastric Banding

PRESENTER: K. Dolezalova[1]

[1]Center for Treatment of Obesity and Metabolic Disorders, Prague, Czech Republic

Background: Weight loss, BMI and %EWL changes are important measurements of successful bariatric surgery outcomes. However, as very important outcome body composition change should be considered as well. Thus fat mass is an extremely active tissue on hormonal, metabolic and other levels and therefore decreasing the fatty mass /FM/ (on contrary to affecting fat free mass /FFM/) is the most desirable effect in orderd to improve health status of an obese individual.
Method: Prospective one year evaluation (January 2010 - January 2011) of a group of consecutive 100 patients undergoing adjustable gastric banding (AGB) /Realize C band - EES, Obtech Medical, Switzerland/ implantation was carried out in order to evaluate body changes imposed by the procedure. Patients were followed-up 6 weeks, 3,6 and 12 months after the operation. Weight, BMI and %EWL were recorded as well as Body Composition measurements were carried out on In Body 720 analyser. For accuracy the first 10 patients the In Body 720 measurement results were matched to those obtained from Lunar IDXA in the same cohort of patients measured the same day immediately after being measured on In Body 720. As there was over 95% match in data, the results from In Body 720 were considered as comparable to results from IDXA.
Results: Pre-op av. weight of AGB patients was 121.1 kg, av. BMI 42.9 and FM 58.7 kg. One year after surgery the av. weight loss was −21.6 kg, % EWL 50.1, FM decreased by - 21.2 kg (36.1%). There was only 0.4 kg loss in fat free mass in the cohort of patients in 12 months after surgery.
Conclusion: Adjustable gastric banding produced in one year after surgery both, substantial % excess weight loss as well as a desirable effect - weight loss in fat mass - 99.6% of the entire weignt reduction achieved in fat. One year treatment with AGB results in substantial reduction in fat mass combined with minimal reduction in fat free mass (only −0.4 kg).

SY 05–06 Management of Gastric Banding - Quality of Life and Survival

PRESENTER: H. Buchwald[1]

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Quality of life (QOL) metrics are an attempt to quantify the qualitative. In the Program on the Surgical Control of the Hyperlipidemias (POSCH) trial, we learned that QOL scores were influenced by knowledge of outcomes (Control Clin Trials 1993;14:500–510). Partial ileal bypass intervention patients improved certain QOL scores after being told the favorable trial results. Keeping this documented caveat in mind, the QOL assessments of gastric banding are, as a rule, affirmative. Attentive patient management by O'Brien's group at Monash University in Melbourne, Australia, using a variety of metric instruments, has resulted in most favorable QOL outcomes (Obes Surg 2008;18:833–840 and 2010; online 9Feb 2010). In Vasa, Finland, Tolonen and Victorzon also reported significant improvement in QOL scores two years postoperatively (Obes Surg 2003;13:424–426). Long-term findings in Kuopio, Finland, by Martikainen et al, using BAROS, were less optimistic: 3% very good, 7% good, 40% fair, and 50% failure (Obes Surg 2004;14:648–654).
Ascertaining operative survival is easier. Few would disagree that gastric banding is the safest operative procedure with operative mortality approaching 0%. Operative mortality findings in five metaanalyses, in order of their date of publication are: 0.1%, banding combined with vertical banded gastroplasty (Buchwald et al, JAMA 2004;292:1724–1737); 0.4% for controlled trials and 0.02% for case series (Maggard et al, Ann Int Med 2005;142:547–559); 0.30% for open and 0.07% for laparoscopic banding, combined with vertical banded gastroplasty (Buchwald et al, Surgery 2007;142:621–635); 0.1% (Cunneen et al, SOARD 2008;4:174–185); and 0% (Treadwell et al, Ann Surg 2008;248:763–776).

SY 05–08 Gastric Banding: Long Term Outcome Data

PRESENTER: P. O'Brien[1]
Co-authors: W. Brown[1]

[1]Monash University, Centre for Obesity Research and Education, Melbourne, Australia

Obesity is a chronic disease and therefore proof of long term effectiveness should be required for any weight loss method to be broadly accepted. Yet, after more than 30 years of clinical use, minimal long term data, defined as greater than 10 yr follow up, are available for gastric bypass and biliopancreatic diversion. We began laparoscopic adjustable gastric banding in 1994 and report fifteen year follow up data.

Methods: A total of 3233 patients of POB and WB have had placement of a LAP BAND™ (Allergan), provided with aftercare through a dedicated follow up clinic and have been prospectively tracked by a bariatric surgery database (LapBase™) which recorded all follow up weight measures and revisional surgery. To reflect evolution of LAGB practice, patients were divided into three treatment groups: Group1 - "*the perigastric era*" 1994–2001, N=934; Group 2 - "*the pars flaccida era*", 2001–2006, N=926, and Group 3 - "*the AP band era*", 2006–2011, N=1214.
Results: Follow up data were available on 2627 of the 3247 patients (81%). The mean age was 50 and the mean initial BMI was 43.8 kg/m^2. 78% were female. There have been no deaths associated with either the primary band placement or any revisional procedure. Early (3yr) and medium term (7yr) outcomes have been reported previously (Brit J Surg 1999; 86:113–8; Obesity Surgery 2002; 12:652–60). Weight loss, expressed as a mean % of excess weight loss, was 53%EWL at 3 years (N=2395), 51%EWL at 6yr (N=1501), 48%EWL at 10 yr (N=577) and 47%EWL at 15 years (N=25). Revision procedures with replacement of the band were performed for proximal enlargements (slips and symmetrical dilatations) in 424 of group 1 (45%), 255 of group 2 (27%) and 33 of group 3 (2.6%). Erosions occurred in 8.5% of group 1, 1.9% of group 2 and 0.6% of group 3. A total of 163 (5.0%) explants have occurred. The weight loss after revision with band replacement was not different from the overall group supporting this approach as the preferred path compared to simple removal or conversion to another procedure.
Conclusions: At 15 years after gastric banding, nearly half the excess weight remains lost. The earlier frequency of late adverse events has been reduced markedly. Gastric banding is a safe and effective treatment for obesity in the long term.

SY 05–09 Dilatation after Lap-Banding (Proximal Enlargements): Prevention

PRESENTER: J. Dargent[1]

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Although being a very popular method for treating morbid obesity, and even gaining acceptance for low BMI patients, lap-banding is questioned because of its long-term complications and failures, hence the need to define a relevant strategy for reoperation.
Is there any kind of prevention of these complications?

- Slippage: YES ++ (pars flaccida technique, stitches)
- Intolerance: NO
- Oesophageal dilatation: YES+(not too much fill)

In terms of causes, we have to separate several issues: anterior slippage, posterior slippage (rare), pouch dilatation, and oesophageal dilatation. X-Ray is mandatory in order ton eliminate an isolated food intolerance (without dilatation). Insufficient weight loss is not necessarily related to these issues.
The options on display are connected to the understanding of such mechanisms:

- Conservation: "Adjustment management"; surgical correction (ant slip).
- Placement of a new band: possible if failure of the device, accidental removal (slippage in difficult conditions), erosion (delay?).
- RYGB or BPD = "non restrictive" options in selected cases only.

Weight-control is possible, including in case of oesophageal dilatation (diet and radiological management). Reoperation for insufficient WL without technical problem is a rare option.

SY 05–10 Proximal Enlargements - Assesment and Management

PRESENTER: K. Miller[1]

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The major long-term complication of laparoscopic adjustable gastric banding (LAGB) is dilatation of the gastric pouch, that is reported with a frequency ranging up to 25%, and often requires removal of the band. In the gastric banding meta-analysis, systematic review included screening of 5000 studies published in any language (Jan 1, 1998-Dec, 2010). Three-year mean Gastric Banding excess weight loss (50.20%) was significant, as was resolution of type 2 diabetes (61.45%/60.29%) and hypertension (62.95%/43.58%) (P<.05). Pouch dilatation without slippage of the gastric band was not defined in all studies.
The mean rates of erosion and slippage were 1.03 and 4.93, respectively. The results demonstrated a statistically significant overall correlation between erosion and slippage rates (r=0.48, p=0.032). A very strong correlation between erosion and slippage was found if the perigastric technique of insertion was used (r=0.99, p< 0.001). However, this correlation was not statistically significant where the pars flaccida technique of insertion was used (r=0.34, p=0.38). The incidence of postoperative complications for slippage in the first 3 years ranged from 2.5% to 14%, for pouch dilatation 9.5%, 12.0% for overall band removal. Studies with a follow up over 10 years, the reoperation rate raised up to 30% with a reoperation rate of 2.2% for every year of follow up. The complication and reoperation rate after LAGB is high on a long term. Nevertheless, LAGB is still a therapeutic option in morbid obese patients, but with a carefully evaluated selection and follow-up regimen.

SY 05–11 Erosions and How to Prevent Them

PRESENTER: C. Stroh[1]
Co-authors: Study Group Bariatric Surgery

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Background: Intragastric band migration is characterized by a "silent" migration of the band into the stomach. Peritonitis symptoms are usually absent, and there are limited retrospective data obtained from long-term studies available. In a few studies, band migration has been considered as a complication associated with the first 2 postoperative years, which is caused by intraoperative gastric perforation. But band migration more than 5 years postoperative occur in patients with an uncritical uptake of non-steroidal antirheumatic agents, bronchospasmolytic drugs and anticoagulant substances.
Methods: Data collection occurred prospectively in an online data bank. All primary bariatric procedures performed were recorded as were all re-operations in patients that had already undergone a primary operation. Specific data compiled on the gastric banding were evaluated with a focus on operative details and complication rates.
Results: The total study cohort from German Nationwide Survey contains more than 12.000 patients. From January 2005 to December 2010, more than 3000 banding procedures were performed. 73 patients were reported with band migration as revisional procedures, but only 13 developed a band migration between 2005 and 2010. We report these patients and compare the data with literature.
Conclusions: Band migration is still an unsolved problem after gastric banding. Patients with gastric banding should avoid non-steroidal antirheumatic substances, anticoagulant substances and bronchospasmolytic drugs. Chronic inflammation at the tissue area covered by the band could be a further reason for developing erosion. In our experience, band migration occurs by 30–86 months postoperatively. We suggest that band removal in cases of erosion accompanied by a simultaneous "re-banding" should not be performed because there is a potential risk of infection of the new band. This conclusion is based on the different causes of band erosion, a significantly higher migration rate following intraoperative gastric perforation and the currently available data in the literature. In addition, because of the high failure rate after band revision, a conversion to a Roux-en-Y gastric bypass or biliopancreatic diversion needs to be considered.

SY 05–12 Erosions - How to Treat Them

PRESENTER: D.J. Birk[1]

[1]Protestant Hospital Zweibruecken, Surgery, Zweibruecken, Germany

Band erosion may be considered one of the most serious complications of AGB. The incidence ranges from 1% to 3% depending on the series. The occurrence of erosions seems to have decreased in more recent times with the advent of newer band designs that have a high-volume and a low-pressure system. Improved surgical technique applying the pars flacida technique has significantly decreased this complication. Factors that may play a role in band erosions include serosal injury during insertion, use of nonsteroidal anti-inflammatory agents, increased pressure within the band over a long period of time and excessive vomiting. Any patient who presents with a late port site wound infection should be investigated with an upper endoscopy to rule out intragastric band migration, as this is a well-described presentation for this complication. Other symptoms may include sudden weight regain, abdominal pain, bleeding, or peritonitis. The management of patients with erosions involves

endoscopy with potential intraluminal retrieval of the band or a laparoscopic removal of the band, with suture repair of the stomach at the site of the erosion. Whether a conversion to another procedure is done at the time of band removal is dependant on the location and size of the penetration. In our experience penetrated bands could be found in various unexpected locations: intraluminal dislocation to proximal jejunum only withheld by the connected tube to the port chamber or penetration to the distal oesophagus.
Surgical treatment of these complications may vary between simple laparoscopic removal up to subtotal gastrectomy..

SY 06–01 Confronting the Diabesity Epidemic - A Logical Approach

PRESENTER: A.J. Torres[1]

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Introduction: Diabetes mellitus represents an expanding pandemic that contributes markedly to worldwide morbidity and mortality. Currently, approximately 240 million people are afflicted, 90% to 95% with type 2 diabetes mellitus (T2DM), and that number is expected to exceed 380 million by the year 2025.
Tight glycemic control minimizes microvascular complications; however, macrovascular complications and cardiovascular mortality remain difficult to ad- dress even with intensive glucose-lowering therapy. Furthermore, despite substantial advances in pharmacotherapy and disease management, a large number of patients remain inadequately con- trolled, and complete remission of hyperglycemia and the associated metabolic alterations is rare.
Faced with the escalating global diabetes crisis, health care providers require as potent an armamentarium of therapeutic interventions as possible. In addition to behavioral and medical ap- proaches, various types of surgery on the gastrointestinal (GI) tract constitute extremely powerful options to ameliorate diabetes in severely obese patients, often normalizing blood glucose levels without diabetes medications. These effects occur not only as a consequence of major weight loss, but also in some cases as the result of additional weight-independent mechanisms. Whereas dia- betes is traditionally viewed as a chronic, relentless disease in which delay of end-organ complications is the major treatment goal, GI surgery offers a novel end point: the concept of complete disease remission. The role for GI surgery in diabetes treatment, however, is not clearly defined.
In this session, we will deal with all the updated data that face on this challenging issue.

SY 06–02 Modern Diabetes Management - Understanding the Diabetologist

PRESENTER: K. Rett

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European obesity and diabetes prevalence rates are 22% and 8.5%. Risk of type 2 diabetes is increasing with physical inactivity, BMI and degree of central fat distribution. Accordingly, 30% of those referred for bariatric surgery will have type 2 diabetes.
The purpose of diabetes diagnosis is to identify those at risk of developing both macrovascular and microvascular complications. In the past, diagnostic criteria were based on fasting and post challenge plasma glucose whereas HbA1c served as tool for monitoring treatment success. Recent consensus suggests, that HbA1c alone might be sufficient for diagnosing diabetes, as it offers methodic advantages. Diabetes can indeed be excluded if HbA1c is <5,7% and confirmed if HbA1c is≥ 6,5%. However, as most obese people will have intermediate HbA1c, plasma glucose will remain the diagnostic gold standard in obesity.
Antidiabetic treatment seeks to prevent macrovascular and microvascular complications of diabetes. Besides non-pharmacological treatment, education, behavioural lifestyle modification, increasing physical activity and changing eating habits, the pharmacological toolbox is expanding by incretin-based therapies, that are safer, easier to use and less prone to serious side-effects like hypoglycemia and weight gain.
The only prospective study to successfully reduce cvd was the Steno trial with a multimodal concept including the correction of dyslipidemia, blood pressure and altered thrombocyte function besides glucose control. UKPD was neither multimodal, nor properly controlled, disregarded lipid control and failed to reduce cvd. ADVANCE, ACCORD and VADT were multimodal, but failed to reduce cvd endpoints by initiating forced HbA1c lowering after 8,10, and 11.5 years of insufficient glucose control. Body weight has never been targeted in any of the studies.
Glucose control obviously does not reduce macrovascular complications if initiated too late and within treatment strategies that increase body weight and hypoglycemia risk. Whether metabolic surgery-based glucose control will reduce macrovascular complications has to be tested.

SY 07–01 Prevalence of Overweight in Children of Obese Patients: A Dietary Overview

PRESENTER: C.C. Mottin[1]
Co-authors: M.A. Pufal[1], A.V. Padoin[1], D.S. Casagrande[1], C.C. Moulin[2]

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Background: The obesity which persists from childhood to adolescence is accompanied by non-transmissible chronic diseases (NTCDs). It is growing the incidence of morbid obesity in young people and the search for bariatric surgery to reduce the negative impacts on their health.
Methods: In this cross-sectional study, we evaluated 40 children aged between 0 and 10 years, whose parents underwent bariatric surgery at the Centro da Obesidade e Síndrome Metabólica, Hospital São Lucas, Pontifícia Universidade Católica do Rio Grande do Sul (COM HSL PUCRS).
Results: Among these children, 45% were overweight and 16 had high values of waist circumference. The calorie and sodium intakes are above the Dietary Reference Intakes (DRIs) while dietary fiber and potassium intakes are below. Obese children had higher intake of caloric lipid percentage (28.3 vs. 25.3%, $p<0.025$), while the non-obese tended to increase in carbohydrate consumption (62.6 vs. 60%, $p<0.066$). The presence of NTCDs in the children's relatives of the first and second grade was 100%.
Conclusions: There is probably a significantly greater prevalence of obesity among morbidly obese children in relation to the child population in general. Since the aggregation of NTCDs is virtually absolute, these results point to the need for careful evaluation when dealing with children. However, it is necessary to increase the number of individuals in the present study to confirm these results.

SY 07–02 Addiction's Role in Obese Children and Adolescents

PRESENTER: E. Ardelt-Gattinger[1,2]
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There is controversy about role of craving and addiction in obesity (Ellis et al 1992, Pudel & Westenhöfer, 1998). We have shown that obese adults fulfill the minimum three criteria of ICD 10 for the diagnosis 'addiction', that they do not differ significantly from either other substance addicts, that BMI groups differ significantly in "addiction to abnormal food intake" and that addiction is a strong predictor of weight loss after surgical and behavioral interventions (Ardelt-Gattinger et al., 2000a, b, 2002, 2003).
Here we attempt to replicate this in children with the help of eight studies. In four cross sectional studies (N=4428, 2480 bzw. 1886, Studie I, V, VI, VIII), we surveyed 10-16-year old pupils from a representative selection of Austrian schools. We interviewed 160 morbidly obese young patients and their parents (Age 10–16), who wanted to participate in therapy trainings sessions (Study VII). In two longitudinal studies we evaluated 10–14 year old participants (N=55, Study II and 66, Study III,

IV) of interdisciplinary obesity group training. We used the child version of the "Questionnaire on addiction to overeating" (Ardelt-Gattinger & Meindl, 2010).
Children too fulfill the minimum three criteria of ICD 10 for the diagnosis 'addiction', percentiles differ significantly in "addiction to abnormal food intake", addiction is a strong predictor of weight regain and weight loss, distinction can be made between addiction to overeating and eating disorders and the subjective burden of feeling addicted is stronger than the burden of being obese. Addiction is correlated significantly with amount of salivery produced at the mere sight of ones most preferred snack.
These results prove the relevance of food craving/addiction in childhood. Contemporary studies in neuroscience support these results (Wang et al., 2004, Mangge et al, 2010).
Obesity, Addiction to Overeating, Binge Eating Disorder, Children & Adolescents, Neurosciences

SY 07–03 Psychological Aspects of Adolescent Obesity and its Treatment

PRESENTER: L. Brennan[1]

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The high and increasing prevalence of adolescent obesity combined with the strong tracking of adolescent obesity into adulthood and the negative biopsychosocial consequences of excess weight in adolescence highlight the need for effective intervention approaches in this population. Despite increased recognition of this need, adolescent obesity has received relatively little research attention and available research has largely focused on the physical consequences of excess weight and weight based outcomes of obesity interventions. The psychological aspects of adolescent obesity and its management have been largely unexplored. Research exploring psychological aspects of adolescent obesity and its management is widely criticised for its failure to consider a broad array of potential psychological factors, poor choice of measures and small sample sizes.
Available research suggests that obese treatment seeking adolescents are at increased risk of psychological problems such as depression and eating disorders and a range of psychological risk factors including poor body image, low self-esteem, poor quality of life, and low social support. Little consistent data is available regarding the psychological correlates of treatment outcome, however available research suggests that depression and disordered eating may be associated with poorer treatment engagement, compliance and outcome. Little is known about the psychological outcomes of adolescent weight loss interventions and there are concerns that obesity interventions may cause unintended psychological harm. Available research suggests that adolescent obesity intervention results in improvements in psychosocial risk factors including body image, self-esteem and eating and activity attitudes.
These findings are supported by the results of a recent randomised control trial exploring the efficacy of laparoscopic adjustable gastric banding(LAGB) and lifestyle (LS) intervention in the treatment of adolescent obesity. LAGB was more effective than LS in promoting weight loss[34.6 kg(95% CI,30.2-39.0) vs 3.0 kg(95% CI, 2.1-8.1)], excess weight loss[78.8%(95% CI, 66.6%-91.0%) vs 13.2%(95% CI, 2.6%-21.0%)], and body mass index z-score[2.39(95% CI, 2.05-2.73) to 1.32(95% CI, 0.98-1.66) vs 2.41(95% CI, 2.21-2.66) to 2.26(95% CI, 1.91-2.43)]. Participants demonstrated impaired quality of life compared to community norms in 8 of the 11 quality of life factors assessed at baseline. Both groups demonstrated significant improvements in general health quality of life(LAGB $p=.003$, LS $p=.044$). The LAGB group demonstrated significant improvements in family activities($p=.006$), general health($p=.003$), physical functioning($p<.001$), self-esteem($p=.012$), and change in health($p<.001$) and significantly greater improvements in physical functioning($p=.002$) and change in health($p=.006$) relative to the lifestyle group. These results demonstrate the superiority of LAGB in promoting both weight loss and quality of life.

SY 07–04 The Extremely Obese Adolescent - Clinical and Psychosocial Challenges

PRESENTER: M. Wabitsch[1]
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Extremely obese adolescents have a strongly elevated risk for early death, somatic comorbidities, psychiatric disorders, and social isolation including unemployment due to both functional impairment and stigmatisation. Despite the dire implications of adolescent extreme obesity and the frequent overt (e.g. orthopaedic disorders) and non-overt (e.g. hypertension) comorbidity, these adolescents are difficult to reach and treat in medical terms. Thus, only a small percentage actively seeks treatment. The underlying reasons are poorly understood and presumably include the young age, a predominantly low educational and socioeconomic status, and functional impairment due to inactivity and psychiatric co-morbidity. Unsuccessful attempts to lose weight on their own and/or within the medical system may have led to frustration with respect to treatment seeking behaviour. In acknowledgement of these difficulties, we have developed a recruitment approach involving various institutions (job centres, health insurance companies, German for these adolescents statutory pension insurance, schools, public health service for adolescents). Within the BMBF-funded German Competence Net on Obesity (CNO) will determine predictors of acceptance of diagnostic procedures, compliance with proposed treatments (including both a low key intervention and bariatric surgery) and their effects. The results will help to establish adequate health care structures for obese adolescents.

SY 07–08 The Morbidly Obese Adolescent: Is Bariatric Surgery the Only Option?

PRESENTER: T.H. Inge[1]

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Obesity has become a global challenge, threatening the health of billions world-wide. Immediately concerning to the pediatric community is the problem of extreme obesity in youth. In the U.S., between the years 1999–2004, an estimated 4% of all pediatric age groups had a BMI$\geq$99th percentile. Minority groups suffered the greatest prevalence of extreme pediatric obesity. The immediate and future health and psychosocial effects of morbid obesity are concerning, and combined with lack of efficacy of most treatments, have prompted ever increasing referrals for surgical consideration. There is no evidence that nonsurgical pediatric obesity management strategies are successful for the vast majority of the extremely obese, leading clinicians to increasingly turn to surgical options to treat obesity in children and adolescents. Currently, the literature describing the outcomes of adolescent bariatric surgery is also quite limited, and includes less than 1,000 patients spanning the last 4 decades. Although generally based on underpowered, retrospective studies, results of adjustable gastric banding, roux en Y gastric bypass, sleeve gastrectomy, vertical banded gastroplasty, and biliopancreatic diversion all demonstrate impressive BMI reductions in adolescent cohorts. The majority of studies reported resolution or improvement of comorbid conditions. Postoperative complications have also been reported and results largely mirror the types of complications seen in adult bariatric patients. Critically missing in the literature is long-term data on effectiveness and safety of these procedures when performed in adolescents. The major focus of the Teen-Longitudinal Assessment of Bariatric Surgery (www.teen-labs.org) is to fill this knowledge gap around long term efficacy and safety. The design features and the scientific goals of this study will be reviewed.

SY 07–09 American Society for Metabolic and Bariatric Surgery-Designated Bariatric Surgery Centers of Excellence's Bariatric Outcomes Longitudinal Database (Bold): Two-Year Adolescent Percent Weight Loss Varies Significantly by Surgery Type

PRESENTER: N. de la Cruz-Munoz[1]
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Background: The Bariatric Outcomes Longitudinal Database (BOLD) is the world's largest prospective longitudinal database focused exclusively on the bariatric/

metabolic surgical specialty. The prevalence of morbid obesity continues to rise among youth in the United States, but little is known about differences in weight loss by surgery type (Laparoscopic Roux-en-Y gastric bypass [LRYGB] versus laparoscopic adjustable gastric banding [LAGB]) in this demographic. Bariatric surgery is one of the only effective treatment options currently available for morbidly obese adolescents.

Methods: The data submitted by 800 surgeons and 450 facilities to BOLD from 2007 to January 1, 2011 were analyzed. Pre-, 6-, 12-, and 24-month post-surgery repeated measures mixed linear models adjusted by age, gender and race were conducted to analyze the percent of weight loss. Percent weight loss was calculated as the difference between post and pre-surgery weight divided by pre-surgery weight x 100.

Results: A total of 890 adolescent patients 11-to-19 years old (75% female, 69% Caucasian/white, 15% Hispanic, 11% African American/black, 5% other) with surgical procedure data were included. The most common bariatric surgical procedure was LRYGB (N=454 [51%]), followed by LAGB (N=436, [49%]). Overall, those adolescents who underwent LRYGB lost significantly more percent of weight during the first year post surgery (17.92%) versus those who underwent LAGB (5.85%) ($p<0.0001$), and during the second year (4.26% versus 3.57%, $p<0.0001$). At every follow-up time point LRYGB patients showed greater % weight loss versus LAGB patients; at 6 months (n=802,-11.76% versus −6.65%), 12 months (n=364, -29.69% versus −12.51%), and 24-months (n=188, -33.96% versus −16.07%) post surgery ($p<0.0001$ for all comparisons). Caucasians were significantly more likely to lose a higher percent of weight versus African Americans, regardless of surgery type ($p=0.001$). A total of 141 adverse events including one death due to a cardiac event (mortality rate=0.11%) were reported post-surgery. Of those, 35% required re-operation, primarily for cholecystectomy (25%), band port revision, band removal or replacement (18%) and hernia repair (16%).

Conclusions: Bariatric surgery results in significant weight loss regardless of surgery type among morbidly obese multiethnic adolescents but this loss varies significantly by surgery type. Specifically, LRYGB results in one third of weight % loss at 2-years post-surgery, or approximately double the loss of LAGB surgery. Both LRYGB and LAGB have the potential to be safe and effective treatment options for significant weight loss in this demographic.

SY 08–01 Status of Bariatric Surgery in South America

PRESENTER: R. Alvarez Cordero[1]

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Long before Regional IFSO Chapters were created, Latin American bariatric surgeons have worked in their countries and have actively participated in national and international meetings and congresses.

In 2004 the First IFSO Latin American Congress was approved, and was held in 2005 Iguazu, Brazil with huge success; the second one was held in 2007 in Cancun, México, the third in Viña del Mar, Chile, 2009 and the fourth in 2011 in Cartagena, Colombia, all of them with a great number of attendants.

Almost all surgical techniques are performed in Latin America, mainly gastric bypass, gastric banding and gastric sleeve, as well as surgery for the control of Type 2 Diabetes.

In the last 10 years, the amount of surgeons and the number of surgical procedures have increased almost 10 times, and today the Latin American IFSO Chapter is one of the most important and successful regional bariatric group

SY 08–02 Access and Reality of Obesity Surgery in India

PRESENTER: S.S. Shah[1]

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Background: As Bariatric surgery is being known as Metabolic surgery, its true application is seen in India. The indication for surgery is more often diabesity and metabolic syndrome than obesity alone.

Methods: A review of demographic, social, cultural, genetic and economical factors influencing obesity surgery in India is presented here.

Observations: Indians are genetically more 'adipose' rather than obese and also are more insulin resistant. Obesity is seen primarily as visceral adiposity with diabetes and metabolic syndrome. Morbidity and mortality due to cardiovascular disease is seen at an early age and lower BMI.

Discussion: Asian guidelines hence lowered the BMI for bariatric surgery for Indians 32.5 kgs/m^2 with Comorbidities. Considering the behavior and fat percentage, an Indian with a BMI 30–35 kgs/m^2 behaves like a person from the west of BMI 35 to 40 kgs/m^2. Resolution of

Diabetes is seen to be better in Indians. Diabetes surgery for the global diabetes hub is truly a blessing and will prove to be life prolonging. Presently these surgeries are self-paid. However more long term data and cost analysis may mandate the insurance companies to cover it in future.

Conclusion: Bariatric and Metabolic surgery is getting more appreciated and applied in India because of the improvement of diabesity, metabolic syndrome and long term risk reduction.

SY 08–05 Integrated Bariatric Care in the Public Health System in Alberta, Canada

PRESENTER: A.M. Sharma[1]

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Health care in Canada is governed by the Canada Health Act according to which all eligible people in the country have reasonable access to insured health services, without direct charges at the point of service. But, as in many countries, the recent advent of the obesity epidemic raises important challenges for providing obesity treatments, including bariatric surgery, to the over 6 Million Canadians who are currently medically obese.

Recently, several provinces including Quebec and Ontario have acknowledged the limited access to bariatric surgery, which although covered by Canada Health Act, remains difficult to access with considerable waiting times. Where available, plans specifically foresee increasing access to surgery but fail to fully address that surgery, without also increasing capacity for conservative treatment, will never be more than a drop in the ocean with regard to reducing the burden of obesity on Canadians.

In Alberta, therefore, the focus of obesity management, rather than simply increasing access to surgery, includes substantial investments into the continuum of bariatric care - from prevention to primary to speciality services. All of these activities are based on the recognition that obesity is a complex, multifactorial chronic condition, where all forms of treatment (including surgery) have to be part of a long-term (lifelong) treatment plan. This strategy calls for considerable investment in the establishment of multi-disciplinary bariatric teams working in primary care that can provide all of the necessary behavioural, psychological and medical care, including pre- and post-surgical management of surgical patients. In addition, adoption of the Edmonton Obesity Staging System to triage patients across levels of care may help target treatment intensity to those who have the most to gain.

Challenges to this model include the sheer number of eligible patients, the lack of formal education in obesity management across health care disciplines and the reservations and bias with which health professionals (and funders) tend to approach obese patients. Nevertheless, it is expected that over time, the Alberta model of comprehensive bariatric care will provide an effective and sustainable approach and will eventually markedly reduce the burden of obesity on Albertans.

SY 08–07 Through the Eyes of a German Sickness Fund: Cost Effects of Bariatrc Surgery

PRESENTER: J. Helfrich[1]

Co-authors: A. Holtwick[1]

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As in many other developed countries obesity and its sequels become a major health economic threat to Germany. In our survey we investigate the economic impact of the different bariatric procedures on the respective patient group. The results were derived in a retrospective matched-pairs approach, based on the claims data of Germanys third biggest sickness fund in the years 2006–2010. We employed propensity score matching to identify the individual twin. Using a two step approach, we first determined the economic effect in participants in a diabetes type II disease management program, who underwent bariatric surgery (n=36). The pairs were chosen from all participants of this specific DMP, who have not had surgery

performed on them (n=297.307). We then broadened the perspective comparing the cost effects on all patients who underwent a bariatric procedure (n=598), again using propensity score matching to select the members of the control group. In this broadened approach the controls were chosen from all patients known to suffer from obesity, as indicated by icd code E 66.0* (n=448.338). We will describe subgroups of participants and procedures heralding the biggest economic benefit. With limitations in respect to data access (due to very rigid data protection laws) we will additionally estimate the effect of the different procedures on the general medical condition of the participants. To get an approximation of this effect we determine indicators such as number of doctor's visits, hospital-days, number of prescriptions or days of sick-leave. Currently, data processing is still in progress, the results will be published at the meeting.

SY 09–02 Selective Pre-Operative Anaesthetic Assessment for Bariatric Surgery is Safe and Effective

PRESENTER: S. Saha[1]
Co-authors: C. Magee[2], E. Macadam[1], S. Wiggans[1], C. Dunkely[1], D. Kerrigan[2], D. Raw[1], R. Macadam[1]

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Background: Traditionally patients with morbid obesity have been considered high risk for anaesthesia and surgery. However, the introduction of laparoscopic surgery for morbid obesity in specialist units has resulted in safe, effective outcomes. Many patients have few co-morbidities apart from their weight and would be considered low risk in a specialist unit. Therefore, does every patient require a formal pre-operative anaesthetic assessment? We investigated whether selective anaesthetic assessment targeted to high-risk patients was feasible and safe in a specialist bariatric unit.
Methods: Prospective cohort study. Patients underwent structured assessment by a consultant surgeon, bariatric practitioner and dietician. Referral to an anaesthetist was triggered by a high Obesity Surgery Mortality Risk Score (OSMRS), or the presence of restricted mouth opening, receding mandible, restricted neck movements, previous airway surgery or radiotherapy to neck. Anaesthetic referral could also be made at the discretion of the assessing surgeon. Selected patients were then reviewed by a consultant anaesthetist. Non-selected patients were seen by a consultant anaesthetist on the day of surgery.
Results: From April 2009-November 2010, 121 primary laparoscopic bariatric procedures were carried out: Gastric Band 45 (37%), Roux-en-Y Gastric Bypass 51 (42%), Sleeve Gastrectomy 20 (17) and duodenal switch 5 (4%). Median age, BMI and OSMRS was 53, 50 kgm^{-2} and 2 respectively. 18 patients referred for assessment declined or were considered not suitable for surgery. 73 patients (60% of surgical candidates) did not trigger pre-operative anaesthetic assessment. Three patients (2.5) had surgery cancelled on the day of surgery due to chest infection, continued smoking and failure to stop aspirin. Surgery was performed with zero rates of mortality, return to theatre, VTE, transfer to level 3 care and chest infection.
Conclusions: Selective pre-operative anaesthetic assessment for patients undergoing laparoscopic bariatric surgery in a specialist unit is feasible and appears safe.

SY 09–03 Influence of 'Focused' Anesthesia Consultation on the Bariatric Surgery Pre-Operative Costs

PRESENTER: A. Valenti[1]
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Background: In the morbid obesity the cost of patients co-morbidities and surgical technique has already been discussed, but the role of pre-operative examinations according to their relevance is still unclear.The aim of this study is to assess the economic impact of anesthesia bariatric consultation targeted (ABCT) compared to additional examinations listing without ABCT.
Methods: Between 2008 and 2010, 58 medical records cases were randomly selected and retrospectively analyzed: 29 (group A) had a systematic protocol list of pre-operative examinations, 29 (group B) had a pre-operative ABCT, based on overall care patient (by history and clinical data) leading to stratification reflected of necessary examinations.
The costs were compared using the common classification database of the medical acts (CCAM): by examen, by patient (average), by patient group and the cost of bariatric anesthesia consultation.
Results: Both groups were comparable for mean age (37,5±9,7 vs 37,3±11.9), BMI (kg/m2) (47,1±8,7 vs42,2±7,1), ASA score (2.1±0,5 vs2,1±0,3) and type of surgery: gastric banding, sleeve and bypass. The ACT leads to realization of a significant (group A 441,55±97,09 € vs group B 347,24±75,23 €) achievement of the average cost per patient compared to additional pre-operative examinations: the average profit per patient is of € 97,31(−22,05%).
Conclusions: An ABCT tailored to each patient, performed by a bariatric anesthesiologist lead a substantial saving compared to the realisation of further examination.

SY 09–04 Further Study of Supplemental Dexmedetomidine and Ketamine Opioid Sparing Anesthesia/Analgesia in Mini-Gastric Bypass

PRESENTER: R. Rutledge[1]

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Background: Narcotics, the foundation of pain management in bariatric surgery, have serious, potentially deadly side effects. Dexmedetomidine and ketamine non-narcotic drugs have opioid sparing effects.
Methods: This report extends a previous study in Mini-Gastric Bypass (MGB) patients who were treated with either total intravenous anesthesia (TIVA) with (TKD) or without (TNO) opioid sparing doses of supplemental ketamine (50-150 mg) and dexmedetomidine (100 pg IV over 10 minutes.) Post-anesthetic recovery analogue pain score (APS) and narcotic use (# of doses), post operative nausea and vomiting (PONV) and patient satisfaction were compared.
Results: Over a 3 year period 1011 patients underwent MGB. The mean age 39, 85% female, mean BMI 46, mean operative time 38 min. No patient required reintubation for respiratory depression. TKD patients had: a 90% lower mean APS, 85% fewer doses of rescue narcotics, a higher mean respiratory rate in recovery' room (12 vs 9), less PONV (10 35%) and higher levels of patient satisfaction ($p<0.05$ in all.)
Conclusion: Morbidly obese patients present a serious anesthetic challenge. Opioid sparing ketamine and dexmedetomidine techniques significantly decrease respiratory depression and PONV caused by narcotics. This decreases the need for narcotics, improves the pain score, decreases PONV and improves patient satisfaction.

SY 09–05 Key Issues During Maintenance of Anaesthesia for Gastric Bypass Surgery

PRESENTER: J.P. Mulier[1]

[1]Sint Jan Brugge-Oostende, Anaesthesiology, Bruges, Belgium

Abdominal compliance is linear allowing the characterization of each abdomen with: Elastance E and the pressure at zero volume PV0. Stop tree times the inflator and note the inflated volume as well as the lowest abdominal pressure. Draw a line through 3 points and calculate PV0 as the crossing with the Y-axis and E as the angle of the line.
Calculate the pressure needed to reach an abdominal volume of 4 liter. Set the inflator to this level. If more than 15 mmHg is needed verify that ventilation is not impaired and keep maximum muscle relaxation till the end. Sufficient workspace requires that every patient should be maximal relaxed as this reduces the PV0.
Use the beach chair position to improve the workspace. After the induction dose of relaxants, subsequent doses should be give before the surgeon is disturbed by insufficient place. The surgeon complaining of no place is always right, as can be the anesthesiologist too. Even with deep muscle relaxation insufficient workspace remains possible.
Ventilation is focused to provide sufficient O2 and CO2 removal but deals also with preventing atelectasis, volutrauma and silent aspiration. The peep should never be interrupted and kept above 7 cmH20. Give lung recruitment when needed.
Pressure controlled is chosen over volume controlled when airway pressures are very high and saturation drops.
Flexion of the legs increases the abdominal compliance and anti trendelenburg improves diaphragmatic displacement, both facilitating ventilation.

Frequency should rise if a tidal volume of more than 9 ml/kg LBM is needed to keep end tidal CO2 below 40 mmHg. Hypercarbia is accepted towards the end of the pneumoperitoneum as it increases the cardiac output. This improves peripheral organ perfusion, what lowers wound infection, prevent ischemia at the staple lines and increases blood pressure needed to find bleeding spots on the staple lines. Pressure support can started even during pneumoperitoneum and muscle relaxation. It allows the titration of the morphine dose.
Never insert the gastric tube deeper if resistance is felt.
First deflate the stomach, keep the tube always open and in drainage. Move the gastric tube to assist the surgeon in making the gastric pouch. At the end of the operation the gastric tube is reinserted under laparoscopic view. The surgeon closes the descending jejunum and 150 ml methylene blue colored water is injected by the anesthesiologist as fast as possible to distend the gastric pouch and find leakage.
The quality of laparoscopic staples has increased in the last decennia improving tightness and preventing bleeding. However staples keep blood vessels open and prevent spontaneous collaps. Blood vessels might start to bleed post operatively when systolic pressure increases when patient wake up. A SAP increase above 140 mmHg during the operation is important to visualize and correct possible bleeding.

SY 10–02 Laparoscopic Gastric Bypass (LRYGB) Using Fast-Track Methodology with Optimized Logistics - Experience from a Team of Surgeons Starting Up Three High Volume Centers'

PRESENTER: H. Gislason[1,2,3]
Co-authors: H. Jacobsen[1,2,3], B.J. Nergard[1,2,3], J. Hedenbro[3], P. Funch-Jensen[2]

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Background: Obesity surgery is an effective treatment for morbid obesity and one of the fastest growing areas of surgery. It consumes a significant part of limited health and surgical resources. Optimization of the treatment process is important in order to keep the morbidity rate and the cost of treatment as low as possible.
Material and methods: From September 2005 to December 2010, a surgical team established three high volume centers and performed 6000 laparoscopic RYGB operations. Starting in Aleris Hospital in Oslo, Norway in 2005 by recording continuously the time used for the different tasks in the treatment process, the logistics was evaluated and improved by time. Clinical pathways were established with focus on fast track methodology. We have further implemented our program when starting high volume centres in Eira Hospital in Aarhus in Denmark in 2008, and at Kristianstad Hospital in Sweden in 2009. Outcomes were prospectively registered.
Results: Time consumption for the total process (one patient to next) was gradually reduced in Oslo from 105 minutes to 63 minutes. From start the treatment process in Eira and Kristianstad have been 57 minutes, enabling us to perform six to eight operations in a single operating theater during ordinary daytime. Early complications rate was the same at the three hospitals (2.8%), and mean hospital stay was 2.3 days in Oslo (due to geography) and 1.3 days in Kristianstad and Eira.
Conclusions: We used multimodal evidence-based care within the fast-track methodology and continuous time recordings in order to improve the logistics. We were able to increase the production volumes at a lower cost without compromising the safety or quality of the patients, performing a high number of LRYGB with low morbidity and short hospital stay.

SY 10–03 The Evolution of a Bariatric Tertiary Centre: Analysis of a Cohort of 4000 LAP RNY Patients

PRESENTER: B. Dillemans[1]
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Objectives: The Roux-en-Y Gastric Bypass (RNY) is presently regarded as the gold standard amongst the bariatric surgical procedures. Moreover, the RNY is considered as the preferred salvage procedure for failed Band and vertical banded gastroplasty procedures. The incidence of these conversional or secondary RNY's is growing rapidly; but its surgical complexity and morbidity are reported to be significantly higher than in the primary RNY. The aim of this study is to evaluate the early morbidity and mortality rate of a large group of FS-LRYGB (Fully stapled laparoscopic Roux-en Y gastric bypass) patients operated in a single bariatric centre, to evaluate the impact of the learning curve and to compare the morbidity rates of the secondary gastric bypasses with these of the primary ones .
Methods: From May 2004 to February 2010, 4000 consecutive patients underwent a FS-LRYGB at the AZ Sint-Jan Hospital in Brugge, Belgium. The patients were divided into two groups of each 2000 patients, according to the date of operation. Patient characteristics, operative time, hospital stay and readmission, re-operation and 30- day morbidity/mortality rates were calculated and compared.
Results: The overall complication rate for the whole group was 199/4000 (4.9%). There were 98 (4.9%) complications in the first cohort and 101 (5.05%) in the second cohort (p value of 0.8844, RR 0.98) despite 314 secondary bypasses in the second cohort compared to only 169 in the first cohort (absolute increase 85%, p value< 0.0001, RR 1.5). Bleeding was the most common post-operative complication (107/4000, 2.7%) for the whole group but was significantly decreased in the second cohort (41/2000, 2.05%) compared to the first (65/2000, 3.25%) which means an absolute risk reduction of 36.9% (p value of 0.023, RR 1.23). Leaks occured in 6 patients overall (0.15%). There were 4 leaks in the first (0.2%) compared with 2 (0.1%) in the second cohort. This was not statistically significant (p value of 0.68%, RR 1.33).
Conclusion: High volume and complete standardization of the procedure has rendered the Laparoscopic Roux-en-Y Gastric Bypass a highly feasible operation that can be accomplished with very low morbidity and mortality rates . In addition, experienced centres can achieve the same low rate of complication for secondary (conversional) bypasses as for primary ones.

SY 10–04 Intraperitoneal Levobupivacaine Before Laparoscopic Sleeve Gastrectomy Does Not Reduce Morphine Consumption, but Might Reduce PONV: A Randomized, Double BLIND, Placebo Controlled Trial

PRESENTER: D. Torres[1]
Co-authors: J.E. Contreras[1], J. Hamilton[1], I. Court[1], M. Portilla[1], J. Bravo[1], P. León[1], M. Contreras[1]

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Background: Laparoscopic sleeve gastrectomy is an increasingly common bariatric surgical approach. Intraperitoneal local anesthetics provide effective postoperative analgesia for other types of laparoscopic abdominal surgery, but have yet to be studied in this procedure. We therefore tested the hypothesis that intraperitoneal levobupivacaine reduces patient-controlled morphine consumption after sleeve gastrectomy.
Methods: One hundred morbidly obese adults scheduled for sleeve gastrectomy were randomly assigned to receive 20 ml intraperitoneal 0.25% levobupivacaine or saline at the beginning of surgery. The primary double-blinded outcome was patient-controlled morphine consumption in the first 24 postoperative hours.
Results: There were no differences in morphine consumption in the postanesthesia care unit, after 12 hours, or during the initial 24 hours. Verbal rating pain scores, on a 10-cm scale, were comparable except upon arrival at the postanesthesia care unit (median difference: 2 cm, p=0.03). The incidence of postoperative nausea or vomiting was greater in the saline group at all times, but significantly so only in the postanesthesia care unit (Risk difference: 22% (95% CI: 0.4, 43).
Conclusions: Morphine consumption is not modified by intraperitoneal levobupivacaine instillation at the beginning of Laparoscopic Sleeve Gastrectomy. Local anesthetic might reduce the incidence of postoperative nausea or vomiting, but additional study should confirm this secondary finding.

SY 10–05 Can We Have Painless and Scarless Sleeve Gastrectomy? The Role of Ultrasound Guided Bilateral Rectus Sheath Block in Single Incision Laparoscopic Sleeve Gastrectomy. Experience from Saudi Arabia.

PRESENTER: K.F. Elmetwaly[1]
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Introduction: Sleeve gasterectomy commonly done through 5–7 small incisions through which the ports inserted.Single incision laparoscopic surgery (SILS) is advanced minimal invasive surgical procedure in which the surgeon operate almost exclusively through a single entry point, typically the patient naval. Postoperative pain is a major concern can cause significant serious complications. Currently, at our institute King Fahd Military Medical Complex, the most common regimen for pain control in bariatric surgery performed under general anesthesia has been surgeon administered levobupivacaine local anesthetic infiltration in the wound before skin incision, followed by opioids in the Postanesthesia time, Ultrasound-guided regional techniques offer a number of advantages including real-time needle guidance and observation of local anesthetic spread within posterior sheath of the rectus muscle containing the peripheral nerves that innervate the abdomen. This is the first study that evaluates the role of rectus sheath block in morbid obese patients undergoing Single Incision Laparoscopic Sleeve Gastrectomy, and it's effects in the post operative pain.
Methods: After informed consent and ethical committee approval 30 patients were enrolled in this pilot study. Patients were divided into two groups and the anesthetic management was standardized. Group I (Ultrasound guided rectus sheath block) bilateral ultrasound-guided rectus sheath block was performed by the anesthesiologist. Ultrasound is used to guide the deposition of levobupivacaine 0.5% 2 mg/kg in the posterior sheath of the rectus muscle. Group II (Wound infiltration) where wound infiltration using Levobupivacaine 0.5% 2 mg/kg is injected at the site of incision was performed by the surgeon. We collected the required data by reviewing the patient's files and their medication cards.
Results: Total morphine consumption was 26.67±7.24 in group I while it was 33.33±4.88 with II (p=0.0063). Regarding Paracetamol consumption, it was 3.00±0.85 in group I but it was 3.67±0.72 in group II (p=0.0278). There was no difference in use of rescue antiemetic between the 2 groups (p=0.0570). No complications from the rectus sheath block were reported.
Conclusion: The ultrasound rectus sheath block is an easy block to do. It was effective and superior for controlling the somatic abdominal wall pain than blind wound infiltration in patients undergoing Single Incision Laparoscopic Sleeve Gastrectomy. It decreased the total analgesic requirements especially the opioids. The visceral pain from the operative bed still required analgesia in the early postoperative. This pilot study shows encouraging results for further investigations. However, randomized, controlled trials are required to determine the real advantages of this technique in comparison with standard laparoscopy.
Keywords: Sleeve gastrectomy; Single-incision laparoscopic surgery; Bilateral Rectus Sheath Block

SY 10–06 Should Dosing of Sugammadex in Morbidly Obese Patients be Based on Ideal or on Corrected Body Weight?

PRESENTER: P. Van Lancker[1,2]
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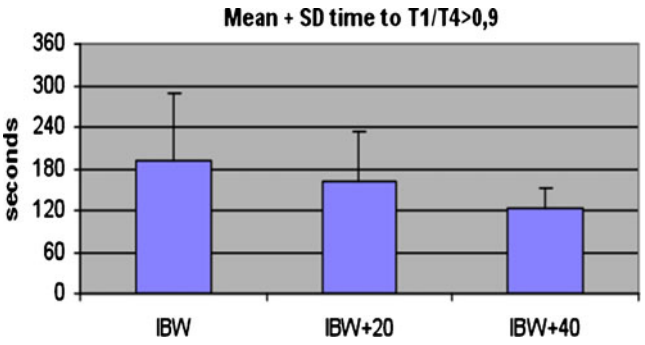
Introduction: Sugammadex is a water-soluble molecule. Overdosing is possible when dosed on Total Body Weight in obese patients.
Methods: Morbidly obese patients scheduled for laparoscopic bariatric surgery under propofol-sufentanil anaesthesia, were randomized into three groups : ideal body weight (IBW), IBW+20% and IBW+40%. (1) All patients received Rocuronium 0.6 mg/kg ideal body weight at induction and additional doses in order to keep response ! 1 at the adductor policis to a supra-maximal train of four (TOF) stimulation of the ulnar nerve using accelerometry. At the end of surgery and when TOF responses ranged T1-T2, patients received sugammadex 2 mg/kg IBW or corrected IBW. Primary endpoint was time from sugammadex injection to a TOF ratio of 0.9. Secondary end-points were the ability of getting into bed by themselves within 5 minutes and Steward recovery score at arrival on PACU and 15, 30 and 45 minutes later. One-way ANOVA statistical analysis was used with $p<0.05$.
Results: 75 Patients were included after written in formed consent and approval of the hospital ethical committee. There was no difference in BMI between the groups (43.7, 43.6, 44.9 kg/m^2). All patients were fully reversed after sugammadex administration with a T4/T1 ratio" 0.9. There was a significant difference (p= 0.000) in time of decurarisation between the three groups.



[Time to reversal]

52% of the patients in IBW group, 56% in IBW+20% and 68% in IBW+40% were able to get into bed by themselves. The Steward recovery scores were not significantly different.
Discussion: Sorgenfrei (2) found at a dose of 2 mg/kg a median reversal time of 78 seconds in non-obese patients. We observed longer reversal times, significant different between the groups. The neuromuscular blockade was fully reversed in all 75 patients.
Conclusion: At 2 mg/kg IBW+40% the shortest reversal time was achieved.
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SY 10–07 Plasma and Tissue Concentrations of Moxifloxacin in Obese Patients (BMI>40 KG/M^2)

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Background: The most appropriate dosage regimens for antibacterials in obese individuals are often unknown. An accurate estimation of Vd and CL is required to determine the appropriate loading and maintenance doses of a drug regimen. The aim of the study was to determine the pharmacokinetics (PK) of moxifloxacin (MXF) in serum and adipose tissue in obese patients undergoing gastric bypass surgery, and to derive dosing recommendations for obese patients.
Methods: After given informed consent, patients scheduled for planned gastric bypass surgery were enrolled into the study. The patients were treated with oral MXF 400 mg qd for 3 days and intravenous MXF 400 mg on day 4 (day of surgery). Venous blood was sampled on day 1 up to 24 hours and on day 4 up to 72 hours to determine the serum concentration-time course (area under the curve, AUC) of MXF. Specimen of small intestine, omentum and subcutaneous fat were collected on day 4 intraoperatively 1.8-3.7 (median 2.4) hours after administration of MXF.
Results: A total of 12 patients (2 m/12f, age 25–61 years, body weight 98–166 kg, height 1.51-1.83 m, BMI 43.0-58.2 kg/m^2) completed the study. The mean (SD) pharmacokinetic parameter were similar to data obtained from healthy subjects, and were on day 1 / day 4: AUC 34.4 (8.9) / 45.0 (12.2) mg*h/L (absolute bioavailability 78%), $t_{1/2}$ 9.9 (2.8) / 12.3 (2.2) h, Vd 132 (36) / 162 (29) L, CL 9.4 (2.0) / 9.4 (2.0) L/h. The values of Vd and CL after oral administration were corrected for the bioavailability. Whereas absolute Vd was unchanged, Vd was halved when normalized to body weight (1.04 L/kg vs 2 L/kg in normal weight subjects). Accordingly, Vd was correlated with height (R^2 p.o/i.v.=0.84/0.61; $p<0.01$) more than with weight (R^2 p.o/i.v.=0.64/0.50; $p<0.01$). The quotient (SD) of the tissue to the concomitant plasma concentrations was 2.22 (0.44) in small intestine, but only 0.267 (0.064) in omentum majus and 0.224 (0.044) in subcutaneous fat, indicating that adipose tissue is not a relevant compartment for MXF.
Conclusion: The PK of MFX were not substantially altered in adult obese patients compared to subjects with normal weight, and no dose adjustments seem to be required for obese patients.

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SCIENTIFIC SESSIONS

O.001 Effect of Surgical Weight Loss on Insulin Sensitivity and Lipid Profile of Metabolically Healthy Morbidly Obese Subjects

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Introduction: Subsets of obese individuals, accounting for 20-30% of the obese, Caucasian population, appear to be protected from obesity-associated metabolic abnormalities; the 'metabolically healthy but obese' (MHO) Individuals. They display a favourable metabolic profile, characterised by high insulin sensitivity, normal lipid and inflammation profiles and no hypertension, despite excessive body fat. Unlike the pathologically obese (PO), the metabolic profiles of MHO are comparable to those of lean subjects, with lower incidences of type 2 diabetes and cardiovascular diseases. Whether MHO individuals would gain any extra metabolic benefit from weight loss is unclear. Therefore, the aim(s) of the present study was to assess the effect of surgical weight loss in insulin sensitive and resistant, morbidly obese patients.
Methods: Consenting, Caucasian, non-diabetic female subjects (n=16) undergoing gastric by-pass surgery for weight loss were studied prior to and 3 to 6 months following surgery. Anthropometric and laboratory parameters were determined and recorded. Insulin sensitive, using the HOMA-IR index, was calculated as the product of fasting plasma glucose (mmol/l) and insulin (mIU/ml) divided by 22.5.
Results: Prior to surgery the MHO (n=8) and PO (n=8) patients were matched for age (MHO vs. PO 35.1{29.2-37.8} vs 34.0{30.3-44.0} years, body mass index, systolic and diastolic blood pressure, aerobic fitness, fasting plasma glucose, total-cholesterol, LDL-cholesterol and HDL-cholesterol. However, the MHO patients had significantly lower circulating insulin levels (3.6{2.5-4.5 vs. 11.9{8.9-30.1} mIU/ml) and triglycerides (0.90{0.90-1.2} vs (1.5{1.0-2.2}mmol/l). The MHO were also significantly more insulin sensitive (0.7{0.4-1.1 vs 3.2{2.1-7.1 HOMA-IR index}.
At 3–6 months after surgery all patients lost weight significantly ($p<0.001$). In the PO subjects this was associated with an increase in HDL-cholesterol ($p<0.001$) and LDL-cholesterol ($p=0.03$) and a significant reduction in plasma triglycerides, insulin and HOMA-IR. However, in the MHO group weight loss was accompanied by an increase in plasma total-cholesterol, triglycerides and insulin, as well as HOMA-IR.
Conclusion: The metabolic effects of weight loss in MHO and PO patients appear to vary significantly. In the PO patients weight loss has the expected favourable metabolic profile. However, in MHO individuals, given their favorable metabolic profile prior to surgery, no additional gain is associated with weight loss. These results need confirmation in larger cohorts and the mechanisms for these differences investigated.

O.002 Bariatric Surgery for Type 2 DM: The Significance of BMI

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Background: Bariatric surgery is an efficient procedure for (T2DM) remission in morbid obesity (BMI>35 kg/m^2) and was named GI metabolic surgery when applying for patients with BMI<35 kg/m^2. However, the role of BMI in the effect of bariatric surgery is lacking.
Methods: From Jan 2007 to Oct June 2010, 560 patients with enrolled T2DM (HbA1c>6.5%) underwent bariatric surgery were prospectively enrolled and followed up. Complete remission of type 2 diabetes was defined as fasting glucose level<110 mg/dl and HbA1C<6.0%.
Results: Of the patients, 40 had BMI<25, 75 had BMI 25–30, 116 had BMI 30–35 and 329 had BMI>35. Patients with lower BMI were significant older, with longer DM history, higher HbA1C, lower C-peptide, lower liver enzymes and lower uric acid than higher BMI patients. One year after surgery, remission of T2DM was achieved in 80.9% of the patients. Patients with their BMI>35 kg/m^2 had a better diabetes remission rate than those with BMI<35 kg/m^2 (95.7% vs. 59.3%; $p<0.001$). Multivariate analysis confirmed that duration of diabetes and type of surgery predicts the diabetes remission.
Conclusions: Bariatric surgery is an effective treatment for T2DM. Diabetes remission is significantly higher in those with higher BMI because of shorter duration and well-preserved β-cell mass.

O.003 Long-Term Results of Lapband on the Recovery and the Incidence of Type II Diabetes and Hypertension in Morbid Obese Patients

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Introduction: A large number of studies proved the beneficial effects of bariatric surgery on type 2 diabetes and hypertension. However, most of them derived from short or medium-term reports and very few studies analyzed the sustainability of the effects over the long-term. Therefore, we analyzed the rate of recovery and the incidence of new cases of type 2 diabetes and hypertension in a group of morbid obese patients treated with laparoscopic adjustable gastric banding (LAGB) with at least 10 years of follow-up.
Methods: A group of 650 morbid obese patients treated with LAGB at our Institution from September 1993 to December 1999 were previously categorised as having type 2 diabetes and/or arterial hypertension both at surgery and 12–18 months after (Busetto et al. Obes Res 2004;12:1256–63). Since January 2010, a recall of these patients was started and type 2 diabetes and hypertension status was once again determined with the use of standard and stable diagnostic criteria.
Results: A total of 127 patients (21 men and 106 women) were retrieved. Mean age at surgery was 37.8±10.6 years and mean BMI was 45.8±6.6 kg/m^2. Mean follow-up was 12.3±1.7 years (range 10–16 years). At surgery, 38/127 patients (29.9%) had type 2 diabetes and 51/127 patients (40.2%) had hypertension. In the 38 patients with diabetes, 28/38 (73.7%) were free from diabetes at the 12–18 months evaluation, and 26/38 (68.4 %) were still free from diabetes 12 years later. In the 51 patients with hypertension, 19/51 (37.3%) were free at the short-term evaluation and maintained this status over the long-term. In the 89 patients without diabetes at baseline, no new cases were observed at the 12–18 months evaluation and 6 new cases (6.7%) at the end of the follow-up. In the 76 patients without hypertension, 13 new cases (17.1%) were observed at the 12–18 months evaluation and 5 more cases (total rate 23.7%) at the end of the follow-up.
Conclusion: We confirmed that most of patients who recovered from type 2 diabetes and hypertension in the short term, were still free from the comorbidity more than 10 years later. The 10-year incidence of new cases of was lower than expected in a morbid obese population.

O.004 Effects of Weight Loss on Long Standing Type 2 Diabetes Following Placement of an Adjustable Gastric Band

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Background: Obesity associated type 2 diabetes (T2DM) is a significant public health problem and bariatric surgery is increasingly used to achieve remission of this condition. While weight loss is associated with remission of newly diagnosed (< 2 years) T2DM (Dixon 2008) outcomes for patients with long standing T2DM are unclear. The aim of this retrospective study was to evaluate effects on HbA1c of weight loss achieved using an adjustable gastric band in patients with long standing T2DM.
Methods: Patient records were reviewed. Inclusion criteria were male and female, age≥18 years and BMI >35 kg/m^2 with T2DM. The study was approved by The Alfred (Melbourne, Australia) Human Research Ethics Committee.
Results: 149 patients with T2DM were identified. 31 patients did not have adequate follow-up and were excluded from the analysis. The remaining 118 patients were divided into those below the median duration of T2DM (85 months), Group A (n=59), and those above the median, Group B (n=58). Age and BMI were not different at baseline (51.6±7.9 vs 53.4±10.9 yr, 42.0±6.0 vs 41.2±5.5 kg/m^2, Group A vs Group B). HbA1c was higher in Group B compared with Group A (8.4±1.8 vs 7.5±1.5%, P<0.05). Both the change in HbA1c and weight loss at follow-up were not different between the groups (−0.6±1.3 vs −0.7±1.6%, 16.1±12.0 vs 16.9±13.2 kg, Group A vs Group B). At follow-up of 2 yr HbA1c had decreased to 6.9±1.3% in Group A and to 7.5±1.8% in Group B, both P<0.01 compared to baseline. In multiple regression analysis baseline HbA1c (P<0.001) and weight loss (P<0.05) predicted final HbA1c. There were significant reductions in medications with no difference between groups (P<0.01).
Conclusion: HbA1c was higher in patients with longer duration of T2DM before surgery suggesting that earlier surgical intervention is most beneficial for diabetes management. However irrespective of duration of diabetes improvement occurs and is associated with weight loss.
Dixon JB, et al. Adjustable gastric banding and conventional therapy for type 2 diabetes: a randomized controlled trial. JAMA. 2008 Jan 23;299(3):316–23.
Funding: This analysis was funded by the Diabetes Australia Research Trust

O.005 Differential Effects of Gastric Bypass and Banding on Postprandial Glucose and Insulin Secretion in Diabetes and Healthy Obese

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Introduction: Bariatric surgery alters glucose homeostasis in obese patients with and without type 2 diabetes (T2DM) within weeks. The effects on postprandial glucose metabolism and insulin secretion seem to depend on type of surgery and preoperative glucose homeostasis. This study aimed to quantify postprandial glucose and insulin levels before and after laparoscopic adjustable gastric banding (LAGB) or roux-en-y-gastric bypass (RYGB) in normal glucose tolerant (NGT) subjects and subjects with T2DM.
Patients and methods: 3 Groups of patients were studied at baseline and 2,5 weeks after surgery; a NGT group (n=11; age 46,3±6,3y, BMI 43,1±3,0 kg/m2) undergoing LAGB, a NGT group (n=16, age 48,6±6,5y, BMI 44,2±3,3 kg/m2) undergoing RYGB and a diabetic group (n=15, age 51,3±7,3y, BMI 43,5±4,2 kg/m2) undergoing RYGB. A control group (n=12, age 49±6,1y, BMI 21,7±1,6 kg/m2) was also studied.
Results: In response to LAGB, glucose decreased slightly (p=NS), while insulin levels were approximately 30% lower (90,9mU/l vs. 64,2mU/l, p=NS) in NGT subjects. In contrast, after RYGB, in NGT subjects peak glucose levels increased from 6,9±1,1 to 8,2±1,6 mmol/l (p<0,05) in the face of a higher insulin peak (58,7mU/l vs. 141,6 mU/l, p<0,05), and an increased area under the insulin curve (AUC) (p<0,05). RYGB ameliorated glucose metabolism in T2DM patients: peak glucose (12,6 vs.10,9 mmol/l, p<0,05) and AUC glucose (1899 vs.1479 mmol/L/3h, p<0,05) decreased, while peak insulin increased (52,3 vs. 86,3 mU/l, p<0,05), and AUC insulin did not change.
Conclusion: These data suggest that LAGB enhances insulin sensitivity in NGT subjects within 3 weeks. In contrast, RYGB appears to adversely affect glucose metabolism in these patients, whereas it ameliorates glucose metabolism in T2DM patients. The results support observations in rodents indicating that nutrient entry in the proximal gut activates neuroendocrine systems regulating glucose metabolism in NGT subjects. Remarkably, bypass of the same gut segment ameliorates glucose tolerance in T2DM patients.

O.006 Long Term (5 Year) Metabolic Outcome after Bariatric Surgery in Patients with Impaired Fasting Glucose: Adjustable Gastric Band Vs Gastric Bypass

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Background: The long-term metabolic outcome of severely obese patients with impaired fasting glucose (IFG) after bariatric surgery is unknown.
Methods: Among 869 consecutive patients receiving laparoscopic adjustable gastric band (LAGB, 446) and gastric bypass (GBP, 423) between 1997 and 2009, 212 patients (111 LAGB vs 101 GBP) had impaired fasting glucose prior to surgery (fasting blood glucose between 5,5 and 7 mmol/L without anti-diabetic medications). In this longitudinal cohort study, we assessed metabolic outcome (fasting blood glucose, insulin plasmatic, glycated hemoglobin, homeostasis model assessment HOMA2, hepatitis steatosis) prior to and 5 years after LAGB or GBP in an intention to treat analysis.
Results: LAGB and GBP patients were similar at baseline except for gender (more males in GBP), BMI (higher in GBP, p<0,05) and HDL-cholesterol level (higher in LAGB, p<0,05). At five years, 90 out of 104 patients were available for follow-up (86.5%) including 65 LAGB (89%) and 25 GBP(80.6%). Four patients died, 6 were lost during follow-up and 4 had LAGB ablation. 62 patients were normoglycemic (LAGB n=41; GBP n=21), 25 presented an IFG (LAGB n=21; GBP n=4) and 3 had Type 2 diabetes mellitus (T2DM) (LAGB n=3; GBP n=0). There was no statistical difference between LAGB and GBP at 5 years for the diabetes status (p=0,13). Fasting blood glucose was lower after LAGB (−0.83±0.94 mmol/L; GBP −0.62±0.44, p<0.05). BMI loss (LAGB 8.9±5.8 vs GBP 14.2±6.7 kg/m^2, p<0,001), total weight loss (LAGB 17,7±12,1% vs GBP 25.12±11.9%, p=0,01), β cell function / HOMA2 B% (LAGB: +9.97±52,37 vs GBP:+49.3±60.9, p<0.02) and LDL-cholesterol (LAGB 0,49±0,9 vs GBP −0,37±0,93, p<0,002) were statistically more im after GBP. Insulin sensitivity (HOMA2-S%), insulin resistance (HOMA2-IR) and β cell sensitivity (HOMA2-BS%) were improved after both operations (p<0.05).
Conclusion: Weight loss after bariatric surgery prevents T2DM at 5 years in 96,7% of IFG patients and leads to normal glucose control in 2/3 cases. Long term outcome suggests a deterioration of initial benefits after GBP converserly to LAGB.

O.007 Rapid Improvement in the Glycemic Profile after Laparoscopic Roux-En-Y Gastric Bypass (LRYGB) is Independent of Weight Loss: A Preliminary Prospective Study

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Background: Changes in the gut hormones after LRYGB might be responsible for an improvement in the metabolic profile. One of the main questions is whether the improvement in the glycemic profile is due to hormonal changes or only related to weight loss.
Methods: Prospective study of a group of 100 consecutive patients after LRYGB. Evaluation of their glycemic profile (fasting glucose and insulin; HOMA index and HbA1c) preoperatively and 6 months after surgery. Evaluation of the acute changes in the glycemic profile (up to 5 days post-operatively) in a subset of 15 patients.
Results: The mean HbA1c pre-operatively was 5.7% and the mean HOMA-IR was 2.52. The patients had a low sensitivity to insulin (53%) and were hyperinsulinemic (20.9uU/ml) and their mean fasting glucose was 96 mg/dl. Neither the improvement in sensitivity to insulin (R=−.33; p=NS), nor the improvement in HOMA-IR (R=−.1;

p=NS) were related to weight loss All the studied parameters had significant improvements: HbA1c (5.7% > 5.3%; p<.001); HOMA-IR (2.52 > 1.0; p<.001); sensitivity to insulin (53% > 119%; p<.001); fasting glucose (96 mg/dl > 76 mg/dL) and insulin (20.9 uU/ml > 7.3 uU/ml; p<.001).
In the subset of 15 patients with evaluation of acute changes of the glycemic profile, the mean HOMA-IR was 2.26, with a mean fasting glycemia of 92 mg/dl and insulin of 17.9 uU/ml. At the 5th post-operative day, HOMA-IR had lowered to 1.25 (p=.009), glucose to 79 mg/dl (p<.001) and insulin to 10.2 uU/ml (p=.01). The sensitivity to insulin improved from 49.5% to 98.2% by the 5th day (p=.01).
Conclusion: The improvement in the glycemic profile results from complex interactions between pancreatic function and insulinsensitivity. The improvement occurs rapidly after surgery and is not related with weight loss.

O.008 Weight Loss Comparison of Diabetic Vs Non Diabetic Morbidly Obese Patients Following Laparoscopic Gastric Bypass

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Background: Laparoscopic Gastric Bypass (LRYGB) is an effective procedure for body weight loss with good effects on glucose control in diabetic patients. However long term data on body weight loss in diabetic patients submitted to this procedure are still lacking.
Methods: From a prospectively collected hospital data base of 441 obese patients treated with LRYGB procedure between January 2000 and December 2010, 34 diabetic patients (Group 1) with a minimum follow-up of 3 years were selected and compared to 34 non-diabetic patients (Group 2) submitted to the same surgical procedure. Group 1 and Group 2 were comparable for age (42±9 y in Group 1 and 40±8 y in Group 2, sex (17F/17M in Group 1 and 17F/17M in Group 2), BMI (44± 4 Kg/m^2 and 44±4 Kg/m^2) and duration of follow-up. All patients underwent LRYGB, the gastro-jejuno anasthomosis was performed by a 25-mm circular stapler from an ante-colic ante-gastric route**,** with an alimentary and biliopancreatic limb of 150 cm. Patients of Group 1 were diabetic (T2DM) from at least 1 year (mean 3±2, range 1–9 years), they were treated with insulin or oral-antidiabetic and were in good glycaemic control (HbA1c 6.3%) at the time of surgery. Data were analyzed at 1, 3, 5 and 7 years with regard to weight loss (BMI and EWL%).
Results: The follow-up ranged from a minimum of 3 to a maximum of 7 years. The two groups showed a comparable decrease in BMI at 1 (30±4 and 29±3 kg/m^2 respectively), 3 (30±4 and 29±3 kg/m^2 respectively), 5 (31±4 and 29±3 kg/m^2 respectively) and 7 (30±2 and 30±3 kg/m^2 respectively) years. Also EWL% was comparable at 1 (63±17 and 67±13%), 3 (62±34and 66±14 %), 5 (58±17 and 65± 17%) and 7 (60±15 e 61±16 %in Group 1 and Group 2, respectively) years. No postoperative complications or mortality occurred in the patients analyzed.
Conclusions: The reduction in body weight following LRYGB is similar in diabetic and non diabetic patients.

O.009 Does the Effect of LRYGBP on Type 2 Diabetes Last Even 5 Years after Surgery?

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Background: Bariatric surgery in order to treat morbid obesity leads to dramatic improvement of obesity related comorbidities. Many studies show a high response on type 2 Diabetes Mellitus (T2DM). However little is documented about the lasting effect (>5 years) of the laparoscopic Roux -en-Y gastric bypass (LRYGBP) on T2DM.
Methods: We evaluated pre and postoperative data, including duration of diabetes, medication usage, metabolic parameters and clinical outcomes in all patients diagnosed with Type 2 Diabetes undergoing LRYGBP from February 2002 to October 2006.
Results: During this 4.5-year period, 600 patients underwent LRYGBP and 38 (6.3%) had T2DM. Follow up was possible in 34 of 38 patients (89%). There were 30 females (78%) with a mean preoperative age of 52 years (range, 24–67 years). After surgery, weight and body mass index decreased from 123 kg and 46.9 Kg/m^2 to 90.3 kg and 32.9 kg/m^2 for a mean weight loss of 32.9 kg and mean excess weight loss of 55.6 %. Glycosylated hemoglobin concentration initially returned to normal levels (< 7%) in 84 % or improved in 13 % during the first three years after surgery. In 6 (16%) patients there was again a rise of their glycosylated hemoglobin after the third postoperative year.
Conclusion: LRYGBP resulted in significant weight loss (55.6% of excess body weight) and resolution (76%) of T2DM. Changes in glycemic control after 3 years suggest that the effect of metabolic surgery is not lasting in all patients and continuing glycemic follow up of 'cured' patients is mandatory.

O.010 Diabetes Surgery by One Anastomosis Gastric Bypass: Which Preoperative Parameters Influence the Outcome?

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The success obtained by surgical treatment of Diabetes Mellitus type 2 (DM2) in obese patients is being extended to normal weight or overweight patients. However, exists uncertainty on the procedure to be used as well as the criteria for choosing the patients that could better profite the operation.
Aims: To analyse technical details of the surgical technique of One Anastomosis Gastric Bypass (BAGUA) by laparoscopy for treating DM2 and the correlation between the preoperative situation of the disease and results after the gastrointestinal changes.
Methods: Twenty four DM2 patients BMI 26–34, age 47–71 years (mean 66) with pluripathology operated by BAGUA. The procedure excluded 100 cm jejunum distal to Treitz ligament in BMI 25–29 and 100 to 150 cm in 30–34. In all patients age, IMC, HB1Ac, Peptide C levels, years of disease, years of insulin treatment were determined. Ten milliliters blood serum were stored by protocol for answering future questions. Resolution is considered when the patient abandon all diabetes treatment and improvement if the patient need some kind of diabetes treatment.
Results: We identify four groups of patient depending of the moment of resolution of DM2: since the operation (n=10), one (n=8) or three(n=2) after operation, or only improvement (n=4). The resolution since operation is associated with short period of disease and no or short insuline treatment and high Peptide C levels. The patient that last one to three months to solve the DM2 have longer period of disease and lower Peptide C levels. Finally the four patients that have only improvement had 0.00-0.06 ng/ml of Peptide C and type I, possible LADA or more than 30 years of evolution of DM.
Conclusions: Most of patients are men of advanced age and important pluripathology. Hence we need a less traumatic as possible. Resolution is associated to non or short insuline treatment and high Peptide C levels. While the age of patients and years of evolution of disease do not shaow a relation.

O.011 Improvement of Metabolic Parameters after Laparoscopic Sleeve Gastrectomy (LSG) Versus Roux-En-Y Gastric Bypass (RYGB) - Early Results of a Prospective Randomized Trial

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Background: The two common bariatric procedures: LSG and RYGB share a restrictive component but RYGB includes an exclusion of proximal small intestine which influences metabolism of the patients. The aim of this

randomized, prospective study was to compare the effects of RYGB with the effects of LSG on fasting plasma lipids, glucose and insulin levels, insulin resistance and long term glycemia control.

Methods: Fourty two patients of the group of 72 originally randomized and included in the study completed the 12 months follow up. Twenty two patients underwent LSG and 20 underwent RYGB. The patients were evaluated before and 6 months and 12 months after surgery. Anthropometric data included body weight, body mass index (BMI) and percentage of excess weight loss (%EWL). After an overnight fast blood was collected for total cholesterol (TC), triglycerides (TG), high density lipoprotein cholesterol (HDL), glucose (FPG), insulin, glycated hemoglobin (HbA1c). Low density lipoprotein (LDL) concentration was calculated and homeostatic model assessment (HOMA) index was used to measure insulin resistance.

Results: Both procedures caused a significant weight loss and decrease of BMI , and improvement in TG, FPG, and HbA1c ($p<0.05$) but not HDL. RYGB influenced significantly insulin and HOMA insulin resistance index. The effects of RYGB and LSG are compared in the table.

	RYGB t0	LSG t0	p	RYGB 6m	LSG 6m	p	RYGB 12m	LSG 12m	p
BMI [kg/m2]	48.8±6.4	45.5±6.0	ns	35.9±4.7	35.0±5.5	ns	32.6±4.6	32.7±5.7	ns
TC [mg/dl]	169±24	188±30	ns	134±28	183±34	p<0.05	140±30	193±23	p<0.05
TG [mg/dl]	151±48	155±66	ns	87±25	106±36	ns	82±30	89±30	ns
HDL [mg/dl]	42±15	45±12	ns	42±13	47±14	ns	55±15	56±21	ns
LDL [mg/dl]	96±20	107±27	ns	73±18	113±35	p<0.05	69±27	117±26	p<0.05
FPG [mmol/l]	5.9±1.3	6.3±2.4	ns	4.6±0.7	4.6±0.7	ns	4.4±0.5	4.6±0.7	ns
Insulin [pmol/l]	153±55	119±64	ns	48±26	81±75	ns	42±24	64±26	ns
HbA1c [%]	4.9±2.5	4.7±2.7	ns	1.4±0.9	2.5±2.9	ns	1.2±0.8	1.9±0.9	ns
HOMA	6.0±0.8	6.4±1.4	ns	5.3±0.5	5.5±0.6	ns	5.2±0.5	5.5±0.6	ns

[The changes in parameters during the study period]

Conclusion: There is no significance of difference between the RYGB and LSG groups in most of the metabolic parameters studied. However LSG did not influence significantly levels of TC, LDL and insulin and values of HOMA index (p=ns).

O.012 Sleeve Gastrectomy is Equivalent to Gastric Bypass in Reversal of Type II Diabetes at One-Year: A Nonrandomized Prospective Trial of 31 Obese Diabetic Patients

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Introduction: Reversal of Type II diabetes is one of the most important outcomes for obesity and metabolic surgery. The exclusion of the proximal small bowel is thought to play a role in the immediate improvement in glycemic control achieved by gastric bypass. Laparoscopic sleeve gastrectomy (LSG) is gaining popularity in the surgical management of obesity, however results in the reversal of diabetes have been mixed. The aim of this study of to compare resolution of type II diabetes between LSG and LRYGB in a single academic center experience.

Methods: Between 2007 and 2009, metabolic data was prospectively collected and analyzed on 31 patients with type II diabetes undergoing bariatric surgery. Reflux was considered a contraindication to LSG and major prior abdominal surgery was a contraindication to LRYGB. Otherwise all patients meeting the NIH consensus guidelines for bariatric surgery were offered the choice between LSG and LRYGB.

Results: 16 patients underwent LSG and 15 underwent LRYGB. Baseline BMI was similar between LSG and LRYGB at 45.8 kg/m^2 and 46.4 kg/m^2 respectively. Both groups had excellent weight loss over one year. BMI was not significantly different at 3, 6 months or 12 months. BMI at 12 months was 31.9 kg/m^2 vs 33.5 kg/m^2 (p=0.54) respectively. Baseline HbA1C was elevated in both groups, 7.10% vs 7.02% (p= 0.92). There was significant improvement compared to baseline in HbA1C in both groups. There was no difference in improvement at 3months 6.08% vs. 6.35% (p= 0.32), 6 months, 5.99% vs. 5.63% (p=0.10), and 12 months, 5.85% vs. 5.66% (p= 0.37). 62.5% of LSG patients and 73.3% of LRYGB had normal HbA1C at one year. Homeostatic model assessment of insulin resistance and β-cell function (HOMA-IR) was elevated at baseline and significantly improved in both groups. There was no difference in improvement at 6 months 2.90 vs. 2.17 (p=0.21) and 12 months, 2.05 vs. 1.44 (p=0.16).

Conclusions: LSG offers similar benefit for obese patients with preexisting diabetes as LRYGB in both weight loss and glycemic control at one year. A randomized control trial between LSG and LRYGB is ongoing at our institution to further characterize outcomes.

O.013 Sleeve Gastrectomy and the Resolution of Type 2 Diabetes and the Pre-Diabetic State

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Background: Laparoscopic sleeve gastrectomy (LSG) appears an effective treatment for morbid obesity and emerging evidence points to resolution of co-morbidities.This retrospective series evaluates the effects of LSG on Type 2 diabetes with follow-up to 4 years. We also review the solid resolution of the commonly found pre-diabetic state in our series.

Methods: A single surgeon series of 415 sleeve gastrectomies performed in Perth, Australia between 2005–2011 were reviewed. All utilised the same technique and 40 french bougie size. 72 diabetics were included in the series. 107 patients had a pre-diabetic state as defined by an impaired fasting glucose >5.6 mmol/L, an impaired glucose tolerance test, heaemoglobin A1c >6< 6.5 or hyperinsulinaemia.

We reviewed percentage excess weight loss (%EWL) with time, change in number of diabetic medications and fasting plasma glucose (FPG), insulin levels and haemoglobin A1c (HbA1c) over the follow up period.

Results: In the diabetic group 49 out of the 72 patients (68%) were no longer diabetic. Those not cured of their diabetes were on less medications and had improvements in FPG, insulin levels and HbA1c . In the pre-diabetic group almost all, 102 out of 107, had rapid resolution of their risk for diabetes with normalisation of their blood test parameters.

Conclusion: LSG is an effective, safe, treatment for type 2 diabetes in the morbidly obese population. LSG should also rapidly correct a pre-diabetic situation in an obese individual.

O.014 Sleeve Gastrectomy Vs Gastric Bypass for Remission of Metabolic Syndrome in Patients with Body Mass Index Less 35 KG/M^2

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Background: Metabolic syndrome (MetS) is a common condition in obese patients and is a cardiovascular risk factor. The aim of this study was to compare the remission of MetS in patients with body mass index (BMI) less 35 kg/m^2 after Sleeve Gastrectomy (LSG) and Gastric Bypass (RYLGBP).

Methods: We conducted a review of our prospective electronic database, identifying patients with a preoperative BMI less 35 kg/m^2 who also met ATP III criteria for MetS, whom underwent to LSG or RYLGBP, between October 2002 to December 2010. Chi-2 and Mann Whitney tests were used for analysis.
Results: We compared 40 SLG and 51 RYLGBP. The groups were similar in preoperative time in gender (female 77.5% vs 62.7%), age (44.5 vs 44.7 years) and BMI (33.5 vs 33.8 kg/m^2) respectively. The preoperative values were waist circumference (106 vs 106 cm, p=0.701), triglycerides (203 vs 191 mg/dl, p= 0.701), HDL (45 vs 42 mg/dl, p=0.115), fasting glucose (91 vs 121.5 mg/dl, p< 0.001) and arterial hypertension (70% vs 64,7%, p=0.657). The median of postoperative follow-up control was 13 months. Postoperative values were: waist circumference (89 vs 94 cm,p=0.384), triglyceride (92 vs 115 mg/dl,p=0.432), HDL (51 vs 58 mg/dl, p=0.316), fasting glucose (83 vs 85 mg/dl, p=0.271) and arterial hypertension (43.2 vs 52.2%, p=0.418). The global remission of MetS was 70%.
Conclusion: LSG and RYLGBP had the same effect for remission of MetS in patients with BMI between 30 to 35 kg/m^2 at 13 months of follow-up.

O.015 Surgical Glycaemic Control - Step Ladder Approach

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Introduction: Metabolic surgery has taken surgical world by storm. Though various hormonal mechanisms have been hypothesized to be responsible, many bariatric procedures have shown remarkable impact in varying percentages. Till mechanism behind glycaemic control is finally identified, it is prudent to suggest step ladder surgical approach for metabolic control.
Material & methods: Most of the procedures like Duodenal switch, Duodeno-jejunal bypass, Ileal transposition etc have clubbed sleeve gastrectomy for better results, even for low BMI patients. Individual contribution of sleeve & DS/DJB/IT in glycemic control has not yet been recognized. A literature review clearly indicates necessity of using step ladder approach.
Results: Patients are exposed to different surgeries without any long term surgical follow up/understanding of mechanisms. Except gastric band, all other procedures have a diabetes remission rate of over 70%. Most of the studies have different patient inclusion criterion & thus cannot be compared with each other. However, studies with sleeve alone have shown promising results(over 80%) in early diabetics & those controlled on OHA & diet. It is suggested that a step ladder approach with sleeve gastrectomy as step 1 surgery can be performed on all diabetics irrespective of BMI. This is expected to result in glycaemic remission in atleast 50% patients besides significant improvement in another 20% - 30% patients with minimal medicine requirement. These patients will be saved from morbidity of multiple anastomosis & bypass related issues associated with DS, IT & DJB. Only 20% - 30% patients may require a second stage surgery to achieve better control/remission. The risk of 2nd stage surgery is expected to be less than a prolonged single stage surgery considering weight loss, partial glycaemic control & visceral fat reduction following sleeve as 1st stage surgery.

O.016 A CSE-Control Study Comparing 1410 Laparoscopic Sleeve Gastrectomy Cases with 1284 Laparoscopic Roux-En-Y Gastric Bypass

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Objective: The objective of this study is to compare Laparoscopic Sleeve Gastrectomy (LSG) to Laparoscopic Roux-en-Y gastric bypass (LRYGB) in terms of weight loss and complications using a retrospective case-control study.
Methods: Review of our prospective electronic database. A total of 1410 LSG cases were matched with 1284 LRYGB cases in terms of sex, age and preoperative BMI.
Results: There were 77.2% and 78% of females in LSG and LRYGB respectively (p=ns). Mean age was 36.6±11.6 and 36.6±9.6 years for LSG and LRYGB respectively (p=ns). Preoperative BMI was a mean of 36.0±3.8 and 36.0±2.3 Kg/m^2 for LSG and LRYGB respectively (p=ns). At 6 months, excess weight loss (EWL) was 76.4±23.3 and 87.7± 25.3% for LSG and LRYGB respectively (p<0.001). At 1 year, EWL was 83.3±27.8 and 101.3±26.7% for LSG and LRYGB respectively (p<0.001). Reoperation rate was 0.4% for LSG and 1.4% for LRYGB, p=0.003. Early complication was 3.3% for LSG and 7.0% for LRYGB (p<0.001). The most common early complications was thrombosis of the porto-mesenteric axis (0.7%) and suture line leak (0.65) for LSG; and gastro-jejunal anastomotic stenosis (1.2%) and leak (0.9%) for LRYGB. Late complication was 3.2% for LSG and 13.4% for LRYGB (p<0.001). The most common late complications was cholelitiasis (1.8%) for LSG and gastro-jejunal anastomotic stenosis (4.3%) and internal hernias (3.1%) for LRYGB.
Conclusion: LSG is superior to LRYGB in terms of complications and reoperations, and its complications are easily managed with mininal seculae. LRYGB is superior to LSG in terms of weight loss, altought both procedures achieves an EWL>80% after 1 year.

O.017 The Burden of Bariatric Emergencies in a Tertiary Care Centre

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Background: With the recent surge in bariatric surgery worldwide, patients presenting to the emergency department with complications following these procedures are becoming increasingly common. Whilst many studies have documented the complication rates of individual bariatric procedures, little data exists on the overall bariatric workload during acute surgical takes. Our study, based at a tertiary care centre for bariatric surgery, looks at the frequency and nature of these complications, how they were investigated and what proportion of the work was performed out of hours.
Methods: A retrospective analysis was performed of all referrals made to the emergency general surgical team over a 14 month period. Patients with complications related to bariatric surgery were identified. Their characteristics, details of original surgery, time of presentation, investigations and course of treatment were obtained by reviewing individual patient records.
Results: The acute surgical team received 69 referrals for bariatric surgical complications over a 14-month period. 54% of these patients presented out of normal working hours and in 22% the primary surgery was either performed abroad or in another institution in the United Kingdom. The primary surgery was a gastric banding, bypass and sleeve gastrectomy in 45%, 45% and 4% of patients, respectively. The majority of cases were treated conservatively. The commonest complications requiring surgical and endoscopic intervention were slipped gastric bands (10%) and anastomotic strictures (8.7%). The most frequently performed investigations were gastrograffin swallows (36%), CT scans of the abdomen/pelvis (25%) and diagnostic laparoscopies (14.5%). Despite 54% of patients presenting out of hours, only 12% of gastrograffin swallows and 14% of CT scans were performed out of hours.
Conclusions: The popularity of bariatric surgery presents a new challenge for health organisations across the world. Emergency admissions following these procedures commonly present to hospitals out of normal working hours and sometime need to be managed surgically. A significant proportion of these patients present after having had their original surgery in another institution or abroad. Health organisations must prepare for this relentless rise in demand by increasing the availability of radiology, endoscopy and theatre slots out of hours if they are to provide equitable care for these patients.

O.018 Gastric Leaks Following Sleeve Gastrectomy: A Multicenter Experience with 2834 Patients

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Background: Laparoscopic sleeve gastrectomy (LSG) is still under scrutiny as a standalone bariatric procedure. The most dreaded complication after LSG is staple line leak.
Methods: Eight bariatric centers in Israel participated in this study. A retrospective analysis was carried out querying all LSG cases performed between June 2006 and June 2010. Data collected included patient demographics, anthropometrics, operative and perioperative parameters. Methods used for leak detection as well as management were recorded.
Results: Among 2834 patients who underwent LSG, 44 cases (1.5%) with leakage were identified. Of these 30 (68%) were women; mean age and BMI were 40.9 years and 46.3 kg/m^2, respectively. An intraoperative leak test and routine postoperative swallow studies were performed in 33 patients each and all but one (2.3%) failed to detect the leaks. Leaks were diagnosed at a median of 7 days postoperatively. Clinical diagnosis was made in 38 (86%). Computerized tomography (CT), swallow study and methylene blue test were performed in 31, 19 and 15 patients, and were positive in 37 (84%), 11 (25%) and 9 (21%), respectively. Twenty seven (61%) patients underwent reoperation. Nonoperative management was utilized in the rest and included percutaneous drainage 28 (63.6%), endoscopic placement of stents 11 (25%), clips 1 (2.3%) and fibrin glue 1 (2.3%). In 34 (79%) patients the site of leaks was in gastro-esophageal junction. Median time to leak-closure was 40 days (range 1–270). Six patients (13.9%) are still harboring chronic fistulae. Overall leak-related mortality was 0.16% (4/2535). No other causes of death were identified.
Conclusion: Albeit a relatively low incidence, gastric leak is the most common cause of major morbidity and mortality following LSG. The yield of routine intraoperative leak test and postoperative swallow studies is very low. CT scan is the most sensitive tool to confirm the clinical diagnosis.

O.019 Stenting to Treat Leakage after Sleeve Gastrectomy: Our Experience in Bariatric Surgery

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Introduction: Leaks after sleeve gastrectomy are a rare, but severe complication. Several strategies for leak repair such as stent implantation, use of fibrin glue for sealing or drainage placement and Endo VAC are described in the literature.
Methods: Stents in combination with drainage were used as a primary treatment for leakage following sleeve gastrectomy.
After identifying the leak by gastroscopy different types of stents (Polyflex, Niti-S) were placed covering the leak under X-ray control. Drains were placed by laparoscopy or CT-guidance near to the leak in all cases to prevent abscess formation.
A gastrograffin swallow in the follow up was used to show eventually delayed persistent leakage (e.g. due to stent dislocation or incomplete sealing by the stent).
The regular time of a stent until expected remission of the leak was 6–7 weeks. In case of complications such as dislocation of the stent that that was shortened.
In case of persistent leakage overlapping stent placement (Stent in Stent) to cover more distance or stent removal with application of a longer and wider stent were performed. Autologous fibrin glue was injected into chronic fistulas by gastroscopy.
Results: 14 Patients were treated with stents suffering from staple line leakage after sleeve gastrectomy between 2005 and 2010. A complete remission of the leakage could be reached in 64% (n=9) after stent implantation as a single treatment. 4 out of these 9 patients showed a complete remission of the leakage within a regular stent residence time of 6–7 weeks. In the other 5 out of the 9 patients, suffering from persistent leakage, the stent had to be replaced between 2–4 times until a complete remission was achieved.
Four (28%) out of 14 patients were treated with a stent *and* autologous fibrin glue. One patient with no sufficient result through stenting was treated with an Endo-VAC. Dislocation and persisting leakage (fistula) were the main cause for restenting and or usage of autologous fibrin glue.
Stenting alone or in combination with fibrin glue finally resulted in sealing of the leakage in 13 out of 14 patients (93%).
Conclusions: Stent implantation with or without autologous fibrin glue showed to be an effective treatment with a satisfying outcome (total remission rate 93%).
Stents enable oral feeding in patients with leaks following sleeve gastrectomy and help to avoid risky reoperations.
A constant development in Stent technology in terms of stent-material, length, form and coating may lead to a decreasing rate of dislocation and better sealing of the leakage.

O.020 Management of Internal Hernias after Laparoscopic Roux-En-Y Gastric Bypass

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Introduction: Laparoscopic Roux-en-Y gastric bypass (LRYGBP) has been shown to be a safe and effective. One of the Knowen complication is the development of internal hernia, which can lead to acute intestinal obstruction or recurrent colicky abdominal pain.Although lack of postoperative adhesions is one advantage of minimally invasive surgery , this is also responsible for a higher incidence of internal hernias. In this paper we present our experience in management of the internal hernias after the LRYGBP.
Methods: We retrospectively reviewed our database of 560 patients who had undergone LRYGBP in one standardized technique (double loop technique) by one Surgeon (the main author) from April 2005 to end of December 2010 and identified those diagnosed as internal hernia , we analyzed there clinical presentation, the time of presentation, the radiological examination, the role of diagnostic laparoscopy in a suspicious case, and the surgical management.
Results: 16 cases operated for internal hernias post gastric bypass, One case had LRYGBP in other hospital and 15 cases operated in our hospital (KFMMC)= 2.67%. The age of the patients 20–48 yrs and they are 9 males and 7 females . Tow cases present acutely in the admission of primary surgery LRYGBP 2–3 days post operative as intestinal obstruction 2 / 16=12.5 % and the rest of the 14 patients 87.5% after discharge, the time interval between the initial surgery (LRYGBP) to surgical procedure treating the internal hernia was highly variable 5 months to 4 years average time 23.3 months post operative. The most common clinical presentation are recurent colicky abdominal pain in 13 cases 81% , intestinal obstruction in in5cases 31%, incedintal (other surgery) in3 cases 18.7%. Surgical intervention done in 2 cases had exploring lapartomy from the start, 4 cases converted from laparoscopic to open, 3 cases found incidentally with laparoscopic cholecystectomy, 10 out of 16 cases operated laproscopically 62.5% .Site of internal herniation all our cases herniated in the jejunal mesentery below the Jejunal-Jejunal anastomosis
Conclusion: Internal hernia after LRYGBP has an incidence of 2.67 %, closure of mesenteric defects are recommended, contrast radiographs alone are unreliable in rolling out IH. High index of suspicion of internal hernia after LRYGBP should have CT scan with contrast and Diagnostic laparoscopy, early intervention is crucial.
Video included
Key words: laparoscopic gastric bypass, internal hernia, intestinal obstruction

O.021 Endoluminal Vacuum Therapy (EVT)- A Novel Approach for Contained Leaks Following Gastric Bypass

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Background: Anastomotic leakage affects all GI surgeons. Are there any lessons we can learn from our non-bariatric colleagues? An innovative technique for rectal anastomotic leaks involves endoluminal vacuum therapy through a sponge inserted into the leak cavity. This technique is simple and effective in reducing leak closure times and could be of great use for bariatric surgeons.
Methods: A 35-year-old man with a BMI of 41 underwent revisional laparoscopic gastric bypass. He had a stormy post-operative course and a contained leak with cavity from the gastric staple line was diagnosed on contrast imaging and gastroscopy. Laparoscopy confirmed the absence of contamination in the peritioneal cavity. Initial endoscopic drainage of the leak cavity was followed by endoscopic insertion of a sponge “plug” attached to a nasogastric tube under high vacuum

pressure. Endoluminal vacuum therapy was carried out over a seven-day period with one change of sponge.
Results: EVT was well tolerated by the patient. The leak cavity underwent significant reduction in exudate and widespread granulation tissue in-growth was rapid. The patient did not become septic at any point. After 7 days of endoluminal treatment the cavity was inspected and sprayed with fibrin glue to help prevent contagion of the leak. A further cavity was demonstrated distal to the original leak and it was decided to pursue a conventional conservative course for this. Within a week a contrast study confirmed healing of both sites with free drainage into the jejunal loop. Oral fluids were commenced with no complications. Gastroscopy before discharge demonstrated marked improvement and a further application of fibrin glue to the remnant sites was given. Total in patient stay from diagnosis of leak was 29 days.
Conclusions: Endoluminal vacuum therapy for contained leaks after gastric bypass surgery is feasible and safe. It results in reduced cavity size, reduced exudate and appears to enhance granulation tissue formation. EVT could be a useful addition to the methods of managing gastric bypass leaks.

O.022 Major Complications Following Laparoscopic Sleeve Gastrectomy (LSG) as Compared to Laparos-Copic Roux- En-Y Gastric Bypass (LRYGB): A Retro-Spective Analysis

PRESENTER: S. Theodoridou[1]
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Background: Laparoscopic sleeve gastrectomy (LSG) is conceived as simpler than laparoscopic Roux-en-Y gastric bypass (LRYGB). The aim of this study was to compare LSG with LRYGB.
Patients and methods: Postoperative morbidity of all patients undergoing LSG or LRYGB over two years were compared. The registered complications were during the hospital stay including the period of 30 days after surgery.
Results: The results are depicted in the following table.

Type of procedure	LRYGB	LSG	P<0,05
patients	1931	1334	
Age (years)	46,7	47,6	
Previous obesity surgery	5,3%	12,9%	*
OR time (min)	67 (32-183)	55 (22-192)	
BMI initial	49,4 (32-68)	61,4 (36-89)	
Conversions	2 (0,1%)	0(0%)	
Bleedings	13(0,7%)	15 (1,2%)	
Leakage GE/Sleeve	7(0,36%)	11(0,8%)	
Leakage Intestine	6(0,3%)	1(0,01%) Veress needle	
Stenosis	8(0,4%)	6(0,5%)	
Abdominal abscess	2(0,1%)	6(0,46%)	
Hospital stay (days)	5,3	4,3	
Recurrent hospitalization	58(3,0%)	36(2,7%)	
Trocar site hernia	2(0,1%)	7(0,5%)	
Major complications	56(2,9%)	36(2,7%)	*
Mortality (30 days)	1(0,05%)	5(0,37%)	*

[table]

Conclusions: Short term morbidity is not significantly different from that of LSG. The mortality was higher after LSG, maybe in respect to significant higher initial BMI. LSG didn't prove to be a safer option.

O.023 Gastro-Omentopexy: New Technique for the Prevention of Gastric Rotation and Displacement Following Sleeve Gastrectomy

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Background: Post operative Vomiting and Gastric Obstruction are reported after Sleeve gastrectomy. Gastric Obstruction leads to increase in intragastric pressure sufficient to precipitate a staple line leak. These complications may be severe enough to warrant re-exploration or endoscopic dilatation. One of the known reasons for this post operative complication is Gastric Rotation or Folding Over due to loss of fixation of the gastric tube. The Omentum is an important structure which functions as an effective broad "LIgament" anchoring the stomach in it's place, and it's weight , along with the attachments and weight of the colon, holds the stomach from being rotated in it's long axis. However when the omentum is disconnected during the Sleeve Gastrectomy, the gastric tube loses this important attachment. Instead of being anchored by the normal omentum along it's greater curvature, the sleeved stomach is now attached at only two points, proximally at the gastro-oesophageal junction and distally at the antrum. This lack of the 3rd point of fixation allows the stomach to not only undergo "Torsion" on it's long axis, but also to fold over with a fulcrum at the incisura angularis.
Methods and results: The technique described (with illustrations and video) has been practised by the author and has proved extremely effective in preventing this unwanted complication of rotation and displacement that adds to the post operative morbidity of this procedure.
The technique involves re-attaching the disconnected omentum back to the new gastric Greater Curvature along the staple line. It thus restores the "3 Point Fixation" that is required to stabilize the stomach, as it was prior to the surgical resection of the stomach.
Conclusions: The technique of Gastro-Omentopexy has not been described so far in relation to Sleeve Gastrectomy. The Principle of "3-Point Fixation" is well known in surgical procedures, most commonly understood and applied in relation to Testicular Torsion and Orchidopexy. The same principles have been apllied to prevent the torsion of the stomach following it's disconnection from the omentum along the greater curve.
This presentation also highlights other technical issues that would prevent Gastric Obstruction. Adoption of this simple technique can prevent morbidity of post operative Gastric Obstrction , Stricture Formation and Staple Line leaks and improve outcomes in Sleeve Gastrectomy for Morbid Obesity.

O.024 Adverse Outcomes Following Laparoscopic Bariatric Surgery: An Audit from a Specialist UK Centre

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Background: Although laparoscopic bariatric surgery is safe it is not risk-free. We present the results of a two-year audit of adverse outcomes at a specialist bariatric unit from the UK serving both NHS and privately funded patients.
Methods: Analysis of prospective database of procedures performed from 01/01/2009 to 31/12/2010.
Results: 827 procedures were performed (67% involving gastric or bowel division and anastomosis, 4.5% complex laparoscopic revisonal surgery). Only 35% of procedures were privately funded. NHS patients were heavier (median BMI 51 v 43, p=0.02) and higher risk (OSMRS 4 or 5, 12% v 3% p=0.001). 56% of the total caseload had a BMI>50.
In patient mortality was zero. 30-day mortality was 0.1%. Unadjusted mortality was 0.4% (three cases: aspiration following stent insertion at a different unit for a leak, a death at 30 days following a leak and discharge from hospital, a massive PE 45 days following emergency removal of an infected gastric band in a patient with thrombophilia, this patient was discharged within a week of surgery). Overall leak rate was 1%. Unexpected return to theatre rate was 1.9% with the majority of cases due to leak or bleeding. Other indications included port-site hernia, unsuturing of a nasogastric tube and delayed ruptured spleen following complex revisonal surgery. Three patients were transferred outside the unit (stenting for leak-aspirated and died at other unit, two transfers to ITU: one case of failed extubation and one case of acute on chronic renal failure).
NHS patients were more likely to have significant complications (death, return to theatre, transfer) than privately funded patients (3% v 0.7%, p=0.02). All data have been subject to internal peer review and the deaths are in the process of consideration for external peer review.
Conclusions: The results presented here compare favourably with data from the United States LABS study. NHS patients present increased surgical risk but can be managed with good outcomes. It is encumbent upon bariatric units to present and analyse their adverse outcomes to ensure standards are maintained and also to identify and manage problems.

O.025 Gastropulmonary Fistula as a Complication of Bariatric Surgery: A Report of 6 Cases

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Background: Bariatric surgery is the mainstay of treatment for the obesity pandemic. As a result of its widespread utilization, rare, unforeseen complications have emerged. Gastric leak is, infrequent. Gastropulmonary fistula (GPF) is a rare subtype of this complication sometimes occurring late with chronic leaks. GPF may occur after a leak high on the stapler line, near the gastroesophageal junction. We herein present a multi-center series of patients who developed GPF after bariatric surgery.
Methods: We retrospectively identified six patients with GPF (out of 1423 cases performed: 0.42%). One patient had undergone Roux-en-Y gastric bypass and five had a sleeve gastrectomy. Data collected included demographics, previous surgeries, clinical presentation, timing of fistula diagnosis, treatment measures employed and outcome.
Results: Four patients were female, the average age and BMI where 42 years and 42.5 kg/m^2, respectively. Three patients had previous surgeries (Nissen fundoplication, adjustable gastric banding and vertical banded gastroplasty). Median time to fistula diagnosis was 40 days (range 15–90). Clinical presentation included chronic cough, hemoptysis, dyspnea and fever, as well as persistent left pleural effusion or pneumonia. Diagnosis was confirmed by computed tomography in all cases. Two patients were treated non-operatively, while four eventually required surgery for takedown of the fistula for resolution. Left lower lobectomy was required in 3 of 4 cases. Concomitant procedures were total gastrectomy in two cases and conversion of a sleeve to a gastric bypass in one. Resolution occurred 30 days to 2 years after initial surgery. No mortalities were encountered.
Conclusions: GPF is a rare but devastating complication following bariatric surgery. It may develop as a late complication of a chronic upper gastric leak. Surgery is curative although non-operative management may be warranted in selected cases.

O.026 Non-Operative Management of Luminal Dilatation Following Laparoscopic Adjustable Gastric Banding

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Introduction: Luminal dilatation of the proximal stomach is of one the most significant challenges following Laparoscopic adjustable gastric banding (LAGB). If luminal dilatations are identified at an early stage, there is the potential to avoid re-operation or irreversible dilatation by implementing conservative measures, such as removal of saline from the band and attention to eating behaviour. The success of these strategies remains unknown and it is unclear how many go on to have revision surgery. The aim of this study was to determine the outcome of luminal dilatations treated non-surgically.
Method: Patients who underwent LAGB insertion by a single surgeon from Jan 2005 to Dec 2006 and had an undergone a post-operative liquid contrast swallow for symptoms suggestive of proximal pouch pathology were included in the study. The appearance of the contrast swallow was classified as normal, mild, moderate or severe symmetrical pouch dilatation (SPD) or gastric prolapse. Management was recorded.
Results: One hundred and twenty-eight patients with abnormal contrast studies were identified (from 354 patients in total). Ten patients underwent re-operation immediately after diagnosis of proximal pouch dilatation. The remaining 118 patients received conservative treatment in the first instance, which consisted of removal of saline from the band, modification of eating behaviours and close follow-up. Twenty-three patients had mild SPD (19.5%), 34 had moderate SPD (28.8%), 49 had severe SPD (41.5%) and 12 were diagnosed with gastric prolapse (10.2%). Forty-six of these patients (39%) ultimately required revision surgery after 43±81 weeks of conservative measures due to ongoing symptoms, inability to maintain weight loss or poor progress on follow-up contrast study. Severity of anatomical changes correlated well with progression to surgery: 4.6% of mild SPD (n=1) proceeded to surgical intervention compared to 58% of patients with severe SPD (n=29) and 75% of patients with prolapse (n=9). In patients managed completely conservatively (n=72), follow-up liquid contrast swallows showed stable abnormality in 41 patients (56.9%), improvement in 19 patients (26.4%) and complete resolution in 12 patients (16.7%), including 2 patients with severe luminal dilatation and 1 patient with prolapse (follow-up 198±134 weeks). At last follow-up, none of these patients were scheduled for surgical intervention. There was no difference in the excess weight loss (EWL) when the operative and non-operative groups were compared - 50.6% (95% CI 42.8 - 58.4, follow-up 265±52 weeks) vs. 44.9% (95% CI 38.4 - 51.4, follow-up 258±63 weeks) respectively (p= 0.44). Overall cohort EWL was 47.4% with follow-up time of 261±58 weeks.
Conclusion: These data suggest that pouch dilatations identified early can often be successfully managed with conservative measures, without compromising weight loss. Early recognition and treatment of pouch dilatation in the acute stage is advocated.

O.027 Does Stomaphyx Treat Weight Gain and Comorbidity Recurrence Following RYGB?

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Background: StomaphyX is a natural orifice transluminal endoscopic procedure to reduce gastric pouch size following RYGB. We characterize the safety and efficacy of this procedure to treat insufficient weight loss and recurrence of comorbidities.
Methods: At a single academic institution, between 2008 and 2010, 11 patients underwent StomaphyX. BMI and comorbidities before and after RYGB and StomaphyX procedures, and complications following surgery were recorded.
Results: Of 11 patients, 82% were women. Mean demographics are as follows: age at RYGB - 42.8 years; age at StomaphyX - 47.1 years; 60.7 months between procedures; index BMI - 56.4 kg/m^2; nadir BMI - 32.4 kg/m^2 or 84.7% of index excess weight lost (%EWL). Mean preoperative BMI at the time of the StomaphyX was 41.2 kg/ m^2, which is a mean gain of 8.8 BMI units, or 32% of index %EWL. Prior to gastric bypass, 54% of patients had hypertension, 54% had diabetes, 45% had hyperlipidemia, 36% had GERD, 82% had musculoskeletal complaints, and 64% had obstructive sleep apnea (OSA); on average, patients had 3.5 preoperative comorbidities. At one year, 66% of patients had resolution of hypertension (37% improved in hypertenstion), 100% had resolution of their diabetes, 50% had resolution of GERD (the rest had improvement of GERD), 22% had resolution of msk problems (44% improved), and 86% had resolution of OSA (14% improved). At the time of the StomaphyX, patients had an average of 2.27 comorbidities. One patient had a new onset of diabetes; no other case of diabetes was seen. 100% of patients with resolved msk problems had recurrence and 50% of patients with improved msk problems had worsened pain. 67% of patients with resolved OSA had recurrence. 50% of the patients with recurrent msk problems had resolution, and 50% of the patients with worsened msk problems improved. 100% of patients with recurrent OSA had resolution. Compared to an average LOS of 3.1 days following gastric bypass, patients were discharged on the same day as their StomaphyX procedure. Of the 11 patients, only 1 patient suffered a complication (perforated ulcer). By two weeks post StomaphyX, patients lost an average of 12% of their pre-StomaphyX EWL (n=9).
Conclusion: As early as two weeks, patients undergoing StomaphyX lose 12% of their excess weight. The minimally invasive nature of StomaphyX, elimination of overnight hospitalization and low complication rates makes it a safe alternative for treating insufficient weight loss and recurrence of comorbidities post RYGB.

O.028 Internal Hernia after Gastric Bypass: A New and Simplified Technique for Laparoscopic Primary Closure of the Mesenteric Defects

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Background: Bowel obstruction due to internal hernia is a well known complication of Laparoscopic Roux-en-Y gastric bypass (LRYGBP). Increasing evidence supports primary closure of the mesenteric defects, but controversy continues about surgical technique of systematic closure. This paper reviews our experience with internal hernia after LRGBP and describes a new method of preventive closure of the mesenteric defects.
Material and methods: 2377 consecutive patients undergoing LRYGBP from September 2005 to June 2010 were entered into our prospective database. BP-limb length was set at 50 cm, the alimentary limb at 150 cm. The mesenteric defects were not closed. Patients entered a five years follow-up program, and all who subsequently presented with internal hernia were analyzed.A further 773 patients operated in the last seven months of 2010 were subjected to our new technique of closing the defects; follow-up time for these patients is limited. All steps of the operation were clocked prospectively.
Results: In the first group, 109 patients developed an internal hernia (4,6%) at a mean interval after LRYGBP of 13 months (range 4–43 months). Ninety-three patients (85%) were laparoscopically explored. Four patients needed bowel resections because of severe ischemia. There was 1 death associated with complications of the internal hernia. Kaplan-Meier transformation gives an incidence of internal hernias of almost 11 %.In the group that had its mesenteric defects closed there have been no internal hernias to date. Operation time increased by 3.1 minutes. Three patients early in the series had reoperations for kinking of the enteroanastomosis. We have encountered no mesenteric haematomas.
Conclusions: Internal hernia seems to have a high incidence and should be ruled out in patients with previous LRYGBP and abdominal pain. Our technique for primary closing of the mesenteric defects seems to be safe and is so far very promising.

O.029 Complications and Correction Techniques of Silastic Ring Vertical Gastroplasty in Morbidly Obese Patients

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Background: SRVG has been practiced for the first time in Romania in Cluj Napoca 14 years ago. It was easily accepted and financially afforded by the morbidly obese patient. From 2004 other bariatric surgery techniques have been introduced- lap band, gastric by pass and sleeve gastrectomy.
Method: Between 1997-January 2011, we performed 956 SRVG, out of which 836 had a complete and 120 respectively an incomplete follow up. Age ranged between 18 and 65, with an average of 40. 705 (84,33%) were female and 131 (15,67%) were male. The weight ranged between 95–270 kg, with an average of 142 kg. BMI ranged between 36–80 kg/m^2 with an average of 45,4 kg/m^2- 7,2% between 36–39 kg/m^2, 64% between 40–49 kg/m^2 and 28,8% over 50 kg/m^2. After the rigorous cardiopulmonary selection 112 patients were eliminated (there was a total of 1068 examinated patients). We used the Eckhout method with a 9 cm vertical mecanical suture on the small curve with the TA-90 BN^{TM}. Period of hospitalization was between 5–7 days in 80% of cases with follow-up at 3,6,9 and 12 months. The surgical intervention has one digital "blind step" of retrogastric tunneling and other step of introducing the stapler- they both can produce visceral injuries. The ring (5,4-5,8 cm) and gastric upper pouch (50-70cm^3) adjustment considering the weight were most important. 97 patients underwent further cosmetic interventions- vertical and transversal abdominoplasty, crural lipectomy, brachioplasty, mastoplasty.
Results: Excelent results were obtained in 80% of cases with maintenance over years and only 14% partially. Intraoperative complications (1,8%) were: gastric, splenic, hepatic, intestinal lesions corrected by gastric suture, spelnectomy, intestinal suture, and hepatic hemostasis. Early complications (30 days after surgery- 0,2-1,6%) were wound infection, intestinal occlusion, evisceration, gastric fistula with peritonitis, intestinal fistula, and pulmonary embolism. They were resolved through surgical reinterventions- enterectomy, gastric resection, drainage-lavage. Mortality was 0,5%. The most important tardive complications (5,97%) were stoma stenosis 18 (2,15%) enlargement of gastric stoma, the rupture of the suture 32(3,82%) which leaded to excess weight loss with frequent vomiting or weight gain. Eventration, occlusion and stoma edema (0,3-3,96%) were far more rare. Stenosis or stoma enlargement can be easily corrected with no complications through adhesiolysis, extraction of the old ring, replacing a new larger ring on the same suture or a unflexible 8 cm Gore-Tex band. Excellent results were obtained in 80% cases, satisfactory in 14,31% and unsatisfactory in 5,69% cases.
Conclusions: SRVG is a simple, eficient, non-mutilating, reversible method with few complications. Stenosis or enlargement of the stoma can be easily corrected. Financial costs are convenient for most of the romanian morbidly obese patients.

O.030 Diabetes (T2DM) Duration and Long Term Metabolic Recovery in Severely Obese Patients Submitted to Biliopancreatic Diversion (BPD)

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Objective: This study was carried out to investigate the predicting role of T2DM duration on weight and metabolic long term outcome in severely obese patients with T2DM having undergone BPD.
Materials and methods: Two groups of patients submitted to BPD with a minimum follow-up of five years were considered: the former included 50 (33 females) severely obese patients who were diabetic for more than five years prior to BPD (LD group) and the latter was represented by 67 patients (39 females) with a diabetes duration of 1 year (SD group). Before the operation all patients were on insulin or oral anti-diabetics, and T2DM was regarded as resolved when fasting serum glucose (FSG) was lower than 100 mg/dl at free diet and without any anti-diabetic drugs.
Results: At one year after BPD, in all patients body weight sharply decreased, serum triglycerides (TG) and total cholesterol (Chol) mean values reduced within the physiological range with no change in the HDL Chol ones, and these values were maintained at 5 years. The prevalence of arterial hypertension fell at one year (89% to 48%) and a further reduction (to 26%) was observed at longer term. Between SD and LD group, no differences in terms of preoperative and preoperative prevalence of hypertension, BW level and TG, Chol and HDL mean values were found. At one year after BPD, in the LD group the prevalence of still diabetic subjects (19% vs. 3%, $p<0.02$) and the mean value of FSG (97 vs. 83 mg/dl, $p<0.015$) was higher than in the ones, and these differences were maintained at five years (25% vs. 2%, $p<0.01$ and 100 vs. 85 mg/dl, $p<0.002$, respectively). The five years recovery from T2DM was related to T2DM duration and type of therapy and unrelated to initial BW, age, gender and preoperative FSG values.
Conclusions: These results indicate that in severe obese patients with longer T2DM duration the metabolic outcome following BPD can be different in comparison with that of other obese T2DM individuals and prompt the T2DM obese patients toward an early operation.

O.031 Evolution of Comorbidities after Biliopancreatic Diversion Procedure

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Objectives: Obesity is the most common metabolic disease in western countries. Its prevalence is increasing and it constitutes the second cause of premature avoidable mortality after tobacco. It is an important matter of public health related with a high morbidity, mainly cardiovascular. Our objective is to assess the evolution of comorbidities observed in patients who underwent biliopancreatic diversion procedure after a 4-year follow-up.

Methods: For this study, a retrospective and longitudinal analysis was carried out on 188 morbidly obese patients who underwent biliopancreatic diversion procedure at Hospital Universitario Insular de Gran Canaria between 2001 and 2006. Medical history, laboratory tests, chest x-ray, abdominal ultrasound, upper gastrointestinal contrast study, cardiologic evaluation, spirometry and polisomnography were performed on all patients.
Results: In a five year period, 188 patients with a mean body mass index (BMI) of 40–50 kg/m², and an overweight of 80% have undergone surgery. All patients have a follow-up of at least three years. 160 patients had some comorbidity, the most common was type 2 diabetes mellitus, 54.70%, hypertension, 37.80%, obstructive sleep apnea, 17.30% and dyslipidemia, 12.80%. The mean percentage of excess weight loss was 70.1% (66.3%- 73.9%), with a 95% confidence interval. The resolution or improvement rate for diabetes was 98.8%, hypertension 94.7%, dyslipidemia 100% and obstructive sleep apnea 100%.
Conclusions: The cure of comorbidities was obtained at 3-month after surgery, with its highest rate of resolution at 2 years. There is a direct connection between weight loss after bariatric surgery and the resolution of comorbidities, showing that biliopancreatic diversion is an effective procedure to resolve comorbidities in the morbidly obese patient.

O.032 Standard Biliopancreatic Diversion for Obesity. 21 Years of Clinical Experience

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Background: Biliopancreatic Diversion (BPD} (for the first time performed in man in 1976 by Nicola Scopinaro), by ad hoc stomach (AHS-BPD) or ad hoc stomach ad hoc alimentary limb (AHS-AHAL-BPD}, has been accepted as an effective surgical treatment for morbid obesity.
Patients and methods: From 1989 to 2009, 1318 patients (F/M 1024/294, mean age 40.6 (range 20–61) years) underwent AHS-AHAL-BPD (AHS-BPD from 1989 to 1992). Mean preoperative body weight was 139.4 (91–245) kg, with a mean body mass index of 49.1 (38,5-75).
58 of these patients (4.4%) were converted from a previous vertical banded gastroplasty/gastric banding/gastric bypass to BPD. 409 patients (31.3% of the procedures) underwent video-assisted BPD. After at least 24–36 months of follow-up, 214 patients (16.23%) underwent abdominal/thigh dermolipectomy (some patients during incisional hernia repair).
Results: Mean postoperative hospital stay was 9 (5–30) days. Follow-up is currently in progress in all patients. Weight loss of initial overweight was 73% in all the patients with 24-month follow-up, with excellent long-term weight maintenance, and mean BMI of 31. Protein deficiency was the main specific complication, which was encountered in 49 patients (3.7%), all in the first group (AHS-BPD), that required elongation of the common loop or restauration in 70% of them (2.58% of all the patients).
Diabetes and hypercholesterolemia were resolved in respectively 94% and 98% of cases (with free diet and without medication) and good improvement of all the other obesity-related comorbidities was noticed. Mortality rate was 0.6%.
Late specific complications were: anastomotic ulcer 1.4%, anemia 4%, disvitaminosis (A, B, D, E) 2.9%. All these complications resolved after therapy and oral supplementation. Secondary asymptomatic hyperparathyroidism was 11.7%.
Collateral effects as number of bowel movements, diarrhea, flatulence, vomiting were present up to 25% of patients, but after 24 months they were greatly reduced.
Quality of life revelead improvement of humor tone, anxiety and depression, self-esteem, social life, work condition, sentimental relationship and sexual activity in 95% of patients.
Conclusions: The 21 years clinical experience supports the effectiveness and safety of AHS-AHAL-BPD, despite some criticism. This procedure seems to be suitable for patients with severe obesity and elevated BMI who poorly tolerate food intake restriction, but accept a long-term follow-up. Careful preoperative clinical assessment and selection of patients reliable for long-term follow-up (especially for dietary regimen in the first postoperative months), are the keys of success with BPD in terms of weight loss, resolution of comorbidities and reduction of specific complications.

O.033 Stark Contrast Between BPD-DS and Medical Therapy for Diabetes Type II

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Beginning in 2006, HbA1c was measured routinely before bariatric surgery. From 2006 to 2009, biliopancreatic diversion with duodenal switch (BPD-DS) was performed in 419 morbidly obese patients actively treated for diabetes type II: 282 were receiving oral hypoglycemic agents and 137 were injecting insulin.
During the pre-operative evaluation which averaged 23±9 months, the endocrinology and dietetic team periodically reevaluated diabetes therapy to improve glycemic control. At the time of surgery, the patients on oral therapy weighed 143±29 kg (80–266) with a BMI of 52±8 kg/m^2 and HbA1c remained elevated at 0.069 ±.011. The group on insulin weighed 142±25 kg (89–236) with a BMI of 52±8 kg/m^2 and pre-op HbA1c remained above target at 0.080±0.010.
At the follow up 19±12 months later (2–49), the first group then weighed 90±21 kg (47–176) with a BMI of 33±7 kg/m^2 and achieved normal HbA1c of 0.051 ± .005 while medical therapy had ceased in the majority. The insulin treated group weighed 89±20 kg (51–167) corresponding to a BMI of 32±6 kg/m^2 and achieved HbA1c of 0.055 ± .009 without any insulin in 93% and no therapy in 77% (9 % remained on lower doses of oral therapy and 7% on lower doses of insulin).
Conclusions: Oral hypoglycemic and insulin therapy failed to achieve target HbA1c in morbidly obese patients awaiting bariatric surgery. In stark contrast, BPD-DS achieved normal HbA1c while medical treatment was reduced or ceased in the majority of patients.

O.034 Outcome after 5 Years of 21 Patients with Insulin-Dependent Type 2 Diabetes Mellitus Who Experienced Freedom of Insulin One Year after BPD-DS

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Background: In 2008, the effects of biliopancreatic diversion with duodenal switch (BPD-DS) on diabetes have been presented in a series of 21 morbidly obese patients with insulin-dependent type 2 diabetes mellitus (Cho E-Y, Tunger S, Röhrig I, Frenken M: Duodenal switch operation for the treatment of insulin-dependent type 2 diabetes mellitus: one-year results. 3rd congress IFSO-EC, 2008, Capri, Italy, Obes Surg 18:458). What is the outcome after 5 years?
Methods: We conducted a prospective study in 21 consecutively operated patients undergoing a duodenal switch procedure for insulin-dependent type 2 diabetes mellitus (mean age 51 years, range 26–67; mean BMI 46 kg/m^2, range 35–56; 9 males / 12 females). The operation consisted of a 75% gastric sleeve resection sparing the distal antrum, a duodenoileostomy approximately 4 to 5 cm distal to the pylorus, a creation of an alimentary limb of 150 or 200 cm depending on the total length of the small bowel, and a common channel of 100 cm. The operations were performed in an open approach. The effects of the operation on diabetes and its treatment were traced for 5 years.
Results: Mean preoperative duration of diabetes treatment was 10.5 years, mean duration of insulin dependence was 6.5 years with a mean daily use of 98 units of insulin before operation. Insulin therapy was terminated in all patients within 1 year, in 15 patients within 2 weeks after operation. Level of HbA1c was 9.5±2.0 % (mean and S.D., normal value below 6%) preoperatively and 5.6±0.6 % after 1 year. One patient used an oral antidiabetic drug 1 year after operation. After 5 years 1 patient

was lost to follow-up (follow-up rate 95%). Another patient died of cardiovascular reason (incidence of death per patient-year of follow-up including perioperative mortality being 0.9%). In the remaining 19 patients the level of HbA1c after 5 years (mean and S.D.) was 5.3±0.8%. N=16 patients had complete remission (HbA1c<6%, no antidiabetic drug, no diabetes-specific diet), 1 patient had an elevated HbA1c level (7.5%) without therapy, another 2 patients had slightly elevated HbA1c levels (< 6.5%) with an oral antidiabetic drug (metformin). No patient had a relapse of type 2 diabetes, the latter 3 patients never experienced complete remission. Thus, complete remission rate after 5 years is 84% (16 of 19 patients alive and in follow-up).

Conclusions: Remission of insulin-dependent type 2 diabetes mellitus after BPD-DS appears to be of durable nature at least for 5 years. Not a single patient who experienced complete remission of diabetes after 1 year had a relapse within the following 4 years.

O.035 Staged Approach (Laparoscopic Sleeve Gastrectomy Followed by Laparoscopic Duodenal Switch in Selected Patients) Versus Single Step Laparoscopic Duodenal Switch for Super Obesity: A Case Control Study

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Objective: This report is a case-control study comparing the staged approach to super-obesity, consisting in laparoscopic sleeve gastrectomy (LSG) followed by laparoscopic duodenal switch (LDS) only in selected patients, and the single step LDS to test the hypothesis that the staged strategy may reduce the rate of postoperative complications and the need for the second step (DS).

Background: The prevalence of super-obesity (BMI≥50 kg/m^2) has increased steadily over the last decade and the best surgical strategy for these patients is still controversial.

Methods: Data on 110 consecutive patients with a BMI≥50 kg/m^2 undergoing the staged approach in one bariatric center, where LSG was systematically proposed to all super-obese patients and the second step LDS only in case of LSG failure, were matched for age, gender and BMI with 110 consecutive patients undergoing the one-step LDS at another institution where LDS was systematically done as a single step procedure. Excess weight loss (EWL), improvement of comorbidities, postoperative complications were compared between groups.

Results: At a mean follow-up of 36.4 ±13 months in the staged strategy 33 patients (30 %) required a second step procedure (30 LDS and 3 LRYGBP), the mean percent of EWL for patients undergoing LSG as a stand-alone procedure was 50.8 %±17.5, for the whole series of patients undergoing the staged strategy was 61.5 %±19.3 %, for patients undergoing the second step of LDS was 72.7 %±14.1, and for patients undergoing the one-step LDS was 73.3 %± 17.6. There was no significant difference in the evolution of obesity related comorbid conditions in the staged strategy and one-step LDS group. One patient died in the staged strategy group (mortality rate 0.9%). Postoperative complication rate was 8.2 % in the staged strategy group and 15.5 % in the one-step LDS group (NS). In the multivariate analysis one-step LDS surgery was the only variable significantly associated with the occurrence of postoperative complications (95 % CI=1.5 - 0.17; OR 0.005).

Conclusions: This study shows that the DS surgery for superobesity done as a single step operation significantly increases the risk of postoperative complications while the staged approach is an interesting alternative that avoids the biliopancreatic diversion in 70 % of the patients at three years follow-up.

O.036 Biliopancreatic Diversion/Duodenal Switch - 7-Year Experience in Russian Federation

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Background: Although Biliopancreatic Diversion/Duodenal Switch (BPD/DS) has proven as effective procedure in the treatment of morbid obesity and Diabetes mellitus type 2 (DM2) this operation is used relatively rare (~4 %) in America and Europe. The largest East-European series of BPD/DS is presented.

Material and methods: 301 open BPD/DS were performed since September-2003. Mean BMI was 47,2±6,9 kg/m^2, 28,5 % were superobese, 13,0 % had BMI<40 kg/m^2 (diabetic, bulimic and past-morbidly obese pts). 70 (23,3%) patients had Diabetes Mellitus type 2 (DM 2). Postoperative follow-up is>90% each year. 29 high-risk patients were prepared for BPD/DS by intragastric balloons.

Results: 30-day mortality is zero, early complication rate - 5,6 %, delayed small bowel obstruction - 4,2 %, clinically significant late protein malnutrition - 1,76 %, incisional hernias- 14,8%. Mean EWL was 78,0±15,7 % at 2 years and 67,8±16,3 % at 6- year follow-up period. Resolution of DM 2 was observed in 98,4% of 70 diabetic pts, resolution of hypercholesterolemia- in 100%. Revisional operations in the late period (7,4%) included shortening of bowels (n-13), elongation of bowels (n-5), gastric re-sleeve or plication (n-3), gastric banding (n-1). % EWL depended on initial BMI group and was some less in DM2 pts than in non-diabetics. BPD/DS provided better weight loss control and less complication rate compared to our series of Vertical Banded Gastroplasty, Sleeve Gastrectomy and Laparoscopic Gastric Banding at the same follow-up periods.

Conclusion: BPD/DS may be recommended for wider use as rather safe operation providing predictable and most stable very good weight loss and metabolic control. Possible complications and side effects are usually treatable and reversible when diagnosed on time.

O.037 Short-Term and Longer-Term Metabolic Effects of Biliopancreatic Diversion (BPD) in Non-Morbidly Obese Patients with Type 2 Diabetes (T2DM)

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Introduction/Aim: Bariatric surgery is known to lead to remission of T2DM in a large proportion of morbidly obese patients. Objective of this study was to investigate the metabolic effects of BDP in non-morbidly obese T2DM.

Subjects and methods: We studied 16 patients (56±4 years, BMI range 26.9 - 33.1 kg/m^2) with T2DM (duration 15±6 years, all on treatment with metformin+ sulfonylureas and 10 also on insulin [mean dose =30 IU/day] before, 2 months, and 1 year after BPD. Each study consisted of a euglycemic hyperinsulinemic (240 pmol·m^{-2}·min^{-1}) clamp, a standard OGTT, and a 5-hour mixed meal (561 kcal: protein 16%, lipid 30%, carbohydrate 54%) test.

Results: Two moths after surgery, BMI had decreased from 28.1±2.3 to 24.6± 2.1 kg/m^2 (p<0.001); at one year, BMI was 23.2±1.8 (p=0.002 *vs* baseline). HbA_{1c} decreased from 8.6±1.3% to 6.7±0.9% at 2 months to 6.0±1.0% at 1 year (p=0.0004 and p=0.002 respectively). Fasting plasma glucose dropped from 12.3±1.8 to 8.4± 2.6, and to 7.7±2.1 mmol/l (p=0.05 and p=0.01 at 2 months and 1 year, respectively); 2-hour post OGTT plasma glucose levels fell from 22.1±2.5 to 12.7±3.1 to 12.6±3.1 mmol/l (p<0.001 for the trend). At 2 months, no patient was on oral antidiabetic treatment, 8 were on insulin alone (mean dose =14 IU/day); at 1 year, 6 patients were on insulin alone (mean dose =12 IU/day). Insulin sensitivity (as the M value) increased from 20.1±3.4 μmol·min^{-1}·kg_{FFM}^{-1} at baseline to 34.2±11.2 at 2 months (p=0.0007). The latter value is significantly less than in 60 age- and BMI-matched nondiabetic controls (58.5±22.9 μmol·min^{-1}·kg_{FFM}^{-1}, p<0.001). The M value at 1 year was unchanged *vs* 2 months (33.1±4.1, p=ns). On the mixed meal, the ratio of C-peptide to glucose incremental areas rose from 150±55 to 298±17 pmol/mmol (p<0.01), indicating a ~100% increase in ß-cell response.

Conclusion: In non-morbidly obese patients with long-standing, poorly controlled T2DM, BPD is followed by a substantial amelioration in glycemic control due to major improvements in both insulin sensitivity and ß-cell function despite relatively small weight loss. The improvement is evident early after surgery and is maintained in the longer term. Defects in both insulin sensitivity and ß-cell, however, persist at one year.

O.038 Management of Malabsorptive Bariatric Surgery After Cancer Surgery for Malignancies of the Gastrointestinal Tract

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Background / aims: To investigate management of patients previously submitted to malabsorptive bariatric surgery after diagnosis of a malignancy of the gastrointestinal tract.
Summary Background Data: Data regarding management of a former bariatric operations after onset of a malignancy is still lacking. In particular, there is no consensus whether the former bariatric surgery negatively influences the oncologic management of the patients, and if the pre-existing bariatric operation needs to be revised if a malignancy of the digestive apparatus occurs in the post-obese patient.
Materials and methods: Occurrence of a malignancy of the digestive apparatus in patients submitted to biliopancreatic diversion (BPD) at University of Genoa School of Medicine was investigated retrospectively on postoperative follow-up charts. Diagnosis of malignancy necessitated pathologic report or physician referral.Primary aim of this study is to investigate the strategy by which patients previously submitted to malabsorptive bariatric surgery were managed after diagnosis of gastrointestinal tract malignancy, and whether a revision was necessary or not.Secondary outcome is to assess the incidence of nutritional complications in unrevised patients, and effect of revision vs. no revision of bariatric surgery on the outcome of cancer treatment. Survival could not be examined due to the small size and the heterogeneity of the population sample. Ability to complete the oncologic management as per protocol and absence of complications were considered surrogate markers instead.
Results: A total of 3174 morbidly obese patients were submitted to biliopancreatic diversion (BPD) at Surgical Department, University of Genoa School of Medicine, from May 1976 to January 2010. A total of 38 patients were diagnosed a malignancy 1 to 27 years after the operation, including 13 malignancies involving the GI tract, 8 colorectal, 1 pancreatic, 1 gastric, 1 pharingeal, 1 parotid gland cancer and 1 cancer of the tongue. Out of 8 patients diagnosed with colorectal cancer, four were revised. No patient, revised or unrevised, developed nutritional complications.
Conclusion: Revision of a previous bariatric operation after ensuing cancer surgery is recommended only in selected cases, and presence of a malabsorptive bariatric operation does not seem to be associated with delay in diagnosis or adverse outcome.

O.039 Gastric Banding: A Long Term Approach to Surgical Care for Morbid Obesity

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Background: Morbid obesity is a desease for life; try to suggest a long term approach to surgical treatment is better than a surgical procedure for a short term.
Methods: A retrospective study after 15 years of bariatric surgery experience. From 1995 to 2010, 2482 Banding procedures with a follow up of 15 years; 50% exces weight loss in a year, stabilized to 45% after 10 years, low mortality rate (< 0,1%), early morbidity from 4 to 5%, late morbidity from 2 to 16% (limits from 2 to 70%); good ratio benefits/risks, in spite of weight regain from the 4th year for 15% of patients.
From 2005 to 2010, 171 sleeves gastrectomies procedures with a follow up of 5 year; 65% exces weight loss in a year, stabilized after 3 years, exces weight regain after the third year (for 14 patients, 8%), low mortality rate of 0,3%, early complications, 6 to 8% (fistulae), few late complications.
From 2000 to 2010, 554 Laparoscopic Gastris Bypass (LGBP) procedures, with a follow up of 10 years, 71% of exces weight loss in a year, stabilized after 5 years, weight regain from the 5th year, of 10%, mortality rate from 1 to 8% (for some authors, if the BMI reached 60 kg/m²), early complications rate of 8%, late complications rate of 5%(requiring a surgical re-do). Less good benefits/risks ratio
Results: None of this operations will last for a whole life, thus the major criteria for selecting surgical procedure should be the possibility of transforming one procedure into another in case of fealure. For yung, non diabetic patients with a BMI below 50 kg/m², possibilities for the future should be considered: first gastric banding, second sleeve gastrectomy, and third GBP or DS. To avoid a risk of fistulae, with a sleeve procedure after a gastric banding, a new technique to fixe the banding is suggested.
Pars flaccida technique, very small dissection; the fisrt attachment for the banding is the beginning of this dissection under the cardia. A non resorbable gastro-phrenic suture between the large gastric curve, 2,5 cm from the cardia and the side of the left pilar is the second attachment. Between the left side of the Band and this suture, there is an opening wich will allow a dissection and a stapler outside the entire scare tissu zone, thus to perform a sleeve gastrectomy.
Conclusions: Since November 2007, 290 new banding fixation procedures have led to no early slippage (as opposed to no attachment) and have allowed a conversion to a sleeve gastrectomy in 18 cases.

O.040 Lapband Versus SAGB for Morbid Obesity. Long-Term Results of a Prospective Randomized Trial

PRESENTER: M. Suter[1,2]
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Background: Gastric banding is currently one of the most performed procedures for morbid obesity. Results are related in part to the surgical technique and the quality of follow-up. Several bands are currently on the market, and it may be that the type of band also plays a role in long-term results. The aim of this prospective randomized study was to compare the long-term results of the Lapband and the SAGB.
Patients and methods: In three institutions with a common bariatric surgeon, consecutive patients undergoing laparoscopic gastric banding for morbid obesity were randomized to receive either a Lapband or a SAGB. The Lapband was placed using the perigastric and the SAGB with the pars flaccida technique. All data were collected prospectively. The median duration of follow-up was 131 months (103–147). Patients who lost their band were excluded from analysis as of band removal.
Results: 180 patients were included between December 1998 and June 2002, 90 in each group. Except for age, which was lower in SAGB patients, the pre-operative characteristics were similar in the two patient groups. Early band-related morbidity was higher in the SAGB group (6,6 vs 0 %, p=0,03). Patients with a Lapband lost weight quicker than those with SAGB (EBMIL 50,8 vs 39,8 after 12 months, p<0,001), but the two weight loss curves joined after 24 months, and no difference could be observed later on up to 12 years after surgery (EBMIL 53,7 vs 58,1 % after 10 years, P=0,68). Long-term complications developed in 91 patients (50,5 %). Severe complications leading to band removal±conversion to another procedure developed in 30 and 40 patients in the Lapband and SAGB group respectively (33,3 vs 44,4 %, p=0,16).
Conclusions: This prospective randomized study shows no significant difference in the long-term results of gastric banding between the Lapband and the SAGB. Both bands were associated with significant long-term complication and band removal/conversion rates. Patients who retain their band have acceptable long-term weight loss. It is likely that the concept of gastric banding rather than the device itself plays the most important role in long-term results.

O.041 Longitudinal Analysis of Weight Loss Following Gastric Banding (LAGB) Using Mixed-Effects Modelling

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Background: Mixed-effects modelling (individual growth model) is still rarely used to assess outcome following bariatric surgery. However this relatively modern statistical method is currently considered as the most appropriated statistical tool to analyze longitudinal data. This method estimates the average trajectory between patients as well as individual trajectories within patients, thus allowing the assessment of inter-individual differences in intra-individual change, and overcomes some of the limitations of traditional repeated measures techniques (unbalanced data, irregularly spaced data and correlated data).
This study aims to use Mixed-effects modelling to analyze change over time in weight loss following LAGB while controlling for several independent variables.
Method: A multivariate individual growth model was constructed to analyze weight loss after LAGB (Midband®) in a cohort of 262 patients included in a multicenter prospective study. Patients were followed each 6 months during 3 years.
Results:

- The weight loss was very fast during the first PO months; continued slower and stabilized.
- Older patients lost weight over time slower than younger patients
- Greater height, presence of upper gastrointestinal symptoms, a greater filling volume of band were associated with a greater weight loss over time.
- Presence of at least one comorbidity over time was associated with a greater weight, but was not a significant predictor of weight loss (no interaction with time effects).
- Patients who did not achieve the complete follow-up got less weight loss over time than those who did, despite their preoperative weights were not significantly different.
- The trajectories of weight change over time and attendance to clinic visits were significantly different between the 13 centers of the study.

Conclusions: Mixed-effects modelling provides accurate analysis of weight loss and should be used routinely to assess outcome following bariatric surgery.
Numerous factors have some significant effect on the weight loss following LAGB, including the quality of the follow-up.

O.042 The Gastric Band: How to Obtain Low Rate of Complications and Acceptable EWL%

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Background: Laparoscopic Adjustable Gastric Band (LAGB) is the most common bariatric restrictive procedure performed worldwide. Proponents of gastric band are claiming that LAGB should be the first choice in the treatment of obesity because of safety, reversibility, short operative and in-hospital time. Opponents are claiming less weight loss and a high long-term complication rate. The aim of this study is to access that performing this restrictive operation in high volume bariatric centres and using some surgical artifices we can have significant results in weight loss and reduction of complications.
Methods: The records of all patients were reviewed retrospectively. From 2001 to 2010, in two high volume bariatric centres (Desenzano del Garda and Monza, Italy) 3089 patients underwent LAGB placements (Heliogast® System). Surgical technique: the" two-step" perigastric technique, the minimal dissection of the gastro-frenic ligament, the fixation of the band, the gastro-gastric Rossetti-like stitch and the meticulous follow up are the actions strictly performed in all patients.
Results: The results are analyzed according to EWL%, BMI, mortality, intra-operative, short and long term complications, conversion to open surgery, percentage of follow up.Preoperative BMI was 42,2 for male and 41.4 for female respectively.No intraoperative or postoperative deaths occurred.Conversion rate: 2(0,07%), trocar site bleeding: 2.Long term complications: slippage 137 (4,43%), intragastric migration 14 (0,45%), trocars hernia 27 (0,87%), port disconnection or leaking 41 (1,32%), poor weight loss 193 (6,2%), band removal for psychological intolerance 16 (0, 51%). Follow up 89 % at 60 months.Mean EWL at 60 months was 55,7% for female, 54% for male.
Conclusions: Patients who are not committed to making long-term lifestyle changes should not be recruited for this restrictive procedure. Although the EWL% after gastric band is lower than the one obtained with others more invasive surgical options, we assume that combining some simple technical artifices, we can achieve and maintain EWL>54%, with a low rate of complications and therefore a clearly improvement of quality of life. The more procedures performed in a hospital, the lower the risk of serious complications, likewise more-experienced surgeons and qualified multidisciplinary team fared better in terms of long term results.

O.043 Outcomes of Gastric Band Fills as Found with a Patient Self-Reported Questionnaire: The Vomiting, Eating, and Weight Loss (VEW) Questionnaire

PRESENTER: P. Moore[1]

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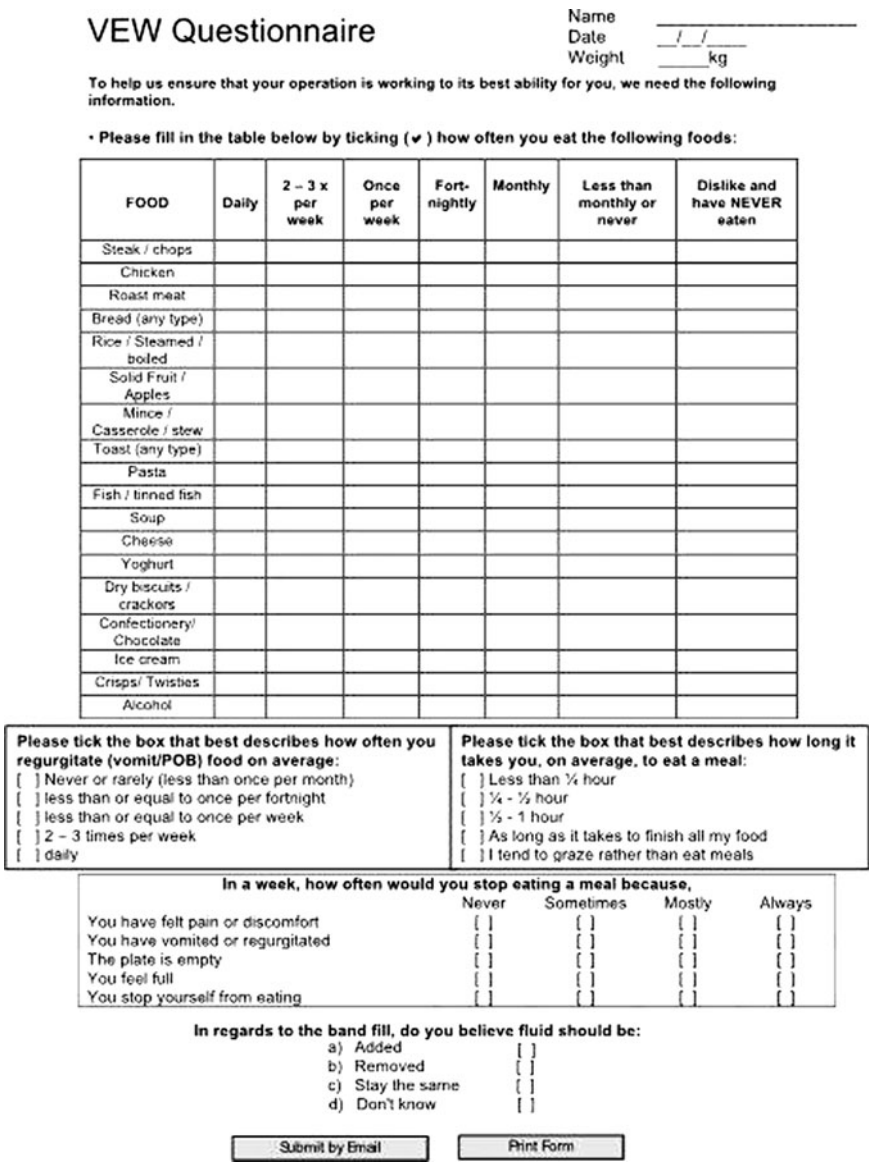
Background: Adjustments of gastric bands are an integral part of the postoperative management of patients with the device. Despite their importance, very little research has been performed in regards to the outcomes of these adjustments. The VEW questionnaire is a self reported form enabling the quick assessment of a patient's ongoing eating behaviour and a research tool to investigate these eating behaviours and their association with weight loss and complications.
Methods: All patients presenting for review post gastric banding during a 12-month (2009) period, were given the VEW Questionnaire to fill in prior to consultation. Patients all had a Swedish adjustable gastric band placed by the surgeon (PM) either during the study period (70pts.) or in the preceding 5 years (216). The questionnaire was then used to help assess a patients eating behaviour and weight loss, and enabled focused discussion about problem symptoms or behaviours. Management was then instigated in the form of either an adjustment (addition or removal of fluid) or behavioural modification. At the end of the study period the outcomes of the management could be assessed for frequency of vomiting, pain on eating, changes in food consistency and success in regards to whether fluid needed to be removed, as well as weight loss. This study will concentrate on the outcomes in regards to negative symptoms and requirement to remove fluid from the band.
Results: 286 patients had presented for 1017 consultations.. There were 57 males and 229 females. There were 497 adjustments (adjustment rate of 48.9%), 103 of these to remove fluid because of negative symptoms (19% of adjustments). In patients within the first nine months postoperatively there was a total of 192 adjustments with only 9 of these to remove fluid because of symptoms. This amounts to 4.7% of fills (de-fill rate). In patients over 9 months postoperatively there were 305 adjustment with 94 of these being to remove fluid, or a 30.8% de-fill rate. Factors that are significant in predicting an adverse outcome from an adjustment up in volume are the amount of pain a person experiences whilst eating and %EWL.
Conclusions: Gastric band adjustments are an integral part of a gastric band patient's management, yet there is little research into the outcomes of any interventions. The VEW questionnaire enables a quick assessment and enables targeted management.
Gastric band adjustments much be used with caution after the 9 month postoperative period and in patients who have lost significant amounts of weight (>50%EWL) as this will more frequently result in symptoms requiring deflation of the band.



VEW Questionnaire

Name _____
Date __/__/____
Weight _____kg

To help us ensure that your operation is working to its best ability for you, we need the following information.

• Please fill in the table below by ticking (✔) how often you eat the following foods:

FOOD	Daily	2 – 3 x per week	Once per week	Fort-nightly	Monthly	Less than monthly or never	Dislike and have NEVER eaten
Steak / chops							
Chicken							
Roast meat							
Bread (any type)							
Rice / Steamed / boiled							
Solid Fruit / Apples							
Mince / Casserole / stew							
Toast (any type)							
Pasta							
Fish / tinned fish							
Soup							
Cheese							
Yoghurt							
Dry biscuits / crackers							
Confectionery/ Chocolate							
Ice cream							
Crisps/ Twisties							
Alcohol							

Please tick the box that best describes how often you regurgitate (vomit/POB) food on average:
[ ] Never or rarely (less than once per month)
[ ] less than or equal to once per fortnight
[ ] less than or equal to once per week
[ ] 2 – 3 times per week
[ ] daily

Please tick the box that best describes how long it takes you, on average, to eat a meal:
[ ] Less than ¼ hour
[ ] ¼ - ½ hour
[ ] ½ - 1 hour
[ ] As long as it takes to finish all my food
[ ] I tend to graze rather than eat meals

In a week, how often would you stop eating a meal because,

	Never	Sometimes	Mostly	Always
You have felt pain or discomfort	[ ]	[ ]	[ ]	[ ]
You have vomited or regurgitated	[ ]	[ ]	[ ]	[ ]
The plate is empty	[ ]	[ ]	[ ]	[ ]
You feel full	[ ]	[ ]	[ ]	[ ]
You stop yourself from eating	[ ]	[ ]	[ ]	[ ]

In regards to the band fill, do you believe fluid should be:
a) Added [ ]
b) Removed [ ]
c) Stay the same [ ]
d) Don't know [ ]

Submit by Email | Print Form

[VEW questionnaire]

O.044 Lap Band in Low BMI Patients: The Ideal Indication

PRESENTER: L. Angrisani[1]
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Background: Many moderately obese subjects with a body mass index (BMI)≤35 kg/m^2 have co-morbidities. The use of bariatric surgery in moderately obese patients is still controversial. Aim of this study is the evaluation the effects of Laparoscopic Adjustable Silicone Gastric Banding (LASGB) in moderately obese subjects.
Methods: Patients were selected from data base of our institution. This study was limited to patients BMI≤35 kg/m^2 underwent via pars flaccida LapBand positioning from June 1, 2002 to May 31, 2010. Parameters considered were: mortality, intra and postoperative complications, laparotomic conversion, co-morbidity outcome, weight loss related parameters (BMI, %EWL). Data are expressed as mean ± standard deviation except as otherwise indicated. Statistical analysis was done by means of Fisher exact test and Student t test. P<0.05 was considered significant.
Results: During the considered period 31patients with BMI<35 underwent LASGB positioning (3M/29F; mean age: 36±10 yo; mean preoperative BMI was 32.7±1 kg/m^2). 30-days mortality, intraoperative complications and laparoscopic conversion were absent. Only 1/31(3.2%) gastric pouch dilations was observed at 2 years of follow up and the band was removed. One or more co-morbidities were diagnosed in 17/31(54.8%) patients, mainly hypertension, type II diabetes and metabolic disease, and obstructive sleep apnea and were resolved in 10/17(58.2%) and improved in 7/17 (41.8%). Mean BMI was 29±1, 28±3, and 27±2 kg/m^2 at 12, 24, and 36 months after LAGB respectively (P< 0.01). At same follow up cut off the mean %EWL was 31±15, 34±24 and 45± 30 %. None of the patients resulted with BMI<18,5 or >30 Kg/m^2 at 36 moths follow up.
Conclusions: Laparoscopic Adjustable Silicone Gastric Banding in BMI<35Kg/m^2 patients is effective and feasible without mortality. Obesity related co-morbidities can be resolved or controlled in moderately obese subjects with LASGB.

O.045 Esophageal Dysmotility and Dilatation Following Laparoscopic Gastric Banding.

PRESENTER: M. Naef[1]
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Background: Esophageal motility disorders and dilatation after laparoscopic adjustable gastric banding (LAGB) have been reported. However, only a few studies present long term follow-up data. The aim of the present study was to evaluate the effects of LAGB on esophageal dysfunction over the long term in a prospective trial.
Methods: Between June 1998 and June 2009 all patients with implantation of a LAGB were enrolled in a prospective clinical trial including a yearly barium swallow. Esophageal motility disorders were recorded and classified over the period. An esophageal diameter of 35 mm or greater was considered dilated.
Results: LAGB was performed in 167 patients (120 female, 47 male) with a mean age of 40.1±5.2 years. Overall patient follow-up was 94%. 95 patients had pathological findings in preoperative endoscopy (56.9%), of whom 26 suffered from GERD (mainly grades I and II), 41 from hiatal hernia, and 20 from gastritis. Esophageal dysmotility disorders were found in 108 patients (68.8% of patients followed). Esophageal dilatation occurred in 40 patients (25.5%) with a mean esophageal diameter of 47.3±6.9 mm (35.0-94.6) after a follow-up of 73.8±6.8 months (36–120), compared to 26.2±2.8 mm (18.3-34.2) in patients without dilatation (diameter of <35 mm) ($p<0.01$). 34 patients suffered from stage III dilatation (band-deflation necessary) and 6 from stage IV (major achalasia-like dilatation, band removal mandatory). In 29 patients upper endoscopy was carried out because of heartburn/dysphagia. In 18 patients the endoscopy was normal, 9 suffered from GERD, one from a stenosis and one from a hiatus hernia.
Conclusions: Our study demonstrates that esophageal motility disorders and dilatation after LAGB are frequent, poorly appreciated long term complications. Despite adequate excess weight loss LAGB should probably not be considered the procedure of first choice and should only be performed in selected cases, until reliable criteria for patients with a low risk for the procedures long term complications are developed.

O.046 Motility Disorders after Laparoscopic Gastric Banding

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Background: Laparoscopic adjustable silicone gastric banding (LASGB) has been reported to provide long term weight loss with low risk of operative complications.Nevertheless esophageal dilation leading to achalasia like symptoms is a feared complication.Patients undergoing obesity surgery were prospectively included in a observation study.This study evaluates the clinical benefit of routine preoperative esophageal manimetry in predicting outcome of LASGB in obese pataients.
Patients and methods: Areview of prospectively collected datas in 357<patients< (m/f282/75) who underwentesophageal manometry prior to LASGB was performed: Aberrant motility and other non specific esophageal motility disorders noted preoperative defined patients of the abnormal group.Outcome,differences in weight loss,emessis and band complications were evaluated.
Results: 112 patients had abnormal manometry results,whereas 245 presented normal manometric datas preoperatively.No significant difference in weight loss was observed between the groups.In the abnormal group more emessis,esophageal dilation were present.No difference in the prevalence of reflux and esophagitis was seen postoperative between the two groups.Lower esophageal sphincter pressure was unaffected by surgery,butcortactions in the lower esophageal segment weakend after LASGB.
Conclusion: Low amplitude of contractions in the lower esophagus and increased esophageal acid exposure should be regarded as contraindications to LASGB. Patients which such findings should be offered an alternative bariatric procedure such as sleeve gastrektomy or gastric bypass.

O.047 Laparoscopic Adjustable Gastric Re-Banding: What Have We Learned From Our 10 Year Experience

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The bariatric world is debating upon the preferred route of action for the treatment of late onset complication of Gastric Band.
Aim: We wanted to evaluate the outcome of patients who underwent a second band operation due to slippage.
Methods: We included only patients who had at least 2 years of follow-up after the 2nd operation. 2471 patients who underwent LAGB in our ward in the years 1996–2006. 320 patients underwent a second operation.
Results: Of the 320 patients who had a re-operation, 24 (7.5%) had a mechanical cause for this, and thus were excluded. Of the 296 patients, 45 (15.2%) had a second operational complication which necessitated a third operation. The mean time between the 2nd and 3rd operation was 26.5 months (±20). The remaining 251 patients were a-symptomatic for a mean follow-up time of 63.7 months (±17), and all those patients were able to have their BMI below 29. Upon a telephone interview most of our patients declared that they would encourage their friends to have this kind of an operation. We found no differences between male and females, or age groups in regards to the percentage of failure and the mean time until failure. But, we found that the failure rate was higher in those who had the 2nd operation as an emergency operation ($7.374=2\chi$, $Pvalue<0.05$). We also found that the mean follow-up time until failure was higher in the elective patients (29.8 in comparison to 19.1 in the patients who underwent an emergency operation).
Conclusions: Laproscopic Adjustable Gastric re-Banding as revision operation is effective and well tolerated by most patients.

O.048 Minimizing Abdominal Access Ports in Sleeve Gastrectomy: Evolution of Techniques Using Notes, Single Port and Single Incision

PRESENTER: M. Vix[1]
Co-authors: F. Constantino[1], J. Wall[1], S. Perretta[1], G. Donatelli[1], J. Marescaux[1]

[1]IRCAD, Strasbourg, France

Introduction: Sleeve gastrectomy is gaining significant popularity in the surgical management of obesity. The procedure is less technically challenging than gastric bypass, however it is routinly performed through a similar number of laparoscopic ports. Our center has begun a stepwise investigation into minimizing the number of ports needed to safely and effectively perform a sleeve gastrectomy using hybrid Natural Orifice Transluminal Endoscopic Surgery (NOTES), single port and single incision approaches.
Methods: Between 2008 and 2010, 22 sleeve gastrectomies were performed using 3 stepwise approaches to minimize abdominal ports. 11 intial cases were performed by hybrid transvaginal NOTES, 3 cases were then performed by adapting existing technology to a single port, and finally 8 cases were performed with 3 trocars through a single incision.
Results: A total of 22 patients underwent minimal access sleeve gastrectomy. All patient were females who meet the NIH guidelines for bariatric surgery without prior surgery. Mean age was 38 year old (20–60 yo) and mean BMI was 40.1 Kg/m² (36–50 Kg/m²). All procedures were completed by the preoperatively planned approach. Lack of triangulation, parallel instrument position creating internal and external conflicts, inadequate instrument length for access to the GE junction, central view and difficulty with transvaginal instrument exchange were the most frequent intraoperative challenges. No intraoperative conversion or complications occurred. The postoperative courses were uneventful without any cases of leak.
Conclusions: Minimal access sleeve gastrectomy is feasible. The fundamental steps of visualization, retraction, dissection and gastric division can be performed through a variety of techniques that reduce abdominal access ports. Transvaginal NOTES offers a good alternative for the optical port, but proved difficult to accommodate additional instruments due to the distance and difficulty with instrument exchange. Single port is feasible, but presents challenges with internal and external instrument conflicts, central view, and inadequate retraction. Single incision with 3 trocars is the least

difficult to perform using existing instruments and the easiest to train in a reproducible fashion. Further device development is ongoing at our institution, including the Anubis® endoscopic transluminal interventional platform (Karl Storz, Tuttlingen, Germany) to enable hybrid NOTES and single port approaches to sleeve gastrectomy.

O.049 Single Access Transumbilical Adjustable Gastric Banding: A New Deal In Bariatric Surgery? (About a Preliminary Personnal Experience Of 120Cases)

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Background: We start laparoscopic gastric banding in 1996 with more than 4500 patients and we report our early experience (2009)with single access transumbilical (120)cases
Methods: Technicals aspects are presented in a short video with reference at two procedures:SPA (single port access) and SILS (single incision laparoscopic surgery) banding,removing or changing the band are feaseable mean operative time was 65 mm 119 patients (in attempted SILS exclusively with conventional instruments 1attempted SPA bmi >35<45 mean 41 5 males and 115 females.
Results: SILS were performed succefully but 1 patient (male) required the insertion of an additional trocard 1 SPA was performed successfully 2 requirred SILS procedure there were no mortalities and 2 post operative complications:cardiospam and seesaw of the ring perhaps less post operative pain but always a very good cosmetic result we observe 3 ports infection with removing the band at 6 months EWL was more 50% for 65% of patients.
Conclusion: SILS transumbilical gastric banding is safe and feaseable it's seam the better way in young womens searching also cosmetic result but it'necessary to prevent umbilical infection

O.050 Single Incision Sleeve Gastrectomy Using Conventional Laparoscopic Equipment

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Background: Laparoscopic Sleeve Gastrectomy has rapidly become one of the most popular Bariatric procedures being carried out around the world. This can be carried out safely and good short term results reported. The next stage of the evolution of laparoscopic surgery has been with us for a few years. Newer approaches have concentrated in the reduction of number of incisions or having no incision at all. Natural Orifice Surgery is hampered by the lack of effective tools, so that wide spread adoption of this format is still far in the future. Single site or single incision laparoscopic surgery is some where between conventional laparoscopy and natural orifice surgery. Single site laparoscopic surgery has been carried out successfully and safely. This has been well reported. Proprietary single site surgery equipment is often time expansive. More recently there has been reports of using conventional laparoscopic surgery instruments for single site laparoscopic surgery. Bariatric Surgery tends to be challenging at the best of time. And Single Site Bariatric Surgery even more so. We wish to report our experience of performing single site laparoscopic sleeve gastrectomy using conventional laparoscopic equipment.
Methods: All single incision laparoscopic sleeve gastrectomy for morbid obesity from June 2010 to January 2011 are included in this report. We use an extended umbilical incision to put in three conventional laparoscopy trocars. The left lobe of the liver was lifted by a novel technique using a nylon suture. Sleeve gastrectomy was completed using conventional laparoscopic instruments. The staple lines were reinforced with fibrin glue. At the conclusion of the operation, the umbilicus were reshaped into a semi circular scar for enhanced cosmetic effect.
Results: A total of nine procedures was completed. Three procedures required the use of an extra trocar to aid exposure. Operation time was longer than conventional laparoscopic sleeve gastrectomy. There was one staple line leak on day 4 post-op, after the patient has already been discharged. All the patients were pleased with the cosmetic result.
Conclusion: Single Incision Laparoscopic Sleeve Gastrectomy can be performed safely and successfully with conventional laparoscopic equipment, utilising a novel liver lifting suture. The one leak recorded is unlikely to be related to this particular approach or surgical technique.

O.051 Single Incision Laparoscopic Sleeve's Gasterectomy In KFMMC-Kingdom of Saudi Arabia

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Background: Laparoscopic Sleeve's gasterectomy one of the bariatric surgeries commonly done and become popular and accepted to the surgeons and patients, Sleeve gasterectomy commonly done through 5–7 small incisions through which the ports inserted .Single incision laparoscopic surgery (SILS) is advanced minimal invasive surgical procedure in which the surgeon operate almost exclusively through a single entry point , typically the patient naval, The purpose of our study was to evaluate the feasibility and safety of laparoscopic single incision sleeve gastrectomy for morbid obesity. study presents the technical considerations and strategic modifications for single-incision laparoscopic sleeve gastrectomy.
Methods: A total of 32 patients underwent single incision laparoscopic sleeve's gasterectomy in King Fahad Medical Military Hospital - Al-Dhahran EP. KSA. And we started the first case in 11 July 2009, and all procedures operated by the same surgeon (A.N.G), cases studied during hospitalization and postoperative follow-up , weight reduction and patient satisfaction.
Results: Of the 32 patients, tow male and thirty females, with the mean age 28.5 years old and the mean preoperative body mass index 43.2% (37% - 50 %), the mean operative time 82 minutes and the postoperative stay 2.5 days. All patients did the SILS sleeve gastrectomy trans-umbilical (noval) except one did it 5 cm. supra-umbilical, 4 out of the 32 patients had extra 5 mm. port (hybrid) through which a drain exit, 2 cases had postoperative mild wound infection, one case had pelvic collection treated with drainage under guidance. No leakage neither major complications occurs. Almost in all patients the weight reduction are similar to the patients had stander laparoscopic sleeve gastrectomy.
Conclusion: Laparoscopic single-incision sleeve gastrectomy seems to be safe, technically feasible, and reproducible. However, randomized, controlled trials are required to determine the real advantages of this technique in comparison with standard laparoscopy.
Keywords: Sleeve gastrectomy; Single-incision laparoscopic surgery; Minimally invasive surgery; Bariatric surgery, SILS, Umbilical, Obesity

O.052 Learning Curve for Two-Site Incisions Laparoscopic Roux-En-Y Gastric Bypass Technique

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Background: Single-incision laparosopic surgery (SILS) has emerged recently. It provides benefits of minimization of surgical trauma and improvement of cosmesis. Laparoscopic Roux-en-Y gastric bypass is one of the effective bariatric surgeries. It usually needs five to seven small skin incisions to perform this procedure. According to the thought of SILS, we developed a modified technique (two-site incisions technique) to perform Roux-en-Y gastric bypass.
Methods: 300 consecutive patients of mean age 31.7 years (19–52 years) underwent two-site incisions laparoscopic Roux-en-Y gastric bypass between February 2009 and December 2010. The mean body mass index (BMI) was 40.5 Kg/m^2 (30.1-59.9 Kg/m^2) pre-operatively. Four surgeons performed all surgical interventions. Two small skin incisions (17 mm and 5 mm) with the subxyphoid skin puncture wounds were made for all patients. The same perioperative protocol and surgical technique were used in all patients. These 300 patients were divided into three groups in sequence equally. The pre-operative and post-operative data were collected and compared.
Results: Two-site incisions laparosopic Roux-en-Y gastric bypass proceudres were successfully performed in all patients. Mean operative time of groups in sequence were 170.9, 157.3, and 149.0 min. No perioperatively major complication was found. However, the case numbers with minor complications of these three groups were 5, 3, and 0 in sequence. These minor complications included minor gastric tube bleeding, anastomostic stenosis, and minor anastomostic leakage so that forming intra-

abdominal abscess. All minor complications were resolved with concervative treatmenst. Mean hospital stays in sequence were 4.1, 3.8, and 3.5 days.
Conclusion: Two-site incisions laparosopic Roux-en-Y gastric bypass is a safe, feasible, and reproducible bariatric procedure. This technique might generate minimal somatic pain, and achieves excellent cosmetic satisfactory. But the learning curve should be overcome to achieve better post-operative results.

O.053 Single Incision Sleeve Gastrectomy Versus Conventional Laparoscopic Sleeve Gastrectomy - A Pilot Study

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Background: This is a pilot study done prospectively to evaluate the feasibility and to assess the outcomes and complication rates of the single incision sleeve gastrectomy versus the conventional 5 port laparoscopic sleeve gastrectomy.
Methods: A prospective comparative analysis was done of 50 patients in each arm who underwent laparoscopic sleeve gastrectomy and single incision sleeve gastrectomy from September 2009 until April 2010. Both groups were matched for age, gender and BMI and they were then randomly assigned to either group. Postoperative pain scoring was done using the visual analogue scale. Postoperative outcomes in terms of, excess weight loss, resolution of comorbidities and complication rates were compared in both groups, at the end of 6 months.
Results: With experience, operating times in both groups were comparable although they were longer in the SISG group in the initial few cases. Intraoperative blood loss was similar in both groups. VAS scoring revealed less postoperative pain at 24 hours and after that in the single incision group as compared to the laparoscopy patients- $P<0.0001$. At 6 months excess weight loss and resolution of co morbidities were comparable in both groups. There were no major complications or mortality in either group.
Conclusions: Single incision laparoscopic sleeve gastrectomy is a feasible surgical procedure for morbid obesity. It has equally effective resolution of comorbidities along with reduced pain as compared to the conventional laparoscopic sleeve gastrectomy.

O.054 Lon Term Results of Sleeve Gastrectomy With Enteral Bypass (SGEBP): A Surgical Technique for the Treatment of Morbid Obesity

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Background: The objective is to evaluate the Sleeve Gastrectomy with Enteral Bypass (SGEBP) as a surgical technique for the treatment morbid obesity in terms of Excess Weight Loss (EWL) and resolution of comorbidities.
Methods: Prospective case series. Patients with body mass index (BMI)>40 kg/m^2 or>35 kg/m^2 with comorbidity underwent a SGEBP between February 2004 and August 2010 via a laparoscopy or laparotomy at DIPRECA Hospital, in Santiago, Chile. SGEBP consists in creating a gastric tube preserving pylorous and then performing a jejunum-ileal anastomosis 300 cm distal to the Treitz angle. Weight loss, complete and parcial resolution of comorbidities is reported.
Results: 223 patients were included with a mean age of 41.4 (17–67) years and 66.8% were female. Preoperative weight and BMI was 107.9±15 and 39.9±4.1 kg/m^2 respectively. Surgical time was 130±30 min. In 74.1% of cases, laparoscopic approach was used. Hospital stay was 3±2 days. BMI and %EWL at 12, 24, 36, 48, 60 and 72 months was 26.7, 27.6, 27.9, 29.3, 28.7, 29.9 kg/m2 and 71.6, 68.3, 64.3, 62.9, 64.1, 60% respectively. Surgical morbidity was 7.2% and mortality 1.3%. Complete resolution of Type 2 Diabetes was achieved in 72.7% and partial resolution in 18.2%, insulin resistance was completely resolved in 87.7%. High blood pressure had a 58% of resolution and 30% of improvement. No dumping, malabsortion syndrome or bacterial overgrowth was observed.
Conclusion: SGEBP is a safe and effective surgical technique for the treatment of Morbid Obesity and resolution of its comorbidities.

O.055 Single Incision Laparoscopic Adjustable Gastric Banding And Traditional Laparoscopic Adjustable Gastric Banding: A Matched Comparison

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Background: Single incision laparoscopic surgery has been gaining popularity and is now emerging in bariatric literature, with a gradual increase in Single Incision Laparoscopic Adjustable Gastric banding (SILS-AGB) over the last 2 years. However few matched comparative studies and no randomised trials have been performed to confirm any difference between SILS-AGB and conventional laparoscopic adjustable gastric band procedure (LAGB). Our aim was to ascertain any difference between two matched groups of gastric band patients (SILS-AGB and traditional laparoscopic) in terms of safety and feasibility.
Methods: Between June 2009 and September 2010, 111 patients underwent SILS-AGB and 99 patients underwent LAGB performed by a single surgeon. Patients were matched for age, sex, weight, BMI and co-morbidities. 50 SILS-AGB and 68 LAGB patients were included for analysis. Outcomes from these two groups were then compared for operating times, time to discharge, analgesia requirements, morbidity and mortality.
Results: Patients characteristics between the SILS-AGB and LAGB groups were similar with no differences in age (41 vs 44 years), sex (m:f; 8:42 vs 7:61) or co morbidities respectively. In the SILS-AGB group, operating times (72 mins) were significantly longer to LAGB (64 mins, $p<0.05$). However opioid use was significantly less than the LAGB patients ($p=0.001$).There was no difference in morbidity or mortality and time to discharge.
Conclusion: SILS-AGB is a safe and feasible option comparable to LAGB. Whilst in this early series operative times were slightly longer for SILS-AGB, post operative demand for analgesia was significantly less in the SILS-AGB group. Further comparisons of post operative pain and long term outcomes are required; however preliminary results are promising.

O.056 An Evaluation of Primary Obesity Surgery Endoscopic Using Endoluminal Tissue Anchors as a Treatment of Obesity. The First European Experience

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Background: Primary Obesity Surgery Endoscopy (POSE) is an incisionless endoscopic surgical procedure with the potential to promote weight loss in the obese. POSE is performed using the incisionless operating platform that has already been described in Revision Obesity Surgery Endoscopy, for patients with pouch and/or stoma dilation. The POSE procedure places tissue anchors in the gastric fundus, reducing gastric volume to create early satiety which the patient uses as the trigger to restrict their dietary intake. POSE has been offered in a few centres in the USA, but the initial outcomes for this technique have yet to be reported. The aim of this study is to describe the efficacy and safety of POSE in patients with morbid obesity.
Methods: 2 consultant bariatric surgeons received IOP training in POSE in a live porcine animal model. Clinical and dietetic assessment, and informed consent were obtained in all patients. Procedures were performed under General Anesthesia, following diagnostic upper GI endoscopy. POSE was not carried out in the event of a significant hiatal hernia (>2 cm). Gastroplication was achieved using a g-prox™ tissue approximator with 33mm jaw size. The fist six patients had plication of the fundus alone. The next 4 patients also had 3 plication anchors placed at the junction of body and antrum.
Results: 10 consecutive patients (9F, 1M) aged 34–62 years, mean initial weight 94.7 kg (70.8-117.8 kg) and BMI 34.9 (30–42), underwent POSE. All 10 patients

underwent successful gastroplication with application of between 6 and 11 tissue anchors. Median procedure duration was 60 minutes (range 43–105). Patients stayed in hospital overnight. There were no peri-operative complications.
Median (range) post-op %EWL were at 1 month: 22.0% (6.6 to 46.4); 2 months 24.4% (6.6 to 40.0); 3 months (n=9) 27.6% (6.1 to 60.0).
Initial outcome variability was broad, but in 6 of 10 patients who responded well to surgery mean %EWL in each of the first 3 months was 27%, 35% & 41%. 4 out of 10 patients, all of whom had fundus only plication, failed to lose significant weight in the first months. Three of these patients were re-evaluated clinically and endoscopically and have undergone further gastroplication, with antral anchors placed, and are currently responding well to date.
Conclusion: POSE using endoluminal tissue anchors to increase early satiety, is safe and can produce sustainable weight-loss in an appropriately selected group of patients. Variability in outcome may be due to patient related factors and/or as part of the learning curve and evolution of the procedure. This technique is promising and further investigation and follow up is warranted.

O.057 Hybrid Notes Transvaginal Sleeve Gastrectomy: Initial Experience of a Small Consecutive Series

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Introduction: The laparoscopic sleeve gastrectomy (SG) is established as a one-step procedure in morbid patients. In bariatric surgery this operation is more and more performed. The natural orifice transluminal endoscopic surgical (NOTES) procedures are also gaining in popularity. First experiences with hybrid NOTES transvaginal cholecystectomies were made and transferred to SG in our clinic. We describe a small series of SGs for morbid obesity using the vagina as the natural orifice in the form of a hybrid NOTES transvaginal SG.
Method: After informing the patient about the experimental nature of this novel technic and our previous experience with laparoscopic transvaginal cholecystectomy, the hybrid NOTES transvaginal SG was performed modified as previous described by Ramos et al. (Surg Obes Relat Dis. 2008 660–3).
Results: Between January 2009 and December 2010 hybrid NOTES transvaginal SG was performed in 16 female patients with an obesity grade II-III. The average age of the patients was 42 years (range 32–50 years) and the mean BMI 39.3 kg/m² (range 35.5-46.8 kg/m²). The transvaginal technique allowed the reduction of the required ports to an average number of 3.2. The mean operation time was 98 minutes (range 75–140 minutes). The intraoperative preparation respectively transvaginal assistance was limited due to the intra-abdominal fat distribution. In all cases the specimen was salvaged via the transvaginal access. In one case an ovarian teratoma was observed. Postoperative no pain, bleeding or infection occurred in the part of the transvaginal access. One major complication, a proximal leakage occurred in one patient. Mortality was not observed.
Conclusion: The data of our small series demonstrate that the method is feasible but still has systematic problems. Preparation of the stomach or creating the stapler line was not possible to perform transvaginally in all patients. One reason was the pronounced intra-abdominal fat distribution, which did not allow achieving the upper abdomen without continuously changing the patients between Trendelenburg and anti-Trendelenburg position. For a final establishment of a hybrid NOTES transvaginal SG, longer transvaginal ports and longer staplers have to be developed.

O.058 Treatment Of Obesity-Related Co-Morbidities With VBLOC Therapy

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Background: An active implantable device designed to induce sub-diaphramatic vagal block has demonstrated clinically important weight loss and glycemic control in obese type 2 diabetic (DM2) subjects.
Objective: Evaluate weight loss, glycemic control and blood pressure (BP) in obese subjects with DM2 or with both DM2 and hypertension (HTN) during 12 months of vagal blocking (VBLOC Therapy).
Methods: Twenty-eight subjects were implanted with the Maestro Rechargeable System at experienced centers. Weight loss, HbA_{1c} and BP were evaluated at 4 and 12 weeks and 6 and 12 months post-device activation.
Results: Baseline demographics were 17 females, 11 males, age 51±2 years and BMI 37±1 kg/m^2 (mean±SE). Twenty five completed 12-months of follow-up. At 4 and 12 weeks and 6 and 12 months, respectively, mean percent excess weight loss (EWL%) was 14±2%, 21±3%, 24±4% and 25±4% ($p<.001$); HbA_{1c} decreased by 0.7±0.1%, 0.9±0.2%, 0.9±0.2% and 1.0±0.2% from a baseline of 7.8±0.2% ($p<.001$); and in DM2 subjects with elevated BP (BP≥130/80 mmHg, n=15), mean arterial pressure decreased by 9±3 mmHg ($p=.02$), 9±2 mmHg ($p<.001$), 13±2 mmHg ($p<.001$) and 8±3 mmHg ($p=.03$) from a baseline of 98±3 mmHg (Visit values for all parameters are shown in Table 1).
Conclusions: In obese DM2 subjects, VBLOC Therapy was associated with significant weight loss, improvements in HbA_{1c} and reductions in BP in hypertensive subjects.

Parameter	Wk4	Wk12	Mo6	Mo12
EWL% (n=25)	14±2	21±3	24±4	25±4
HbA1c% (n=25)	7.1±.1	6.8±.1	6.8±.1	6.6±.1
MAP (mmHg, n=15)	91±3	92±3	86±3	91±4

[Table 1]

O.059 Totally Robotic Roux-En-Y Gastric Bypass Outcomes in A Large Patient Series

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Background: Over the last year there has been renewed interest in the application of robotic technology to bariatric procedures due to the advantages offered by the latest robotic system, the da Vinci platform, and to the short learning curve and reported safety of the totally robotic technique. We report the largest series and complications data of a single surgeon's experience with totally robotic Roux-en-Y gastric bypass (TR-RYGBP).
Methods: The study is a restrospective analysis of more than 250 retrospective TR-RYGBP cases performed by a single surgeon using the da Vinci robotic system. Outcome measurements included: docking, console and total operative times, conversion rates, hospital stay, complications, and mortality.
Results: Docking, console and operative times declined significantly over the first 27 patients and then remained relatively unchanged (4.41±2.04, 94.29±31.5, and 149.48±42.0 minutes, respectively). There were 0% conversion rates intra-operatively and no blood transfusions. The average length of hospital stay was 2 days, and pain medication during hospitalization and following discharge was significantly less than for the laparoscopic or robotic assisted procedure. No leaks nor mortalities occurred in the series. Thirty-day complications included 2 hematomas, and 11 readmissions (1 cellulitis, 1 kidney stones, 1 syncope, 1 abdominal pain, 1 gout, and 6 obstructions). Long-term complications included 10 strictures and 3 laparoscopic cholecystectomies. The incidence of strictures and obstructions occurred early in the series and declined significantly following revision of operative procedures.
Conclusion: Surgeon experience in a large series of TR-RYGBP demonstrates the safety of the procedure and its feasibility in standard practice.

O.060 Laparoscopic Roux-En-Y Gastric Bypass: Results in 3075 Patients

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Background: long term weight loss and resolution of comorbidities make laparoscopic Roux -en- Y gastric bypass (LRYGB) an excellent alternative for the treatment for morbid obesity.
However it is still considered a technically challenging operation and it is usually associated with a long learning curve.
Methods: retrospective analysis from prospective collected data was performed. Patients who underwent LRYGB were included. Demographics, operative time, length of stay (LOS), weight loss, effect on comorbidities, morbidity and mortality were evaluated. Data are expressed as average ± standard deviation.
Results: between 4/2003 and 4/2010, a total of 3075 underwent LRYGB at our institution; 64% were female, age 43±11, initial weight 133±28 kg, initial BMI 48± 9 kg/m2. For the first 150 patients operative time was 180±21 min. which was gradually decreasing to 102±14. LOS was 48±56 hrs. Percentage excess weight loss (%EWL) was 49±13, 64±16, 78±19, 79±20, 73±20, 69±22, 65±24, 57±23% at 3, 6, 12, 24, 36 months, 4, 5 y 6 years respectively; 30-day mortality was 0.1% and mortality after that period was 0.26%. Complication rate was 3.5% and 15% for early and late complications respectively.
Conclusion: LRYGB offers an effective alternative for the treatment of morbid obesity. LRYGB has demonstrated to be safe given its low morbi-mortality when performed by an experienced group with high volume of surgeries.

O.061 Silastic Ring Vertical Gastric Bypass in Patients Over 60 Years

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Background: Few centers have reported bariatric surgical results in elderly patients. We present our experience with Silastic Ring Vertical Gastric Bypass (SRVGBP) in this population.
Methods: The record of 61 consecutive patients who had SRVGBP from July 1994 to December 2010 were reviewed. All had a proximal vertical gastric bypass with a silastic ring placed above the gastrojejunostomy.
Results: There were 43 females and 18 males with a mean age of 63 years (60–74). Mean BMI was 43,82 Kg/m^2. Preoperative comorbidities were: 47 HBP (77,6%), 29 dislipidemy (47,54%), 25 type 2 diabetes (40,9%), 13 obstructive sleep apnea (21,7%), 14 arthropathies (22,9%). There were 4 laparoscopic and 57 open cases, 44 primary and 13 revisions. Early complications were: 2 gastric leaks, one of then, after revision from restrictive procedure (3,3%), 1 GJA estenosis (1,65%), 2 pulmonary embolous (3,3%). There was 1 death (1,6%) due to sepsis. Late complications were: 10 incisional hernia (16,4%), 10 dumping syndrome (16,4%), 5 GJA estenosis (8,1%), 2 anemia (3,27%). There were 2 silastic ring removals (3,27%). Weight Loss was according to the following: 24 (95,8%) patients followed from 1–5 years, EWL 70%, BMI 29,6 Kg/m^2; 11 (64,7%) patients from 6–10 years, EWL 53,3%, BMI 32,6 Kg/m^2; 4 (44,4%) patients from 11–15 years, EWL 56,1%, BMI 31,6 Kg/m^2 and 2 (20%) patients over 15 years, EWL 60%, BMI 29,9 Kg/m^2. Improvement of comorbidities was: HBP 63,3%, diabetes 94,7%, dislipidemy 77,7%, obstructive sleep apnea 100%, arthropathies 84,6%.
Conclusion: SRVGBP is a reasonable and safe option in obese patients ≥60 years with high resolutions of comorbidities.
Key words: SRVGBP, over 60 years.

O.062 Laparoscopic Gastric By-Pass with Fundectomy and Esplorable Stomach (LRYGBP FES) Technique and Maximum Follow-Up at 10 Years

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Background: Most bariatric surgeons consider the classic gastric bay-pass (laparoscopic Roux-Y-Gastric By-Pass -RYGBP-) the ideal procedure for treating severe obesity. The problem with this procedure is that the bypassed stomach cannot be explored and thus there is no opportunity to diagnose and treat diseases of the stomach, duodenum and main bile duct. In June 2001 we developed a gastric by-pass procedure that permits exploration of the residual stomach and a complete removal of the gastric fundus(LRYGBPfes)The aim of this study is to present our case series an to describe the technique.
Technique: The gastrocolic ligament is opened at Bouchet area and is sectioned towards the His angle: application of linear stapler-cutter device beginning in the greater curvature from the Bouchet area to the lesser curvature 7 cm from the cardias is applaid. Three firing of the stapler parallel to the bougie is applied to make the pouch as narrow as possible. The jejunum, identified at the Treitz ligament and followed distally for 50–60 cm, is pulled cephalad towards the gastric pouch in antecolic position. The gastro-jejunum anastomosis is made in side to side 4 cm wide with an endo-cutter (Echelon 60). The bending (Gore-tex) is placed 7 cm from the cardia to close the end of the pouch and leaving a narrow hole between the pouch and the antrum. The jejunum-ileum anastomosis is made 120–150 cm from the pouch in side to side 4 cm wide.
Methods: From June 2001 to December 2010, 208 patients suffering from morbid obesity; 66 men and 142 women with an average age of 44.7 years and an average BMI of 48.8, underwent LRYGBPfes. Existing comorbidities were: type 2 diabetes in 34% of patients, obstructive sleep apnea syndrome (OSAS) in 27.6%, degenerative joint disease in 18.5% and hypertension in 61.3%.For 184 patients this procedure was the first surgical treatment they received for obesity and 24 patients had first undergone LAGB or SG .An adjustable gastric banding was used for the first 88 patients (group I) and a Gore-Tex band for the other 184 patients (group II).
Results: Mean operative time was 276 m (range185-304) in group I and 192 m. (range108-227) in group II. The conversion rate in patients treated for the first time was 5% in group I and 0% in group II In the 24 redo cases there were 7 conversions. Two cases of perforation of the omega loop were resolved intra operatively, one case of bleeding from the pouch suture line requiring open revision surgery and one peri-anastomotic abscess at 15 day resolved with parenteral nutrition. One patient died for MOF 60 hours after surgery .Average post-operative hospital stay was 6.2 days. As regards, weight loss and evolution of comirbidities were comparable to the results of classic LRYGBP.a rare episodes of vomiting.
Key words: LRYGBP fes, fundectomy, exploration of residual stomach.

O.063 Laparoscopic "OMEGA" Gastric Bypass: Mid-Term Outcomes

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Introduction: Laparoscopic "Omega" Gastric Bypass (LOGB), also known as Mini Gastric Bypass, is as effective as Roux-en-Y Gastric Bypass (RYGB), but has the advantages of a unique anastomosis and lower morbidity. Our objective is to evaluate the safety and mid-term effectiveness of this new surgical strategy in the treatment of morbid obesity.
Patients and methods: Between October 2006 and December 2010, 451 patients (354 women) underwent LOGB. Mean age was 41,62 year old [± 10,94], mean pre operative weight was 132,7 kg [± 25,05] and mean BMI was 47,4 kg/m² [± 7,43]. 103 patients (22,8 %) had undergone a restrictive operation for weight control: 78 gastric banding, 11 vertical banded gastroplasty and 14 sleeve gastrectomy. Patients were followed up 1 (n=291), 2 (n=193) and 3 years (n=75) after LOGB.
Outcomes: Early morbidity was 3,4 % (n=14). 8 patients were treated surgically: 3 intestinal obstructions, 2 perigastric abscesses, 2 anastomotic leaks and 1 intra abdominal hemorrhage. The remaining: 2 anastomotic hemorrhages treated endoscopically, 2 pulmonary embolisms, 1 purulent drainage and 1 rhabdomyolisis. Late morbidity was 2,2% (n=10).1 patient presented with perforated excluded gastric remnant following intestinal occlusion of the biliary limb secondary to anastomotic stricture on an anastomotic ulcer, 6 peptic ulcers (1,3%), 1 anastomotic stricture endoscopically dilated and 2 symptomatic cholelithiasis. No death was reported. At 2- and 3-year follow-up, mean BMI decreased to 30,6±6,8 and 30,3±5,9 kg/m², and mean EWL was 76,3 %±12,6 and 77,1%±14,1, respectively. 7 patients complaint of biliary reflux (1,5%), 2 of them with persistent symptoms.
Conclusion: LOGB is an effective procedure for morbid obesity with comparable mid-term outcomes to RYGB; however it seems to be safer with no mortality and lower morbidity. Its technical simplicity represents a real advantage and makes it an interesting option that should be considered in the armamentarium of all bariatric surgeons.

O.064 An Outlet for Endoscopic Access to the Remnant Does not Reduce the Effectiveness of Gastric Bypass: Long-Term Outcomes of a Modified Roux-En-Y Gastric Bypass that Allows Traditional Endoscopy of Bypassed Stomach

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Background: Roux-en-Y Gastric Bypass (RYGB) is one of the most common operation performed worldwide as treatment for severe obesity. Patients who undergo this procedure need a periodic follow-up mainly radiological, but often endoscopic, in order to state the surgical long term outcome. These patients usually have a long life expectance, with the possibility to develop several pathologies also in the anatomically excluded stomach. In 2002, it has been introduced in bariatric surgery a modified gastric bypass, the Roux-en-Y Gastric Bypass on Vertical Banded Gastroplasty (RYGB-on-VBG), where traditional endoscopic study of the gastric remnant resulted to be feasible through a small passage between gastric pouch and excluded stomach that has been leaved. In the mid-term, RYGB-on-VBG obtained results in terms of weight loss and comorbidities resolution equivalent to those found after standard RYGB. Aim of our study is to verify the outcomes in the long-term.
Methods: Between June 2002 and June 2010, 320 patients, with mean age 42.0±11.3 years, mean BMI 48.0±8.7 and mean EBW% 94.05±36.6 underwent modified RYGB via an open approach. The 37.5% of the patients were superobese. Preoperative comorbidities were hypertension (p.155, 48.4%), OSAS (p.79, 24.6%) and type II DM (p. 55, 17.1%).
Results: Operative mortality was 0.6% (p.2) and early complications 1.9% (p.6). At 2 year of follow-up mean BMI and EWL% were 30.9±5.8 and 68.9±17.0 respectively. The average percentages of comorbidities resolution were: OSAS 90.1%; type II DM 83.5%; hypertension 47.5%; hyperlipidemia 30%. Early surgical complications were 4 (1.4%). At 8 year of follow-up, the mean BMI and EWL% were 34.0±7.7 and 63.4 ±18.5 respectively. Late specific complications were 8 (1.7%). For all the followed patients (95% of the patients) the modified RYGB enabled traditional endoscopic and radiologic evaluation of the gastric remnant. Our macroscopic and microscopic results were similar to other reports where Authors performed the gastric remnant exploration backward through the alimentary limb (Double Baloon Enteroscopy), with gastritis of various degree in 97% of cases and intestinal metaplasia in 15.8% of them.
Conclusions: In the long-term, an outlet for access to the remnant did not reduce the effectiveness of gastric bypass. The modified RYGB outcomes in term of weight loss, resolution of comorbidities and surgical complications are comparable to those after standard RYGB as reported in literature. The frequent detection of altered mucosal surfaces, even in patients with normal preoperative endoscopic pattern, suggest for a systematic evaluation for all patients who underwent RYGB in the follow-up, to better define the nature of the lesions and how they respond to specific medications. In this series standard endoscopy was feasible in all patients who underwent RYGB-on-VBG, and can be proposed as screening tool, specially in countries with high incidence of gastric cancer.

O.065 Laparoscopic Roux-En-Y Gastric Bypass Versus Laparoscopic Sleeve Gastrectomy for the Treatment of Morbid Obesity. A Prospective Study of 117 Patients with 2 Years of Follow Up.

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Laparoscopic Roux-en-Y gastric bypass (LRYGB) is one of the most widely used bariatric procedures today, and laparoscopic sleeve gastrectomy (LSG) as a single-stage procedure for the treatment of morbid obesity is becoming increasingly popular. In this study, we prospectively compared both techniques in order to establish whether there is any superiority of one over the other based on morbidity and effectiveness. From January 2008 to December 2008, 117 obese patients with indication for bariatric surgery were assigned by patient choice after informed consent to either a LRYGB procedure (n=75) or a LSG procedure (n=42). We determined operative time, length of stay, morbidity, comorbidity outcomes, and excess weight loss at 2 years postoperative. Both groups were comparable in age, sex, body mass index, and co-morbidities. Mean operative time of LSG was 82 min while LRYGB was 98 min ($p<0.05$). Differences in length of stay, major complications, improvement in co-morbidities, and excess weight loss were not significant ($p>0.05$). Two year after surgery, average excess weight loss was 78.5% in LRYGB and 76.1% in LSG ($p>0.05$). In the short term, both techniques are comparable regarding safety and effectiveness, so not one procedure is clearly superior to the other.

O.066 Low Anastomotic Stricture Rate after Roux-En-Y Gastric Bypass Using a 21-MM Circular Stapling Device

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Background: Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) is established as a safe and effective procedure for the surgical management of obesity as demonstrated by the excess weight loss and resolution of comorbidities. Amongst some of the post-operative complications are gastrojejunal strictures, with an incidence of 3 to 27% in some series. The aim of this study is to evaluate the incidence of gastrojejunostomy strictures using a 21-mm circular stapling device and its response to treatment with endoscopic balloon dilation.
Patients and method: A retrospective chart review was conducted of all patients who underwent LRYGB between January 2007 to September 2010. We used our previously published technique of retrocolic, retrogastric Roux-en-Y bypass, using a 21 mm circular stapler to construct the gastro-jejunostomy. Postoperatively, patients with persistent feeding intolerance (more than 2 weeks) underwent an endoscopy. Those found to have a gastrojejunal stricture, defined as inability to pass the endoscope beyond the anastomotic site, underwent pneumatic dilation with a 12 mm balloon.
Results: A total of 338 patients underwent LRYGB. Median follow up was 57.6 weeks (8–137). Thirty-six patients underwent an endoscopy due to feeding intolerance. Thirteen patients (3.8%, 13/338) were identified with gastrojejunal stricture and received at least one endoscopic treatment. Gastrojejunal strictures presented at an average of 35 days (range of 13 to 90 days) postoperatively. Three patients underwent two endoscopic interventions and one underwent three endoscopic interventions.
Conclusion: Using our technique, construction of the gastrojejunal anastomosis with a 21-mm circular stapler is associated with a low stricture rate, which is amenable to endoscopic balloon dilation.

O.067 Is the Ring Necessary in the LRYGB? Long Term Follow Up Between Distal Laparoscopic Roux–En-Y Gastric Bypass and Standard Laparoscopic Roux-En-Y Gastric Bypass with Ring

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Background: During November/98 to February/2011 we have performed 5100 bariatric procedures: 13% Lap-Band or Sleeve Gastrectomy, 71% Gastric ByPass, 14% BIB and 2% BPD. The choice of the method was defined by protocols developed by a multidisciplinary team considering BMI, social and eating behavior, surgery risks, associated diseases, agreement to physical activity and patient's expectation.
Methods: In the first two years we performed Gastric ByPass with Ring in 180 cases, presenting 76% of excess weight loss after two years. These patients had too much difficulty with solid foods. Therefore, we decided to perform the surgery without ring. There were 274 cases with 69% of excess weight loss in two years and better eating quality. In the last eight years we started to perform Laparoscopic Roux-en-Y Gastric By Pass with a Distal Jejunum-Ileal Diversion distant about 1,5 to 2,0m from ileo-cecal valve (n=3167), presenting 75% of excess weight loss. The surgery is all performed in a supra-mesocolic abdominal area. The gastroenteoanastomosis is always pre-gastric and pre-colic performed with linear stapler. Then, we perform the

enteroenteroanastomosis and test both anastomosis using methylene blue. After that, we divide the jejunum with a stapler.
Results and Conclusion: We had performed 3167 cases using this method, with 75% EWL two years after the surgery. With this technique, we are able to reduce surgery time, avoid ring and nutritional complications, presenting better eating quality with the same EWL% of the LRYGB with the ring.

O.068 Reoperative Roux-En-Y Gastric Bypass Provides Similar Long-Term Results as Primary Surgery

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Background: The increasing prevalence of obesity worldwide is associated with a massive increase in the number of yearly performed bariatric procedures, many of them purely restrictive. Consequently, a growing number of surgical revisions are necessary, and conversion to Roux-en-Y gastric bypass (RYGBP) is a common option. So far, few series including mostly patients reoperated using open surgery, and limited follow-up, have been reported.
Patients and methods: Retrospective analysis of prospectively collected data of all patients undergoing revisional RYGBP in our two departments.
Results: Between June 1999 and February 2011, 186 patients were submitted to revisional RYGBP, 161 women and 25 men with a mean age of 43 years. Their mean initial BMI was 45,3 kg/m^2, their mean nadir BMI between the index operation and revision was 34, and their mean pre-revision BMI was 38,5. The initial procedure was gastric banding in 134 (72 %) patients, VBG in 48 (25,8 %), RYGBP in 5 (2,7 %), and others in 3. The main indications for revision were complications from the primary procedure with or without weight regain. A laparoscopic approach was used in 137 (73,7 %) cases. Overall early morbidity was 18,8 %, and major morbidity was 3,2 %. Comparing patients in the first, second and last third of our experience, the percentage of patients operated using a laparoscopic approach increased from 53,2 % to 71 % and finally 96,7 %, and overall morbidity decreased from 27,4 % to 24,2 % and then 4,8 %. There were more wound infections after laparotomy (22,4 versus 2,9 %, p<0,001). There was no mortality. The mean BMI remained between 30 and 32 up to nine years after revision. Up to this limit, a BMI of <35 was maintained in between 75 and 83 % of the patients.
Conclusions: Revisional RYGBP proves to be an effective and safe procedure. It can be performed by laparoscopy in most cases, especially as experience increases., It is associated with an acceptable morbidity, though higher than with primary RYGBP. Long-term results are equivalent to those of primary RYGBP, and can be considered as very satisfactory considering the fact that, on average, patients requiring redo surgery represent a sub-selection of difficult bariatric patients.

O.069 Laparoscopic Banded Gastric Bypass. Feasibility, Safety and Weight Evolution

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Background: The most important item in the evaluation of bariatric surgery techniques is its ability to maintain the obtained weight loss in the long term; the banded gastric bypass improves the results of the standard gastric bypass. Is it feasible, safe and its results are really better?
Material and methods: Since June 1999 until December 2010, 1441 morbid obese patients have been operated, performing a laparoscopic banded gastric bypass (LBGB), with a polypropylene band of 6.5 cm of perimeter. Mean age was 37 years. Weight 129 kg. BMI 45. 2.9 comorbidities per patient. Percentage of excess weight 104,3%. Cholecystectomy was added in 139.
Results: Mean operative time was 120 min. A patient was converted because technical problems at the end of the operation (0.07%). Mortality 2 patients (0,14%). Major complications (3,7%): 20 leaks (1,4%), 13 internal hernias, 3 intraabdominal abscesses, 6 bleedings, 1 intraoperative cardiac arrest, among the most importants. Hospital stay has been 3 days. Percentage of excess weight loss has been 80% at 2 years and 76% at 5 years. BMI has been 29 the fifth year and weight loss 42 kg. Superobese patients obtain lower weight loss parameters, without statistically significant differences.
Conclusions: Our technique of LBGB is feasible and safe, showing an excelent weight loss evolution

O.070 Banded vs. Non-Banded Gastric Bypass for the Treatment of Morbid Obesity

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Introduction: Laparoscopic Roux-en-Y gastric bypass (LRYGB) is the most effective treatment for morbid and super-morbid obesity. The additional benefit of placing a nonadjustable band around the pouch, to achieve greater and sustainable weight loss, remains to be determined. This study aimed to compare outcomes between banded and non-banded LRYGB patients, in a single tertiary referral bariatric centre.
Materials & methods: A matched cohort analysis was performed between patients who had undergone banded and non-banded (standard) LRYGB. In the banded bypass cohort, an 8F, 6.5 cm silastic ring was placed around the proximal gastric pouch. The non-banded LRYGB patients were matched for age, BMI, and anastomotic technique. Endpoints included %EWL, postoperative morbidity, and band-related complications.
Results: Between May 2008 and July 2010, 134 banded LRYGB were performed (55% female, mean age 45 years). A matched cohort of 134 non-banded LRYGB patients was identified from that same time period (67% female, mean age 46.8 years). Mean preoperative BMI was 54.6 and 52.8 kg/m^2, respectively (p=0.084). Super obese patients (BMI >50) accounted for 78% of the banded bypass group and 63% of the non- banded group. After a mean follow-up of 14 months (range 1–34), the average (SD) EWL was 55(21) % in the banded bypass patients and 46(25) % in the non-banded group (p=0.002). The difference in EWL between banded and non-banded patients was more pronounced in the super-obese, than in patients with BMI<50 [Among super-obese: 53(21) % vs. 44(22) %, p=0.005. Among those with BMI<50: 62(21) % vs. 50(29) %, p=0.041]. The difference in EWL was also more marked for patients who had a minimum of 12 months follow-up (p=0.005), compared to those who were still<12 months post-op (p=0.029). There was no difference in early (19.4% vs. 19.4%) or late complications (10.4% vs. 13.4%, p=0.573) between banded and non-banded RYGB patients.
Conclusion: Banding the pouch during LRYGB can be performed safely and may provide better weight loss, particularly in super-obese patients. Further prospective and long-term comparative studies of this technique are warranted.

O.071 Midterm Results of Very Very Long Limb Roux-En-Y Gastric Bypass with and Without Additional Fundusresection

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Background: Roux-en-Y Gastric Bypass is a standard procedure in the treatment of morbid obesity. Mechanisms of weight loss are restrictive and malabsorptive. Excluding the gastric fundus in Roux-en-Y Gastric Bypass can change appetite hormone levels and does influence the appetite hormone axis. The aim of our study was to compare Weight loss after very very long limb Roux-en-Y Bypass (VVLL RYGB) versus VVLL RYGB with additional gastric fundus resection.

Methods: We compared group (a) 36 Patients (RYGB, Gastric pouch 30ml, Common Channel 100 cm) with additional Fundusresection versus group (b) 34 Patients with VVLL RYGB alone. Outcome parameters were operating time, complications, BMI and Excess weight loss.
Results: Mean age and preoperative BMI were 41.47 / 43.99 kg/m^2 in group a, 38.03 / 44.51 kg/m^2 in group b. BMI and excess weight loss were 29.66 kg/m^2 / 66.18% in group a, 29.51 kg/m^2 / 65.59 % in group b. Follow up was 12 Months.
Discussion: We didn't find any significant difference in BMI and excess weight loss comparing VVLL RYGB with additional Fundusresection versus VVLL RYGB alone. Complications didn't differ either. Fundusresection is not superior to Fundusexclusion in our midterm follow up.

O.072 The Influence of Surgical Volume and Experience on the Complication Rate and Mortality in Laparoscopic Conversion from Gastric Banding to Roux-En-Y Gastric Bypass.

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Objectives: Due to the increasing rate of bariatric surgery, there is also a rise in revisional procedures. Conversions are more prone to early postoperative complications. The preferred procedure for failed laparoscopic adjustable gastric banding (LAGB) is the Roux-en-Y gastric bypass (RYGB). However, the safety of this secondary gastric bypass (SGB) has only been reported in small study groups. The aim of this study is to determine the early morbidity and mortality of this conversion procedure in a large group of patients operated on by a single surgeon.
Methods: From May 2004 to July 2010, in the AZ Sint-Jan hospital in Bruges, 263 patients underwent a conversion from LAGB to RYGB. This study analyses the thirty day morbidity and mortality.
Results: Indications for SGB after failed LAGB were weight regain or insufficient loss (77%), second indication were band related complications as pouch dilatation, slipping or band migration (47%). In our study group a one-step procedure (laparoscopic band explantation and RYGB) was performed in 59.3% of the 263 patients, a two-step procedure (i.e. band removal as first step, RYGB as a secondary step) in 40.7%. In the latter group, the mean period between the first and second step was 3 months (2.5 -7 months). Performing a one-step versus two-step procedure was greatly influenced by the learning curve. The mean BMI was 38.9 kg/m². Eighteen (6.8%) patients had early complications (< 30days). Hemorrhage (3.4%) was the most common complication. There were no anastomotic nor stapler line leakage in our study group. There was no mortality.
Conclusion: Conversion of LAGB to RYGB is feasible and safe and has a comparable complication rate to the primary RYGB*. Three major factors have contributed to these good results. Firstly the standardisation and fully stapling of the procedure*. Secondly, carefull attention was made to certain surgical technical details. And thirdly, we intitially maintained a restrained policy in performing the procedure in one step, which was gradually abandoned by our increasing learning curve.
Reference: * Dillemans B, Sakran N, Van Cauwenberge S, et al. Standardization of the Fully Stapled Laparoscopic Roux-en-Y Gastric Bypass for Obesity Reduces Early Immediate Postoperative Morbidity and Mortality: A Single Center Study on 2606 Patients. Obes Surg (2009); 19:1355–1364.

O.073 Laparoscopic Conversion of Failed Vertical Banded Gastroplasty Into Three Different Bariatric Procedures

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Background: The VBG was the restrictive procedure of choice for many bariatric surgeons before the advent of laparoscopic adjustable gastric banding . However, by the mid 1990s it became evident that VBG was associated with multitude of problems including inconsistent weight loss, staple line disruption, gastroesophageal reflux disease (GERD), and stenosis of the outlet stoma.
Methods: We analyzed 17 cases of laparoscopic conversions of failed VBG into three different procedures: LRYGB, LSG, and Laparoscopic Biliopancreatic Diversion (LBPD). We evaluated its potential for further weight loss, perioperative safety and complications.
Results: Between January 2006 and December 2010, 17 patients underwent laparoscopic conversion of VBG to LRYGB (n=9), LSG (n=5) and LBPD (n=3). The indication for conversion was failure of VBG (defined as BMI 35 kg/m2, weight regain, or poor control of comorbidities) and/or VBG complications (severe reflux, stomal stenosis). All previous VBG had been performed by laparotomy.All conversions were attempted laparoscopically. Four (27%) cases were converted to open surgery (two RYGB, one SG, one BPD), and one was hand-assisted SG.The mean operative time was 230±106 min (range 150 to 480 min), 338±103min (range 190 to 480 min), and 209±52 min (range 150 to 270 min), and 210 min (150–300) in all, RYGB group, SG group, and BPD group, respectively. No major intra-operative complications occurred. Seven (41%) early postoperative complications were recorded. Notably, in the LSG group there was 80% complication rate!!! At a mean follow-up of 27 months (range 15–41 months), the mean BMI and %EWL are 31.5± 4 kg/m^2 and 68.5±16%, 33.3±3.9 kg/m^2 and 61.4±14%, 29±2.6 kg/m^2 and 78.4± 13.9% for all, RYGB, SG patients, respectively. The follow-up time of the LBPD patients is only 2 months, therefore is not presented.
Conclusion: Laparoscopic conversion of open VBG to LSG, LRYGB, and LBPD is feasible and effective to treat complications of VBG and to further reduce weight in morbidly obese patients. The conversion into SG followed by very high complication rate. Technical considerations in each case are extremely important in decision of the target procedure.

O.074 Duodenal Switch and Functional-Roux-En-Y-Gastric Bypass: Effective and Safe Revisional Surgical Options for Failed Gastro-Restictive Bariatric Operations

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Introduction: Several surgical treatments have been proposed in patients in whom gastro-restrictive treatments have failed. The aim of this study was to analyse the effect of Duodenal Switch (DS) with restoration of normal gastric capacity and functional Roux-en-Y Gastric By-pass (f-RYGBP) in such patients.
Materials and methods: Since January 2001 till January 2010, we performed 34 DS (group A) and 16 f-RYGBP (group B) in patients with previous gastro-restrictive operations, which had failed for inadequate weight loss or for weight regain. Data were collected and the follow-up was at least 1 year for all patients.
Results: In group A, 16 out of 34 patients had previous vertical banded gastroplasty and 18 out of 34 had previous adjustable gastric band. In group B were respectively: 5 and 11 out of 16.Mean percent weight regain and mean BMI at the time of revisional surgery were in group A: 94.3±38.2 % and 49.2±5.2 (Kg/m^2) and in group B: 72±10.2% and 43.2±4.3 (Kg/m^2).After revisional surgery BMI and excess weight loss % at 1 year were in group A 36.4±7.2 Kg/m2 and 56.6±8.2% while in group B 37.2±4.1 and 51.2±5.8. After 5 and 10 years of follow-up BMI and EXWL% were in group A: 28.6±6.5, 71.8±12.3% and 28.1± 1.2, 72.4±2.2%, respectively. Co-morbidities decreased in both groups. We had minor morbidity and no mortality.
Conclusion: Our data suggest that both revisional procedures are safe and effective. Patients with failed bariatric gastro-restrictive operations may undergo DS with restoration of normal gastric capacity or f-RYGBP depending on the anatomic situation or the patient's choice.

O.075 Does Revisional Surgery Provide Sufficient Weight Loss?

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Background: Bariatric surgery is the most effective treatment of morbid obesity. Success is defined by loss of more than 50% excess body weight. However it is well known that a substantial number of reinterventions is to be expected in order to maintain or reestablish weight loss. The aim of this retrospective study was to find

out if excess weight loss (EWL) is sufficient following reoperations for failed primary procedures.

Patients and methods: Between June 2004 und December 2010 813 bariatric operations took place at our surgical department. This number includes 151 revisional operations on 143 patients. In this study we focused on 113 patients (f: 99, m: 14) with follow-up data of more than 1 year. Indications for reintervention in patients after gastric banding (AGB) were insufficient weight loss, oesophageal dilatation, band slippage or band erosion. Patients after vertical banded gastroplasty (VBG) suffered from stapleline disrupture while sleeve dilatation was the reason for reoperation following sleeve gastrectomy.

Results: 68 laparoscopic and 26 open Roux-Y-gastric bypass (RYGBP) operations, 4 band removals, 3 band repositionings, 3 rebandings, 8 sleeve gastrectomies and 1 reconnection of a disconnected tube were performed in order to enable weight maintenance or further weight loss. Seven patients among these 113 underwent 2 reoperations (RYGBP following AGB repositioning and band removal in 3 and 2 patients, respectively and after sleeve gastrectomy in 2 patients). Mean BMI at the time of reoperation was 41 (range 18–68), mean age was 42 (range 18–64). There were no anastomotic leaks and no morbidity. Complications in 18 patients (16%) required reoperation. To date follow-up results of 78 patients are available (follow-up rate 70%). Mean EWL at the time of the last visit was 57%, mean BMI was 32 and mean BAROS was 4. Patients with RYGBP as a revisional operation had EWL of 60% while repositioning of AGB or rebanding showed EWL of only 26.

Conclusions: Reoperations after failed primary bariatric procedures can be performed safely although complication rate is twice as high as in primary procedures. These interventions enable sufficient weight loss dependent on the chosen procedure. Patients after Roux-Y-gastric bypass as a revisional operation show better results regarding weight loss and life quality than those after repositioning of a slipped gastric band or a second band installation.

O.076 Surgical Revision Strategies to Treatment Failure in Gastric Banding

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Aims: Laparoscopic adjustable gastric banding (LAGB) has a failure rate between 7.9 and 58%. Many of these patients will have to be indicated for revisional surgery. The most common revisional strategies are currently re-banding, band removal, conversion to gastric bypass (RYGB) or to bilio-pancreatic diversion (BPDDS) and more recently, conversion to Sleeve Gastrectomy (SG). The purpose of this study is to determine which scientific evidence exists about their efficacy and morbidity.

Methods: A literature review has been done using electronic data bases such as Medline and Cochrane library. Papers published in English from 1992 up until now have been checked and a total of 31 studies about this topic have been analyzed.

Results: Four cohorts of 115, 307, 113, and 178 banded patients have been revised to re-banding, RYGB, BPDDS and SG respectively. The indications for such operations were mainly band slippage, band migration, esophageal dismotility and inadequate weight loss. The operating time and the length of hospital stay vary depending on the technique; 173 minutes and 3.0 days for the re-banding, 182 minutes and 6.4 days for the RYGBP, 239 minutes and 8.6 days for the BPDDS and 121 and 4 days for the SG procedure. Efficacy and morbidity is also technique dependant. Final BMI is 34.6 with the re-banding, 31.1 with the RYGB, 31 with the BPDDS and 39 with the SG. Major complication rates were 2.2, 12.5, 11.6 and 9.6% respectively. Mortality has always been below 1%.

Conclusions: Revisional surgery after failed LAGB can be performed safely in experienced hands. Its results vary depending on the technique used. RYGB and BPDDS have demonstrated better final results in terms of weight loss but they are also more technical demanding and they report higher complication rates.

O.077 Revision after Sleeve Gastrectomy

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Background: The sleeve gastrectomy is an established alternative in bariatric surgery. Merely used as first approach in super obesity, it has its benefits for one-stage approach as well with regard to the results achieved after more than 500 sleeve procedures in our institute. Nevertheless revisions have been indicated. A critical review of those indications and outcome is subject of this study.

Methods: Patients who underwent a revision after a sleeve gastrectomy were identified from a prospective bariatric registry. Collected data were biometric and operative parameters, indications for revision, complications and evolution of co-morbidity.

Results: Since 2006 a total of 536 sleeve gastrectomies has been performed in our institute. 29 of them (5.4%) underwent a revision at our institution, 9 males and 20 females. Prior to the sleeve, 9 patients had had adjustable gastric banding. Mean BMI was 55 Kg/m^2 (SD 6.9) in the group of intended two-stage sleeve (n=7) or technical difficulties to perform a bypass (n=6) and 45 Kg/m^2 (SD5.9) in group of intended one-stage (n=16) ($p< .05$). The revision to bypass in all cases was performed a median 13 months (range 5–28) later. Indications were insufficient weight loss (n=15), reflux (n=5), troublesome passage (n=8) and increased insulin dependency (n=1). Median operative time was 109 minutes with 26 out of 29 performed laparoscopically. Complications were 1 leakage, 2 abscesses, 3 bleedings and 2 wound infections. Median follow-up is 14 months (range 7–45). Mean EWL was 56% after the sleeve, an additional 13% after the revision. Resolution of co-morbidity was for DM 56%, for hypertension 33%, for OSAS 66% and for hypercholesterolemia 50%.

Conclusions: Infrequently a revision of a sleeve gastrectomy is indicated. Reasons are intended two-stage approach, impaired food passage or insufficient weight loss. Revisional surgery is associated with acceptable complications and a further reduction in weight as well as in co-morbidity can be expected.

O.078 4-Year Weight Loss Results for Conversion From Gastric Banding To Roux-En-Y Gastric Bypass

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Background: Laparoscopic removal of the gastric band and conversion to Roux-en-Y gastric bypass (RYGB) is probably the most commonly performed procedure for weight loss failure after laparoscopic adjustable gastric banding (LAGB), but only short time data on weight loss success after conversion was presented so far. As weight regain is observed even after primary RYGB in some patients, weight regain might also limit the success of conversion from LAGB to RYGB in this indication.

Methods: 25 patients underwent laparoscopic band removal and simultaneous establishment of a gastric bypass for inadequate weight loss (n=10) or weight regain (n=15) following LAGB. We present 4-year follow-up data for weight loss success and the incidence of bariatric re-operations performed for weight regain within 48 months after conversion from LAGB to RYGB.

Results: Conversion from LAGB to RYGB was successful in re-inducing stable 4-year weight loss in 20 (80%) of the 25 patients. Five (20%) patients presented with weight regain of more than 10 kg from nadir within 4 years and underwent placement of a non-adjustable band (n=1), placement of an adjustable band (n=1), re-establishment of the gastro-jejunostomy (n=1) and reduction of the common limb length (n=1). One patient underwent placement of a non-adjustable band and later on secondary common limb reduction, due to weight loss failure. Excluding weight loss results from these five patients with bariatric re-interventions, conversion from LAGB to RYGB resulted in stable weight loss success with EWL of 50.8±15,2%, 48.8±18.1%, 49.5±15.2% and 48,3±20,3% at 12, 24, 36 and 48 months, respectively. Ten (66%) of the 15 patients converted to RYGB for weight regain after LAGB, achieved a lesser nadir body weight after RYGB compared to their nadir body weight after LAGB.

Conclusions: Conversion from LAGB to RYGB for inadequate weight loss or weight regain resulted in stable weight loss success for at least 4 years postoperatively in the majority (80%) of our patients. 20% of the patients presented with significant weight regain of more than 10 kg from nadir within this follow-up and underwent a third bariatric intervention for re-inducing weight loss.

O.079 Revision Mini-Gastric Bypass (MGB) for Inadequate Weight Loss

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Background: Failure of various bariatric operations requires revision. Revision of Roux-en-Y gastric bypass is complex, complicated and frequently ineffective. The present study reports the effectiveness of revision of Mini-Gastric Bypass (MGB) for inadequate weight loss.
Methods: Review of 1,510 patients (1999–2008) with a mini-gastric bypass (MGB) at least a year out from revision for inadequate weight loss. Revision included inspection and reduction of the gastric pouch as needed with extension of the long biliopancreatic limb, usually adding 100 to 200 cm.
Results: 65 patients aged 36±8 (25–59) years underwent revision of an MGB for inadequate weight loss after initial MGB. Mean BMI pre MGB was 49.9 ÷ 12, pre revision 35.1±7.5 and post revision 24.6±8.1. Initial %EWL was 56.2% after MGB and 84.3% after revision. There was 1 leak. 3 patients sustained excess weight loss.
Conclusion: Failure to lose an adequate amount of weight is a recurring problem in all forms of bariatric surgery. Revision of an MGB is technically easy. The gastro-jejunostomy is ante-colic and easily accessible and there is no jejuno-jejunostomy to deal with. Adhesions are minimal. Revision can provide additional weight loss after inadequate weight loss from the initial MGB. Excess weight loss can occur with the long bypass.

O.080 Sleeve Gastrectomy as a Revisional Procedure for Failed Gastric Banding

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Background: Laparoscopic sleeve gastrectomy (LSG) has been recognized as a good treatment option for obesity and its comorbidities. Revision of a failed laparoscopic adjustable gastric banding (LAGB) has become a common situation in bariatric surgery and the best procedure to be offered is still debated.
Objective: The aim of this is to report our results of LSG after failed LAGB in one surgical time, as a revisional procedure for inadequate weight loss and/or complications after LAGB.
Methods: Prospective case series of 34 obese patients who underwent LAGB to LSG in one surgical time, between June 2007 and August 2010. Careful dissection and take down of the capsule peri-band and previous fundus wrap was achieved, prior to the LSG.
Results: 34 patients, 13 male and 21 females patients were operated. Mean age 40, 6± 12.4 years. The mean operative time was 96 minutes (90–180). The median hospital stay was 3 days. The mean BMI pre LSG was 35,2 (28–44) kg/m^2 and this BMI decreased to 30,3 (22–39) kg/m^2 after 6 months, with a %EBMIL of 77,4% (± 12,1). One patient developed postoperative disfagya , resolved with an endoscopy. One had persistent postoperative fever and a negative relaparoscopy. No leaks and no mortality.
Conclusion: LSG seems to be a good option as a revisional procedure for a failed LAGB. LSG showed to be safe and effective in the short term with excellent weight loss at 6 months. Long-term follow-up of revisional LSG are awaited to establish its efficacy in the long term.

O.081 Short Term Follow Up and Technical Considerations. Single Stage Laparoscopic Conversion of Vertical Banded Gastroplasty to Roux-En-Y Gastric Bypass

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Background: Vertical banded gastroplasty (VBG) was used extensively in the recent pass as an effective weight loss procedure. The 1991 National Institutes of Health Consensus Conference recommended this procedure in the treatment of morbid obesity. In Australia the VBG has largely been abandoned due to long term problems with inadequate weight loss or weight regain. Some patients have intolerable dysphagia, vomiting or solid food intolerance. We have converted 10 patients with a failed or complicated VBG to laparoscopic roux-en-Y gastric bypass (RYGB).
Methods: Between Jan 2008 and June 2011 data was prospectively recorded for all patients converted from VBG to RYGB. Indications for surgery were weight regain or complications from the VBG. These patients had attempted laparoscopic conversion to RYGB. Operative details, morbidity, mortality and postoperative weight loss data were collated.
Results: We present preliminary data on this group of ten patients. This procedure is safe and effective and results in further weight loss. We discuss the role of resection bypass for these patients.
Conclusions: Long-term failures after VBG can be safely converted to laparoscopic RYGB. This is associated with minimal morbidity and mortality and results in good further weight loss.

O.082 Laparoscopic Adjustable Gastric Band as a Salvage Procedure after Failed Roux-En-Y Gastric Bypass

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Background: Revisionary procedures are often associated with perioperative complications that equal or exceed those of the primary procedures. Previous authors have reported good results with LAGB after failed gastric bypass (1–4).
Our objective is to evaluate outcomes after laparoscopic adjustable gastric band (LAGB) as a salvage procedure after failed Roux-en-Y gastric bypass (RYGBP).
Methods: A retrospective review of prospectively collected data of 1 patient prior to and after RYGB and LAGB was performed, and included weight, height, body mass index (BMI), gender, age, postoperative complications and weight loss.
We present the case of a 57-year-old female who underwent laparoscopic Roux-en-Y gastric bypass in 2003. Her BMI was 40.7 kg/m^2 (98 kg; 1.55m) with severe back and knees pain. Gastrojejunostomy was performed with EEA-25 and jejunojejunostomy with endoGIA. She recovered well from that operation with improvement of her ostheoarticular pain and a weight loss of 40 kgs in 4 years, reaching 58 kgs (IMC=24). After that, she started regaining weight progressively, reaching 95 kgs in 2010 (IMC=40.5 kg/m^2). Her main complaint was an inadequate sense of satiety/restriction of oral intake. A contrast swallow study revealed a dilated gastric pouch. After discussion of her options for additional intervention, she elected to undergo placement of LAGB over her failed bypass. A LAP-BAND AP Small (Allergan Inc.) was placed laparoscopically over the gastrojejunostomy following pars flacida technique. Tubing and buckle were secured in the standard fashion. There were no perioperative complications. She was discharged home on postoperative day 1 and proceeded with our standard post LAGB dietary protocol without difficulty.
Results: 1 patient underwent LAGB after weight loss failure for RYGB at our institution. BMI before RYGB was 40.7 kg/m^2 and prior to LAGB 40.5 kg/m^2. At follow-up after LAGB, her BMI was 32.8 kg/m^2 with a EWL of 50% at 9 months. Her weight loss was of 18 kgs. She continued to report an improved sense of restriction with oral intake.
Conclusions: While our analysis is small and our length of follow-up is short, our results do demonstrate the safety and efficacy of LAGB as a salvage procedure for failed RYGBP. The potential benefit of this minimally invasive therapy warrants additional large-scale prospective investigation. Setting: Centro Médico de Asturias, Oviedo, Asturias, Spain.
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O.083 Revisions in Bariatric Surgery: Results and Experience of a Tertiary Referral Centre

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Introduction: Revisional bariatric surgery (RBS) compromises 10-15% of the operations performed in experienced centres. Failure of primary surgery in terms of adequate and sustained weight loss or the presence of intolerable side effects, technical and severe metabolic/nutritional complications are the most common indications for RBS. We are reporting our experience in performing RBS in the period between 2001–2011.
Patients and method: A retrospective data collection from 729 bariatric surgeries including 145 RBS procedures. Revisions were classified to 5 minor, 105 laparoscopic, 8 open, 14 endoscopic intraluminal and 13 interventional. Indications for RBS were inadequate weight loss in 69 (47%) patients and postsurgical complications in 88 (53%) patients. Revisions were divided into six groups (G): (G1 Revisions after Gastric Banding: 5 operations on port site, 79 laparoscopic revisions with band removal (20), band replacement(1), sleeve(7) and bypass (51) with or after removal of band, 2 open revisions for peritonitis and oesophageogastric junction stenosis, ,1 endoscopic dilatation and 1 endoscopic trial of removal of eroded gastric band), (G2 revisions after gastric bypass:1 drainage of abdominal wall abscess, 5 open revisions of leak (2), internal hernia(1), bleeding (1), and intraabdominal abscesses (1), 7 laparoscopic revisions with conversion of one anastomosis to Roux-en-Y bypass(1), revision of a leak(1) internal hernia (1), pouch resize(1), 8 endoscopic revisions and 3 interventional placements of drainage), (G3 revisions after vertical gastroplasty: 2 laparoscopic with placement of band (1) and sleeve(1)), (G4 revisions after sleeve gastrectomy: 8 laparoscopic revisions with resleeve (2), bypass (3), revision of a leak (2), revision of bleeding (1), 4 endoscopic stenting of a leak, and 10 interventional drainages), (G5 cholecystectomy in 9 patients), and (G6 others: open conversion of Duodenal Switch to bypass for malnutrition.
Results: 65/69 patients have adequate weight loss after RBS. All complications after primary surgeries were solved. There were one mortality in G2 after internal hernia and bowl ischemia (0.7%) and 21 postoperative morbidities (14.4%). The morbidities were postoperative bleeding in 5 patient, mild pulmonary embolisms in 2 patients, abdominal wall hematoma in 1 patient leaks from anastomosis or stapler lines in 7 patients, stomach outlet obstruction in 1 patient, leak from band erosion in 1 patient, severe chest pain after endoscopic stenting in 2 patients, continuous leak after stenting or lap revision in 2 patients.
Conclusions: RBS is relatively safe and as effective as primary procedure. It is necessary to have a detailed informed consent for individualized and creative approach. Adequate experience is necessary to achieve satisfactory results.

O.084 Vertical Sleeve Gastrectomy (VSG) as a Primary Bariatric Procedure in Patients with Bmi Below and Above 50

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Background: VSG acceptance as a primary bariatric procedure has substantially increased in past 5 year with most insurers covering it with some reserving it only for patients with BMI>50 while others denying coverage altogether. Purpose of this retrospective analysis was to compare VSG effectiveness to Laparoscopic Gastric Bypass (LGB) in general and in subgroups of patients with pre-operative BMI less and more than 50.
Methods: Retrospective analysis of Bariatric patients from 2008–2010.
Results: In 2008–2010 VSG was performed in 93 and LGB in 860 patients. Mortality was 0% and 0.11%, respectively. Major morbidity was 6.3% and 4.5%. Baseline BMI was 47.5 and 49.8, excess body weight 143.9 lbs and 155.5 lbs. Average length of stay 2, 3 and 2 days. There were 3 proximal suture line leaks and one intractable stricture requiring revision to LGB in VSG group.At 1, 2 and 3 year of follow-up %EBWL were 66%, 67% and 65% in VSG group compared to 67%, 69% and 65% in LGB group. Both groups of patients had decreased their BMI by 15–16 points.When stratified by preoperative BMI<50 and >50 both VSG and LGB patients continued to demonstrate similar patterns of %EBWL: See table 1.

PROCEDURE/BMI	1 YEAR	2 YEARS	3 YEARS
VSG<50	71%	69%	75%
LGB<50	74%	74%	70%
VSG>50	57%	64%	56%
LGB>50	59%	62%	57%

[Vertical Sleeve Gastrectomy]

Conclusions: Preliminary results indicate that VSG is capable of producing weight loss results comparable to gastric bypass with medium length follow-up. While seemingly technically simple procedure VSG is prone to higher morbidity and requires meticulous execution. Effectiveness of vertical sleeve gastrectomy as a primary procedure in patients with BMI<50 is actually higher than in insurance mandated coverage group of mega-obese patients.

O.085 Primary vs Conversion to Laparoscopic Sleeve Gastrectomy (LSG): Different Operation with Different Outcomes?

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Background: Primary LSG is considered an effective bariatric procedure, seemingly technically simple, although sometimes its related complications are not so easy to manage. Conversion to LSG from failed primary bariatric procedures is still more controversial.
We here report and discuss our experience with primary and conversion to LSG, in terms of results and complications.
Methods: Prospective observational study on obese patients treated with LSG with primary or conversion to intention. Conversion to LSG was due either to failure or complications after primary bariatric procedure.
LSG was shaped with multiple endostapler firings on a 34 Fr bougie. All procedure were tested for i.o.and post-op leak with orally given methilene blue dye test up to 2nd POD. If negative, patients were discharge on a semisolid diet for 3–4 weeks.
Results: From April 2005 through December 2010, 165 patients (F 107, M 58) underwent LSG for morbid obesity. There were 90 primary procedures and 75 conversion to LSG. The mean age was 47±11 ys, the mean BMI was 50±8 and 46±9 for primary and conversion to, respectively.
As far as surgical complications, we reported 6 (3.6%)gastric leaks, all in conversion procedures, 3 (1.8%) gastric stenosis, 10 (6%) bleedings, 2 (1.2%) SMV thrombosis, 1 (0.6%) jejunal stenosis, 4 (2.4%) dilation of the remnant fundus.
The mean hospital stay was 4.5±1.5 and 8±11 days, for primary and conversion to LSG, respectively. Resolution of complications was achieved within 30 days in all the cases.
2-y %EBL was 55±36 and 39±22 for primary and conversion to procedures, respectively, but without any significant statistical difference (P=0.294)
Conclusions: LSG proved to be safe and effective, both in primary and conversion to- setting, though proper and adequate patient selection, clinical pre-op work-up and surgical technique are required. The durability in the long run is still not known.

O.086 Laparoscopic Sleeve Gastrectomy in 524 Patients - Midterm Results

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Background: Laparoscopic sleeve gastrectomy (LSG) is gaining popularity among bariatric surgeons as a primary procedure for treating morbidly obese patients. However mid and long term results are lacking in the english literature.
Methods: LSG was performed in 524 consecutive patients as primary bariatric procedure between August 2006 to December 2010. Seventeen percent of patients were lost to follow up. All patients were operated by two senior surgeons. The data was collected prospectively. The study comprises 423 women and 111 men with mean age of 39 years (range 13–78 years) and a mean preoperative body mass index (BMI) of 44 Kg/ m^2.
Results: The mean percent excess weight loss (%EWL) was 73%(n=258), 78%(n=165),75%(n=96), 79%(n=40) and 81%(n=9) at 12, 18, 24, 36 and 48 months respectively. Diabetes type 2, hypertension and sleep apnea was completely resolved in 79%, 64%, and 100% respectively.
Thirteen patients (2.5%) failed to lose significant weight after the operation.Peri-operative complications include bleeding (1.9%), leak (0.4%), abscess (0.8%), missed enterotomy (0.2%), superior mesenteric vein thrombosis (0.2%), cerebral vascular accident (0.2%) and pulmonary embolism (0.2%). Re-operation rate was (1%). Mortality was zero.

Conclusions: LSG is a safe and efficient procedure that provides satisfactory midterm weight loss and resolution of co-morbidities with low morbidity and mortality.

O.087 Does Gastric Emptying after Laparoscopic Sleeve Gastrectomy or Calculated Sleeve Volume Correlate with Weight Loss?

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Introduction: The purpose of this study is to correlate gastric emptying after laparoscopic sleeve gastrectomy (LSG) and calculated sleeve size (based on radiographic characteristics and pathologic resection) with post-op weight loss.
Methods: Data was collected from an IRB-approved electronic registry, including patient demographics, weight, and body mass index (BMI). All sleeves were done with 40Fr Bougie, starting 5-7 cm proximal to pylorus. Post-op esophagrams were evaluated by 2 attending radiologists who specialized in body-imaging for 1) post-op radiographic sleeve diameter near top of sleeve, mid-sleeve and in antrum and 2) antrum-to-duodenum transit time. Sleeve volume was calculated utilizing the formula for cylinder volume $\Pi r^2 h$, where r=radius of mid-sleeve and h=height of the sleeve from gastroesophageal junction to distal antrum. Resected gastric volume was calculated utilizing radius and length of resected specimen (based on path report.) Excess weight loss (%EWL) was calculated based on ideal body weight. Pearson's correlation coefficient was used to evaluate the association between: transit time and weight loss, sleeve volume and weight loss, and transit time and sleeve diameter.
Results: 62 patients underwent LSG (21% concurrent hiatal hernia repair) between Jan 2009 and Jan 2011 at an urban safety-net hospital. The population was 84% female, average pre-op age and BMI was 42 years and 47.0 kg/m^2, respectively. The transit time (available in 60 patients) ranged from 0–88 seconds (mean=21.3, SD=19.8). 99% of the patients demonstrated gastric emptying under 60 seconds. Mean radiographic diameter of mid-sleeve was 4.0 cm and mean radiographic height was 26.4 cm. Based on these dimensions, mean calculated sleeve volume (based on cylindrical volume) was 115 cm^3 (±81.0). Mean resected gastric volume (based on pathology specimen) was 658 cm^3 (±945). Mean %EWL at 3, 6, and 12 months was 23.8% (±9.8), 37.9% (±11.8) and 52.2% (±10.8).
There was no correlation found between transit time and %EWL at 3, 6 or 12 months. When dichotomizing the data between those with transit time <30 seconds vs. >30 seconds, there was still no significant correlation. There was also no correlation found between calculated sleeve volume or resected gastric volume and %EWL at 3, 6 or 12 months. However, shorter transit times were correlated with smaller mid-sleeve diameter (r=0.295, p-value=0.022) and smaller antrum diameter (r=0.255, p-value=0.049) but were not significantly correlated with upper sleeve diameter (r=0.120, p-value=0.360).
Conclusion: We found no correlation between transit time after sleeve gastrectomy and weight loss, between sleeve volume and weight loss, and between resected gastric volume and weight loss. However, shorter transit time was correlated with smaller mid-sleeve and antrum diameter; the clinical significance of this remains to be determined.

O.088 Laparoscopic Sleeve Gastrectomy by Dorsal Approach: Technique and Preliminary Results

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Background: Laparoscopic sleeve gastrectomy (LSG) is becoming increasingly popular as a stand-alone procedure for the treatment of morbidly obese patients. A dorsal direct approach to the angle of His was developed at our department to improve visualization of the difficult dissection of the short gastric vessels and to facilitate proper mobilization of the stomach around the left crus enabling safe realization of a tight sleeve. The technique and its preliminary results are described.
Methods: Dorsal LSG was performed in a consecutive series of 446 (111 male/335 female, age 18–63 years, mean BMI 46 kg/m^2 (range 32–76) patients between 2007 and 2010.
Results: Weight loss defined as mean percent excess weight loss (%EWL) was 71% (± 26%) at 1 year, 69% (± 28%) at 2 years, and 56% (± 29%) at 3 years. Sixteen patients (3%) developed postoperative intra-abdominal hematoma and 7 patients (1%) anastomotic leakage, requiring reoperation in 16 patients (3%). Five patients (1%) had pulmonary embolism. Thirty-day mortality rate was 0.2%.
Conclusions: LSG by the dorsal approach is a safe and effective procedure, enabling a tight sleeve formation leading to satisfactory EWL results. Since long-term results of LSG are unknown, further studies are needed to define the exact place of the LSG as a stand-alone bariatric procedure.

O.089 3 Years Data of 55 Cases of Laparoscopic Sleeve Gastrectomy in Indian Type 2 City

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Aims: Obesity is on the rise in the Indian subcontinent with the rising economy. Predominantly Indian diet is vegetarian, and they consume food in bulk. We report our early experience with the laparoscopic sleeve gastrectomy (LSG) for treating morbid obesity in the Indian population.
Methods: The data of 55 patients, who underwent LSG for the treatment of morbid obesity at the Advanced Laparoscopic and Bariatric Surgery Centre, CHL-Apollo Hospital, Indore, MP, India from November 2007 to October 2010, were retrospectively reviewed. The vertical gastric sleeve is created laparoscopically using sequential firings of a linear stapling device, starting from level of crow's foot, which is applied alongside a 36-Fr gastric bougie. The data collected included age, gender, initial body mass index (BMI) and excess weight, the co-morbidity status, and preoperative investigations. Perioperative parameters and follow-up details [weight, BMI, excess weight loss (%EWL), resolution of co morbidities, and postoperative complications] were noted.
Results: All procedures were successfully done laparoscopically without any conversion to open procedure.There was no major procedure-related morbidity. One patient developed Hemorrhage requiring blood transfusion. One patient developed neostigmine hypersensitivity reaction during reversal but patient survived after resuscitation. One patient died at 3 weeks postoperatively due to pulmonary embolism. The Male/Female-ratio was 22/33. The Mean Age was 40.7yrs (19yrs to 59yrs). The Mean BMI was 43kgs/mt^2 (34.3 to 56.7). The Mean Weight was 109.7 (79 to 155kgs). Incidence of co morbidities, Diabetes- fourteen patients, Hypertension-twelve patients, Cholelithiasis- three patients, dyslipidemia- eleven patients Coronary Artery Disease-none.
Approximately 40% patients had Vitamin B12 deficiency. Weight loss at 6 months was: 28.5 kg (loss range- 20 to 44 kgs), Weight loss at 1 yr- 38.2 kg (loss range 25 to 62 kgs). Type II diabetes was resolved in 85.7%, hypertension in 75%, and dyslipidemia in 91%.
Conclusion: Although long-term results are necessary to determine the benefits of the procedure, early results indicate that LSG may be a safe and feasible option for treating the morbidly obese patients. We have observed that predominantly Indians consume vegetarian diet .Vitamin B12 deficiency is predominant and Patients preferred restrictive procedure like sleeve gastrectomy.

O.090 Results of 543 Sleeve Gastrectomies

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Background: The sleeve gastrectomy is a viable option in bariatric surgery. Established in a two-stage approach to treat suberobesity, this technique is gaining acceptance as stand-alone procedure too. The number of large scale series is limiting. Therefore the results of our institute's experience were critically reviewed.
Methods: A total of 543 patients had undergone a sleeve gastrectomy since 2007. The technique was consistently without stapleline reinforcement. Collected data from a prospective bariatric registry were operative parameters, complications, previous and subsequent procedures and evolution of weight and co-morbidity.

Results: Prior procedures were 28 adjustable gastric banding and 23 Mason-MacLean gastrectomies. All but four gastrectomies were performed laparoscopically. The median operation time was 60 minutes (range 25–221). Intraoperative complications were 7 liver, 3 splenic and 1 vascular injury, resolved within the same procedure by haemostasis or splenectomy. Median hospitalisation was three days (range 1–127). Postoperative complications were stapleline leakage (n=19), intra-abdominal abscesses (n-15), one of cardiac and 3 of pulmonary origin. Complication rate was significant higher after revision ($p<.05$). Preoperative, median waist size was 133 cm's (range 105–192), median BMI 45.4 Kg/m^2 (range 26–95). Main co-morbidity was diabetes (n=167), hypertension (n=220), sleep apnoea (n=108) and joint disease (n=42). After a median follow-up of 12 months (range 1–62) the mean EWL was 55%. The co-morbidities remained stable in 11%, improved in 41% and resolved in 48% of the cases. Within this follow-up 29 gastrectomies were revised into a bypass technique.
Conclusions: More effort is necessary to obtain long-term results as compliance to follow-up is limiting. Nevertheless, the results of these large scale series conform the laparoscopic sleeve gastrectomy is a full option to treat obesity and related co-morbidities.

O.091 Sleeve Gastrectomy: Eight Year Weight Loss Outcome

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Background: Although the efficacy of laparoscopic sleeve gastrectomy (LSG) for morbidly obese patients with a BMI of <50 kg/m^2 and the incidence of weight gain by changing of eating behaviours and gastric dilatation following LSG in the long-term (> 5 yrs) have not been investigated.
Methods: This is a prospective study of a total number of 1324 patients who underwent isolated LSG. 21 of 36 potential patients had a follow-up of 8 years and more. 15 patients underwent a second or third procedure for better weight loss (5 Omega-loop- and 4 Roux-en-y-gastric bypasses and 6 duodenalswitch. The resected gastric volume was median 1025 ccm and the sleeve volume (virtual CT) at the 4. p.o. day was median 39,9 ccm. The 21 patients with 8 years follow-up and high BMI were scheduled for a two-step LBPD-DS, but rejected the second step after one year. Study endpoints include estimated sleeve volume, volume of removed stomach, operative time, complication rates, length of hospital stay, changes of comorbidity, percentage of excess weight loss (% EWL) and changes in BMI (kg/m^2).
Results: The maximum of BMI-drop was seen at two years after LSG. 2/3 of all patients regained weight after 5 and 8 years. The BMI-loss war median 16 points. The EWL % was at 2 years 58 %, 44 % after 4 yaers and after 8 years 41 %. The mean sleeve volume increased from 39.9 ccm up to 141,7 ccm (18 patients). The most common cause for weight regain was prepyloric dilatation 9 (50%). There was no hospital mortality, but one case of late mortality (0.8 %). A total of 8 patients (13.3 %) underwent a second stage procedure within a period of 5 years (2 redo-sleeves, 3 LBPD-DS, 3 LRNYGB).
Conclusion: The LSG is excellent stage procedure for high BMI-patients and effective in lower BMI-classes as well. The problems of leaks at the gastroesophageal junction is an unsolved problem and in contrast to gastric bypass surgery independent from the learning curve of the surgeon. A removed gastric volume of less than 500 ccm seems to be a predictor of failure in treatment or early weight regain. The most common problem in the long-term follow-up seems to be the prepyloric dilatation with increase of the gastric volume from approx. 40 ccm up to 140 ccm. Therefore the reduction of the antrum volume should be considered and studied in prospective studies. A statistically significant improved health status and quality of life were registered for all patients. The generally introduction of LSG as a one-stage restrictive procedure in the bariatric field can be considered only if the procedure is standardized and more long-term results are available.

O.092 Erosive Esophagitis after Laparoscopic Sleeve Gastrectomy

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Background: Obesity is associated with gastroesophageal reflux disease. Laparoscopic sleeve gastrectomy (LSG) has been accepted as an option for surgical treatment of obesity. After surgery, some patients present reflux symptoms associated with endoscopic esophagitis. The aim of this study was to evaluate the endoscopical findings (EF) before and after sleeve gastrectomy.
Methods: Our prospective database from 2006 to 2010 was reviewed. All patients underwent an esophago-gastro-duodenoscopy during the preoperative period and at 6–18 months after the surgery. All patients were under treatment with PPI (proton pump inhibitors). We describe the endoscopical findings (EF) and clinical data. The Los Angeles Classification System was used for the endoscopic assessment of reflux esophagitis. As statistical validation Mc Nemar Test was used with a 95% confidence (Before-After model).
Results: In this period 165 patients underwent a LSG with pre and post operative endoscopy. Average age was 35 years (17–64) and 85% of the patients were females. Median BMI was 37,3 kg/m^2 (31–54). One hundred of patients have an abnormal pre operative endoscopy. Twenty five patients had esophagitis at EF (15,1 %) 22 had grade A, 2 grade B and 1 Barrett esophagus. Eighty five of the patients had an abnormal post operative endoscopy. Sixty nine patients had esophagitis at EF (41,8 %) 57 had grade A, 11 grade B and 1 Barrett esophagus. Of the 25 patients with preoperative esophagitis improved 10, 10 remained unchanged and 5 were worse. Of the 69 patients with postoperative esophagitis, 17 had preoperative esophagitis, 32 had other abnormal pre operative endoscopy and 20 had normal pre operative endoscopy.
Conclusion: After LSG patients have a high probability of presenting erosive esophagitis (OR: 6,5; $p<0,0001$). The finding of abnormal preoperative endoscopy is associated with an increased incidence of postoperative esophagitis.

O.093 Laparoscopic Sleeve - Gastrectomy Can Prevent Patients with Morbid Obesity Against Gastro-Esophageal Reflux

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Background: In the northern hemisphere 27 % of the adult population is obese and the prevalence increased up to 34 %. Nearly 45 % suffers on gastro-esophageal reflux disease (GERD). The laparoscopic Sleeve-Gastrectomy (LSG) is one of the most effective surgical procedures for bariatric surgery but there are only a few data available which verify gastro-esophageal reflux after LSG by 24h pH-metry.
Method: In a prospective study data of 20 healthy volunteers (group I) were compared to data of 20 obese patients with GERD (group II) which was detected metrologically, and with 20 obese patients in whom symptoms of GERD led not to positive DeMeester Score preoperatively (group III). All patients got a LSG. Stationary esophageal manometry as well as 24h pH-metry was acquired for all participants pre and postoperatively. All data were statistically analyzed by the computer based commercial SPS System.
Results: The median BMI in group I was 22 kg/m², in group II and III preoperatively 51.5 respectively 47.5 kg/m². After LSG the BMI decreased significantly in both patient groups (39.5 kg/m² post op respectively 36.7 kg/m^2 ($p<0.006$). The median lower esophageal sphincter pressure (LESP) increased after LSG the LESP highly significantly in both patient groups to 21.2 respectively 24 mmHg ($p<0.0001$,pre op vs post op). The DeMeester score decreased after LSG in group II from 43 to 10. In group III the results were splitted, in 65% there was no reflux measurable compared to the pre operative values but in 30% we saw an increase of the DeMeester Score although the LESP was increased in both obese patients groups.
Conclusion: The Laparoscopic Sleeve Gastrectomy increased statistically significant the LESP. This pressure increase is independent from weight lost after LSG. But the increase of the LESP prevent not necessarily against gastro-ösophageal Reflux.

O.094 Symptoms Suggestive of Dumping Syndrome after Provocation in Patients after Laparoscopic Sleeve Gastrectomy

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Aims: Dumping syndrome is a well known complication after upper gastrointestinal (GI) surgery. Bariatric surgery has been an increasing type of upper GI surgery over the last two decades, with rather unclear consequences on the upper GI motility. There are scarce data in the literature about the incidence of Dumping syndrome after bariatric operations, and, certainly, no relation of this syndrome to the newest representative of bariatric surgery, ie laparoscopic sleeve gastrectomy (LSG).
We conducted a prospective clinical study in order to evaluate the potential presence, incidence and severity of Dumping syndrome after LSG.
Methods: Non-diabetic morbidly obese patients eligible for LSG were included in this study. Diagnosis of dumping syndrome was based on clinical provocation of signs and symptoms using an oral glucose challenge before and 6 weeks after the operation. A Sigstad dumping score was estimated in order to separate dumpers from non-dumpers. Moreover, an Art's questionnaire was also completed to assess the appearance and severity of early and late dumping symptoms. Finally, blood glucose levels were also measured.
Results: Thirty one patients (8 male, 23 female) were included in the study. The median age was 38 (range 22–58 years) and the mean BMI. was 45.55 (± 5.37). According to Sigstad's score, no patient had symptoms of dumping after provocation preoperatively, while 9 patients (29%) experienced definite dumping syndrome and other 5 patients (16%) experienced symptoms suggestive of dumping syndrome after LSG. Art's qestionnaire demonstrated that dumping occurrence after LSG was associated with early rather than late symptoms. Late hypoglycaemia occurred in one patient.
Conclusion: A significant proportion of patients after laparoscopic sleeve gastrectomy experienced dumping syndrome. Weather these are related to mechanical or hormonal factors or a combination of both, is something that needs further evaluation. It seems that LSG should no longer be considered as a pure restrictive bariatric procedure, and it might be an option for heavy sweeters.

O.095 Entero-Hormonal Changes after Sleeve Gastrectomy

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Background: The aim of our study was to investigate the effect of laparoscopic sleeve gastrectomy (LSG) on fasting and meal stimulated release of gut peptides' levels: amylin, ghrelin, pancreatic polypeptide (PP), peptide-YY (PYY), glucagon like peptide 1 (GLP-1) as well as of the adipocytokine leptin.
Methods: We examined fasting, 60 min and 120 min, after meal stimulation, levels of glucose, insulin, amylin, ghrelin, PP, PYY, GLP-1 and leptin on 15 morbidly obese (MO) patients who underwent LSG, before and at 6 and 12 postoperative months. In addition 15 lean individuals matched for age and sex were also studied.
Results: A significant reduction in obese patients' BMI from 46.8 kg/m^2 (range 37.6-58.7) to 34.6 kg/m^2 (range 29.1-52.6) at 6 months, and to 32.9 kg/m^2 (range 26.1-48.8) at 12 months following LSG, was noted ($p<0.004$). This represents a median 54.8 %EBL (range 18.0-73.0) and a median 68.9 %EBL (range 15.0-94.0) at 6 and 12 months after surgery, respectively. Preoperative fasting and postprandial levels of serum amylin and leptin levels in MO patients were significantly higher than in lean group. Preoperative fasting ghrelin, GLP-1, PP, and PPY levels had no significant difference between MO and lean subjects. After the test meal significant difference between the 2 groups was noted only for ghrelin at 60 min postprandially. At 6 and 12 months after the operation a remarkable reduction in fasting amylin and ghrelin levels was observed. Postoperatively, meal stimulated concentrations (at 60 and 120 min) of amylin and ghrelin were also significantly reduced at 6 and 12 months. Fasting GLP-1, PP and PYY levels did not significantly change after the operation. However, MO patients had an exaggerated postprandial (both at 60 and 120 min) GLP-1 and PYY response at 6 months which further increased at 12 months. Significantly increased PP levels were noted at 60 min after the test meal, both at 6 and 12 months after LSG. A significant reduction on fasting and postprandial leptin levels was also noticed at 6 and at 12 months postoperatively.
Conclusions: Sleeve gastrectomy generates significant changes in circulating gut hormones of the proximal and distal gut. These peptides act in order to optimize the digestive process and may play an important role in the underlying mechanism of weight loss as short-term satiety signals and possibly long-term regulators of body weight.

O.096 The SILS® Approach for Gastric Bypass: Not Only a Matter of Cosmetic

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Objective: The aim of this study is to evaluate the effectiveness of standard GBPs performed by the SILS® approach.
Material and method: From mai 2009 to february 2011, we performed 174 primary GBP using the 'double loop' antecolic technique, 74 using a laparoscopic 4 trocars technique and 70 using the SILS® one. We matched 30 uncomplicated patients from each series for age, sex and pre-operative height, weight, BMI. We observed retrospectively the post-operative management of pain (pain staging d1 to d3, pethidin use d1 to d3), inflammatory status (CRP d0,d1,d4), hospital stay and weight loss (3,6,9 months %EWL).
Results: Matching the 2 series provided the following pre-operative data (Lap vs SILS®):
N=30
Sex : 28W/2M vs 28W/2M - NS
Age : 37,6 years (19–58) vs 37,2 years (2–57) - NS
Height : 162,5 cm (149–172) vs 161,1 (152–171) - NS
Weight : 116,4 kgs (97,9-161,5) vs 112,5 (90–154,8) - NS
BMI : 44 (37,2-59,3) vs 43,4 (36,1-58,3) - NS
Post-Operative pain management combined a systematic nurse's staging (scale from 0 to 5, 4 times a day) to a standardized correlated delivery of IV pethidin. The study of these data showed the following results (Lap vs SILS®):
Pain stage d1/d2/d3 : 3,5/3,1/2,6 vs 3,2/2,6/2,3 - NS
Mean stage d1-d3 : 3,1±0,8 vs 2,7±0,8 - p=0,045
P+(x100 mg) dosis d1/d2/d3 : 1,8/0,9/0,2 vs1,2/0,4/0,1 - NS // Tot P+(x100 mg) dosis d1-d3 : 2,9±1,5 vs 1,7±1,5 - p=0,003
The SILS® approach provided a better post-operative confort, including significantly improved pain staging and a very significant decrease of morphin substitute use.
A subsequent shorter hospital stay of the SILS® group was observed (4,5±1,1 days vs 6,0±0,9 days - p=0,001).
The study of post-operative blood CRP showed a faster return to normal at Pod4 in case of the single port access (4,6 mg/dl vs 5,4 mg/dl), a non-significative observation.
Finally, EWL% at 3,6,9 months showed no difference between the 2 series (44,3%/62%/66,1% for Lap vs 44,8%/58,6%/64,7% for SILS®).
Conclusion: Moreover than a cosmetic or psychological contribution to gastric bypass, the SILS® approach offers an improved post-operative course attested by a significantly easier management of the post-operative pain.

O.097 Single Incision Laparoscopic Adjustable Gastric Banding in the Super Obese

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Background: Single incision laparoscopic surgery is a new surgical technique which is slowly emerging in bariatric surgery. However due to technical difficulties, single incision laparoscopic adjustable gastric banding (SILS-AGB) has largely been restricted to patients with a body mass index (BMI) of less than 50 kg/m^2. However, in our series there was no upper BMI limit, and here we analyse the outcomes and feasibility of SILS-AGB in the super morbidly obese (BMI>50 kg/m^2) and the morbidly obese/obese patient (BMI<50 kg/m^2).
Methods: Between June 2009 and September 2010, 111 patients underwent SILS-AGB. All operations were performed through a single transverse incision using a

multichannel single port. The band was placed via a pars flaccida approach. All data were collected prospectively and included operative time, pain scores, length of stay and outcomes. From this cohort of patients we then compared the super obese with the morbidly obese/obese patients.

Results: Of the 111 patients, 103 presented with a BMI<50 kg/m^{2}and 8 with a BMI >50 kg/m^2. On comparing the morbidly obese/obese and the super morbidly obese groups, we found that the median age was 43years (15-62yrs) and 35years (18-48yrs), the median weight was 102 kg (78-155 kg) and 146.5 kg (range 118-212 kg) ($p<0.01$) and the median BMI 40 kg/m^2(range 30–49.3 kg/m2) and 51.6 kg/m^2 (range 51–67 kg/m^2) respectively. There was no difference in the operating time for the obese group (60 min, range 34 -165min) compared to the super obese group (70 mins, range 50-110mins; $p=0.64$). The incision size in the obese group was significantly less than the super obese group with a median of 35mm (range 26-45mm) compared to 40mm (range 28- 45mm) respectively ($p<0.001$). There was no difference in post operative pain scores, morbidity, mortality, operating time, or time to discharge.

Conclusion: Single incision laparoscopic gastric banding is increasing in popularity. In this early series of super-obese patients we have found that the SILS-AGB can be performed safely and with similar outcomes to patients with a BMI less than 50 kg/m^2.

O.098 A Camera Integrated in a Magnetic Internal Mechanism (MIM) for Single Access Laparoscopy: Application in Bariatric Surgery

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Introduction: Placement of multiple trocars is a standard technique in most laparoscopic bariatric procedures. Wound healing, portal hernia and cosmetic results can lead to complications in this kind of surgery. Single port procedures seem to give better results but technical challenges and limited working space are major limitations. Through the cooperation of surgeons and robotic engineers we have developed a magnetic remotely controllable video-endoscopic capsule device dedicated to mini-invasive surgery. The aim of our study is to prove the feasibility and safety of using MIM (Magnetic Internal Mechanism) capsule instead of a standard laparoscope to carry out a laparoscopic procedure in vivo animal trial. MIM camera was thought to allow a less number of incisions required for minimal invasive surgery, to improve the angle view to 360°, and to facilitate the instrument's triangulation, thanks to the use of multiple devices for vision and lighting.

Material and methods: The trial has been carried on using two MIMs and two illuminating bars with a diameter of 12 mm and a length of 40 mm. As a first trial, after the placement of a trocar, standard laparoscope has been inserted to perform a previous examination of the abdominal cavity and to obtain a record of the experiment from another point of view. We introduced laparoscopic instruments and MIM capsules through two dedicated trocars. The prototype was provided of a wire for experimental purposes although wireless technology has already been proven feasible for power supply and image transmission. Two intracapsular moveable permanent magnets allow fine positioning, and an externally applied magnetic field permits movement and stabilization of the cameras.

Results: We carried out successfully laparoscopic procedures including cholecystectomy and a gastric bypass. MIM cameras and on-board illumination system was adequate to provide good imagery of nearby abdominal structures. A great advantage was obtained from the use of different cameras placed in different site of the abdominal cavity. Fine control of capsule navigation and rotation was achieved during the whole procedure. Precise camera steering and full 360° viewing was possible.

Conclusions: This preliminary study demonstrated the feasibility of a laparoscopic procedure carried out using MIM capsule. Most of complications of single port surgery would be solved inserting multiple MIM devices through the same trocar. The presence of multiple video capsules enabled a complementary view of the structures by many angles of sight. This is specially useful in obese patients where abdominal fat can negatively impact on vision in abdominal recesses. The use of this device can also reduce the conflict in the abdominal cavity between laparoscopic instruments allowing a better triangulation. More trials have to be performed but MIM system would potentially become a feasible option for single port and natural orifice transluminal endoscopic surgery (NOTES).

O.099 Simplified Technique for Single Incision Laparoscopic Gastrectomy Using Internal Independent Graspers

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Background: Single Incision Laparoscopic Surgery (SILS) is becoming more popular as it implies a less invasive approach to surgery with virtually no visible scars. Bariatric patients are a well-known demographic which has concerns about the privacy of their choice to have weight loss surgery. This becomes difficult as patients require multiple incisions for a given surgical procedure, with scars which can create questions in the future. Laparoscopic sleeve gastrectomy, while simple, it is still a major surgical procedure that can be quite challenging to replicate using a SILS approach—especially for the traditionally trained surgeons. Internal independent graspers may facilitate the transition from open surgery, to more intricate laparoscopic and SILS procedures.

Methods: Endograb device (Virtual Ports, Inc.) is a novel retraction tool that facilitates retraction and optimizes exposure in SILS. We have a vast experience on its use in gallbladder surgery. Utilizing two Endograb devices at once, we implemented our former gallbladder and laparoscopic experience in undertaking a sleeve gastrectomy, with the goal of minimizing the use of required instruments and therefore to prevent operating clash of instruments outside the abdomen. We compared consequences of this style of surgery with those undertaken without its use.

Results: Using the Endograb in single Incision sleeve gastrectomies is quite simple, especially once it has been used before in gallbladder surgery. It greatly improves exposure all along the staple line, and especially up to the angle of His. Avoiding its use greatly challenges the surgeon as the conflict among instruments increases even with the use of articulated instruments. By having continuous internal exposure and retraction, this eliminates a retracting grasper, and allows the surgeon to choose either hand to deploy the stapler. The cost of the Endograb device is minimal and it outweighs the opportunity cost of struggling without its use.

Conclusions: Using an innovative device such as the Endograb greatly facilitates performing a single incision sleeve gastrectomy. This ameliorates the common frustration of instrument clashing and enables surgeons to perform a gastrectomy with optimal exposure. Also the ability to utilize either hand, at a minimal additional cost, can improve the flow of the operation itself.

O.100 Simplified Transumbilical Sleeve Gastrectomy Technique Using Rigid Instruments

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Background: Minimal access surgery has been a rapidly evolving field. Recently transumbilical approach has demonstrated to be safe in several simple and more advanced surgical procedures. Several case series of sleeve gastrectomy with transumbilical approach had been reported, with different technique variations. Most of them include some sort of hepatic retraction method and flexible instruments; but still average operative times are above two hours and it's considered a demanding procedure. The objective of this report is to present the technique and surgical results of a simplified transumbilical sleeve gastrectomy approach, using rigid instruments.

Methods: A total of 45 women underwent transumbilical sleeve gastrectomy, selected by a multidisciplinary team, based on the local Chilean guidelines. All procedures were performed by the same three surgeons within july 2010 and March 2011. The operative technique involves a transumbilical incision from the superior to the inferior margin of the umbilicus, introduction of SILS™ multiport (Covidien), and a 5mm metallic accessory trocar laterally in the left flank. Rigid instruments were used in all patients. The greater curvature dissection was made with Ligasure™ (Covidien) or Enseal™ (Ethicon Endo-Surgery), from 4-5 cm proximal to the pylorus, to the left crus. Gastric transection is completed with Echelon Flex stapler (Ethicon Endo-Surgery), and calibrated with a 36fr boogie advanced trough the pylorus. Selected hemostasis to the staple line is achieved with metallic clips. Gastrointestinal series were made in three alleatory patients, confirming correct sleeve shape in comparison with conventional multiport technique.

Results: The patient BMI ranged from 30 to 39 Kg/m2. Mean operative time was 65,4±16,8 minutes. No conversion to conventional laparoscopy or open technique was required. A subxiphoid 2mm kichner needle was needed to aid liver retraction in three patients with fatty liver. There was no mortality and no reoperations required. Two patients presented early complications, corresponding to hemoperitoneum in the two cases; but neither required reoperation. The mean length of hospital stay was 2,3±0,5 days. No pain was refered to the 5mm accessory trocar site during hospital stay. The cosmetic result was satisfactory for all the patients.
Conclusion: Transumbilical sleeve gastrectomy it's safe and feasible procedure with the exposed technique. The insertion of an accessory 5mm trocar in the left flank simplifies the procedure, allowing the use of rigid instruments; available in most health institutions. It also maintains satisfactory cosmetic results for the patient, and it's not source of significant postoperative pain.

O.101 Effectiveness of Transoral Vertical Gastroplasty (TOGA): Comparative Results at Two Years With Gastric Bypass (RYGBP) and Biliopancreatic Diversion (BPD)

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Standard procedures in obesity surgery include Vertical Gastroplasty (VGP), Gastric By-pass (RYGB) and Biliopancreatic Diversion (BPD). Long term weight loss maintenance is lower after restrictive procedures, such as VGP, respect to RYGB and BPD; thus in the last ten yrs VGP is performed less frequently. We had the opportunity to perform VGP through Transoral Digestive Endoscopy (TOGa) with minor surgical trauma in a group of selected obese pts and analyze the outcome of this technique in terms of weight loss in comparison with RYGB and BPD.
89 obese patients, showing similar anthropometric features, were submitted to one of the three procedure. BMI was evaluated after one and two years follow up.

	TOGa (n.29)	RYBP (n.20)	BPD (n.30)
M/F	10%	35%	15%
AGE (yrs)	39.1 (23–58)	42.1 (27–58)	40.2 (19–58)
BMI preop	41.7 (35.4-46.6)	44.8 (36.4-54)	47.5 (41–60.3)
BMI 1 yr	34.5 (26.9-41.8)	30.7 (24.3-37)	30 (26–34.6)
BMI 2 yrs	35.5 (27–45.8)	29.2 (21.9-36)	29.6 (22.7-35.4)
BMI<30 1 yr	11.1%	40%	42.8%
BMI<30 2 yrs	10.3%	45%	50%
BMI<35 1 yr	44%	80%	100%
BMI<35 2 yrs	48.3%	85%	93.3%

[table 1]

As attended, a difference in weight loss among the three groups was confirmed, reaching the BPD the best results. In the TOGa group the two years variation of BMI can be considered as a successful outcome (48% of pts showed BMI<35), in particular for pts with BMI preop<45 (59% showed BMI<35):

BMI final<35	pts with preop BMI ≤45	pts with preop BMI <45	Fisher exact test
1 yr	20% (2/10)	65% (22/34)	P<0.05
2 yrs	14.3% (1/7)	59% (13/22)	P<0.05

[table 2]

The TOGa group also shows excellent nutritional and metabolic compensation. No complications were observed in the immediate postop period and during follow-up.

In conclusion, VGP performed via digestive endoscopy (TOGa) shows good results in terms of BMI one and two yrs after the procedure in our pts. Furthermore, the minor surgical trauma and the absence of complications of TOGa justify this option, by comparing TOGa with other restrictive operations, even in longer follow-up.

O.102 Laparoscopic Total Vertical Gastric Plication (LTVGP) and Laparoscopic Sleeve Gastrectomy (LSG) as Restrictive Bariatric Procedures. Results, Comparison, Cost Effectiveness Differences and Similarities

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Aims: Is to compare and evaluate this two restrictive bariatric procedures
Methods: From January 2009 to January 2011 a total 155 obese patients underwent voluntary a restrictive bariatric procedure - 76 LTVGP and 79 LSG. These patient were compared on their postoperative weight loss, mean excess weight loss (%EWL) and excess body mass index loss (%EBMIL).
Results: In the group of LTVGP the average mean preoperative weight and body mass index (BMI) were 115.026±18.22 Kg(range 75–161) and 40.81± 4.58 Kg/m^2(range 35–59),respectively. From all 76 patients only 15 had BMI above 45 Kg/m^2
Mean follow-up was 14±2.1months(range 6–24). The mean postoperative weight loss was 36 Kg and the mean excess weight loss (%EWL) was 81.124% after 12 months and 82.9% after 24 months .The average time of follow-up was 18 months.
In the group of LSG the mean postoperative excess weight loss (%EWL) was 83.75% one year postoperatively and 84.91% after two years. The mean excess body mass index loss (%EBMIL) was 81.6%. The average time of follow-up was 18 months.
Conclusions: Laparoscopic sleeve gastrectomy is a safe restrictive operation for the treatment of morbid obesity, gaining acceptance worldwide. Laparoscopic total vertical gastric placation (LTVGP) is a valuable alternative, less expensive, with similar results, especially in patients with BMI<45 kgr/m^2. Long term outcome is still required in order to evaluate the efficacy of the method, compared with other restrictive bariatric techniques

O.103 Single Anastomosis Duodeno-Ileal Bypass (SADI) vs Classical Duodenal Switch as a Second Step after Sleeve Gastrectomy in Morbid Obese Patients with Initial BMI>50 KG/M^2

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Introduction: There are different technical options for performing a second step after sleeve gastrectomy (SG). For patients over 50 kg/m^2, the best results are obtained with a biliopancreatic diversion, being the most frequently employed the duodenal switch (DS). Our group introduced 4 years ago the Single Anastomosis Duodeno-Ileal bypass with Sleeve gastrectomy (SADI-S) variant, which as a primary surgery has behaved very good in the short term.
Aim: To compare the ponderal short term results of a classic Roux-en-Y DS vs those of the SADI-S as a second step after a SG in the super-morbid obese patient.
Patients and method: Thirteen patients were prospectively included, 7 males and 6 females, with a mean age of 40.5 years and an initial BMI of 60.2 kg/m^2. After the SG patients were followed as out-patients, and when stabilization of the weight loss or weight regain was detected, a second step was programmed. Patients were randomly assigned to a one loop (SADI-S) or Roux-en-Y (DS) reconstruction.
Results: Seven patients were submitted to a DS, with a 50–75 cm common channel and a 250 cm alimentary loop, and 6 to a SADI-S with a 250 cm common channel (alimentary + common limb). The initial BMI was 57 and 63.9 kg/m^2

respectively (p=0.055). The interval for the second operation was 29 and 23 months, with an initial excess weight loss (EWL) after the SG of 49.5% and 38.5% (p=0.19). The mean duration of the second operation was 167', 194' for the DS and 136 for SADI-S (p=0.07). The EWL with respect to the second operation BMI was 31 and 24% at 3 months (p=0.056), 49 and 39% at 6 months (p=0.08), 49 and 62% at 9 months (p=0.33) and 59 and 63% at 12 months (p=0.19). The overall weight loss from the initial BMI was, at 12 months from the second step, 71 and 76% (DS vs SADI-S), p=0.6. The mean bowel movements was 4.6 per day after DS and 2.8 after SADI-S (p=0.16).

Conclusions: The one-loop reconstruction after SG (SADI-S) obtains a similar weight loss than DS with a shorter duration of the operation. In our experience, after these short-term results, there is no justification to perform a Roux-en-Y reconstruction after a SG in the super-morbid patient.

O.104 Sleeve Gastrectomy Plus Side-to-Side Jejunoileostomy for the Treatment of Obesity And Related Metabolic Disorders. A promising operation

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Background: In an attempt to enhance weight loss following sleeve gastrectomy (SG) and to stimulate gut endocrine response through a faster passage of nutrients from the stomach to the distal ileum, a side-to-side jejunoileal anastomosis was added to SG.

Methods: Thirty two morbidly obese patients with median age 37.5 years and median BMI 46.88 kg/m^2 were studied following SG plus jejunoileostomy (SG plus). Ten patients were diabetics, 4 of them on insulin for 1–5 years. The procedure constituted of a typical SG using a 34-French bougie. An isoperistaltic side-to-side anastomosis between the jejunum, 100 cm distal to the Treitz ligament, and the distal ileum, 100 cm proximal to the ileocecal valve was created using a linear stapler with cartridge length of 6 cm. BMI, co-morbidities outcome; early and late complications were recorded postoperatively. The follow-through time of gastrografin from the duodenum to the cecum was studied on the 4th postoperative day. Findings after SG plus procedure were compared to those following SG alone in a group of 40 patients operated during the same period of time.

Results: The patients were followed-up for a median of 6.5 months. There was no early or late mortality. Median BMI and %EWL for the patients at 6 months after SG plus procedure were 31.6 kg/m^2 and 59.9%, respectively. Median BMI and %EWL for patients at 1 year after SG plus procedure were 29.4 kg/m^2 and 77.3%, respectively. These results are significantly better than those observed in the group of patients after SG alone ($p<0.05$). The time required for the gastrografin to reach the cecum after SG plus procedure was significantly shorter than after SG ($p<0.01$). In the late postoperative period, three patients had the side-to-side anastomosis reversed. One patient developed intestinal obstruction due to internal herniation, a second patient developed nausea and malnutrition due to erroneously constructed jejunoileostomy in an antiperistaltic way and a third patient with liver steatosis and possible NASH developed protein malnutrition and deterioration of the liver function. In all these patients the jejunoileostomy was reversed leaving the SG intact, with no further consequences. Nine diabetic patients (3 on insulin) are off medication with normal fasting glucose levels and median HbA1c below 6% at 3 months postoperatively. Significant improvement was also noted in patients with dyslipidemia (7/7 had normal lipid levels at 6 months postoperatively), arterial hypertension and sleep apnea (9/9 did not require any medication and 10/12 reported better quality of sleep with no further need for continuous positive airway pressure, respectively at 12 months postoperatively).

Conclusions: SG plus is a new feasible operation with promising results. It improves weight loss, accelerates passage of nutrients through the small bowel and therefore by stimulating the distal ileum may ameliorate obesity-related diabetes mellitus and other metabolic disorders.

O.105 Endoluminal Surgery (Stomaphyx Device). An Alternative to the Revision Surgery?

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The Authors analyze the results of Endoluminal Gastroplasty "StomaphyX" obese patients already receiving prior to bariatric surgery.The 15 patients in whom technique was used, 4 had previously undergone gastric Sleeve, 10 gastric bypass and 1 placement of a gastric band. All patients remained liquid diet / paste for 3 months postoperatively and were evaluated by Esophagogastroduodenoscopy at 6 months, confirming the maintenance of fasteners. We evaluated the weight loss at 1, 3 and 6 months of surgery as well as the improvement the feeling of satiety reported by all patients pre-application of the technique. The Authors conclude the benefits of endoluminal gastroplasty and advantages of this technique which can be used repeatedly in the same patient.

O.106 Endobarrier™ Gastrointestinal Liner Treatment Rapidly Improves Diabetes Parameters Paralleled by Increased Postprandial GLP-1 and PYY Levels in Obese Type 2 Diabetic Patients

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Background: Excluding the proximal intestine from nutrients by malabsorptive bariatric surgical techniques improves Type 2 Diabetes (T2DM) within days. The gut peptides Glucagon-like peptide-1 (GLP-1) and Peptide YY (PYY) are thought to play a central role in this important improvement. Here, the effects of the EndoBarrier^{TM} Gastrointestinal Liner (EBL), a new minimally invasive duodenal-jejunal bypass sleeve, on diabetes parameters and GLP-1 and PYY were investigated.

Methods: 17 obese T2DM patients received the EBL in combination with a low calorie diet for 24 weeks. Patients were studied prior to and one week after implantation, and prior to and 1 week after explantation. Blood was sampled before and 10, 20, 30, 60, 90 and 120 minutes after a liquid 500 kcal test meal. HbA_{1c}, glucose, insulin, GLP-1, and PYY concentrations were measured.

Results: At explantation, after 24 weeks, patients showed a mean loss of excess weight of 25.3±3.0% (mean±SEM) while HbA_{1c} had improved significantly from 8.4±0.2% to 7.0±0.2% ($p<0.01$). Furthermore, anti-diabetic medication was lowered in most patients (16/17). Interestingly, within one week after implantation, fasting and AUC glucose concentrations were improved (11.4±0.5 mmol/L vs. 8.9±0.4 mmol/L and 1,999±88 vs. 1,535±53, both $p<0.01$). In parallel, AUC PYY and AUC GLP-1 concentrations both increased (2,584±144 vs. 4,112±441 and 4,440±242 vs. 6,448±527, both $p<0.01$). Both at the time of explantation, and one week thereafter, the glucose parameters, fasting and AUC glucose concentrations, remained significantly decreased while the concentrations of PYY and GLP-1 had returned to normal.

Conclusions: EBL treatment resulted in significant weight reduction and rapid and long lasting improvement of T2DM. The observed changes in gut peptides shortly after implantation may be involved in the early improvement. These observations are in line with the so-called hindgut hypothesis, which attributes diabetic improvement, after exclusion of the proximal small intestine, to increased secretion of gut peptides in reaction to presence of undigested nutrients in the distal gut. Other, as yet unrevealed, factors may underlie the sustained effect.

O.107 Effective Modification of Eating Behavior and Weight Loss Using Abiliti™ System in Obese Subjects

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Background: Alterations of eating behavior in obese subjects treated with the abiliti™ System (IntraPace, Inc.) were assessed in an ongoing prospective clinical multicenter trial. The ability™ system is a closed loop gastric electrical stimulation device which features a transgastric sensor to detect food intake and an accelerometer to record physical activity. The stimulator delivers a tailored gastric stimulation in response to food consumption, aiming to induce early satiety.
Methods: The abiliti™ system was implanted laparoscopically. The subjects were seen regularly for weight measurement, review of food intake, activity data and stimulation regimen adaptation. Subjects completed a validated three factors eating questionnaire (TFEQ) before, three months and six months after therapy activation. The questionnaire assesses the *cognitive restraint* (factor 1), which has been shown to be associated with successful treatment of obesity, the *loss of control* (factor 2) which increases the probability of relapse, and *hunger* (factor 3). The analysis compared the three factor scores obtained at 3 and 6 months to the baseline scores.
Results:

- Thirty-four obese subjects ($35 \geq BMI \leq 55$ kg/m^2) underwent successful device implantation. Twenty-seven subjects completed the 6 months follow up.
- Thirty three subjects reached 3 months therapy with a mean excess body weight loss (EBWL) of 15.9% (±9.3) and a mean total weight loss (WL) of 7.2 kg (±4.0). Twenty seven subjects reached 6 months therapy with a mean EBWL of 23% (±11.7) and a mean total WL of 10 kg (±5.5).
- TFEQ performed at 3 months showed a significant increase of factor 1 and a significant decrease of the factor 2 and factor 3 compared to baseline (paired t-test $p<0.001$). The decrease of the factor 2 and factor 3 persisted at 6 months (paired t-test $p<0.001$).

Conclusion: Preliminary results of gastric electrical stimulation using the abiliti™ system in obese subjects demonstrate that the therapy is well tolerated and leads to significant weight loss. We suggest that weight loss is achieved due to the assessed alteration of eating behavior in particular the reduction of *loss of control* and *hunger*.

O.108 Laparoscopic Duodenojejunal Bypass with Sleeve Gastrectomy for Morbid Obesity - A Prospective Trial

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Introduction: Bariatric surgeries are now redefined as metabolic surgeries given the excellent resolution of metabolic derangements accompanying obesity. Duodenojejunal bypass (DJB) with Sleeve Gastrectomy is a novel metabolic surgery based on foregut and Ghrelin hypothesis
DJB with sleeve gastrectomy is proposed as an ideal alternative to RYBG with the stated advantages -

1. Presence of difficult to access gastric remnant in RYGB is at risk of cancer development in high endemic regions. Endoscopic surveillance is easy in sleeve gastrectomy.
2. Preservation of pyloric mechanism prevents dumping syndrome.
3. Reduced alimentary limb tension.
4. Presence of micro pouch which is too restrictive for our population with specific diet pattern

Aim: The aim of this study to prospectively `analyze the short term outcomes of laparoscopic duodenojejunal bypass with sleeve gastrectomy for morbidly obese patients.
Patients and methods: Data from 43 patients who underwent laparoscopic duodenojejunal bypass with sleeve gastrectomy at our institute were taken up for analysis. Inclusion criteria was following the Asian Pacific Bariatric Surgery Society guidelines including those with a BMI>37 or BMI>32 in the presence of diabetes mellitus or another two significant comorbidities related to obesity.
Technique: D1 mobilised and transected preserving the rightgastroepiploic vessels.36 F Sleeve gastrectomy performed and Jejunum divided 50 cm distal to DJ flexure. 75-150 cm alimentary limb fashioned retrocolic and hand sewn end to end duodendojejunostomy done. Intestinal continuity restored with stapled jejuno-jejunostomy. Mesenteric defects closed with non-absorbable sutures .
Results: Study population included 43 patients with 25 males and 18 female patients. Age ranged from 31–52 years. All patients had a minimum follow-up of 1 year;the mean BMI was 49.2.The mean BMI at the end of 6 months and 1 year were 32.1 and 26.2 respectively. the mean excess body weight loss was 72% ,with a 92% resolution of diabetes, 78% resolution of hypertension and 96% resolution of dyslipidemia. One patient developed internal herniation 1 month post op was managed surgically. There was no mortality.
Conclusion: Laparoscopic duodenojejunal bypass with sleeve gastrectomy which combines the principles and advantages of Sleeve Gastrectomy and Foregut Hypothesis is safe and effective with results comparable to Roux en Y gastric bypass in achieving durable weight loss and excellent resolution of co-morbidities at least in the short term. Long term follow up studies are needed.

O.109 Effect of Oral Administration of Palm Oil and Glutamine on GLP1 and Glucose Levels in Type 2 Diabetic Patients Undergoing Duodenojejunal Ileal Interposition Without Gastrectomy

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Introduction: Studies suggest the higher production of GLP-1 triggered by the early presentation of nutrients in the distal segments of the intestine may be involved in the control of post-bypass glycemia (Drucker, 2001). Glutamine is known as one of the most effective stimuli for GLP-1 production when compared to other amino acids. According to Pederson (1975), an increase of GIP in the circulation is mainly observed after ingestion of two major stimuli: carbohydrates and lipids. With respect to lipids, administration of palm oil contributes to weight maintenance. In addition, elevated levels of circulating GLP-1 have been detected.
Objective: To evaluate glucose and incretin levels after oral administration of palm oil and glutamine.
Methods: Twenty adult patients with type 2 diabetes undergoing duodenojejunal ileal interposition without gastrectomy were studied after a mean period of 19.66 months (12–30). After the collection of fasting (4 h) blood samples, 9.1 g of palm oil was administered orally and new blood samples were collected after 1 and 2 h. Serum levels of glucose, GLP-1, PPY, insulin, glucagon, and ghrelin were measured at baseline, 1 and 2 h after palm oil administration. At another time, 30 g glutamine dissolved in 400 ml water was used as the stimulus and the same measurements were performed.
Results: Mean fasting glycemia was 130,71 (60,2 - 281,6) at baseline and 121,6 (43,6 - 248,6) and 112,94 (45,5 - 212), 1 and 2 h after the ingestion of palm oil, respectively, corresponding to a reduction of 6,96% and 13,59%. Regarding glutamine stimulation, glycemia levels were 197,51 at baseline and 181,73 after 1 h, corresponding to a significant reduction of 7,98%.
Discussion and conclusion: The identification of substances that increase the secretion of GLP1 and PPY may be useful for glycemic control in clinical and surgical patients with type 2 diabetes, especially those submitted to ileal interposition and/or jejunal or ileal gastric bypass. Glutamine has been reported to be a potent stimulus for GLP1 secretion by L-cells that are mainly found in the ileal segment. Palm oil has been used as an ileal brake for the control and treatment of obesity, but

there are no reports on its use for the control of type 2 diabetes. Conclusions : the present study showed that the two stimuli contributed to a significant reduction of glycemia at the time points studied. The results suggest that the separate or combined administration of glutamine and palm oil may help control type 2 diabetes.

O.110 Improvement of Glucose and Lipidic Metabolism In Type-2 Diabetes Mellitus (T2DM) Obese Patients after Single-Anastomosis Duodeno-Ileal Bypass with Sleeve Gastrectomy (SADI-S).

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Introduction: Single-Anastomosis Duodeno-Ileal bypass with Sleeve gastrectomy (SADI-S) is a modification of the biliopancreatic diversion with duodenal switch in which after the sleeve gastrectomy a one-loop ileal bypass to the duodenum is performed. Weight loss results in the short term are satisfactory, as well as it is the improvement of comorbidities.
Aim: To analyze the improvement in glucose and lipid metabolism after SADI-S in T2DM severe obese patients.
Patients and methods: Fifty-five diabetic patients, 27 male and 28 female, with a mean age of 51 years (28–71), were submitted to SADI-S in the past 4 years. The mean weight was 120 kg (86–164) and mean BMI 44.2 (33–67). The mean duration of diabetes before the operation was 9.5 years (0 to 30). Mean preoperative glycaemia was 179 (91–408) and HbA1c 7.8% (5.4 - 13). Values of C-peptide varied between 0.4 and 8. Mean HOMA was 8.1 and mean insulin blood level 24.7. Twenty-two patients were on insulin therapy. Seventy-six percent of the patients had abnormally high triglycerides level, and 33% had hypercholesterolemia. Mean preoperative HDL was 42.9 and mean LDL 99.0, with 38% and 44% rates of abnormal values respectively. Patients were submitted to SADI-S with 200–250 cm of common cannel.
Results: Mean excess weight loss was 76% at 6 months, 92% at 1 year, 113% at 2 years, and 95% at 3 years. Postoperative glycaemia fell to 94.3, and HbA1c to 5.3% in the first year, 95.3 and 5.2 in the 2nd year, 85 and 5.3 in the 3rd year and 75 and 4.5 in the 4th year. Only 2 patients (3.6%) had abnormal glucose and HbA1c levels in the first year, and 2 patients (3.6%) maintained, though decreased, antidiabetic therapy. Mean long-term insulinemia fell to 2.94 and HOMA to 1.08. Mean postoperative triglyceridemia fell to 113.3 and mean cholesterol to 131.4. 90% of the patients had a normal triglyceride value in the first year. There was little change in HDL abnormal rates, while LDL returned to normality in 90% of the patients.
Conclusions: SADI-S as a treatment for severe and morbid obesity improves or resolves diabetes in all T2DM patients, and improves dyslipemia in almost 90% of the patients.

O.111 Metabolic Results of Sleeve Gastrectomy with Enteral Bypass (SGEBP) in Patients with BMI >35

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Background: In 2004 a new technique for the treatment of morbid obesity was created in Hospital Dipreca, Santiago, Chile. The objective is to evaluate the Sleeve Gastrectomy with Enteral Bypass (SGEBP) as a surgical technique for the treatment of Type 2 Diabetes (T2D) in patients with BMI >35.
Methods: Prospective case series. Patients with body mass index >35 kg/m^2 and T2D underwent a SGEBP between 2004 and 2010 at DIPRECA Hospital, in Santiago, Chile. SGEBP consists in creating a gastric tube preserving pylorus and then performing a jejunum-ileal anastomosis 300 cm distal to the Treitz angle. Weight loss, complete and partial resolution of T2D is reported. The statistical analysis was made with the Stata/SE 10.1 Software.
Results: 35 patients matched the inclusion criteria with a mean age of 52 (33–67) years and 65.3% female. Mean preoperative BMI was 40.1 kg/m^2 (35.1-53.4). Median surgical time was 130±30 min. In 71.4% of cases laparoscopic approach was utilized, 20% open approach and 8.6% conversions. Median postoperative stay was 3 days. The follow up was 60 months. The mean BMI at one and three years was 29.2 and 30.5 respectively. Complete resolution of T2D was achieved in 91.4% and partial resolution in 5.7% (2/35) of the patients. Three patients were insulin-dependant and 6 months after surgery two of them were with no medication and normal levels of HbA1c. There were complications in 5 patients (14%) and one patient died of anastomotic leak at the beginning of the series.
Conclusion: SGEBP is an effective technique in terms of resolution of T2D and weight loss in patients with BMI >35.

O.112 Modified Gastric Bypass as Treatment for Type 2 Diabetes Mellitus in Patients with a BMI between 30 and 35 KG/MT^2

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Introduction: Bariatric procedures are indicated in patients with T2DM and BMI over 35 kg/mt^2. However, the effect of these procedures in metabolic control of patients with BMI below 35 kg/mt^2 is currently under investigation.
Objective: Assess the results of modified gastric bypass as primary treatment of T2DM in patients with BMI between 30 and 35 kg/mt^2, during a 2 year follow-up period.
Materials and methods: Prospective protocol that included patients with T2DM and BMI between 30 and 35 Kg/mt^2, who underwent modified gastric bypass, with a 2 mt biliary limb and 1 mt alimentary limb, between July 2008 and October 2010. Criteria for remission was glycosylated haemoglobin below 6,5 and normal glycemia without using any medication.
Results: Twenty seven patients were included, 14 women and 13 men, with an average age of 49 years (34–66) and mean BMI of 33,2 Kg/mt^2 (30,1-35). The mean time of progression of type 2 diabetes was 5,5 years. Two of them were insulin dependant and 25 were using oral hypoglycemiants agents (OHA).The preoperative median glycemia was 128 mg/dl, glycosylated hemoglobin 7,7% and C-peptide 3,5 ng/ml. After 24 months of follow-up, glycemia descended to 85,7 mg/dl, glycosylated hemoglobin to 5.9%, BMI to 24,1 and the beta cell activity increased in 40%. As well, 26 patients (96,3%) met criteria for remission and 1 (3,7%) improved his metabolic condition. This patient was insulin dependant prior to the surgery, and after 2 years he presented a normal glycemia and glycosilated haemoglobin, using low doses of OHA. Non of our patients remained in the same condition or worsened.
Conclusions: Modified gastric bypass represents a safe and effective procedure in controlling glycemia and weight in patients with T2DM and BMI<35. These results remained stable during a 24 month follow-up.

O.113 Gastric Bypass after Endoscopic Duodenojejunal Bypass in Morbid Obese and Diabetic Patients: Early Results

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Introduction: The duodenojejunal bypass sleeve (EndoBarrier) is an endoscopically placed and removable intestinal plastic liner that creates a duodenal bypass resulting in improvement of obesity and type 2 diabetes. Its use to promote weight loss and improve glycemic levels before bariatric surgery has been reported.
Aim and method: The aim of this study was to evaluate the results after the gastric bypass performed on after the sleeve removal. Sixteen patients (13 female and 3 male) morbid obese and diabetic patients, with an average age of 48 (30–57) years old, were submitted to sleeve implantation. The mean BMI was 52.6 (41–65) kg/m^2 and mean HbA1c levels of 7.9% (5.9-10). The sleeve implantation was maintained

for a mean period of 5.8 (4–12) months. Mean excess weight loss until the explantation of the device was 30.9% (17–52) and improvement of HbA1c levels was observed in 10 (62.5%) patients (average decrease of 1%). After a mean period of 4.4 (2–9) months the patients underwent open gastric bypass. In this meantime, weight regain was observed in 14 patients (average of 7 Kgs or 31.3% of total weight loss), which was not associated with an increase of HbA1c levels.
Results: There were no major complications after surgery and mean excess weight loss after mean follow-up of 5.7 (5–7) months was 35.4% (24–54) with an average decrease of 0.8% in HbA1c levels.
Conclusion: We conclude that gastric bypass promotes similar weight reduction and type 2 diabetes amelioration when compared to endoscopic duodenojejunal bypass sleeve for a similar time interval.

O.114 Midterm Effects of Sleeve Gastrectomy on Obese Indian Patients with Metabolic Syndrome

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Background: Though Sleeve Gastrectomy (SG) is becoming increasinglypopular, data on its effect on Metabolic Syndrome (MS) parameters is scarce.
Methods: Retrospective study of prospectively collected data of Obese Indian-patients with MS as per IDF guidelines, subjected to SG, between January 2005 to January 2008, was conducted in January 2010.A total of 45 patients with follow-up of 2 to 5 years, with M: F 22:23,BMI range 55±25 kg/m^2, waist circumference 145 ±55 cm with 2 or more parameters among Hypertension, Diabetes Mellitus or Impaired Glucose tolerance, Triglycerides>150 mg/dl or HDL<40 mg/dl in Men / 50 mg/dl in women were included in this study. The post operative data of same parameters of these patients was compared and analyzed.
Results: Follow-up after 2 to 5 years, showed a significant reduction BMI as well as significant improvement in all the other parameters of the MS. The improvement in parameters of MS and BMI would clearly reduce the long term morbidity and mortality associated with MS in such patients.
Conclusion: SG, can be a safe and effective option for Obese Indian patients with MS. Long term studies and comparative studies with other modalities are needed to prove the same.

O.115 Treatment of Type-2 Diabetes Mellitus with Single Anastomosis Duodeno-Ileal Bypass (SADI) in the Non-Obese Animal

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Aim: To analyze the results of a Single Anastomosis Duodeno-Ileal (SADI) bypass for the treatment of type-2 diabetes mellitus (T2DM) in an experimental model of non-obese Sprague-Dawley (SD) rat with streptozotozin-induced diabetes.
Material and methods: New-born SD rats were submitted to intraperitoneal injection of 100 mg/kg streptozotozin to induce a T2DM-like disease. After confirmation of the diabetic condition, rats were submitted to SADI or a sham operation. SADI consisted on a loop duodeno-ileostomy performed at the distal 2/5 of the total intestinal length. A control group of non-diabetic animals were submitted to the same SADI operation. One week before the operation and one month after it, response to oral overload glucose was studied with 3g/kg oral glucose administration. Blood was extracted from the jugular vein at 10', 30', 60' and 120' from the glucose administration. Basal blood samples were collected at 0' and 30' for plasma determination of insulin, GLP-1, glucagon, leptin, ghrelin, GIP and 3–36 P YY. A Wilcoxon test was used for non-parametric variable comparisons.
Results: Plasma levels of insulin and GLP-1 were significantly increased in diabetic animals submitted to SADI: preoperative insulin 31.2 (23.4 - 101.9), postoperative insulin 92.8 (67.2 - 119.9), p=0.045; preoperative GLP-1 22.4 (9.2 - 53.23), postoperative GLP-1 66.3 (46.8 - 95.9), p=0.045. In animals submitted to a sham operation or in non-diabetic rats, there were no such differences. Glucose overload curves were also improved after the operation in diabetic rats: at 120' preoperative value was 317 mg/dl (255–383) and postoperative value was 255 mg/dl (166.5 - 349), p=0.08. There was no weight change in the operated animals.
Conclusions: SADI stimulates the secretion of insulin and GLP-1 and improves glucose overload curve in diabetic rats. The technique does not affect the animal's weight, so it is probably adequate for non-obese T2DM patients.
The present study has been financed with a grant from the MMA foundation.

O.116 Evaluation of the Role of Jejunum in 140 Patients With Diabetes Mellitus Type II Submited to Biliopancreatic Diversion (Duodenal Switch and Scopinaro), Roux-Y Gastroplasty and Revisional Surgery

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Background: To evaluate the effect: Biliopancreatic diversion Scopinaro (BPD / S), biliopancreatic diversion Duodenal Switch (BPD / DS), the Roux-en-Y gastric bypass (RGB) and revisional RGP (RRGB), the rate of serum glucose in over weight patients with diabetes mellitus (DM).
Material and methods: We studied 140 patients with DM. Group A (BPD / S) -48 patients, Group B (BPD / DS) -42 patients, group C (RGB) -15 patients, Group D (RRGB) -25 patients operated between 01/2001 and 01/2009. The BMI range: Group A from 29 to 51 kg / m², Group B from 29 to 49 kg / m², Group C from 32 to 44 kg / m², Group D 31 to 41 kg / m².
Results: Blood glucose ranged from 160 to 300 mg% preoperatively, with an average of 230 mg%. Normalization was: in Group A from 24 hours to 12 weeks in group B from 4 to 18 weeks. Groups C and D showed no normalization of blood glucose in all patients.
Conclusions: There was 100% in control of DM II in patients undergoing BPD / S and BPD / DS that cannot be explained only by loss of weight. Patients in Group C and Group D had improved with the elimination of insulin, but these have not achieved glycemic control with no drug treatment, suggesting that food contact with the jejunum in bariatric surgery hinders the control of DM II.

O.117 Brown Adipose Tissue Before and After Bariatric Surgery

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Background: Brown adipose tissue (BAT) can dramatically increase energy expenditure. Dysfunctional BAT could play an important role in the development of obesity and type II diabetes. Therefore, manipulating BAT activity could be a new target to fight the metabolic syndrome. To determine the role of BAT in obesity, we observed morbidly obese patients before and one year after bariatric surgery. Morbidly obese subjects report an increased cold sensitivity after weight loss established by bariatric surgery, suggesting adjustments in cold response. Therefore we hypothesize that BAT activity increases after bariatric surgery.
Methods: Fifteen morbidly obese subjects awaiting laparoscopic adjustable gastric banding (LAGB) surgery were included (mean BMI 42.1±3.8 kg/m^2, body fat 48.5± 4.5%). PET-CT-imaging was performed to determine BAT activity by uptake of FDG in metabolically active tissue after cold exposure. Therefore, all subjects underwent an individually attuned cooling protocol. This protocol ensures stable cooling just above the individual level of shivering. Currently, one year after weight loss, measurements are repeated.
Results: Three morbidly obese, female subjects showed BAT activity after cold stimulation. Combined data from the current and our previous study (van Marken Lichtenbelt et al., NEJM 2009) showed strong correlations between BAT activity and body composition (P<0.001). Cold-induced thermogenesis (CIT) increased signifi-cantly within the BAT-positive group (n=26) compared to BAT-negative subjects (n= 13) (+15.5±8.9% versus +3.6±8.9%, P=0.001). One year after bariatric surgery the mean decrease in BMI was 28.5±6.3%, with a mean excess BMI loss (%EBMIL) of 74.3±20.5% (range 38.07-104.3%, P<0.001). Currently, BAT activity is re-

determined to explore if BAT is dynamic and possibly recovers after weight loss. These results will soon be available and presented at the congress.

Conclusion: In morbid obesity, BAT functionality is severely depressed. BAT activity after cold stimulation is only present in 20% of morbidly obese subjects, compared to 96% in our previously studied lean and obese group. BAT is inversely related to body composition ($P<0.001$). BAT-positive subjects show significant CIT ($P=0.001$), suggesting BAT is responsible for energy dissipation during cold exposure. These results support cold exposure as a therapeutic target to burn off excess calories in obesity. Besides reducing energy intake as established by bariatric surgery, manipulating BAT activity could significantly increase energy expenditure.

O.118 Metabolic Intestinal Bypass-Surgery for Type 2 Diabetes in Patients with BMI<35 kg/m^2. Comparative Analysis of 16 Patients Undergoing either BPD, BPD-DS OR RYGB

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Background: Metabolic surgery for type 2 diabetes mellitus in patients with low BMI is a novel concept. Early studies show the surgery being safe and effective, but the studies are inconclusive regarding the most effective procedure.

Methods: Metabolic intestinal bypass-surgery was performed in n=16 patients with type 2 diabetes and BMI<35 kg/m^2 (mean age 56 years, range 36–68; 8 females; mean BMI 32 kg /m^2, range 26–34.5). Biliopancreatic diversion with duodenal switch (BPD-DS), BPD according to Scopinaro (BPD) and Roux-en-Y gastric bypass (RYGB) were performed in 7, 5 and 4 diabetic patients, respectively. Mean preoperative duration of medical antidiabetic therapy was 16 years (range 4–40). 13 patients used insulin on average for 6 years (range 1–12), the mean insulin requirement was 92 I.U. per day (range 30–140). The analysis was accomplished retrospectively from data prospectively collected in our data base.

Results: At discharge from hospital, only 3 patients required small amounts of insulin (mean 21 I.U. per day, range 15–30) to keep fasting and postprandial plasma glucose levels below 200 mg/dl. After 1 year, none of the patients used insulin or oral antidiabetic drugs. The HbA_{1c} level decreased for the total patient population from 8.6% (range 5.8-12.1) preoperatively to 6.0% (range 4.3-7.8), 5.7% (range 4.1-7.6) and 5.6% (range 4.1-7.8) after 3, 6 and 12 months, respectively. The HbA_{1c} levels at 1 year were significantly lower after BPD-DS and BPD than after RYGB (5.2%, range 4.1-6.4 versus 6.7%, range 5.8-7.8, $p<0.01$, Δ HbA_{1c} 1.4%, 95% confidence interval 0.5-2.4).

Conclusions: Metabolic intestinal bypass-surgery for type 2 diabetes in low BMI patients is effective. In all patients insulin and oral antidiabetic drugs were withdrawn, the patients did not have to adhere to a diabetes-specific diet. However, HbA_{1c} levels were significantly lower after BPD-DS or BPD than after RYGB one year after operation.

O.119 Favorable Risk-Benefit Profile for the Tantalus® System, a Meal-Initiated Therapy to Treat T2DM

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Background: The majority of T2DM patients cannot be managed by medication alone, thus, metabolic surgery as a treatment for T2DM is becoming more acceptable. However, it is considered as a major intervention with significant drawbacks and side effects.The TANTALUS System, a meal initiated GI stimulator, is implanted in T2DM obese patients using a reversible laparoscopic procedure. The risk-benefit profile of this System was previously demonstrated, however, it was limited to a short period follow up. We present here longer term efficacy and safety data.

Methods: Data from fifty-seven T2DM patients (30F, BMI 37±4 kg/m^2), inadequately controlled by oral anti-diabetic medications, were implanted with the TANTALUS for 2 years or more, were analyzedThe risk profile associated with the procedure and the treatment was generated from adverse event (AE) reports; while the metabolic benefit includes effects on parameters such as HbA1c, weight, blood pressure and lipids.

Results: Procedure related AE such as pain, discomfort, and pocket inflammation were anticipated and considered to a part of the healing process. All procedure related AE were resolved within the post-operative period.Device related events, mainly sensation during stimulation, were resolved by simple device reprogramming. None of the subjects was explanted due to adverse events or system malfunction. Six months data demonstrate clinically significant improvement in all metabolic parameters. This effect was maintained in 89% of the patients 2 years post implantation (n=29). HbA1c or body weight or both showed reductions of up to −3.3% (mean change −0.9%, $P<0.05$) and of up to -16 kg (mean change −4.8 kg, $P<0.05$) respectively.

Conclusions: The long term comprehensive metabolic benefits of TANTALUS therapy for T2DM obese patients outweigh its risks. This system offers a viable alternative treatment option for moderate obese patients failing on conservative treatment for T2DM, by providing glycemic control and a comprehensive metabolic effect.

O.120 Obesity and Metabolic Surgery in Type 1 Diabetes Mellitus

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The prevalence of obesity and type 2 diabetes mellitus is increasing word wide. In 2007 the prevalence of diabetes was 5,9 % (= 246 million people with diabetes), in the year 2025 it's estimated to be 7,1% worldwide (= 380 million people with diabetes).

Obesity surgery is an effective method for treating obesity and diabetes mellitus type 2. This type of diabetes can be completely resolved in 78,1 % of diabetic patients and can be improved or resolved in 86,6% of diabetic patients[1]. Weight loss and diabetes resolution is dependent on the type of surgery performed. But little is known about bariatric surgery in type 1 diabetes mellitus. Only six cases of bariatric surgery and type 1 diabetes mellitus have been described since 2004.

We report of five female obese patients with diabetes mellitus type 1 who had obesity surgery. One patient who underwent Roux-en Y gastric bypass was 50 years old, had had diabetes for a period of 21 years and was treated with intensive-insulin therapy and metformin. One other patient had sleeve gastrectomy. At surgery she was 38 years old, had had diabetes since 19 years and controlled her diabetes with CSII (continuous subcutaneous insulin infusion) and metformin. Three patients had biliopancreatic diversion with duodenal switch (BDP-DS). At surgery they were 42, 43 and 52 years old and had had diabetes since 12, 8 and 25 years respectively. They were also treated with an intensive insulin-therapy.

Our results showed a remarkable weight reduction as well as an improvement in their blood glucose control and the insulin requirement in the follow-up year after surgery. Pre-surgery the BMI of our five patients ranged between 37,3-43,0 kg/m^2 and improved to 28,4-29,0 kg/m^2 one year after surgery. HbA1c decreased from 7,4-9,8% pre-surgery to 5,7-8,5 % after one year post-surgery. The insulin requirement (units per kg body weight) was reduced from 0,72-1,13 IU/kg pre-surgery to 0,14-0,62 IU/kg after one year.

The results are impressive and show an improvement in insulin sensitivity following obesity surgery. However, an optimal blood glucose control still remains very important in the therapy of diabetes mellitus type 1 to avoid long-term complications. Obesity surgery is an effective method not only for type 2 diabetes but also for obese type 1 diabetes patients.

[1] Buchwald H, Estok R, Fahrbach K et al. Weight and type 2 diabetes after bariatric surgery: systematic review and meta-analysis. *Am J Med 2009;* 122(3):248–256.e5

O.121 Depression in Morbid Obesity is Associated a with Worsening Metabolic Profile, not Ameliorated by Treatment with Selective Serotonin Reuptake Inhibitors

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Introduction: Obesity is often associated with a higher risk of depression and insulin resistance (IR). Whether IR, and features of the metabolic syndrome, is a consequence or cause of the neuronal deficits leading to depression is still unclear. In obese patients other, as yet unknown, common mechanistic mediators may also be responsible for both the IR and depression. Therefore, the aim(s) of this study were to compare blood pressure, insulin sensitivity, lipid profiles, and adipokines in morbidly obese patients, without and with diagnosed depression, being treated with selective serotonin reuptake inhibitors (SSRIs).
Methods: In a cross-sectional study forty, female, morbidly obese (all body mass index, BMI >40 $kg.m^{-2}$), non-diabetic, Caucasian subjects were investigated (30 without depression and 10 patients with diagnosed depression). Age, BMI and blood pressure were recorded and fasting plasma concentrations of glucose, insulin, lipids and adipokines determined. HOMA index of insulin resistance was calculated as the product of fasting plasma glucose (mmol/l) and insulin (mIU/ml) divided by 22.5.
Results: All the patients with depression were treated with SSRIs. The groups (without and with diagnosed depression) were not significantly different in BMI, age, systolic blood pressure, fasting plasma glucose, total cholesterol, LDL-cholesterol or the adipokines (adiponectin, leptin or interleukin-6). However, even in this morbidly obese cohort, depression was associated with further significant elevation in diastolic blood pressure ($p=0.03$), lower HDL-cholesterol ($p=0.03$), higher triglycerides ($p=0.001$), higher insulin ($p=0.04$) and HOMA index of insulin resistance ($p=0.05$).
Conclusion: In a morbidly obese cohort depression and/or its treatment with SSRIs appeared to have an added detrimental effect on diastolic blood pressure, insulin resistance and dyslipidaemia, while markers of inflammation and adipose tissue secretory function were unaffected. Therefore, morbidly obese subjects on SSRIs require closer monitoring for risk factors of metabolic syndrome and the additional effect of depression on the increased metabolic risk suggest other mechanistic pathways.

O.122 Roux-En-Y Gastric Bypass Affects the Preference for High Fat Food in Rats and Humans

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Objective: Food preference changes after gastric bypass. We aimed to investigate how gastric bypass reduces the intake of and preference for high fat food.
Methods: Dietary intake was registered in patients randomised to gastric bypass (n=9) and vertical-banded gastroplasty (n=7) before and six years after surgery. Rats (n=26) were randomised to bypass or sham-operations and tested for their preference for low fat or high fat chow. Other groups of rats were tested in two bottle preference experiments with different concentrations of Intralipid® 10 days (n=30) or 200 days (n=20) after surgery. The brief access taste test was used in gastric bypass and sham operated rats (each n=8) to examine the licking responses to Intralipid®. Conditioned taste aversion was tested using corn oil given by gavage (n=38) or the GLP-1 receptor agonist exendin-4 injected intraperitoneally (n=28).
Results: Six years after gastric bypass the proportion of dietary fat in patients was significantly reduced compared to patients with vertical-banded gastroplasty ($p=0.046$). Bypass, but not sham-operated rats reduced total energy and fat intake ($p<0.001$), but increased normal low fat chow consumption ($p<0.001$). Moreover, in contrast to sham-operated rats, bypass rats did not prefer Intralipid® concentrations above 0.5% in the two bottle preference test ($p=0.005$), but there was no difference in appetitive or consumatory behaviour in the brief access test between the two groups ($p=0.71$). GLP-1 levels are raised after gastric bypass and an oral gavage of a small volume of corn oil in gastric bypass rats induced a conditioned taste aversion as it was seen after exogenous administration of the GLP-1 receptor agonist exendin-4 (2 μg/kg intraperitoneal) in unoperated rats.
Conclusions: Decreased preference for fat may contribute to long-term maintained weight loss after gastric bypass. Postingestive effects of high fat nutrients resulting in conditioned taste aversion may partially explain this observation, potentially mediated by the exaggerated endogenous postprandial GLP-1 responses after gastric bypass.

O.123 Adequate Patient Selection

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Background: The key to success in bariatric surgery is patient selection, preparation and follow-up. There are certain factors we take into consideration when choosing the ideal procedure. These are: excess weight loss percentage and complication rate of the procedure, patient's age, body mass index and comorbidities, patient's goals and expectations and patient's knowledge about the procedure. The gastric plication, as a restrictive procedure, requires a support group and strict follow-up by the multidisciplinary team. It is important to prepare the patient before the surgery in their physical activity and eating habits. Adequate patient selection will guarantee better results in excess weight loss and complication rate.
Methods: When selecting a patient for gastric plication, age, BMI, comorbidities, lifestyle, and the ability to modify eating habits are an important factor. Being obese can also be a risk factor for GERD. Restrictive procedures, such as the gastric plication, can increase these symptoms; therefore, we must pay special attention to patients with GERD symptoms. Patients with Barret's esophagus or with a large hiatal hernia are not considered candidates for this procedure. Patient education is also needed in order to have good results and avoid complications. We may encounter suture line disruption with gastric obstruction and gastric fundus perforation if there is vomiting during the first few weeks post-op.
Results: The results in gastric plication are comparable to those in sleeve gastrectomy with a lower complication rate. It is an excellent option for patients with a BMI over 50 with comorbidities or in patients with a BMI below 35.
Conclusions: Patient selection and education play an important role in having good results and less complications in the gastric plication. This obliges us to pay special attention to this initial phase in the treatment of the obese patient.

O.126 Gastroplication: How to Prevent Complications

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Introduction: Gastroplication is a new procedure being discussed in last few years.
Materials and methods: Literature on gastric plication, anatomy of stomach and complication of sutures was reviewed.
Aim: To try and design standardized steps so as to decrease complication of Gastroplication (gp)
Observation: Even though GP is supposed to be a lesser morbid procedure, its post - operative morbidity can be significant in form of GERD, reflux, nausea / vomiting, / obstruction, perforation, dilatation, inadequate weight loss etc Diatal obstruction, beaded structure, axial rotation, ischemic/ pressure necrosis could be some reasons for the same.
Conclusions: GP is showing early encouraged results but should be performed with caution.

O.130 Initial Expirience with 259 Cases of Gastric Plication Surgery

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Background: Total vertical gastric plication (TVGP) is a new surgical technique that falls into the restrictive procedure category and has quickly gained interest in the bariatric community since a few initial studies have shown favorable results in the short term. Restrictive procedures involved the use of a foreign material, stapling devices or partial gastric resection, the TVGP surgery only involves shape modification of the stomach to achieve restriction by folding the greater curvature of the stomach inward with suture materials thus reducing gastric capacity.

Methods: A total of 259 gastric plication surgeries by the same surgical team in a single bariatric center have been performed from July 2010 to March 2011, the surgical technique involved a 2 layered complete plication of the greater gastric curvature including anterior and posterior gastric surface, starting 1 centimeter from the esophageal gastric junction, ending 3 to 4 centimeters from the pylorus.
Results: Of the 259 patients (Mean BMI 40.2 kg/m²), 21 had conversions from gastric band to gastric plication surgery. Mean surgery time was 55 Minutes ranging from 32 to 125 minutes. Mortality rate is 0%. Surgical complications occurred in 8 patients (2 patients with intraabdominal bleeding that required surgical revision and blood transfusion, 2 cases of upper GI bleeding from ulcer formation in the plicated stomach and 4 cases of post operative obstructions that required redoing the plication in 3 patients and reversal in 1). During a 3 to 6 months follow-up period of 118 patients (104 with no previous gastric surgery and 14 with a previous adjustable gastric band) we found a mean 42% EWL (range 5% to 72%). Of the 118 patients, 8 have undergone revision surgery to further plicate the stomach because of complete loss of restriction (6 patients with previous gastric band surgery and 2 in the group with no previous surgery), none had complications during revision surgery.
Conclusion: Although long term data on gastric plication surgery is still not available, our initial experience with this procedure surgery has offered positive results. Additional studies and long term follow-up are needed to further define the clinical applications of this procedure

O.131 Eleven Years Experience about the New Technique "Laparoscopic Vertical Gastric Plication" in Morbid Obesity Introduced the First Time in the World

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Aim: The aim of this study is to present eleven years experience of the new technique (vertical gastric plication) in decreasing gastric volume with long time results of it.
History: I started to find new restrictive technique and examined plication with different types in the stomach of sheep at 2000. I started plication in voluntary patients with just anterior plication at 2000. Based on the result of patients I changed 3 times the detail of technique.
Method: Three 5 mms and one 10 mm trocars usually use. Dissection started at the greater curvature of stomach behind the pylorus and continued to release all of it to 2 cm to His angle. All of vessels were ligated by ligasure.
Continuous suturing from cardia of stomach to behind of pylorus performed. Plication used from anterior wall of the stomach to posterior wall (inversion of greater curvature in the stomach). 00 nylon used and the bulk of each stitch was 1.5 cm with 1.5 cm interval. To preserve the released fondus at place, I usually fix it by adding the deep sutures to main row of sutures (two rows by one suture).
Result: In 620 middle aged (Mean: 28 years old,) cases; mostly female (F/M=500/120) and with average BMI=42.7 (59–35) this technique used during 11 years by one surgeon, Tehran, Iran, 2000 to 2011.
In all of these cases after 3 to 4 spoons eating; they get thirsty and even one spoon more makes a sharp pain, which inhibit to eat.
All of patients were on diet and exercise as the order; except 109 cases that excluded from our study due to lack of any relation to them. The mean weight loss in our patients is 20% of EWL (Excessive Weight Loss) after one month of operation (475 cases), 60% after 6 months (354 cases), 62% after 12 months (235 cases), 65% after 24 months (127 cases), 57% after 36 months (103 cases) and 56% after 48 months (75 cases).
The potential of eating has increased from 3 to 4 spoons at the first week to 6 to 8 spoons after 2 years and 10 after 3 years. This means that the weight loss curve is prominent in first 6 months but for the next period to three years is less; although the end results of weight loss is the same as other techniques.
The mean time of operation is 81 minutes (49–152) and all of them discharged from hospital after 3 days of operation (average time). There were not any emboli, any intolerance and any mortality.
Five reoperation cases due to micro perforation (3 cases), obstruction at suture knot (1 case) and permanent vomiting due to adhesion between traumatized liver and stomach (1 case) performed. The rate of regain was 15% after 4 years (11 from 75 cases) of operation, 30% after 7 years (10 from 35 cases) and 50% after 10 years (5 from 10 cases).
Conclusion: The percentage of EWL in this technique is comparable to other gastric volume restriction methods with limited rate of complications after operation that is very important in morbid obesity patients (mortality 0%, reoperation 1% and unrelated morbidity 1%).

O.132 Laparoscopic Gastric Imbrication Versus Sleeve Gastrectomy - A Prospective Single Blind Randomized Trial

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Background: Laproscopic Sleeve Gastrectomy is commonly performed treatment for Morbid Obesity. Gastric Imbrication (Gastric Plication) is a new procedure with less invasive with higher learning curve.
Objective: To compare the surgical outcome after sleeve gastrectomy and gastric imbrication in patient with morbid obesity.
Methods: This was a prospective randomized study conducted at Asian Surgicentre, Ahmedabad from September 2009 to September 2010. The subjects comprised of 30 patients with morbid obesity having BMI more than 35 kg/m^2 from. The option for surgery was chosen by randomization. The study was approved by local Independent Ethical Committee. Weight, height, and BMI of all the patients were recorded before surgery. All the associated co-morbidities with duration were recorded. The patients were followed up 1 month and 3 monthly there after till one year of surgery.
Results: Among 30 patients, 16 and 14 patients were operated by sleeve Gastrectomy and gastric imbrication respectively. All patients have completed six month follow up. 10 (33.33%) patients have completed one year follow up.
After six month mean excess weight loss in LSG and LGI was 35% and 30%. Mean excess BMI loss was 31.11% and 24.44% respectively.
After one year mean excess weight loss in LSG and LGI was 49% and 45%. Mean excess BMI loss was 35.56% and 26.66% respectively.
One patient developed gastric perforation other than the suture line and required re-laparoscopy ,suture removal and closure of gastric perforation. There was no mortality.
Conclusion: Both procedures are effective in reducing weight but none of them are free of complications in form of perforation and leak.. It is clear that gastric Imbrication is the better procedure for people who want to have a reversible procedure but at the same time if there is perforation we have to undo the procedure and patient will be having normal stomach without any weight loss procedure and suffer morbidity due to perforation . More studies to be required for long-term outcome.

O.133 Assessment of Perioperative Complications in Laparoscopic Bariatric Surgery in 720 Consecutive Patients

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Background: Complications, either peri-operative or delayed occur frequently. Early recognition of these complications and careful attention to details are very important in this group of high-risk patients. To improve decision making in the treatment of obesity, the risks of bariatric surgical procedures require further characterization. The aim of this study was to characterize surgical complications of our group.
Methods: Our prospective database from October 2006 to October 2010 was reviewed. 1 Study of 30-day outcomes in consecutive patients undergoing laparoscopic bariatric surgical procedures at Hospital Clínico del Sur. A composite end point of 30-day major adverse outcomes (including death; venous thromboembolism; percutaneous, endoscopic, or operative reintervention) was evaluated among patients undergoing laparoscopic bariatric surgery (LBS).
Results: There were 720 patients who underwent bariatric laparoscopic surgery, Average age was 37 years (15–69); 76,2 % of patients were females; median body-mass index was 39,1 kg/m2. A laparoscopic Roux-en-Y gastric bypass (LGBP) was performed in 97 patients (13,5 %), and laparoscopic sleeve gastrectomy (LSG) was performed in 623 patients (86,5 %). There were no postoperative deaths. The 30-day rate of patients had at least one major adverse outcome was 4.86 % (35 patients). In this group 23 patients correspond to leakage (3.19%). All leaks occurred in the group of LSG. Of the leaks only 3 patients were operated. The remaining 20 patients were

treated with non surgical procedures (87%). Nasojejunal feeding tube was used in 12 patients (60%) and 8 patients required parenteral nutrition (40%). Covered stents were used in 5 patients (25%), of which one required early removal. Leakage cured at 17.6 days (range 6–55). Of all patients in 4 of them had to re-operation (0.55%), 3 due to leakage and one for instrumental perforation of the small bowel. Two patients required laparotomy. One of them for injury of the aorta by trocar and the other due to spleen injury that required splenectomy.

Conclusions: In our experience, laparoscopic bariatric surgery is a procedure that has a low complication rate and can be explained because it is performed at a high volume of patients (180 patients per year). The incidence of reoperation in our serie is low.

O.134 An Analysis of the Cause and Management of Abdominal Pain in Patients Who have Previously Undergone Laparoscopic Roux-En-Y Gastric Bypass

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Background: Postoperative pain is common in patients who have undergone Roux-en-Y gastric bypass (RYGB) being readmitted or requiring outpatient investigation. In this study we examine the cause, investigation and treatment of abdominal pain in these patients.

Methods: Between Sept 2007 and Feb 2011 we performed 365 bariatric procedures (RYGB 244 (67%), gastric bandings 104 (28%) and sleeve gastrectomies 17 (5%). 49 (20%) patients had RYGB under our care and 4 operated elsewhere developed abdominal pain (M:F ratio 8: 42, median age 46.4 yr (range 24 to 70 yr). Eight (15%) were seen in the A &E, 9 (17%) patients required emergency admission and 35 (58%) were investigated and treated as outpatients.

Results: Causes of abdominal pain were peptic ulcers15 (28%), gallstones 9 (17%), abdominal pain of unknown cause 6 (11%), port site hernias 3 (6%), port site pain 3, gastro-gastric fistula 2 (4%), stenosis of the entero-enteric anastomosis 2, abdominal pain which resolved spontaneously in 2, alimentary limb sump 2, constipation 2, chest infection 2, appendicitis 1, acute pancreatitis 1, internal hernia 1, para-umbilical hernia 1, kinking of the entero-enteric anastomosis 1, recurrent peritonitis of unknown cause 1, small bowel obstruction due to a stent 1, wound infection 1. Some patients had more than one cause of pain.

Discussion: The commonest causes of abdominal pain were gallstones and peptic ulceration (44%). For patients with gallstones or peptic ulcers and frank small bowel obstruction, investigation and management are relatively straightforward. The greatest difficulty in identifying the cause of abdominal pain is for the group of patients with a normal upper GI endoscopy, abdominal ultrasound and CT scan, upper GI series and possibly laparoscopy: 6 (11%) patients in this series. For these patient further investigation in the form of MRI, to identify ischaemia, selective barium studies, to identify the area from which the pain arises, and endoscopy to the level of the entero-enteric anastomosis may be helpful. Repeat investigations, especially barium studies, can be helpful as symptoms may change over time. A major disadvantage of laparoscopy is that it only allows visual inspection and not palpation of anastomosis to help in assessing patency and may lead to narrowing being overlooked.

Conclusions: For many patients the source of postoperative pain can be easily identified. For a small number of patients the cause of pain can be difficult to identify and treat and may require diligent and exthaustive investigation. If all specific investigations fail to identify a clear abnormality (as they may not be sensitive enough to do) then efforts should be made to identify the source of the pain and consider resection and refashioning any anastomosis so identified. Examination of results is also important in identifying the most common complications within a practice and in initiating changes to eliminate these complications.

O.135 Contribution of Several Risk Factors for Incidence of Post-Operative Incisional Hernia

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Background and objective: Incisional hernias are a frequent problem in laparotomies procedures, and have a clear relation with operation techniques and type of material used. Our aim is to analyze the contribution of other variables to the pathofisiology of the disease, such as abdominal circumference and body mass index.

Methods: Medical records of 395 obese patients who had undergone bariatric operation between January/2004 and December/2009 were analyzed and divided into two groups: incisional hernia patients (IHP) and non-incisional hernia patients (NIHP). The groups were compared regarding pre-operatory Abdominal Circumference (AC), pre-operatory Body Mass Index (BMI), and operative incision length (OIL). Patients' follow-up was of at least 1 year. The results were performed by Microsoft Access® and GraphPad InStat® softwares.

Results: From all patients (395), 339 (85%) were women and 15 (3,7%) had incisional hernia. Mean follow-up was 2.4±1.1 (0.5-5) years. Mean Age was 37.4± 10.7 (16.5-67.4). Mean AC was 120.6±12.6 (84–174). Mean BMI was 41,7±5.2 (33.7-75.1). Mean OIL was 10,3±1.8 (6–23)cm. Mean time for appearance of hernia: 10.3±5.2 (5.2-23.1) months.

Comparisons between IHP and NIHP: Number of women: 13 (86,6%) *versus* 326 (85,7%) [p=0.88]. Age: 37,7±10 (21.6-53.5) *versus* 37,4±10,7 (16.5-67.4) [p=0,80]. AC: 122.4±15.1 (101–155) *versus* 120,5±12.5 (84–174) [p=0.63]. BMI: 42,1±5.8 (35.8-57.3) *versus* 41.7±5.1 (33.7-75.1) p=[0.99]. OIL: 10.1±1.5 (7.5-12.5) *versus* 10.4±1.8 (6–23) p=[0.81].

Conclusions: In this study, there wasn't statistical significance for age or gender regarding prevalence of incisional hernia. Also, there was no correlation between AC, BMI or OIL and the incidence of incisional hernia.

O.136 A Different Approach to Intra-Gastric Laparoscopic Adjustable Gastric Banding Migration

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Background: Obesity is nowadays a serious public health problem, considered a global epidemic. In order to minimize its impact on patients' lives, there have been developed medical and surgical treatments that may be offered to obese patients.

Among the surgical treatments, we found the mal-absorptive surgery, restrictive surgery and mixed procedures. However, whatever the chosen procedure, the patient and surgeon always face risks and complications associated.

Since 2005 the Hospital de Santarém, has been participating in a national program to treat obesity. So, over the last six years we have been doing bariatric surgery. Initially, the intervention chosen was the laparoscopic adjustable gastric banding (LAGB), but since the last trimester of 2009, we started the laparoscopic gastric bypass.

Until December 2010, a total of 108 surgeries were performed, 77 of them were laparoscopic adjustable gastric banding. The results have been quite satisfactory with few complications occurring.

However, during the year 2010, there were 3 cases of migration of the LAGB into the gastro intestinal tract.

Methods: With this work the authors plan to present 3 cases of intra-gastric migration of adjustable gastric band placed by laparoscopy in patients operated on Hospital de Santarém between 2005 and 2010.

Results: The authors do a summary presentation of each of the clinical cases and a brief discussion about the treatment decision.

First patient was a 51 years old woman with a LABG for 15 months. After diagnosing intra gastric migration, the authors and the patient decided for removal by laparotomy and an abdominoplasty.

The second case occurred in a 53 years old man, with symptoms of abdominal discomfort 33 months after surgery. He did complementary exams that showed band migration. It was decided for sectioning the insufflation tube and surveillance in a ward.

Last case a 54 years old woman with intra gastric migration of LABG 8 months after surgery. She has been hospitalized for surveillance and for removal of insufflation port and insufflation tube sectioning.

Conclusion: After consulting available literature and also based on own results, the authors propose a different attitude towards the intragastric migration of adjustable gastric band.

As an alternative to removal by laparoscopy, laparotomy or endoscopy, the authors decided: removal of the port (used to inflate the band), hospitalization for monitoring the patient and await the elimination of adjustable gastric band together with faeces,

as the necessary response to the migration of LABG. The patients evacuate the LABG in a maximum of 2 days, without any additional complication.

O.137 Rebanding for Slippage after Laparoscopic Gastric Banding: Should We Do It?

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Background: Laparoscopic adjustable gastric banding (LAGB) is one of the most performed bariatric procedures. The most common complication associated with LAGB is band slippage. There is a paucity of data whether continuing band therapy or conversion to another bariatric procedure is the best treatment in case of band slippage.
Objective: The aim of this study was to investigate whether continuing band therapy in case of band slippage after primary laparoscopic adjustable gastric banding was independently associated with failure of weight loss.
Methods: This was a retrospective analysis of a prospectively collected database which included all consecutive patients who underwent LAGB between November 1995 and October 2008 at Sint Antonius Hospital, Nieuwegein, the Netherlands. Each patient who underwent rebanding was matched with one patient without slippage and both groups were compared for result of weight loss therapy. To further assess whether rebanding was independently associated with failure of therapy, logistic regression analyses was performed.
Results: During the study period, 627 consecutive patients (514 women and 113 men) underwent LAGB. During follow-up, 88 of 627 (14%) patients were diagnosed with slippage at a median of 23 months (range 0–112) after LAGB (perigastric 63/210=30%, pars flaccida 25/417=6%). The percentage of patients with band therapy failure was non significantly different between the group rebanded for slippage and the case matched group without slippage: 54% (N=44) versus 59% (N=48) (P= 0,43), after a median follow-up of 110 and 100 months, respectively. Rebanding for slippage was not associated with failure of band therapy in multivariate analysis: adjusted OR 1,42; 95%-CI: 0,85-2,38; P=0,18.
Conclusion: Continuing of band therapy for band slippage after LAGB was not associated with weight loss failure during long term follow-up. A slipped band should not primarily be considered an indication for band explantation and subsequent conversion because of expected weight failure.

O.138 Management of Fistulas after Sleeve Gastrectomy

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The most common complication of sleeve gastrectomy is fistula along the stapled line. Its treatment is controversial.
Between January 2006 and July 2010, 364 patients underwent LSG. In the postoperative period nine patients presented a fistula along the staple line; however this series includes a total of 14 cases. The remaining five were operated on in other centers and transferred to our centre for the treatment of fistula. The mean age was 38 years and the mean BMI was 44. The fistula was located at the angle of His in all cases.
The beginning of symptoms was later than 7th post-operative day in 6 patients and before in 8. These 8 benefited from surgery: 4 underwent drainage and surgical closure of fistula, 4 underwent drainage and later prosthesis placement at the site of the fistula. Two of four patients that benefited from surgery only were operated on twice. Conservative treatment was carried out in 6 patients. One benefited from a radiological drainage, one from long-term parenteral feeding. The remaining 4 benefited from an endoscopic. The mortality rate was 0%.The mean hospital stay was 53 days.
The surgical treatment is mandatory when the conditions of patients are unstable and when the fistula is diagnosed before the seventh postoperative day. The radiological or endoscopic procedures are less invasive and recommended when too many post-operative days render the operation field too sticked and the surgery too risky. Often, the combined and sometimes repeated treatment represents the best therapeutic option.

O.139 Indications and Outcomes after Endoscopic Stenting in Managing Postoperative Complications after Bariatric Surgery

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Background: Anastomotic leak, staple line leak and stenosis causing complete obstruction are reported to occur in 5% of patients after Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG). Each of these complications can be treated with partially covered endoscopic stents. The aim of this study is to evaluate the efficacy of partially covered stents in managing these complications.
Methods: A retrospective analysis was performed on prospectively collected data in our bariatric and endoscopic database of patients who had undergone RYGB or SG between Jan 2007 to Jan 2011 (290 patients).
Results: A total of 16 patients (5.5 %) (14 (4.8%) RYGB and 2 (0.6%) SG) had 22 stents placed post operatively. 13 patients (86%) had stents placed after laparoscopy. The indications for stenting were anastomotic leaks in 11 patients (73%), stricture in 3 (20%) , gastro-gastric fistula in 1 (6%) and gastro-cutaneous fistula in 1 (6%). 4 patients had 2 stents placed on separate occasions, due to leaks a which did not heal with the initial stent (2 patients) and leaks followed by stricture (2 patients). The median duration of stent left in situ was 45 days (35–580 days). Complications caused by stents were abdominal pain in 7 patients (47%), oesophageal mucosal avulsion on removal in 2 patients, stent migration in 1 patient and difficulty in removal in 2 patients. Stents were effective in sealing anastomotic leaks in 84% of patients with stents. The gastro-gastric fistula healed. One patient with stenosis following sleeve gastrectomy had temporary resolution of obstruction from the stent and has since had the anastomosis revised surgically.
Conclusion: Endoscopic placed covered stents are effective in treating the majority of anastomotic leaks following RYGB. Its role in managing stenosis needs further evaluation.

O.140 Predictive Value of Tachycardia at Day 1 for Early Detection of Peritonitis after a Laparoscopic Gastric Bypass

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Background: Postoperative peritonitis (POP) after laparoscopic Gastric Bypass (LGBP) is a severe complication that require an early diagnosis. Radiological tests have limited predictive value and the decision for reoperation must often rely on clinical judgement. In this study, we explored the predictive value of the main clinical symptoms for the diagnosis of POP.
Methods: A conservative strategy including early reoperation in case of clinical suspiscion of peritonitis was followed in 402 consecutive LGBP. The predictive value of various clinical parameters at day 1 for POP postoperative was analyzed with uni and multivariate analysis, and ROC Curve analysis.
Results: Sixty seven patients (16.7%) had at least one postoperative complication (Clavien≥2); 39 were reoperated and 24 (6%) experienced a POP. No patient died. In univariate analysis, POP was associated with tachycardia ($p<0,001$), a lower urine output ($p=0,003$), increased oxygen consumption ($p<0,001$) and a suspiscion of anastomotic leak at X ray ($p<0,001$). In the multivariate analysis, only anastomotic leak / X-ray, and tachycardia were independant predictor of POP ($p<0,001$). Sensitivity and specificity of X-ray for predicting POP were 38% and 96%. The ROC curve analysis of cardiac pulse at day 1 distinguished two disctinct cut-off values for the diagnosis of POP (AUC=0,9). Patients with less 100 pulse/mn had a risk of POP<1%. Those with more than120 pulse/mn had a POP in 70% of cases with a specificity of 99%.
Conclusion: Cardiac pulse at day 1 after LGB is an independant predictor of POP. Patients with less than 100 pulse/mn are at very low risk of POP. Tachycardia above 120 pulse/mn is highly predictive of POP and justify immediated laparoscopic revision.

O.141 Merendino Operation for Chronic Fistula Resolution after Vertical Gastroplasty

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The presence of fistulae after vertical gastroplasty (VG) in bariatric surgery is one of the worsted complications. Chronic maintenance difficult clinical or endoscopic closure.
A case of chronic fistulae with several attempts of conservative endoscopic closure is presented.
A young 20 years old girl submitted to VG developed in the first third postoperative day a high gastric fistulae. Since than during two years several endoscopic procedures where performed as endoscopic phrotesis, Surgifix, biological glue and endoscopic closure with Stomafix.
None of the above methods reach the fistulae closure. Due to the long term presence surgical treatment was indicated and interposition of a short jejunal loop between the distal esophagus and upper part of the gastric remnant was performed.
Therefore a modified Merendino's operation was conducted allowing the fistulae closure and maintance of the integrity of the gastric remnant avoiding a total gastractomy.
The procedure is presented as an alternative for the very difficult management of this high risk bariatric surgery complication.

O.142 Endoluminal Vacuum Therapy: A New Approach in Treatment of Proximal Leakage after Laparoscopic Sleeve Gastrectomy

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Introduction: Laparoscopic sleeve grastrectomy (LSG) has become a standard one-step procedure for the surgical treatment of morbid obesity. Although this is an evadable simple operation, complications have been observed. In particular, an anastomotic leakage is not a very common complication but generates a large morbidity. The incidence of anastomoses leakage for primary LSG is reported 1.4% - 2.5%. The complication rate is even higher in patients undergoing previous gastric operation.
Case report: We report the case of a 44-year-old female patient underwent LSG for morbid obesity having a BMI of 44 kg/m². On third postoperative day the patient complained about back and left shoulder pain. A subsequently performed abdominal computer tomography scan diagnosed a proximal anastomosis leakage. The immediately performed re-laparoscopy confirmed this diagnosis. Due to the early appearance of the anastomotic leakage first we tried to sew over the leak and placed percutaneous drainages. Four further laparoscopic lavages were performed. Overall, the general condition of the patient deteriorated. She became septic and had to be treated in intensive care. After the re-suturing was also leaking, this took place on 12th postoperative day; a covered self-expanding stent was endoscopically placed. Because the stent could not completely seal the leakage a gastro-cutaneous fistula occurred via the percutaneous drainage. Therefore on 34th postoperative day the stent was removed and an endoscopic vacuum device (ENDO-VAC) was placed consisting of an open-cell polyurethane sponge placed into the wound cavity and connected to a nasally diverted evacuation tube. The ENDO-VAC was replaced after three to four days. The percutaneous drainage was withdrawn step by step during every ENDO-VAC replacement. The Endo-VAC therapy performed clean wound condition with a remarkable tissue granulation. Within 12 days the wound cavity was reduced so that an Endo-VAC sponge could no longer be placed. Two further endoscopies examination was performed. During the second examination the wound cavity could not be detected anymore. The final gastrographin contrast swallow did not show a fistula anymore. Due to the ENDO-VAC therapy a fast convalescence of the patient was observed and on 62nd postoperative day she was discharged.
Conclusion: Here we describe our initial experiences using ENDO-VAC therapy for treatment a proximal leakage occurred after LSG. In this case this method was feasible and safe. A permanent percutaneous fistula is a common complication occurred in patients with a proximal leakage after LSG. Maybe our first experience suggests that this new concept may be suitable for these patients. However, the immediately used of ENDO-VAC therapy has to be considered critically when observing a proximal leakage, because the direct contact of the ENDO-VAC sponge on the bowel can cause intestinal fistulas.

O.143 Bariatric Postoperative Fistula: A Life-Saving Endoscopic Procedure

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Background: Fistula after batiatric surgery occurs in 0,8% to 7% with high incidence of mortality, reoperations and long hospital stay. Some reasons are well-described such as distal obstruction: stenosis of the anastomosis, restrictive ring and narrowing on *angularis incisura* like a "time machine". Others like stappling of the distal esophagus, His angle ischaemia, tension on the anastomosis, superobesity and comorbidities are also important. A great number of endoscopic procedures have been used to close the fistula, such as biological glue (*tissucol*), stents, *surgisis* and endoclips. The authors describe the feasibility of this new technique called endoscopic internal drainage that avoids reoperations and allows an earlier hospital discharge with no mortality.
Methods: Thirteen patients underwent to an endoscopic internal drainage after bariatric surgery. All procedures were done in the operating room with general anesthesia and antibiotics. The cut of the septum was made with a needle knife or polipectomy snare in order to comunicate the perigastric cavity with the pouch. This technique allows the drainage of the perigastric abscess into the pouch due to its lower pressure after the cut. If any distal obstuction had been present, a dilatation with a pneumatic balloon was performed. An enteric tube was put distally to the fistula and water per oral initiated 24 hours later.
Results: Thirteeen patients were included to endoscopic internal drainage with no mortality. Eight of them (61,5%) were submitted to gastric bypass, two patients (15,5%) to sleeve gastrectomy, two patients (15,5%) to duodenal switch and one patient (7,5%) to a conversion of gastric bypass in duodenal switch. All of them presented with His angle fistula. Six patients with gastric bypass (75%) had stenosis of the anastomosis treated with balloon dilatation. All sleeve gastrectomy and duodenal switch patients (100%) presented with *angularis incisura* stenosis treated with a rigiflex balloon as well as the patient submitted to the conversion for duodenal switch. The number of endoscopic sessions to perform the cut of septum range from 1 (8 patients) to 4 (1 patient), with 2 sessions made in 4 patients. Four patients were submitted to this procedure as a day procedure. Only 1 patient need an endoscopic prosthesis due to an abdominal sepsis after the internal drainage. This patient was discharge 30 days after the procedure. The time for the first endoscopic procedure was on the 7th PO day and the lastest 6 month after the surgery in a patient with a late onset of fistula after duodenal switch.
Conclusions: This new endoscopic procedure is safe, feasible and effective. It avoids reoperations and allows oral feeding and early hospital discharge with no mortality.

O.144 The Management of Refractory Gastroesophageal Reflux after the Duodenal Switch

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Gastroesophageal reflux disease (GERD), already prevalent in obese patients, may be induced or exacerbated by the duodenal switch (DS) because of such factors as failure to recognize a hiatal hernia, creating an excessively narrow gastric pouch at the incisura, or encroaching on the LES by the most proximal firing of the stapler. We previously reported unsuccessful attempts to control post-DS GERD by endoscopic techniques such as Stretta and Enteryx injection. The aim of this study was to evaluate the effect of near-total gastrectomy for truly refractory GERD

In 18 patients with pH proven refractory post DS-GERD (median DeMeester score 48, range 17–132), near total gastrectomy was performed 6.5 years (2–10) after DS, leaving a 5 cm lesser curve pouch comparable to a gastric bypass. Five (30%) had concomitant hiatal hernia repair. Small bowel anastomoses were untouched except in one patient with coexisting malnutrition. Median BMI was 48 (42–62) kg/m2 prior to DS and 34 (29–41) prior to gastrectomy. Median hospital stay was 5 (4–61) days. Major complications included leaks in two patients in whom the DS had been a revisional procedure: both underwent reoperation with drainage and stenting, and in one further patient a leak was suspected but not visualized. There were no deaths: the above three patients had a prolonged course requiring multiple endoscopies and wound dressings, and three patients had early endoscopic dilation and two others required common channel lengthening. Median follow up is 24 (9–63) months. No patient has been lost to follow up. Two patients continue to take acid suppressant medications. All others patients report near total abolition of GERD symptoms. BMI at latest follow up was 29.5 (19–35).

Near-total gastrectomy is effective in abolition of GERD but carries a risk of major complications especially if the DS was not the first bariatric procedure. Dumping is not an issue and malnutrition is rare.

O.145 Are Staged Procedures a Good Choice for Superobese High-Risk Patients? A Case-Control Study

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Introduction: For the last years patients with high risk due to superobesity or to very severe comorbidities were scheduled for a staged surgery. Several papers have reflected that staging the surgery may downscale the surgical risk and reduce morbidity and mortality. Here we compare patients with BMI over 50 kg/m2 who were staged against patients who underwent the complete procedure at a time.

Methods: A retrospective case-control study was conducted. Patients operateted between 2002 and 2010 with BMI over 50 kg/m^2 were eligible. Group 1 represented patients who underwent a Roux-en-Y Gastric Bypass (RYGB) or a Duodenal Switch (DS) at a time. Group 2 included patients who underwent a staged DS of RYGB. We analyzed: weight lose, morbidity, mortality and resolution of comorbidities.

Results: Between 2002 and 2010 800 patients were operated for bariatric surgery in our Institution. 390 had BMI over 50 kg/m^2. 282 were included into analysis, 255 were operated for a RYGB or DS at a time and 17 into a staged procedure. In group 1 RYGB was done in 221 cases, and DS in 34. In Group 2 a Sleeve Gastrectomy was done first, and after 18–24 months 16 patients were converted to DS and 1 to RYGB. Both groups were comparable in terms of age, weight and comorbidities. Initial BMI was 55.71 kg/m^2 (range 50–75) and 57.65 kg/m^2 (range 50–73) respectively. BMI after 12, 24, 36 and 48 months in both groups was: 33.45 and 38.42 ($p=0.002$); 32.64 and 38.89 ($p=0.001$); 33.27 and 36.57 (NS); and 33.27 and 33 (NS). %EWL after those months was: 68.52 and 51.32 ($p<0.001$); 72.38 and 53.66 ($p=0.001$); 69.05 and 55.13 ($p=0.031$); and 65.88 and 70.4 (NS) respectively. Morbidity after surgery was 22.35% in Group 1 and 11.76% in Group 2 (NS). Mortality was 0.39% and 0% in Group 2 (NS). Resolution of comorbidites showed no difference at all points of follow-up.

Conclusions: Staged procedures are an eligible option for patients with superobesity and severe comorbidities. Morbidity and mortality in this cases was lower although difference had no statistical significance. Weight lose was quite different at the beginning of the follow-up, but long term results showed a tendency to be quite similar. Good results in the primary group may have hidden potential benefits of the staged group.

O.146 Short and Long-Term Results of Air-Filled Intragastric Balloon in Obese Patients

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Introduction: The WHO recommends a weight loss between 5% and 15% to reduce the incidence of obesity-related comorbidities. Simple dietary and behavioral measures are in most cases ineffective in long-term control of weight. The intragastric balloon is a temporary endoscopic treatment of mild and severe obesity. In this paper we analyze the device Heliosphere ® BAG in terms of early weight reduction and trend of weight at a distance of 18 months after removal of the device.

Methods: Between November 2006 and November 2010, 45 patients underwent the placement of endoscopic intragastric air-filled balloon . Inclusion criteria: failure to lose weight with a diet program, BMI>30 kg / m² in the presence of obesity-related comorbidity and BMI>35 kg / m² in the absence of comorbidity. Exclusion criteria: no previous dietary treatment; patient unable to participate in a long protocol of follow-up; psychotic disorders, severe depression, personality disorders and eating behavior evaluated by a psychiatrist or psychologist, alcoholism and drug addiction; diseases related to reduced life expectancy; patients unable to take care of themselves and without adequate social and family support. The balloon was left in the stomach for 6 months. All patients were selected by a multidisciplinary team.

The patients underwent a close follow-up by the surgeon and dietitian every month until the removal of the device. At 18 months after removal of the balloon, weight control was performed by telephone questionnaire.

Results: 32 patients completed the 6-month stay of the balloon and showed a mean weight reduction of 12 Kg with a reduction in BMI of about 5 points.15 were contacted by telephone 18 months after device removal: pre-treatment and long-term BMI, weigth and the percentage of excess weight loss (%EWL) were calculated: the mean basal BMI was 40.62 kg / m², mean weight was 113.37 Kg and excess weight was 85%.The mean BMI at the end of 6 months was 35.75 kg / m², the mean weight was 99.75 kg and the %EWL was 26.14%; the BMI at 18 months after removal was 37.28 kg / m², the mean weight was 103.56 kg and the %EWL was 18.2% . No technical problems were recorded at balloon insertion and removal. One case of bowel impaction caused by migration of the device occurred.

Conclusion: Heliosphere® BAG showed good results in the short term and we believe that this finding is secondary to a rigorous and multidisciplinary selection of patients before the procedure.

In the cohort of patients with 18 months follow-up, we observed a minimal weight increase (a mean of 4 kg). In conclusion, this device, within a few months after removal, may offer an advantage as a treatment in preparation for bariatric or other elective surgery in order to reduce surgical and anesthesia risks. Moreover Heliosphere® BAG can offer a potential benefit in the long-term treatment in obese patients with dietary support.

O.147 Bariatric Surgery for the Super-Obese

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Background: Bariatric surgery is accepted as a safe and effective method of weight loss intervention for morbidly obese individuals. However super-obese patients - defined as body-mass index (BMI) of >50 kg/m^2 - are considered to be at higher risk for peri-operative complications.

Aims of study: We look at our experience as a specialised metabolic and bariatric surgery service with super-obese patients and their outcomes.

Methods: From August 2008 to February 2011, 54 patients underwent bariatric surgery at the Singapore General Hospital. There were 11 super-obese patients. Patient co-morbidities, peri-operative course and complications were studied.

Results: There were 4 males and 7 females in the study group. The median weight was 157 kg (range 138–209) and BMI was 57 kg/m^2 (range 52–74). 7 patients had obstructive sleep apnoea (OSA) with 5 patients requiring continuous positive airway pressure (CPAP) when lying supine. 8 patients had type 2 diabetes mellitus or impaired glucose tolerance. All patients were concurrently managed by an endocrinologist, an anaesthesiologist experienced in handling high-risk patients, and screened pre-operatively by a cardiologist and a sleep physician. 7 patients underwent laparoscopic sleeve gastrectomy, 2 underwent laparoscopic Roux-en-Y gastric bypass, 1 underwent a laparoscopic mini-gastric bypass and 1 underwent laparoscopic gastric bypass. All patients received peri-operative mechanical and chemical thromboprophylaxis. There were no conversions. Patients were extubated

immediately after surgery. 3 patients required post operative observation in the intensive care unit for up to 2 days. Two of eleven patients had post-operative complications requiring repeat surgery. The median length of stay in hospital was 5 days (4–15).
Conclusion: Bariatric surgery for super-obese patients is feasible and safe when appropriately managed by an experienced multi-disciplinary team.

O.148 Role of Mini Gastric Bypass as a Single Stage Procedure in Super-Super Obese Patients

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Background: Controversy continues to exist as far as the ideal management of the super- super obese (SSO) patients is concerned. A two stage procedure in the form of Laparoscopic Sleeve Gastrectomy (LSG) followed by Laparoscopic Roux-en-Y Gastric Bypass (LRYGBP) has been suggested by many. We present the results of a study of Laparoscopic Mini Gastric Bypass (LMGBP), as a single stage procedure in 42 super-super obese patients.
Methods: A prospective data base of 42 SSO patients (with BMI above 60 kg/sq m) who underwent LMGBP was accessed. Data regarding the demographics, operative time, hospital stay, complications and weight loss was collected. Follow up was done for a minimum of one year. Average age was 36 years. Average weight and BMI were 168 kg and 63.2 kg/ sq m respectively.
Results: All procedures were performed laparoscopically with no conversion to open. Average operative time was 84 mins. Hospital stay was 2.5 days. Intraoperative complications included a liver laceration in two patients and a short gastric artery bleed in one patient, all managed intra operatively. There were no deaths. Excess weight loss at 1 year was 63.4%.
Conclusion: LMGBP shows good results for weight loss in super super obese patients with a significantly low complication rate. LMGBP can be considered as an effective single stage procedure in the SSO patients. Long term results are awaited.

O.149 Bariatric Surgery for Patients Older than 55 Years

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Background: As age rises, the balance after bariatric surgery drifts away from profit to complications. Therefore most guidelines have an upper limit around 65 years, some even suggest 60 years. On the other hand complication rate decreases when number of procedures are considerable and with increased life expectation, critically review of results of older patients remain necessary.
Methods: Patients aged 55 years or more were identified out of a prospective database. Patient characteristics, operative details, outcome on weight and co-morbidity were collected.
Results: A total of 149 patients older than 55 years at time of bariatric surgery were identified. The majority was female (n=108). Median preoperative BMI was 44.4 Kg/m^2 (range 21–66). The procedures were gastric bypass (n=44), Mason-MacLean (n=15) and gastric sleeve (n=90). Twenty-one procedures were a revision. The bariatric procedure took a median 70 minutes (range 30–242). Complications were 6x leakage, 4x bleeding, 3x pulmonary complications and an abscess and wound infection. Four patients were re-admitted due to dehydration. Median hospital stay was 4 days (range 2–91). Median extra weight loss was 56%. Resolved and improved co-morbidity rates were for diabetes 34% and 62%, hypertension 18% and 59%, sleep apnoea 60% and 33%, hypercholesterolemia 18% and 36%, respectively. A total of 23 patients underwent a subsequent revision. Compared to the group aged 55–60 years, the patients older than 60 years encountered more complications (p=.07). There were no differences in operative variables and proportion of improved co-morbidities, revisions and the percentage of extra weight loss.
Conclusions: Bariatric surgery for patients older than 55 years is feasible and achieves considerable results in weight loss and health improvement. Although the morbidity rate was low, there was a tendency for more complications when older than 60 years, which should be taken into account at the preoperative evaluation.

O.150 Bariatric Surgery is Effective and Safe in Patients Over 55: A Systematic Review and Meta-Analysis

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Background: The prevalence of morbid obesity has risen sharply in recent years amongst elderly patients. Along with a rise in co-morbidities, this can lead to significant deterioration in quality of life. Effective weight loss and reduction in co-morbidities has been convincingly demonstrated with bariatric surgery [1], but there has been a reluctance to offer such surgery to older patients due to concerns of peri-operative complications and poor results. We performed a systematic review and meta-analysis of the published evidence with regard to bariatric surgery in older patients.
Methods: An electronic search was conducted of MEDLINE, Pubmed, and the Cochrane Library databases and article bibliographies from 1990 to December 2010. The search terms used included bariatric surgery, obesity surgery, metabolic surgery, gastric bypass, gastric band, elderly, and advanced age. We included studies published in English where the results were were broken down by surgical procedure and technique, reporting a minimum 1 year follow up for patients aged≥55.
Results: After an initial screen of 2543 titles, 298 abstracts were reviewed, and 23 studies met the inclusion criteria. 10 studies of Laparoscopic Roux-en-y gastric bypass (RYGB) included 664 patients (mean BMI 46.9 kg/m^2); 11 studies of laparoscopic adjustable gastric banding (LAGB) reported data on 611 patients (mean BMI 44.2 kg/m^2). Average patient age was 62.7 years (range 55–83 years). Meta-analyses of BMI reductions indicated sustained and clinically significant BMI reductions for both RYGB (mean percentage of excess weight loss at 1 year 63.6%) and LAGB (mean percentage of excess weight loss at 1 year 53.9%). Surgery was followed by resolution of medical co-morbidities including diabetes (60.5%), hypertension (52.6%) and obstructive sleep apnoea (61.7%). For LAGB there was a 0.33% (95% CI 0.004% to 1.2%) 30-day mortality rate, and a complication rate of 6.7% (most commonly band migration and port problems). For RYGB there was a 0.30% (95% CI 0.004%-1.1%) 30-day mortality rate and a complication rate of 6.4% (including upper GI bleed, stricture and obstruction).
Conclusions: Bariatric surgery for patients over age 55 years can achieve weight loss comparable to the general bariatric surgery population and similar reductions in co-morbidities. The 30-day mortality in those over 55 years is similar to that of weight loss surgery in the general population (RYGB 0.3% versus 0.41% general population; LAGB 0.3% versus 0.16% [2]). Based on the above findings patients should not be denied bariatric surgery on the basis of age alone.
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O.151 Outcome of Laparoscopic Adjustable Gastric Band (LAGB) in Patients Over 60 Years

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Background: LAGB is one of the commonest bariatric procedures in the UK. We present our experience with patients over 60 years who had LAGB looking at the safety and the efficacy in this age group.
Methods: all data for patient undergoing LAGB were collected prospectively in database between 2000 and 2010. Data were assessed for patients' weight loss journey and complications including reoperation. Statistical analysis performed using SPSS
Results: 576 procedures were performed in our unit. 39 patients (6.7%) were≥60 years of age; median age is 62 (range 60–74). Male to female ratio was 1:5 in this age group. Initial BMI in both age groups (i.e.≥ 60 and<60 years) was similar (50

versus 46.7 Kg/m^2). A follow-up mean of 12 months for≥60 year group and 19 months for<60 year group was noticed. The median of %EBWL for over 60 groups and below 60 were 34.6 and 31.4 respectively. Both groups had identical post operative stay with a median of 2 days.
Late post operative complication of the two groups comprised:

1. in the≥60 year group: Infaltion port repositioning 3 (7.6%), band removed 1 (2.3%), band replaced/ repositioned 1 (2.5%), and conversion to bypass 0
2. in the<60 year group: Inflation port repositioning 67 (11%), band removed 29 (5%), band replaced/ repositioned 17 (2.9%), and conversion to bypass 29 (5%)

To date conversion from band to bypass has only been performed in the younger patient group with conversion to bypasses performed≥4 year since the primary procedure. Surgery in the over 60 patients was only performed in the last 3 years which may explain this finding.
Conclusions: Bariatric surgery in the older patient can be performed safely with similar outcomes compared with younger patients. Band removal and conversion to gastric bypass may alter this finding.

O.152 Bariatric Surgery in Patients Older than 60 Years: A Single Center Experience

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Introduction: Although baraitric surgery has been reported as safe in the elderly, it is still conceived as harboring higher risk in this population and many bariatric surgeons are reluctant to operate upon them. This study will attempt to further evaluate the safety and efficacy of bariatric surgery in this group of patients.
Methods: The prospectively maintained database was analyzed for all eligible patients age more than 60 years who underwent bariatric surgery from January 2006 to January 2011 at the Rambam Health Care Campus. Outpatient care included regular clinic visits at 2 weeks, 3, 6 and 12 months post operatively. A record of weight, BMI, medications, comorbidites, re-admissions and complications were recorded.
Results: A total of 991 patients underwent bariatric surgery at our institute over the period of 5 years of which 43 (4.3%) were more than 60 years. Among this cohort, the majority were female (74.4%). The mean age of the patients was 62.2±2.1 (Range 60–68 years). The mean BMI of the patients was 45.0±8.4 and mean excess body weight was 54.1±18.8 kg.
Six patients had a history of failure of vertical banded gastroplasty. The most common co-morbidity was hypertension (72.0%) followed by hyperlipidemia (60.4%) and type 2 diabetes mellitus (41.8%).
Thirty two patients (74.4%) underwent laparoscopic sleeve gastrectomy, 7 patients (16.2%) had laparoscopic gastric bypass and 4 (9. 3%) had open gastric bypass.
The mean hospital stay was 4 days (range=3–30). Nine patients (20.9%) had at least one complication in the post operative period. Bleeding (9.3%) was the most common followed by leak (4.6%), pulmonary embolism (4.6%), vomiting with dehydration (6.9%), chest infection (4.6%), abdominal abscess (2.3%), acute reversible renal failure (2.3%) and wound infection (2.3%). One patient required postoperative ICU care. Readmission rate within 30 days of surgery was 11.6%. Causes for readmission were intra abdominal abscess (4.6%), adhesive small bowel obstruction (2.3%), intolerance to food and dysphagia (6.9%). Complications were more common in the open and revisional surgery groups.
Follow up was available for 35 patients (81.3%). The mean follow up was 12 months (range=2–36). The mean excess weight loss was 59.4±18%. Hypertension, Diabetes mellitus and Hyperlipidemia completely resolved in 58.0%, 66.6% and 50.0% respectively. The rest of patients demonstrated significant improvement.
Conclusions: Contrary to previously published data, bariatric surgery in the elderly harbor more complications than the younger population. Nevertheless, even though elderly patients have higher number of comorbidites and perioperative morbidity, bariatric surgery can be performed in carefully selected elderly patients with acceptable morbidity and mortality. Weight loss is similar to younger patients and resolution of comorbidities is less than reported in the general bariatric population.

O.153 Laparoscopic Mini-Gastric Bypass in Patients 60 Years of Age and Older

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Background: Bariatric surgery in patients over the age of 60 was previously not considered an option due to a presumed higher risk. I present in the following study a group of patients 60 years and older who underwent Laparoscopic Mini Gastric Bypass (LMGB) with the aim to evaluate operative outcomes with respect to morbidity mortality and weight loss at 1 year follow up.
Methods: From 2007–10, a prospectively maintained database was reviewed and patients 60 years of age and older were identified. Demographics evaluated included age sex, weight, BMI, co-morbidities, op time, complications, LOS, and %EWL at 1, 6,and 12 months.
Results: From 2007–10 a total of 556 LMGB were performed by a single surgeon (CP). 57(10.3 %) were patients over 60 years. There were 62%F and 38%M. Average age was 63 years(60–72), average weight and BMI were 121 kg (77–171) and 43 kg/m2 (35–61) respectively. Co-morbidities were present in the majority of patients with an incidence of 46% for diabetes, 79% hypertension and 49% dyslipidemia. In addition, 17.5% of patients had CAD (Coronary artery disease) with 10.5% having stents and 10.5% on anticoagulation with plavix or coumadin. 32% had previous abdominal surgery including cholecystectomy, ventral hernia repair with and without mesh, colon resection, hysterectomy, abdominoplasty and appendectomy. All patients had LMGB without conversion. Average op-time was 65 minutes (43–120). Only 1 patient required an overnight ICU admission. Average LOS was 1.2 days (1–3). The overall complication rate was 7% and there were no major complications. Readmission rate was 1 patient (1.7%). F/U at 1,3, 6, and 12 months post operatively was 100%, 96%, 88% and 80% respectively.
There was no surgical or procedure related mortality within the entire study group or time period. In total, one patient, however, expired at 1 year post-op due to newly diagnosed anaplastic carcinoma of the thyroid.
%EWL at 1,6 and 12 months was 18%, 51%, and 65% respectively. At the end of one year, 69% were off medications for diabetes, 51% for hypertension and 46% for dislipidemia.
Conclusions: LMGB can be safely performed in patients 60 years of age and older despite numerous co-morbid conditions as well as previous abdominal procedures.

O.154 Bariatric Surgery and Obese-Related Infertility. Personal Experience

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Background: The prevalence of people who are overweight or obese has increased dramatically in high-income countries over the past 20 years. There is a strong association between obesity and infertility, and weight loss can result in increased fecundity in obese women. The aim of this study is to demonstrate the effectiveness of bariatric surgery in the treatment of obese-related infertility.
Methods: This is a retrospective study. A chart review of 102 obese women seen between September 2003 and July 2008 was performed. They all presented with the diagnosis of infertility and had undergone laparoscopic adjustable gastric banding or laparoscopic sleeve gastrectomy to achieve weight loss.
Results: Among these women who tried unsuccessfully to become pregnant before weight loss, 46 became pregnant afterward. The pregnancies proceeded without complications and ended with a live birth. There was no statistical difference between adjustable gastric banding and sleeve gastrectomy regarding the pregnancy rate while the time pregnancy was longer in the sleeve gastrectomy. Moreover the BMI at pregnancy was ever<40.
Conclusion: An improvement in the fertility status after weight loss has been described, although data on fertility after weight loss following bariatric surgery are still limited. The results obtained in our experience are not different from data reported in literature for bariatric surgery. Therefore bariatric surgery might be

effective in young infertile obese women who wish to become pregnant, but we believe that was the weight loss achieved through surgery that improves fertility and never the surgical technique.

O.155 Small Bowel Obstruction and Internal Hernia During Pregnancy after Gastric Bypass

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Introduction: Small bowel obstruction (SBO) due to internal hernia (IH) is a severe complication of gastric bypass (GBP) during pregnancy.
Case report: A 36 y.o. woman (gravida 1), 32 weeks pregnancy, 3 years after a GBP, undergone a cesarian section for abdominal pain lasting since 5 days, without abdominal exploration. 24 hours later, the bariatric surgeon was called in face of severe vital signs and guarding abdomen. Lab exams showed anemia : HB 8.7, leucocytosis : 25000, platelets : 600 000. The CT scan showed important intra peritoneal effusion, large dilated segments of bowel herniated through the mesentery defect and the decompressed small bowel distal loop. Laparoscopy performed immediately discovered the entire common limb dusky with frank ischemia herniated through the jejunal defect. After suction of 2 liters of bloody fluid, It was possible to perform a gentle reduction of the common limb and to close the defect. The follow up was uneventfull the first 5 days till a severe abdominal pain revealed a visceral perforation confirmed by CT scan. Laparotomy in emergency discovered an ischemic perforation treated by a short bowel resection with good outcomes.
3 months later, the patient came in emergency for a new peritonitis caused by a jejunal ulcer perforation which was sutured. The follow up was difficult and 3 weeks later, an obstruction by abcess detected at CT scan made a 4th operation mandatory. After these events, the patient recovered and could be discharged.
Comments:

1. IH are important causes of SBO after GBP, mainly after laparoscopy (1–7.3%). 3 locations had been described : mesenteric defect, Petersen's space, mesocolon defect (retrocolic technique). The risk of SBO during pregnancy after GBP is not increased.
2. 11 cases including ours had been published during the first pregnancy and the third trimester. SBO operation had been performed more in open surgery (8) than in laparoscopy (3). 3 bowel resections had been performed.
3. Symptoms of SBO are masked and often attributed to the pregnancy which can explain a delayed diagnosis with devastating consequences : in the collected series, 3 deaths occurred, 2 mothers, 1 infant.
4. The interest of CT scan must be underlined : the risks during the second and third trimesters are reduced and the fetal effects are small at low doses. Indeed, CT abdomen examinations rarely exceed 25 mGy. Analysis of the CT scan by both the radiologist and the surgeon is highly recommended in emergency.
5. It is of paramount importance not to delay surgical exploration to avoid complications or death of the mother and of the infant. In the majority of cases, laparotomy had been performed due to the absence of operative space.

Conclusion: In case of abdominal pain during pregnancy, in a patient having a GBP, a multidisciplinary approach is highly recommended in emergency meeting the obstetrician, the surgeon and the radiologist to avoid maternal fetal morbidity mortality.

O.156 Pregnancy Following Adjustable Laparoscopic Gastric Baning: Safe and Physiological

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Background: Women who underwent bariatric surgery might face difficulties during their pregnancy . Malabsorbitive or restrictive procedures may cause fetal abnormalities, especially if pregnancy started within 12–18 months following the surgical operation. Band adjustment during pregnancy is not yet codified by the international literature. This study aims at conducting a retrospective analysis on pregnant women who previously underwent laparoscopic adjustable gastric band (LAGB). Data were collected during the last 4 years.
Methods: From November 2006 to November 2010 9 different pregnancies were observed in 9 women who previously underwent LAGB (mean age 29.7±4.1 and mean BMI : 41.4±2.3 Kg/m^2). Considered variables were : BMI at the beginning and the end of pregnancy; time lag between LAGB and conception; mode of delivery, weight at birth; complications; band adjustments. Reported diagnostics are in terms of mean and standard deviation.
Results: No evidence of complications related to pregnancy or LAGB were observed. The mean BMI at moment of conception and at delivery were respectively 32.7±3.4 Kg/m^2 and 37.1±4.2 Kg/m^2. Post LAGB pregnancy started on average after 28.7 months, but in 3 cases out of 9 before 12 months. Band adjustment met the common guidelines as prescribed by the Centre of hospitalization. All the bands were deflated just before the delivery. For 6 women cesarean section was required, while natural childbirth occurred in 3 cases. Nine healthy babies (5M/4F) were born with a mean weight at birth of 3,582±0,26 kg.
Conclusions: Pregnancy after LAGB is physiological for the fetal growth and safe for the mother. Time lag from LAGB placement to conception is not a contraindication. Pregnancy did not influence the band adjustment. Mode of delivery is not influenced by the presence of the band.
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O.157 Laparoscopic Greater Curvature Plication: Initial Results of an Alternative Restrictive Bariatric Procedure

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Background: Sleeve gastrectomy (SG) is a surgical technique that involves resection of a significant portion of the stomach. This surgery is sometimes associated with gastric leaks and hemorrhage, which can be difficult to treat. The present study reports findings from laparoscopic greater curvature plication (LGCP), which is an alternative bariatric procedure similar to SG but without the need for gastric resection.
Methods: A prospective study was carried out, following Gastric placation in 52 morbid obese patients (40 female/ 12 male) with a mean age of 29.3 years (23 to 48) and mean BMI of 41 kg/m² (35 to 46). Through a four-port approach, the stomach was reduced by dissecting the greater omentum and short gastric vessels, as in sleeve gastrectomy, and the greater curvature was then invaginated using continous nonabsorbable suture performed over a 32-Fr bougie to ensure a patent lumen.
Results: All procedures were completed laparoscopically. Mean operative time was 45 min (40 to 95 min) and mean hospital stay was 36 h (24 to 48h). Patients returned to their regular activities at an average of 7 days (4 to 13) following surgery. No intra-operative complications occurred. First day after operation, all patients have nausea and vomiting that control with metoclopramide and ondansetron. Post operative bleeding and leakage was not seen in any patient. Reoperation was done in one patient had continuous vomiting because of obstruction of gastric lumen. plication disrupted in one patient. All patients experienced excess weight loss (EWL) of at least 20% after 1 month. Mean EWL was 62% (45% to 77%) in nine patients after 18 months. There has been no record of weight regain in any patient to date.
Conclusions: LGCP is feasible, safe, and effective for at least 18 months when performed on morbidly obese patients. Longer follow-up and prospective comparative trials are needed.

O.158 Laparoscopic Gastric Plication, a New Bariatric Procedure: Report of One Case

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Obesity is the epidemic of XXI century. In our country 67% of the population is overweight or obese. Bariatric surgery has shown to be an effective treatment for morbid obesity. Various techniques have been developed with different outcomes and complications, most recently sleeve gastrectomy has been one of the most popular procedures but it has shown some complications of difficult handling. In that order a new technique has been recently developed and described in literature: gastric plication, which would not have the complications of using mechanical suture and would imply a reduction of costs. We report the first case in Chile under this technique: a 34 years-old female patient with class II obesity, arterial hypertension, dyslipidemia, sleep apnea, insulin resistance, hepatic steatosis, varicose veins, smoking and depression in treatment. Different medic treatments were used without good response, so she was derivate to the bariatric surgery team in Hospital del Salvador where she entered to the surgical protocol for study in complement to medical treatment. Approved by the ethical committee the patient was properly prepared for the procedure. The patient was placed on dorsal position under french technic. Under general anesthesia Veress needle is positioned in left hypochondrium for pneumoperitoneum until 15 mmHg followed by trocar insertion according to laparoscopic sleeve gastrectomy technic: First 15mm at 15 cm caudal to xyphoid process, acceding trough Visiport ® and introducing a 30º camera. Second trocar of 12mm, 8 cm cephalic to first in left mid-clavicular line, third, fourth and fifth trocars are 5mm diameter and placed on right mid-clavicular line, same altitude as second, subxyphoid and on left anterior axillary line respectively. Once into the abdominal cavity the first step was to identify the pylorus and landmarking 6 cm cephalic for dissection of the greater curvature until his angle and exposure of left crus of diaphragm. A 42f nasogastric bougie was positioned against lesser curvature for calibration. Invagination of first plane is done with discontinuous 2–0 silk stitches separated from 3-4 cm each, second to that continuous stitches are performed with 2–0 Prolene. Hemostasis proved and correct gauze count. During all the procedure endoscopic support is performed. Finally every port was electrofulgurated under laparoscopic vision and closed layered.

The patient evolved without any complication, with 48-hour medical discharge and sent with liquid diet for 15 days followed by puree for another 15 days. During that period a gastric emptying study was performed, showing normal pass and no evidence of fistula. In a 2-months follow-up she has lost 22 kg, corresponding to 48% of her overweight.

O.159 New Bi-Functional Technique of Restrictive Bariatric Surgery: Longitudinal Gastric Wrap with Fundoplication by Laparoscopy

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Restrictive bariatric surgeries are associated with specific complications, an increase in the gastro esophageal reflux disease (GERD) and its complications. The gastric band has risks of slippage, migration of the ring and vomiting, the sleeve gastrectomy has the risk of gastric fistula. The new Laparoscopic technique of Longitudinal Gastric Wrap with Fundoplication (LGWF) assures a restriction of the whole stomach without foreign body or opening of the gastric tube and while protecting the esophagus from GERD. The aim of this study was to assess the efficiency of the LGWF as a new surgical treatment for morbid obesity resulting in lower morbidities and better quality of life

Patients consisted of 14 consecutive obese patients (10 women and 4 men) with a BMI between 35 and 40 with co morbidities: diabetes (6/14), hypercholesterolemia (5/14), hypertriglyceridemia (10/14), high blood pressure (4/14), smoking (10/14) and clinical symptoms of GERD (14/14) confirmed by a preoperative gastroscopy. An enlightened consent was signed by each patient before the operation of LGWF. The laparoscopic surgery consisted of an extensive fundoplication, completed by a longitudinal gastric wrap till the antrum. In post-operative follow-up we observed the level of pain and monitored the length of hospitalization. Patients were discharged under prophylactic anticoagulant treatment and PPI for three weeks, they were reviewed at one week, three months, six months and a year for evaluation of weight loss totals and symptoms linked to the GERD. The criterion of judgment was the excess weight loss (EWL) expressed in percentage after one year of the surgical intervention; the results would be positive if the EWL was superior to 50%

The operative duration lasted from 65 to 95 min, the average length of hospitalization was one day, the pain was checked by analgesics of level I (non-morphinic and NSAI). Heartburn improved and no vomiting for all of them (n=14). The flatulence was moderated and it was well tolerated for 2 patients, without any reported case of gas bloat syndrom. The dysphagia was transitional with 6 patients. The morbidity was minor and no mortality. We observed at one year statistically significant post-surgical decreases of co morbidities ($p<0.05$) for HbA1C, triglyceridemia, cholesterolemia, and blood pressure. For the 14 operated patients (100%), the EWL was higher than 50% (between 54% and 92%) with an average of 64% at one year

The LGWF was found to result in a EWL superior to 54% in 100% of patients, one year after surgery. The association of a fundoplication allows a complement of the restrictive mounting of the gastric wrap and a protection of the esophagus from the GERD. The gastric wrap could reduce the bloating after gastric fundoplication. The LGWF could significantly improve co morbidities. It is a bi-functional surgery that predisposes few risks with an easy reproducibility that could be an alternative to restrictive bariatric surgery.

O.160 Findings of the Third International Consensus Summit on Sleeve Gastrectomy (SG)

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Background: SG (the first part of the duodenal switch operation) started 10 years ago as a first-stage in high-risk, super-obese patients. It was found that a second-stage was frequently unnecessary. The progress of this operation requires surveillance.
Methods: The first International Consensus Summit for SG was held in Oct. 2007, the second in Mar. 2009, and this third in Dec. 2010. There were presentations by experts, and a questionnaire was filled out by 88 attendees who had >1 year (2–8 years) experience with laparoscopic SG.
Results: The questionnaire found an average of 295 SGs/surgeon (total 26,254 SGs). SG had been intended as the sole operation in 75%. A second stage has become necessary in 8% so far. The SG was completed laparoscopically in 96%. Mean % EWL after 1 year was 65%, 2 years 71%, 3 years 64%, 4 years 55%, 5 years 53%, 6 years 50%. Bougie size ranged from 32-50F (mean 36, blunt tip). SG was commenced 2–6 cm (mean 4) proximal to pylorus, thereby leaving some antral motility in most patients. Of the surgeons, 66% reinforce the staple-line (22% oversewing, 44% using a buttress). Respondents estimated that they excise a mean of 96% of fundus, with a portion maintained lateral to the angle of His. A drain was left in 68%, almost always closed-suction type. High leaks occurred in 0-7% of cases (mean 2.4%); lower leaks occurred in 0.3%. Intraluminal bleeding occurred in 3% of cases, splenic injury in 3%, and one gastrocolic-pleural fistula occurred at 7 months. Postop GERD occurred early in 1-30% (mean 15%), with recurrence in 10% at 5–6 years. Mortality was 0.019%. Early leaks were treated conservatively or by CT-guided or laparoscopic drainage, but with sepsis, leaks were drained urgently, with later increasing use of endoscopic gastric polyflex or nitinol stents or T-tubes in the sleeve leak; nasoenteral or more often, jejunostomy tube-feeding was instituted. There was a 4.5% incidence of stenosis (especially at the L) treated by balloon dilatation, with seromyotomy for longer stenoses. Leaks were occasionally accompanied by distal stenosis or rotation of the sleeve, which was cautioned against. Complications were greater in revisions. Postop, 90% order PPIs for 1–12 months (mean 3), and 90% order vitamin B12. 20% believe SG is suitable for adolescents, 51% for lower BMI, 67% for revision of gastric banding, and 100% for high-risk or elderly. In diabetics, 62% did the SG but 38% preferred RYGB. 76% believe that SG is suitable with hiatal hernia or dimpling at the hiatus by repair - usually figure-of-8 non-absorbable suture crural approximation posteriorly. The majority felt that large hiatal hernias or severe GERD were more suitable for RYGB. For weight regain, SGs were converted to DS (some re-sleeve), but RYGB was preferred for severe reflux.

Conclusion: Weight loss appears satisfactory. High leaks are uncommon but problematic (worse than after RYGB), and still occur despite expertise.

O.161 Laparoscopic Sleeve Gastrectomy Versus Laparoscopic Adjustable Gastric Banding: A 3-Year Follow-Up Study

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Introduction: Bariatric surgery is an effective treatment for morbid obesity. Laparoscopic sleeve gastrectomy (LSG) and laparoscopic adjustable gastric banding (LAGB) are commonly performed procedures. The aim of the present study is to compare weight loss and complications after LSG and LAGB at mid-term follow-up
Materials and methods: We reviewed our prospective electronic database for all patients undergoing LSG or LAGB between September 2002 and January 2008 with 3 years of follow-up. We assessed demographic, anthropometric, surgical variables and complications. Weight progression outcomes for 1, 2 and 3 years follow-up were calculated. For statistical analysis Student's T was used for continuous variables and Fisher's exact test or Chi-Square test for categorical data. A significant p-value<0.05 was considered.
Results: 166 patients underwent LSG and 108 LAGB. There were no significant differences between both groups in terms of age (37.8 v/s 37.6 years), gender (women 76.5% v/s 77%) or preoperative BMI (37 v/s 36.2 kg/m^2). The %EWL was higher for LSG than LABG group for 1 year (82.4% v/s 48.2%, $p<0.001$), 2 years (81.5% v/s 49.9%, $p<0.001$) and 3 years follow-up (76.9% v/s 52.4%, $p<0.001$). No conversion to open surgery was needed in both groups. Early complications were similar (3.6% LSG v/s 1.9% LAGB, $p=0.6$) and late complications (11.5% LSG v/s 29.6% LAGB, $p=0.04$) were different for both groups. The rate of revisional surgery was superior in LAGB.
Conclusions: Laparoscopic sleeve gastrectomy was superior to Laparoscopic adjustable gastric banding in terms of weight loss in 3 years follow-up and had a similar early complications rate but different in the late complications.

O.162 Comparison between Silastic Ring Gastric Bypass and Silastic Ring Sleeve Gastrectomy: A Three-Year Follow-Up Study

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Objectives: To compare banded sleeve gastrectomy (BSG) and vertical banded gastric bypass (VBGB), analyzing the effects of the two surgical procedures (and complications thereof) on weight loss and body composition in morbidly obese patients. To evaluate the laboratory and clinical impact of BSG on the most common diseases associated with morbid obesity.
Methods: This was a prospective nonrandomized clinical trial, registered at clinicaltrials.gov (NCT00873405), that included 65 morbidly obese female patients divided into two groups: the BSG group (n=33) and the VBGB group (n=32). The surgical procedures were consecutively performed by the same surgeon. Access was gained via a laparotomy. The following were evaluated: anthropometric parameters; body composition (through electrical bioimpedance); laboratory parameters; effects on preexisting diseases; and complications.
Results: Marked weight loss ($p=0.0000$), a marked reduction in body mass index (BMI; $p=0.0000$) and a marked reduction in waist circumference ($p=0.0000$) were observed in both groups. The waist-hip ratio was reduced after the surgical procedures ($p=0.0000$). Excess BMI loss was 86.05±14.2% in the BSG group and 85.91±15.71% in the VBGB group. Body fat reduction was 35.84±8.66% in the BSG group and 37.64±9.62% in the VBGB. The reduction in triglyceride levels was more marked in the VBGB group ($p=0.0222$), as was the reduction in LDL cholesterol levels ($p=0.0005$). The two techniques were similarly effective in controlling glucose intolerance, type 2 diabetes mellitus, systemic arterial hypertension, liver steatosis and metabolic syndrome. Anemia was more prevalent in the VBGB group ($p=0.0033$), whereas erosive esophagitis was more prevalent in the BSG group ($p=0.0032$). No difference was observed between the two groups regarding gallstone formation.
Conclusion: BSG was as effective as VBGB in inducing weight loss and favorable changes in body composition. BSG was less effective in controlling dyslipidemia. BSG led to anemia less often than did VBGB. BSG led to erosive esophagitis more often than did VBGB. BSG did not prove safer than VBGB and therefore should not replace the latter as the bariatric procedure of first choice.

O.163 Three Year Weight Loss Comparison between Sleeve Gastrectomy and Gastric Bypass at a Single Center

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Background: Gastric bypass (GBP) is considered the gold standard of surgical procedures for weight loss. Sleeve gastrectomy (SG) has been increasingly utilized among bariatric surgeons, both as a single procedure and also as a first step of duodenal switch for super-obese patients. At our institution we offer our patients the choice of GBP or SG. The aim of this study was to compare our weight loss results at three years for GBP and SG patients.
Methods: Between December 2006 and June 2010 we performed 538 bariatric procedures (GBP=102, SG=436 as a single procedure). All operations were performed using laparoscopy and the patients were followed prospectively. In the GBP group, preoperative BMI range was 31–45 with a mean of 38,3. In the SG group, preoperative BMI range was 30–45 with a mean of 35,5. Gastric bypass was performed using an antegastric, antecolic approach. Sleeve gastrectomy was performed using a 32 F bougie along the minor curvature with stapling starting at approximately 6 cm from the pylorus.
Results: SG patients lowered their mean BMI from 35,5 to 26,8 at 6 months (n=373), 25,1 at 1 year (n=266), 25,5 at 2 years (n=113) and 26 at 3 years (n=23). GBP patients lowered their mean BMI from 38,3 to 29,5 at 6 months (n=87), 26,8 at 1 year (n=55), 26 at 2 years (n=18) and 25,9 at 3 years (n=2). Both groups experienced the same EBMIL%. The GBP group needed more time to reach a stable new weight due to the higher initial BMI in that group. The lower preoperative BMI in the SG group was caused by the inclusion of class I obesity patients (BMI 30–35).
Conclusions: Our three-year weight loss results were similar and excellent for both GBP and SG in patients with BMI lower than 45.

O.164 A Prospective Comparison of Laparoscopic Sleeve Gastrectomy and Gastric Bypass: Which One is Better?

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Background: The aim of this study was to compare the effect on comorbidities and failure rates of two common bariatric surgical procedures performed laparoscopically: sleeve gastrectomy (SG) and gastric bypass (GBP), to define whether one operation is superior.
Methods: Between 2006 and 2011 we operated on 100 morbidly obese patients, performing SG (n=50) and GBP (n=50). The choice of the operation was based on patient/surgeon discussion. The analyses included the following variables: age, sex, body mass index (BMI), dietary history, the presence of eating disorder and comorbidities (depression, diabetes, gastroesophageal reflux, hypertension, obstructive sleep apnoea, hyperlipidemia, joint disease). The percentage of estimated weight loss (EWL) was assessed. The mean follow up was 28 months.
Results: In the two groups the mean preoperative and postoperative BMI were the following: SG group (mean age=40) 44.5 and 32.8; GBP group (mean age=43): 45.3 and 32.5. The %EWL for SG was 57.5% and for GBP 57.1% ($p=0.65$, NS). Men responded slightly better than women with %EWL of 55.5% vs 53.7% respectively ($p=0.048$). Failure rates were 0% for SG and 5% for GBP ($p=0.014$). Resolution of comorbidities were 75% for SG and 85% for GBP ($p=0.044$).
Conclusions: In our experience SG and GBP have similar short term effects. A longer follow up is necessary to confirm these results over a longer period of time.

SG is technically simpler than GBP and may become the most common bariatric operation.

O.165 Early Experience with Laparoscopic Roux-En-Y Gastric Bypass and Sleeve Gastrectomy for Morbidly Obese Patients in Singapore

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Objective: To evaluate the early outcome for laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy in a new bariatric surgical program in Singapore
Methods: A prospective pilot study of 50 patients who underwent laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy for obesity by a single surgeon at Singapore General Hospital between September 2008 to October 2010. The study endpoint included operative time, complications and hospital length of stay. Patient's interval weight loss and HbA1c levels were recorded.
Results: Twenty males and 30 females with median age of 39 years (range 30 to 60) were included in the study. Mean pre-operative weight was 125.5 kg (range 74 kg to 170.7 kg) with a mean pre-operative BMI of 45.98 kg/m^2 (range 35.4 to 70). Most of our patients had diabetes or impaired glucose tolerance. In addition to diabetes, 45 out of 50 patients had at least one other significant medical co-morbidity related to obesity. The median operative time was 325 minutes for laparoscopic Roux-en-Y gastric bypass and mean operative time for Laparoscopic sleeve gastrectomy was 142 minutes. There was no conversion. One patient required a re-operation for anastomotic leak in gastric bypass group and one patient for bleeding from staple line in sleeve gastrectomy group. Median hospital stay was 4 days (range 1 to 13) for Roux-en-Y gastric bypass and 3 days for sleeve gastrectomy (range 1 to 9). Body Mass Index at 2-week, 1-month, 3-month and 6-month post-operatively was 38.6 kg/m^2 ,37.8 kg/m^2 ,34.5 kg/m^2 and 30.8 kg/m^2 ; a percentage of excess weight loss of 17.7%, 23.3%, 40.9% and 56.7% was achieved respectively. The median pre-operative HbA1c was 8.6% (range 6.5 to 12.3) and at one month, HbA1c levels reduced to 6.1% for those with Type II diabetes mellitus (range 5.2 to 8).
Conclusions: Laparoscopic bariatic surgery especially Roux-en-Y gastric bypass is a technically challenging procedure that can be safely integrated into a bariatric treatment program with early weight loss and improved diabetic control. With more experience, operative time and length of stay decreased.

O.166 Laparoscopic Gastric Plication in Patients with Poor Outcome after Adjustable Gastric Banding: Technical Feasibility and Preliminary Results

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Background: Laparoscopic adjustable gastric banding (LAGB) is one of the most widely performed surgical procedures for morbid obesity, allowing to obtain up to 55% of %EWL. There is however a wide group of patients with %EWL ranging between 25% and 50%, where an increase of the effect of LAGB could be useful. Laparoscopic gastric plication (GP) is a new restrictive procedure that does not to require gastric resection, is reversible, and can be added to LAGB because increases the restrictive effect avoiding to contaminate the prosthesic material. A synergistic effect may be obtained because LAGB reduces the esofagogastric transit, while GP reduces the gastric volume. Our aim was to evaluate the effect of GP in patients who had experienced scarce weight loss after LAGB and needed revisional surgery.
Methods: 5 patients with scarce weight loss after LAGB needed revisional surgery for band slippage (two patients), tube disconnection in peritoneum (one pt), band rupture (one pt), scarce weight loss (one pt). They underwent GP in addition to band revision to increase the effectiveness of LAGB. Surgical technique: two 5 mm and two 10 mm trocars were inserted, as in usual LAGB operation. After band revision, a greater curvature omentectomy was done with the Harmonic™ scalpel (Ethicon Endo-Surgery, Inc, Cincinnati, Ohio), from the antrum (3–4 cm from pylorus) to the angle of His. The GP was then created on the guide of a 32-Ch bougie, invaginating the greater curvature with a first row of interrupted stitches of 2–0 Polypropylene. A second row of running suture of the same material was done over the whole length of the first one. A methilene-blue test was done and a drain was left near the plication.
Results: The postoperative course was uneventful, except a slight nausea in the first few days. A Gastrografin® swallow on the first postoperative day showed a slow gastric transit, the band in place and the tubular shape of the plication clearly visible. The patients were discharged on the 3rd postoperative day on a liquid diet, and resumed a solid diet within 4 weeks. The mean preoperative BMI was 37.3±5.19. After 3 months, with the bands still uninflated, all patients lost weight, %EWL was 18.6±16,9. No symptoms of vomiting or reflux were observed.
Conclusions: Surgical revisions are frequent after LAGB, in a range of 5-32%: main causes are pouch dilatation or connecting tube complications. In case of need of band revision, a %EWL lower than 50% may be an indication to GP. In our experience the surgical procedure in association with revision of LAGB is feasible and safe, and preliminary results with this new technique show restart of weight loss and recovery of patient's motivation.

O.167 The Effect of Intragastric Balloon on Left Ventricular Function in Morbidly Obese with Hypertension.

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Aim of the study is to evaluate the early myocardial pattern changes in patients underwent intragastric balloon.
Methods: Patients were recruited from our data base among severely obese suffered from cardiac hypertrophy and hypertension and treated with intragastric balloon. This study was restricted to patients without other co-morbidities and with BMI≥40<50 Kg/m^2. All these subjects underwent echocardiography and cardiac Doppler examination during the preoperative work up for intragastric balloon positioning (Bioenterics Intragastric Balloon - BIB®, Allergan, Irvine, CA, USA). These exams were repeated during the following 30 days from balloon removal. The physicians performing these examinations were blinded to clinical information and therapeutic options. All cardiac parameters were quantified and expressed as a mean on three cardiac cycles. All these information were digitally stored and analyzed off-line. Weight loss parameters, systolic and diastolic pressure, Left Ventricular mass and functional parameters were considered. Statistical analysis was done by means of Student *t* test or Fisher's exact test. $P<0.05$ was considered significant.
Results: From January 2009 to December 2009, 15 severely obese patients ((12F/3M, mean age: 39,4±7, range 31–47 yo, mean BMI: 42.5±5.3, range 41–47,9) were considered for this study. At time of BIB removal mean BMI was 34.2±4.9 Kg/m^2. Mean systolic and diastolic blood pressure fall from 210±60 g and from 55±15 g/m^2 to 160±40 and to 35±10 respectively ($p<0.001$). Left Ventricular mass and left ventricular mass index fall from 210±60 g and from 55±15 g/m^2 to 160±40 and 35±10 respectively ($p<0.001$). In 2/15 patients anti-hypertension drugs were stopped, in 10/15 the dosage was lowered or the drug changed, in 3/5 the medial therapy remain unchanged.
Conclusions: Echocardiographic monitoring show that in morbidly obese patients diastolic and systolic blood pressure and gastric thickness are improved after weight loss linked to intragastric balloon positioning. A large number of patient and longer follow up are necessary to confirm these results.

O.168 Objective Assessment of Obesity-Related Comorbidity Resolution Following Bariatric Surgery

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Background: The purpose of this study was to objectively assess the resolution of obesity-related comorbidities (ORC) after bariatric surgery and to compare the status

and resolution[1] of comorbidities following laparoscopic adjustable gastric banding (LAGB), roux-en-Y gastric bypass (RYGB), and sleeve gastrectomy (LSG).

Methods: Data was collected from an IRB-approved electronic registry, including patient demographics, weight, BMI, and ORC status. Using the registry, ten ORCs were scored, pre-op and post-op, from 0–5 according to severity using the Assessment of Obesity-Related Comorbidities (AORC) Scale, the basis for the Bariatric Outcomes Longitudinal Database. The ten ORCs were: osteoarthritis (OA), diabetes, hypertension (HTN), obstructive sleep apnea, hyperlipidemia (HLD), gastroesophageal reflux disease, depression, urinary stress incontinence, hernia, and lower extremity edema (LEE). Resolution of disease was defined as having AORC>0 pre-surgery and AORC=0 post-surgery. Change in ORC status was calculated with the following equation: (pre-op AORC score) - (post-op AORC score). Paired t-tests were utilized to determine whether comorbidity change was significant following bariatric surgery. Fisher's exact tests were used to determine if there was a significant difference in ORC resolution between procedures.

Results: 264 patients with ORC underwent bariatric surgery between January 2008 and March 2010 at an urban safety-net hospital. Average pre-op age was 42.5, and average pre-op BMI was 44.2. At mean patient follow-up of 17.2 months, the %EWL of RYGB, LSG and LAGB was 43.6%, 37.4% EWL, and 23.3% EWL, respectively ($p < .0001$).

Resolution of 4 comorbidities (OA, HTN, HLD, and LEE) was found to be significantly different between surgery types ($p<0.05$): The percentage of patients with OA resolution was 71% for RYGB, 63% for LSG, and 51% for LAGB. HTN resolution was 57% for RYGB, 23% for LAGB, and 29% for LSG. HLD resolution was 71% for LSG, 67% for RYGB, and 34% for LAGB. LEE resolution was 100% for LSG (n=6), 94% for RYGB, and 68% for LAGB. RYGB produced an overall mean ORC resolution of 66%, vs 60% and 44% produced by LSG and LAGB, respectively.

All bariatric surgery procedures had statistically significant AORC score change for all 10 documented comorbidities ($p < .0001$). The overall mean change in AORC score for all comorbidities, from pre-op to post-op, was 1.7 for RYGB patients, 1.4 for LSG patients, and 1.2 for LAGB patients. There was no significant association between initial BMI and change in AORC score. The pre-op AORC scores were not significantly different between surgery types.

Conclusions: RYGB had the greatest ORC resolution for patients with OA and HTN, as well as the greatest mean ORC status improvement overall. LSG produced the greatest significant ORC resolution for patients with HLD and LEE. RYGB, LSG, and LAGB had statistically significant ORC status improvement for all 10 documented comorbidities.

O.169 Defecatory Abnormalities in Morbidly Obese Patients Before and After Bariatric Surgery

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Background: Morbid obesity is associated with defaecatory disorders (DDs) such as faecal incontinence and constipation. However data on their prevalence as well as effectiveness of bariatric surgery on their correction is scant. The primary objective of this study was to estimate the effect morbid obesity on DDs in a cohort of patients waiting for bariatric surgery. We also evaluated preliminar results of the effects of bariatric surgery on these disorders in a subgroup of patients who already underwent surgery.

Patients and methods: A questionnaire-based study was proposed to 150 morbidly obese patients attending bariatric surgery. Data included demographics, past medical, surgical and obstetrics histories, as well as obesity related co-morbidities. Wexner Constipation Score (WS) and the Faecal Incontinence Severity Index (FISI) questionnaires were used to evaluate and constipation incontinence. For the purpose of this study we considered abnormal a WS≥5 and a FISI score≥10. Same questionnaires were completed after bariatric surgery at 3 and 6 months follow-up.

Results: A total of 138 patients were enrolled in the study since March 2010, 91 F, 47 M, mean age of 43 years (range 17–73). Mean BMI before surgery was 46±8 kg/h2 (range 35–67 kg/h2). Mean WS was 4.1±4 (range 0–17) while mean FISI score was 9.1±8 (range 0–38). Overall 59 % of the patients reported DDs according to our scores. Forty-seven patients (34%) had WS≥5, 54 patients (39 %) a FISI≥10, while 19 patients (13.8 %) reported combined abnormal scores. These are more evident for patients with BMI >50 (62%) compared to those with BMI >40% (47%).

Ninety-five patients underwent surgery with a minimum follow-up of 3 months. Mean BMI decreased significantly from 46 kg/h2 to 38±7 kg/h2 and to 34±7 kg/h2 respectively at 3 and 6 months after surgery. Accordingly to the BMI decrease, WS improved, but significantly, from 4.1 to 2.8±4.3 (NS) at 3 months and to 1.6±3 (NS) at 6 months after surgery. Similarly, the FISI score improved from 9.1 to 2.6±4.6 after 3 months (NS) and to 1.1±3.4 after 6 months (p=.006).

Conclusions: Defaecatory disorders are more frequent in morbidly obese patients compared to the general population. The risk of DDs increases with BMI. Bariatric surgery reduces DDs, mainly faecal incontinence, and these findings correlated with BMI reduction.

O.170 Olfactory Sense and Taste Following Bariatric Surgery: A Prospective Single Centre Study

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Background: The mechanisms of weight loss following bariatric surgery are multifarious and largely unclear in detail. Alterations in the sense of taste and olfaction were identified recently as a possible cause of changes in food preferences leading to weight loss after obesity surgery. In this prospective single centre trial we analyzed changes in taste and olfactory sense in patients following Roux-en-Y gastric bypass and sleeve gastrectomy.

Methods: Patients with morbid obesity (BMI>40 kg/m2) were operated on with Roux-en-Y gastric bypass (n=15) or sleeve gastrectomy (n=15). Measurement of gustatory function was performed using a validated taste test with impregnated "taste strips" in different concentrations for sweet, sour, salty and bitter taste solution. Olfactory testing was done by using a "sniffin sticks"-test differentiating olfaction threshold, discrimination and identification. All measurements were performed preoperatively and postoperatively (5 days and 6 weeks) in all patients.

Results: No significant differences in preoperative vs. postoperative taste sense were detected following Roux-en-Y gastric bypass or sleeve gastrectomy. Olfaction threshold and identification improved significantly in patients following sleeve gastrectomy ($p<0,05$). No changes were seen in patients following Roux-en-Y gastric bypass.

Discussion: In this prospective single centre study a significant improvement in olfactory sense was detected in patients following sleeve gastrectomy. In patients following Roux-en-Y gastric bypass a trend towards improved olfaction could be seen without reaching statistical significance. This improvement in olfactory sense has not yet been described in patients following bariatric surgery and might contribute to a postoperative change in food preference leading to weight loss. In contrary to published data demonstrating changes in taste sense following bariatric surgery we did not see any differences. This might be due to the short postoperative time period taste testing took place in this study. A possible change in taste sense might be detectable with a longer follow-up and will be addressed by continuing this trial.

O.171 Changes in Sleep Quality and Duration with Bariatric Surgery

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Introduction: Obesity is associated with numerous physical and psychological conditions that interfere with sleep quality and duration. Poor sleep quality and duration affect health and are reported to interfere with weight loss success. In the present study, we have examined the effects of bariatric surgery on sleep parameters.

Methods: The study population included 45 bariatric (BA) surgical patients (mean BMI=49, average age=47 years). Self-reported sleep duration was obtained and overall sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). Average follow-up was 24 months post-surgery.
Results: Before surgery, sleep quality was poor (PSQI scores>5) for nearly 80% of the study population. Following surgery, PSQI scores improved significantly ($p< 0.0001$), i.e. from 8.78 pre-op to 4.62, with only 36% of patients scoring poorly for sleep quality. Improvements (Chi sq $p<0.05$) in sleep quality with surgery included: fewer episodes of waking in the middle of the night, reduced frequency of bathroom visits, fewer breathing difficulties, reduced episodes of coughing or snoring, fewer bad dreams, a reduction in difficulty falling asleep, a decrease in frequency of sleep interruptions from being too hot, and a reduction in pain frequency. Surgery-induced changes in sleep quality were not associated significantly with changes in BMI ($r = -0.11$) but were correlated with lengthened sleep duration ($r=0.49$; $p< 0.01$). Sleep duration increased from a mean of 6.0 hours before, to 6.8 hours after, surgery ($p< 0.0001$). Independent predictors of sleep duration included BMI (−0.50) and PSQI scores (−0.59).
Conclusion: Bariatric surgery results in significant improvement of sleep quality and duration.

O.172 Retrievals in Sleep Apnoea Syndrome after Sleeve Gastrectomy Surgery for Obesity Treatment

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Background: Obstructive sleep apnoea (OSA) is a exhausting syndrome, linked with obesity. It appears with sleep disturbance,somnolence and chronic fatigue. Our effort was to find out its association with other co-morbidities and any betterment that result from sleeve gastrectomy for obesity.
Methods: All patients underwent sleeve gastrectomy were evaluated for OSA. A questionnaire was completed before oparation and 5 months later. Epworth sleepiness score (ESS) was used as a marker of severity. All patients underwent comprehensive assesment preoperatively.
Results: Between 2006 and 2010, a total of 123 patients, underwent sleeve gastrectomy. 24 (25%) were appeared to have a degree of OSA based on the presence of chronic fatigue and somnolence. 17 patients completed a questionnaire just before and 5 months after surgery. Greater rate were hypertensive (51.9% vs 39%, $P<0.05$), and more were diabetic (24.7% vs 14.8%, $P<0.05$). All 17 patients showed an improvement in their symptoms of OSA after sleeve gastrectomy and mean ESS reduced from 13,4 (0–23) to 4,89 (0–21).
Conclusions: OSA is commonly seen in obesity patients and has a strong association with other diseases as type II diabetes and hypertension. Sensational imrovement of the syndrome and the co-morbidities occurs after sleeve gastrectomy for the treatment of obesity.

O.173 Trends in Serum Cholesterol in Patients Undergoing Laparoscopic Roux- En Y Gastric Bypass

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Aim: Hyper cholestrolemia is known to reduce after bariatric surgery for morbid obesity. This in turn reduces the metabolic syndrome and improves survival. It is unknown if this effect is sustained in the medium and long term. We followed up our Laparoscopic Roux- en Y Gastric Bypass (LRYGB) patients for 3 years to study their cholesterol levels.
Methods: All patients who had LRYGB and achieved 3 years follow up were included in the study. Relevant data was obtained from a prospective departmental database. Demographic data along with pre and post operative levels of serum total cholesterol, LDL, HDL, serum triglyceride, BMI and their statin intake was collated and analysed.
Results: A total of 43 patients satisfied our inclusion criteria. The mean pre operative total cholesterol level was 4.5 mmol/l. This was found to be reduced to 4.3 mmol/l at 3 year post operative point. The BMI had reduced from 51 (range- 41 to 66) to 33 (range- 17 to 43). Mean pre and post operative: LDL levels were 2.5 mmol/l and 2.3 mmol/l respectively, mean HDL levels were 1.2 mmol/l and 1.6 mmol/l respectively, mean triglyceride levels were 1.6 mmol/l to 1.3 mmol/l respectively.
Out of the 43, 9 patients had serum cholesterol levels more than or equal to 5 mmol/l. On subset analyses of these patients, the serum cholesterol levels dropped from 5.9 mmol/l preoperatively to 4.9 mmol/l post operatively. None of them (n=9) were found to be on statins at present. Mean pre and post operative: LDL levels were 3.3 mmol/l to 2.7 mmol/l respectively, mean HDL levels were 1.4 mmol/l to 1.7 mmol/l respectively, mean triglyceride levels were 1.9 mmol/l to 1.4 mmol/l respectively. Their BMI had reduced from 52 (range- 46 to 58) to 35 (range- 27 to 42).
Conclusion: In our cohort of bariatric patients, the serum cholesterol levels showed a trend towards sustained fall correlating well with their weight loss. This fall was maintained in the three year follow up and it needs to be seen if it continues in the long term. This correlation was similar if Serum LDL, HDL and Serum triglyceride levels were considered. We await the results of further ongoing studies to ascertain if the decrease in cholesterol levels is due to the weight loss and/or dietary changes.

O.174 Policystic Ovary Syndrome at Morbid Obesity and Metabolic Surgery

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Aims: A recent study shows that being a young woman carrying the polycystic ovary syndrome (PCOS) is a risk factor for developing diabetes and high cholesterol rates. The aims of the present study are: 1) to evaluate the frequency of PCOS in patients with morbid obesity (MO) and to determine serum levels of glucose, lipids and gonatropins; 2) to assess their potential reversibility after metabolic surgery 3) to analyze their long-term evolution.
Methods: Retrospective evaluation of 82 women with MO, diabetes and PCOS who operated in our Hospital: The mean age was 30.8 years (range: 16–40). Before surgery and 6, 24, 60 and 120 months after it we collected anthropometric measures and serum levels of: glucose, insulin, lipids, luteinizing hormone (LH) and follicle-stimulating hormone (FSH).
Results: Menstrual anomalies were found: amenorrhea 34, 1%; dysmenorrhea 8, 5%; galactorrhea 8, 5%; oligomenorrhea 15, 8%; polimenorrhea 8, 5% and other menstrual irregularities. Before surgery the mean (SD) values were: BMI=45.3 (6.1), WC=115.3 (16.7) and we found elevated serum levels of: glucose, insulin, lipids and luteinizante hormone (LH) and decrease HDL-cholesterol and follicle stimulating hormone (FSH). After surgery and during the first 6 months the values tended to normalize. This situation is maintained 60 y 120 months after surgery.
Conclusions: Our results seem to confirm the relationship existing between morbid visceral obesity and PCOS, acting both as risk factors for diabetes, insulin resistance and dyslipidemia. The decrease of anthropometric measurements and the normalization of altered serum levels after surgery confirm this therapy as an effective method in the fight against MO and co morbidities.

O.175 Effects of Roux-En-Y Gastric Bypass in Dyslipidemia

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Background: Elevated blood lipids (except HDL-c) are closely linked to increased risk of cardiovascular events as well as being one of the factors that characterize metabolic syndrome.
Methods: 185 women (38.75±11.35 years) and 33 men (37,78±12,67 years) underwent RYGB and were followed for one year. Anthropometric measurements

and biochemical analysis of total blood cholesterol, high density cholesterol and triglycerides were collected in three periods: Before surgery, 6 months and 12 months after surgery. Statistical analysis was performed using the software SPSS18 considering $p<0.05$. We used ANOVA for repeated measures to compare parametric variables and Friedman test for nonparametric variables.
Results: 12,39% of patients presented elevated cholesterol total (CT), 6,42% presented low levels of high-density lipoprotein (HDL) and 23,39% presented high triglycerides (TG). After surgery, the results of 12 months follow-up showed none of patients with elevated CT, 3,67% presented low HDL and 0,92% had elevated TG. At one year follow up, bariatric surgery caused a significant reduction in bodyweight values (122,04±21.33 to 80,41±15,70 kg), BMI (45,71±5,95 to 30,12±4,56 kg/m2).
Conclusion: RYGB was effective in 12 months of follow-up to improve the diagnostic parameters of obesity such as weight and BMI and lipid profiles. We suggest a longer follow-up to reaffirm these results.

O.176 Prevalence of Dermatoses in Morbidly Obese Patients

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Background: Obesity is one of the world's major health problems. Body weight excess affects the skin by transepidermal fluid loss, vasodilatation, hyperinsulinemia, hyperandrogenism and impaired wound healing. Little research has been done on the skin changes that affect morbidily obese patients.
Objective: To specify the skin manifestations on morbidly obese patients.
Methods: 22 morbidily obese patients (class III - body mass index (BMI)≥40 kg/m^2) were included and compared with normal weight volunteers (BMI 18.5-24.9 kg/m^2). The evaluation consisted of a complete medical history and examination, performed by the same physician.
Results: The dermatoses that have a statistically significant relationship with Grade III obesity, were striae, plantar hyperkeratosis, acrochordons, intertrigo, pseudoacanthosis nigricans, keratosis pilaris, lymphedema and bacterial infections.

Dermatoses	Morbidly Obese Subjects (%)	Controls (%)	p
Striae	81,8%	30,13%	p<0,001
Plantar hyperkeratosis	54,5%	9,58%	p<0,001
Acrochordons	45,5%	15,06%	p<0,001
Intertrigo (dermatophytes and candida)	54,5%	6,84%	p<0,001
Pseudoacanthosis nigricans	40,9%	0	p<0,001
Keratosis pilaris	27,3%	5,47%	p<0,001
Onychomycosis	18,2%	4,54%	p=0,05
Lymphedema	22,7%	0	p<0,001
Bacterial infections	27,3%	2,73%	p<0,05

[Prevalence of Dermatoses]

Conclusions: Body weight excess causes skin alterations and is associated with skin diseases. Skin care of obese patients deserves particular attention, because of the high prevalence of skin diseases and also because these diseases are susceptible to preventive and therapeutic measures.

O.178 Post-Bariatric Body Contour Surgery: Fewer Procedures Performed than Initially Expected

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Background: Substantial weight reduction after bariatric surgery often requires subsequent reconstructive plastic surgery. These post-bariatric procedures are often demanded very early by the patients, but they cannot be performed sooner than 1.5 to two years after gastric surgery when weight stability has been achieved and maintained.
Considering the constantly increasing numbers of bariatric procedures worldwide, these interventions are an impending additional burden on patients, practitioners, and private and public insurers. In Austria, a single body contour procedure is generally reimbursed by the public health system after a major weight loss.
We assessed the actual proportion of patients undergoing body contour interventions at least two years after bariatric surgery.
Methods: We conducted a structured telephone interview containing the following questions:

- Have you had plastic surgery after your bariatric surgery?
- If YES:
- Which procedure(s)?
- Are you satisfied with the result(s)?
- If NO:
- Are you considering such an operation, and if so, which one?

Results: Of 930 patients that had had bariatric surgery at the Medical University of Vienna up to January 2009, 621 were available for the telephone survey. Of these, 92 (14,8%) had undergone post-bariatric surgery and 68 (10.9%) considered such a procedure. Public health insurances declined cost coverage in 14 patients (2.3%) mainly because of unstable body weight or insufficient weight loss.
Performed procedures included 65 truncal contourings, 25 lower body lifts with or without thigh lifts, 7 brachioplasties, and 4 minor procedures. Forty-eight (52,2%) of the 92 patients were very satisfied with their result, twenty-eight (30,4%) were fairly satisfied, and 16 (17,4%) were not satisfied.
Conclusions: Two or more years after bariatric surgery, about 1 in 14 of the interviewed patients had undergone body contour corrections. A further 11% still contemplated such an intervention. Very few patients were refused reimbursement, predominantly because of remediable medical conditions. The result of plastic surgery was deemed good or fair by over 80% of the patients.
Most of our patients discussed plastic surgery already during their initial consultation for bariatric surgery but only a minority actually proceed to this step. This is obviously neither due to denied cost coverage nor to unfavorable results.

O.179 Breast Reconstruction with SIEA- and DIEP-Flaps in Obesity Patients

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It is a challenge to perform a reasonable mamma reconstruction when obese women underwent mastectomia because of breast cancer. Common reconstructive treatments, like expander with saline solution, silicone implants - with or without pedicled latissimus dorsi flap - often do not lead to an acceptable restoration, not at last due to capsula fibrosis.
Breast recontruction with bodyown tissue is adequate to achieve this goal. Though some methods using bodyown tissue, like TRAM-flaps, cause inacceptable donorside defects - for example abdominal wall hernias.
Blood supply in SIEA-flaps (superficial inferior epigastric artery flaps) is assured by arteria epigastrica superficialis with its corresponding venes as well as the more medial running vena epigastrica superficialis. These vessels run from femoral vessels directly into the subcutaneous fat tissue. Therefore neither muscle aponeurosis nor muscle tissue itself has to be damaged for raising these flaps.

For raising DIEP-flaps (deep inferior epigastric perforator flaps) the aponeurosis of one rectus abdominis muscle has to be incised. The flap supplying perforator vessels origin from the vasa epigastrica profunda, which run behind the rectus abdominis muscle and leads into vena et arteria iliaca interna.
Both techniques do not cause harvesting defects. Especially patients with obesity profit from these methods.
A series of obesity patients in whom breast reconstruction with SIEA- and DIEP-flap was performed is presented.

O.180 Breast Reduction in Patients with BMI>30

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Background: Gigantomastia is due to a significant increase in glandular component and/or fat with alteration of shape, volume and position of breast, difficult breastfeeding, reduction of CAC sensitivity. Also there are: kyphosis with compensatory lordosis, scoliosis, irritation and maceration of inframammary fold, reduction of sex appeal, difficulty in clothing and physical activity, more pronounced in obese patients (BMI>30). The Authors present their experience in "inferior-central pedicle breast reduction" performed in obese patients.
Methods: From January 2001 to January 2010 were performed 153 breast reductions; of these 37 with infero-central pedicle in patients with gigantomastia (Volume >1000 gr), BMI>30, average distance jugular-CAC: 33.2 cm (28–37.5), mean age 48 years (28–63), history negative for breast disease; no smokers. Average amount of glandular tissue removed: 743 g (375–1800). The areola was raised by an average of 9 cm (7–13).
Results: All patients satisfied. No major complication. Observed: 1 hematoma, 3 wound dehiscence and 4 liponecrosis. Average hospitalization time was 3.84 days (3–5). Average time to complete healing was 20.4 days (15–83). Mean VAS was: 8.40 (5.8-10). In all cases marked improvement in CAC sensitivity. Obesity increased the occurrence of complications compared to patients with BMI<30, with increase of 2% in time of hospitalization and healing and 8% in secondary modeling (liposuction, scar revision, etc.).
Conclusions: Authors believe that the "inferior-central pedicle technique" should be regarded as the best option in breast reduction in patients with BMI>30 for versatility, safety and benefits: reduced complications, increased sensitivity of breast, breastfeeding can, aesthetically pleasing results, satisfaction of patients.

O.181 Panniculectomy With or Without Previous Bariatric Surgery. Retrospective and Comparative Study

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Introduction: After bariatric surgery, patients experience a rapid weight reduction and an improvement of obesity related comorbidities. This weight reduction produces a significant increase in abdominal skin folds interfering with the exercise, sexual activity and proper clothing's fit. Panniculectomy is a procedure that involves redundant abdominal skin and fat resection. This surgical technique is not free of complications such as seroma, hematoma and wound infection. The aim of this study is to compare postoperative outcomes of patients exposed to panniculectomy after bariatric surgery with the outcome of patients exposed to panniculectomy without a previous bariatric surgery.
Materials and methods: Between January 2005 and March 2010, a total of 79 patients were enrolled in this study where 37 corresponded to panniculectomy after bariatric surgery (group A), and 42 to panniculectomies (group B) without a history of bariatric surgery. Surgical technique was standardized. We recorded minor complications, major complications, systemic complications, transfusion requirements, reoperations and mortality rate.
Results: Among all patients enrolled in the study (79 patients) 73 were women and only 6 men (mean age of 43.48±10 years). The bariatric surgery most frequently performed was the placement of gastric banding (75.7%). In group A, we found a reduction in BMI of 46.4 (weight average 124.5±18.6 kg) to 31.1 (mean weight 84.3±14 kg) after bariatric and before panniculectomy with an average weight loss of 39.2±17.4 kg. The average time between bariatric surgery and panniculectomy was of 39.7±21.5 months. In group B "before- panniculectomy weight" was 30.9±4.2 (mean weight 81.5±11.8 kg). In both groups there was no statistical difference between weight and BMI pre panniculectomy. Overall morbidity was 13.5% in group A and 14.3% in group B. Two groups comparison showed no statistical difference for minor and major complications, systemic complications, mortality and overall morbidity. The only variable that showed a significant difference between groups was the hospitalization's length, which was longer in group A (12 days vs. 9.9 $p=0.01$).
Conclusions: Our results showed lower incidence of major and minor complications in both groups, compared previous publications. We think that we the reason of a low complication's rate is due to a good choice of the surgical timing between bariatric surgery and panniculectomy (at least 12 months), a BMI as close as possible to the ideal one and laparoscopic surgery approach that facilitate the subsequent panniculectomy.

O.182 Technical Propositions to Reduce Complications on the Abdominoplasty after Important Weight Loss

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Background: The surgical removal of the excess skin of the abdominal wall can cause various complications. The most common are seroma (30%), hematoma (10%) and wound dehiscence or infection (50%), whereas major complications such as pulmonary embolism, deep vein thrombosis or blood transfusion were less frequent (1%).
Methods: Our challenge was to avoid or reduce complications, especially seromas. This was achieved by practicing a more anatomical dissection in the undermining of the skin on the Scarpa's fascia to preserve lymphatic tissue. We avoid the use of electrosurgery for tissular dissection, and practice an Eiffel Tower shaped dissection of the abdominal wall. To improve the result, avoiding tension on the suture, we used a fixation of the Scarpa's fascia upwards that lifts the pubis and pulls the umbilicus and the dermal flap downwards. The hemostasis is made by ligature of the vessels. The study was conducted on 250 patiens using this technique between 2000 and 2009.
Results: The complication rate was 5%. There were no seromas and few minor wound infections. The esthetic result was acceptable.
Conclusion: A significan reduction in the amount of complications and better abdominoplasty was achieved by performing various tricks : avoiding electrosurgery, limited undermining, preserving lymphatic tissue and avoiding tension on the suture by double tension direction.

O.183 Is it Safe to Train Surgical Resident to Perform Laparoscopic Roux-En-Y Gastric Bypass?

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As a result of growing numbers of patients with morbid obesity there is a worldwide increasing demand for bariatric surgeons. The Roux-en-Y gastric bypass, nowadays mostly laparoscopically (LRYGB) performed, has been proven to be the most effective surgical treatment for morbid obesity. This procedure is technically

demanding and requires a long learning curve. So far, medical literature considering learning curves in bariatric surgery has mainly focussed on instructing already certified surgeons during bariatric fellowships. The aim of this study was to describe our experience with respect to implementing these demanding laparoscopic techniques in the training of surgical residents.
Between March 2006 and July 2010 409 patients underwent LRYGB. The procedure was performed by surgical resident under strict supervision of a bariatric surgeon (Group I) or by a bariatric surgeon (group II). Before performing LRYGB residents were required to have obtained adequate laparoscopic skills. This was achieved through basic and advanced laparoscopic training courses, take-home training boxes, exercise in our hospital skills lab and a minimum of 100 abdominal laparoscopic procedures performed. Data were retrospectively analysed.
83 patients were operated in Group I and 326 patients in Group II. Baseline characteristics were the same for both groups. There was no mortality in this series. A slight difference in operation time was noted, 129 minutes in Group I versus 123 minutes in Group II. This difference was significant. Postoperative complication rate, days of admission and numbers of readmission were the same for both groups.
Our data suggest that, under stringent supervision and with sufficient laparoscopic practice, implementation of LRYGB as part of surgical training is safe. The only consequence is a slight longer operation time. However, days of admission and complication rate were the same for the residents as for the attending surgeons. Our results should be interpreted considering the fact that all procedures in Group I were performed in a training environment, therefore occasional intervention of a bariatric surgeon, when necessary, was inevitable. Methods for a structured implementation of these demanding techniques in surgical training will be proposed during the presentation.

O.184 Operative and Clinical Outcomes of Bariaric Surgery Performed by Residents

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Background: Our hypothesis was that bariatric surgery may be performed by residents with good results.
Methods: In our Institution, fourth year residents of the Advanced General Surgery Program receive theoretical bariatric surgery information, participate in the Multidisciplinary Bariatric Team, and perform bariatric procedures in animal and non-animal models. 180 bariatric patients were submitted to Roux-en-Y gastric bypass performed by fourth year residents. Preceptor surgeons with experience in bariatric surgery were present in all procedures. Results were analyzed and compared to the literature.
Results: Mean age was 43.7 years. 162 were women and 18 were men. Mean preoperative BMI was 47.3 kg/m^2. Mean operative time was 227 minutes. Mean hospital stay was 68 hours. Early postoperative complication rate was 11.4% and late postoperative complication rate was 21.3%. There was 1 death. Follow-up was 88% and EWL was 78% at 2 years of follow-up.
Conclusions: Residents may perform bariatric surgery with results similar to the literature. Theoretical and practical guidance was fundamental for achieving good results.

O.185 Bariatric Registrar Training in the UK is Sorted!

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Background: Bariatric training has traditionally been at consultant level. Consequently, consultants are still often on their learning curve thus reducing "hands on" training for registrars. A new way of training the next generation is required.
Methods: SORTED (Surgery for Obesity; Registrar Training and Educational Development) was designed by a registrar, having secured industry sponsorship specifically for senior registrars. It is a modular course encompassing all aspects of bariatric surgery, not just the operative procedures:
*Module 1 (*Hamburg, Germany*)* - State of the art simulators, porcine prosections with pulsed perfusion liquids and live animal operating. Procedures practiced included gastric band insertion, removal of gastric band, sleeve gastrectomy and Roux-en-Y gastric bypass.
*Module 2 (*Bristol, UK*)* - Live links to theatre with supervised hands on experience with gastric banding. Live MDT exposure, radiology tutorials, live patient testimonials and Q&A sessions.
*Module 3 (*Taunton, UK*)* - Live links to theatre to observe, banding, bypasses, and revisional VBG to bypass surgery. Delegate presentations covering core curriculum topics, introduction to the National Bariatric Surgery Registry, basics of commissioning.
Summary: The pilot SORTED course was a huge success and is now being rolled out nationally with full endorsement of the Association of Laparoscopic Surgeons. It will continue to develop, incorporate a robust curriculum and assessment process and hopefully become the mandatory training course for UK bariatric trainee surgeons.

O.186 Gastric Banding in Adolescent: How to Manage Preoperative Assessment to Improve Results?

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Introduction: Bariatric surgery is well accepted for adults. The prevalence of obesity is increasing in adolescent population and bariatric surgery is still not in recommendations. With more than 1200 bariatrics procedures per year in our institution, we accepted adolescent in well defined conditions.
Methods: From March 2006 to March 2010, 63 adolescents referred to our institution for bariatric procedure. Evaluation was done by surgeon, psychiatrist and nutritionist. There were 13 male 50 female. Mean age at the first visit was 17,02±0,7 years, (15,2 to 17,98 years). Mean BMI was 44,8±6,77 Kg/m^2 (36,4 to 74,4). Bariatric procedure proposed was only adjustable gastric band, done by 2 different surgeons.
Results: There were no post operative complications. Mean follow up is 24±16 months. Mean BMI is 34,6±8,5 Kg/m^2 (18 to 55). In 6 patients the band was removed, in 4 because of intolerance, in 2 because of slippage. Results were compared according to the surgeons.

	N Patient	Band removed	IMC Preop *	Imc Post op	Age 1st Visit	Age surgery *
Surgeon 1	24	0	46,4±10	34,7±7,9	17±0,7	17,4±0,76
Surgeon2	33	6	43,9±4,4	35±9,4	17±0,7	17,7±0,98

[Table 1]
*: P<0,05

Time during first visit and surgery was higher with surgeon 2.
Conclusion: Results are better in adolescent population for gastric banding if the delay during 1st visit and surgery is longer. May be the adolescent have to demonstrate to the surgical team his motivation.

O.187 Laparoscopic Gastric Banding for Morbidly Obese Children and Young Adolescents

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Purpose: Although bariatric surgery is an effective treatment for morbid obesity the surgical treatment for the morbidly obese children and young adolescents is still controversial. This study describes our long-term clinical experience with the laparoscopic gastric banding in children and young adolescents.
Methods: During the last ten years 478 morbidly obese adolescents had laparoscopic gastric banding 95 of whom are five to ten years after surgery. Their mean age was 15±1.4 (range - 9 to 16) years. 8%(7 pts.) of the adolescents had comorbidities including hypertension, asthma and sleep apnea. Their mean preoperative hieght 165±7, mean weight 119±15 kg. with a mean BMI of 43±3. Seven patients (8%) were superobese whose BMI was over 50. Mean operation time was 25 minutes and hospital stay did not exceed 24 hours. It is to be emphasized that 40% of the patients had at least one family member who had bariatric surgery.
Results: Complications included slippage of band in eight (10%) patients who had laparoscopic reposition. 93% of the patients report of significant improvement in their quality of life. More than five years after surgery their mean lowest BMI was 27±3 and stabilized at a BMI of 30±2.5. The superobese reduce their BMI to 34±4. There were no metabolic or nutritional disorders.
Conclulsions: We found that despite their young age the obese adolescents had similar dimensions as obese adults. We conclude that gastric banding is well tolerated by young morbidly obese patients with close parents' observation. It induces long term significant weight reduction.

O.188 Do Adolescents Benefit from RYGB as Much as Adults?

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Background: We hypothesize that RYGB is safe of a procedure in adolescents as it is in adults, and will yield similar benefits in weight loss and quality of life.
Methods: At a single academic institution, between 2004 and 2010, adolescents undergoing RYGB were administered pre and 12 month postop Short Form 36 (SF-36) and matched to adults by BMI, gender and number of preoperative comorbidities. Data were analyzed with Students T-tests.
Results: For 33 adolescents: mean age and BMI at surgery was 17 years and 52.7% kg/m^2 respectively. For 99 adults: mean age and BMI were 44.4 years and 52.3% kg/m^2. There was as a significant difference in the number of preop comorbidities between adults and adolescents (4.9 vs 4.0, $p<0.001$). From preop to 12 months post op, adolescents had significant differences in the SF subcategories of physical function (54 vs 95, $p<0.001$); role of function (50 vs 98, $p<0.001$); and vitality (42 vs 63; $p=0.031$). Between adults and adolescents, there was no significant difference in % change in score (from preop to 12 month post op) for any SF-36 subcategories. There was, however, a significant difference in postop physical function score (adults-80 vs adol.-95, $p=0.034$). Between adults and adol. there was no significant difference in number of postoperative complications, readmits, reoperations, or 12 month percent excess weight loss.
Conclusion: Adolescents experience a significant improvement in quality of life from preop to 12 months post RYGB. RYGB yields no more complications in adolescents as in adults and is as effective for weight loss.

O.189 Laparoscopic Sleeve Gastrectomy in Adolescent - Mid Term Follow Up

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Background: Little data is available in the literature regarding Laparoscopic Sleeve gastrectomy (LSG) as a technique for bariatric surgery in adolescents. We present our experience with LSG as a standalone procedure in a small pediatric series.
Patients and methods: Twenty six patients were included in the study (10 male and 16 female). All patients underwent a complete pre-operative evaluation by a multi-disciplinary team. The mean age was 15.6 years (range 13–17 years) and the mean body mass index (BMI) was 45 kg/m2 (range 37.5-60 kg/m2). Four patients(15%) had obesity related comorbidities like hypertension, asthma, fatty liver and type II diabetes.
All patients underwent the procedure by two senior surgeons with the same technique.
Results: The peri-operative mortality was zero. There were no intra-operative complications. one patient(4%) underwent explorative laparoscopy due to intra-abdominal bleeding. the patient was discharge home on post-operative day four uneventfully. The mean lenth of stay was 3.5 days.
After a mean follow up of 18 months (range 3–47 months), all patient had reduced weight with a mean BMI of 29.4 kg/m2. Sixty six percent of patients with hypertension and 100 % of patients with diabetes had complete resolution of their diseases.
Conclusions: At 18 months of follow up, LSG proved to be safe and effective in the treatment of morbid obesity in this specific population, achieving good weight loss and improvement in comorbidities.
In this patient population LSG can be advantageous due to the lack of band adjustments and avoidment of anastomotic and possible malabsortive complications of gastric bypass.
Longer follow up is needed in order to adopt this technique as the primary approach in the surgical treatment of morbid obesity in this group of patients.

O.190 The Role of Laparoscopic Sleeve Gastrectomy in the Treatment of Morbidly Obese Children and Adolescents: State of the Art

PRESENTER: S. Van Cauwenberge[1]
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Introduction: In the last few decades the prevalence of obesity in children and adolescents has substantially increased. Active intervention is necessary because an overweight child or adolescent is likely to become an obese adult. For those children that fail behavioral interventions and pharmacotherapy, bariatric surgery remains the last valid option. Laparoscopic sleeve gastrectomy (LSG) is a restrictive technique that nowadays is performed more frequently by bariatric surgeons. Theoretically LSG may be the ultimate operation for children and adolescents since it does not involve malabsorptive side effects.
Methods: This presentation focuses on the current available data in medical literature regarding LSG and its results in the pediatric population.
Results: Data on LSG in children and adolescents are very limited. To date, only case series with limited postoperative follow-up have been published in medical literature. However, both vitamine B12 and iron deficiencies are reported. Also on the hormonal level the operation is not without a risk. Ghrelin plays an important role in growth hormone release and bone mineralization during childhood putting a child after LSG at a potential risk for growth disturbances and osteomalacia later in life.
Conclusion: Until more long-term data are available, LSG should be considered investigational and should not be implemented in a pediatric bariatric surgical practice except within the context of a controlled prospective study. In meantime, surgeons should be encouraged to report their long-term results and to participate in further research regarding the procedure.

O.191 Laparoscopic Gastric Bypass for the Adolescent Patient: Long Term Results

PRESENTER: S. Nijhawan[1]
Co-authors: T. Martinez[1], S. Majid[1], G. Jacobsen[1], M. Talamini[1], S. Horgan[1], A.C. Wittgrove[1]

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Background: Obesity is a major public health problem in the developed world. The National Survey of Children's Health 2003 estimated around 17 million children in the US to be overweight. Findings from the Third National Health and Nutrition Examination Survey demonstrated at least 30% of overweight adolescents to be suffering from the metabolic syndrome. Combined metabolic and restrictive bariatric

operations have been shown to improve or resolve these various co-morbidities. Surgical therapy is recommended as a part of a multidisciplinary approach to the treatment of morbid obesity in adults. Data in the adolescent population is sparse.

Methods: This is a retrospective, descriptive study of prospectively collected data over 10 years. 25 adolescents between the ages of 14–18 years underwent laparoscopic gastric bypass using a standard technique by a single surgeon with follow-up at least five years.

Results: 20 of the 25 patients were available for follow-up from 5–10 years after their operation. Average BMI pre-op / post op was 45.7 / 28.6. Average % excess body weight loss was 77.7%. Average BMI change was 17.1. All patients were of their medications for diabetes and other co-morbidities 1 week after operation and continued to remain disease free for the duration of follow-up.

Conclusion: Our long-term data demonstrates that laparoscopic roux-en-y gastric bypass is a safe and effective operation for morbidly obese adolescents, in the proper setting. We advocate that surgical intervention be recommended for this population using the same NIH guidelines used for adults.

O.192 Bariatric Surgery in Overweight Adolescents with Obesity Related Disease: One Center Experience in 17 Patient Operated

PRESENTER: V. De Blasi[1]

Co-authors: J.S. Azagra[1], D. Manzoni[1], M. Georgen[1], V. Simonelli[1], L. De Magistris[1], V. Poulain[1]

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Background: Actually the traditional and conventional treatment for pediatric/ adolescent obesity is considered the Psycological aid and organized weight loss attempts. But when we found comorbidities related to obesity this kind of treatment is not sufficient.

Design: A prospective observational cohort of 17 adolescent bariatric patients has been adressed for bariatric surgery by our multydisciplinary weight menagment teams. Avarage patient age was 16.5 years (range 13–18), with a BMI 45 kg/m2 (range 40–54). We have performed gastric bypass in 14 patients, sleeve gastrectomy in 3 patients in the youngest of cohort.

Results: Nor mortality or morbidity occurred. 10 of 14 patient with gastric bypass have had a 62% weight loss (WL) after minimum one year. The 3 patients with sleevs had a<40% WL but each of them has been reopereted to transform the sleeve in bypass. In the 3 patients with diabetes type2 we have a complete resolution. Comorbidities and psycological related problem had a linear decrease with the WL.

Conclusions: Adolescents bariatric surgery should be considered a good option in an effort to induce weight loss, improuve medical comorbidities, enhance quality of life and extended survival. Surgical management may be warrented for very severely obese adolescents with serious obesity related comorbid conditions. To obtein good results a multidsciplinary team with expertise in adolescent weight menagment and bariatric surgery should carefully consider the indications, risks , controidications and benefit of this type of surgery for each patients.

OA.001 IFSO - Certified and Recommended Bariatric Surgery Training Center

PRESENTER: K.A. Miller[1]

[1]Hallein Clinic, Surgical Dept., Hallein, Austria

Background: Obesity surgery is not only a craft but it also signifies consideration of the disease as a whole. An Operation Primer undertakes the task of communicating basic surgical techniques. Only someone who knows all the technical possibilities and procedures is in a position to react flexibly and adequately in different situations. About 50 different surgical methods have been developed in obesity surgery in the past 50 years. It is obvious from this that the optimal surgical method for the obese patient does not exist. Experience has shown that peri- and postoperative complications can be reduced with with simplified working steps. An Operation Primer is an ideal format for communicating new operative methods but it does not replace training by an experienced surgeon. A surgeon cannot rest on his laurels but must always keep up with the latest techniques. I would therefore like to take this opportunity to thank the Industry for making Mental Training, training on the computer simulator and operations in the laboratory possible. First-class surgery is possible only through careful acquisition of knowledge, regular training and quality control. Additional mental training is an effective way of optimizing the outcomes of further training for laparoscopic procedures. It is associated with fewer costs and with better outcomes in some crucial assessment scales than additional practical training.

The IFSO - CERTIFIED and RECOMMENDED Bariatric Surgery Training Centers will be presented in two parts: Part A) Institutional Credentials and Surgeon's credentials (Trainee): PART TWO: Bariatric Surgery Curriculum Program. A focus will be drawn on Train the Trainer and Mental TrainingProgram.

WORLD IFSO CONGRESS 2011

INTEGRATED HEALTH

IH 01–01 Preoperative Nutrient Deficiencies: Recognition and Treatment

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Introduction: Despite excessive caloric intake, bariatric surgical candidates commonly present with micronutrient (vitamin and mineral) deficiencies. Such deficiencies, if left unattended, are likely to worsen following bariatric surgery, contributing to adverse and even life-threatening health consequences. Therefore, the recognition and treatment of vitamin/mineral deficiencies are crucial prior to surgery.
Methods: This presentation provides a brief overview of the literature pertaining to preoperative micronutrient deficiencies, causes for such deficits and the recognition, thereof.
Results: Topics addressed will include:

1. current knowledge of preoperative vitamin and mineral deficiencies,
2. micronutrient deficits with regard to demographics (age, gender, ethnicity, other),
3. mechanisms responsible for vitamin/mineral deficiencies with obesity, i.e. nutritionally poor diet, increased adiposity, chronic inflammation, and
4. preoperative recommendations for screening and treatment.

Conclusion: The recognition and correction of nutritional deficiencies common to patients undergoing bariatric surgery will attenuate postoperative complications and improve surgical outcome.

IH 01–02 Necessity of Supplements in Vitamins and Minerals in MO Patients

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Obesity is frequently associated with an inadequate supply of micronutrients. The magnitude and at least the consequences of this inadequate supply depends on the individual food quality. According to Drenowsky and co-workers increasing energy (in particular fat content) of a diet correlates with decreasing micronutrient density. Consequently obese patients are at risk for more or less severe malnutrition also defined as hidden hunger. In particular vitamins B1, B12, Folate, Iron, Zinc and Selenium. Depending on the diet and on the different weight loss regimens, including pharmacological approach prior surgery, also fat soluble vitamins may be more or less inadequatly supplied. Despite the fact that typical clincal symptoms of severe deficiencies e.g. scorbut, osteomalazia or night blidnness, are rare, an inadequate suppyl will have consequences. First of all the immune system is impaired which may favor frequent infections and impaired wound healing. A couple of clincial studies documented that a poor nutritional status may promote peri- and postoperative complications. Consequently the patient which undergoes bariatric surgery has in addition to his basic risk a high risk for post-surgery side effects due to mcironutrient deficiencies. Therefore the US american guidelines state: *An appropriate nutritional evaluation, including selective micronutrient measurements, is absolutly necessary for all patients before any bariatric surgical procedure.* Due to the fact that many vitamins and minerals undergo a homoeostatic regulation (plasma levels remain constant over a long time despite nearly depleted stores) the determination in blood is frequently misleading. The measurment in cells is far more adequate and can be easily achieved in buccal mucosa cells, which can be harvested non-invasive. Recent studies showed that vitamin levels in buccal mucosa cells correlate with different tissue levels, including adipose tissue. A preoperative supplementation with a multivitamin, -mineral supplement containing 100% of the daily recommendation should start a couple of days or even weeks before surgery. In case of a sufficient status that does not harm, in case of an insufficient micronutrient status it may have a benefit. According to the US-guidelines *routine metabolic and nutritional monitoring is recommended follwoing all bariatric surgical procedures*. Nevertheless a regular intake of a multi-supplement should be recommended following bariatric surgery independant from the procedure. In cases of severe fat malabsorption fat soluble vitamins including essentiel fatty acids needs to be supplied either parenteral, or as recently shown in a water soluble formulation. The latter approach was sufficient to improve the poor status of fat soluble vitamins in patients with cystic fibrosis and short bowel syndrome. Taken together the MO patient has a high risk for a poor micronutrient status due to a preoperative imbalanced diet and postoperative absorption problem.

IH 01–03 Incidence of Pre- and Postoperative Nutritional Deficiencies in Patients Undergoing Laparoscopic Sleeve Gastrectomy for Morbid Obesity

PRESENTER: A. Damms Machado[1]
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Background: Deficiencies in micronutrients after restrictive-malabsorptive bariatric procedures like RYGB are known to be frequent. It is generally believed that Laparoscopic Sleeve Gastrectomy (LSG) achieves weight loss by restricting the amount of food that can be consumed with no malabsorption. Data indicate that following this intervention the stomach empties solid foods rapidly and possibly incompletely processed into the duodenum. Furthermore, frequently observed clinical or subclinical pre-operative micronutrient deficiencies in morbidly obese patients might result in diet-related complications in the post-operative period. The objective of this study was to assess pre- and postoperative frequency of nutrient deficiencies after LSG.
Methods: In an ongoing study 51 patients (n=22 m, n=29 f) with an average body mass index of 51.0±8.0 kg/m^2 and age of 45±10.2 years were prospectively analyzed. The patients were examined before surgery as well as 1, 3, 6, 12 months (to be continued) postoperatively including laboratory tests of vitamin A, E, 25-OH-D3, B6, B12, folate, iron, calcium and potassium. The current follow-up rate at 1 year is 73%, the mean follow-up time 10.2±3.2 months. To determine differences in preoperative nutritional status in obese patients, micronutrient analyses of 35 normal weight controls were included. Intentionally, subjects were adviced to take multivitamin supplements analogous to a routine setting. Supplement intake was documented at every study visit.
Results: Prior to surgery, 53% of the patients had at least one deficiency, 31% (vs. 20% controls) of whom had vitamin 25-OH-D3 deficiency, 31% (vs. 22%) iron, 13% (vs. 0%) vitamin B6, 10% (vs. 4%) vitamin B12, 6% (vs. 0%) folate, 4% (vs. 0%) calcium and 11% (vs. 4%) potassium deficiency. Despite supplement advice, frequent postoperative deficiencies after LSG were observed for these micronutrients. Frequencies did not reduce or increase following LSG, except for iron (+75%), vitamin B12 (+100%), folate (+167%) and potassium (+164%), which were increasingly observed during the first year after intervention. No pre- and post-operative vitamin E deficiencies were found.
Conclusion: The assessed data confirm an elevated prevalence of micronutrient deficiencies in subjects with marked obesity. A higher prevalence for comorbidities in malnourished obese subjects has to be assumed. Following LSG micronutrient deficiencies can occur or aggravate due to restricted food intake, minimized mechanical food breakup and accelerated emptying of the stomach, as well as reduced generation of intrinsic factor. A post-operative closed meshed monitoring and concepts for individualized supplementation should be considered.

IH 01–04 Postoperative Nutrient Requirements Specific to Procedures

PRESENTER: S. Faria[1]
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Due to changes made in their gastro-intestinal tract, bariatric patients need adequate nutritional follow-up postoperatively since they will have specific nutritional demands. Absence of this follow-up can lead to nutritional complications. Bariatric surgery can be divided into three groups: restrictive procedures, mixed procedures and malabsorptive procedures.

Specifically restrictive procedures, such as adjustable gastric band, are less susceptible to postoperative nutritional complications, these being more common during the first year, when most patients ingest less than one thousand calories/day, with some patients showing food intolerance and not ingesting adequate amounts of protein/day. As sources of protein are also important sources of iron and zinc, this food pattern can lead to anemia and hair loss. This population needs nutritional supplements (100% RDI) as well as protein supplements to meet adequate daily requirements. Women at a fertile age occasionally need iron supplementation also, but not routinely.

Mixed procedures, as RYGBP, are susceptible to present a few nutritional complications as patients have their ingestion dramatically reduced, also decreased contact of food with digestive enzymes and bypass of duodenum and proximal jejunum. These patients can develop: anemia, metabolic bone disease, bariatric beriberi, vitamin B_{12} deficiency, hair loss, and protein deficiency (more related to muscle mass loss). This population should receive daily multi-minerals and multivitamins (200% RDI); 1,200 mg of calcium in form of citrate, daily; 800 IU of vitamin D, daily; 350 μg of crystalline B_{12} oral, daily or injection - intramuscular 1000 IU, monthly; woman at a fertile age should receive iron supplementation (18–27 mg/day-elemental iron), and if they present anemia and/or ferritin below 10 μg/day, they should receive intravenous iron supplementation. Protein supplementation should be prescribed since this population cannot ingest an adequate amount of this macronutrient (60–120 grams daily). RYGBP patients present postoperatively higher energy expenditure per Kg of weight than in the pre-operative moment.

Malabsortive procedures, such as DS and RYGBP with a long limb, can present some nutritional deficiencies: anemia, bone mineral disease, vitamin B_{12} deficiency, hair loss, protein deficiency and fat-soluble vitamins deficiency. They should receive: 1,800 mg of calcium, 2,000 IU of vitamin D, 10,000 IU of vitamin A, 300 μg of vitamin K; woman at a fertile age should receive iron supplementation (18–27 mg/day-elemental), and if they present anemia and/or ferritin below 10 μg/day, they should receive intravenous iron supplementation. They should also receive protein supplementation to achieve 90–120 grams a day of protein ingestion.

The bariatric population can thus present some nutritional complications when not receiving or adhering to specific supplementation. The quantity of supplements will vary depending on procedures applied.

IH 01–07 Lactose Intolerance - Is it a Problem after Obesity Surgery?

PRESENTER: H. Raab[1]

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Approximately 75% of the adult population world wide are not able to digest lactose. In Asia and Africa 90% of the adult population are lactose intolerant. In Australia, North America and in the western part of Europe approximately 5-15% of the white population are lactose intolerant.

Causes for lactose intolerance are: primary lactase deficiency and secondary lactase deficiency. The latter can be caused by mucosal injury from a condition or disease process such as regional enteritis, ulcerative colitis, Crohn`s disease, gluten-induced enteropathy, following antibiotic therapy or surgical procedures like partial or complete gastrectomy, extensive bowel resection and gastric bypass.

Now, is lactose intolerance a problem after obesity surgery? It's difficult to find some information in the literature regarding lactose intolerance after obesity surgery. We do not have precise data regarding this aspect. Some authors describe that around 5-10% of the patients develop lactose intolerance after obesity surgery. But this number is dependent on the kind of surgery which was performed. After gastric banding and sleeve gastrectomy there is usually no development of lactose intolerance. After gastric bypass and biliopancreatic diversion the development of lactose intolerance is possible. The main reason is that after gastric bypass lactose passes through the gastric pouch into the small bowel at a much higher rate and more rapidly. The amount of lactose is too much for the available enzyms and the lactose intolerance symptoms like diarrhea, abdominal bloating and pain, flatulence and nausea occur. We investigated our patients by asking them if they do have problems after the consumption of milk and milk products after their surgery and we can confirm the numbers mentioned above.

If lactose intolerance is the case a lactose-controlled diet should be recommended. Patients should be encouraged to consume dairy products by means of yoghurt preferably probiotics or cheese. Patients should also be trained to read food labels carefully to identify sources of lactose such as milkpowder which is frequently used in convenience food and contains approximately 50% of lactose. They can also use lactase containing products to digest lactose in a better way.

But to get precise data of the frequency of lactose intolerance after obesity surgery investigations with a clear diagnosis of lactose intolerance like breath hydrogen test or blood sugar test should be performed.

IH 01–08 Incidence and Treatment of Nutritional Deficiencies during the First Two Years after Roux-En-Y Gastric Bypass Surgery

PRESENTER: J. Brocklehurst[1]
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[1]Gravitas, Wirral, United Kingdom

Background: Nutritional deficiencies following Roux-en-Y Gastric Bypass (RYGB) are relatively common, although there is a lack of consensus on the type, dose and frequency of additional supplementation to correct these deficiencies. The aim of this study was to review the incidence, onset and treatment of nutritional deficiencies following RYGB.

Methods: 294 patients (251 female and 43 male) with two years follow up data were analysed from the bariatric database. Median age was 43.5 years and median BMI 48.6kgm^2. Year one excess weight loss (EWL) was 60% and year two 80.5%. All patients commenced on a standard multivitamin and mineral preparation and calcium and vitamin D post-operatively. Blood monitoring occurred at 3,6,9,12,18 and 24 months post-op.

Results: 28% of patients developed vitamin B12 deficiency with the median time of onset at 10 months post op. 26% of patients developed iron deficiency with the median time of onset at 11 months post op. 95% of patients who developed iron deficiency were women under 50 years.11% of patients developed zinc deficiency and 6% developed folate deficiency. Median time of onset was11 and 9 months post op respectively. Nutritional deficiencies were treated by 1 mg hydroxocobalamin IM every 3 months, 200 mg iron for 3–4 months depending on levels, 90 mg zinc for 4 months and 5 mg folic acid for 4 months. No patients developed protein deficiency. Pre-existing vitamin D deficiency was present in 39% of patients and 40% of patients had insufficient levels (based on laboratory interpretation guides). Post-op vitamin D deficiency was reviewed in patients having both a pre and post op level (51 patients). All vitamin D levels improved following surgery and only 4% of patients remained deficient at their twelve month review.

Conclusions: Nutrient deficiencies following RYGB can be managed with routine additional supplementation and appropriate long term nutritional monitoring. Due to the high incidence of pre-existing vitamin D deficiency all our patients now have their vitamin D levels checked pre-operatively, and are commenced on calcium and vitamin D in addition to the standard multivitamin and mineral preparation post-op.

IH 01–09 Iron and Hemoglobin Indices after Bariatric Surgery: A Comparison of Duodenal Switch, Roux-Y Gastric Bypass and Sleeve Gastrectomy

PRESENTER: P.F. Crookes[1]
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Bariatric surgery produces improvement in many obesity-related comorbidities, but is sometimes associated with iron-deficiency anemia, especially in premenopausal women. Since iron is chiefly absorbed in the duodenum, different bariatric procedures interfere with iron absorption to differing degrees. The aim of this study was to compare the effect of three contemporary bariatric procedures (duodenal switch [DS], Roux-en-Y gastric bypass [RYGBP] and sleeve gastrectomy [SG]) on iron storage and red blood cell indices.

Patients undergoing these three procedures over a 2 year period were assessed preoperatively and at 3, 6, 9, 12, 18, and 24 months postoperatively. Data collected retrospectively included demographic information (age, sex, BMI) as well as red blood cell indices, serum Iron, TIBC and % saturation. Values were expressed as mean and SD and percent change from baseline, for the entire cohort as well as for females<50 years. Mean values were compared using t-test.

Results: Of the 473 patients, 331 had DS, 72 had RYGBP and 70 had SG. Mean BMI for the entire cohort was 53.6 ±10.2. All patients reported compliance with routine Iron supplements. For the entire cohort of patients, there was no significant change from baseline in Hb, Hct, MCV, Fe or TIBC between the three groups of patients after two years. However, in the subgroup of females<50 years, there was a reduction in Hct of 9.2% by 24 months after DS, whereas there was an increase of 0.7% from baseline after RYGBP (p=0.0112 vs DS) and after SG by 4.0% (p=0.0347 vs DS). Similar trends were observed for serum Fe, with a drop of 9.2% at 2 years for DS, while after RYGBP serum Fe increased by 60.5% (p=0.034 vs DS) and after SG by 43.8% (p=0.037 0vs DS).

Conclusion: In women<50 years, the DS procedure appears to induce a greater degree of reduction of Hct and Fe than RYGBP and SG. Since both DS and RYGBP bypass the areas of maximal Fe absorption, the apparent preservation of Fe and RBC indices after RYGBP is unexpected, and further studies are warranted.

IH 01–10 Monitoring of Vitamins B_{12} and Folate in Sleeve Gastrectomy - is it Necessary?

PRESENTER: F.X. Felberbauer[1]

Co-authors: S. Shakeri-Leidenmuehler[1], A. Bohdjalian[1], F.B. Langer[1], J. Zacherl[1], G. Prager[1]

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Background: Substition of vitamin B_{12} is mandatory after malabsorptive bariatric procedures. Patients after *restrictive* procedures are not considered to need B_{12} supplementation.

Sleeve gastrectomy (SG) is the most recently established mainly restrictive technique in bariatric surgery. We investigated whether SG can result in cobalamin or folate deficiency.

Methods: In 91 consecutively operated SG patients (46f, 37m), we determined vitamin B_{12}, folate, homocysteine, hemoglobin, mean corpuscular volume (MCV), and transferrin saturation. Following SG all patients were prescribed a standard multivitamin preparation daily. When patients developed deficiency of vit. B_{12}, they received 1000μg of cyanocobalamin i.m.

The mean follow-up was 18 mths (1–83 mths).

Statistical analysis: Mann-Whitney U-test was used for comparison of pre- and postoperative serum values, Ξ^2-tests were done for comparison of proportions.

Results: Direct comparison of pre- and postoperative cobalamin serum levels showed a significant (P=0.02) decrease of cobalamin serum levels after SG, whereas folate levels did not change significantly.

Before surgery no **vitamin B_{12} deficiency** was detected. Low-normal serum levels (153–200 pmol/L) were seen in 14.6% of the patients. After SG, **15.6%** of the patients became **deficient** in vitamin B_{12} (< 153 pmol/L) and received parenteral substitution. Further **17.2%** displayed **low-normal** cobalamin concentrations (P=0.02). Postoperative serum values significantly decreased with time after surgery. **Folate deficiency** (< 7.1 nmol/L) was found in 2.7% of the patients before SG and in 3.3% thereafter, 13.5% displayed low-normal folate serum values (7.1 - 10.0 nmol/L) preoperatively and 11.5% after SG. These differences were not significant (P=0.75). We did not observe peripheral neuropathy or macrocytotic anemia. Microcytotic or normocytotic anemia was diagnosed in 23,3% of the patients, and was almost universally associated with low transferrin saturation, i.e., iron deficiency.

Homocysteine levels were moderately specific (77.6%) and not sensitive (45%) for vitamin B_{12} and/or folate deficiency.

Conclusions: Enteral uptake of vit. B_{12} seems to be impaired after SG: A considerable number of patients developed vit. B_{12} deficiency despite oral supplementation. Folate deficiency after SG was rare, which indicates that patients actually complied to postoperative supplementation. Mean cellular volume is not an adequate parameter for vit. B_{12} or folate status as macrocytosis is obviously masked by the frequent concomitant iron deficiency. Homocysteine is also an insufficient indicator of vit. B_{12} or folate levels during major weight loss.

We therefore advocate regular pre- and postoperative measurements of vit. B_{12} and folate serum levels in SG patients. Deficiencies should always be substituted before bariatric surgery.

IH 02–01 Preoperative Evaluation and Patient Selection

PRESENTER: E. Toman[1]

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Bariatric surgery is the treatment of choice for morbid obesity, but it does not lead to equal results in every patient. Different psychological factors influence the results, especially patients' ability to adjust to the postoperative condition. Understanding the relationship between potential predictive variables and success after bariatric surgery is crucial to improve outcome and enable better patient selection and the development of interventions.

The existing literature about potential predictors of success after bariatric surgery is far from conclusive; it is still not fully clear which factors predict success.

Generally psychosocial functioning however is an important agent. We know today, that greater success appears in patients who have a high self-esteem, good mental health, who are self-critical and cope in a direct and active way, have realistic expectations and undisturbed eating behaviours.

Even though psychosocial functioning does not directly and clearly predict outcome, it is important to identify patients' characteristics which may be linked to better prognosis and to provide necessary pre- and postoperative psychosocial interventions. For that, the focus needs to be put more on individual psychosocial evaluation and intervention strategies.

IH 02–02 Comprehensive Pre-Surgical Mental Health Evaluations

PRESENTER: C. Stapleton[1]

[1]Mind Body Health Services, Inc, Augusta, United States

Conducting a thorough psychosocial pre-surgical evaluation with the use of a variety of assessment instruments plays an important role in determining a patient's readiness for surgery. In addition, a skillfully implemented assessment can impact a patient's willingness to obtain pre- and/or post-surgical mental health counseling, which could impact their long-term commitment to healthy behaviors, increased self-efficacy and self-esteem, and ultimately, greater opportunity for sustained weight loss.

Suggestions for the pre-surgical psychological assessment of bariatric surgery candidates from the ASMBS (October, 2004):

Objectives of the Assessment

"… to identify those for whom surgery is too risky and those who have conditions that need to be treated, stabilized, or managed for surgery to be worth its risk… Generally patients will need a secure identity, sound psychological resources, resiliency, effective coping strategies, and willingness to access meaningful support from others.

Assessment Content

Common categories of assessment include: behavioral, cognitive/emotional, developmental, current life situation, motivation, and expectations.

When looking across the obesity literature, the impact of psychological variables in the development and treatment of obesity is certainly acknowledged but overshadowed by the physical and medical components of obesity, which dominates the literature. Given the failures of weight loss methods, even surgical methods, an understanding of the psychological variables that impact success of surgical and non-surgical weight loss is imperative, as the field continues to strive to reduce the public health impact of obesity (Davin & Taylor, 2009).

Psychological vulnerabilities among the obese are consistently documented. The obese reportedly suffer from negative self-perceptions, low self-esteem (Allon, 1982), body-image disturbances (Stunkard & Wadden, 1992), sexual problems (Assimakopoulos et al., 2006), less interpersonal contact (Bocchieri et al., 2002), and poorer social skills (Carr & Friedman, 2006). Numerous psychosocial and psychological consequences have been associated with overweight and obesity, including

depression, disordered eating, social discrimination, and poor quality of life (Fabricatore & Wadden, 2006). It is also clear that many of these disorders can be successfully treated via counseling.
Few therapists have education or training to work specifically with the obese population. This presentation will focus on how to conduct a thorough pre-surgical mental health evaluation and encourage patients to engage in therapy as part of their weight loss surgery process.

IH 02–03 Standards of Pre-Operative Psychological Testing

PRESENTER: M. de Zwaan[1]

[1]University of Erlangen-Nuremberg, Department of Psychosomatic Medicine and Psychotherapy, Erlangen, Germany

There exist no formal guidelines or even a widely-agreed-upon model of psychosocial evaluation and assessment instruments prior to bariatric surgery. Clinicians performing these evaluations use varying tools and collect information in varying domains. Although the collection of data can be time consuming, the immediate and longer-term benefits of multidimensional psychosocial measurement are numerous. Typically, bariatric surgery assessment relies on a combination of structured interviews, self-report questionnaires, and unstructured clinical interviews. When used in conjunction with unstructured interviewing, structured assessment instruments can improve the reliability and scope of self-reported data as well as provide an opportunity for collaborative treatment planning. Structured instruments have the additional benefit of improving communication among treatment centers and of minimizing the likelihood of missing information. The goal of a pre-operative evaluation is not only to screen potential candidates for the appropriateness of surgery, but also to determine the need for additional support or services. Finally, structured assessment instruments can be used repeatedly, e.g. during follow-up of bariatric surgery patients. Specific assessment instruments will be introduced.

IH 02–04 Bariatric Surgery Affects Eating Disorders and Addiction

PRESENTER: K.A. Miller[1]
Co-authors: E. Ardelt-Gattinger[2]

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Objectives: Interdisciplinary state-of-the-art interventions to treat obesity demand equally interdisciplinary outcome assessment. The BAROS (Oria & Moorehead, 1998) is limited to adults and medical and quality of life outcome parameters. It was the aim of the current project to establish an interdisciplinary instrument for quality assurance to reliably assess conservative and bariatric obesity treatment.
Method: Medically relevant parameters of obesity comorbidities ("metabolic syndrome") were selected. The variables were tested in a cross-sectional study of a representative sample (N=4000, age 18–65) to evaluate whether they allowed to discriminate between different BMI categories. In our study we recruited 250 bariatric patients, operated between 2003 and 2005 (196 women/ 54 men) at the mean age of 39,85 years (SD=11,65) and with a mean BMI of 44,78 kg/m² (SD= 7,04). Patients eligible for investigation were 78 Patients with Laparoscopic Gastric Bypass and 172 Patients with Adjustable Gastric Banding (AGB). The patients were reviewed in the interval of 3, 6, 12, 24, 36, 48 and 63 months after operation.
Results: The craving/addiction score (CAS) differed significantly $F_{(8/4428}=41.85$, $p < .01$; $\eta^2 = .07$) between BMI-groups in the CAS. Patients with declining sdsBMI had significantly ($F_{(1,66)}=6.52$, $p< .05$ Out1) and trend (2,36, $p < .10$ Out2) lower baseline CAS and post treatment CAS ($F_{(1 / 79)}=3.53$, $p < .01$ Out2). For the patients in CAMP CAS was the strongest predictor of weight loss (Beta = .503, t = −2.25, p = .036). In The statistical analysis (linear regression) showed a positive correlation between quality of life and weight loss, depending on operation method. Additionally we used a partial correlation to rule out the influence of weight loss and remarked a significant result (r = .234, p = .000). With a t-test it could be demonstrated, that patients with a Laparoscopic Gastric Bypass observed a significant different quality of life and CAS, than patients with an AGB independent from weight loss (t (123)= 3.477, p = .001).
Conclusion: Independently of the amount of weight loss, gastric bypass is the surgical procedure, which leads to a significant improvement of quality of life as well as craving and addiction.

IH 02–05 Changes in Health-Related Quality of Life Post-Surgery

PRESENTER: R.L. Kolotkin[1,2]
Co-authors: L.E. Davidson[3], R.D. Crosby[4], S.C. Hunt[3], T.D. Adams[3]

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[4]Neuropsychiatric Research Institute, Fargo, United States

Background: Although many studies have evaluated health-related quality of life (HRQOL) outcomes after bariatric surgery, few studies have compared their findings to obese individuals not participating in weight loss interventions.
Method: The Utah Obesity Study evaluated 2- and 6-year changes in gastric bypass patients (GBP) versus two severely obese groups not undergoing surgical weight loss [individuals who sought but did not have gastric bypass (No GBP) and population-based obese individuals (Pop OB)]. Participants completed weight-specific (IWQOL-Lite) and general (SF-36) HRQOL measures.
Results: At 2 years GBP patients lost 34.2% of body weight on average, compared to 1.4% in No GBP and a weight increase of 0.5% in Pop OB. GBP patients showed greater improvements in all aspects of weight-specific and generic HRQOL at 2 years ($p< .001$) compared to No GBP and Pop OB. Effect sizes for changes in physical and weight-related HRQOL were very large for GBP, but small to medium for comparison groups. At 6 years GBP patients lost 28.7% of body weight on average, compared to 0.1% for No GBP and 0.3% for Pop OB. Statistically greater improvements ($p< .001$) were exhibited at 6 years for GBP compared with No GBP and Pop OB in weight-specific and general physical HRQOL, but not mental HRQOL. Effect sizes for changes in IWQOL-Lite total score and physical SF-36 remained large for GBP patients at 6 years (2.20 IWQOL-Lite total; 1.22 physical SF-36).
Conclusions: At 6 years post-surgery, despite some weight regain and decrements in HRQOL relative to 2-year follow-up, improvements in weight specific and physical HRQOL were maintained and were superior to two comparison groups.

IH 02–06 Changes in Psychological and Psychosocial Status Postoperatively

PRESENTER: S. Herpertz[1]

[1]University Clinic, Ruhr-University Bochum, Bochum, Germany

Until currently, numerous studies have been performed regarding the amount of weight reduction, the complications associated with bariatric surgery, and the impact of weight loss on obesity-related comorbidity. Although bariatric surgery has generally been proven to be effective, there is great variability in outcome. Besides medical complications a large subsample of morbidly obese individuals requesting obesity surgery reveals substantial psychopathology with a lifetime history ranging from 37% to 73% of Axis 1 mental disorders and up to 30% of personality disorders. Evidence is accumulating that severe obesity cannot generally be ascribed to psychopathological determinants, even though in certain subgroups such as Binge Eating Disorder and subtypes of affective disorders, obesity is partly due to psychopathology. In recent years, besides psychopathology quality of life (Qol) has reached considerable interest as an outcome measure of obesity surgery. Mental health and psychosocial status including social relations and employment opportunities improve for the majority of people after bariatric surgery resulting in an improved QoL. Comorbid mental disorders, predominantly affective disorders and BES as well as psychopathologic symptoms decrease post-surgically. However, a significant number of patients show a grazing symptomatology after surgery, probably because of the altered postoperative anatomy. Another important critical incident concerns a substantial number of suicide cases after obesity surgery. If these findings can be replicated in the future, they should be considered thoroughly.

IH 02–07 Obesity and Addiction

PRESENTER: C. Stapleton[1]

[1]Mind Body Health Services, Inc, Augusta, United States

The evidence for food's addictive properties is steadily growing. In addition to clinical and evolutionary plausibility, the possibility of addiction to food is supported by animal model research and increasingly by research with humans. Much as classic drugs of abuse "hijack" the brain, accumulating evidence with food suggests a similar impact…" (Gearhardt, Ashley N; Corbin, William R; Brownell, Kelly D., 2009.)
Overeating shares many characteristics with substance use disorders. Furthermore, overeating has been characterized as an addiction and most likely arises from a combination of abnormal cognitive and neuroendocrine processes. (Joranby, Lantie; Pineda, Kimberly Frost; Gold, Mark S., 2005).
If we compare the definitions and diagnostic criteria for "dependence" and "addiction" with the situation of many severe obese subjects, it is apparent that they match very well. Further, different neurological studies confirm this similarity: both addiction and obesity patients have a deficiency of dopamine receptors. (Riva, Giuseppe; Bacchetta, Monica; Cesa, Gianluca; Conti, Sara; Castelnuovo, Gianluca; Mantovani, Fabrizia; Molinari, Enrico, 2006).
Obesity is typically associated with abnormal eating behaviors. Brain imaging studies in humans implicate the involvement of dopamine circuits in pathologic eating behavior(s). Food cues increase striatal extracellular DA, providing evidence for the involvement of DA in the nonhedonic motivational properties of food and increase metabolism in the orbitofrontal cortex indicating the association of this region with the motivation for food consumption. Similar to drug-addicted subjects, striatal DA D2 receptor availability is reduced in obese subjects, which may predispose obese subjects to seek food as a means to temporarily compensate for understimulated reward circuits. Decreased DA D2 receptors in the obese subjects are associated with decreased metabolism in prefrontal regions involved in inhibitory control, which may underlie their inability to control food intake. Gastric stimulation in obese subjects activates cortical and limbic regions involved with self-control, motivation, and memory. These brain regions are also activated during drug craving in drug-addicted subjects. The reduction in DA D2 receptors in obese subjects coupled with the enhanced sensitivity to food palatability could make food their most salient reinforcer putting them at risk for compulsive eating and obesity. The results from these studies suggest that multiple but similar brain circuits are disrupted in obesity and drug addiction… (Wang, Gene-Jack; Volkow, Nora D; Thanos, Panayotis K; Fowler, Joanna S., 2009.)
The presentation will illustrate the similarities between obesity/the use of food and the use of drugs of abuse. Ideas for the psychological treatment of post-surgical weight loss patients in light of this awareness will be discussed.

IH 02–08 Weight Loss and Diabetes Remission Improves Quality of Life after Bariatric Surgery Independently of the Type of Intervention

PRESENTER: C. Zerrweck[1]
Co-authors: A.-M. Debril[1], R. Caiazzo[1], M. Pigeyre[1], L. Arnalsteen[1], H. Verkindt[2], M. Romon[2], F. Pattou[1]

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Background: The success in bariatric surgery is normally evaluated by objective criteria (weight loss/amelioration of comorbidities) not truly reflecting the improvement in physical activity and social well-being, reason why, the evaluation of quality of life (QOL) emerged. There are over 100 questionnaires used for this matter, being separated into: general and specific ones (disease, population or clinical problems). The Nottingham Health Profile (NHP) questionnaire provides information on the emotional, physical and social perception; complementary, the Beck Depression Inventory (BDI) is used to measure the severity of depression.
Material and methods: We conducted a retrospective study (Lille cohorte study), analyzing the prospectively collected records of obese patients submitted to a bariatric procedure [Laparoscopic Gastric Band (LGB), Laparoscopic Gastric Bypass (LGBP) or Open Jejuno-ileal bypass (JIB)] between 1993–2009. Demographic, clinical and QOL results presented were obtained preoperatively and at 1, 2, and 5 years post-surgery, and compared between procedures. Improvement in QOL is represented by a higher NPH score and/or a lower BDI.
Results: Of the 736 patients operated (LGB: 375; LGBP 272; JIB 89), 559 (76%) were female, had a median age of 41±15.5 years and a preoperative Body Mass Index (BMI) of 49.6±8.4 kg/m^2 , being lower for the LGB group (47.4±7.1 kg/m^2; $p<0.05$). Main comorbidities were dyslipidemia (55.7 %), arterial hypertension (46.2 %) and diabetes (27.7 %). The overall QOL improved at 1 year regardless of the procedure or questionnaire. No significant difference was found at baseline, 2 and 5 years. Physical activity and vitality are correlated with weight loss at 1 year ($p=0.007$; $p=0.004$) and 2 years ($p=0.035$; $p=0.015$). Pain is correlated with weight loss at 5 years ($p=0.004$); sleeping improvement and emotional reactions are correlated with weight loss at 2 years ($p=0.009$; $p=0.043$). Beside weight loss, diabetes remission improved independently QOL at one year ($p=0.033$) in multivariate analysis.
Conclusion: Our study showed that QOL is improved by weight loss and diabetes remission independently of the type of surgery.

IH 02–09 Deranged Eating Behaviors in the Obese and Impact of Bariatric Surgery : First Reported Indian Study

PRESENTER: J.S. Todkar[1]
Co-authors: S.S. Shah[1], P.S. Shah[2], S. Ratnani[3], N. Natasha[3], S. Khandelwal[3]

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[3]Dr L H Hiranandani Hospital, Bariatric and Metabolic Surgery, Mumbai, India

Background: Eating behavior of an individual is a surrogate evidence of the hunger and satiety in that individual. Bariatric surgery is known to modify the hunger and satiety in an obese individual. This is a prospective study conducted at Laparo Obeso Center ,India to assess the eating behaviors of obese individuals in comparison to normal weight individuals and to understand the effect of bariatric surgery on it.
Methods: Eating behaviors of the obese group: preoperatively and postoperatively (n=36) were compared to those of the normal weight group (Gr1): (n=36) to identify the differences in the eating behaviors and to find the probable cause of over nutrition in the obese.
Results: There was a significant difference in the uncontrolled eating ($t=4.642$,$p=0.000$) and emotional eating ($t=1.811$,$p=0.038$) of the two groups and the obese scored higher on both. No significant difference was observed in the cognitive restraint ($t=0.451$,$p>0.05$) ,the mean score of Gr1 was higher than that of the obese. Gr1scored highest on cognitive restraint then uncontrolled eating and then emotional eating whereas in obese group uncontrolled eating was the highest measured eating behavior, then emotional eating and cognitive restraint.
Post bariatric surgery a drastic change was observed in the eating behaviors of the obese. The cognitive restraint increased by 13.17% ($t=2.129$,$p=0.02$), uncontrolled eating reduced by 50.2% ($t=2.129$,$p=0.000$), emotional eating reduced by 25.8%($t=4.881$,$p=0.000$). This change was compared with the Gr1 to see whether bariatric surgery improved the deranged eating behavior. Eating behaviors post surgery followed the same trend of the Gr1 of having higher cognitive restraint, and lower uncontrolled and emotional eating. The cognitive restraint was found to be higher ($t=9.148$,$p=0.028$) and emotional eating ($t=2.417$,$p=0.009$) and uncontrolled eating ($t=8.631$,$p=0.000$) were lower than the Gr1. Thus this change may be a contributing factor to the sustained weight loss post surgery.
In the present study, evaluation of gender specific eating behavior was not conclusive because of the small number of males in the sample, and further studies would be needed to assess the gender specific eating behaviors in both obese and post surgery group.
Conclusion: Eating behavior that involves a higher degree of uncontrolled and emotional eating and lower degree of cognitive restraint are associated with obesity. The present results suggest that evaluation of eating behaviors of an individual would help in identifying the deranged factor of eating behavior and accordingly strategies can be applied to target this.The findings also suggest that bariatric surgery is effective in correcting the disturbed eating behaviors and hence this change in eating behavior post surgery could be an added advantage in maintaining long term weight loss.

IH 03–01 Preoperative Evaluation and Patient Selection Still Uncertain

PRESENTER: R.S. Hauser[1]

[1]Consultant for Clinical Nutrition and Bariatric Surgery, Zürich, Switzerland

Despite the international agreement with the necessity of a thorough evaluation of bariatric candidates and meticulous patient selection, I present a bunch of sceptical questions about some details of evaluation and selection. Sometimes our international community strongly disagrees what has to be examined and how far we ought to go. I put my opinions to discussion, but I have no answers of clear cut evidence.

Rough guidelines like the NIH consensus 1991, or the new AACE/TOC/ASMBS guidelines 2008 point us the direction to go. But after half a century of bariatric surgery a dense mist of individual opinions, particular experiencies and uncertainty spreaded out. The NIH consensus represents the view of former times, what we become aware of in confrontation with the indications for metabolic surgery. Finally the AACE/TOC/ASMBS guidelines brought some enlightenment of evidence into our mist of uncertainty. Many of us tried to elaborate own selection algorithms on the base of evaluation data. But even with sophisticated algorithms we frequently miss patients' reality. Also the question of sense or nonsense of algorithms remains unanswered.
In the face of the huge amount of work encountering the epidemic obesity worldwide, and after half a century of bariatric therapy, we ought to find common answers in bariatric evaluation and patient selection. On the base of evidence we must prove our decisions facing our patients, our professional conscience, and the intentions of insurance companies, and money providers.

IH 03–02 Utilizing Technology and Innovation to Improve Integrated Bariatric Programs

PRESENTER: P.J. Toor[1]

[1]Florida Hospital Celebration Health, Metabolic Medicine and Surgery Institute, Celebration, United States

Introduction: Innovation and technology is changing the landscape on how we market the patient, perform surgery and provide nursing care. Patient roles are evolving from one of being submissive to one of necessary empowerment and accountability. Therefore, understanding the tools available to deliver quality care through web based support provides hospitals with the means to encourage patients to be proactive and empowered when it comes to their care with bariatric surgery.
Methods: This lecture will provide an overview of innovated techniques to engage the patient throughout their weight loss journey.
Results: Topics will include:
1) how to establish web-based bariatric programs, i.e. information sessions, patient education, support groups,
2) the cost savings and additional benefits of these web-based programs, and
3) improved compliance to the post-operative guidelines for patient care.
Conclusion: Web-based bariatric program are cost-effective and empower the patient to become more actively engaged in their postoperative care.

IH 03–03 Preoperative Screening

PRESENTER: C. Stroh[1]
Co-authors: T. Manger[1]

[1]SRH Wald-Klinikum Gera, Gera, Germany

Preoperative screening is necessary to evaluate canditates for bariatric surgery.
Beside clinical examination, evaluation of comorbidities, medications and patients report indications and contraindications for bariatric surgery have to be checked.
To be an eligable candidate for baraitric surgery requires that the patients meet the following criteria:

- BMI above 40 kg/m²
- BMI above 35 kg/m² with comorbidities
- age
- exclusion of psychological or medical problems
- exclusion of patients suffer on drug or alcohol abuse
- exclusion of hormonal changes leading to obesity
- patient had to be compliant.

Beside these general criteria differentiated indications and contraindication will be discussed. Long term surgical experience is necessary to evalute the patients not only for bariatric surgery. It's more and more important to evaluate patients for different procedures to increase patients outcome, decrease complications and morbidity and increase ameloration of comorbidities.
A pathway will be demonstrated.

IH 03–05 Postoperative Follow-up and Multidisciplinary Intervention

PRESENTER: P.S. Shah[1]

[1]Laparo-Obeso Centre, Ruby Hall Clinic, Bariatric Surgery, Pune, India

Background: Bariatric surgery is a 'weapon for weight loss, not its cure'. So to achieve and enjoy the maximum benefit of weight loss, the patient needs to be involved in the Clinical Program right since the first visit to the bariatric centre. A detailed Medical, Family, and Psycho-Social history of the patient guides the team in understanding the struggle of the patient and his/her attitude to weight loss. It also helps in proper pre-op laboratory workup and preparation of patient for surgery, including corrections of nutritional deficiencies and post-operative expectations.
Methods: The following presentation shares some studies on the importance of follow-up for the bariatric patients and the role of the multidisciplinary team in the post operative period.
Results: Role of the Multidisciplinary team starts the minute an Obese patient walks into the bariatric unit in the hope of getting what he/she always desired but repeatedly failed. Initial curiosity gives way to apprehension of going 'under the knife', a decision which may not be always backed by the family. Discussions on various aspects of the weight loss journey of the Patient and family with the Team members helps build. realisitic targets and goals for the post-operative period. Attending the 'Support Group meetings' and meeting patients who have 'been there', helps build confidence and follow the pre-op instructions.
As we follow the journey of the patient through the post -operative period the role and importance of each team member, in the achievement of weight loss, enjoyment of the restricted diet and happily increasing the physical stamina, is justified.
Conclusion: The safety of the surgery is in the hands of the Surgeons, Anesthetists and Intensivists, while the success of the surgery is by the support of a passionate Multidisciplinary team.

IH 03–06 Postoperative Follow-Up

PRESENTER: A.M. Wolf[1]

[1]University Hospital of Ulm, Dept. of General, Visceral and Transplantation Surgery, Ulm, Germany

Background: A large part of long-term success after bariatric surgery not only depends on the chosen surgical procedure but, perhaps, to an even greater extent, on postoperative follow-up. With this knowledge in mind, we standardized the follow-up offered to our patients.
Method and result: Within our consultation-hours, a meeting with professionals of different departments is offered. The patients meet the bariatric surgeon, the nutritionist and the sports medicine specialist. At defined time points a psychological questionnaire is administered and, if needed, a psychological interview takes place. Blood samples are also taken at defined time points in order to analyze a multiplicity of blood chemistries. The interval between the consultation-hours is short in the beginning and becomes longer during the follow-up of five years. The meeting with the bariatric surgeon includes a medical check-up as well as a standardized interview to a series of specialized questions (e.g. feeling of satiety, hunger for sweets, grazing, ravenousness, vomiting, nausea, bowel movements, etc.).
Conclusion: The presented follow-up program assists the patient to adjust to postoperative changes in lifestyle and, with patient compliance, contributes to improved health and surgical outcome.

IH 03–07 Patient Reported Outcomes after Roux En Y Gastric Bypass for Diabetes, Sleep Apnoea, Hypertension, Polycystic Ovarian Syndrome and Unemployment

PRESENTER: W.R.J. Carr[1]
Co-authors: K. Ramsey[1], M. Boyle[1], N. Schroeder[1], S. Balupuri[1], P. Small[1]

[1]Sunderland Royal Hospital, Department of Upper Gi and Bariatric Surgery, Sunderland, United Kingdom

Background: Roux en Y Gastric Bypass (RYGB) has been shown to resolve diabetes in 64-100% of cases and resolve hypertension in 25-100%. Due to long traveling distances often means follow up data is incomplete.

Aims: To assess the improvement in diabetes, hypertension, sleep apnoea, PCOS and employment for patients undergoing RYBG using patient reported outcomes via a postal questionnaire.
Methods: Questionnaires were sent to all patients who underwent a RYGB between April 2007 and July 2010. A reminder was sent to non-responders at 2 weeks. Weight loss data was collected prospectively.
Patients were questioned on their pre and postoperative diagnosis and management of the following comorbidities: diabetes, hypertension, sleep apnea and infertility related to PCOS.
Results: 280 RYGB were performed with 63%(177/279) of patients returning questionnaires. Mean BMI was 52. There was 1 death 5 months post op. At a mean follow up of 18 months the mean percentage excess weight loss at 1yr was 64%.
62 patients reported diabetes pre-operatively of which 82% (51/62) claimed their diabetes management had improved.
62% (13/21) of patients requiring insulin pre op no longer require insulin and 33%(7) no longer require any diabetic medication. 66%(20) of 30 patients requiring oral hypoglycaemic agents pre operatively were able to stop them.
78% (28) of 36 patients using CPAP for sleep apnoea pre operatively no longer require it.
19 patients reported PCOS pre operatively with 10 reporting improved symptoms post operatively. 13 of these patients complained of fertility issues and despite advice to the contrary 4 patients reported falling pregnant post operatively.
77 patients required anti hypertensive medication preoperatively. Post operatively 36% (28) stopped all medication and of the remaining patients the dose and number of different tablets was reduced in 96% (47/49).
Prior to surgery 47% (83/177) patients were unemployed. 42% (35) claimed this was due to obesity related health issues. Since surgery 31%(11) have been able to find employment post operatively. However of the 93 patients working prior to surgery 2 have not yet returned to work.
Discussion: Within the limits of a patient reported outcome study with short follow up our data has confirmed benefit of RYGB for our population.
With surgery 2/3 of insulin dependant diabetics stop insulin, with 1/3 no longer requiring any treatment for diabetes. 2/3 non-insulin dependant diabetics come off hypoglycaemic agents. CPAP can be stopped in 80% of cases.
Anti hypertensive medications were stopped by 36% of patients and dose/number of tablets reduced in 96% of the remainder.
With nearly 1/3 of obesity related unemployment returning to work at short term follow up, further work is needed to fully illicit the economic benefits of long term comorbidity improvement and employment against costs of surgery and complications.

IH 03–08 Integrated Care Pathway and Post-Operative Enhanced Recovery: Impact on the Management of Bariatric Surgery Patients

PRESENTER: G. Bonanomi[1]
Co-authors: R. Wei[1], R. Vijapurapu[1], M. Charalambous[1], A. Blay[1], H. Khwaja[1], E. Efthimiou[1], J. Thompson[1]

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Background: In April 2010, our institution established an Integrated Care Pathway (ICP) and post-operative Enhanced Recovery Area (ERA) in the management of patients undergoing bariatric surgery. This audit aimed to assess the effect that the introduction of ICP and ERA had on service performance, length of hospital stay and post-operative outcomes in laparoscopic gastric bypass (LRYGB) and sleeve gastrectomy (LSG) surgeries.
Methods: Data was collected retrospectively from electronic and written patient records using a pre-devised proforma. All patients who underwent LRYGB and LSG in the same 6-month period (1st May to 31st October) before and after the introduction of ICP and ERA were included. Data was analysed by two individuals and subsequently cross-validated.
Results: The number of procedures undertaken during the same 6-month period, before and after the introduction of ICP and ERA, increased from 38 to 83. Mean age, body mass index and sex distribution were similar between the two groups. Dissemination of the OS-MRS showed no significant differences between the 2009 (61.4% low risk; 37.3% moderate risk; 1.2% high risk) and 2010 (57.8% low risk; 39.5% moderate risk; 2.6% high risk) cohorts. Following introduction of the ERA there was a significant reduction in median length of stay from 4 [2–61] to 3 [2–14] days ($p<0.01$). Patients requiring post-operative HDU/ICU admission decreased from 95.1 % to 19.3% ($p<0.001$). A 7% decrease in overall post-operative complication rate was observed. An increase in the 30-day re-admission rate was observed in the 2010 cohort; however of all 8 cases none were secondary to major complications. There were no mortalities in both groups.
Conclusions: Implementation of the ICP and ERA has led to a 2-fold increase in the number of LRYGB and LSG procedures being carried out at our tertiary centre for bariatric surgery and a significant reduction in hospital length of stay. Demand on HDU/ICU has been significantly decreased. Despite an increase in case load and similar patient-related operative risks we found a reduction in post-operative complication rate. Through continuing use of the ICP and ERA we aim to establish a gold-standard for post-operative care in LRYGB and LSG surgeries which ultimately is expected to enhance quality of care, resource utilisation and cost-effectiveness of bariatric surgery.

IH 03–09 Preoperative Weight Loss in Super-Obese Patients: Experience in a Secondary Hospital

PRESENTER: M.A. Santo[1]
Co-authors: D. Pajecki[1], D. Riccioppo[1], A. Britto[1], P.E. Pinto Jr[1], M. Matsuda[1], I. Cecconello[1]

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Introduction: Obesity is a pandemic world disease. Super obesity (SO) has increased in greater proportions, especially in the last decade, representing today around one third of all morbidly obese patients. In our institution the super obese represents 30,1% of all patients in preparing for surgery.
In the SO the morbidity is higher and the results are worse for all bariatric techniques. These findings are related to central obesity, steatosis and hepatomegaly, that increase technical difficulties and risks for bleeding and fistulas. Because of these risks directly associated to greater BMIs, a primary strategy to minimize morbidity in SO group is to reduce the weight preoperatively. Weight losses around 10% are correlated with improvement of comorbidities, but association with risk reduction remain unknown. However, preoperative weight loss in SO results in decrease operative time and shorter hospital stay.
For preoperative weight reduction some proposal were made, like two steps bariatric procedures or use of intragastric balloon. Medical treatment with drug therapies is also an option. All these choices are controversial with no standard results.
Based on this background, we started in our service a program of preoperative weight loss in the SO patients, with admission in a secondary hospital. The treatment is based in hypocaloric diet and biometric control.
Methods: Twenty SO patients (12 women and 8 men) underwent the weight loss program between 2008 and 2010. The mean age was 46 years old (from 21 to 59). The mean BMI was 66 kg/m² (from 51 to 98). The average caloric intake was 5cal/Kg/day. The average secondary hospital stay was 19.9 weeks.
Results: The average weight loss was 19% of initial weight (ranging from 7% to 37%). The statistical analysis showed that the weight loss did not change significantly after 13 weeks of treatment. After the weight loss the patients were submitted to open Roux-en-Y gastric bypass. All surgeries were uneventful and all the patients had satisfactory postoperative evolution, with average length of hospital stay of 4.6 days and the longest stay of 6 days.
Conclusion: In SO patients preoperative weight loss is an important tool to reduce risks. Hospitalization in a secondary hospital with a hipocaloric diet and serial monitoring is a safe, relatively cheap and effective way to obtain weight loss, that occur significantly until 13 weeks of treatment.

IH 04–01 Importance of Preoperative Physical Activity

PRESENTER: H. Hoppeler[1]

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Intuitively one would suggest that a fit person stands a much better chance in surgery with a lower complication rate and faster recovery. Unfortunately, the evidence is still slim for this notion. The term preoperative rehabilitation has been coined for a number of interventions aiming at improving preoperative patient fitness. A recent survey has looked into 12 studies in which preoperative exercise training consisted in

inspiratory muscle training or exercise training (Valkenet et al. Clin. Rehabil. 2011, 25: 99–111). Preoperative rehabilitation was found to be successful in reducing postoperative complication rates and duration of hospital stay after cardiac and abdominal but not after joint replacement surgery. In the later case preoperative rehabilitation consisted in strength and/or mobility training. Cardiopulmonary exercise testing (CPET) is used in patients, healthy subjects and athlete populations to objectively assess the integrated response of the heart, lungs and musculoskeletal system. Looking at the anaerobic threshold, identified as the point at which carbon-dioxide release begins to increase disproportionally to oxygen uptake, helps to identify patients with a higher complication risk in cardiac surgery (Older et al. Chest 1999, 116; 355–362). It was reported that an anerobic threshold of 11mlO_2/kg/min would discriminate between fit and unfit patients and would help in allocating postoperative resources, thus decreasing overall costs and increasing survival. As endurance exercise training is known to increase the anaerobic threshold effectively over short exercise training regimes it would seem appropriate to evaluate endurance intervention protocols to improve overall intervention outcome.

IH 04–02 Preoperative Physical Activities for the Bariatric Patient

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The prevalence of severe obesity is increasing worldwide, as its comorbidities such as hypertension and type 2 diabetes mellitus. Lifestyle changes in terms of physical activity are playing an important role to support long-term weight loss and maintenance, even if bariatric surgery is planned. But in most exercise programs morbidly obese people are ruled out because of potential cardiovascular, metabolic comorbidities and/or musculoskeletal dysfunction. Therefore little is known in terms of pre-surgery exercising. In general, physical activity should be an integral part of obesity management and should be individually tailored to the degree of obesity, age, and presence of comorbidities in each subject. Individuals will not only benefit because of energy expenditure and fat loss, physical activity will protect against the loss of lean body mass, improves cardiovascular and metabolic risk profile, load removal of the musculoskeletal system, and increases quality of life. In preventive settings, physical activity of a moderate intensity, 30 min in duration, performed 5 days a week is recommended. In the long term the amount should be increased to 60 (better 90) min for at least 5 days a week. Dependent on weight status and the individual health risk severely obese patients should start with very low intensity. In case of doubt physiotherapy may offer an access to improve physical functioning, even to fulfill daily activities. Because obesity is also a result of a lack of daily activities, walking, cycling, and stair climbing etc. should be recommend. Pedometers are a simple and motivating method to increase daily physical activities, the goal should be 10000 steps per day. For patients with severe arthritis and problems with mobility, exercising in warm water is recommended. Vigorous physical activity, such as jumping, may lead to joints overloading. For these patients strength training should be used for protection of lean body mass and the musculoskeletal system. Any kind of regular physical activity represents an important factor that contributes to a long-change of lifestyle. More studies are needed to underlie the health benefits in pre-operative patients, e.g. less post-operative complications, and to develop evidence based exercise programs for severely obese individuals.

IH 04–03 *Bari-Active*: A Preoperative Intervention to Increase Physical Activity

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Background: Low levels of physical activity are characteristic of many individuals undergoing bariatric surgery and can potentially undermine weight loss and other postoperative outcomes. Yet, the feasibility and efficacy of structured behavioral interventions to increase physical activity in these patients is unknown.
Methods: Studies using subjective and/or objective measures to assess patterns of physical activity and sedentary behaviors in bariatric surgery patients will be reviewed and used to provide a rationale and preliminary data on a behavioral physical activity intervention in this population.
Results: Research using both subjective and objective measures indicates that most patients rarely engage in sustained bouts of physical activity and spend the vast majority of their time in sedentary behaviors preoperatively. Moreover, while patients tend to report large pre- to post-operative increases in physical activity, these changes are not corroborated by objective measures. Failure of patients with low preoperative physical activity levels to make substantial changes in their physical activity may contribute to poorer weight loss and smaller improvements in health-related quality of life. Preliminary results from the *Bari-Active* trial show that a 6-week preoperative behavioral intervention can help patients who are inactive or insufficiently active to increase their objectively-measured participation in sustained physical activity to levels that are consistent with public health recommendations.
Conclusions: Bariatric surgery patients should be encouraged to increase their physical activity preoperatively and not delay efforts to adopt a regular physical activity routine until after surgery. Preliminary findings from the *Bari-Active* trial suggest that brief structured behavioral interventions can produce large increases in preoperative physical activity among patients with low physical activity levels. Future studies are needed to determine whether such increases are maintained postoperatively and relate to better postoperative outcomes.

IH 04–04 Aerobic Endurance Training Improves Weight Loss and Body Composition in Post-Bariatric Patients

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Background: The only long-term effective treatment for patients with morbid obesity is bariatric surgery. Sudden weight loss following bariatric operations for morbid obesity, such as Roux-en-Y gastric bypass (RYGBP) can result in a concurrent decrease in lean body mass. However the long-time results (weight reduction, elimination co-morbidities) are depending on the post operative treatment. Aerobic endurance training (AET) is well accepted in conservative treatment of obesity as well as of diabetes mellitus type 2 (DM). The aim of this study was to assess the efficiency of AET on weight loss, body composition and co-morbidities in patients after laparoscopic Roux-en-Y Gastric bypass (RYGBP).
Methods: In sixty (60) consecutive morbidly obese patients a laparoscopic RYGBP were performed and randomized into low exerciser group (LE) (AET for 1 x 1h/ week) or multiple exerciser group (ME) (AET for≥2 x 1h/ week). Prospective 12 month postoperative follow up including documentation of minor and major complication as well as weight loss, body composition measurement by bioelectrical impedance analysis (BIA) and co-morbidities every 8 weeks.
Results: The average BMI (52 kg/m^2) and the other baseline characteristics were equally distributed in both groups. There was no significantly difference in complication rate postoperatively in both groups. ME showed a significantly faster reduction of BMI, excess weight loss (EWL) and fat mass in comparison to LE. The initial loss of body cell mass (BCM) and lean body mass (LBM) were significantly lower in ME and regains faster when compared with LE. ME showed a significantly earlier elimination or improvement of co-morbidities.
Conclusions: Intensified AET positively influences weight loss, body composition and co-morbidities after RYGBP. Additional controlled studies need to be conducted to confirm these positive findings.

IH 04–05 Cardio- Metabolic Risk Factors after Long-Term Resistance Training and Ginger Supplementation

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Background: Obesity and its metabolic consequences are major risk factors for cardiovascular morbidity and mortality. However, lifestyle interventions, including exercise training and dietary components may decrease cardiovascular risk factors. Hence, this study was conducted to assess the effects of ginger supplementation and progressive resistance training on some cardiovascular risk factors in obese men.
Methods: In a randomized double-blind design, 32 obese men (body mass index≥ 30) were assigned in to one of four groups: A Placebo (PL,n=8), Ginger group(GI,n=8),

that consumed 1 gr ginger/d for 10 wk,, resistance training plus Placebo (RTPL,n=8), and 1gr ginger plus resistance exercise (RTGI, n=8). Progressive resistance training was performed three days per week for 10 weeks and included eight exercises. At baseline and after 10 weeks, Body composition and anthropometrics indexes were measured, and to identify other risk factors, venous blood samples were obtained from the antecubital vein before and 48–72 hrs after last session of protocol, and total cholesterol, high density lipoprotein cholesterol (HDL-C) and triglycerides levels were measured using by enzymatic assays, while (low density lipoprotein cholesterol) LDL-C was calculated using the Friedewald equation. Moreover, insulin resistance was determined using a homeostasis model assessment (HOMA-IR) and C-reactive protein (CRP) was assessed in serum using enzyme linked immunosorbent assay (ELISA). Data was analyzed by two-ways ANOVA at *P-value* of<0.05.

Results: After 10 weeks of interventions, both GRT and PLRT groups showed significant decrease in waist circumferences, waist-to-hip ratio, body fat percent, body fat mass, total cholesterol and insulin resistance ($P< 0.05$) and significant increase for fat free mass ($P< 0.05$), while it remained unchanged in PL and G groups ($P> 0.05$). Moreover, significant decreases in the mean values of CRP were observed in all groups exception Placebo group ($P< 0.05$).

Conclusions: In conclusion, our results revealed that, resistance training has been an effective therapeutic devise to reduction cardiovascular risk factors in obese individual. Moreover, ginger supplementation decreased CRP, as inflammatory marker and predictor cardiovascular diseases, in obese men. However, more research to elicit effect of this supplement on cardiovascular risk factors in human is required.

IH 04–06 The Effects of Low Energy Expenditure on Weight Regain Following Roux-En-Y Gastric Bypass

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Introduction: Roux-en-Y Gastric Bypass (RYGBP) is an effective treatment for severe obesity. However, approximately 20% of patients show gradual weight regain in the second year post-surgery. A decrease in basal metabolic rate (BMR) accompanying weight loss and reduction of lean body tissue may contribute to this weight regain.

Objective: The aim of this research was to determine if RYGBP patients who start to regain weight have a lower BMR (when expressed in Kcal / kg) than those who do not regain weight at 2 years or more post-surgery.

Methods: Forty-nine patients of the clinic *Gastrocirurgia de Brasilia* were divided into the following groups: (1) patients who had at least 2 kg of weight regain≥2 years after surgery (WR), (2) patients who had maintained a healthy weight≥2 years post-surgery (HW) and (3) preoperative surgical candidates (PO). BMR, expressed per kg of body weight, was measured using indirect calorimetry and comparisons made to predictive formulas, i.e. Harris-Benedict and Bobbioni-Harsh. Fat and fat-free mass were assessed using bioelectrical impedance (Inbody®).

Results: The data show that the patients who regain weight (WR) have significantly lower BMR (Kcal/kg) than that of the HW group but values comparable to the preoperative (PO) morbidly obese controls. Individuals with the lower BMR values were also those with the greater percentage of body fat and the lower mass of fat-free tissue. Predictive formulas overestimated energy expenditure in the WR and PO groups but not that of the energy the HW patients.

Conclusion: The weight regain among bariatric patients may be due to low BMR which is similar to that of obese individuals who had not undergone RYGBP and is significantly less than that of individuals with healthy weight post-surgery. The application of predictive formulae to individuals who experience WR or to obese individuals in the preoperative stage should be avoided.

IH 04–07 Resutls of Exercise on Body Composition after Bariatric Surgery

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Introduction: Post-bariatric surgery exercise indicated within the multidisciplinary confrontation, to avoid excessive loss of lean body mass. However, it is unclear what the quantitative effect of physical exercise. Our objective was to measure short-term effect of an Exercise Program (EP) in body composition post bariatric surgery.

Materials and methods: An observational study that included 61 patients operated between January and December 2009 assessed with bioelectrical impedance at baseline, 3 and 6 months postoperatively. Patients were divided into two groups according to the embodiment of EP (EP+v / s EP-) and measured the amount of lost lean mass.

Results: The groups EP+(34 patients) and EP-(27 patients) did not differ in age or type of surgery. The baseline characteristics of body mass index and body composition showed no differences. At follow-up at 3 and 6 months there was no difference in the percentage of loss of excess weight and body mass index between groups, however, the group EP+showed a loss of lean mass significantly less than the group EP-[1.8 and 2.9 v / s 7.8 and 8.1 kg at 3 and 6 months respectively (p<001)].

IH 05–01 The Base for a Balanced Life - The Randomized Controlled Base (Bariatric Surgery and Education) Study

PRESENTER: K. Hünnemeyer[1]
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Background: Bariatric surgery has been established as the most effective method to treat severely obese patients (BMI≥40 kg/m^2 respectively BMI≥35 kg/m^2 with co-morbidities). Nevertheless, longitudinal studies indicate weight regain after the initial successful weight-loss period; in addition, serious problems with regard to changing personal lifestyle continue to persist. To date, no randomized controlled trail has investigated the impact of a postoperative psycho-educational program on weight course, quality of life and self-efficacy.

Methods: The aim of this BaSE study is to prove the efficacy of psycho-educative intervention on weight loss in patients after bariatric surgery. 120 patients undergoing bariatric surgery are randomized in an intervention or control group. The BaSE intervention consists of a one-year group program including face-to-face and video-conferencing sessions. Sessions are conducted by an interdisciplinary team and include all topics proposed to be important for severely obese patients. Patients are recruited at three obesity centres in Heidelberg, Tübingen, and Frankfurt: “Adipositas-Zentrum” of the University Hospital Heidelberg, the “Plattform Adipositas” of the University Hospital Tübingen and the “Kompetenz- und Referenzzentrum für Adipositaschirurgie” of the Hospital Sachsenhausen.

Patients are diagnosed at baseline (pre-OP) and at four follow-up periods (1, 3, 6 & 12 months) to evaluate the efficacy of the program. The main outcome measures of the trial are BMI, quality of life and self-efficacy of the patients.

Results: To date, 65 patients have been recruited. Until now all patients who have already completed the program have given positive feedback regarding the BaSE program. We report on the drawbacks and challenges of implementing the program in three different centres and conducting video-conference-based sessions to educate patients.

Conclusions: With its innovative and classical elements, the BaSE manual is forward-thinking. It offers patients who have undergone bariatric surgery the possibility of discovering their individual resources and supports long-term lifestyle changes. Patients and care providers from other obesity-surgery centres have already requested the manual. Conducting a RCT study is important for proving the impact of post-surgical intervention.

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IH 05–02 Commitment or Miracle? Contributions to the Understanding of (UN)Success in Bariatric Surgery

PRESENTER: S. Silva[1]
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Objective: Bariatric surgery has been indicated as an election treatment for morbid obesity although research has been controversial about the success of this procedure. This study tries to understand the factors contributing to the success and failure of bariatric surgery, comparing the expectations before surgery and the meaning assigned to this treatment, one year after bariatric surgery.
Method: 30 semi-structured interviews were carried out at the surgery moment and at 12 months follow-up and were analyzed through the Grounded Theory procedure.
Results: Before surgery, realistic expectations and perceptions of the process requirements seem to be fundamental to the commitment with the treatment and subsequent success of this intervention. Likewise, lifestyle changes and use of adequate coping strategies are important dimensions associated with success. On the other hand, in the failure cases, the presence of unrealistic expectations of weight loss and lack of awareness of the difficulties and requirements of the process are associated to the perception of the surgery as a miracle. Expectations about the treatment process are a central theme in the success and failure speeches, although the participants put themselves in the opposite poles of these categories. The presence of realistic expectations and awareness of the demands appear to contribute to the commitment and success of treatment. The failure, in turn, is associated with lack of commitment that does not allow the required lifestyle change and the expectation of a new miracle that would solve all the problems remains.
Conclusions: These results emphasize the need to rethink the whole process of bariatric surgery, reinforcing the importance of an evaluation that includes the beliefs, expectations and information, and psychological intervention before and after bariatric surgery.

IH 05–03 Acceptance and Commitment Therapy for Bariatric Surgery Patients, a Pilot RCT

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Background: Bariatric surgery (BS) is rated as the best evidence based treatment for obesity with regard to weight loss and maintenance of weight loss evaluated to date. Although BS interventions are effective, 20–30 % of BS patients regain weight. One factor contributing to weight gain and poorer psychosocial well being is avoidance of emotions by overeating. There are reports of body dissatisfaction and distressing preoccupation with weight post BS. Acceptance and Commitment Therapy (ACT) applied to BS patients, with the purpose of developing psychological flexibility around difficult emotions and thoughts so as to increase healthy behaviors and quality of life, was developed and implemented in the current study.
Methods: Participants (n=39) who underwent BS at least four months prior to this study, were randomly assigned to a six week treatment package based on one of two conditions 1) ACT including two face-to-face sessions and support via an Internet application or 2) treatment as usual (TAU) comprising the standard follow-up used by the bariatric surgery team.
Results: Significant effects as well as medium to large effect sizes on measures of eating disordered behaviors, body dissatisfaction, quality of life and acceptance for weight related thoughts and feelings were found for participants in the ACT group, as compared to those in the TAU group.
Conclusion: The present study shows promising results in combining a short term ACT treatment with BS to improve the long term effects of obesity treatment.

IH 05–04 Improvement in Health-Related Quality of Life (HR-QOL) in the First Year after Laparoscopic Adjustable Gastric Banding (LAGB)

PRESENTER: E. Mozzi[1]
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Introduction: LAGB has been proved to be associated with successful weight loss and weight maintenance, improvement of obesity-related comorbidities and reduced all-cause mortality. Initial observations demonstrated an improvement of HR-QoL after LAGB. However, determinants of changes in HR-QoL after bariatric surgery have been seldom investigated. In this study, we analyzed HR-QoL and its determinants in the first year after LAGB.
Methods: We used data collected in the first year of the QUALITY study, a prospective 3-year multicenter Italian study on changes of HR-QoL in obese patients treated with LAGB. Inclusion criteria were BMI³40 kg/m^2 (BMI³35 kg/m^2 if complicated obesity) and age 18–60 years. HR-QoL was investigated with the SF-36 questionnaire. Side effects, hunger, satiety and the self-perceived effects of LAGB were determined with a specific questionnaire.
Results: 334 patients (74 M and 260 F) were enrolled at 10 Italian bariatric centres. Age at surgery was 38.9±10.1 years. BMI was 41.7±5.6 kg/m^2. Follow-up rate was 97.0% at 6 months and 92.2% at 12 months. %EWL was 29.2±15.9% at 6 m. and 39.6±25.8% at 12 m., with very few side effects and complications. Hunger at morning (evaluated on a 0–10 scale) was 4.5±2.7 before surgery, 4.0±2.4 at 6 m. ($p<0.001$) and 3.8±2.4 at 12 m. ($p<0.05$ vs 6 m.). Satiety after meal was rated (0–10 scale) 7.1±2.7 before surgery, 7.9±8.2 at 6 m. ($p<0.001$) and 8.2±1.9 at 12 m. ($p<0.01$ vs 6 m.). The self-perceived effect of LAGB on own caloric intake (0–10 scale) was 8.0±2.1 at 6 m. and 8.4±1.9 at 12 m. Scores in the 8 SF-36 subscales were lower than in the general Italian population before surgery and significant improvements in all the 8 subscales were observed both at 6 and at 12 m. after. Physical component summary score (PCS) was 52.6±11.9 at baseline, 75.3±19.9 at 6 m. ($p<0.001$) and 79.1±15.6 at 12 m. ($p<0.001$ vs 6 m.). Mental component (MCS) was 52.2±12.3, 73.2±18.2 ($p<0.001$) and 76.5±17.2 ($p<0.001$) respectively. Determinants of the 0–12 months improvements in PCS and MCS were analysed by multiple stepwise regression analysis. A higher PCS improvement was associated to a lower initial PCS ($p<0.001$), to a higher satiety after meal ($p=0.002$), to a higher %EWL ($p=0.013$) and to a higher self-perceived effect of the LAGB ($p=0.026$). A higher MCS improvement was associated to a lower initial MCS ($p<0.001$), to a higher satiety after meal ($p<0.001$), to a lower frequency of heartburn ($p=0.004$) and to a higher %EWL ($p=0.012$). No significant associations were observed between the improvements of PCS or MCS and sex, age, initial BMI, BMI at 12 months, baseline eating behaviour, baseline comorbidities, and the improvements of comorbidities after 12 months.
Conclusion: Significant improvements of HR-QoL were observed in the first year after LAGB. Poor baseline HR-QoL, high efficacy of the banding in eating control and better weight loss may influence HR-QoL changes.

IH 05–05 Preoperative Psychological Intervention for Obese Patients Awaiting Bariatric Surgery: Modifying Beliefs and Behaviors

PRESENTER: M. Melendez Araújo[1]
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Background: Obese population, in general, have maladaptive behavior, characterized by great difficulty in changing eating habits, low compliance for physical activity, exposure to food restriction without lasting effects, depression and anxiety. A psychological well-established and structured support to patients waiting for bariatric surgery is important to achieve success after surgery. The evaluation and counseling should include a system of unconditional and positive acceptance of the patient, allowing them to express and modify their behavior and cognitive condition. The aim of this study is to describe a structured program of psychological counseling of patients eligible for bariatric surgery in order to seek psychological stability and promoting longitudinal changes of behavioral habits.
Methods: 130 patients from a particular clinic were analyzed psychologically over two years. The evaluation consisted in an application of an anamnesis questionnaire, 24 hour dietary recall, behavior observation and clinical monitoring. The Beck Inventory of Anxiety were assesed before and after the psychological intervention. The program consists of six weekly sessions, in groups of four to eight patients, using cognitive-behavioral therapy. The session content is: 1. Initial assessment, imple-

mentation and evaluation questionnaire, Inventory Beck application; 2. Explanation of group therapy and cognitive-behavioral approach, delivery of food register, directed discussion of the topic: "Chew, local meals" and "function that food plays in my life" 3. Discussion of the subject addressed, "Influence of thinking, anxiety and hunger" and "Self-observation, self-image and self-knowledge" 4. Discussion of the topic addressed: "Changing habits, self-control and self-discipline", "Food choice" and "Binge eating" 5. Discussion of the subject addressed; "Objectives of Surgery and restructuring of the goals and relaxation techniques, 6. Discussion of the topic addressed: "Post surgery and the importance of family."

Results: There were changes in patient`s self perception and environment perception; changes in emotional relationship with food; development of self-knowledge; potentially lower rates of anxiety - reducing levels of severe and moderate to minimum and mild levels of anxiety in 67% of patients; regain of self-esteem, self-control over the desire to eat, changes in self-image, weight loss, and better adaptation in the post-surgical.

Conclusions: In general, patients assisted in the program restructures his goals, thus strengthening his self-esteem, confidence and self-control. These changes help the process of discharge, with the minimization of significant postoperative complications. It is suggested a greater attention in health teams to the importance of psychological intervention before and after surgery, since, with the change of habits and work of psychopathology correlated, the probability of success of surgery is potentially high.

IH 05–06 The Role of Psychotherapy in Post Operative Care of the WLS Patient

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When looking across the obesity literature, the impact of psychological variables in the development and treatment of obesity is certainly acknowledged but overshadowed by the physical and medical components of obesity, which dominates the literature. Given the failures of weight loss methods, even surgical methods, an understanding of the psychological variables that impact success of surgical and non- surgical weight loss is imperative, as the field continues to strive to reduce the public health impact of obesity (Davin & Taylor, 2009).

Psychological vulnerabilities among the obese are consistently documented. The obese reportedly suffer from negative self-perceptions, low self-esteem (Allon, 1982), body-image disturbances (Stunkard & Wadden, 1992), sexual problems (Assimakopoulos et al., 2006), less interpersonal contact (Bocchieri et al., 2002), and poorer social skills (Carr & Friedman, 2006). Numerous psychosocial and psychological consequences have been associated with overweight and obesity, including depression, disordered eating, social discrimination, and poor quality of life (Fabricatore & Wadden, 2006). It is also clear that many of these disorders can be successfully treated via counseling.

Both cognitive behavioral therapy and interpersonal therapy have been found to be effective in normalizing eating and reducing distress in obese patients with binge eating disorder. Binge Eating Disorder (BED) and Night Eating Syndrome (NES) are the most frequently studied eating disorders among the obese population. Rates of BED among obese treatment seekers range from 30 to 50% (van Hout et al., 2004). Psychotherapy can assist patients to deal with body image issues, and to improve self-efficacy and self-esteem, which have suffered in relation to one's obesity. Improvements in these areas may lead to improvement in sustained efforts toward healthy behaviors necessary to maintain weight loss following a surgical weight loss procedure.

In addition, psychotherapy can assist patients in processing negative physical, social and emotional experiences related to their being obese. Using cognitive behavioral techniques, patients have been shown to decrease patterns of disordered eating and to restructure their thought patterns related to food, eating, and self, thereby improving their self-esteem and self-efficacy.

Few therapists have education or training to work specifically with the obese population. This presentation will focus on the treatments shown to be effective via the literature in working with this population.

IH 05–07 Gastric Bypass Effect on Health-Related Quality of Life in Obese Patients

PRESENTER: G. Martinez de Aragon Remirez de Esparza[1]

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The use of bariatric surgery in the treatment of morbid obesity is an established therapeutic alternative. The reason is that its use, reverses the detrimental effects of obesity in terms of loss of life expectancy and in the loss of quality of life. The study was first aimed to assess the impact of bariatric surgery (gastric by-pass) in the HRQL of patients with morbid obesity using a broad range of HRQL instruments. Second, we tried to clarify the relationship between different HRQL dimensions.

This observational study analyzed a consecutive sample of morbid obesity patients who required bariatric surgery. Interviews to measure HRQL were carried out before the intervention, 6 months and 2 years later. Included both generic questionnaires as SF-36 and EuroQuol 5D and specific questionnaires as Moorehead-Ardelt 2 and Obesity Problems Scale (OPS). Clinical data were collected from medical records and included weight, height, demographic information, presence of co-morbidity and complications before surgery, 6 months and 2 years later. The criteria to identify the presence of co-morbidity or complications were the comments in the clinical record of the patient. The statistical differences were assessed first by measures based on the relationship of the effect of sample variability (distribution-based measures) as the effect size (ES) and the standardized response mean (SRM). Second we calculated ROC curves.

The third and last interview was conducted after 2 years of follow-up in 79 patients of the initial 123 because 35 were not operated, 2 died and 7 refused to answer the questionnaires. The characteristics of the sample patients are typical of patients with morbid obesity as the percentage of women was 87%, the average mean age was 43 and the mean BMI was 51. The more frequent co-morbidities were obstructive sleep apnea and hypertension. The average weight loss was 49 kg and the average BMI lowered from 50.6 to 31.8 two years later. According to the criteria defined by Cohen the benefit of the treatment can be characterized as large for near all the questionnaires. Only the mental dimensions of SF-36 classified the benefit as moderate.

Our study shows first that morbid obesity patients have a perceived health worse than the general population both in physical dimensions and in the mental and social quality of life. Moreover, two years after surgery using gastric bypass patients regain lost HRQL. In this sense obesity behaves mainly as a disability-generating disease and the reduced quality of life appears as a subordinate result. The mood and vital level of patients recover as much as the functional status improves by the weight loss. The comparison with the SF-36 profile of patients with brain damage and general population clearly illustrates this fact. The profile of patients with obesity is almost equal to those patients with brain damage while treated patients and general population share similar scores.

IH 05–08 The Influence of Social Class on Bariatric Surgery Outcomes

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Background: The objective of this study was to analyze the influence of social class on the results of bariatric surgery.

Methods: Monthly family income patterns were analyzed by questionnaires in 180 bariatric patients submitted to Roux-en-Y gastric bypass in our Institution. The 2008 Brazilian Association of Research Companies criteria (common and well established criteria in our country) were used for social class division. All patients received the same preoperative and postoperative orientations from the multidisciplinary team, had equal access to our medical facilities, and were submitted to the same follow-up system.
Results: Percentage of patients in each social class was as follows: B2 social class - 5.5%; C1 class - 10%, C2 class- 44.5%; D class- 40%. Patients age, preoperative BMI, and sex were similar in all classes. B2 class patients had more dyslipidemia. D class patients had more hypertension and type 2 diabetes.
At 24 months of follow-up, there were no differences in EWL, improvement of comorbidities, postoperative complications, and number of follow-up visits.
Conclusions: Social class does not influence bariatric surgery results if the same preoperative and postoperative orientations are available and if all patients have equal access to medical treatment.

IH 05–09 Are the Psychiatric Questionnaires Useful in Bariatric Surgery?

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Background: Psychiatric assessment is often an integral part to the overall evaluation of morbidly obese patients prior to surgery. In our department, all our patients used to attend a psychiatric appointment prior to the surgery. Recently we introduced a psychiatric questionnaire as a screening tool.Our aim was to determine the influence of using a psychiatric questionnaire on Bariatric assessment pathway.
Methods: Between June and September 2010, patients underwent Bariatric assessment pathway were selected. They completed a questionnaire designed by psychiatrists in the unit. It includes family and weight history, alcohol (score 0–18 with =>8 as cut off for referral) and drug use, depression score (score 0–30 with =>10 as cut off for referral), mental health history and expectations after surgery. Patients were followed up after surgery and their body mass index (BMI) was noted.
Results: The data of 367 patients M: F (276:91) was analysed. Two hundred and twenty (60%) patients were referred to a psychiatrist according to their scoring from the questionnaire. Among these patients referred, one hundred and forty seven (67%) patients were referred based on the depression score only; twenty four of them scored only 10 (borderline). Nine patients (4%) due alcohol use only and 26 (12%) due to previous psychiatric history. Patients referred due to combination of depression score and alcohol use were 24 (11%) and 14 (6%) patients due to depression score, alcohol score and previous psychiatric history.Patients who were not referred, 147 (40%) were followed up with a mean duration of 9 months postoperatively. They had no psychological or other major complication and showed improvement in their BMI from 47 (range 36–52) kg/m^2 to 39 (range 31–43) kg/m^2.
Conclusion: The psychiatric questionnaire identified that some patients didn't require attending a psychiatric appointment and did well postoperatively. It reduces clinic times and a useful tool during the Bariatric assessment pathway.

IH 05–10 Psychosocial Characteristics of Bariatric Candidates and their Development in Time

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Aim: To map non-pathological and borderline pathological characteristics in psychological assessment in the run-up to bariatric surgery and their development over a 6-year period.
Patients and methods: 367 bariatric candidates (285 female, 82 male) who passed the psychological assessment before surgery (mean time 4 months prior to surgery), were evaluated in two clinics (obesity and bariatric). Two groups were divided with regard to years of pre-surgical psychological evaluation to earlier assessed (EA, in years 2003–2006, obesity clinic) and later assessed (LA, in 2009, bariatric clinic). EA group comprised of 173 candidates, LA group 194 bariatric candidates. Considered variables were: BMI, age, gender, marital status, motivation, onset of obesity, history of dieting, eating habits (regularity, dieting) and exercise at the moment of assessment, loss of control over eating, stress eating. Comparison of the two samples was statistically analyzed using Chi squared tests.
Results: In the whole sample the mean age 42,5 (SD±10,7) years, mean BMI was 43,2 (SD±6,35) kg/m^2. Marital status were single 68 (18,6%), married 215 (58,7%), divorced 73 (19,9%), widowed 10 (2,7%). EA group had more often onset of obesity in childhood (41% vs. 27,8%, $p<0,001$) and were more frequently on a diet at the moment of assessment (49,7% vs. 34,5%, $p<0,001$). LA group had later onset of obesity - after 50th year of age (0,6% vs. 6,2%, $p<0,001$) and were eating (63,9% vs. 45,7%, $p<0,0001$) and exercising (59,3% vs. 34,1%, $p<0,0001$) more regularly.
Conclusion: After 3 years the psychological characteristics of bariatric surgery candidates have changed. Additional studies are needed to elucidate whether such shift has any impact on the success of the surgery.

IH 05–11 Outcomes of Bariatric Surgery Patients with Depression and Resolution of Depression in the Post-Operative Period

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Background: Depression is a common co-morbidity (17-40%) amongst bariatric surgery candidates and it's known to be closely associated with obesity. One of the hall-marks of depression is the lack of motivation and this might negatively influence the outcomes of bariatric surgery. We examined the excess body weight loss (EBWL%) of patients with and without depression at pre-operative period and 6, 12 and 24 months post-operatively. The resolution of depression was evaluated via a telephone survey.
Methods: Two hundred and sixty eight (268) patients operated between January 2008 and December 2010 were identified from our database. Fifty-nine patients (22.1%) had depression and were on anti-depressant treatment at the time of surgery. Three patients were excluded due to having other associated personality disorders. A telephone survey to assess resolution of depression 12 months post-operatively was conducted on 26 patients. Data was analysed using commercial SPSS® statistical software.
Results: Sex ratio was 1 : 5 with median age 39 years (21–66 years) similar to general distribution. Of these 56 patients, 46 (82.1%) had laparoscopic roux-en-Y gastric bypass (LRYGB), 6 (10.7%) had laparoscopic gastric banding (LGB) and 7 (12.5%) had laparoscopic sleeve gastrectomy (LSG).
EBWL% at pre-operative period, 6, 12 and 24 months for the LRYGB patients with depression were 10.48% (46pt), 58.72% (35pt), 76.21% (26pt) and 83.26% (4pt) respectively whereas the results for the non-depressive group were found to be 11.22% (147), 57.07% (89pt), 69.18% (74pt) and 67.66% (24pt). Depression group had 0.8% less weight loss pre-operatively but postoperative weight loss was better though not statistically significant due to sample size.
In the telephone survey of 26 patients from the depression group who had more than 12 months follow-up, 4 were excluded due to lack of contact details or unavailability at the time of survey. Fourteen (63.6%) of these patients reported their depression was obesity related. 10 (71.4%) of the 14 patients reported that their depression has now totally resolved, 3 (21.42%) claimed that the anti-depressive dose has been reduced and 1 (7.1%) claimed depression is now more severe due to excess skin problems. 5 of 6 (83.3%) patients who declared their depression was not obesity related reported that they were still suffering from depression now as they were before surgery with no changes in their medications.
Conclusions: There is no difference in the weight loss outcomes for LRYGB of patients with and without depression. Bariatric surgery contributes to the total

resolution or improvement of depression (92.8%) in patients who report their depression is primarily obesity related.

IH 06–01 Post-Gastric Bypass Hypoglycemia: East Carolina's 18 Year Experience

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Background: Post-operative hypoglycemia is a still unexplained late complication of Roux-en-Y gastric bypass (RYGB). The hypoglycemia is usually mild or moderate (< 70 mg/dl) but more severe cases (< 40 mg/dl) with loss of consciousness and confusion have been reported.
Methods: Our 18 year institutional experience from 1980–1998 revealed a total of 778 individuals underwent the RYGB with 73 patients reporting one or more episodes of hypoglycemia. The relationship of hypoglycemia to gender, age, preoperative weight, race, preoperative diabetic status, weight loss and duration since the surgery was assessed through chart review.
Results: Hypoglycemia occurred 1 to 14 years post-RYGB. Women were more likely to develop the syndrome; age, preoperative weight, race, preoperative diabetic status, weight loss and duration since the surgery were not associated with a higher incidence of hypoglycemia. Treatments focusing on a balanced diet, vitamin/mineral supplementation and exercise led to recovery of all patients within a year.
Conclusion: All 73 individuals who reported episodic hypoglycemic attacks after RYGB recovered within a year with an emphasis on compliance with a regimen of vigorous vitamin and mineral supplementation. Until the cause of the hypoglycemic episodes becomes clear, a conservative approach with correction of vitamin and mineral deficiencies seems appropriate. Now that a clinically reasonable assessment of these micronutrients is finally available, monitoring of these factors is advisable.

IH 06–02 Patological Obesity and Clinical Psychology: An Integrated Clinical Approach

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Background: Obesity has been recognized on the list of diseases and has been called a chronic multifactorial multigene component which environmental factors can happened to determine the clinical expression. Therefore the issues related to dysfunctional eating habits were the subject of several studies and researches in the field of psychology that have attempted to identify personality traits and relational styles linked to a dysfunctional eating behavior.
Methods: Our study aims to understand and monitor the different psychological factors that contribute during the whole procedure, surgical therapy. The clinical intervention is organized and structured in two phases. The first is dedicated to the evaluation of the psychodiagnostic pcs., The second focused on the emotional content in order to increase the index of psychological well-being.
Results:
Phase I
Psychodiagnostic assessment involves the administration of:
§ SCID - II (clinical questionnaire for axis II disorders of DSM-IV);
§ CDQ - Self-Assessment Questionnaire;
§ Eating Disorder Inventory EDI-2 - 2.
The clinical interview is aimed at assessing the psychological motivations, awareness and information of the route surgical treatment.
Phase II
After surgery, the pc. followed, with a specific protocol of psychological intervention in the outpatient clinical psychology. them instruments used to monitor the mental state of thepieces are:
§ S.T.A.I. is a tool for the detection and measurement of anxiety;
§ CDQ IPAT depression scale. This scale assesses a personality disorder, depression, which most often comes in disguised form
§ PHQ (Questionnaire on psychological well-being)
In addition there is a therapeutic course dedicated to contain and manage any psychopathological dynamics.
Conclusions: So far they have been reviewed more than 80 patients, of whom a majority said, at a distance of time, become unable to manage effectively and peacefully winning the weight loss achieved through surgery. The excitement of losing weight quickly leave the place with the difficulty of being able to keep the pounds lost. This difficulty is to the maintenance of a dysfunctional approach to food, especially for the mind. The justification related to weight control is reflected in a context that is pursued with great difficulty, thereby demonstrating the need to accompany the piece with a supportive psychotherapy during the long process of post-operative. The psychotherapeutic approach, in addition to ensuring the containment of the anxieties and frustrations related specifically to the relationship with food, must focus on the management of certain problem areas that have often emerged from the interviews and scores on the instruments used. In particular, the stretch passive-aggressive, obsessive-compulsive and paranoid personality.

IH 06–03 Long-Term Follow-Up in Laparoscopic Adjustable Gastric Banding: Maladaptative Eating Behaviours, Life Style Changes and Outcomes

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Background: Bariatric Surgery requires a substantial life style change along the postoperative stage. The presence of maladaptative eating behaviors and other psychological symptoms have been related to poor outcomes. After surgery, many patients regain weight and fall in the adoption of healthy and permanent changes in nutrition and physical activity. Despite eating patterns tend to change with surgery and through time, little is known about eating problems, compliance with treatment and weight maintenance, at the long-term follow-up of these patients. The purpose of this study is to describe a sample of patients with long-term follow up in terms of weight loss, eating behavior, life style changes, difficulties and attitudes related to treatment.
Methods: 16 participants [(M=3 (18,8%); W=13 (81,3%)], aged between 31–66 years old (M=45,07; SD=10,71), that underwent Laparoscopic Adjustable Gastric Banding by the same surgeon, were assessed by a trained psychologist, in a late post surgical period (between 7 and 11 years old of follow-up), with a post-surgical clinical semi-structured interview, the Eating Disorders Examination (EDE), and a set of self-report measures: Eating disordered symptoms and behaviors (EDE-Q; ODE-Q), Psychological distress (OQ-45), Depressive symptoms (BDI) and Impulsivity (BIS-11). Participant's informed consent was obtained at intake.
Results: Data shows that 12 (75%) participants gained weight at long-term, and reported maladaptive eating behaviours, such as grazing (n=8; 50%), lost of control over eating (n=3; 18, 8%), and excessive food intake (n=3; 18, 8%). Participants also reported plugging (n=8; 50%) and vomiting (n=8; 50%) in the previous month. When asked about life style changes, all of the participants reported nutrition changes but only 4 of them reported physical activity (n=4; 23, 5%). 14 participants identified difficulties in the post-surgical process, like regain weight (n=5; 29, 4%), vomiting (n=3; 17, 7%), and swallow learning (n=3; 17, 7%), between others. 14 (87,5%) of the patients reported being motivated towards treatment, but only 11 (68,8%) feel satisfied with these treatment. Regarding self-report measures, all participants scored within normal values in all measures except for the ODE, which values were higher than normal population in the assessing for presence of maladaptive eating behaviours.
Conclusions: The high percentage of weight regain, maladaptative eating behaviours, the reported difficulties with treatment process and low rate of physical activity, highlights the need of a long-term follow-up within bariatric surgery. The screening of maladaptative eating behaviors and difficulties in treatment process, as well the assessment of abilities to enroll in active life-styles with physical activity, are crucial to design multidisciplinary interventions that can enhance compliance with treatment and life style changes.

IH 06–04 Is Routine Preoperative Polysomnography Necessary in Patients Having Bariatric Surgery?

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Background: Obstructive sleep apnea (OSA) is recognized in obese patients.It maybe associated with significant perioperative morbidity and mortality.
Polysomnography remains the gold standard for the diagnosis and assessment of the severity of OSA. Some bariatric centers adopt a selective screening approach based on clinical suspicion; others, screen every patient. The aim of our study is to determine the prevalence of OSA, and whether BMI correlates with OSA prevalence. These results will form the basis for making a case for or against routine preoperative polysomnography in patients having bariatric surgery.
Methods: A five year(2005–2010) retrospective chart review was performed.Patients demographic and sleep study data was collected and analyzed.
The severity of OSA was divided into mild, moderate or severe according to the American Sleep Disorders Association guidelines. Mild OSA is defined as an apnea/hypopnea index of 5–15, moderate as 15–30 and severe as >30. Results were analyzed using statistical software.
Results: 555 patient charts were reviewed. Of these, 359 (65%) had polysomnography. 309 (86%) of the 359 patients had OSA , 50 (14%) had no OSA. The overall prevalence of sleep apnea was 86%, mild OSA 18% (63/359), moderate OSA 17% (62/359), severe OSA 51%(184/359). The prevalence of OSA by BMI category was as follows: BMI (35–39.9 kg/m^2): 92% (34/37). BMI(40–49.9 kg/m^2): 82%(178/218). BMI (50–59.9 kg/m^2): 92%(78/85). BMI(≥60 kg/m^2): 100%(19/19).
Conclusion: OSA is highly prevalent (86%) in our patient population, with most of them (51%) having severe OSA.
OSA is highly prevalent in all BMI categories. However, a BMI≥60 kg/m2 correlates with a 100% prevalence of OSA.
Based on these results, routine polysomnography is necessary as part of the pre operative work up for all bariatric patients.

IH 06–05 Effectiveness Evaluation of the Pre-Operative Weight Loss Program: Intragastric Balloon Influence

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Background: The prior body weight loss of 5-10% to bariatric surgery improves the comorbidities (diabetes and hypertension, heart or respiratory failure) in morbidly obese patients and reduces liver size then the surgical manipulation is easier. The aim of this study is to evaluate our preoperative weight loss program effectiveness and the intragastric balloon (BIB) influence results.
Patients and methods: Prospective cohort study. This includes all consecutive patients who underwent bariatric surgery between April 2006 and October 2010. The reviewers put data onto an M. Access spreadsheet. All patients were assessed by the dietitian and she recommended the same calorie-controlled diet for 6 months+liquid VLCD (Very Low Calory Diet) (with OPTIFAST) for one week prior to surgery. The intragastric balloon was provided to patients with BMI>50, but only the patients who voluntarily selected it, used the BIB. Preoperative weight loss was considered the dependent variable (it measured as: lost kg, body weight lost percentage and excess weight loss percentage). Preoperative weight measurement was taken the day before surgery. We studied two prospective cohorts: patients with intragastric balloon and patients without BIB. SPSS 16.0 statistical analysis was performed using linear regression.
Results: 200 patients undergoing bariatric surgery were included; the protocol of preoperative weight loss was applied to all of them. 37% were super obese. 29 patients took BIB (13%) (Represent 34% of patients with BMI>50) The overall preoperative weight loss was 9.38±8.82 kg; % body weight lost 7.04±6.5%;% excess weight loss (%EWL) 14±15.08%. %EWL was superior to 10% in 58.3% of patients. 58.6% lost more than 5% of body weight. %EWL in patients with BIB was higher: 21.65±10.6% vs 12.7±15,36 % , p<005). It is also a higher proportion of patients with BIB which lost more than 10% EWL (90%, p<0,005). By focusing the study on the super obese group also we observed benefit in patients with BIB (% body weight lost: 12.7±6.61 vs 6, 85±4.46;% EWL: 21.37±10.83 vs 11.93±7.61.
Conclusion: The preoperative weight loss program with hypocaloric diet for 6 months and liquid VLCD for a week is moderately effective in achieving the weight loss target prior to bariatric surgery. The intragastric balloon is a good strategy for preoperative weight loss, especially in the super obese patient groups who have more problems to follow a low-calorie diet.

IH 06–06 Pre-Operative Predictors of Vitamin D Deficiency

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Background: Post-operative vitamin D deficiency is well documented and several reports have suggested that morbidly obese individuals may also be susceptible to pre-existing vitamin D deficiency. This is of particular concern for patients considering a malabsorptive procedure, and highlights the potential importance of pre-operative vitamin D screening. We investigate if there are any pre-operative factors that are indicative of a pre-existing vitamin D deficiency.
Methods: 239 patients (182 female and 57 male) who had their vitamin D levels checked pre-operatively were analysed from the bariatric database. Median BMI was 51kgm^2 and median age was 46 years. Data was analysed using logistic regression. Age, BMI, hypertension, metabolic syndrome, diabetes and raised lipids were analysed. The dependant variable was vitamin D<25nmol/l.
Results: 39% of patients were vitamin D deficient and 40 % of patients had insufficient vitamin D levels based on laboratory assay interpretation guides. Logistic regression showed that BMI>50Kgm^2 and metabolic syndrome were associated with vitamin D deficiency (p=< 0.01 and 0.03 respectively).
Conclusions: Vitamin D deficiency was significantly more common in patients with a BMI over 50 kgm^2 and in those patients with metabolic syndrome. We would recommend that all patients that meet these criteria have vitamin D levels checked pre-operatively, especially if they are undergoing a malabsorptive procedure.

IH 06–07 Quality of Life: Sleevegastrectomy Vs. Gastric Bypass - A Prospective, One-Year Follow up Study

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Introduction: The gastric bypass(GB) is still the standard procedure in the first line bariatric therapy of obesity. One reason for that is that there are a lot of long term studies with good clinical results for the GB, but only a few long term studies about the sleevegastrectomy (SG). But there are good reasons for the sleevegastrectomy as a first line procedure in the bariatric therapy: E. a. the smaller intraoperative risk at high risk obese patients, the ability of endoscopic procedure and the smaller influence in the quality of life.
Methods: 101 patients (29 GB/72 SG) could be included in this study. Both groups were comparable in obesity, comorbidities and history. The follow up was at 1,3,6,9,12 months after operation. The quality of life and also the actual psychological situation were investigated by an acknowledged questionnaire (EORTC QLQ), enhanced with a specific obesity modul. Clinical and chemical investigations were also done.
Results: In the clinical follow up analysis both groups, the GB- and the SG-patients, show similar good results in excess weight loss and reduction of the comorbidities and the need for medical treatment. The SG patients had even better clinical results but not on a significant level. In the quality of life analysis all functions were clearly increased within 6 months. After 6 months the GB patients show a slight decreasing

trend over all and a clear decreasing trend in the gastrointestinal function. The SG patients still show a slight, but increasing trend after 6 months. They had no decreasing gastrointestinal function. The difference in the over all contentment shows a signifcant advantage for the SG patients 6 months after operation.
Conclusion: After gastric bypass as well as after sleevegastrectomy patients had an increased quality of life already after 3 months. The clinical improvements (reduction of weight and comorbidities) are nearly the same with both procedures in the 1-year analysis. But in the quality of life analysis patients after gastric bypass show a slight decreasing trend caused by the gastrointestinal sideeffects. Sleevegastrectomy patients very seldom have gastrointestinal sideeffects and show a continuing increasing trend in all function of the quality of life questionnaire.This study will be continued.

IH 06–08 Nutritional Deficiencies in Indian Obese - Is Sleeve Gastrectomy a Better Option?

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Background: Roux en y Gastric Bypass and Sleeve Gastrectomy are the most commonly performed procedures in India. Micronutrient deficiencies are known to occur after bariatric procedures. The purpose of this study was to evaluate the preoperative nutritional status of Indian patients presenting for bariatric surgery.
Method: This a retrospective cross-sectional study conducted in 276 obese patients who presented to CODS from January 2005 to December 2010. The median age was 43 years (Range 16 to 75 years). Median BMI was 46 kg/m^2 (Range 32 to 85 kg/m^2). Preoperative evaluation included iron, vitamin B12 and vitamin D3 levels. Normal range for Vit D3 was taken as 9 to 70 ng/ml, for Vitamin B12 was 174 to 878 pg/ml and that for iron was taken as 60 to 150 mcg/dl.
Results: 45% of patients were found to be deficient in Vitamin B 12 levels. 42.5% were deficient in Iron. Menstruating females were at higher risk of developing iron deficiency. 72.3% patients were deficient in Vitamin D3 levels.
Conclusion: Although obesity is considered to be a state of over nutrition, it is paradoxically associated with multiple nutritional deficiencies in Indians. A predominantly vegetarian Indian diet coupled with underexposure to sunlight is largely responsible for the higher deficient state in the Indian obese. These preoperative deficiencies also have a bearing on the selection of bariatric procedures and are partially responsible for the rise of sleeve gastrectomy in India.

IH 06–09 Pre-Operative Snack-Eating Behavior and Weight Loss in Sleeve Gastrectomy Patients

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Introduction: Sleeve Gastrectomy (SG) is gaining popularity worldwide as a primary operation. Snack-eating pattern is associated with poor weight loss after restrictive procedure. However, the relationship between preoperative and postoperative snack-eating and weight loss outcome amongst SG patients is unknown.
Methods: 134 patients (50m/84f) who had SG operation filled out a questionnaire on their snack-eating habits preoperatively and during a routine follow-up visits at 3–6 months and 6–12 (n=63) months and 12–24 (n=23) month postoperatively. The questionnaire score varies between 9 and 90, with higher score representing high snack-eating behavior. The median for Snack-Eating-Score (SES) was 36. 68 candidates who achieved SES>36 were defined as snack-eaters (SE) and 66 patients who achieved SES<36 were defined as non-snack- eaters (NSE). We performed Mann Whitney Test to compare between two groups. P values<0.05 were considered statistically significant.
Results: The preoperative weight and Body Mass Index (BMI) were 121±23 kg, 44±6 kg/m^2 respectively. The average SES preoperatively, 3–6, 6–12 and 12–24 months postoperatively were 26±7, 27±8, 31±9 and 30±7 respectively in the NSE group. The average SES preoperatively, 3–6, 6–12 and 12–24 months postoperatively was 48±9 (p<0.01), 34±11(p=0.01), 35±11(p=0.09) and 34±8 (p=0.6) respectively in the SE group.
The average Excess Weight Loss (%EWL) at 3–6 months, amongst the SE vs. NSE was 52%±20, and 56%±21. The average %EWL at 6–12 months postoperatively was 70%±21 and 77%±19 amongst the SE vs.NSE respectively. The average %EWL at 12–24 months postoperatively was 74%±22 and 79%±24 amongst the SE vs.NSE respectively. Although NSE show a trend of higher weight loss, the differences were not statistically significant (p=0.7, p=0.8 and p=0.3 for 3–6 mo, 6–12 mo and 12–24 mo respectively).
Conclusions: There is a trend towards a better weight loss in the non snack-eaters, although it was not statistically significant. As time passes after operation eating habits become similar for NSE and SE. Longer follow-up and larger sample size studies are needed.

IH 06–10 Dynamics of Oxidative Stress Markers and and Nitric Oxide Production in Morbidly Obese Patients Submitted to Bariatric Surgery

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Background: Obesity is known as chronic inflammatory and prooxidant status playing a crucial role in the development of insulin resistance, endothelial dysfunction, hypertension, type 2 diabetes and atherosclerosis. Nitric oxide production in morbidly obese patients is still controversial. The aim of the present study was to determine the relationship between surgical weight loss, levels of reactive oxygen/nitrogen species (ROS/RNS) and antioxidants.
Methods: Serum malondialdehyde (MDA), glutathione (GSH), SH groups and nitric oxide metabolites (Nitrite/nitrate NO) were determined in 45 morbidly obese patients in the preoperative period and 6 months after silastic ring vertical gastroplasty (SRVG). Baseline levels of the same parameters were also compared with those from 10 normal weight healthy subjects.
Results: Body mass index (BMI) reduction was significant after surgery (48,5± 5,62 kg/m^2 to 38,45±6,77 kg/m^2, p<0,001). Serum MDA and NO levels were significantly higher in the morbidly obese patients than in controls (1,51±0,43 nmol/ml and 26,64±3,29 μmol/l respectively, p<0,05). SH groups were significantly lower in the morbidly obese vs. normal weight subjects (0,34±0,02 μmol/ml, p<0,05). A significant reduction in MDA levels (5,73±3,02 nmol/ml to 3,85±1,91 nmol/ml, p< 0,05) and NO metabolites values (from 57,57±31,62 μmol/l to 49,17±23,96 μmol/l, p<0,05) as well as an increase in SH groups (0,19±0,06 μmol/ml to 0,26±0,11 μmol/ml, p<0,05) and GSH (14,50±2,22 nmol/ml to 28,69±20,40 nmol/ml, p<0,05) were observed after weight loss.
Conclusions: Obesity is associated with high levels of oxidative stress markers and an increased nitric oxide production. Surgical weight loss associates a reduction in oxidative stress markers and NO production.

IH 06–11 Evaluation of S. Vit B 12 Status After Bariatric Surgery in Indian Patients: Need of Effective Mode of Supplementation

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Introduction: The Indian diet is generally low in meat and other protein foods that are high in vitamin B12. The Indian bariatric surgical candidate may, therefore,

present with deficiencies in vitamin B12 prior to surgery. Such deficits in B12 could be exacerbated postoperatively with procedures known to increase the risk for B12 deficiencies, i.e. Roux-en-Y gastric bypass (RYGBP) or the sleeve gastrectomy (SG). The purpose of the present study was to examine the incidence of pre- and postoperative vitamin B12 deficiencies in a population of Indian bariatric patients.

Methods: The population included 121 bariatric patients whose vitamin B12 levels were measured before and one year following RYGBP (n=50) or SG (n=71). Vitamin B12 deficiency was defined as serum levels ≤200 pg/ml and insufficiency was defined as vitamin B12 levels ≤400 pg/ml.

Results: Preoperatively, B12 levels averaged 334.6 pg/ml. Among the candidates, 32% were B12 deficient and 70% had insufficient levels of the vitamin. One year following RYGBP, vitamin B12 levels were not improved significantly (32% deficient, 72% insufficient) despite daily oral supplementation of 500 mg B12. With the SG, vitamin B12 levels also did not change significantly from preoperative values, i.e. 312 to 277 pg/ml. One year following SG, 28% of patients exhibited B12 deficiencies and 81% had insufficient B12 levels.

Conclusion: Vitamin B12 deficiencies / insufficiencies are high among Indian surgical candidates and oral supplementation of 500 mg daily is ineffective in reducing these deficits following RYGBP or SG. Studies are underway to determine the most effective treatment for B12 deficits before and after surgery for Indian bariatric patients.

IH 06–12 Impact of a 16-Month Intervention on Daily Physical Activity and Functional Physical Fitness in Gastric Banding Patients

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Objective: To analyze the impact of a physical activity (PA) promotion intervention on functional physical fitness and lifestyle PA, in women after bariatric surgery.

Methods: 10 women (48.40±7.93 y; 95.22±20.69 kg; 1.54±0.06 m; 39.76±7.19 kg/m^2), previously submitted to gastric banding (1.13±0.80 y) in a tertiary health unit volunteered to participate in this study. The 16-month intervention involved one weekly 2-hour session, which included PA promotion and an exercise workout session. Each session started with last week activities discussion, followed by the presentation and discussion of a PA-related topic (15–20 min), and a workout session (50–70 minutes). A pedometer (OMRON Walking Style HJ-113) was used to register daily number of steps and aerobic steps. Due to participant's low functional autonomy, the Fullerton battery (Rikli & Jones, 2001) was used for functional fitness assessment. Descriptive analysis was performed, and Wilcoxon nonparametric test allowed the analysis of the differences from baseline to 16-months. Spearman's test was used to analyze correlations between changes in weight, BMI and all the other variables.

Results: From the beginning to the end of the intervention, an increment of total daily steps (Z=−2.80; P=0.005) from 5418.24±1494.28 steps/day to 9449.45±3416.83 was verified, representing a mean increase of 76.00%. Simultaneously, improvements were observed in cardiorespiratory fitness (Z=−2.81; P=0.005), upper limbs strength (Z=−2.81; P=0.005), lower limbs strength (Z=−2.03; P=0.042), and agility/balance (Z=−2.30; P=0.022), representing mean increases of 28.50%, 31.68%, 31.67% and 13.18%, respectively. Flexibility did not show significant differences during the intervention period (P>0.05). All the changes were independent from weight and BMI alterations (P>0.05).

Discussion: A 16-month PA promotion intervention, with only one weekly session, significantly improved daily PA and several functional physical fitness parameters in women after gastric banding, Higher cardiorespiratory fitness is a protective factor of all-cause morbidity and mortality (Kodama et al., 2009; Carnethon et al., 2005), while muscle strength revealed beneficial effects on metabolic syndrome (Jurca et al., 2005). Along with PA increase, the observed changes might contribute to the decrease of several health risk factors, with greater autonomy and increased performance of routine daily tasks.

POSTERS

P.001 An Easy and Reproducible Technique for Access to the Abdominal Cavity and Establishing Pneumoperitoneum in Bariatric Patients

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Introduction: Many techniques have been reported describing access to abdominal cavity in bariatric patients. Among other techniques, the most prevalent are the closed technique with Veress needle inserted either through the umbilicus or the left subcostal area, the open approach and the optical trocar technique. We describe herein our experience with a simple and expedite technique for establishing pneumoperitoneum in bariatric patients.

Methods: All patients undergoing bariatric procedures from September 2007 through February 2011, were included in this retrospective analysis. In patients with previous open upper abdominal surgery, either the open or the Veress needle techniques were used. Following the first skin incision to the left of the upper midline, a dissecting forceps were used to dissect the subcutaneous fat down to the fascia. The fascia was bluntly punctured by the instrument and the opening was slightly dilated. Then, a bladeless trocar was introduced to the abdominal cavity and pneumoperitoneum established through it. Complications related to the technique including failures were recorded.

Results: The technique was utilized in 436 consecutive bariatric patients (319 sleeve gastrectomy, 88 gastric bypass, 25 removal of bands and 4 adjustable gastric banding). Failure was observed in 6 patients (1.4%), and in other 3 (0.7%) minor controllable bleeding was seen from the omentum underneath the puncture site. Failures were seen in muscular males (3 patients) and in 3 females who underwent removal of bands after significant weight loss with considerable laxity of the abdominal wall. No other complications were recorded.

Conclusions: The technique described is safe, simple, reproducible, requires no special instrumentation, and quick for establishing pneumoperitoneum in obese patients.

P.002 Trial by Media: Bariatric Surgery in the UK Press

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Background: Bariatric surgery has been shown to have a beneficial effect on individual health and a positive economic impact for society. Nonetheless, its role in a state funded healthcare system is controversial due to prevalent negative sterotypes of obesity. The print media plays a critical role in shaping public opinion, as an interface between the medical community, government, and the public. The media perception of bariatric surgery is not known. The way bariatric surgery is portrayed in print may be affected by the sources that prompt the reports.

Methods: The ten most frequently read daily UK newspapers were searched for articles relating to bariatric surgery over a 12-month period (January-December 2010). The term 'weight loss surgery' was used on each newspaper's online search facility to identify articles. Articles returned addressing bariatric surgery were reviewed and rated by two independent assessors on a five point scale for their portrayal of bariatric surgery - from very negative (1) to very positive (5) to produce an average score. Irrelevant articles, for example articles pertaining to cosmetic surgery, were not included. The source of information underlying the article was noted - Personal account of surgery, official report or news/opinion item. The combined estimated daily circulation of these newspapers was 25.3 million i.e. 41% of the UK population.

Results: 80 relevant articles were identified and analysed for content. Scores between the independent assessors were highly correlated (Spearman's rank correlation P<

0.0001). 22 (27%) of all articles were negatively slanted (Mean score 1–2), 30 (37%) were positive (mean score 4–5) and 28 (35%) were neutral (mean score 2.5-3.5). The average score of all articles was 3.2 (neutral). When the articles were assessed for publication month, it was noted that there was an uneven distribution of articles over the 12 months. There were peaks in coverage in Jan-Feb and Aug-Sept which related to news stories about "the world's fattest man" and an official report on the increase in bariatric surgery activity in the UK respectively. Three information sources were identified, in order of decreasing positivity: an official source (surgical society or government publication), a personal account of bariatric surgery, a news/editorial item.
Conclusions: The UK print media reports a wide variety of perspectives on obesity and bariatric surgery. The negative press is related to complications, but also to unsupported comments concerning the laziness of patients and cost of intervention - both of which are challenged by current literature. Positive comments reflect personal stories, articles from medical luminaries and current medical research. A policy of media advocacy may enhance the quality of media reporting and could improve public awareness and perception of obesity and bariatric surgery.

P.003 One Day Surgery for Laparoscopic Adjustable Gastric Banding: Feasibility Study

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Introduction: As bariatric surgery is increasing obesity treatment, the procedure requires evaluation. The purpose of this study was to assess the feasibility of laparoscopic gastric banding during ambulatory hospital stay.
Materials and methods: one hundred consecutive patients were included in a cohort study. All underwent laparoscopic adjustable gastric banding. Inclusion criteria were the same than any other laparoscopic surgery. All patients were operated by the same surgical team including 2 surgeons. A single anaesthetic ambulatory protocol was chosen according to the SFAR recommendations. The evaluation criteria was the virtual ability to discharge the same day of the surgery.
Results: Among the patients included in the study, 14% were excluded from ambulatory procedure for social reasons, (9 %) or medical reasons, (4%) for both reasons. Among the 86 patients able to participate to an ambulatory procedure, three patients couldn't discharge the same day of the surgery. At least, 83% of patients met the condition to discharge the same day.
Conclusion: These results are close to the failure rate usually observed in any type of ambulatory surgery. Associated comorbidity is the main eligibility requirements to access to ambulatory surgery. Obesity can't be considered as a sufficient reason to refuse ambulatory procedure.

P.004 Co-Morbidities and Perioperative Economical Parameters of Obese Children Undergoing Anaesthesia

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Background: It is known that the incidence of overweight and obesity in children is increasing, but this perception is based on only two prospective studies [1,2]. So the aim of this study was to analyse the rate of overweight and obesity in children presenting for general anaesthesia in a German university hospital. Further aspects were the prevalence of co-morbidities, duration of anaesthesia, surgery and length of stay in the hospital.
Methods: We performed a prospective observational study and enclosed, after permission of our local ethics committee and written informed consent of the parents, between 12–2008 and 08–2009 580 children aged 2–18 years, ASA I-III presenting for elective paediatric or ENT-surgery. Co-morbidities, the premedication dosage and duration of anaesthesia were documented in our study protocols, same as the time in the recovery room and the length of stay for in-patient children. Using BMI-percentile (P) the children were divided into three groups for normal weight ($P<90$), overweight ($90 \leq P < 97$) and obesity ($P \geq 97$) [3]. For statistical analysis Pearsons's chi-square-test, Kruskal-Wallis-Test and student's t-test were used. The data are presented as mean±SEM or percentage of weight group; significance was $p<0.05$.
Results: Data of 504 children were available for analyses. The age was 7.9±4.5 years. Overall 7.9% of the children were overweight and 6.9% were obese. These children were significantly more often treat as an in-patient than the normal weight children. 71.4% of the obese children suffered from at least one co-morbidity and 51.4% of them from pulmonary or airway related diseases. We found out, that overweight and obese children get a significantly lower dosage of midazolam for premedication than the normal weight ones. The total time of anaesthesia was significantly longer for the obese children. But there was neither a difference in the time of induction and recovery from anaesthesia nor in the length of stay in the recovery room.
Conclusion: Compared to studies from the US [1] and Egypt [2] we found a lower prevalence of overweight and obesity according to the lower prevalence in Germany. The higher prevalence in the in-patient children could by due to the increasing knowledge about perioperative complications in these patients. To avoid the higher rate of hypoventilation or apnoea the overweight and obese children get a lower dosage of midazolam for premedication. Our data show that the longer time for anaesthesia is a result of the longer surgical procedures in obese patients, since the times for induction and recovery from anaesthesia were comparable. As a consequence of the longer time in the operating theatre and the higher rate of in-patient treatment the perioperative care for obese children is more expensive.
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P.005 A Retrospective Analysis of the Introduction of Sugammadex on the Incidence of Respiratory Failure after Bariatric Surgery

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Background: Sugammadex was available on March 2009. Most morbid obese patients were continuously deep muscle relaxed with rocuronium to create sufficient workspace. Before March 2009 most patients were reversed with neostigmine if clinical required. TOF measurements were performed before and after March 2009. After March 2009 a dose of 2 or 4 mg/kg sugammadex was given for reversal if the patient was to deep for full reversal with neostigmine (TOF<T3).
Methods: A retrospective observational study included all patients who presented for gastric bypass surgery between 2007 and 2011. 1500 consecutive laparoscopic gastric bypass operations before March 2009 and 1500 consecutive identical operations after March 2009 were analyzed for the occurrence of postoperative respiratory failure at day 0 and day 1. Respiratory failure was diagnosed when one or more of the following problems happened post operative: need for re intubation, use of CPAP different from pre operative OSAS CPAP, need for non-invasive ventilation support and diagnosis of hypercarbia. The incidence of respiratory failure before and after March 2009 was compared using a Pearson's chi-square analysis. All gastric bypass operations were included, including the gastric bypass after an other bariatric procedure. Both groups were controlled for the incidence of pre operative co morbidities as diabetes, hypertension, respiratory diseases, re intervention and for age, sex and BMI.
The total number of patients who got neostigmine versus sugammadex was analysed for both periods.
Results: Between 2007 and 2011 3000 lap RNY surgeries were performed and analysed. Before march 2009 Neostigmine was used in 90 % of the patients while Sugammadex was not used due to non availability. After march 2009 60 % of the patients got sugammadex while neostigmine was used in 35 % of the patients.
9 cases were recorded of respiratory failure with admission on the intensive care unit: one patient with severe bilateral atelectasis needing 3 days oxygen therapy, 3 patients needed a CPAP mask therapy, two patients with carbonarcose needed a re intubation and ventilation, three patients needed a non invasive mask ventilation. After March 2009 no patient with respiratory failure was diagnosed. The chi-square analysis was significant ($p=0,0249$) Both groups were comparable for age and BMI and for

hypertension, and respiratory dieseases. the second group had more man, more reinterventions and diabetes.
Although the patient population over this period became more male the BMI stayed comparable. The fact that more attention was given to a full decurarisation of 0,9 could also explain the better results after march 2009.
Conclusions: After March 2009 the availability and use of Sugammadex stimulated to reach a TOF of 0,9 in every morbid obese patient at the end of surgery eliminating the incidence of postoperative respiratory failure.

P.006 Comparison of the Ideal Body Weight Using the Broca's Index with Lean Body Weigth Using Electrical Impedance as Tool for Medication Dosage in Morbidly Obese Patients.

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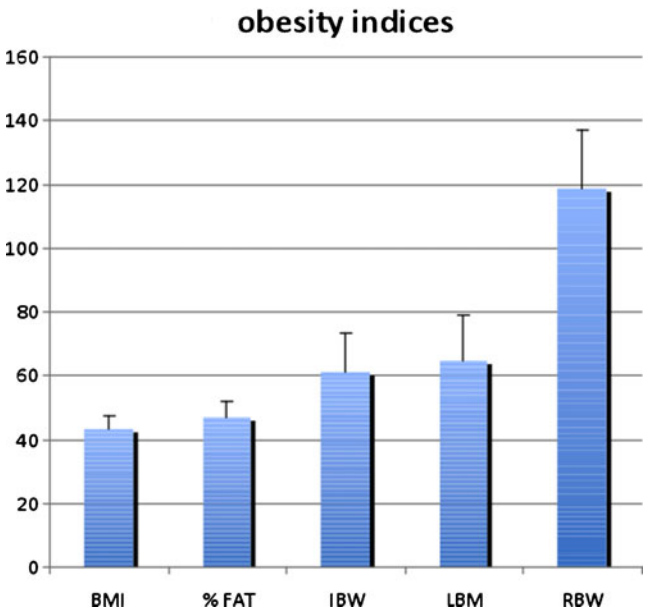
Introduction: Ideal body weight (IBW) is the weight that people are expected to weigh based on age, sex and height. The ideal body weight today is used as tool to calculate the dosage of most non fat soluble medications. The history of the formulas for calculating IBW began in 1871 when Dr Broca created the formula known as Broca's index. There are two different formulas to determine IBW. One for men: length (in cm) minus 100 cm, and one for women: length minus 100 cm plus 10 %. Lean Body Weight (LBW) is the difference between real body weight (RBW) and fat mass (weight of all organs, bone and muscles without fat). Obese patients have both an increased amount of fat and lean body weight when compared with non-obese patients of similar age, height and gender. The increase of LBW can account for as much as 20 to 40 % of the excess RBW (1).
This suggest that LBW is an alternative weight scalar for drug administration in morbidly obese patients. Nevertheless, accurately measuring LBW is relatively difficult under normal clinical circumstances.
Methods: This study has been approved by the Hospital Ethical Committee. 100 morbidly obese patients (BMI>40 kg/m²) gave written informed consent to participate. Patients were aged between 19 and 60 years old. They were scheduled for laparoscopic bariatric surgery. Prior to surgery. BMI, fat percentage, LBW, RBW and IBW were measured. For ease of comparison with the Broca's metric formulas, we calculated lean body mass and fat percentage according to electrical impedance and the formula of Lukaski et al. (2).
Results:



[Indices]

Conclusion: For patients with an average BMI of 40 the difference between IBW and LBW was only 6.6% and not in accordance with Savarese et al. Therefore the use of IBW, that is easier to calculate, is usefull for dosing medications knowing this difference with the LBW.
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P.007 Adipose Tissue Derived Hormones and Insulin Demand in Septic Patients

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Adipose tissue secretes a multiplicity of adipokines which are involved in insulin resistance syndrome. Intensive care unit patients usually have a deregulated glucose homeostasis and present with hyperglycemia and hyperinsulinemia, suggesting overall insulin resistance. Adiponectin has significant anti-inflammatory and insulin-sensitizing effects and is diminished in morbidly obese and in critically ill patients. Reduced adiponectin could contribute to insulin resistance in these patients. We examined the insulin demand in critically ill patients in correlation to patients' adiponectin levels.
Adiponectin, resistin, leptin, insulin demand, minimal and maximal blood sugar levels, epinephrine and hydrocortisone demand were measured one day after diagnosis of severe sepsis or septic shock in 25 patients (8 female, 17 male; median age 65 years; range: 31 to 87 years).
Adiponectin was significantly lower and resistin was significant elevated in the septic patients, whereas leptin levels were rather unchanged. Adiponectin correlated negatively in septic patients with sepsis scores, while resistin and leptin correlated positively. Insulin demand (range: 0 to 8 IU per hour; median 3.5 IU) correlated positively with serum adiponectin levels (median: 10.1 µg/ml; range: 2.9 µg/ml to 47.6 µg/ml; r=+0.56, p=< 0.01). There was no significant correlation of insulin demand and leptin serum levels (median: 18.1 ng/ml; range: 0.3 - 80.7 ng/ml; r=+0.29, p=0.08) or resistin serum levels (median: 103.9 ng/ml; range: 14.7 - 352.3 ng/ml; r=+0.13, p=0.27) serum levels. Epinephrine demand (median: 0.08 µg/kg*min; range: 0.02 - 0.63 µg/kg*min) showed a negative correlation with male adiponectin levels (r=−0.58; p<0.01; females: r=−0.36; p=0.19) and a positive correlation with resistin levels (r=0.43; p=0.02). Patients' BMI (median 26 kg/m²; range: 18–37) showed a positive correlation with serum leptin (r=0.60; p<0.01) but no correlation with insulin demand (r=0.19; p=0.19) and adiponectin (females: r=−0.37, p=0.18; males: r=−0.16, p=0.27) or resistin levels (r=+0.17; p=0.21).
Adipocytokine changes extensive in patients with severe sepsis. All significant changes are shifted in the same direction as in morbidly obese subjects and patients with type 2 diabetes mellitus. A positive correlation of adiponectin levels and insulin demand was found during sepsis. Adiponectin levels correlated negatively with epinephrine demand in male patients and epinephrine demand showed a positive correlation with resistin levels, which might have increased insulin resistance. The relationship between adiponectin and insulin action in humans is more complex than often suggested.

P.008 Formal Bariatric Surgery Quality Programs: A Viable Six Sigma Alternative to Standardization in Bariatric Surgery?

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Background: A meteoric increase in the incidence of obesity worldwide has resulted in a concomitant spurt in comorbidities ranging from cardiac, hepatic, renal, musculoskeletal, GU and reproductive problems to metabolic syndrome. Bariatric

surgery is the only proven treatment modality that leads to sustainable weight loss in the morbidly obese. Although bariatric surgery has undergone rapid evolution over the past four decades and has transitioned from open to minimal access to single incision techniques, it has constantly struggled to upend its 'stepchild' status in the medical fraternity and society at large that still refuses to acknowledge obesity as a life threatening disease and bariatric surgery as a proven, acceptable intervention to combat this condition at its most extreme.

Bariatric surgery candidates are an exceptionally challenging patient population in that they are high-risk individuals (usually presenting with one or multiple comorbidities) and long term follow up is *essential* to ensure optimal outcomes.

The quality of outcomes is a critical predictor of whether bariatric surgery will continue to be shunned or widely hailed as the treatment of choice for morbid obesity as well as the resolution of T2DM.

Methods: Sound quality improvement is an iterative process that relies on the principles of data collection, feedback, corrective action/process alteration amd further data collection. Instituting processes that mirror the philosophy of the Six Sigma approach such as "improving the quality of process outputs" (surgical outcomes) "by identifying and removing the causes of defects (human and/or system error) "and minimizing the variability in manufacturing and business processes" (pre-op, peri-op and post-op processes) and creating an infrastructure of trained, dedicated personnel combined with "continuous efforts to achieve stable and predictable results" would lead to markedly improved care. Formal bariatric surgery quality programs are currently one of the proven ways to enhance quality of care and improve outcomes. Their emphasis on targeted and continuous staff training and the creation of appropriate assessment tools to measure competencies, evidence of recruitment of quality surgeons at the helm of affairs and qualified physician extenders providing support, evidence of program support by hospital administration, demonstration of critical care support and coverage, a requirement that facilities input meaningful data into proprietary, secure databases tha are used to generate outcomes based treatment protocols and the mandatory use of clinical pathways and standard operating procedures along the patient care spectrum has been proven to result in enhanced patient outcomes.

Conclusion: With the burgeoning volumes of morbid obesity across the globe, standardization of care with inputs from formal bariatric surgery quality programs is a viable solution to achieve optimal patient outcomes in bariatric surgery.

P.009 Results of Endoscopic Adjustable Band Removal for Intragastric Migration

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Background: Symptomatic band migration has a prevalence of 1% after Laparoscopic Adjustable Gastric Banding (LAGB). The number of Gastric Bands placed worldwide is rapidly rising and so will inevitably the number of migrations. Migrated bands can be removed using an endoscopic approach which has, according to the current literature, a low complication rate. In our series we show that the endoscopic procedure is definitely not without the chance of serious complications

Patients and methods: From June 2006 till June 2009 seven patients underwent endoscopic removal of their migrated bands. Afterwards patients were followed in time.

Results: In four patients the endoscopic removal was performed without any perioperative complications. In one patient extracting the LAGB into the stomach appeared infeasible due to tissue overgrowth into the buckle. The two remaining patients presented themselves with acute hematemesis and melena. In one patient the procedure was performed without complications, but was readmitted to our hospital after a few days with hematemesis due to an ulcer. The other patient was converted to a laparoscopy due to a bleeding originating from the gastric sinistra. This patient again developed hematemesis nine weeks after the gastroscopy and suddenly died.

Conclusion: Endoscopic removal of the migrated Adjustible Gastic Band is a feasible minimal invasive technique when performed by an experienced surgeon and gastroenterologist. However, we do not agree with current literature that this is a low risk technique. As shown in our series there is a serious risk for bleedings even a few weeks after the procedure and these can even lead to the death of the patient. When using this technique we therefore advise not to hesitate with re-intervention when bleeding is suspected and not to use this approach when a patient has hematemesis or melena.

P.010 Gastric Bypass Surgical Complications Much Less Than Excpected

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The prevalence of Obesity has been increased worldwide, resulting in increasing number of patients subjected to Bariatric surgery. Laparoscopic Gastric Bypass is one of the most widely performed bariatric procedures. Since its introduction in 1993 the laparoscopic Gastric bypass has proven to be equal if not superior to the open gastric Bypass, However the laparoscopic approach carries a significant incidence of surgical complication.

Private practice of Bariatric Surgery in Saudi Arabia has no Insurance coverage yet and the complication of these procedures is not accepted by the patients nor the Medical administration of these institutes.

We present our experience in private centers with high volume Bariatric practice with a number of 1372 Gastric Bypass procedures performed between November 2004 and December 2010

There were for patients with Leak (0.3%) , 32 patients with bleeding (2.3 %), 4 patients with obstruction at the Jejeno-Jejenostomy (0.3%), 3 patients with pulmonary embolism (0.22) other minor complications has also been reviewed.

In Conclusion, Laparoscopic Gastric Bypass Can be performed safely in a Private sector in a high Volume Bariatric Surgery with a low incidence of Complications and morbidity, However Patients should know in a detailed informed consent, the nutritional sequel of this procedure with a lifelong commitment to Vitamins and minerals supplementation

P.011 Fistulas in Laparoscopic Sleeve Gastrectomy. The Optimal Management

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Background: Laparoscopic Sleeve Gastrectomy (LSG) is the latest procedure among bariatric interventions for morbid obesity. This mid-rising technique is a restrictive surgery with a probable hormonal component at the same time. Described as a first step procedure, in severely obese patients, at the beginning, it is now confirmed as a definitive surgical option. Among several occurring post- LSG complications, fistula remains the most harmful event, necessitating a challenging management that, until now, remains a controversy.

Methods: We report in this retrospective study, 12 cases of fistulas post-LSG. risk factors for leak occurrence, the clinical signs, diagnostic tools and the results of the treatment established will be evaluated.

Results: The percentage of fistulas in our series (n=169 patients) was 2.95% (5/169 cases). We considered increased BMI (>40 Kg/m²) and history of previous abdominal surgery (Redo surgery) as important risk factors for leak occurrence. The time of appearance was never before 10 days (50%), with fever and left shoulder pain being the major manifesting signs (100%). The diagnosis was radiologically confirmed in 100% of cases after water soluble upper gastro-intestinal series and double contrast abdomino-pelvic CT-scan. The initial treatment in all cases was a percutaneous drainage, keeping the patient NPO, total parenteral nutrition and wide spectrum antibiotic coverage. Fibrin glue, endoclip, coils and endo-prosthesis, considered as a complementary treatment, all failed, and the final treatment was surgical in 50% of the patients.

Conclusion: After reviewing the fistulas occurrence in our series and the established therapy, we were able to define 3 types of fistulas. Based on the type of the fistulas,a precised algorithm for the optimal management of fistulas can be proposed to these patients; that will need further evaluation.

P.012 Complicated Gastric: Band an Unusual Presentation

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Introduction: Laparoscopic adjustable gastric banding (LAGB) is a restrictive technique for morbid obesity treatment. It consist in the placement of a neumatic device on the upper third of the stomach 3–4 cm below the esophago-gastric junction to obtain a 20–30 cc pouch.
Like any other surgical procedures it has anesthetic and operative complications. An infrequent complication is band erosion and migration.
It is tipically a delayed complication and ocassionally urgent surgical intervention is required.
Objective: To describe an unusual LAGB complication presented with abdominal pain and jaundice.
Case report: 66 years-old woman. History of Hypertension, type 2 Diabetes Mellitus, hypothyroidism, appendectomy, 2 cesareans and LAGB placed one year ago.
She consulted in the emergency room with epigastric - right hypochondrium pain, nausea, vomiting, fever and jaundice. She complained of abdominal pain since the first adjustment of the device.
The physical examination revealed a lightly impaired general status, mild dehydration and jaundice. Abdominal exploration showed tenderness in the right upper quadrant without clear peritoneal irritation and reduced bowel sounds.
Emergency blood tests showed Hemoglobin 12.3 g%, Leukocyte count 11000 with 79% neutrophil, Bilirrubin 5.8 mg%, GGT 559 U/L, Alk ph 778 U/L, ALT 436 U/L and C reactive protein 6.7.
Abdomen X-ray reported a possible gastric band migration. Abdomen CT report cholelithiasis.
Abdominal ultrasound reported intra and extrahepatic bile ducts dilation, cholelithiasis with acute cholecystitis signs.
Urgent surgical intervention was decided.
Surgical findings: An initial laparoscopic approach was preferred expecting an acute cholecystitis. Due to unexpected findings an open approach was finally performed. Intraoperative findings consisted in a gastric perforation at the lesser curvature and another four perforations in the proximal jejunum, locally confined peritonitis in the left upper quadrant and proximal intestinal obstruction due to gastric erosion and intraluminal band migration.

[Jejunum and intraluminal band]

The gastric perforation was closed, the perforated jejunal loop was resected, and a side to side duodeno jejunal anastomosis was performed . The procedure was completed with a cholecystectomy.
Postoperative course was uneventful and the patient was discharged two weeks after procedure.
Conclusion: Band migration is an unusual complication. Literature reports an occurrence rate of 1–2 %. The most frequent presentation is nausea and vomiting with acute abdomen and persistent subcutaneous port infection. Clinical presentation with jaundice and acute cholangitis is rare.

P.013 Patient Reported Complications Following Roux En Y Gastric Bypass

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Background: Complications following Roux en y Gastric Bypass (RYGB) should be low. Due to catchment area size outpatient follow up is not complete and patients present elsewhere with complications.
Aim: To identify the frequency of postoperative complications and mortality following RYGB in 280 consecutive patients in a single centre using patient reported outcomes via a postal questionnaire.
Methods: Questionnaires were sent to patients who underwent RYGB between April 2007 and July 2010. A reminder was sent to non-responders at 2 weeks. Post operative complications, readmissions, revisional surgery, gallstone/renal stone problems and wound infections were evaluated. Mortality rates and indications for further operative intervention were identified from case notes.
Results: 280 patients underwent laparoscopic RYGB (1 converted to open). 1 patient died 5 months post op. 30-day mortality rate was 0%. 63% (177/279) of questionnaires were returned. Mean age was 45yrs with a mean follow up of 18 months and BMI at surgery of 52.
14%(25) of patients required readmission to hospital. 20%(5) presented to other hospitals.
7(4%) patients required further surgery to deal with complications:
2 for early post op bleeding (short gastric, staple line). Late reoperations were for internal hernia (1), jej-jej anastomosis stenosis(1), shortening of redundant duodenal stump (1), adhesiolysis with PEG insertion (1) and lengthening of biliary limb (1). All but the internal hernia was dealt with laparoscopically.
6 (3%) patients required surgery for abdominal wall hernia: 3 incisional hernia (1 from open RYGB, 1 previous appendix) and 3 para-umbilical hernias. 2 patients have symptomatic para-umbilical hernias awaiting surgery.
23 (13%) patients required antibiotics for wound infection.
2 patients were diagnosed with a DVT at 11 and 12 months post op and 1 patient with a PE at 1 month.
151 had their gallbladder in situ at the time of surgery. 8 (5%) underwent cholecystectomy at the time of RYGB. 11 (8%) patients reported postoperative gallstone problems and 9 underwent cholecystectomy. 4 patients had kidney stone problems with 1 requiring surgery.
86% (153/177) patients reported problems with excess skin. 18 were referred for a plastic surgery opinion for surgery with 10 patients having had abdominoplasty.
Discussion: This postal questionnaire has given a valuable reflection on our current practice and identified previously unrecognized complications. The 30-day mortality is 0% and reoperative rate for early post-op complications is 1%(2/177). The number of delayed complications is also low and can be dealt with laparoscopically the majority of the time.
Despite this 15% of patients will require further surgery within 3 years of RYGB for gallstones/ abdominoplasty /hernia repair.
Low rates of DVT and PE support our current thromboprophlyaxis regime of early mobilization, enoxaparin, TEDs, pneumatic compression for day of surgery.

P.014 Hair Loss Despite Nutritional Supplementation after Roux En Y Gastric Bypass

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Background: Clinical experience has revealed that hair loss following Roux en y gastric bypass (RYGB) is common with documented rates of around 40%. The underlying cause is thought to relate to vitamin or trace element deficiencies.
Aims: To assess the frequency of hair loss following RYGB and to determine if percentage excess weight loss and vitamin supplementation impact on the incidence.

Methods: Postal questionnaires were sent to all patients who underwent a RYGB between April 2007 and July 2010. Weight loss data was collected prospectively.
Patients were asked to comment if they had noticed problems with hair thinning since their surgery. They were also asked to comment on which dietary supplements they were taking.
Results: 280 RYGB were performed with 63%(177/279) of patients returning questionnaires. Mean follow up was 18 months. Average pre operative BMI was 52 and the mean percentage excess weight loss at 1yr was 64%.
56%(96/177) of patients complained of hair thinning after RYGB. 21%(8/38) males vs 63%(88/139) females were affected. This is despite 96% of patients taking a recommended multivitamin on a daily basis.
Mean excess percentage body weight loss was slightly higher in the group complaining hair thinning (62%vs65%) but this did not reach statistical significance.
Discussion: Published information on the frequency of hair loss from RYGB is limited. However this is a frequent concern well discussed on Bariatric support websites
This study has shown that over half of patients complain of hair thinning following RYGB despite taking recommended dietary supplementation and suggested the risk is higher in females. Percentage excess weight loss does not appear to be a risk factor. The mean follow up of 18 months suggests that hair loss persists longer than 2–4 months post operatively when telogen effluvium levels are at a peak. Whilst this questionnaire is based on a subjective assessment by the patient further objective investigation into the incidence, reversibility and treatment of post RYGB hair loss would be beneficial.

P.015 Use of Removable Stent in the Management of Gastro-Jejunostomy Leak

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Background: Post op leak from the gastro-jejunostomy anastomosis after a RY gastric bypass is a serious complication. Management of this complication can be tedious. Operative repair is usually unsatisfactory. Conservative management with drainage, nutritional support, and treatment for sepsis, while mostly successful, can take a long time, with significant dissatisfaction for the patient.
Leakage after a sleeve gastrectomy is also a known and significant event. Earlier recommendation to treat this complication has been as mentioned above, i.e. drainage, nutritional support and treatment of sepsis. This approach also takes a long time. Using a temporary covered stent to cover the leak, often use in refractory leaks, has found more acceptance for the early management of this condition.
The site of a GJ leak after a RY gastric bypass is not far from the gastro-oesophageal junction, which is the usual leak site after a sleeve gastrectomy. There is no reason why the principals involved in temporarily stenting a high gastric leak after a sleeve gastrectomy , cannot be applied to that of a GJ leak after a RY gastric bypass.
Methods: A morbidly obese female with DM and OSA under went a RY gastric bypass. She developed signs of intra-abdominal sepsis on day 5 post-op. A GJ leak was demonstrated by contrast study. A temporary covered oesophageal stent was deployed on day 9. Oral feeding was established soon after and she was discharged home. Abdominal drain was removed in a week.
Results: The stent was removed without difficulty in 7 weeks post deployment. No more leak or stricture was found on follow up contrast study. she remained well and continue to lose weight.
Conclusion: The early use of a temporary covered stent for the management of a GJ leak post RY gastric bypass is a viable option.

P.016 Complications in a Serie of 550 Bariatric Operations Performed by a Single Surgeon

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Background: Laparoscopic Weight Loss Surgery (WLS) has already proven it's medical and economic efficiency, yet, many potential patients and even some health care profesionals have been still frightened by any major abdominal surgery in morbidly obese patients. Complete follow up in an electronic bariatric database helps in careful evaluation of results and reporting of WLS outcomes. Proven safety of WLS might help in explanation of this serious step and in individual decision making of severly obese patients.
Method: A prospective collection and preservation of complex data on weight loss surgery results has been done by an electronic database (www.wlsr.eu). The study comprises the whole initial serie of consecutive 550 bariatric patients with LAGB (Gastric Banding, 286), LSG (Sleeve Gastrectomy, 238), RYGB (Gastric Bypass, 6) and recently LGCP (Gastric Plication, 20 patients) performed by a single surgeon since 1.April 2007, till 1. march 2011. M/F ratio in the serie: 119/431, the average age: 41.1 years, STD:10.1, 8 years - 69 years, average BMI: 43.1, STD 5.5, from 32- to 61.6. Data on preoperative, peroperative and postoperative details have been evaluated according to a B.A.R.O.S. based principle.
Results: There was no one conversion, no one death and no one blood transfusion required in the serie. A single proven tromboembolic complication was uneventfull, treated on outpatient basis. Early surgical complications were obsereved mostly in LSG, late complications in LAGB. Seven early reoperations in 6 patients after LSG were required, 9 from10 reoperations in LAGB patients were late intervetions, all were done by laparoscopy.
Conclusion: WLS in severly obese patients, if performed by a devoted bariatric surgeon and experienced cooperative multidisciplinary team is not only benefitial from the medical point of view and financially profitable for the payer but also very safe for the particular patient. Different WLS provides slightly different risks and benefits that have to be explained to the public and to general medical proffesionals, too.

P.017 Management of Superficial Surgical Site Infection in a Super Morbidly Obese Patient

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Background: The incidence of surgical site infection is eight times higher in morbidly obese patients than in patients of normal weight. The infection rate is 3% in laparoscopic surgery, 10.5% in open surgery and even more if conversion is needed. In this context to be a super morbidly obese patient represents a challenging situation for surgeons and nurses because special care is needed.
Method: We report a 43 year old super morbidly obese female patient whom a laparoscopic Roux-en-Y gastric bypass (LRYGBP) was indicated in Mars 2011. Prior to surgery her weight was 168 kg, height 165 cm and BMI 61, 7 kg/m^2 and she presented severe comorbidities and great abdominal folds with scratch scars. Difficulties at surgery began during division and formation of the proximal gastric pouch by a misfiring of an *endo-gia* linear stapler. Surgical device failed to reach hiatus because of the patient anatomy and was blocked with forced manoeuvres, resulting in an open remnant and pouch. *Conversion* to laparatomy through a bilateral *subcostal incision* was needed, remnant and pouch were sutured and a circular-stapled anastomosis gastrojejunostomy (RYGBP) was done with trans-oral anvil insertion. The operative time for the procedure was 360 minutes and antibiotics were administered pre, intra and postoperatively.
Results: The second postoperative day a superficial wound infection developed and, after days of fruitless cures, it was managed as an open wound. Intra-abdominal complications were excluded. A second wound surgery was necessary with subcutaneous necrotic fatty tissue resection, loose skin approximation, daily intra-wound irrigation and loose packing. Pictures related to wound infection and its evolution before and after implementing these measures were taken. Length of stay was 60 days and the patient continued the follow-up on an ambulatory basis.
Conclusions: Superficial surgical site infection in super morbidly obese patients demands an aggressive surgical site approach.

P.018 Portal Vein Thrombosis after Laparoscopic Bariatric Surgery

PRESENTER: J.E. Franco Gutierrez[1]
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Portal Vein Thrombosis after Laparoscopic Bariatric surgery is an uncommon potentially life-threatening complication but potentially lethal condition reported after of sleeve gastrectomy, gastric bypass and adjustable gastric banding. Clinical symptoms may be insidiuos and progression can lead to intestinal infarction and portal hypertension. Three cases of Portal Vein Thrombosis following laparoscopic bariatric surgery were identified and reported in our experience of over 2220 patients.
Conclusions: Laparoscopic surgeons should be aware of the risk of Portal Vein Thrombosis and it should be suspected in cases with an atypical outcome after Laparoscopic Bariatric Surgery

P.019 Necrotizing Soft Tissue Infection after Laparoscopic Bariatric Surgery

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Necrotizing Soft Tissue Infection (NSTI) is a rare and aggressive form of infection of the fascia and subcutaneous tissue without pathognomonic signs. This poster reports the first case of fatal NSTI after an uneventful Laparoscopic Bariatric Surgery. A 44-years-old patient had a NSTI and died. We have not identified reports of NSTI after Laparoscopic Bariatric Surgery. Although is a very rare complication, it may be fatal. A high index of suspicion is required for early surgical and medical Intervention.

P.020 Protein Deficiency after BPD-DS: Selective Elongation of the Alimentary Limb Using a Novel Technique with 2 Anastomoses

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Co-authors: E.-Y. Cho[2]

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Background: Both the standard biliopancreatic diversion according to Scopinaro (BPD) as well as the biliopancreatic diversion with duodenal switch (BPD-DS) are malabsorptive procedures with excellent effects regarding weight loss and remission of type 2 diabetes. A small fraction of the patient population develops recurrent or persistent protein deficiency after surgery which cannot be managed by conservative means in the long run. These patients need a revisional operation with elongation of the alimentary limb in order to enhance the enteral absorption of protein. Traditionally this operation has been performed either by elongation of the common channel (1 anastomosis) or by an interposition of a 150 cm portion of the biliopancreatic limb into the alimentary limb (3 anastomoses).
Methods: We introduce a novel surgical procedure to elongate selectively the alimentary limb at the expense of the biliopancreatic limb without changing the length of the common channel. The distal alimentary limb is being divided 20 cm orally of the jejunoileostomy, the distal biliopancreatic limb is being divided 120 or 170 cm orally of the jejunoileostomy. The anastomosis itself is kept intact. The distal parts of the limbs are transposed, so the longer distal part of the former biliopancreatic limb becomes the distal part of the alimentary limb and vice versa. This technique requires only 2 anastomoses and does not cause any change of the common channel.
Results: The introduced technique of a selective elongation of the alimentary limb requiring only 2 anastomoses has been conducted in three patients 2 to 3 years after BPD-DS. After parenteral substitution of protein the revisional surgery was performed in an open approach. The postoperative course was uneventful, the patients steadily recovered from protein deficiency.
Conclusions: In recurrent or persistent protein deficiency as a consequence of a malabsorption syndrome after BPD/BPD-DS surgical revision with elongation of the alimentary limb may be indicated. The technique described here creates a transposition of the distal alimentary limb with the distal but longer biliopancreatic limb. This causes a selective elongation of the alimentary limb and requires only 2 anastomoses.

P.021 Postoperative Morbidity in Laparoscopic Bariatric Surgery. Importance of Training

PRESENTER: A. Grigaites[1]
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Background: Bariatric surgery has been established as a standard practice in our environment. In Argentina the morbidity and mortality rates of bariatric procedures are not clear because there are no national collected data or records. The objective is to describe the morbidity and mortality rate in our experience in laparoscopic Roux en Y gastric bypass and laparoscopic sleeve gastrectomy between January 2008 and June 2010.
Methods: Retrospective descriptive study of prospective collected data. 415 patients (274 women). Mean age 42 years. Initial weight average 133.38 kg. 9.2% with a BMI between 35 and 39 kg/m² with associated comorbidities, 53.3% with BMI≥40 kg/m², and 37.5% with BMI≥50 kg/m². 35.9% Hypertension, 33.9% dyslipidemia, 20.2% type II diabetes and 9.3% insulin resistance. 319 were laparoscopic Roux en Y gastric bypass and 96 laparoscopic sleeve gastrectomies. We assessed bleeding, leakage of sutures, internal hernias, stomal stenosis and mortality.
Results: 29 patients (6.9%) had complications: bleeding 8 (1.9%), 4 patients (1.2% of laparoscopic gastric bypass) had Petersen hernia, 16 patients (5%) with anastomotic stricture, one patient (0.2%) had a trocar hernia. There was no mortality.
Conclusions: The morbidity and mortality of bariatric surgery is strongly linked to the experience of the surgical team. Therefore this practice should be limited to medical centers with experienced teams, and experienced surgeons should supervise the development of new surgical teams.

P.022 Degloving Injury of the Oesophagus Following Removal of a Covered Stent: How to Manage it

PRESENTER: D.I. Heath[1]
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Background: Covered stents are useful in controlling anastomotic and staple line leaks following bariatric procedures. We report the case of a degloving injury of the oesophagus following stent removal and detail how to manage such injuries.
Results: A 34 year old female patient (weighed 131.6 kg, BMI 50.3 kg/m^2) with type II diabetes developed a leak from the gastro-jejunal anastomosis following laparoscopic Roux-en-Y gastric bypass. This was treated by inserting a covered stent. Three weeks later the stent was removed. When the stent was delivered into the mouth it was noted that a cylinder of oesophageal mucosa was attached. This was detached and, using the endoscope, replaced in the oesophagus. Endoscopy revealed that all but the lower two centimetres of the oesophagus were covered by the replaced mucosa. A perforation was not seen. A CT scan of the thorax and abdomen revealed a pneumomediastinum, a small amount of fluid with the mediastinum, small pleural effusions and a peri-splenic collection. The patient was started on antibiotics, placed nil by mouth, a central line inserted and total parenteral nutrition commenced. Two further CT scans, repeated at weekly intervals, revealed that there was only a small amount of mediastinal air remaining and the size of the collections had reduced. At this time the feeding line was removed because of line sepsis and replaced with a feeding jejunostomy. Upper GI endoscopy revealed a stricture at the lower end of the oesophagus (corresponding to the area not covered by mucosa) which was dilated and the patient was then started on oral fluids with nutrition being supplemented via the feeding jejunostomy.
Discussion: Covered stents can make managing a leak form the gastric pouch or gastro-jejunal anastomosis following RYGB straightforward or achievable where efforts at surgical correction have failed. However, their use can, as here, be associated with significant complications. The uncovered part of partially covered stents can be incorporated into tissue which is the likely reason for the injuries sustained here. Selective use of stents, placement of only the covered portion across anastomoses, the controlled use of traction in removal and early removal will

minimise the risks. Fully covered stents reduce the risks further but are more prone to being displaced producing intestinal obstruction. Where a degloving injury occurs the mucosa should be returned to the oesophagus with the expectation that much of it will reimplant.

Conclusions: Covered oesophageal stents are useful in managing anastomotic or staple line leaks. They should be placed carefully and removed early to minimise the risks of oesophageal injury. Where a degloving injury occurs, the mucosa should be replaced over as much of the oesophageal length as possible. It remains unclear whether attempts at fixation of the mucosa over the lower oesophagus are safe or feasible.

P.023 Secondary Hyperparathyreoidism 5 Years after Bariatric Surgery

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Background: Bariatric surgery patients are at high risk of secondary hyperparathyroidism due to decreased intake and decreased intestinal absorption of calcium and vitamin D post surgery. Calcium and vitamin D are therefore supplied routinely to prevent bone loss. The aim of this study is to evaluate the prevalence of secondary hyperparathyroidism 5 years after bariatric surgery.

Methods: Serum parathyroid hormone (PTH), 25-OH vitamin D (25(OH)D) and ionised calcium (iCa) were measured 5 years after bariatric surgery. We included 81 patients, 61 (75%) were women, and age was 40±9 years (mean±SD) at time of surgery. 71 (88%) underwent gastric bypass, 9 (11%) duodenal switch and 1 (1%) gastric sleeve. PTH>7 pmol/l was considered elevated and diagnostic for secondary hyperparathyreoidism. 25(OH)D≥75 nmol/l was considered optimal, 25(OH)D≥ 50 nmol/l adequate, and 25(OH)D<50 nmol/l deficient. The lower tertile of iCa was defined at 1.22 mmol/l.

Results: Mean preoperative BMI was 47.0±6,2 kg/m^2. The mean weight loss was 40± 18 kg to 97±19 kg. PTH level was 7.9±5,0 pmol/l, 25(OH)D 66±21 nmol/l and iCa 1.23±0,55 mmol/l. Secondary hyperparathyroidism was diagnosed in 28/71 (39%) gastric bypass patients and 9/9 (100%) duodenal switch patients. After gastric bypass 58/71 (82%) patients had adequate 25(OH)D and 28/71 (40%) had optimal 25(OH)D. Of the 28 gastric bypass patients who had secondary hyperparathyroidism, 23/28 (82%) showed adequate and 10/28 (36%) optimal 25(OH)D levels. After duodenal switch 6/9 (67%) had adequate and 2/9 (22%) had optimal 25(OH)D. Secondary hyperparathyroidism did not differ significantly by levels of vitamin D. Generally, the prevalence of secondary hyperparathyroidism was lower with iCa above 1.22 mmol/l (OR 0.32, $p<0.05$). In addition, the prevalence was found lower within all the three categorized levels of vitamin D. In the gastric bypass patients, secondary hyperparathyroidism appeared in 13/25 (52%) with iCa≤1.22 mmol/l and in 15/46 (33%) with iCa>1.22 mmol/l.

Conclusions: Secondary hyperparathyroidism is common 5 years after bariatric surgery, despite adequate vitamin D levels. Secondary hyperparathyroidism appeared to be more frequent in patients with lower ionised calcium. This could indicate that vitamin D sufficiency is unable to compensate for the reduced absorptive surface in these patients. It may also suggest that evaluating vitamin D levels alone is insufficient in the prevention of secondary hyperparathyroidism in bariatric patients.

P.024 Endoscopic Treatment of Acute Gastro- Gastric Fistula with Partially Covered Stent after Roux-En-Y Gastric Bypass: a Case Report

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Background: Acute Gastro-gastric fistulas are the result of anastomotic or staple line leak draining spontaneously into the gastric remnant or peptic ulceration. The incidence following laparoscopic gastric bypass (RYGB) ranges from 0 to 6%. Acute gastro gastric fistulas are difficult to diagnose. Endoscopic stenting excludes the fistula from the general peritoneal cavity, limiting the sepsis, facilitating institution of oral nutrition and healing of the fistula. We report the first case of a 28 years old female patient who underwent endoscopic stenting for management of an acute gastro-gastric fistula following laparoscopic RYGB.

Case report: A 28 years old female who underwent a laparoscopic Roux-en-Y gastric bypass for super obesity (158.0 kg, 1.63m, 59.8 kg/cm^2 BMI). A standard 5 port technique was used with Seam guard® being used to reinforce staple lines. A side to side gastro-enteric anastomosis was formed. On the 2nd post-operative day she developed epigastric pain and tachycardia. CT scan of the abdomen did not identify a leak. She underwent a diagnostic laparoscopy which was normal. On the following day, she had recurrence of a similar epigastria pain, tachycardia and blood tests showed that her inflammatory markers were raised with a WCC 14200 and CRP: 210. A repeat CT scan demonstrated a gastro-gastric fistula.

A 110mm partially covered expanding metal stent was deployed endoscopically into the gastric pouch and across the gastrojejunostomy. The pain resolved immediately after placement of the stent and she was able to tolerate oral fluids. A gastrografin swallow confirmed exclusion of the gastro-gastric fistula and a satisfactory stent positioning. The stent was removed 3 weeks later as an outpatient procedure without any complications. Six months' follow RYGB she is well with no evidence of a recurrence of her Gastro-gastric fistula. She has lost 34% of her excess body weight.

Conclusion: Endoscopic placement of partially-covered stent for the treatment of acute gastro-gastric fistula following RYGB has proved successful.

P.025 Band Migration Following Gastric Banding Data from the Nationwide Survey on Bariatric Surgery in Germany 2005-2010

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Background: Migration is a rare but typical complication after Gastric Banding and is characterized by a physical penetration of the band into the stomach. This event often leads to a sudden weight gain with only few clinical symptoms and is treated by a band removal and further bariatric treatment.

Methods: Our presentation is based on the German Multicentre Survey on Bariatric Surgery. It is a prospective observational study using an online registration system. Multiple data focussing on the initial conditions regarding the individual and the primary surgical procedure are analysed.

Results: Between 2005 and 2010 we included 2537 Gastric Banding procedures in our study. In the same time period 66 patients developed a migration of their band of which 12 have received both the primary and the revisional procedure under study conditions described above. Among these patients the mean BMI initially was 47.7 kg/m² and the mean age initially was 44.3 years (9 male, 3 female). Further data like duration of the initial procedure, number of plication-sutures, type of band, previous co-morbidities, simultaneous surgical procedures, initial complications and time intervals are presented in detail.

Conclusions: There are several conditions described in the literature probably leading to a higher rate of migration, but in many patients we are not able to find a reasonable explanation for the penetration of their band. For the future more data will be needed for a sufficient statistical work up with the aim to minimize this major complication after Gastric Banding.

P.026 Treatment of Suture Line Insufficiencys after Gastric Bypass Using Intraluminal Vacuum Therapy

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Introduction: Suture line insufficiencies are rare but serious complications. The usual therapy comprises, laparoscopy or laparotomy with lavage and drainage, and if possible oversewing of the leak.
Material and methods: We present the case of a woman who had a revisionary gastric bypass after a sleeve gastrectomy, due to severe acid reflux. The operation was performed via laparotomy. She developed a suture line insufficiency which was not diagnosed immediately.
Results: By time of the revisionary laparotomy, oversewing of the leak was not possible. The problem was solved using a local peritoneal drainage and a custom made intraluminal vacuum device. It was placed under endoscopical control, suction was applied though a nasogastral tube. A complete healing of the leak was achieved in relatively short time.
Conclusion: Intraluminal vacuum devices are a useful option to treat suture line insufficiencies after gastric bypass surgery, especially when an oversewing of the leak is not possible.

P.027 Treatment of Duodenal Stump Insufficiency after Duodenal Switch: Intra- and Extraluminal Drainage

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Introduction: The insufficiency of the duodenal stump suture after the duodenal switch is a serious, sometimes live threatening complication which might lead to peritonitis and sepsis. We report two cases which could be successfully treated by drainage therapy.
Material and methods: We report the cases of two men who developed insufficiencies of the duodenal stump suture after DS to explain out therapeutic approach.
Results: In both cases a dedicated approach using different drainages leaded to success. Drainages were placed:
1) intraluminal drainage,
2) local peritoneal drainage,
3) Douglas drainage and
4) drainage of common bild duct (t-drain).
Drainages were placed laparoscopically in one case and via laparotomy in he other case. Healing and sucessice removement of drainahes could be achieved without any further operations.
Conclusion: Duodenal stump insufficiencies can successfully be managed by drainage therapy. Placement of drainages might even be performed laparoscopically.

P.028 Proximal Digestive Hemorrhage. Serious Complication after Roux-En-Y Gastric Bypass

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Introduction: Bariatric surgery has proven to be the most effective treatment for severe obesity management. From the different accepted procedures, the gastro-jejunal derivation (Roux-en-Y Gastric Bypass) is considered as the gold standard. However, it is also well known that this procedure is not exempt from complications, which must be identified with a high suspicion index, and resolved opportunely and accurately.
Objective: We present a case of proximal digestive hemorrhage in the mediate post-operatory after a gastric bypass in Roux-en-Y, and its successful management by endoscopy.
Clinical case: Male 18 year-old patient with BMI of 57 kg/m^2 in whom a procedure of gastro-jejunal derivation by laparoscopy is made. The anastomosis g-j is done antegastrically, antecholical, and by two layer manual suture. His post-operatory evolution is favorable, and five days after the surgery he enters the ER with symptoms suggesting type III hemorrhagic shock and proximal digestive tube bleeding, shown as profuse hematemesis. Immediate reanimation is done and a diagnostic-therapeutic endoscopy is held, identifying ulcers in the circumference of the anastomosis g-j as the origin of bleeding. Perilesional infiltration with adrenaline solution (1:20000) is made, achieving control of the bleeding, remotion of hematic rests, and complete check-up of the gastric remanent and jejunal loop.
Results: The patient evolved favorably, he did not require a new endoscopic check-up, did not develop g-j stenosis or leakage and has achieved a 90% of weight loss up to date. Video footage of the endoscopic procedure is attached.
Conclusions: Ulcers at the g-j anastomosis site constitute one of the most serious post-operatory complications in gastric bypass patients. Ulcer observations at the anastomosis site has revealed an interesting distribution through time, having found a high incidence of this ulcers during the first month after surgery, and a low incidence after the first year post-surgery. The use of PPI during the immediate post-operatory, as well as during the first four months post-surgery, may be useful as prophylactic measure to avoid development of marginal ulcers. The initial treatment in the case of marginal ulcers, even if they are asymptomatic, documented by endoscopy, involves the use of a PPI together with the administration of sucralfate during a 3 to 6 month period. Digestive hemorrhage is one of the most common intrahospital complications (3.1%) occurring after a gastric bypass procedure. Endoscopy is a useful instrument for evidencing active bleeding coming from the g-j anastomosis, and can be a minimal-invasion therapeutic for this condition, by applying adrenaline, or the eventual use of electrosurgery without mechanical suture, thus avoiding reintervention. It becomes evident to point out that, for this purpose, an advanced intervention trained endoscopist must be within the multidisciplinary team required for the management of these patients.

P.029 Biochemical and Clinical Indicators Prompting Clinician to Request CT for Suspected Leaks Post Bariatric Surgery - Is it Founded?

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Background: Computed tomography (CT) is the most readily available imaging tool for diagnosis of postoperative upper gastrointestinal tract (LGIT) leak. This retrospective study was conducted in order to define the clinical and biochemical features prompting the clinicians to request CT in this setting. We also assessed the correlation of the inflammatory marker response in these patients and their value in predicting leak.
Methods: The medical records of patients who underwent bariatric surgery in 2010 were reviewed focussing on those who had CT scan during the immediate postoperative period. The ones who had abdominal CTs with the aim of ruling out an intraabdominal leak were studied, and the results were compared to the postsurgical findings. The inflammatory markers levels in patients who had demonstrable leaks by radiological or at operation and in those without any evidence of significant findings on the abdominal CT scans were compared.
Results: A total of 68 CT scans were performed, of which 6 (14.8 percent) were considered positive for an anastomotic leak, 4 considered positive for obstruction at the distal anastamosis, 10 considered to have significant post operative significant collections. However, CT scanning missed anastamotic leak in 3 patients during the same time period. The finding confirmatory of leak was extravasation of the oral contrast. Other findings considered descriptively positive for an anasatamotic leak were large amount of fluid and or air in the peritoneal cavity and on one occasion retroperitoneal tracking of air. The clinician's decision making process that prompted them to obtain CT scan was analysed. We found that a combination of factors were taken into account including increased abdominal pain, tachycardia, reduced oxygen saturation, inability to tolerate fluids due to upper abdominal pain and raise in CRP and WBC counts. CRP in patients with operatively or radiologically confirmed leaks were significantly higher (240±63.9, p=0.007) than in the ones who had no leaks demonstrable on the CT scan (84.46±13.36). CRP in patients found to have consolidation were higher compared to patients who had no significant pathology identified on CT scan but did not achieve statistical significance (144.7±26.08 vs. 91.88±20.54) WBC count does not appear to be significantly different in those with and without leaks and did not appear to predict anastamotic or respiratory postoperative complications.

Conclusions: In postoperative bariatric patients a combination of clinical and biochemical tests appear to be prompting the clinicians to request CT scanning. Even in the morbidly obese patients, increased levels of inflammatory marker CRP appear to be indicative of leak or /and large collection in the peritoneal cavity and this should guide the clinician to do urgent laparoscopy without delaying for a CT Scan

P.030 The Optimal Treatment of Chronic Fistulae after Sleeve Gastrectomy is Operative with Roux-Y-Gastric Bypass or Esophago-Jejunostomy

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Background: Sleeve gastrectomy (SG) has become a standard bariatric operation. The most feared complication is staple line leak with resultant fistula. The natural course of this complication and the optimal treatment are not well understood.
The purpose of this study is to examine the outcome of operative treatment of post-SG fistulae.
Methods: A case series of cases of chronic fustulae/abscess following SG that were treated surgically at our institution.
Results: Six patients had chronic fistulae/abscess from staple line leaks after SG (4 laparoscopic and 2 open). There were four females and two males with an average age of 33 years (21–43 years) and an average pre-operative body mass index (BMI) of 38.3 kg/m^2 (26–53 kg/m^2). One patient developed a contained leak three weeks post-operatively that persisted despite antibiotic therapy. Percutaneous drainage was unsuccessful so operative treatment was performed two months post-SG. The five other patients had chronic intermittent fistulae that persisted an average of 11 months post-SG (5–30 months). One of those patients previously underwent a Roux-y-gastric bypass (RYGB) distal to the fistula that failed. That patient subsequently developed an esophago-pleural-bronchial fistula.
All patients underwent open exploration via midline laparatomy with adhesiolyis and transection of the gastric sleeve just above the fistula. In all but one the resection was at the level of the esophago-gastric junction and in one patient a small gastric pouch was preserved. A Roux-y-jejnunal anastomosis was constructed manually. In one patient a splenectomy had to be performed. That same patient had abdominal wall reconstruction with porcine dermal graft (Permacol ®) because of loss of fascia. Major complications developed in 2 patients (33%) including pulmonary embolus (1) and early adhesive small bowel obstruction (1) necessitating laparatomy and adhesiolysis. None of the patients needed a thoracotomy. There were no mortality and all patients are doing well with good quality of life at an average follow-up of 13 months (7–30 months).
Conclusion: Staple line leak following SG poses a challenging problem since resultant fistulae may linger for many months and be subclinical. The operative treatment of chronic fistula/abscess is effective and definitive and should be considered without much delay.

P.031 An Unusual Complication after Laparoscopic Roux En Y Gastric Bypass (RYGBP): Severe Malnutrition

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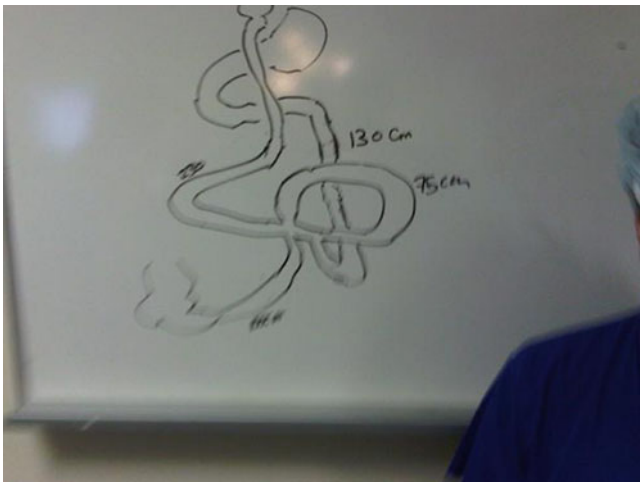
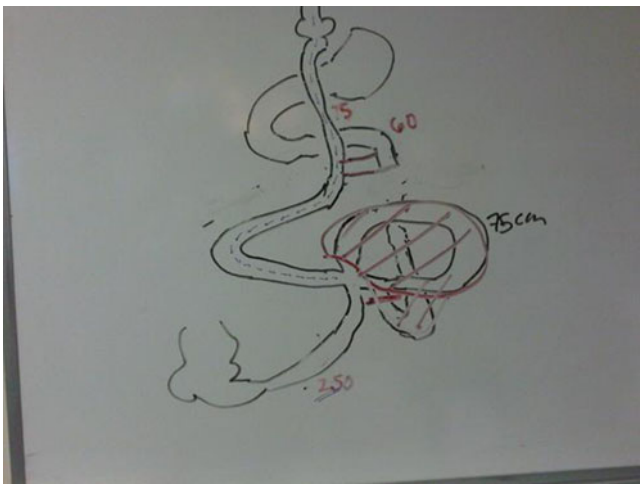
Introduction: Morbid Obesity is a major health problem approaching epidemic proportions. Currently, Roux en Y Gastric Bypass (RYGBP) is considered the procedure of choice for patients with morbid obesity. Nutritional and vitamin deficiency are possible complications after RYGBP. However, severe malnutrition is not a common complication.
Methods: A 34 years old lady presented with repeated attacks of vomiting, diarrhea, malnutrition, generalized edema, fever, failure to thrive, and generalized weakness. She had a complicated surgical history; laparoscopic adjustable gastric banding, band failure, laparoscopic removal of the band & conversion to RYGBP complicated with small bowel obstruction 8 weeks after surgery at the biliopancreatic limb (BPL), treated with laparoscopic jejunojejunostomy between the common channel, and the BPL. The patient had been evaluated by many surgeons in several countries before she presented to BMI Abu Dhabi. Her malnutrition would improve with TPN, only to deteriorate once she was weaned off the TPN. She was admitted and started on total parental nutrition (TPN) for few weeks. Gastrocopy was normal, barium small bowel study and computed tomography were inconclusive.
Results: Laparoscopic exploration showed a 230 Roux limb, 75 cm blind loop, 130 cm BPL, and a 95 cm common channel (CC) (figure 1).



[Preop]

Case was converted to open, blind loop was resected & the BPL was shortened, and the Roux limb was shortened to 75 cm to lengthen the CC (figure 2).



[Postop]

Patient had a remarkable recovery, and was doing very well one year after surgery, all her symptoms disappeared, and her nutritional status went back to normal. She gained weight for the first time, and delivered a normal baby.
Conclusion: Severe malnutrition following RYGBP requires a thorough search for a cause, and could possibly be due to an unusual anatomic configuration of the RYGBP.

P.032 Case Report - Penetration of Gastric Band

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Patient with morbid obesity WHO III° (BMI 46,7; 135 kg, 170 cm). After gastric banding 2000 (weight of 106 kg) there was a penetration and migration in 2010 with occlusion and perforation of the jejunum. It causes an ileus with acute pancreatitis. The gastric band was mobilized laparoscopically after an intraoperative gastroscopy. By a laparotomy the jejunal lesions were stiched and the gastric band removed, so the patient could be released in a stabilized general condition from the hospital after 3 weeks.

P.033 Early Diagnosis and Management of Gastric Fistula in Laparoscopic Sleeve Gastrectomy with Success in One Month

PRESENTER: E.H. Pirolla[1]
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Leakage and fistulization of the stomach have been the major drawback of laparoscopic Sleeve gastrectomy (LSG). Most authors agree that operative treatment is the mainstay of therapy in patients with signs of complications. However, we propose an early diagnosis which is a most important action, with a important blood test, following fasting intravenous antibiotic and local managements to approach fistula develop and others complications. Because the anastomosis cannot be suture again for physiopathologic aspects, others forms of treatment have be applied.
The following case describes a technique with implantation of coated self-expanding stent (CSES). Leakage of the stomach, at angle of Hiss, occurred in one patient thirty days after LSG and resulted in a formation of a local fistula. A CSES were implanted endoscopically with video-radiological assistance in a patient on 32th postoperative day. Enteral nutrition could be started two days later.
This treatment seems be a good option to the management of acute gastric fistula, in specific cases with very early diagnosis, whose patient didn't had any kind of symptoms, remain average 45 days, with control and resolution of this kind of fistula in more thirty days after CSES approach and avoid abdominal infection.
Implantation of CSES was an effective and minimally invasive option for the treatment of gastric anastomosis or suture line about some fistulas after LSG as an alternative to laparoscopic or laparotomy approach to do a suture and/or drainage. A video appear of the all technique and post-operative managements.

P.034 CT Scan in Evaluation of Postoperative Complications Following Laparoscopic Roux-En-Y Gastric Bypass and Sleeve Gastrectomy

PRESENTER: S. Ramar[1]
Co-authors: C. Kavasogullari[1], L. Jones[1], K. McDougall[1], D. Heath[1], P. Sufi[1]

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Background: Intra-abdominal postoperative complications are a major cause of morbidity and mortality following laparoscopic gastric bypass (RYGB) and sleeve gastrectomy (SG). Anastomotic leaks (0-5%), haemorrhage, gastro-gastric fistula, collection, stenosis and obstruction are major complications. CT scan is often used as an initial investigation in these patients. We examine the use of CT scanning and evaluate its role in identifying postoperative complications.
Methods: A retrospective analysis of prospectively collected data from our bariatric and endoscopic database of patients who had a RYGB or SG between Jan 2007 to Jan 2011 (290 patients).
Results: Thirty six CT scans were performed in 27 patients (9.3% of those undergoing RYGB and SG) within 30 days of surgery. 9 patients (3.1%) had 2 CT scans with 30 days. The indications were possible leak in 17 patients (63%), intra-abdominal collection in 6 patients (22%), obstruction in 3 (11%) and suspected stent migration in 1 patient. The median time to CT scan was 8.3 days (1–30 days). Of 11 proven leaks CT identified leaks in only 3 patients. CT scanning gave a false negative result in 8 patients (72%). Intra abdominal collections and small bowel obstruction was diagnosed in 1 patient each. 2 patients (22%) who had a second CT scan at which a gastro-gastric fistula diagnosed.
Conclusion: CT scan has high false negative rates for anastomotic leaks and has low sensitivity in diagnosing acute postoperative intra-abdominal complications.

P.035 Intractable Nausea after Gastric Bypass: Is Somatostatin Analogue Effective?

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Background: Intractable nausea is a major morbidity seen in a minority of patients after Roux-en-Y gastric bypass (RYGB). It is commonly assumed that this relates to increased levels of incretins. The most prominent incretin is Glucagon-like peptide-1 (GLP-1) which is increased after RYGB. The effect of incretins can be countered by Octreotide and its long acting analogue, Lanreotide. The aim of this study is to examine the effectiveness of somatostatin analogues in treating intractable nausea.
Methods: Patients who underwent RYGB and suffered from intractable nausea were identified from the prospectively maintained bariatric database. 11 (4%) of the 270 patients who had RYGB had intractable nausea and hence were initiated empirical treatment with octreotide (10 patients had primary RYGB and 1 patient revision RYGB). These patients were started on octreotide 50-100mcg injections twice daily. Patients who had good symptomatic response were then transferred to long acting somatostatin analogue, Lanreotide.
Results: 6 patients (55%) showed partial to complete resolution of nausea and continued treatment for a mean duration of 170 days (30–360 days). 4 of these patients were changed to Lanreotide, a once a month injection. On cessation of treatment their nausea did not recur. 5 patients did not have any improvement, of which one patient had a marginal ulcer at the gastro-jejunostomy site (nausea resolved following treatment of marginal ulcer). One patient was non-compliant with the treatment.
Conclusion: Empirical treatment with somatostatin analogue is effective in treating 55% of patients with intractable nausea and should be considered in such patients when other causes have been excluded.

P.036 Comparison of Early Weight Loss and Anastomatic Complications in Patients Undergoing Rnygb With and Without Bovine Pericardium Reinforcement

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Introduction: Gastric bypass provides durable weight loss but can be associated with significant morbidity. Techniques that decrease morbidity without impacting weight loss are needed. Our objective is to compare the anastomatic complications and early weight loss in patients undergoing RNYGB with and without bovine pericardium reinforcement.
Methods: Retrospective chart review of two consecutive series of patients who underwent laparoscopic RNYGB from January 2007 to August 2009 was performed. In the first series no reinforcement was used. In the second series the gastro-jejunostomy was reinforced with bovine pericardium
Results: The non-reinforced group had an overall gastrojejunal complication rate of 18.7% vs 7.1% for the reinforced group. (p. value 0.0001) The incidence of

anastomatic stricture was 6.6% in the non-reinforced group vs 1.1% in the reinforced group. (p. value 0.006) No leaks occurred in either series. Weight loss between the two groups was similar at 3,6,9 and 12 months post-operatively.
Conclusions: Bovine pericardium reinforcement significantly decreases the incidence of anastomatic complications without a significant change in excess weight loss.

P.037 Braun Side to Side Enteroenterostomy: A Simple 30 Minute Laparoscopic Resolution of Dyspepsia Bile Reflux Symptoms Following Mini-Gastric Bypass

PRESENTER: R. Rutledge[1]

[1]The Center for Laparoscopic Obesity Surgery, Henderson, United States

Background: The Mini-Gastric Bypass is an alternate bariatric procedure to the RNY and band. Bile reflux has been a concern of some.
Methods: In a series of 6,023 patients undergoing MGB, dyspepsia/"bile reflux" was managed per protocol including antacids, withdrawal of ulcerogenic agents, anti-H. Pylon Rx, dietary changes and selective endoscopy. "Anti-Bile" therapy is believed to be unnecessary and unhelpful. In most MGB cases this medical management is successful. Symptomatic dyspepsia/"bile reflux" unresponsive to medical therapy did occur in 4 patients over a period of 13 years. This report describes the easily performed laparoscopic Braun Enteroenterostomy which led to resolution of symptoms in all patients with post MGB symptomatic dyspepsia/"bile refiux" unresponsive to medical therapy.
Results: 6,023 patients underwent MGB. Dyspepsia was common (7.3% in the first year), and similar to that reported in RNY gastric bypass. Dyspepsia was managed per antacid protocol and resolved symptoms routinely. Significant dyspepsia unresponsive to protocol management occurred in 4 patients 1 to 8 years after MGB. Each of the 4 patients underwent sub 30 minute Braun entero-enterostomy with rapid resolution of symptoms.
Conclusion: Bile, while commonly present in the MGB, is rarely the etiology of dyspepsia. Only a very small number of patients will present with dyspepsia/"bile reflux" unresponsive to acid-peptic medical management. In such cases short simple revision of the MGB by adding a laparoscopic Braun Entero-enterostomy rapidly resolves symptoms. Revision of the MGB is very easily performed. Conversion to RNY is unnecessary. It is recommended that symptomatic MGB patients should see surgeons with experience in the MGB prior to conversion to RNY.

P.038 The First Report of Gluten Sensitivity as a Common Cause of Significant Gastrointestinal Symptoms after Mini-Gastric Bypass

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[1]The Center for Laparoscopic Obesity Surgery, Henderson, United States

Background: Gluten sensitivity (GS), Celiac Disease, is under-diagnosed in the population and its frequency is increasing. Post op Gastro-Intestinal (GI) symptoms, similar to those seen in GS are common after bariatric surgery and can be a difficult diagnostic and therapeutic dilemma (GERD, Abdominal bloating/pain, Diarrhea/constipation, Nausea/Vomiting.) Recently empirical trials of gluten free diets ha successfully resolved GI symptoms in several post Mini-Gastric Bypass patients. The purpose of this study was to survey MGB patients for GS symptoms and for results of trials of gluten free diets on these symptoms.
Methods: Survey of 1,595 Mini-Gastric Bypass (MGB) patients to assess results of the MGB, presence of GI symptoms, pre and post op GS and the impact of a gluten free diet on GI symptoms.
Results: Few patients had heard of GS or Celiac Disease. Only one person had been diagnosed with GS pre or post op. remarkably, 50.6% reported GS after surgery. Of the patients reporting GS, 50% had "gotten better by excluding them from my diet after surgery."
Conclusion: In spite of excellent weight loss and high levels of patient satisfaction, as many as half of all MGB patients report GI symptoms similar to those of gluten sensitivity. This high rate in bypass patients is much higher than in the general population. The restructuring of the GI tract may increase the risk of GS after bypass. Of the MGB patients reporting GS, half of these patients reported that excluding gluten from their diet had caused marked symptomatic improvement.
This is the first report of high levels of GS after gastric bypass. GS is under diagnosed and it may often be missed. If the findings of this report are confirmed, this knowledge could guide successful diagnosis and treatment of these difficult patients.

P.039 Oral Niacin (Nicotinic Acid); A Simple Solution for Cold Intolerance Occurring with Weight Loss Following Bariatric Surgery

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[1]The Center for Laparoscopic Obesity Surgery, Henderson, United States

Numerous patients report feelings of cold following gastric bypass and other forms of bariatric surgery. Ruling out low thyroid and iron deficiency still leaves many patients suffering from feelings of cold intolerance. Review of on-line sources suggest that this malady affects thousands of patients and review of the literature shows no recommendations for treatment other than avoidance of cold and additional clothing.
Niacin (Nicotinic Acid) is an oral vitamin that is often used in high doses for the treatment of arteriosclerosis and low levels of HDL. Doses of niacin above 30–50 mg often cause vaso-dilation, flushing, burning, and itching, commonly called a "niacin flush." These side effects have been attributed to release of the vasodilating prostaglandin D2, generated in a reaction catalyzed by cyclooxygenase-1.
Because of these effects it was hypothesized that niacin might have a therapeutic effect upon the feelings of cold intolerance following bariatric surgery.
Methods: 14 patients with extreme cold intolerance following bariatric surgery were instructed to try niacin in progressively increasing doses. Patients were instructed to begin with 1/2 tablet of 100 mg of niacin. Patients were to take the niacin once a day to treat their feelings of cold. The dose was increased on a daily basis to a maximum of 500 mg.
Results: All 14 patients were completely relived of their cold intolerance following increasing doses of niacin. The range of effective does were from 100 to 500 mg., mean of 200 mg. Four patients that took doses of 500 mg suffered from niacin flushing.
Conclusion: Feelings of cold and cold intolerance are common after major weight loss following bariatric surgery. Niacin was hypothesized to reverse cold intolerance based upon its well know "niacin flush". In this preliminary trial all patients found relief of cold intolerance with varying does of niacin.

P.040 Splenic Abscess after Sleeve Gastrectomy: A Report of Two Cases

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Co-authors: A. Ilivitzki[2], A.-R. Zeina[3], A. Sternberg[1], A. Troitsa[1], Y. Kluger[4], A. Assalia[4]

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Background: Partial infarction of the upper pole of the spleen is a relatively common condition following laparoscopic sleeve gastrectomy (LSG). Usually, it's an asymptomatic event and is the result of ligation of the short gastric vessels (SGV) during the procedure. On the other hand, splenic abscess is an extremely uncommon complication which never reported so far. The clinical presentation is not specific and could be easily confused with leakage and sub-diaphragmatic abscess. CT scan is the most useful diagnostic modality. Treatment consists of antibiotics and percutaneous or laparoscopic catheter drainage, or splenectomy if this fails.
Methods: A retrospective review of all cases which underwent LSG during the last 5 years in 2 institutions was undertaken. Patients with splenic abscess were identified and analyzed.
Results: From 750 cases that underwent LSG, 2 female patient were identified with the diagnosis of splenic abscess (0.26%). No intraoperative mishaps were identified in both cases. They were both females and required surgical treatment due to failure of percutaneous drainage. The diagnosis of the splenic abscess was made 6 and 8 weeks after surgery. The cultures revealed Stretococcus in both cases. In one patient multiple splenic abscesses necessitated splenectomy. Her postoperative course was complicated by empyema of the left lung and deep vein

thrombosis. The remaining patient was successfully treated by laparoscopic catheter drainage and intravenous antibiotics. Leakage from the gastric sleeve was ruled out before and during surgery.
Conclusion: Division of the SGV during LSG may lead to splenic infarction and rarely to abscess formation. The clinical presentation is usually as late as 6–8 weeks and could imitate late leakage. Should conservative measures fail, surgical intervention is mandatory. Patients should be warned of this complication when obtaining informed consent.

P.041 Trocar-Site Herniation after Roux-En-Y-Gastric Bypass: Development and Therapy. A Case Report

PRESENTER: O. Scheffel[1]

[1]Krankenhaus Sachsenhausen, Department of Surgery, Frankfurt/M, Germany

Background: One of the great advantages of the laparoscopic approach is the distinct reduction of incisional hernias. Nevertheless, port-site hernias in the century of laparoscopy are a common complication, noticeable not only in obese patients. However, the risk of their development seems to be higher in obese patients, justified by the larger preperitoneal space and the increased intraabdominal pressure. This is reported even in obese patients after complete closure of the fascia. For this reason different types of trocar systems were developed to reduce this complication. One of the most popular is the nonbladed system, due to allowing the creation of a muscle-splitting dilated laparoscopic port site with minimal defects in the abdominal wall. Thus, there is no need for the time consuming fascial closure.
Case Report: A 32-year-old female underwent a standardized Roux-en-Y-gastric bypass without complications. The mean BMI was 42.5 kg/sqm. Altogether six 5-12mm nonbladed trocars were used. A drainage was placed through the left subcostal port. The first days of the postoperative course were inconspicuous and the drainage was removed at the third day after surgery. That evening the patient started to suffer from limited abdominal pain without tachycardia. Laboratory findings were normal. Over the night the situation impaired, the pain potentiated and she started vomiting. The x-ray with Barium-swallow couldn't detect any leakage. By ongoing reduction of her condition we detected a herniation of intestine through the left subcostal port into the abdominal wall by CT-scan, with dilated upstreamed limbs of the intestine as signs of obstruction. The following re-laparoscopy confirmed the CT findings. We detected an incarcerated herniation of around 6 cm of the small intestine into the abdominal wall. After releasing the intestine, a limited ischemia of the strangulated part dissolved by itself and the peritoneum as well as the preperitoneal space were closed by suture. The postoperative course was unremarkable under prophylactic therapy with antibiotics.
Conclusion: Even when there is a minimal risk to develop a trocar-site herniation after laparoscopy, in case of typical symptoms, as there are pain, nausea and vomiting, you will need to react immediately. The nonbladed trocar system is another parameter that is able to reduce trocar herniation, decrease bowel obstruction and eliminate the need for fascial closure. But a residual risk for herniation will remain.

P.042 Relevance of Risk Factors For Incisional Hernia in Patients Undergoing Surgical Treatment of Morbid Obesity

PRESENTER: E.N. Silva[1]
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Introduction: Obesity has become a public health problem. Currently, bariatric surgery has gained space in the treatment of the morbidly obese due to its impact in the loss of weight and in the improvement of the quality of life. Incisional hernia is a frequent complication in abdominal surgeries, with a 2 to 20% incidence. One of the risk factors for incisional hernia is obesity, besides the type of surgical incision, suture techniques, wound infection, age and comorbidities.
Objective: Assessment of the incidence as well as of the weight of risk factors for incisional hernia in morbidly obese patients undergoing surgical treatments.
Material and methods: A retrospective study was performed on 409 morbidly obese patients undergoing the Fobi-Capella gastric bypass by midline supraumbilical laparotomy and closure of the aponeurosis of the rectus abdominis muscles, with polyglactin 1 absorbable sutures. The evaluation was done on the period of July 1999 through July 2009, with at least one year of postoperative follow up.
Results: The mean body mass index (BMI) was 44,7 kg/m2 (35–86,9) and the average age was 37,4 years (16–69), 323 women (79%) and 86 men (21%). Of these, 51 patients were diabetic (12.4%). Of the total of patients, 42 (10.2%) had incisional hernias, 14 men (16.2%) and 28 women (8.6%), with average BMI of 46,2 kg/m2 (38,1 - 72,9) and average age of 42,66 years (20–66). Of the diabetic, 08 patients had hernia (15.6%).
Conclusion: There was no evidence of relevant risk factors associated with the development of incisional hernia in midline laparotomy in the treatment of morbid obesity.

P.043 Multimodal Management of Complicated Gastro-Bronchial Fistula after Revisional Sleeve Gastrectomy

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Co-authors: F. Marchesi[1], F. Tartamella[1], F. Pinna[1], L. Roncoroni[1]

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Introduction: Revisional surgery has become a frequent challenge for bariatric surgeons, owing to the exceedingly high number of patients operated on for morbid obesity and the high failure rate of some procedures (e.g. Vertical Gastroplasty) in recent decades.
The presence of anatomic modifications and fibrotic tissues makes revisional procedures undoubtedly more technically demanding and dangerous than primaries, with a complication rate of up to 20-30% in some series. Moreover, for the same reasons, the management of complications is usually more problematic in these patients. Thus only experienced surgeons in properly equipped units should undertake these procedures.
Case: A 48-year-old female, submitted 4 months before to revisional sleeve gastrectomy after the failure of a previous Natalini procedure (adjustable vertical banded gastroplasty, in 1998) was referred to our Centre for an unhealed gastric leak complicated by a gastro-bronchial fistula (after the failure of a laparoscopic suture and drain).
The patient presented fever, leucocytosis, incoercible cough and asthenia; the radiogram showed left lung basal consolidation and sodium amidotrizoate meal test results showed filling of the left bronchial tree and trachea.
After the failure of endoscopic treatment (fibrine glue, metallic clips, covered stent), the patient was submitted to a thoracotomic pulmonary segmentectomy and trans-diaphragmatic gastric suture, which led to the resolution of the bronchial fistula, while a gastric subphrenic leak persisted.
Because of the failure of the conservative management, the patient was finally submitted to total gastrectomy 3 months later. The patient was discharged on postoperative day 8. No complication was detected at follow-up.
Conclusions: The management of complicated revisional bariatric surgery often requires multimodal approaches. The variability of the cases and clinical responses makes it extremely difficult to assess standardized strategies.

P.044 Economic Aspects in Bariatric Surgery in Germany

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Incidence and prevalence of obesity and especially morbid obesity are rising worldwide. Bariatric surgery has proven to be effective for the treatment of morbid obesity and its associated comorbidities such as diabetes, hypertension, hyper- and dyslipoproteinemia. Several studies were able to show a risk reduction to die after bariatric compared to the untreated obese people. Although the effectiveness of the bariatric procedures and the lack of effective conservative alternative is proven, the reimbursement of the surgical therapy still is kept very restricted in Germany. Nevertheless, the number of performed baraiatric procedures is rising constantly.

In the presentation we want to show actual German data concerning prevalence of morbid obesity and cost effectiveness of the bariatric procedures, particularly with regard to the costs of untreated obesity.

P.045 Bariatric Surgery in North - East Poland

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Background: It was proved that only bariatric surgery gives efficient methods in morbid obesity therapy. Moreover effects of body weight reduction are permanent. From the beginning of 21st century the number of bariatric procedures has increased considerably especially in the USA. The purpose of the study was evaluation of development of bariatric surgery in I Department of General and Endocrinological Surgery, Medical University of Białystok, which is the sole surgical department treating morbid obesity in Podlasie region of Poland.
Methods: Retrospective study of 199 patients treated because of morbid obesity in our Department between 2005 and 2010 years. The type and number of bariatric procedures was evaluated.
Results: From 2005 to 2010 199 patients (134 women and 65 men) was operated because of morbid obesity in our Department. In 2005 there were performed 16 operations - 11 laparoscopic adjustable gastric banding (LAGB) and 5 roux-Y Gastic Bypass (RYGB). In 2006–6 LAGB, 6 - RYGB and 1 biliopancreatic diversion by Scopinaro (BPD). In 2007 there were performed 23 operations - 10 LAGB, 7 RYGB, 3 laparoscopic RYGB (LRYGB), 2 sleeve gastrectomy (SG) and 1 - BPD. In 2008 we performed 39 bariatric procedures - 25 LAGB, 5 RYGB, 5 LRYGB and 4 SG. In 2009 we performed 34 operations - 11 LAGB, 1 LRYGB, 22 SG. In 2010 we performed 74 operations - 16 LAGB, 2 LRYGB and 56 SG.
Conclusions: The development of surgical treatment of morbid obesity had started in north - east Poland since 2005. Rising experience of our surgical team results in increase of number bariatric procedures and introducing a new mini-invasive techniques. Since 2008 almost all bariatric operations and since 2009 all operations were performed using laparoscopy. The number of LAGB is decreasing and number of SG is rising.

P.046 Weight Loss Following Laparoscopic Roux-En-Y Gastric Bypass or Banding Procedure Varies Significantly by Ethnicity

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Background: Morbid obesity is associated with serious health and social consequences and disproportionally affects ethnic minorities. Little information is available comparing long-term weight-loss effectiveness of bariatric surgery among various ethnic groups, however.
Methods: A retrospective medical chart analysis of 1,603 adults (77% female, mean age at surgery 41.18 years, SD 11.7 years) originating predominantly from Central and South America and the Caribbean (66% Hispanic, 17% black, 9% white, and 8% mixed race/other) who met NIH criteria for, and underwent gastric bypass/ banding surgery between 2001–2010 was conducted. Pre- and 1-year post surgery change in mean weight (kg) via analysis of covariance (ANCOVA via GLM) models was performed. Separate slopes and intercepts were fit due to significant ethnic group variance in pre-surgery weight.
Results: Hispanics lost the most mean weight 1-year post surgery (24.04 kg), followed by whites (22.23 kg), mixed race/others (21.01 kg) and blacks (19.38 kg). Hispanics lost significantly more weight than blacks (24.04 vs. 19.38 kg, $P<0.0001$) and mixed race/others (21.01 kg, $P=0.002$) 1- year post-surgery. Whites lost significantly more weight than blacks post surgery (22.23 vs. 19.38 kg, $P=0.01$).
Conclusion: Bariatric surgery results in substantial weight loss regardless of ethnicity. However, results statistically vary between ethnic groups. Our results show that Hispanics have the greatest weight loss outcomes and blacks have the least. The clinical significance of this finding needs to be further studied.

P.047 Long-Term Cost-Effectiveness of Bariatric Surgery: Systematic Literature Review

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Background: Obesity and its related comorbidities go along with a large health burden and substantial direct and indirect costs. A variety of preventive and therapeutic interventions have been shown to be effective with regard to intermediate endpoints, such as weight loss after one or two years, and remission of diabetes, among others. In difference to lifestyle and pharmacological interventions, bariatric surgery was found to result in permanent weight loss, with little to no subsequent weight regain. The benefits of bariatric surgery will therefore be accumulated during the remaining life span, while the majority of costs are incurred shortly after the time of the initial surgery. Since bariatric surgery is relatively costly, health economic evaluations with short time horizons may underestimate the cost-effectiveness of surgical interventions. In synthesizing best available evidence from a variety of sources, economic evaluations based on modelling can take long-term costs and effects of interventions into consideration.
Methods: A systematic literature search in PubMed, and a bibliographic search within all potentially eligible studies was conducted. We included model based cost-utility analyses of surgical intervention(s) in obese patients with time horizons ≥ 20 years.
Results: The search produced a total of 251studies, of which nine were included into the review (published between 2002 and 2010). The studies considered three types of surgical procedures: Roux-en-Y gastric bypass, laparoscopic adjustable gastric banding, and vertical banded gastroplasty. These were assessed against each other, against different types of conventional (non-surgical) treatments, or no treatment. All but one study used Quality-Adjusted-Life-Years (QALYs) gained as main health outcome. Under base-case assumptions, bariatric surgery led to substantial health benefits through permanent weight loss and was dominant (over conventional treatment) in one study. In the remaining studies bariatric surgical procedures were found to be cost-effective (< $50,000 per QALY) in relation to the chosen comparator. To determine the robustness of the base-case estimates, all authors performed sensitivity analyses.
Conclusions: Bariatric surgical procedures are cost-effective treatments in severely obese patients. High initial intervention costs are offset by lower health care costs and additional health benefits over the lifecycle.

P.048 Outcomes and Particularities of Bariatric Surgery in Professors of the Brazilian Public Education System

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Background: The objective of this study was to demonstrate specific characteristics of Brazilian professors of the Public Education System submitted to bariatric surgery.
Methods: 82 severe obese professors were submitted to Roux-en-Y gastric bypass in our Institution. Results were analyzed and compared to our total case series and to the literature.
Results: Patients characteristics regarding age, sex, preoperative BMI, and number of comorbidities were similar to our total case series. Mean preoperative daily work

hours were 10.7±1.8 hours. After surgery, 100 % of patients reduced their work schedule (8.8±0.4 hours). Follow-up at 24 months is 97.5% (X 88% of our total case series) and excess weight loss is 85% (X 78% of our total case series).
Conclusions: Brazilian professors submitted to bariatric surgery reduced their work schedule. Follow-up and EWL was excellent and superior to our total case series and to the literature.

P.049 Bariatric Surgery in Asia: A Systematic Review

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Background: Obesity is an epidemic health-care problem worldwide. Bariatric surgery is gaining popularity as the most effective treatment for sustained weight loss for morbidly obese patients. The obesity epidemiology is known to vary significantly among different ethnic groups. The high levels of metabolic risk factors have been reported at relatively low levels of BMI among Asian population because of more prone to have central obesity. Thus, the effect of bariatric surgery for Asian morbid obesity could be different from that for westerner.AIMSThe purpose of the present literature review is to evaluate the current evidence regarding weight loss, complication rates and postoperative mortality rate after bariatric surgery for Asian.
Methods: English language citations from Asian countries reported by November 15, 2010 were included in the search. Only major procedures (RYGB, AGB, LSG, BPD± DS) were analyzed.
Results: From 160 citations identified for screening, a total of 40 studies were extracted for the present review. There was no reports about BPD±DS from Asia. The mean % EWL after Roux-en-Y gastric bypass (open and laparoscopic) was reported in 11 studies (n=550) and was 74.8% (60-86%). The mean %EWL after laparoscopic adjustable gastric banding was reported in 14 studies (n=1470) and was 59.1% (22-82%). The mean %EWL after laparoscopic sleeve gastrectomy was reported in 13 studies (n=627) and was 67.9% (51-83%). Morbidity and mortality rate were acceptably low.
Conclusion: From the current evidence, bariatric surgery for Asians is an effective weight loss procedure with reasonably safe although long-term data are limited.

P.050 Overcoming the Cost of Robotic Innovation with Roux-En-Y Gastric Bypass (RYGBP)

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Introduction: The da Vinci robotic surgery system eases the technical difficulties of RYGBP through improved visualization, greatly enhanced instrument mobility and precision, and surgeon ergonomy. Despite these advantages, the bariatric community has been reluctant to utilize the robotic platform for performance of RYGBP due, in part, to the high cost of the system. In the past, economic assessment of the robotic system has focused only on the direct costs of the procedure. No previous studies have evaluated the potential of integrating the robotic system into a specialty via a calculated comprehensive strategy. In this study, we demonstrate that if integration of robotic technology in bariatric surgery is approached as part of a strategic comprehensive robotic program, it can result in a positive financial outcome for the institution.
Methods: Following purchase of the robotic system, we launched a comprehensive multidisciplinary program with aggressive marketing and clinical outcome tracking. The comprehensive strategy involved web and social media marketing, multidisciplinary involvement, global vision as regards training and education, and state-of-the-art operating facilities. Outcome measures were assessed in 2008 for laparoscopic (L) RYGBP and in 2010 for totally robotic (TR) RYGBP and included:
1) cost of L-RYGBP vs. TR-RYGBP,
2) surgery volume,
3) length of stay (LOS), and
4) complications.

Results: The data show that the cost of TR-RYGBP per person was 11% higher than for LRYGBP. The yearly volume for RYGBP procedures with comprehensive strategy increased by 74%, i.e. 113 in 2008 to 197 in 2010. LOS with TR-RYGBP was significantly (p=0.05) less than LRYGBP. Intra-operative complications were lower for TR-RYGBP and leak rates were 0%. Overall, the revenue from RYGBP increased by 98% with TR-RYGBP.
Conclusion: Aggressive marketing and multidisciplinary robotic strategy produces an increase in net revenue with TR-RYGBP.

P.051 Metabolic Effects of Sleeve Gastrectomy on Different Serum Proteins

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Aims: Pathways of metabolic normalisation following bariatric operations remain mostly unclear. In a prospective study we investigated the effects of sleeve gastrectomy on serum protein changes.
Methods: N=14 patients underwent sleeve gastrectomy (mean BMI=54.00±8.05). Control group were N=12 patients (mean BMI=36.42±2.77), receiving conservative treatment for there obesity (hypocaloric nutrition with 1200 kcal per day and exercise 2x60min per week). 6 month later, pooled serum samples were investigated via DIGE for differences in protein appearance, which were identified and serum concentrations were measured via ELISA.
Results: Following sleeve gastrectomy we found a BMI reduction to BMI 36.31±7.25 (control: 34.51±2.53). We found significant alterations of proteins such as clusterin (function: apostosis, lipid metabolism etc.), gelsolin (actin-modulating, capping etc.), retinol binding protein (retinol transport, regulation of insulin, lipid and glucose metabolism etc.), pigment epithelium derived factor (insulin sensitivity), fatty acid binding protein 3 (transport of fatty acids); paraoxonase 1 (antioxidant, lipoprotein metabolism) and serum amyloid P (antifibrotic) after sleeve gastrectomy. In the control, we found no significant changes.
Conclusions: Along with substantial weight loss, sleeve gastrectomy leeds to changes in metabolic pathways, certainly beneficial for the patient. These mechanises require further investigations - for all bariatric procedures.

P.052 Integrated Proteomic and Lipidomic Analysis of Secretory Phospholipase A2 and Lysophosphatidylcholines Metabolism Following Sleeve Gastrectomy

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Background: Little is known so far about the adaptation processes that are induced by laparoscopic sleeve gastrectomy (LSG). In a metabolome screen we identified lysophosphatidylcholines (lysoPC) to be significantly affected 6 months after LSG. LysoPC have been reported to be involved in several crucial regulation processes including stimulation of proliferation and migration of vascular smooth muscle cells, promoting of enthodelial dysfunction and inhibiting of Insulin-induced Akt activation. In this study we show that the serum levels of lysoPC, a lipid component of oxidized LDL, was altered following LSG after 6 months. Additionally we show that visceral adipose tissue

is an important source of secretory phospholipase PLA2 (sPLA2-IIA), the enzyme that produce lysoPC. Therefore, reduction of visceral adipose may explain first the decrease of lysoPC levels and thus in turn might lead to a complex network of further effects.

Methods: Based on a non-randomized prospective case-control study (1:1) of 30 morbid obese patients we investigated the influence of LSG on the serum metabolome after 6 months. We applied a mass spectrometry based serum metabonomic approach to identify lysoPC`s in serum samples performed at Biocrates Life Sciences AG, Austria. Briefly, a targeted profiling scheme was used to quantitatively screen for known small molecule metabolites using multiple reaction monitoring, neutral loss and precursor ion scans. Furthermore, we investigated a selective reaction monitoring (SRM) assay for quantification of sPLA2-IIA. Before statistical analysis, the values of sPLA2-IIA were logarithmically transformed to approximate a normal distribution. Time effect (baseline vs. 6 month) and group effect were determined using the two-sample t-test. Linear relationships were assessed by least square regression analysis.

Results: Out of 15 measured lysoPC, 3 were found to be significantly altered. Among them are lysoPC aC16:0, aC17:0 and aC18:0 significantly decreased following LSG. For detailed analysis of the origin of lysoPC we detected the levels of sPLA2-IIA in serum. The levels are significantly changed and were positively correlated with changes of body weight, fat mass and estimates for insulin resistance (HOMA-IR). Furthermore we followed the origin of the sPLA2-IIA by analysis of the amounts of adipose tissue. There we found that sPLA2-IIA abundance is 2.3 fold higher in visceral adipose tissue compared to subcutaneous ($p<0.05$).

Conclusion: Since lysoPC is one of the major phospholipid components that are increased during the oxidation of LDL and in atherosclerotic lesions the decrease of it might explain beneficial effects of LSG. Our data clearly underlines the efficiency of LSG to reduce lysoPC's and sPLA2-IIA after 6 months of treatment. Additionally, these molecular adaptations might explain the potential of bariatric surgery to reduce the risk of coronary heart disease in morbid obesity of adults.

P.053 A Modified Sleeve Gastrectomy for the Treatment of Diabetes Mellitus Type 2 and Metabolic Syndrome in Obesity

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Ghrelin is a gastrointestinal peptide hormone (a 28-amino-acid peptide) most produced primarily by "X/A"cells in the oxyntic glands of the stomach fundus, and cells lining the duodenum cavern. A Modified Sleeve Gastrectomy (MSG) in which we remove a great party of gastric fundus and a body of the stomach, up to the region one inch near the pylorus vein, may contribute to decline circulating Ghrelin levels, better action of residual insulin and control of food intake.

Following prospectively 150 patients with Type 2 Diabetes Mellitus (T2DM) and Metabolic Syndrome (MS), after Modified Laparoscopic Sleeve Gastrectomy (MLSG), in which we performed a resection of the stomach in three stages and up to one inch to the pylorus.

After 30 months of surgery, 132 patients (88,0%) presented normal levels of glycemia (< 99 mg/dL), and 12 patients presented glycemia levels between 101 and 108 mg/dL, and 6 patients between 109 to 114, although all of them had their glycosylated hemoglobin (HbA1c) an average of 4,9% (normal from 4% to 6%). All patients stopped using insulin, and 4 patients started using a one type of oral hypoglycemiants, twice a day (lunch and dinner). Morbidity index was 2,3% and mortality was 0,5 to 0,7%.

The Modified Sleeve Gastrectomy (MLSG) that we propose here is a safety procedure, with low morbidities, but when occurs, like a gastric fistula (1,5% - 5,7%) of the angle of Hiss, it is very dangerous, with very hard management, new operations and sometimes, long periods of hospital permanence. It seems to promote a control of diabetes type II, and to the treatment of exogenous overweight and morbid obesity. However, it isn't a simple surgery and some handling approach and care are very important to the surgery success.

P.054 Abdominal Hernia in Morbidly Obese Patients Undergoing Obesity Surgery - Primary or Secondary Repair?

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Background: The incidence of abdominal hernia (umbilical, paraumbilical, incisional) is high in obese patients. The optimal timing of treatment of these hernias remains debatable during surgery for morbid obesity. Primary repair has a high recurrence rate and there is a concern of infection related to the use of a prosthetic mesh during gastric resectional surgery (gastric bypass, biliopancreatic diversion with or without duodenalswitch and sleeve gastrectomy.

Methods: We looked at all the patients in our prospective database that had obesity surgery performed between February 2001 and December 2010. We picked up all the patients who had diagnosis of abdominal hernia. We found those who had the repair and those who ended up with problems with the hernia in the immediate postoperative period.

Results: A total of 5494 consecutive patients underwent primary and revisional laparoscopic obesity surgery.464 (8,4%) had at least one abdominal hernia. Only 12 patients had a concurrent primary prosthetic mesh repair. There were no complications in this group. Of the remaining 452 patients, in 112 cases the omentum and/or intestine was removed from the hernia or the hernia was without any adhesions or hernia content (group A). In this group no simultaneous hernia repair were performed. In 340 cases (group B) the hernia was "untouched" and the omentum or intestine was not removed. Only within the group A 6 developed acute abdominal pain within 96 hours of laparoscopic obesity surgery. The obvious concern was a suspected leak. Apart from slight rise of pulse there was no abnormality noted in the observations. All the blood investigations were normal. 5 patients underwent emergency laparoscopy and were found to have an incarcerated hernia. One patient was diagnosed to have an incarcerated/obstructed paraumbilical hernia with a small bowel dilatation on a CT scan. The hernias were repaired using polypropylene mesh onlay technique. They were both discharged 2 days later and had no complications post repair.

Conclusion: Concurrent laparoscopic obesity surgery and mesh repair of abdominal hernia should be considered as it is safe and feasible. If the simultaneous hernia repair is not scheduled, the hernia content should be left in place to prevent early postoperative incarcerations.

P.055 It Support Optimizes Follow-Up of Bariatric Procedures

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The importance of perpetual follow up and comprehensive care to ensure favorable results after bariatric procedures is emphasized in all international guidelines. Numerous studies proved the fundamental influence of continuous multidisciplinary treatment. Organization of treatment and particularly keeping track of patient's data, which are extensive and have quite heterogeneous relevance in each case is a demanding challenge. We felt the need to optimize the follow-up conditions for all parties like patients, all kind of therapists, and payers also.

Therefore we use a specially shaped software during all steps of bariatric treatment. The Manathea Bariatric Manager® allows a comprehensive collection of all relevant information, such as type of surgery, comorbidity, medication, biometric data including several quality of life-scores, and individual treatment goals, which are shown on a single screen at the time of follow up visit. It runs with a standard web browser. This enables all involved disciplines to contribute to a complete and ongoing data collection. The treatment center permanently obtains overview of the actual state of all patients. The software automatically generates notifications about patients missing for follow-up as well. It includes also a tool for patients to communicate with the treatment center. Moreover, it is shaped to collect cryptographically secured data of different treatment centers to perform multicenter studies or allowing benchmark analyses.

Since the introduction of the IT support in November 2010 we obtained a quickening of the follow-up visits, an increasing proportion of information from GPs, other therapists as well as directly from patients. The acceptance on all parties is excellent. We appraise the IT support in follow-up of bariatric patients as basic tool to deal with the increasing number of bariatric patients and meet the requirements of an appropriate continuous multidisciplinary treatment. The Manathea Bariatric Manager® seems to be a very feasible software for those targets.

P.056 Sleeve Gastrectomy after Liver Transplantation

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Obesity increases the risk of graft loss after organ transplantation and survival statistics for obese patients are very poor. Hepatitis C is a very common reason for liver transplantation. Treatment of hepatitis C is very difficult in obese patients.
The aim of this report is to describe the outcome of two patients that underwent sleeve gastrectomy after liver transplantation or combined liver and kidney transplantation. A retrospective chart review was conducted to analyze outcome of morbidly obese patients after liver transplantation that underwent laparoscopic sleeve gastrectomy.
Patient 1, a 60 years old female, was combined liver and kidney transplanted for chronic hepatitis C infection with cirrhosis and diabetic nephropathy in December 2008. Co morbidities were diabetes mellitus type 2, intermittent atrial fibrillation, arterial hypertension and osteoporosis. After transplantation she had a rapid weight gain due to corticosteroids with stable graft function. In August 2010 she got a sleeve gastrectomy without complications weighting 123 kg at a BMI of 49 kg/m². Until December 2010 she lost 25 kg, weighting 98 kg which corresponds to a BMI of 39 kg/m². This represents an excess weight loss (EWL) of 38% within 4 months. Organ functions are stable, insulin doses have been cut into thirds.
Patient 2, a 60 years old male, was liver transplanted for chronic hepatitis C infection with cirrhosis and hepatocellular carcinoma in January 2008. Co morbidities were diabetes type 2, arterial hypertension and a huge incisional hernia. In July 2009 he got a sleeve gastrectomy without complications weighting 120 kg at a BMI of 43 kg/m². Until September 2010 he lost 34 kg, weighting 86 kg which corresponds to a BMI of 31 kg/m². This represents a EWL of 64% within about one year. Organ functions are stable and the incisional hernia was successfully closed in February 2010. Chronic hepatitis C infection was successfully treated with Interferon and Ribavirin and the patient's HCV RNA PCR is negative since February 2010.
We can report two successful cases of bariatric surgery after liver transplantation. One important risk after sleeve gastrectomy is the ability to drink. This is especially important after renal transplant, not to endanger graft function. Therefore patient preparation and education prior to bariatric surgery is highly important.

P.057 Bioavailability of Paracetamol, Amoxicillin and Talinolol and Expression of Intestinal Drug Metabolizing Enzymes and Transport Proteins Before, Immediately and One Year after Proximal Ry Gastric Bypass Operation (RYGB) in Patients with Morbid Adipositas

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Background: Despite widely use of RYGB and the well documented risk of nutrient deficiencies only very little is known about the pharmacokinetic consequences and intestinal adaption mechanism in these patients who are often subjected to multiple drug therapy.
We created this study to show effects of changed "absorption window" and drug bioavailability and pharmacokinetic after gastric bypass.
Patients and methods: 12 patients with indication for bariatric surgery were included in our study. BMI averaged to 51 (44–59) and all subjects underwent proximal laparoscopic RYGB. Duration of trial period was 12 months.
Preoperative, seven days and one year after gastric bypass all patients underwent several precisely timed blood tests before and after oral application of three test drugs (50 mg talinolol, 250 mg amoxicillin and 200 mg paracetamol).
All patients underwent upper endoscopy to capture assays from duodenal mucosa before first application of test drugs; further sampling of a tissue specimen was implemented from the jejunum during operation and by gastroscopy with biopsy of jejunum one year after RYGB.
Blood samples assayed to measure serum concentration of test drugs to create concentration-time curves.
The mRNA expression and protein content of metabolizing enzymes (CYP3A4, UGTs) and drug transport proteins like P-glycoprotein and MRP2 in duodenal and jejunal biopsy specimen were analysed by RT-PCR (TaqMan®) and quantitative immunostaning.
Results: It has been experimentally verified that 12 months after RYGB serum concentration of all three test drug after oral application is initially perspicuous higher then preoperative and 7days postoperative.
One week after operation serum concentration of amoxicillin and talinolol is subsided, in contrast to this concentration of paracetamol shows a gentle higher level. Concerning mRNA Expression as well as protein content of metabolizing enzymes and drug transport proteins after an initially drop could be shown a predominantly increase after 12 months.
Conclusion: Intestinal resorption of pharmacological substances is affected after gastric bypass procedure.
Bioavailability of talinolol and amoxicillin is significantly decreased one week after RYGB compared to the situation before surgery. One year after operation adaptation processes in expression of drug metabolizing enzymes and drug transporters are in part compensate for the decrease in bioavailability of the test drugs.

P.058 The Relation of FTO Gene Expression with Drug and Disease in Fat Tissues

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Background: Main aims of this study were to detect FTO gene expression levels in different fat tissues, its interraction with drugs used in treatment of obesity and related disease, and to detect the interraction with type 2 diabetes, hypertension, dyslipidemia and obesity.
Materials and methods: 9 patients who underwent laparoscopic surgery due to morbid obesity and 5 obese patients who underwent laparoscopic surgery due to any abdominal disease in Istanbul Universty Cerrahpasa Medical Faculty Genaral Surgery Department were included in this study. FTO gene expressions were determined by quantitative polymerase chain reaction (qPCR) in morbid obese (BMI≥40) and obese (BMI≥25) patients paired omental and subcutaneous fat tissues. Beta-glucorinidase (GUSB) was used as endogenous control gene.
Results: Morbid obese and obese groups were composed of 5 women, 4 men and 2 women, 3 men respectively. 5 (55.5%) of the morbid obese patients were type 2 diabetic, 3 (33.3%) were hypertensive, 3 (30%) were dyslipidemic and 5 (55.5%) with metabolic syndrome. The omental and subcutaneous fat FTO gene expressions were not statistically different amoung morbid obese and obese groups. Whereas, FTO gene expressions were found to be higer in obese patients omentum and

subcutaneous fat tissues in comparison to morbid obese. FTO gene expressions of the morbid obese and obese patients were similar in omentum and subcutaneous fat. None of the drugs used were found to be effective over FTO gene expressions in omentum and subcutaneous fat tissues. Positive correlation has been found between antidiabetic and antihypertensive drugs used by the study group.
Conclusion: The high level of FTO gene expressions observed in obese patients omentum and subcutaneous fat tissues compared to morbid obese ones, suggest that FTO does not function in morbid obeseity but may be one of the genes related to obesity.

P.059 Obstructive Sleep Apnoea in Patients Undergoing Bariatric Surgery: a London Teaching Hospital Experience

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Background: Obstructive sleep apnoea (OSA) is common in patients scheduled for bariatric surgery and increases the likelihood of peri-operative adverse events. We aimed to describe the prevalence of OSA and risk profile of patients referred for pre-bariatric assessment at our tertiary centre for bariatric surgery.
Methods: A retrospective observational study of patients referred to the sleep clinic for assessment before bariatric surgery between June 2008 and February 2010. Clinical and anthropometric data were collected from the hospital notes and sleep studies. Patient-reported STOP BANG model scores were recorded or derived retrospectively from clinical data. Non-parametric statistics were used due to non-normally distributed data.
Results: 140/164 patients referred were seen in clinic. Referral rates increased from 2/month to 15/month in Feb 2010. The median (range) age was 46.5 (18–68) years, 71% female, weight 135.5 (87.4-180) kg, BMI 48.4 (35.3-84.5) kg/m^2, and Epworth Sleepiness Score 11 (0–24). STOP BANG scores were reported or could be calculated in 84 patients, in whom the median score was 5 (2–8). When incomplete STOP BANG scores were included, 124/130 scored >2. 53% of patients were non-smokers, 15% current smokers and 32 % ex-smokers. Comorbidities included: diabetes/IGT 70%, hypertension 50%, hypercholesterolaemia 39%, ACS/heart failure 9%, CVA 2%, COPD 3%, asthma 19%, and hypothyroidism 19%. Sleep studies were requested for 129 patients, completed in 116 patients. 114 were technically adequate for AHI and 106 for pulse oximetry. The median total AHI was 10.5 (0–111.2) /hr, ODI 20.8 (0.2-145.2) /hr, and mean SpO_2 93.4 (78.3-98.6) %. 27% had AHI≥5/hr, 12%≥15/hr and 25%≥30/hr. Using STOP BANG >2 to screen for AHI≥5 had a sensitivity and specificity of 99.0% (95% C.I. 92.4-100 %) and 5.6% (0.7 - 18.7 %), respectively.
Conclusions: Referral rates for sleep studies pre-bariatric surgery have risen exponentially over a 20 months period. 37% of patients studied had at least moderate OSA, presenting a burden for sleep services and CPAP provision. 35% of patients studied had no evidence of OSA. Although a sensitive test, STOP BANG alone did not reliably identify these lower-risk patients.

P.060 Do Patients with Obstructive Sleep Apnoea Syndrome (Osas) Get Adequate Support Post Weight Loss Surgery?

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Background: Obstructive sleep apnoea syndrome (OSAS) can affect between 55-90% of severely obese patients, with initial diagnosis often made on referral for weight loss surgery. Once diagnosed, patients may be commenced on CPAP (continuous positive airway pressure) therapy overnight, to reduce the number of apnoeic and hypo-apnoeic episodes. Current recommendations (NICE & BTS) are that these patients are followed up by a specialist team, especially if significant factors have changed i.e. weight loss.
Methods: A prospectively maintained bariatric database was used to identify all patients on CPAP (n=27) post weight loss surgery. These patients were telephoned with a simple questionnaire about their CPAP usage and whether there had been any changes post weight loss surgery.
Results: A total of 27 patients (15 Males (56%) and 12 Females (44%)) were identified. Mean pre-operative age was 46 years (range 28 years to 68 years); whilst mean pre-operative BMI was 53 kg/m² (range 44 kg/m² to 77 kg/m²). The mean duration post surgery was 20 months (range 10 months - 57 months). Excess body weight loss (EBWL) at 12 and 24 months was 22% (Q1-Q3 10% -33%) and 38% (Q1-Q3 29% - 53%) respectively. Of these 27 patients contacted, 18 patients responded (67%). Most patients had not noticed any difference in their CPAP usage; and although half had been followed up in a sleep unit, only 2 patients no longer use CPAP (1 through patient choice), 1 had their pressure settings reduced and in 1 patient, pressure settings had actually increased, despite losing weight.
Conclusion: It is well documented that a reduction in weight may reduce the severity of OSAS and pressure settings may need adjusting. Our results show that despite good weight loss, many patients have not had any reduction in their CPAP usage, potentially due to lack of review by the OSAS team. It is imperative that all patients using CPAP are reviewed by specialist OSAS teams post-operatively to ensure maximum benefit from their surgery.

P.061 Saoh and Laboratorial Exams Alterations of Obese Patients in Pre-Operative Roux-in-Y Gastroplasty Bypass

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Background: Sleep disturbs have an important contribution to the pathofisiology of several cronic diseases, been a significant factor for elevation of mortality and morbity levels. Our objective is to evaluate how the presence of SAOH influences abnormal laboratorial exams.
Methods: Medical records of 349 obese patients submitted to Roux-en-Y gastric bypass between January/2004 and December/2008 were analyzed. Patients were divided into two groups in relation to index of hipopnea/apnea : patients who had SAOH (SP, IHA>5) and patients who didn't (NSP, IHA<5). The groups were analyzed regarding Homa-IR and serum levels of glucose (GLU), insulin (INL), Glutamic-oxaloacetic Transminase (SGOT), Glutamic-Pyruvic Transaminase (SGPT).The results were performed by Microsoft Access® and GraphPad InStat® softwares.
Results: From all patients (349), 288 (82,5%) were women and 230 (65,9%) had SAOH (SP). Mean Age was 38.5±10.9 (18.1-67.3). Mean BMI was 42±5.3 (33.8-75.1). Comparisons between SP and NSP. Nember of patients: 230 versus 118. Number of women: 177 (76,9%) *versus* 112 (94,9%) .Mean age: 40.1±11.1 (18.3-67.3) *versus* 35.4±10 (18.1-58.5) [p=0.0001].BMI: 42.6±6.1 (33.8-75.1) *versus* 40.9±3.2 (35.5-50.5) [p=0.1]. Homa-IR: 4.6±3.5 (0.2-25.2) *versus* 4.1±3.1 (0.4-24.5) [p=0.26]. GLU: 100.1±23.9 (63–246) *versus* 94.1±15.2 (65–190) [p=0.01]. INL: 18.3±12.2 (1–88.9) *versus* 17.5±12.1 (2–93.8) [p=0.61]. SGOT: 25.5±11 (10–79) *versus* 24.7±13.5 (12–102) [p=0.04]. SGPT: 32.5±19.4 (8–127) *versus* 31.3±22.9 (8–153) [p=0.09].
Conclusions: In the population of this study, patients with SAOH were older (p=0.0001) and had higher plasma levels of glucose and glutamic-oxaloacetic transaminase (p=0.01 and p=0.04, respectively). There was no statistical difference regarding body mass index, insuline or glutamic-pyruvic transaminase.

P.062 Lack of Obstructive Sleep Apnoea (OSA) Assessment at Primary Care Level Leads to Delay in Bariatric Operations

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Background: Preoperative diagnosis of OSA in patients undergoing bariatric surgery is crucial as, if undetected, it can lead to an increased perioperative morbidity. Furthermore, bariatric surgery is associated with reversal of OSA in the totality of patients affected by this condition. In our bariatric surgery service, patients who are

likely to have OSA are referred for OSA studies via General Practioners (GP). The aim of this study was to assess the efficiency of this referral system.
Methods: In our bariatric service, the validated Epworth Sleepiness Score (ESS) is used to predict the likelihood of OSA in all patients considered for bariatric surgery. If ESS is greater than 11, GP's are requested to refer patients to the local respiratory department to assess OSA. By analysing a prospective departmental database, we assessed whether patients with a ESS greater than 11 were referred by GP for OSA studies.
Results: Of the 432 patients who underwent bariatric surgery between January 2009 and December 2010, 38 (8.7%) patients already had a diagnosis of OSA at the time of referral. Ninty-seven patients (22.4%) were found to have an ESS greater than 11. Despite formal request to GP for referral to the local respiratory department, 26 (26.8%) patients were not referred for OSA studies leading to a delay in their bariatric operations.
Conclusions: This study demonstrated a lack of OSA assessment at primary care level. A delayed diagnosis of OSA in patients considered for bariatric surgery carries the potential for an increased perioperative morbidity and a delay in the cure of OSA.

P.063 Morbide Obesity and Cancer

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Introduction: Obesity is a risk factor in developing oesophagus-, colonic-, pancreatic-, renal-, breast- and uterine malingnancies and non-hodgkin lymphoma with an increasing risk of BMI higher tthan 30 according to the WHO-IARC (Int. Agency for Research on Cancer). In Austria a large cohort study over 145.000 adults (1) during a period of 16 years classified 13 % of colonic cancer in male and 26% of uterine cancer in female patients caused by obesitiy. In our retrospective study over a period of 12 years we analysed our patients undergone various procedures in obesity surgery on their cancer risk and the question isf bariatric surgery is a contra indication in malagnancies or not.
Patients: From 1999 to 2010 435 patients underwent bariatric surgery (vertical banded gastroplasty, adjustable banding, gastric bypass, sleeve resection). 4 patients (0,9%) 3 women one man developed cancer after bariatric surgery: one lung- one breast-, one pancreatic- and one testicular cancer. The diagnosis of the tumor was made between 4 months and 5 years after surgery. The patient with the pancreatic cancer - classified as non-resectable during emergency surgery due to obstruction of the alimentary loop - died within 12 months after diagnosis. Radio/chemotherapy did not stop tumor progression. The other 3 patients underwent curative surgery and radio/chemotherapy or hormone treatment, all are still alive (pulmonary cancer since 2000, breast cancer since 2003 and testical cancer since 2005). In these cases quality of life is good, BMI of all patients is between 24 and 33. The patient with the lung cancer developed metastatic desease (bone and lymphatic system) for years ago, tumor progression could be stopped with chemotherapy till now. All 4 patients approved of bariatric surgery despite following cancer desease.
Conclusion: Bariatric surgery is not a contra indication to malignant tumor desease. There is no negative effect in cancer treatment (surgery, radio/chemotherapy, hormone treatment). Benefit might be a longer survival and certainly a better quality of life due to reduction of weight.
Literature: (1) Obesity and incidence of cancer a large cohort study of over 145.000 adults in Austria. Rapp K. et al. Br. J. Cancer 2005 93(9) 1062–7

P.064 Gastric Cancer in Patients with Previous Restrictive Bariatric Surgery: a Clinical Pitfall

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Aims: Patients with previous restrictive bariatric surgery frequently present symptoms such as dysphagia, vomiting and upper abdominal pain. Although the development of gastric cancer does not seem to be higher in these patients than in the general population, a delay in diagnosis can be catastrophic. Aim of the study was to analyse retrospectively the incidence of gastric cancer in patients who underwent restrictive procedures and to find any diagnostic hazards.
Methods: From January 1996 to December 2010, 984 obese patients underwent restrictive procedures (laparoscopic gastric banding in 80 cases and laparoscopic vertical banded gastroplasty in 904) at the University of Torino.
Results: In the follow-up, 2 patients presented gastric cancer (incidence 0.2%); both had undergone laparoscopic vertical banded gastroplasty according to MacLean. Case 1 was a 50-year-old woman, weighing 100 kg (BMI 41.6 kg/m²); 8 years after surgery she presented with vomiting, dysphagia and weight loss. The radiographic study showed a stricture of the neopylorus, and the upper endoscopy confirmed a severe stricture; after a 15mm pneumatic dilation, the distal stomach showed ulcerative gastritis which on histological examination revealed a poorly differentiated gastric carcinoma. Surgery confirmed an advanced unresectable gastric cancer. The patient underwent chemotherapy, but developed cranial metastases and died 4 months after surgery due to disease progression. Case 2 was a 56-year-old woman weighing 98 kg (BMI 43.6 kg/m²). Four years after surgery she referred with dysphagia and weight loss. The upper endoscopy revealed a neopylorus stricture; after a 20mm pneumatic dilation, the distal stomach showed an ulcerative lesion and the histology revealed a moderately differentiated carcinoma. A total gastrectomy with Roux-en-Y esophagojejunal anastomosis was carried out and the patient underwent chemotherapy; to date she is well with no signs of disease progression.
Conclusions: In the follow-up of patients with previous restrictive procedures it is of vital importance to recognize all modified or new symptoms that may be related to a gastric lesion, and to promptly study patients with upper endoscopy with, if necessary, stricture dilation to allow complete gastric examination. When early diagnosis is made, surgical therapy can be performed with no worsening in prognosis.

P.065 Abdominal Fat in Women, Metabolic Surgery and Bone Health

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Aims: Recent studies say that an excess of internal abdominal fat in women can damage the internal health of the bone and acting as responsible for osteoporosis and bone mass loss. The objectives of present study are: 1) to assess abnormalities in the serum levels of bony biochemical markers in morbid obesity patients, 2) to evaluate the potential reversibility of these changes following bariatric surgery and 3) to analyze their long-term evolution.
Methods: Retrospective evaluated data from 305 women with morbid obesity visceral operated in our Hospital: 263 with premenopausal and 42 with postmenopausal. The mean age of the first was 37.0 years (range: 19–49) and 54.7 years (range: 49–62) for second. Before surgery and 6, 24, 60 and 120 months after it, we collected anthropometric measures, and serum levels of bony biochemical markers: alkaline phosphatase, osteocalcin and P1NP (terminal procollagen polypeptide) and calcium and hydroxyproline in urine.
Results: Before surgery, the mean (SD) values of BMI were similar in both groups 47.3 (6.3) and 47.5 (2.8) respectively, but the mean (SD) of waist circumference (WC) were higher in postmenopausal patients: 128.1 (11.7) vs.120, 2 (14.6) and were also were more elevated serum levels of alkaline phosphatase, osteocalcin and P1NP and urine levels of calcium and hydroxyproline. After surgery, in both groups the values of BMI, WC decreased and biochemical markers levels tend to normalize. This situation is maintained at 60 and 120 months after surgery.
Conclusions: The reduction of anthropometric measures and serum levels of bony biochemical markers after surgery confirms the usefulness of it in the fight against morbid obesity and associated diseases.

P.066 Morbid Obesity, Dyslipidemia and Cariovascular Diseasein Young Obese

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Aims: Recent studies have shown that elevated cholesterol at a relatively young age increases the risk of cardiovascular disease. There is also evidence that people with morbid obesity suffer from dyslipidemia, with elevated levels LDL-cholesterol and triglycerides and decreased HDL-cholesterol. The objectives of our study are: 1) to assess lipid levels in morbid obesity patients aged under 30 years old, 2) evaluate the variations before and after surgery metabolic and 3) the behavior of the same We have retrospectively analyzed data of 87 patients with morbid obesity opermedium to long term.
Methods: ated by metabolic surgery at our hospital. The mean age was 24.4 years (range: 16–30). Before surgery and 6, 24, 60 and 120 messes after it, we have collected anthropometric measures, blood pressure and serum levels of total cholesterol, LDL-cholesterol, HDL-cholesterol, VLDL-cholesterol, triglycerides and insulin.
Results: Before surgery, we found the mean (SD) value of the body mass index (BMI) was 43.8 (3.3) kg/m^2 and waist circumference (WC) was 120.2 (14, 2) cm. Blood pressure was high and we found elevated serum levels of total cholesterol, LDL-cholesterol, VLDL-cholesterol and tryglicerides with decreased levels of HDL-cholesterol. The ratio (r) TC / HDL-cholesterol was=5.11. After surgery the values of BMI, WC and BP decreased and lipid levels tend to normalize. This situation is maintained at 60 and 120 months after surgery.
Conclusions: The results of our study seem to confirm the existence of high plasma cholesterol levels in morbid obesity patients under 30 years old, probably as a consequence of insulin resistance, which together with higher blood pressure levels can trigger the development of cardiovascular disease. The decrease in these levels after surgery suggests its usefulness in preventing them.

P.067 Effect of Bariatric Surgery on Postprandial Lipoprotein Metabolism in Obese Patients

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Introduction: Obesity is characterized by abnormal fasting and postprandial lipids, which may link obesity with atherosclerosis. We explored fasting and postprandial lipids in severely obese patients treated with bariatric surgery and in control subjects.
Methods: After fasting for 12h 20 obese patients (BMI 52.5±6.4 kg/m², 43.9± 11.0 years) received a standardized oral fat load before and 3 months after bariatric surgery. Controls (n=9) were studied once. Plasma was obtained fasting and then postprandially every 2h for 8h. Triglycerides (TG), chylomicron-TG, VLDL/chylomicron-remnant (VLDL/CR)-TG, cholesterol, LDL-cholesterol, VLDL-cholesterol and HDL-cholesterol were isolated by ultracentrifugation at each time point. Postprandial values were expressed as area under the curve (AUC) and incremental area under the curve (iAUC).
Results: Compared to controls obese patients had elevated TG but only slightly altered postprandial lipids. Following surgery (weight loss 22.7 kg±8.0 kg; p<0.001) fasting TG (−24.7%; p=0.018), VLDL/CR-TG (−29.1%; p=0.016) and VLDL-cholesterol (−31.1%; p=0.040) decreased significantly, while fasting cholesterol, HDL- and LDL-cholesterol did not change. AUC decreased significantly for TG and VLDL/CR-TG (−20.8%, p=0.036; -26.2%, p=0.017), but iAUC did not change significantly. Peak-TG concentrations shifted towards a later time point after surgery (3.90h to 4.74h; p=0.07). In patients with preoperatively elevated TG (>150 mg/dl) a similar pattern was observed.
Conclusions: Despite considerable weight loss and normalization of fasting TG, postprandial lipids were only little affected by bariatric surgery. However, postprandial lipid metabolism was already relatively normal preoperatively in these patients. The delay in the TG peak-time indicates that bariatric surgery changes gastric motility, possibly by affecting incretin hormones.

P.068 Modified Nissen Fundoplication after Roux-En-Y-Gastric Bypass for Obesity: an Antireflux Surgery Alternative

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Roux-en-Y-Gastric Bypass (RYGB) has been advocated for treatment of obese patients with gastroesophageal reflux (GE) as an alternative to fundoplication. Nevertheless, up to 22% of patients who undergo successful RYGB operations continue to complain of pain and gastroesophageal symptoms postoperatively. Curiously, some obese patients with no previous GE reflux can develop the disease after RYGB.
Thus, despite optimized medical therapy as the mainstay treatment, GE continues after surgery. There is also a known association between the development of BE post-esophagectomy but not after RYGB for obesity.
We report 12 cases managed for intractable postoperative GE reflux with a modified laparoscopic 360^o fundoplication post RYGB. All preoperatory endoscopies were normal. Mean age was 35 years,60% were women and mean BMI was 41.02 +−3.2. Mean time after a RYGB was 5 years. A modified post-RYGB fundoplication was made by wrapping the excluded stomach around the esophagus with the construction of a vertically orientated proximal gastric pouch, with a 75−150 cm Roux limb, a 50 cm jejunojejunostomy beyond the ligament of Treitz and a 12 mm gastro-jejunoanastomosis. The gastric pouch was 3,5 cm and the manually performed Gastrojejunostomy verified by endoscopy was 12mm after a 1 year, 3 year and 5 year follow up. Another follow up after 1 year of the modified Nissen fundoplication was also possible. Two patients developed Barret esophagus postoperatively.
Postoperatory GE reflux was confirmed by manometry and 24h pH metry with a 3-cm 360^o laparoscopic wrap constructed with a 34 Fr intra-esophageal bougie in situ to reinforce the "valve" between the esophagus and the stomach. Thus, the excluded portion of the stomach was wrapped around the lowest portion of the esophagus after a successful laparoscopic RYGB operation for obesity. All the patients tolerated the operation and experienced successful resolution of GE symptoms confirmed with postoperatory manometry and pH metry. We believe this is the first series described of abdominal anti-reflux surgery performed by laparoscopy in the late postoperatory of bariatric surgery. The patients had no complications and experienced successful resolution of GERD symptoms (Visick 3 to 1; and reflux symptoms score 3 to 1). One year follow up showed asymptomatic patients without GE reflux or dysphagia. Postoperatory esophageal manometry showed normal LES pressure and 24h-pH testing was normal.
The Modified fundoplication may prove to be a good surgical option for the treatment of persistent reflux after gastric Roux-en-y bypass operation.

P.069 Comparision of Wait-to-Hip Ratio, BMI and Hiatal Hernia between Patients With and Without Gastroesophageal Reflux Disease (Gerd)

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Background: Increased abdominal pressure is related modestly with high waist circumference. GERD is also associated with high abdominal pressure as well as gastroesophageal sphincter relaxation. Our aim is to provide more sources to evaluate the contribution of abdominal obesity in the development of GERD.

Methods: Between January/2004 and June/2010, 542 patients submitted to Roux-en-Y gastric bypass were divided in two groups: with GERD(**GP**), 195(36%), and without GERD (**NGP**), 347(64%). We reviewed medical records of the two groups regarding to age, sex, BMI, Hiatal Hernia (**HH**), Waist-to-Hip Ratio(**WHR**) and Central Obsity (**CO**). The results and unpaired tests were performed by Microsoft Access® and GraphPad InStat® softwares.
Results: From all patients (542), 85(15,7%) were males and 457(84,3%) were females. Mean age was 37.3±10.8(16.5-67.4). Mean BMI was 41.68±5.07(33.2-75.1). Number of females patients with OC: . Patients with HH: 79(14,5%). Patients without HH: 463(85,4%). Patients **with HH *vs***. Patients **without HH**: With CO: 28 (5%); without CO: 51(9%) *vs*. With CO: 135(25%)p; without CO: 328(61%). **GP *vs.* NGP:** Mean age: 38.9±11.2(18.3-67.3) *vs.* 36.37±10.5(16.5-67.4); p=0.01. Mean BMI: 41.8±5.5(33.8-75.1) *vs.* 41.6±4.8(33.2-66.2); p=0.93. With CO: 52(10%); without CO: 143(26%) *vs.* With CO: 111(20%); without CO: 236(44%)±0.09(0.6-1.3); p=0.23. With HH: 75(14%), without HH: 121(22%) *vs.* With HH: 5(1%), without 342(63%); p<0.0001 [OR: 41.8].
Conclusions: In our sample patients with GERD are older than patients without GERD (p=0.01). The relation between Hiatal Hernia and Central Obesity did not showed statistical significance. Also, the relation between GERD and Central Obesity, as well as BMI, did not showed statistical significance. There is a very significant statistical difference between the prevalence of Hiatal Hernia in patients with GERD and without GERD (p<0.0001). Patients with Hiatal Hernia have at least 41.8 times more chances to develop GERD than the other patients.

P.070 Comparison of Diagnostic Accuracy of Upright Vs. Recumbent Esophagram in Predicting Hiatal Hernia

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Background: Hiatal hernia repair at the time of bariatric surgery improves patient outcome, decreases GERD symptoms and reduces the need for reoperation. The aim of this report is twofold: first, to compare the sensitivity of esophagram with surgical findings at the time of bariatric surgery, and second, to compare the sensitivities of upright versus right anterior oblique (RAO) recumbent esophagram in predicting the presence of hiatal hernia intraoperatively.
Methods: Between 2008 and 2010, 389 patients undergoing bariatric surgery were prospectively evaluated for hiatal hernia by barium esophagram. 70 (18%) were performed only in the upright position and 319 (82%) only in the RAO recumbent position. Esophagram technique was changed from upright to recumbent because we hypothesized that we would be able to better detect hiatal hernia utilizing RAO recumbent technique. Hiatal hernia was assessed intraoperatively by laxity/dimpling of the phrenoesophageal ligament and, when present, was repaired posteriorly with permanent sutures.
Results: Compared with the surgical findings, the sensitivity and specificity for upright esophagram was 50% and 97%, respectively. For recumbent esophagram, sensitivity was 70% and specificity was 77%. Recumbent esophagram had a lower percentage of false negatives than upright esophagram (11% vs. 21%).
Conclusions: Use of a recumbent technique for preoperative esophagram has a higher sensitivity for diagnosis of hiatal hernia than upright esophagram. Routine use of recumbent esophagram results in increased preoperative detection of hiatal hernia and facilitates planning of crural closure.

P.071 Bariatric Surgery - Treatment for Pseudotumour Cerebri?

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Background: Pseudotumour cerebri is a serious neurologic disorder without any known final therapy. Aprovement of symptoms can be achieved by longlasting weight loss.
To reach a significant weight loss in a short period of time bariatric surgery seems to be a promising option.
Methods: To our obesity center two patients were referred from our Neurology department with Pseudotumour cerebri. They already have been treated conservatively and invasive with liquor punction with only short term success. In order to avoid a ventriculo-peritoneal shunt, after evaluating the perioperative risk, the patients underwent bariatric surgery (Sleve gastrectomy).
Results: Two patients with a BMI>40 kg/m² were successfully operated. Short term follow-up showed already a stabilisation of intracerebral pressure.
Conclusions: Bariatric surgery might be a promising option to lower intracranial pressure in Pseudotumour cerebri.

P.072 Preoperative Fasting Plasma C-Peptide Level May Help to Predict Diabetes Outcome after Gastric Bypass Surgery

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Introduction: Roux-en-Y Gastric Bypass (RYGB) surgery is recommended for obese type 2 diabetes patients (T2DM) with a body mass index≥35 kg/m^2. There is a need to predict the chance of complete resolution of T2DM after RYGB.
Aim: To evaluate whether preoperative measurement of fasting plasma C-peptide levels is useful to predict the resolution of T2DM after surgery.
Patients and methods: Diabetes outcome after RYGB was evaluated in 126 obese subjects. Forty-one were non-diabetic (NDC), 29 had impaired glucose tolerance (IGT) and 56 had T2DM. Body weight, fasting plasma glucose, fasting C-peptide levels, and HbA1c were measured at baseline and 3.6±0.16 years after RYGB. Complete resolution of diabetes was defined as: fasting glucose<7.0 mmol/L, HbA1c<6.5%, without antidiabetic medication.
Results: 90% of T2DM patients with preoperative fasting C-peptide levels>1.0 nmol/L achieved a postoperative HbA1c<6.5%, and 67 % achieved complete resolution of their diabetes. In contrast, none of the patients with a preoperative fasting C-peptide<1.0 nmol/L reached that goal.
Conclusion: A preoperative fasting plasma C-peptide level<1.0 nmol/L in severely obese T2DM indicates partial ß-cell failure, and is associated with a markedly reduced chance on complete resolution of T2DM after RYGB

P.073 Metabolic Syndrome after Laparoscopic Adjustable Gastric Banding: One Year Results

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Objective: To assess the prevalence of metabolic syndrome (MS) among morbidly obese patients undergoing laparoscopic adjustable gastric banding (LAGB) and to evaluate the impact of LAGB on the resolution of MS.
Patients and methods: A total of 103 patients (age 46.1±11.5, female 67 %, BMI 47.5±7.3) were included in the prospective study between January 1, 2009 and January 31, 2010 for the evaluation of the effectiveness of LAGB. The combination of any 3 or more factors from Adult Treatment Panel III Guidelines led to the diagnosis of MS (waist circumference >102 cm for men and >88 cm for women, triglycerides≥1.7 mmol/l, HDL cholesterol<1 mmol/l for men and<1.3 mmol/l for women, blood pressure≥130/85

mmHg, fasting glucose≥5.6 mmol/l). We determined the change in MS prevalence in one year period after LAGB.

Results: MS was diagnosed in 77.5 % of patients undergoing LAGB. Three diagnostic factors were present in 34.2 %, four factors in 35.4 % and five factors in 30.4 % of patients with MS. Waist circumference factor was present in 100 %, triglycerides in 52.9 %, HDL cholesterol in 55.9 %, hypertension in 80.4 % and glucose in 57.8 % of patients with MS. Average body mass index in the MS group was 48.4 versus 44.5 in the non-MS group ($p<0.01$). In one year period after LAGB 33.1±21.9 % of excess body mass index loss was reached and MS prevalence decreased to 57.8 %. Waist circumference factor resolved in 4.8 %, triglycerides in 35.7 %, HDL cholesterol in 34.1 %, hypertension in 14.5 % and glucose in 20.5 % of cases with initially diagnosed MS. In patient group where MS was still present at one year follow up, the number of diagnostic factors decreased: three factors were present in 56.3 %, four factors in 25 % and five factors in 18.8 % of patients ($p<0.01$).

Conclusion: MS is common among morbidly obese patients and prone to patients with higher body mass index. Weight loss after adjustable gastric banding is associated with a significant improvement in MS, mainly by resolution of triglyceride and HDL cholesterol risk factors.

P.074 Changes of the Steatosis Hepatis and Diabetes Mellitus after Laparoscopic Sleevegastrectomy: Prospective Follow Up Study About Reduction of Comorbidities and Histological Liver Findings in Obese Patients

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Aims: In these prospective follow up study the improvement of diabetes mellitus and pathological liver findings after sleevegastrectomy should be analyzed for the first time.

Introduction: In the bariatric therapy of obese patient there is a strong increasing number of sleevegastrectomies (SG) in the last few years. Up to the last years the prox. gastric bypass (GB) was the standard first line procedure. New studies show that the SG also seems to have a standing as a first line procedure.

Methods: Since January 2009 all patients of the bariatric center Campus Kiel, UK-SH, were recruited for this study. The Follow up 1,3,6,9,12, 24 months after operation includes clinical and chemical investigations. The results of SG patients and GB patients were compared. The SG patients underwent an intraoperative liver PE and another one after 6 months. We analyzed the histological liver findings preoperatively and also the changes after 6 months.

Results: There was no difference in the reduction of the weight and comorbidities especially of diabetes between SG and GB patients. The preoperative histological liver analysis shows a steatosis scale up to 40% and a fibrosis scale up to 15%. 6 months after SG the liver histologies show a clear improvement. After SG the diabetic patients show even after 3 months a clear reduction of the medication. All these improvements happened during the first third of the excess weight loss.

Conclusion: In the 1 year follow up, the sleevegastrectomy (SG) is as effectiv as the gastric bypass (GB). The improvement of the steatosis hepatis/NASH and the benefit effect in diabetic patients in an early phase after the operation show, that the SG seems to be not only a restrictive, but also a metabolic procedure. Further patients will be included in this study, and in a second step the comparison with GB patients will follow.

P.075 Sleeve Gastrectomy with Enteral Bypass (SGEBP) as Metabolic Surgery for the Treatment of Type 2 Diabetes

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Background: In 2004 a new technique for the treatment of morbid obesity was created in Hospital Dipreca, Santiago, Chile. The objective is to evaluate the Sleeve Gastrectomy with Enteral Bypass (SGEBP) as a surgical technique for the treatment of Type 2 Diabetes (T2D) in patients with BMI<35.

Methods: Prospective case series. Patients with body mass index<35 kg/m2 and T2D underwent a SGEBP between June 2009 and December 2010 at DIPRECA Hospital, in Santiago, and Hospital Base, Osorno, Chile. SGEBP consists in creating a gastric tube preserving pylorous and then performing a jejunum-ileal anastomosis 300 cm distal to the Treitz angle. Weight loss, complete and parcial resolution of T2D is reported. The statistical analisys was made with the Stata/SE 10.1 Software.

Results: 22 patients matched the inclusion criteria with a mean age of 41 (19–65) years and 56.3% female. Mean preoperative BMI was 31.9 kg/m^2 (25.9-34.6). Median surgical time was 120±35 min. In 95.5% of cases laparoscopic approach was utilized (21/22), and no conversions was registered. Postoperative stay was 2 days. The follow up was 18 months. The mean BMI at one year was 25.6±2.25. Complete resolution of T2D was achieved in 95.5% (21/22) and partial resolution in one patient (insulin dependant). One patient was insulin dependant and 6 months after surgery is with no medication and normal levels of HbA1c. There was no morbidity or mortality.

Conclusion: SGEBP is an effective technique in terms of resolution of T2D in patients with BMI<35.

P.076 Mechanisms of Improvement of Glucose Tolerance in Type 2 Diabetes (T2DM) after Bariatric Surgery: Gastric Bypass Vs Sleeve Gastrectomy.

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Background and aims: In morbidly obese patients with T2DM, Roux-en-Y-gastric-bypass surgery (RYGB) restores euglycemia early after surgery, but effectiveness of sleeve gastrectomy (SLV) in improving T2DM are scarce.

Aims of this study. To investigate extent and mechanisms of recovery of ß-cell function and insulin-sensitivity in severely obese T2DM patients undergoing RYGB or SLV.

Materials and methods: 28 obese T2DM subjects (19 RYGB and 9 SLV) were studied before and 15-d after surgery by comparing the response to a Mixed-Meal-Test (MMT) preceded by a week of low-calorie intake. Insulin-sensititvity was assessed by OGIS-index and ß-cell function by modeling analysis of the C-peptide response to MMT. Ghrelin were assessed during MMT.

Results: 15-d post-surgery, BMI had decreased to the same extent in RYGB and SLV (43.5±6.1 vs 40.3±5.6 kg.m-2, 47.6±5.2 vs 45.5±7.5 respectively, p<0.0001 vs baseline). Mean glucose improved in RYGB and SLV (8.2±1.9 vs 7.0±1.8 mmol/l, 8.8±2.1 vs 6.9±1.5 respectively, p=0.0002 vs baseline) and mean insulin decreased (177±64 vs 141±76 pmol/l , 247±130 vs 184±79, respectively, p=0.005 vs baseline). ß-cell glucose sensitivity improved in RYGB and SLV (28.8±22.9 vs 47.9±35.5 pmol.min-1.m-2. mM-1, 33.0±30.9 vs 48.8±39.5, respectively, p=0.02 vs baseline). At baseline, insulin-sensitivity was similar in RYGB and SLV (308±53 vs 289±39 ml.min-1.m-2); following surgery, insulin-sensitivity improved (359±53 and 354±68 ml.min-1. m-2, respectively, p=0.0003 vs baseline). Mean ghrelin decresead in RYGB and SLV (7643±7871 vs 3630±2848, 4845±5712 vs 1687±782 pg/ml, p=0.02).

Conclusions: 15-d after surgery and under constant calorie intake, glucose tolerance is improved to a similar extent with RYGB and SLV, as a result of similar improvements in ß-cell function and insulin-sensitivity.

P.077 Time-Dependent Changes in Plasma Total, Acylated and Desacylated Ghrelin after Gastric By-Pass

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Aims: Ghrelin is a gastric orexigenic hormone circulating in acylated (A-Ghr) and desacylated (D-Ghr) forms. Total plasma ghrelin (T-Ghr) is commonly inversely related to body mass and insulin resistance, and recent data suggest that D-Ghr may be independently involved in these associations. Gastric by-pass is a most effective treatment for morbid obesity, leading to sustained weight loss and improved insulin sensitivity. In the current study we investigated over a 12-month period the potential impact of gastric by-pass surgery on 1) circulating T-Ghr, A-Ghr and D-Ghr; 2) their associations with BMI and insulin sensitivity.
Methods: 18 morbidly obese patients (Age 40±2 years, 14F/4M) undergoing laparoscopic gastric by-pass were studied. BMI, fasting plasma insulin, glucose, fatty acids (FA) and HOMA-IR index of insulin resistance were measured before (t0) and 1, 3, 6 and 12 months after surgery (t1,t2,t3,t4 respectively). T-Ghr and A-Ghr were measured by RIA and D-Ghr was calculated by subtracting A-Ghr from T-Ghr.
Results: Morbid BMI elevation at baseline was dramatically and progressively reduced following surgery (t0=47,4±1, t1=41,7±0.6, t4=29,8±0.8 kg/m^2). Plasma glucose (t0=108±8; t1=100±2, t4=86±2 mg/dl), hyperinsulinemia (t0=21±3, t1=12.4±2, t4=5.1±1 ng/ml) and HOMA-IR (t0=5.6±1; t1=3.3±0.9, t4=1.1±0.4) also declined progressively (all P<0.01). On the other hand, plasma FA rapidly increased with a subsequent gradual return to basal values (t0=0.37±0.03; t1=0.56±0.04, t4=0.34±0.03 mMol; P<0.05 t1 vs t0 and t4). Plasma T-Ghr was initially stable, then progressively increased (t0=318±38, t1=353±27, t4=660±55 pg/ml, P<0.01 t4 vs t0-2). Early lack of T-Ghr changes was however associated with a concomitant increase in A-Ghr that persisted throughout the study period (t0=121±36, t1=226±28, t4=259±21 pg/ml, P=0.01 t0 vs t1-4). A moderate decline in D-Ghr was consequently initially observed with a later increase above baseline values (t0=228±32, t1=171±29 P=0.12, t4=401±53 pg/ml, P<0.05 vs t0-t2). Average T-Ghr and A-Ghr at each time point were negatively associated with both BMI and HOMA (P<0.05). Associations between HOMA and ghrelin forms were however not significant when BMI was included in a multiple regression model.
Conclusions: Gastric by-pass causes profound time-dependent changes in plasma ghrelin profile. Early T-Ghr stability masks a sharp increase in plasma A-Ghr concentration, that could be due at least in part to a transient increase in plasma FA. A marked increase in both T- and D-Ghr is only observed with further decline in BMI at 6–12 months from surgery. Ghrelin changes do not appear to independently influence changes in insulin sensitivity, that are likely related to combined metabolic effects of weight loss. The current findings demonstrate that gastric by-pass does not abolish the ability of the stomach to synthesize and secrete ghrelin in both acylated and desacylated forms.

P.078 Plasma Bile Acid Profile is Not Altered by Laparoscopic Sleeve Gastrectomy

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Background: Changes in bile acid (BA) profile are associated with morbid obesity. Specific BAs are known to modulate whole body metabolism, energy expenditure and are thought to have an effect on insulin resistance in animal models. Laparoscopic sleeve gastrectomy (LSG) is known to improve insulin sensitivity. Although the exact mechanism of this metabolic effect is not yet known, it is not related to weight loss alone. LSG may lead to changes in incretins and hormonal regulators of appetite, which are also affected by circulating BAs. We profiled plasma BAs in patients undergoing LSG to investigate whether there is an association with insulin resistance and adipocytokine concentrations.
Methods: We prospectively studied 19 patients (13 females, mean age 45 years; range 27–64) who underwent LSG at our institution. Fasting blood samples were taken pre-operatively and at 6 weeks and 6 months post surgery. BAs were measured using liquid chromatography tandem mass spectrometry. Fasting blood glucose, serum insulin and lipids were also measured at the same time points. Adiponectin, Leptin and Resistin were measured using a bead-based multiplex bioassay. HOMA-IR was used as a measure of insulin resistance. Results are expressed as mean±SEM. Statistical analysis employed one-way ANOVA with repeated measures and Pearson's coefficient was calculated for correlations.
Results: LSG was associated with significant weight loss (pre-op 60.0±2.59 kg/m^2, vs 53.0±2.35 at 6 weeks, 45.8±2.0 at 6 months, p<0.0001). Insulin resistance decreased significantly (HOMA-IR 8.7±1.4 vs 3.8±0.7 vs 2.4±0.5, p<0.0001). Total BAs did not change significantly post-surgery (2.7±0.4mmol/L vs 1.7±0.4 vs 2.4±0.3, p=0.115). Total glycine conjugated-BAs also did not change significantly (1.5±0.3mmol/L vs 1.0±0.3 vs 1.6±0.2, p=0.169). There were no significant correlations between HOMA-IR, fasting triglycerides, fasting total cholesterol, leptin, resistin, adioponectin and both total and glycine conjugated BAs
Conclusions: Although insulin sensitivity improves following LSG, there is no association with changes in circulating plasma BAs. Alterations in BA profile are not the cause of metabolic improvements after LSG.

P.079 Obesity Surgery Can Impact Upon Lipid-Induced Insulin Resistance

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Background: Lipid-induced insulin resistance may contribute to the exponential rise in type 2 diabetes mellitus (T2DM), secondary to obesity. Following bariatric surgery, substantial improvements in insulin sensitivity occur prior to weight loss. One cause postulated is a change in lipid processing. We assessed lipid levels after bariatric surgery to gain insight into the pathophysiological link between lipids and insulin resistance in vivo.
Methods: Participants underwent Laparoscopic Roux-en-Y gastric bypass (LRYGB) (n=19) or Laparoscopic Sleeve Gastrectomy (LSG) (n=19) for morbid obesity (BMI 50 and 62 respectively). 10 participants in each group were diagnosed with T2DM preoperatively. Post-operative management was standardised and venous blood was collected after a 12hr fast on both pre- and post-operative day 4. The samples were analysed for glucose, insulin, NEFA, cholesterol and triglycerides.
Data expressed as mean±sem. Δ is the mean difference between pre- and post-operative day 4. Two-tailed *t*-test was used for comparison unless otherwise stated.
Results: Post-operatively, significant reductions in insulin resistance occurred, HOMA-IR ANOVA p=0.0058. ΔHOMA-IR after LRYGB −6.019±1.480 (p=0.0012, n=15) and LSG −4.833±1.077 (p=0.0028, n=8) with no significant difference between these procedures (p=0.5937).
Plasma NEFA levels were significantly different post-operatively, ANOVA p<0.0001. ΔNEFA after LRYGB −0.1788±0.05214 (p=0.0034, n=17) and LSG +0.3929±0.1049 (p=0.0018, n=17), with highly significant differences between these procedures (p<0.0001).
Plasma cholesterol levels were significantly differenct post-operatively, ANOVA p=0.0019. ΔCholesterol after LRYGB −1.141±0.1650 (p<0.0001, n=17) and LSG +0.1000±0.2087 (p=0.6465, n=8), with a highly significant difference between these procedures (p=0.0002).
No significant difference in plasma triglycerides was noted (ANOVA p=0.1432).
Conclusions: By post-operative day 4, despite similar improvements in insulin sensitivity after LRYGB and LSG significantly different alterations of plasma NEFA and cholesterol exist.
Changes in plasma lipids may not be solely responsible for improvements in insulin resistance following obesity surgery. Further research in this field is warranted.

P.080 Effects of Laparoscopic Gastric Bypass or Laparoscopic Sleeve Gastrectomy on Glucose Homeostasis and Entero-Hormonal Response in Obese Type 2 Diabetic Patients

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Background: Bariatric surgery is an effective treatment of patients with type 2 diabetes mellitus (T2DM) and severe obesity, but the mechanisms responsible for the improvement / resolution of T2DM using different procedures have not been completely clarified. To compare the effects of laparoscopic gastric bypass (LGB) and sleeve gastrectomy (LSG) on body weight, glycemic homeostasis and incretin response in obese DM2 patients.
Methods: Ten (5 M; 48±7 years; BMI 44±6 Kg/m^2, M±DS) and 15 (8 M, 46±11 years; BMI 48±8 Kg/m^2) T2DM obese patients underwent LGB and LSG, respectively. Anthropometric parameters, glucose and lipid profile, and incretin response to a liquid mixed meal (304 Kcal, L 36%, CHO 52%, P12%) were evaluated before and 2 weeks after surgery. In addition, insulin sensitivity (OGIS index) and insulin secretion (insulinogenic index) assessed by standard OGTT were evaluated before and 3 months after surgery.
Results: At 2 weeks post-surgery, a similar weight loss was observed (−14 Kg) with the two procedures. Diabetes resolution (fasting glucose<126 mg/dl in the absence of hypoglycemic therapy) occurred in 90% after LGB and in 80% after LSG. GLP-1 response to a mixed meal was markedly blunted at baseline in both groups and significantly increased 2 weeks both after LGB (p=0.008) and LSG (p=0.026). GIP peak after mixed meal significantly increased compared to baseline only in LSG (p=0.004) but not after LGB (p=0.194). At 3 months post-surgery, weight loss was 29±9 Kg in LGB and 27±11 Kg in LSG; insulin sensitivity improved markedly both in LGB (OGIS index from 286±67 to 496±50 ml min-1m-2, p<0.002) and in LSG (from 284±73 to 459±69 ml min-1m-2, p<0.001), while insulin secretion index remained substantially unchanged.
Conclusion: In DM2 obese patients, LGB and LSG induce early, but different changes in the enteroinsular axis: enhancement of GLP-1 response is observed after LGB and LSG, while GIP peak is improved only after LSG. Both procedures are able to induce a significant improvement of glucose homeostasis and insulin sensitivity.

P.081 Changes in Adipoinsular Axis and Metabolic Profile in Morbidly Obese Premenopausal Females Treated with Bariatric Surgery

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Background: The aim of this study was to evaluate the effects of surgically induced weight loss on the metabolic profile and adipocytokines levels of premenopausal morbidly obese females.
Methods: Twenty premenopausal morbidly obese (MO) women with median age 34 years (range 24–48) and median BMI 41.47 kg/m^2 (range 38.0-56.73) were studied (13 after gastric banding and 7 after sleeve gastrectomy). In addition, 20 lean premenopausal women with median age 32 years (range 22–44) and median BMI 20.0 kg/m^2 (range 18.5-24.7) were also studied. Anthropometric measurements, metabolic parameters, and the presence of the metabolic syndrome were evaluated in conjunction with the changes in leptin, adiponectin, resistin, and interleukin-6 (IL-6) levels in the obese group before, at 6 and 12 months after bariatric surgery. Comparisons with the reference population of normal weight subjects were carried out.
Results: Weight and BMI were significantly reduced postoperatively. A 54.5% of excess BMI loss was observed at 12 months postoperatively, and was associated with significant improvement of all anthropometric and metabolic parameters. Moreover, surgical intervention decreased serum leptin, resistin and IL-6 levels and increased serum adiponectin levels, in MO group, at the same time with a remarkable amelioration of metabolic syndrome markers. Furthermore, the surgical intervention decreased serum resistin and IL-6 levels of the MO group, in such a degree that eventually reached that of normal weight group.
Conclusions: This study suggests that weight loss through bariatric surgery, in addition to improving insulin sensitivity, glucose and lipid homeostasis in morbidly obese young female patients, leads also to a significant reduction in leptin, resistin and IL-6 levels, and a significant increase in adiponectin levels. Longer follow-up is required in order to evaluate the long-term change on adipose-derived hormonal profile of morbidly obese premenopausal females, as well as, to assess the lasting beneficial effect of surgical intervention on these hormonal alterations.

P.082 Weight Loss after Laparoscopic Gastric Banding: Short Term Follow Up of Microalbuminuria in Obese Patients with Glucose Impairment

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Background: Albuminuria is the earliest clinical marker of diabetic nephropathy and is associated with an increase in cardiovascular disease in both diabetes and hypertension. The effects of weight loss on albuminuria are uncertain.
Aims: To evaluate the incidence and short term natural history of micro-albuminuria (30 -300 mg/L) and Albumin/Creatinine Ratio (ACR) in patients with impaired fasting glucose (IFG- fasting plasma glucose>5.6mmol/L) and Type II diabetes who have lost weight following Laparoscopic Adjustable Gastric Banding (LAGB) surgery.
Methods: Serial biochemistry and urine albumin/creatinine ratio determinations were performed in 32 patients with IFG and 20 with Type II diabetes who presented for surgery between March, 2009 and March 2010. LAGB was performed via a pars flaccida approach.
Results: Baseline Mean (SD) Age - 50yr(8.3); Weight- 118 kg (17.9); BMI 42 kg/m^2 (± 5) ;HbA1C 6.7mmol/L (1.3); Creatinine70 umol/L (13); and systolic BP 146mmHg (15). Mean(SD) total weight loss over 12 months was 21 kg (± 9.2),and % excess weight loss - 46.4%(23.5). In the whole group, microalbuminuria showed a non significant improvement from 28.1 mg/L to 26 mg/L , and ACR was unchanged at 2.3 mg/mmol to 2.25 (NS). HbA1C decreased from 6.7mmol/L to 5.9 (p - 0.001), and fasting glucose from 7.2mmol to 6.1 (p - 0.004). In the impaired Fasting Glucose group only 4 of 32 (12.5%)had initial elevated microalbuminuria, which decreased to 2 of 32 at 12 months 6.3% (NS).In the type II diabetes group alone both microalbuminuria and ACR were elevated at 49.5 mg/L and 4.4 mg/mmol but this did not significantly decrease over 12 months, despite HbA1C dropping from 8.0mmol/L to 6.6 (p −0.001).
Conclusion: Significant weight loss can be achieved through bariatric surgery with substantial improvement in metabolic parameters such as HbA1c. This study did not show a significant improvement in microalbuminuria over 12 months in Type 2 diabetics. There were only small numbers of patients with IFG and microalbuminuria. Ongoing medium term follow-up may reveal improvement in the diabetic group at future points.

P.083 Metabolic Syndrome and Glucose Metabolism Impairment Related to Reduced Weight Loss after Laparoscopic Roux-En-Y Gastric Bypass (LRYGB) for Morbid Obesity

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Background: Obesity is a major risk factor for Diabetes Mellitus type 2 (T2DM) and is strongly associated with insulin-resistance. HbA1c is a marker of long-term glycemic control. After surgery, insulin-resistance improves significantly and some reports suggest that insulin-resistance might be related to less weight loss.
Methods: Prospective study of 100 consecutive patients after LRYGB for Morbid Obesity. Evaluation of outcomes at 6 and 12 months, according to the presence of glucose metabolism impairment (GMI) or T2DM, and stratification of patients by the median values of HOMA-IR and HbA1c.
Results: At 12 months post-operatively patients with metabolic syndrome (IDF 2006), had a %EWL (Percentage of Excess Weight Lost) of 71%, compared to 89% for patients without metabolic syndrome (p<.001). Patients with metabolic syndrome were older (40 vs 35 years; p=.01) and had higher fasting glucose (195 mg/dl vs 87 mg/dl; p<.001) and insulin-resistance (HOMA-IR: 2.98 vs 2.18; p=.008).
Patients with overt diabetes had a %EWL of 60%, compared to 83% and 84%, respectively for patients with glucose metabolism impairment and normal glucose metabolism (p=.002). Patients with higher HbA1c levels (>5.5%) had a lower %EWL

(75% vs 89%; p=.007). There is a significant negative correlation between HbA1c levels and %EWL at 12 months (R=−.42; p=.003)

Conclusion: Impairment in the metabolism of glucose and metabolic syndrome seem to be related to worse outcomes regarding weight loss. Diabetic patients had the worst overall results but are those who may benefit the most from reduction in morbidity and mortality

P.084 Improvement in the Metabolic Profile in Type 2 Diabetes Mellitus after Gastric Resection with Intestinal Bypass in Normal-Weight Patients

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Background: Gastric bypass surgery in morbidly obese patients with type 2 diabetes is related to improvement or resolution of hyperglicaemia in >80% of patients. Some reports suggest that gastric bypass surgery might improve diabetes control, even in non-morbidly obese patients. The aim of this study is to analyze the effect of gastric resection surgery in the clinical improvement in diabetes.

Methods: Retrospective analysis of 36 consecutive patients with T2DM and resected for gastric cancer between January 2007 and December 2009. Both total and sub-total gastrectomies were included and reconstruction was done with a Bilroth type 2 or a Roux-en-Y anastomosis.

Results: We reviewed 36 patients (2/3 male) with a median age of 73 years and a mean BMI of 27.4±4.1 kg/m^2. Fourteen (14) patients underwent total gastrectomy and Roux-en-Y reconstruction and sub-total gastrectomy with B2 reconstrucion was performed in 22patients. Post-operative mean follow-up was 19 months.

Preoperative glucose level was 171 mg/dl and lowered to 129 mg/dl after gastrectomy (p< .001). Mean HbA1c level lowered from 8,3% to 7,5% (p=0.03); and after surgery 46% of the patients achieved an adequate glycemic control (HbA1c<7%). Twenty-eight patients(78%) were using oral hypoglicemic agents and after surgery 50% of the patients still needed oral anti-diabetics. Overall, 64% of the patients had improvement or remission of diabetes. There were no significantdifferences in the results according to the resection or reconstruction type.

Conclusions: This series concludes that gastric resection with short enteric bypass in patients with normal weight, treated for gastric cancer, relates with diabetesimprovement. Prospective studies are required, to understand if the improvement is related to the enteric bypass, to the gastric resection or just to the cancer-related hypermetabolism.

P.085 Bariatic Surgery in Type I Diabetes: a Case Report

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Background: Bariatic surgery is known to have positive effects on type 2 diabetes in morbid obese patients. Most type 1 diabetics are slim, but obese type 1 diabetics often suffer of high insulin doses with inadequate blood glucose control. Effect of bariatic surgery on type 1 diabetes in morbide obese patients requiring extensive insulin doses, have not been described yet.

Case: We report treatment of a 37 years old female patient, suffering of type 1 diabetes since her 25th birthday combined with morbid obesity, weighing 125 kg which corresponds to a BMI of 46 kg/m^2. Since onset of type 1 diabetes she suffers of a continuously increasing weight. Prior to surgery daily cumulated insulin need was up to 700 IE. Blood glucose was still bad controlled with fasting glucose level of 466 mg/dl and an HbA1c of 10%. Prior to surgery she was evaluated for 22 months in our interdisciplinary bariatric program and indication for surgery was mad in an interdisciplinary case conference. In September 2010 we performed a sleeve gastrectomy with a resection volume of 750 ml. After surgery initial insulin requirement on ICU was 460 IE with good glucose control. Demission occurred 6 days after operation and the daily need of insulin had already decreased to 90 IE.

After 6 months she had lost 25 kg and her BMI had dropped from 46 kg/m^2 to 37 kg/m^2, this corresponds to an excess weight loss (EWL) of 45%. Her cumulated daily insulin requirement had dropped from preoperative 700 IE to 60 IE and walking distance had increased from 50 meters to 4000 meters.

Summery: In our case exorbitant insulin needs of 700 IE could be reduced to a normal need of 60 IE with good glucose control after sleeve gastrectomy in a type 1 diabetic patient. This is the first report of an accompanying therapy of uncontrollable type I diabetes with bariatic surgery.

P.086 Early Amelioration of Glucose Control After Long Segment Ileal Transposition in the Obese Zucker Rat Model

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Background: Ileal transposition (IT) surgery imitates the pathophysiologic basis of fast delivery of food to the terminal ileum, which is thought to be responsible for the remission of Type 2 diabetes after obesity surgery. This early contact of nutritients with the enteroendocrine cells in the transposed segment has been shown to lead to increased GLP-1 and PYY secretion. In contrast to earlier studies, the effect of long segment transposition on glucose control was examined this study using the diabetic obese Zucker rat model.

Methods: 20 male Zucker rats were randomly assigned to undergo either a long segment (20 cm; ~ 50% of ileum) IT or SHAM surgery. Glucose control was determined by OGTT at day −7, 0, 14 and 20. Hormonal analysis was conducted in a separate setting at day −7 and 14. Furthermore hormone analysis from portal vein and aorta were performed on day 21.

Results: Long segment transposition led to an early improvement of glucose control (AUC preOP vs. IT 3 weeks 4158 ±1653 vs. 2442±1068 mg/ dl×min, P< .01). Compared to SHAM animals, glucose stimulated GLP-1 and PYY levels were significantly raised (5.75±3.73 vs. 18.52 ±14.22 pmol/l, P< .05; 0.51±0.25 vs. 0.64±0.24 ng/ml, P< .05). For PYY, IT animals furthermore presented with higher fasting levels (0.43±0.08 vs. 0.57±0.18 ng/ml, P< .05). After an initial weight loss for both groups, body weight gain from postoperative day 5 was larger for SHAM animals (50.22±20.93 vs. 16.4± 25.93 g; P< .01).

Conclusion: Stimulating a greater number of enteroendocrine cells, long segment ileal transposition leads to an early raise in GLP-1 and PYY levels, consecutively showing an accelerated amelioration of glucose control.

P.087 To Compare the Effect on Metabolic Profile in Type-2 Diabetic Mellitus Patients with Bmi 22–35 after Laparoscopic Sleeve Gastrectomy, Diverted Ileal Transposition, Standard Ileal Transposition & Duodeno-Jejunal Bypass

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Objective: To ascertain and compare the effect after one month on metabolic profile in type-2 diabetic mellitus (T2DM) patients with BMI 22–35 after Laparoscopic Sleeve gastrectomy (LSG), Diverted ileal transposition with Sleeve gastrectomy (DIT+SG), Standard ileal transposition with Sleeve gastrectomy (SIT+SG) & Duodeno-jejunal bypass (DJB).

Methods: In a prospectively controlled trial, 5 T2DM patients with BMI 22–35 were subjected to either of 4 laparoscopic procedures- . Pre-operative routine serum biochemistry, thyroid profile, fasting sugar, HbA1c, Cortisol, Insulin, C-peptide, Anti-GAD Ab, Anti-Islet cell Ab levels and medications were listed. The early results of the surgery on metabolic profile were studied at one month. The trial was registered at national clinical trial registry of India, CTRI/2010/091/002938, plans to

induct 20 patients in each group and is being carried out at a rural hospital in South India.

Results: The age ranged from 39–64 yrs, weight- 45–91 kg, BMI- 22–34 and HbA1c −6.6-11.2. After 1 month of surgery, there was significant and comparable improvement in glycemic control (HbA1c and diabetic medications) in all the four procedures. The weight loss was in the range of 2-15% and medication requirement decreased significantly in all the patients (4/9 patients stopped all medications and 5/9 patients had their dosage decreased by more than 50%. Surprisingly, HbA1c also improved (12-30%) significantly in 7/9 patients.

Conclusion: The early results of all the four procedures in non-obese Type-2 DM look promising. At one month, there was marked improvement in glycemic control all the patients. Long term results in substantial number of patients is being awaited.

P.088 Non-Roux-Y Bypass of the Duodenum as a Model for Metabolic Surgery Can Improve Blood Glucose Levels In Streptozotozin/High Fat Diet Induced Diabetes in Non-Obese Rodents

PRESENTER: C. Jurowich[1]

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Objective: To establish a new model of Duodenal-Jejunal-Exclusion (DJE) as a modification of gastric bypass to determine the effect of nutrient diversion from the foregut without gastric restriction and without Roux-Y reconstruction on a streptozotozin (STZ)/high fat diet (HFD)-induced diabetes mellitus in a non-obese rodent model.

Method: Using high-fat-diet (HFD) for four weeks and intraperitoneal injection of streptozotozin (STZ, 40 mg/kg) diabetes mellitus was induced in non-obese Lewis rats (180-200g). Animals underwent surgery (either duodeno-jejunal exclusion without Roux-Y-reconstruction or sham-operation) four weeks after HFD start and 14 days after the application of STZ. Measurements of body weight and non-fasting blood glucose, further an OGTT were performed pre- and postoperatively. Three weeks after surgery animals were sacrified and underwent final blood taking for assessment of c-peptide levels and pancreas explantation.

Results: 34 Lewis rats were treated with HFD and STZ. All rats showed significant development of hyperglycemia under the present dose of STZ. Duodeno-jejunal exclusion was performed in 26 animals, 8 rats underwent sham-operation. In 17 of 26 cases (65%) duodeno-jejunal exclusion without roux-y-reconstruction led to a resolution of the induced diabetes mellitus as far as non-fasting blood glucose levels were concerned, 9 animals did not show any improvement of the diabetic metabolic status. In these cases postoperative non-fasting blood glucose levels and OGTT were similar to those measured in the sham-group. Concerning preoperative non-fasting blood glucose levels there was no significant difference between the group of the "successfully operated" animals and those who failed. All animals undergoing DJE without Roux-Y-reconstruction gained weight after operative procedure. There was no significant difference in the development of body weight between the group of the successfully operated animals and those who failed resolution of diabetes. C-peptide elisas and immunohistochemical prove of vital ß-cells could exclude an extensive ß-cell damage as explanation for the "non-responders" to DJE without roux-y-reconstruction.

Conclusion: High fat diet (HFD) in combination with streptozotocin (STZ, 40 mg/kgBW) is appropriate to induce a reproducible diabetic metabolic status in rodents. Duodeno-jejunal exclusion (DJE) without reconstruction by Roux-Y is feasible and associated with a low operative mortality. It leads to improved glucose tolerance and improved diabetic status in the majority of cases. Metabolic status can be well monitored by measurements of non-fasting blood glucose levels. Effects seem not to be due to changes in body weight, restricted caloric intake or extensive ß-cell-loss with diminished insulin liberation under STZ.

P.089 Changes in SGLT-1 Expression after Non-Roux-Y Bypass of the Duodenum in Diabetic, Non-Obese Rodents

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Objective: RYGB leads to an impressive improvement of blood glucose levels in diabetic patients. The mechanisms behind are not fully understood. One possible component could be a modified intestinal glucose resorption after metabolic surgery especially after duodenal exclusion. SGLT 1 plays an important rule in intestinal glucose resorption. The aim of the current study was to analyze SGLT-1 expression after Non-Roux-Y Bypass of the Duodenum as a model for metabolic surgery in streptozotozin/high fat diet induced diabetes in non-obese rodents.

Method: Using high-fat-diet (HFD) for four weeks and intraperitoneal injection of streptozotozin (STZ, 40 mg/kg) diabetes mellitus was induced in non-obese Lewis rats (180-200g). Animals underwent surgery (either duodeno-jejunal exclusion without roux-y-reconstruction or sham-operation) four weeks after HFD start and 14 days after the application of STZ. Measurements of body weight and non-fasting blood glucose, further an OGTT were performed pre- and postoperatively. Three weeks after surgery animals were sacrified and underwent organ explantation. After small bowel preparation SGLT 1 levels were measured by immunoblot.

Results: 34 Lewis rats were treated with HFD and STZ. All rats showed significant development of hyperglycemia under the present dose of STZ. Duodeno-jeunal exclusion was performed in 26 animals, 8 rats underwent sham-operation. In 17 of 26 cases (65%) duodeno-jejunal exclusion without roux-y-reconstruction led to a resolution of the induced diabetes mellitus as far as non-fasting blood glucose levels were concerned, 9 animals did not show any improvement of the diabetic metabolic status. After DJE SGLT 1 showed an elevation of expression in the jejunum compared to controls.

Conclusion: Duodeno-jejunal exclusion (DJE) as described leads to improved diabetic status in the majority of cases. One possible explanation of glycemic control after surgery is a modified glucose uptake as glucose absorption mainly taakes place in the duodenum and proximal jejunum. After bypassing the proximal small bowel expression of SGLT 1 is not affected in the excluded parts of the bowel, but enhanced in the distal jejunum.This is surprising since these changes seem to be a sign of adaption and not the mechanism of gylcemic control. This leads to the question of SGLT1 function after metabolic procedures which has to be addressed in further investigations.

P.090 Initial Metabolic Non-Response after Bariatric Surgery - Breakdown of a Rare Condition

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Objective: As shown in many confirmed studies, bariatric surgery offers a successful treatment option for obesity, producing an impressive effect on the improvement of diabetes type 2. Especially the short-term results of diabetes remission within days are remarkable, even if the mechanism of glycemic control is not yet clear. Although we do know about 15-20% metabolic non-responder after 12 month postoperatively the condition of initial non-response is still surprising from the clinical point of view.

Method: 3 months after surgery we reviewed 164 morbidly obese patients who had been treated with either sleeve-gastrectomy (SG), gastric bypass (GB) or laparoscopic adjustable gastric banding (LAGB) between 2005 and 2010. Of these patients, 81 (49.3%) were diabetic or pre-diabetic before the operation. Abnormal metabolic (diabetic) response was identified as: patients who could either not reduce their insulin intake sufficiently (insulin quotient pre/post-OP<4); did not decrease their antidiabetic medication satisfactorily (in combination with insulin: antidiabetic medication quotient pre/post-OP<2; single antidiabetic medication: quotient pre/post-OP<4) or whose HbA1c did not diminish effectually (HbA1c reduction<0.5). Successful weight loss after 3 months was defined as an excess body weight loss (EBWL) of 0.226 in SG, 0.256 in GB and 0.094 in LAGB (estimated as mean - 1 SD).
Results: 7 out of 21 (pre)diabetic patients undergoing SG, 22 of 48 (pre)diabetic patients with GB and 4 of 12 patients with (pre)diabetes treated with LAGB did not show the expected improve of their condition. Additionally, 3 out of 38 patients operated with SG did show less than the expected EBWL. This was also the case for 7 of 92 GB patients and 5 of 37 LAGB patients. In this study it was shown that there was a significant ratio of diabetic male patients undergoing SG that neither achieved successful weight loss nor acceptable improvement of diabetes type 2 after 3 months of follow up. Furthermore, obese women with diabetes mellitus benefit mostly from SG and GB in terms of both body weight and diabetes. The groups of metabolic non-response and reduced EBWL do not overlap completely.
Conclusion: According to the results of this study, diabetic female patients with a BMI>40 kg/m^2 have the best chance of success in the treatment of obesity and diabetes, when undergoing an operation for either SG or GB. Male patients with the same comorbidity however benefit more from undergoing GB and LAGB.

P.091 Effects of Laparoscopic Gastric Bypass on Insulin Secretion and other Metabolic Status

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Background: Anti-diabetic effect of gastric bypass with roux en-Y anastomosis has been illuminated not only for the severely obese but also non-obese patients with uncontrolled diabetes. We investigated the postoperative change of insulin secretory function, diabetes control and metabolic parameters after laparoscopic gastric bypass (LGB).
Methods: Obesity-metabolic surgery was performed by inter-disciplinary team in Obesity center, Inha University Hospital from September 2009. Until January 2011, total of 57 patients underwent LGB. Oral glucose tolerance test (OGTT) accompanying serum insulin and c-peptide level and other metabolic parameters were checked preoperatively and on 3 month, 12 month after LGB
Results: Fasting glucose, serum glucose at 120 minutes during OGTT, and glycated hemoglobin (HbA1c) levels improved significantly on 3 months after operation.
Serum insulin levels increased remarkably at 30 and 60 minutes during OGTT in patients with diabetes, meanwhile, serum insulin and c-peptide levels were significantly decreased at fasting and 120 minutes during OGTT in the obese with or without diabetes.
Conclusion: LGB enhanced early insulin secretory functions in diabetic patient

P.092 Remission of Type II DM in Korean Diabetic Patients after Laparoscopic Roux-En-Y Gastric Bypass

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Background: Approximately 80% of remission of type II diabetes is observed after Roux-en-Y gastric bypass in Western literature; however, little data is available about the course of diabetes after Roux-en-Y gastric bypass in Korean obese diabetic population. This study was aimed to clarify the course of diabetes in Korean obese population after Roux-en-Y gastric bypass.
Methods: From April 2009 to April 2010, 11 obese diabetic Koreans were enrolled in this study. Indications for surgery followed the Asian Pacific Bariatric Surgery Society guidelines. Seven patients had overt DM, and 4 had impaired glucose tolerance. Mean duration of DM was 17 months and patients were using oral hypoglycemic agents, insulin therapy, or both. Standard laparoscopic Roux-en-Y gastric bypass was performed. Gastric pouch was always less than 30 mL, with antecolic, antegatric gastrojejunostomy. Remission of DM was defined when HbA1c was below 6.5% with all diabetic medications stopped.
Results: Mean age was 35 years, with female predominance (8:3), and mean BMI, 43.6 kg/m^2. Mean preoperative body weight was 117 kg, mean waist circumference, 133.2 cm, and mean HbA1c, 7.7%. Nine months after surgery, mean body weight was 83.9 kg, mean BMI, 32.2 kg/m^2, with a %EWL(excess weight loss) of 51.9%. HbA1c dropped to less than 6.5% in all patients. It was a noteworthy fact that just 1 month after the surgery, 65% of patients showed evidence of DM remission, and 9 months after, all patients had remission of their DM.
Conclusions: As in Western obese diabetic patients, Korean counterparts also showed similar resolution patterns of DM after Roux-en-Y gastric bypass. This metabolic effect is promising since the prevalence of this entity is very high (about 9%) in Korean population.

P.093 Cessation of Diabetic Medication Following Surgery - Close Follow-Up Reveals Significant Early Hyperglycaemia Requiring Treatment

PRESENTER: C. Magee[1]
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Background: Foregut excluding bariatric surgery has a profound effect on type-2 diabetes (T2DM) with many patients achieving euglycaemia within weeks of surgery. Additionally, the initial low-calorie diet reduces glycaemic load. Many patients will have reduced diabetic medication requirements particularly for insulin. There are no consensus guidelines to manage diabetic medication cessation. We introduced and audited a formal diabetic protocol addressing these issues.
Methods: An expert group of surgeons, anaesthetists, academic endocrinologists and dieticians was convened. The evidence for diabetes remission and historical management of the diabetic bariatric patient was reviewed. A protocol for medication cessation and monitoring was agreed. This included a strict period of home glucose monitoring by the patient with 24-hour access to the bariatric team if hyperglycaemia was encountered. Patients were reviewed at 10 days following surgery by a bariatric surgeon and medication reintroduced if required. The protocol was introduced into clinical practice at a specialist bariatric unit and prospectively audited from January 2010 to date.
Results: 22 patients with T2DM followed the protocol (14 female). Median age, BMI and duration of diabetes was 54 years, 47kgm^{-2} and 5 years respectively. 37% of patients were taking insulin pre-operatively and 32% were on metformin monotherapy. Mean HbA1c pre-operatively was 8% (5.8-16.3). 80% of patients were euglycaemic and off medication on discharge from hospital. Mean fasting blood glucose in the week following discharge was 7.9mmol/L. Paired HbA1c had reduced by an absolute mean 1.2% at a median of 6 months following surgery. However, 27% of patients had to restart treatment at 10 days post discharge due to glucose levels >10mmol. Within three months one patient developed acute pancreatitis with hyperglycaemia and acidosis and one patient was non-compliant with the protocol and required hospital admission
Conclusions: Euglycaemia following bariatric surgery may be short-lived and not indicative of remission. Patients should be monitored closely to avoid problems and allow effective reintroduction of diabetic medication and prevent complications.

P.094 Predictors of Remission of Diabetes Following Roux-En-Y Gastric Bypass for Morbid Obesity - Useful for Advocating Metabolic Surgery?

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Background: The prevalence of obesity and diabetes in 2009 is estimated at 9.9% (4.3 million) and 5.1% (2.2 million) of the population respectively. Almost 80 % of the T2DM are obese. Morbidly obese type 2 diabetics who undergo Roux-en Y gastric bypass (RYGB) surgery have significant improvements in glycaemic control. Few studies have looked at the peri-operative predictors of remission of their diabetes. Ability to predict diabetes resolution have implications for postoperative care, aid the patient to make informed choices when choosing the surgical procedure and finally have implications for expanding the indications of RYGB and advocating the surgical procedure as metabolic surgery for type 2 DM patients.
Methods: 65 consecutive morbidly obese type 2 diabetics who underwent gastric bypass surgery for weight loss from Feb 2008 to Feb 2010 were analysed from the case notes. Forty five patients had the complete data set with peri-operative documentation of intra- and post operative blood glucose measurements with complete follow up data for resolution of diabetes for at least 12 months were included. Analysis was undertaken to identify those variables which are associated with resolution of type 2 diabetes. Patients were deemed unresolved if (1) diabetic medication was still required after surgery; (2) if fasting plasma glucose (FPG) remained >7 mmol/L; or (3) HbA1c remained >7%.
Results: Resolution of diabetes was seen in 80.8%, while diabetes remained but improved in 19.2% of patients. Resolution was rapid in 74% of those on medication before surgery. They were able to discontinue their medication by the time of discharge 4 days following surgery. Intraoperative blood glucose levels for patients who achieved remission of DM (10.72±0.5206) were not significantly different from the ones who did not achieve complete remission (9.643±0.8065). However, the postoperative blood glucose levels were significantly and persistently higher for patients who failed to attain remission of their DM (11.22 ±1,1)compared with those who achieved remission (7.9 ±0.45). Average duration of Diabetes was higher for those who do not go into remission after surgery (11.4 vs. 5.9 years). The mean waist circumference appears to be higher too for those failed to achieve remission (156.4 vs. 133.3 cm). Four variables were found to have predictive value for resolution of diabetes, including waist circumference, duration of diabetes and immediate postoperative blood glucose levels, which appear to predict remission of diabetes.
Conclusions: Type 2 diabetes resolves in a very high percentage of patients undergoing gastric bypass surgery for morbid obesity. The key predictive variables include waist circumference, duration of diabetes and immediate postoperative blood glucose levels.

P.095 Relationship between Childhood Obesity and Late Development of Metabolic Syndrome and Type 2 Diabetes

PRESENTER: M. Melendez Araújo[1]
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Background: Studies showed a relation between childhood obesity and development of metabolic syndrome and type 2 diabetes in adults with these comorbidities. Our aim is to evaluate if obesity in childhood is predictive of development of metabolic syndrome and type 2 diabetes in adults between ours institution patients.
Methods: We reviewed medical records of 711 obese patients submitted to bariatric operation between January/2004 and June/2010 regarding to sex, operative mean age (MA), mean operative BMI (mBMI), pre-operative metabolic syndrome(MS) and type 2 diabetes(DM2). Patients were divided in two groups according to their own information: obese patients since childhood (CO); and with acquired obesity by other reasons(OO) as: after marriage (AM), pregnancy (AP) and familiar death (AD). Patients with DM2 and MS were grouped as PDM2 and PMS respectively. The results were performed by Microsoft Access® and GraphPad InStat® softwares.
Results: *OO and CO*: N° of: 711.MA: 37,3±10,6 (16,5-67,4). mBMI: 41,8±4,96 (33,2-75,1). PDM2: 108 (15,2%). N° of males: 106 (14,9%). N° of females: 605 (85,1%).
OO: N° of: 457 (64,28%). AP: 118 (25,8%). AM: 28 (6,12%). AD: 6 (1,3%). After non specific reasons: 305 (67,58%). mBMI: 41,47±4,79 (33,2-66,2). MA: 39,65± 10,5(16,5-67,4). PDM2: 77 (16,85). PMS: 271 (56,23%).
CO: N° of CO: 254 (35,72%). mBMI: 42,4±5,2 (34,6-75,1). MA: 33,04±9,5 (17,8-63).PDM2: 31 (12,2%).PMS: 132 (51,96%).
Comparison between *CO vs.OO*: mBMI: 42,4±5,2 (34,6- 75,1) vs. 41,47±4,79 (33,2 - 66,2); $p=0,01$. N° of PDM2: 31 (12,2%) vs. 77 (16,8%);$p=0,12$. PMS: 132 (51,96%) vs. 271 (56,23%); $p=0,07$.MA: 33,04±9,5 (17,8-63) vs. 39,65±10,48 (16,5-67,4); $p<0,0001$.
Conclusions: The BMI of obese patients that refer obesity since childhood is higher than of other patients. In our sample, patients that refer being obese since childhood when compared with the other obese patients are not significantly more predictable to acquire diabetes and metabolic syndrome. Patients that refer being obese since childhood are submitted to bariatric procedures younger than other patients.

P.096 Hyperuricemia and Metabolic Syndrome- a Reality in the Indian Obese

PRESENTER: C. Remedios[1]
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Aim: Hyperuricemia has been associated with obesity and various components of the metabolic syndrome. The aim of this study was to investigate the prevalence of Hyperuricemia in Indian obese subjects and determine a correlation between Hyperuricemia, waist circumference and components of metabolic syndrome.
Methods: This is a cross sectional study conducted in 408 obese subjects with a median age of 43 years (range 10 to 75 years) and a median BMI of 46 (range 27.5-84.99 kg/m^2), who presented at CODS from Jan 2005 to Dec 2010. Hyperuricemia was defined as serum uric acid levels greater than 6 mg/dl. Anthropometric parameters and prevalence of co-morbidities such as type 2 diabetes mellitus, hypertension and dyslipidemia were compared between subjects with Hyperuricemia and Normouricemia.
Results: The overall prevalence of Hyperuricemia in obese Indians was 44.6%. In the lower BMI range of 27.5 - 35 kg/m^2, 34% subjects presented with high uric acid levels. Males had a higher incidence of Hyperuricemia (M: F- 1.2:1). A positive correlation was established between waist circumference and hyperuricemia. Prevalence of hypertension in the hyperuricemic group was 47.3% as compared to 37% in normouricemic subjects. Dyslipidemia was seen in 7.3% of hyperuricemic subjects as compared to 5.8% normouricemic subjects. The prevalence of type 2 diabetes was comparable in subjects with hyperuricemia and normouricemia (31% vs 29%).
Conclusion: Our study shows an unusually high prevalence of Hyperuricemia not only in the morbidly obese but in the mild to moderately obese Indians as well. Indians are said to be metabolically active at lower BMI. We hypothesize that these high uric acid levels may be attributed to the higher body fat percentage and higher visceral fat in Indians. In our study hyperuricemic subjects had a higher number of one or more comorbidities as compared to normouricemic subjects. Hyperuricemia along with central obesity is a significant marker for the development of metabolic syndrome in Indian obese subjects.

P.097 Three-Year Outcomes of Patients with Type 2 Diabetes Who Underwent Mini-Gastric Bypass

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Background: Evidence of the positive effects of Mini-Gastric Bypass on patients with diabetes has continued to increase. Recently a controlled trial showed that while the MGB was 90% effective at resolving diabetes in Type II diabetics the Sleeve was

successful in only 40%. In addiition a recent study by Sultan et al showed that in patients treated with the adjustable gastric band diabetes had resolved in just 23 (39.7%) of 58 patients. The purpose of the present study was to provide the outcomes of patients with diabetes undergoing laparoscopic Mini-Gastric Bypass.

Methods: 1,202 patients with type 2 diabetes mellitus underwent laparoscopic Mini-Gastric Bypass. The study parameters included preoperative age, gender, race, body mass index, diabetes before surgery and medications used. Preoperative data from all patients were collected prospectively and entered into a database.

Results: Of the 1,202 patients, the mean preoperative age was 39 (range 16–84). The mean preoperative body mass index was 49 kg/m(2) (range 32–71), with a mean percentage of excess weight loss of 68%. All patients were taking medications preoperatively. At three years Diabetes had resolved (no medication requirement) in 93% of patients.

Conclusion: While both the sleeve gastrectomy and the adjustable gastric band can improve or resolve diabetes in rougly half of diabetics, this study confirms previous work showing that laparoscopic Mini-Gastric Bypass results in resolution of diabetes in over 90% of morbidly obese patients.

P.098 Resumption of Diabetes Medications with Changes in Eating Patterns after the Immediate Post-Operative Period Following Roux-En-Y Gastric Bypass

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Background: Medications for type 2 diabetes (T2DM) are often discontinued in the immediate post-operative period following Roux-en-Y gastric bypass (RYGB). However, when T2DM resolution occurs post-operatively and how best to titrate medications to prevent hypoglycemia/hyperglycemia after RYGB is unclear. In addition, significant changes in oral intake occur within the first 6 months of RYGB that may impact glycemic control. The objective of this study was to identify temporal changes in blood glucose and need for diabetes medications with changes in dietary intake.

Methods: A prospective study assessing resolution of T2DM post-RYGB. Monthly telephone interaction tracked weight loss, glucose levels and medication use.

Results: Clinical characteristics: 38 female/8 male, age 50±9years, 37 Caucasian/9 African-American, weight 137±25 kg, BMI 50±9, number of co-morbidities 5±1, HOMA-IR 4.8±2.2. Use of oral diabetes agents, baseline 31/46 subjects on oral drugs only, 3 months 13/21, 6 months 2/9. Use of insulin, baseline 15/46 subjects on insulin and/or oral agents, 3 months 3/21, 6 months 1/9. However 35% of the study subjects required an increase or resumption of anti-diabetic medication at 2± 1.6months postoperatively. Mean weight loss at 6 months was 28±7 kg, mean HOMA-IR 0.6±0.3. Mean fasting blood glucose, baseline 127±35 mg/dl, 3 months 115±8 mg/dl, 6 months 98±4 mg/dl. The 2-hour postprandial blood glucose 3 months 120±9 mg/dl, 6 months 102±8 mg/dl.

Although near-normal glycemia occurs in the first 1–2 weeks after RYGB. For many of the study subjects**,** there was an increase in blood glucose that required resumption or increase of diabetes medications when the diet was advanced between 1 and 2 months post-RYGB. For the majority of subjects, insulin was rapidly titrated off after surgery and was not restarted while the use of oral agents was adequate for glucose control. This was eventually offset by improvements in insulin sensitivity brought about by ongoing weight loss, allowing for substantial diabetes medication reduction by 6 months.

Conclusion: RYGB is an important tool for management of DM in the morbidly obese patient. Close monitoring of blood glucose and systematic approach to medication reduction is needed, with changes in eating patterns and improvement of insulin resistance during the first 6 months post-RYGB.

P.099 Morbid Obesity, Diabetes and Metabolic Surgery

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Aims: Morbid obesity (MO), carbohydrate intolerance and arterial hypertension are associated to an increased cardiovascular risk. The objectives of this study are: 1) to evaluate the frequency the alterations in the metabolism of the glucose in patients with morbid obesity; 2) to asses their potential reversibility after metabolic surgery 3) to analyze their long-term evolution.

Methods: Retrospective evaluation of 350 patients with MO (276 women and 74 men). operated in our Hospital. The mean age was 38, 6 years (range; 18–62). From the clinical records, we gathered information about other diagnoses. Of the patients 82% also had alterations in glucose metabolism: 24,4%, prediabetes, 32,5% diabetes mellitus type 1 and 43% diabetes mellitus type 2. Before surgery and 6, 24, 60 and 120 months after it we collected anthropometrics measures and serum levels of: glycemia, insulinemia, glycosylated hemoglobin and lipids and immunological markers of diabetes.

Results: Before surgery the mean (SD) values were: BMI=49.2 (7.2) and WC=123.1 (18.2) and we found elevated serum levels of: glucose, insulin, glycosylated haemoglobin and lipids. The antibodies levels were positive in patients with diabetes mellitus type 1.In the first 6 months following surgery the values of BMI and WC began to decrease and the values of the serum biochemical parameters tended to normalize, something that was true after 24 months follow up. This situation is maintained 60 y 120 months after surgery.

Conclusions: The reduction of the BMI, WC and serum levels the biochemical parameters and antibodies show that surgery is an efficient therapy for MO and associated morbidities.

P.100 Role of G0/G1 Switch Gene 2 in Human Adipose Tissue

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Background: The G0/G1 switch gene 2 (G0S2) is known as a cell cycle regulator and a target gene of PPARγ in adipocytes. Recently, G0S2 was specified as a player in lipolysis control. In mice, G0S2 attenuated adipose triglyceride lipase (ATGL) activity and decreased lipolysis. We examined the influence of BMI, weight reduction, and diet on G0S2 mRNA expression in human white adipose tissue (WAT). Complementary, we investigated the differences in G0S2 expression in subcutaneous and omental adipose tissue and during adipogenesis.

Methods: SGBS cells were differentiated and mRNA levels were analysed during adipogenesis. Subcutaneous and omental adipose tissue samples were obtained from control and obese patients during laparoscopic surgery. In these samples, the localization of G0S2 in adipose tissue sections was visualized by immunohistochemistry. Subcutaneous adipose tissue samples from participants in previous studies served to detect the influence of diet and weight reduction on G0S2 expression. We then correlated BMI and G0S2 mRNA expression. G0S2 mRNA expression was analysed by *Taq*Man-RT-PCR with 18s or GAPDH as internal control genes.

Results: We found an early elevation of G0S2 mRNA during *in vitro* adipogenesis of SGBS preadipocytes reaching a plateau at day six. Accordingly, G0S2 mRNA is much stronger expressed in isolated mature human adipocytes compared to preadipocytes (n=7). Immunohistochemistry demonstrated cytoplasmatic localization of G0S2 in adipocytes as well as in mononuclear and endothelial cells. G0S2 mRNA expression was about 60% higher in visceral compared to subcutaneous adipose tissue (n=13). In the clinical trials, 2 weeks of a high-fat diet (n=30), or 5% body weight loss (n=13) did not significantly effect G0S2 mRNA levels. Furthermore, we found a significantly higher G0S2 mRNA expression in lean (BMI<25) compared to obese volunteers (BMI >35) (n=10), and a significant negative correlation between G0S2 and BMI in subcutaneous adipose tissue (n=62, r=−0.32, p<0.05).

Conclusions: G0S2 is a new molecule regulating ATGL-mediated lipolysis in rodent adipocytes. We detected expression of G0S2 in subcutaneous and visceral human adipose tissue with slightly higher expression levels in visceral adipose tissue. Nutritional manipulation with high or low fat diets and a short-time weight reduction regime did not influence G0S2 mRNA levels in subcutaneous adipose tissue. However, comparable to

reports in mice, we found decreased expression of G0S2 in adipose tissue of obese individuals. In our ongoing study we test, whether metabolic changes after bariatric surgery will lead to different G0S2 expression and lipolysis control.

P.101 Effects of Gastric Bypass on Glycemic Control in Diabetic Obese Patients

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Introduction: Obesity and Diabetes Mellitus type 2 (DM2) are becoming serious problems to public health, and the gastric bypass has been displayed as an effective treatment for DM2.
Objective: Study the effect of this surgery on glycemic control in diabetic obese patients.
Material and methods: A cohort retrospective study has been done during the period from 11/12/2001 to 30/03/2009, whereby obese DM2 patients have been submitted to a gastric bypass surgery. The first outcomes have been evaluated beginning with hospital release up to one year after surgery: glycemic indexes and the need for antidiabetic medication.
Results: 44 patients have been evaluated. The population is composed of 10 (22,7%) men and 34 (77,3%) women, the average age is 45.3 (SD=8.23) years and the BMI is 40,9 (SD=5.03) kg/m^2. The average time since DM2 evolved has been 63.6 (SD=60.9) months. Of the 40 patients who needed antidiabetic medication 33 (82.5%) suspended their use by the end of one year, and 19 (47.5%) by the time they were released from the hospital. Insulin was suspended in the 10 (100%) patients who utilized it, 6 (60%) at hospital release time.There was a reduction in the fasting glucose (P<0,05) at all times when compared to preoperative glycemic values.
Conclusion: The gastric bypass reduced glycemic indexes and the need for antidiabetic medications at hospital release time and throughout the entire studied period.

P.102 Intestinal Permeability, Microbiota and Inflammation in Obesity

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Background: Increased intestinal permeability in obese mouse models is related to glucose intolerance, body weight gain, and systemic inflammation. In addition, intestinal microbiota are considered to affect intestinal permeability, energy expenditure, and energy storage of the host. This led us to investigate the relation between intestinal permeability, microbiota, and inflammation in obese and lean subjects.
Methods: 28 subjects (BMI 18.6-60.3 kg/m^2) were included, blood and fecal samples were collected. Intestinal permeability was assessed after an ibuprofen challenge by means of an oral multi sugar test containing sucrose, lactulose, erythritol, sucralose, and L-rhamnose. Gastro-duodenal permeability (sucrose), and permeability of the small (lactulose/rhamnose) and large intestine (sucralose/erythritol) was examined. Plasma markers for systemic inflammation, for insulin resistance (glucose, insulin, HbA_{1c}) and for enterocyte turnover as reflected by intestinal fatty acid binding protein (IFABP) were determined. Fecal calprotectin was used as parameter of intestinal inflammation, and microbiota composition was analyzed using a phylogenetic profiling microarray.
Data are presented as mean±SEM.
Results: Gastric permeability, as reflected by urinary sucrose concentrations after one hour, was twice as high in obese subjects compared to lean subjects (4.1±0.7μmol vs. 1.9±0.3μmol, p<0.05). At this early time point, urinary rhamnose excretion was also increased in obese versus lean subjects (73±11μmol vs. 39±8.1μmol, p<0.05). In contrast, after five hours, rhamnose excretion was similar in both groups (276±52μmol vs. 327±61μmol, p=0.68). These data led to an increased lactulose/rhamnose ratio in lean versus obese subjects after one hour (0.06±0.01 vs. 0.02±0.01; p<0.05), whereas this ratio was similar after five hours (0.06±0.02 vs. 0.05±0.01; p=0.9). At both time points, permeability of the small intestine was positively correlated with enterocyte turnover as reflected by plasma levels of intestinal fatty acid binding protein (for both, R_s=0.5, p<0.05). Permeability of the large intestine, as reflected by the sucralose/erythritol ratio after five hours, showed similar results for both groups (0.03±0.01 vs. 0.04±0.01; p=0.65). Fecal calprotectin was detected in 9 obese versus 2 lean subjects (p=0.02), and ranged from 80-570ng/ml. Analysis of the microbiota composition and plasma parameters for insulin resistance and inflammation are currently performed and will be related to intestinal permeability.
Conclusions: These data indicate an increased gastro-duodenal permeability in obese subjects. Moreover, our data show that obese individuals have an enhanced permeability for rhamnose in their proximal small intestine, as reflected by an increased urinary excretion after one hour, whereas total urinary excretion was similar compared to lean individuals. There was no statistically significant difference in large intestinal permeability between the groups.

P.103 Changes of Hormone Levels in the Early Period after Bariatric Surgery

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Objective: Bariatric surgery is for many obese subjects the only way out of the vicious circle of metabolic polymorbidity. In this prospective study we investigated the changes of hormone levels in the early period after bariatric surgery (RYGB and sleeve resection), because they may play an important role in the resolution of insulin resistance.
Methods: In a group of 30 obese subjects (BMI 50,1 ±8,6 kg/m²), levels of adiponectin, leptin, IGF-1, BP3 and hs-CRP were measured via RIA assay before and 3, 6, 90 and 180 days after intervention. Paired Student`s t-test was used.
Results: During the first 6 days after surgery adiponectin decreased (4,84±2,9 to 4,05±2,7 ug/ml)*. It rised from d90 after intervention (5,66±3,3 ug/ml)* and continued to increase (d180: 6,9±5,4 ug/ml). In contrary leptin decreased immediately (mostly during the first 3 days: 51,97±31,6 to 35,95±26,0 ng/ml)* and continued to decline to d180 (24,28±15,7 ng/ml)*. IGF-1 changed similar to BP-3. Till d6 after intervention they decreased (IGF-1: 97,73±32,9 to 45,9±24,1 ng/ml)*, then increased, but without reaching their baseline values. Hs-CRP first rised strongly under surgery (11,9±11,01 to 91,07±51,1 mg/l)* and fell under baseline at d180 (8,38±11,5 mg/l)*. BMI clearly decreased continuously during the whole period (50,1±8,6 to 37,1±7,3 kg/m²)*.*(p<0,03)
Conclusions: Surprisingly adiponectin seems to play no crucial role in the already known fast improvement of insulin resistance within days after surgery. In contrast hypothalamic leptin resistance might vanish much quicker with dropping leptin values. Neuroendocrine changes after bariatric intervention appear to be more rapid, regardless of the fat mass. IGF-1, started low as it is well known in obese subjects, first decreased significantly before it rised again. Hs-CRP behaved as expected with a rapid increase under surgery and a fall under baseline with further loss of weight. We conclude that it is worth to investigate closer the first phase after bariatric surgery in order to understand bodyweight independent fast improvement of insulin resistance.

P.104 Challenges and Pitfalls of Experimental Bariatric Procedures in Rats

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Background: The positive impact of Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG) on obesity and obesity-related diseases is unquestionable. Up to

now, the technical descriptions of these techniques in animals/rats have not been very comprehensive.
Methods: For SG and RYGB, a detailed technical description, the weight of the rat, operating time, type of anaesthesia, and intraoperative mortality was recorded. Furthermore, a review of the literature on experimental approaches towards SG and RYGB in rats was carried out.
Results: The literature search revealed 40 papers dealing with SG and RYGB. Eighteen articles contained neither photographs nor illustrations; 14 articles did not mention type of anaesthesia. The mortality rate was described in 15 papers. Our data shows that the operating time was shorter for SG than for RYGB (SG: mean 69.4 min, SD 22.2; RYGB: mean 123.0 min, SD 20.7). There is a learning curve for both procedures, resulting in a reduced operating time of up to 60% in SG and 35% in RYGB ($p<0.05$; t-test). However, with increased weight, operating time increases to about 80 minutes for SG and about 120 minutes hours for RYGB. Obese rats have an increased intraoperative mortality rate, which can reach 50%.
Conclusions: Experimental obesity surgery in rats is challenging. Because of high mortality in obese rats and rats operated under gaseous anaesthesia, exercises to establish the techniques should be performed in small rats using i.p anaesthesia.

P.105 Systematic Educational Program for Laparoscopic Gastric Bypass - How Can We Reduce the Negative Effects of the Learning Curve?

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Background: It is a well-known fact that laparoscopic Roux-en-Y gastric bypass (RYGBP) has a long and steep learning curve. We wanted to study whether a systematic approach to operative training could reduce/eliminate any increase in perioperative morbidity.
Patients and methods: In the period Sept 2007-March 2010 we performed 1500 RYGBP operations at the Overvektsklinikken, Aleris Helse, Norway. There were 78 % women, mean age was 41,3 years (17–72) and BMI was 43,2 (28,7-68,3). Operation time and all peri- and postoperative complications were registered prospectively. Operative technique was standardized in a fast-track model with 5–6 operations/day. In 2009 during 24 weeks 23,6 RYGBP were performed per week.
Operative techniques were introduced by a surgeon that had levelled off on his learning curve Eachoperation was performed by two surgeons, one specialist in laparoscopic obesity syrgery and one surgeon with laparoscopic experience under focused training in onbesity surgery. Training protocols (table) were followed without any exceptions.
Results: Since 2007 we have trained two surgeons (Surgeon 1 and 2) Operation time for the forst and last 50 complete operations was reduced from 67 and 64 minutes resp. to 43 and 42 minutes resp. Total complication incidence was 3,9 % for surgeon 1 and 3,2% for surgeon 2. There was no difference for either surgeon when comparing their first and last halves of the training program.
Step-wise learning protocol:
Step 1: Surgeon-in-training assists at>50 operations
Ste 2: Surgeon-in-training operates for 45 minutes on case number 3 and 5 each day, with careful hands-on guidance. After 45 min. the specialist takes over and completes the operation.
Step 3: When surgeon-in-training shows good progression during the 45 min. he is allowed to complete the operation, but not exceed 60 min in total operating time.
Step 4: Surgeon-in-training performs another 100 operations, still with hands-on guidance
Step 5: Surgeon operates independently and can train new surgeons
Short time (0–30 days) complication rate for the entire patient material was 2,8 %. Bleeding occurred in 14 cases (0,93 %) with 4 reoperations. Leaks in 9 cases (0,6%) with 6 reoperations, 3 of which also received intraabdominal drainage. We had four cases of intestinal obstruction (0,3 %), all of which were reoperated. Seven patients developed pneumonia (0,4 %). In total, there were 16 reoperations (1,1%), two of which showed no pathology. One patient died (0,07%).
Discussion: A systematic approach to the learning process can lead to a reduction of the negative effects of the learning curve. To achieve this end in a reasonable time span, a high-volume unit is needed. The complication rate can be kept very low using our systematic approach.

P.106 The Influence of Seminars Prior to Bariatric Surgery - Satisfied and No Change of Heart

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Background: The group forum is a valuable tool of information sharing, which helps to improve patients understanding prior to surgery. Majority of the bariatric centres in the UK use group forums as a part of multi disciplinary approach to bariatric surgery but there is limited published data studying this matter. The primary aim of the study was to assess patients' satisfaction with the forum and the secondary objective was to determine the influence of the forum on patients' choice of surgery.
Methods: This is a prospective cohort study. A patient's questionnaire was designed in order to assess quality of forum, patient's satisfaction, prior knowledge of weight loss surgery, source of their information, preference of surgery and whether their choice of surgery has changed as a result of information they gained from the forum. All the responses were collected at the end of forums.
Results: A total of 234 patients (186 F: 48 M) attended the group forum between April and December 2010. A total of 161 (69%) patients had prior knowledge of weight loss surgery through internet.Around 64% (149 patients) had specific operation in their mind prior to the forum, 113 (76%) intended to have gastric band but all of them changed their mind in regards to type of surgery after the session. Among these patients, 58 (52%) changed their preference from band to bypass, 36 (31%) to sleeve and 19 (17%) to other. Ninety six percent (224/234) of the patients were satisfied with the information they gained from the session. Ninety percent were satisfied with the length of the session (2hours). About 7% felt it was too short and 3% felt it was too long.
Conclusion: Our study shows that a majority of our patients expressed their satisfaction with the knowledge they gained from the forum which aided them in decision making process and with the quality of the forum.

P.107 Spanish Society of Bariatric Surgery and Metabolic Diseases (Seco) Training Program: Preliminary Results (2009–2010)

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Background: There is a great concern about the ideal characteristics of bariatric centres and bariatric surgeons. Within the IFSO guidelines for safety, quality and excellence in Bariatric Surgery, one of the institutional requirements is: "to ensure that surgeons performing bariatric surgery have the appropriate certification, training, and experience to treat severely obese patients". In Spain has been developed a new Bariatric Training program to respond to this requirement. Here we presented the preliminary results of the first two years of this training program (2009–2010).
Methods: Spanish Society of Bariatric Surgery and Metabolic Diseases (SECO) has developed a Bariatric Training Program including theoretical courses (Stage I), practical courses (Stage II: hands-on courses and Stage III: live surgery courses) a two month fellowship (Stage IV) and a mentoring process during the first 40 cases (Stage V). The first stages are required to complete Stage IV. We analyzed the attendance to the courses and satisfaction of surgeons as quality indicators of the Training Program in 2009–2010. Surgeons were asked to fulfil a satisfaction questionnaire (1–10) with the items: global satisfaction, practical application and topics selection among others.
Results: 210 surgeons attended the on-line course within Stage I with the title "Basics in bariatric and metabolic surgery" in 2010; 200 surgeons fulfilled the

inscription form for the second edition (starting in March1th)). 80 surgeons attended "hands-on" courses within Stage II in 2009–2010. 250 surgeons attended "live surgery" courses within Stage III in 2009–2010. 50 surgeons contacted with SECO showing interest to follow fellowship program but most of them haven't complete yet the first three stages of the program, some are working now in an experienced bariatric team as assistants. Stage V will be developed in 2011–2012. We will work to establish the procedure for the mentoring process. Experienced bariatric surgeons within SECO offered their help to mentor new bariatric surgeons near their area. Telementoring and on line contact will be very useful. Global punctuation in Satisfaction questionnaires was 8.48/10. Selected Topics were punctuated 8.45/10. Practical application was punctuated 8.1/10.

Conclusions: The Spanish and some foreign surgeons favourably received Bariatric Training Program SECO in its first two years. More than 300 surgeons attended some of the Stages in the Bariatric Training Program in 2009–2010. Surgeons participating in the program manifested very high satisfaction about the courses. We will work on Stage IV and V in future years to be able to offer the mentoring program to the high number of interested surgeons.

P.108 Optimizing Pre- and Postoperative Patient Training for Bariatric Surgery: Outlining a Standardized, Structured Treatment Program

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Scope: Although bariatric surgery is now widely accepted as a treatment modality for severe obesity in Germany and numbers of operations are rising, comprehensive standards are missing for pre-and post-operative care of these patients.

Method: During the past 10 years we have increasingly standardized our treatment concepts. This includes the creation of a network of physicians working in hospitals as well as in ambulant care settings. These standardized treatment concepts include pre-and postoperative patient training sessions but also involve a network of patient organizations, and clinical partners offering bariatric surgery or specialized outpatient services. These clinical partners are distributed throughout Munich and Bavaria.

Our concept, centered on educating bariatric surgical patients about nutritional therapy in one on one interviews or group-meetings, including a training-follow up, preoperatively, is up for discussion.

We believe that such a concept is an essential pre-requisite to avoid pre-and postoperative morbidity, to prevent readmissions related to dietary errors but also prevent insufficient and thus dissatisfying weight loss.

Results: Using this structured program the readmission rate during the first year following bariatric surgery was only 2%. Unwanted weight-gain could be prevented.

Conclusion: We believe our concept is a feasible way to handle the difficult situation of pre- and postoperative management of these patients. Trans-sectoral teamwork between highly specialized centers and less specialized but well educated clinical partners and inclusion patient organizations seems to be a key to reduce optimize results. Such a strategy may eventually also reduce costs.

P.109 Argon Plasma Coagulation: New Endoscopic Technique and Personal Experience on Weight Regain After Gastric Bypass

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Background: After bariatric surgery, mainly gastric bypass, 10% to 20% of patients regain weight. It's due to high caloric intake, lack of physical activities, metabolic and hormonal changes and sometimes gastric pouch and anastomosis dilatation.

Objective: The authors demonstrate the feasibility of this new technique on reducing the gastrojejunal anastomosis diameter.

Methods: The procedure was performed at three separeted sessions of endoscopy by 6 weeks each episode. A flow rate of 2.0l/min and power of 90W was used at each episode. At each endoscopy, the anastomosis diameter was mesured with a grasper. Body weight at the time of the bypass (BW), minumum body weight after the surgery (MW), body weight before (BAW) and after (AAW) the three sessions were done. Fracioned of liquid diet on the first week as well as PPI and tylenol if necessary.

Results: Seven ($n=7$) patients were included in this study. Statistical analysis were significant when compared BW X BAW ($p=0,001$); BAW X AAW ($p=0,004$); MW X BAW ($p=0,005$) and no difference on MW X AAW ($p=0,172$). There was significant statistical difference between the first and second mesures of the anastomosis ($p=0,001$) and between the first and the third mesures ($p=0,002$), but no significant difference between second and third mesures ($p=0,054$).

Conclusions: Argon plasma coagulation is safe, feasible, easy to perform, with minimal side effects and low cost. It seems to have the same restrictive effect of a ring avoiding a new surgical procedure with all the risks and complications. A higher number of endoscopic sessions can be performed if the anastomosis dilates again. More studies are necessary, with a longer follow up and a higher number of patients.

P.110 Normal 0 21 Analysis of Safety and Effectiveness of Two Different Liquid-Filled Intragastric Balloon (Bioenterics® Vs Silimed®)

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Aim: Intragastric balloon (IB) is a widely used procedure to manage obesity and to prepare patients to definitive obesity surgery. At the moment, there are several types of balloons in the market. We report our results in terms of safety and efficiency using two different kind of liquid-filled balloons.

Materials and methods: Fifty obese patients are divided into two groups prospectively. In the first group Bioenterics IB (n=25) and in the second group Silimed IB (n=25) were applied endoscopically under deep sedation anesthesia. At the end of the 6 month period IBs were removed. The absolute weight loss, percentage of body mass index loss (EBMIL%), percentage of excess weight loss (EWL%), complication rates were recorded. The technical properties of the balloons in insertion and removal were also evaluated.

Results: In Bioenterics IB group there were 10M/15F with mean age 31,8±12,32 years (range 16–61); mean BMI 40,63±7,08 kg/m^2. In Silimed IB group there were 13M/12F with mean age 36,32±10,5 years (range 17–56); mean BMI 39,05± 8,06 kg/m^2. There were no statistical difference between two groups in terms of demographic properties. The placement and removal of balloons in two groups were uneventful. The patients were discharged within 4 hours after the procedures. No mortality or major complications were seen in both groups. Minor complications like transient nausea, vomiting (32% vs 28%) and cramping pain (20% vs 16%) were equally seen in two groups. These minor complications were treated medically. In both groups the mean BMI significantly lowered compared to the begining ($p<0,001$ and $p<0,001$ respectively). But the absolute weight loss, EWL % and EBMIL % at the end of the treatment were statistically insignificant between the two groups (t:-0,415; p:0,680 and t:-0,239; p:0,812 and t:-0,177; p:0,860 respectively).

Conclusions: Both Bioenterics IB and Silimed IB are equally safe and effective in weight reduction in morbidly obese patients. The application of Silimed IB was found to be technically more convenient and simple.

P.111 Changes in Weight, Intake, Glycaemia and Calorimetric Effects in a Model of Experimental Duodenal Exclusion

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Aim: The use of new surgical techniques such as duodenal exclusion seems to influence the course of metabolic syndrome, achieving results similar to those found with other techniques classified as metabolic surgery. In this study we analysed this technique based on duodenal exclusion through duodenal intubation from the stomach with a flexible device. Its effects are consistent with the hypothesis of F. Rubino and M. Marescaux which states that the key to the resolution of diabetes mellitus lies in the exclusion of the proximal small intestine.
Material and methods: 12-week-old Sprague Dawley rats. A cafeteria diet was provided for the obese group during four weeks. 4 experimental groups: non-obese n=15 (procedure and sham) and obese n=15 (procedure and sham). Duodenal exclusion: midline laparotomy and gastrostomy proximal to the pylorus (0.5 cm); insertion of a 10 cm polyethylene tube via a silicone guide. Weight: initial weekly weight monitoring, and subsequent biweekly monitoring after surgery. Blood glucose levels: weekly until euthanisation (4 weeks). Blood samples were taken simultaneously with other samples for hormonal studies, as well as liver and intestinal tissue samples. Indirect calorimetry: performed once prior to surgery and once after surgery. Consumption: weight of food consumed daily and subsequent calculation of Kcal/day.
Results: There is significant improvement in blood glucose levels in both diabetic obese and non-obese animals. A difference in pre-and post-surgery weight was observed in both groups when the weights were compared with physiological growth graphs for this type of animal. Differences in weight gain before and after surgery in each of the groups are statistically significant. Non-obese groups: significant reduction in caloric expenditure in the surgery group compared to sham group; 20% reduction in consumption in the surgery group.
Obese groups: clear reduction in appeal of the cafeteria diet in the surgery group, consumption remained at almost normal daily levels (20 g/day). The surgery group showed a significant reduction in caloric expenditure according to standardised values for the weight of the animal.
Conclusions: Weight loss is significant when comparing increases in weight before and after the procedure. Despite not withdrawing the cafeteria diet, which had diminished appeal after the surgery, blood glucose levels were within normal values in this type of animal. A reduction in caloric expenditure was found in animals which underwent the surgical procedure (consistent with the data presented in the literature reviewed). A possible influence on the thermogenic effect of food (reduced consumption resulting in reduced caloric expenditure), is possibly related to insulin levels. This effect will be subjected to further testing. This seems to be a reproducible technique, although differences in mortality between obese and non-obese groups have been significative.

P.112 Concious Sedation Versus General Anesthesia for Endoscopic Implantation of the Duodenal-Jejunal Bypass Liner

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Background: The duodenal-jejunal bypass liner (DJBL, GI Dynamics, Inc., Lexington, MA) is an endoscopic implant that mimics the intestinal bypass component of the Roux-en-Y gastric bypass. Previously reported studies have shown promising improvements in type 2 diabetes (T2D) and weight loss. DJBL implantation has previously been performed under general endotracheal anesthesia (GA). The aim of this study was to compare the results of the DJBL implantation using GA and concious sedation (CS).
Methods: Retrospective analysis of all procedures performed in a non-randomized, prospective trial at our institution. All procedures were performed in the operating room, monitored by anesthesiologists, where conversion to GA was readily available if needed. The DJBL was implanted endoscopically in 83 of 87 subjects (weight, 110.3±17.7 kg; BMI, 43.0±5.4 kg/m^2; age, 35.1±9.6 years, 71.1% women), 70 using GA and 13 with CS. Four subjects could not be implanted due to unfavorable anatomy.
Results: The mean procedure time was 27.2±16 and 22.6±5 minutes in subjects implanted under GA and CS, respectively (p=0.3). The mean x-ray time was 8.1±4.7 minutes in subjects implanted under GA and 5.5±2.7 minutes in subjects under CS (p=0.05). All subjects were brought to the recovery room in stable condition. The mean hospital stay was 30±15 and 25±8 hours in subjects implanted under GA and CS, respectively (p=0.1). No subject had a procedural recall.
Conclusions: Endoscopic implantation of the DJBL may be safely performed under CS with similar post-procedure results as GA. The use of CS may reduce costs and decrease recovery times as the procedure may be moved out of the operating room.

P.113 Adjustable Intragastric Balloons: a 12 Month Pilot Trial in Endoscopic Weight Loss Management

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Objectives: Intragastric balloons(IGBs) are associated with, 1) intolerances in the early period, 2) diminished weight loss after the third month, 3) risk of bowel obstruction mandating removal at six months, and 4) the need for a dedicated extraction tool.
The introduction of an adjustable balloon could improve comfort and offer greater efficacy. A migration prevention function, safely enabling prolonged implantation, could improve efficacy and weight maintenance post extraction. Polypectomy snare extraction would also be beneficial.
The first implantations of an adjustable balloon with attached migration-prevention anchor is reported.
Methods: The SpatzTM Adjustable Balloon is mounted on a curled non-crushable catheter that straightens over a guidewire, and passed transorally, under conscious sedation. The non-crushability of the catheter loops is mediated by an internal chain. Post-implantation, an extractable inflation tube housed in the catheter can be snared endoscopically and pulled outside the mouth for volume adjustments . 18 patients (15 female, 3 male); mean BMI 39,4(range 29,4 to 53,2); and mean wt. 114,9 kg (range 73,5 to 163 kg) were implanted with mean balloon volume of 406,9 cc (range 350 to 600cc) of saline.
Results: Mean weight loss at 24 weeks was 15.6 kg with a 26.4% EWL (% excess weight loss), and 35.5 kg with a 67.3 %EWL at 52 weeks. Sixteen adjustments were successfully performed. Six downward adjustments alleviated intolerance, yielding an additional mean weight loss of 4.6 kg. Ten upward adjustments for weight loss plateau yielded a mean additional weight loss of 8.1 kg. There were no major complications, however, seven of the 18 balloons were removed.
Conclusion: The Spatz ABS has been successfully implanted in eighteen patients.
1) Upward adjustments yielded additional weight loss.
2) Downward adjustments alleviated intolerance, with continued weight loss.
3) Eight extractions were performed with a polypectomy snare.
4) Preliminary one year results are encouraging.

P.114 The Intragastric Balloon or Staged Surgery in Pre-Op for Patients with BMI≥60? Which One is Safer and More Effective?

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Background: Super obese patients show high surgical risk (major complications in 38% and mortality rate of 6,5%). This study evaluates the use of BIB as preoperative procedure aiming an initial weight loss and reduction of surgical risk.
Methods: From November/2000 to February/2011, 217 super obese patients (mean BMI=60,3±10.1 kg/m²) were treated with the BIB for at least four months before surgical treatment: 135 male (BMI=58.4±8.0) and 82 female (BMI=62.3±10.7). They showed associated diseases, including hypertension (131 cases), DM2 (79 cases), sleep apnea (97 cases), hypercholesterolemia (121 cases) and osteoarthritis (75 cases).

Results: Patients showed mean %EWL of 23.4±11.0%, mean %TWL of 13.6±6.5%, and mean BMI reduction of 8.4±4.9 Kg/m². Ninety three percent (n=201) of patients showed good results with 27% EWL with improvement in hypertension, DM2 and sleep apnea. Surgical risk was reduced from ASA III-IV to ASA II. All the patients presenting good results (n=201) were submitted to bariatric surgery (LAGB 33%, Distal LGB 41% or LBPD 26%). There was no mortality and only four minor complications (wound infection- 2.1 %).
Conclusions: The intragastric balloon is an effective and safe technique in order to prepare super obese patients in preoperative time. It shows good results in 93% of the patients, reducing the surgical complications and mortality, changing surgical risk ASA III-IV to ASA II and reducing in more than 90% the indications of two stage surgery. In conclusion, BIB pre-op represents lower risks and less costs in comparison to a two-stage surgery.

P.115 Safety and Effectiveness of the Intragastric Balloon for Obesity

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Background: The use of intragastric balloon constitutes a short-term effective non-surgical intervention to lose weight. Our aims were to determine the safety, efficacy and effectiveness of BioEnterics Intragastric Balloon (BIB) to treat obesity overall and in a range of body mass index (BMI) groups.
Methods: From prospectively collected data, all consecutive patients undergoing BIB insertion between July 2000 and January 2010 were analysed. Following multi-disciplinary discussion, BIB were inserted under sedation with a fixed filling volume of 540mls for a planned period of 6 months.
Results: A total of 193 BIB were inserted. The median age was 42 years (23–73) with 2.1:1 female:male ratio. The mean body mass index (BMI) at insertion was 56.0±10.5 Kg/m^2. Regarding safety, one patient required emergency surgery (0.5%) and 13 (6.7%) were removed early due to vomiting. After BIB removal, the mean weight loss was 14.0±11.6 Kg ($p<0.001$), the mean BMI reduction was 4.9± 3.8 Kg/m^2 with a mean percentage excess body weight loss (EBWL) of 17.4± 14.2%. 42/193 (21.8%) lost >25% EBWL with 10/193 (5.1%) gaining weight with the BIB. The proportion with a BMI<49.9 Kg/m^2 was 17.7%, BMI 50.0-59.9 Kg/m^2 was 28.5%, BMI 60.0-69.9 Kg/m^2 was 25.4%, BMI 70.0-79.9 Kg/m^2 was 4.7% and BMI >80 Kg/m^2 was 1.1%. The mean %EBWL in each BMI group were as follows:< 49.9 Kg/m^2 with 23.6%, 50.0-59.9 Kg/m^2 with 16.8%, 60.0-69.9 Kg/m^2 with 14.2%, 70.0-79.9 Kg/m^2 with 8.9% and >80 Kg/m^2 with 6.9% ($p=0.003$). However, there were no significant differences in weight loss (Kg) between the BMI groups ($p=0.622$): :< 49.9 Kg/m^2 with 11.9 Kg, 50.0-59.9 Kg/m^2 with 14.5 Kg, 60.0-69.9 Kg/m^2 with 16.3 Kg, 70.0-79.9 Kg/m^2 with 12.7 Kg and >80 Kg/m^2 with 10.3 Kg.
Conclusions: The use of BIB is a short-term effective treatment to lose weight in the initial treatment of morbid obesity. BIB appears safe and tolerable and is as effective in those with a BMI over 70 Kg/m^2.

P.116 Commercial and Pharmacological Weight Loss Programmes - an Effective Method of Shedding the Pounds Prior to Weight Loss Surgery?

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Introduction: The prevalence of obesity and its co-morbidities is increasing, costing health services worldwide $billions for obesity-related illnesses. This is imposing increasing workload pressures on metabolic surgeons. Both NICE and NIH guidelines state that candidates for bariatric surgery must demonstrate motivation for weight loss(WL) as part of their triple assessment. However, with a global weight management market reaching $billions, questions are re-surfacing about the effectiveness of such WL programmes. Our aim is to evaluate the number of WL programmes a candidate undertakes and their relative success prior to surgery.
Methods: Prospective questionnaires were completed by patients awaiting triple assessment for bariatric surgery over a 12-month period. Data was collected on patient demographics, BMI, excess weight and co-morbidities. For the purpose of this study, WL programmes were categorised into: commercial diets, pharmacological interventions, low-calorific diet or exercise regimens. Furthermore, questions regarding the number and mode of WL interventions employed, and the maximum WL achieved was asked. For the most successful WL programme, data was collected on the reasons for choosing that particular programme, its duration and reasons for discontinuing that programme.
Results: A total of 101 consecutive patients (82 F; 19 M), completed the questionnaire. Mean age 43 years (range 19–70) with BMI 30–34.9 (1 patient); BMI 35–39.9 (7); 40–49.9 (57); 50+ (36). On average, 3.5 WL programmes were employed (range 0–9) with a 19 Kg (range 1-51Kg) average WL achieved using a culmination of commercial and/or pharmacological approaches. The most effective overall WL method, on average, included: low calorific diet (31Kg), Atkins (21Kg), Weight Watchers (19Kg). Diet medication leads to 15Kg WL whilst a combination of commercial and pharmacological diets led to 17Kg WL. With regards to the WL regimen the patient found most successful, GP recommendation (17), family/friend recommendation (14) and "desperate last resort" (10) were reasons for initiating that particular programme. Reasons for withdrawing from a WL programme included: inability to maintain WL (20), side-effects (11) and cost (7) with an average time spent on a WL programme being 22 months (range 3–137).
Conclusion: Significant WL can be accomplished in patients motivated to pursue commercial diets or pharmacological interventions for a substantial time period. However, this study highlights that conservative healthy eating options are more effective than commercial and/or pharmacological interventions. Moreover, pharmacological interventions comparatively under-perform as a WL strategy. Whilst bariatric surgery remains the more cost-effective WL method; these above non-surgical WL programmes act as a "bridge" to further definitive surgical management and hence, warrants a re-exploration of non-surgical WL programmes as an adjunct to surgical care.

P.117 Prevalence of Dumping Syndrome after Bariatric Surgery

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Introduction: Dumping syndrome (DS) is a common consequence of Roux-en-Y gastric bypass (RYGBP). There is, however, scarcity of data regarding changes in the incidence of DS postoperatively and the affect that DS may have on weight loss success.
Objective: The aim of this study was to evaluate the prevalence of DS over time post-RYGBP and to determine the effects of DS on weight loss.
Methodology: The charts of 294 RYGBP patients were examined retrospectively for DS, defined as 2 or more of the following symptoms with food intake: palpitations, sweating, headache, diarrhea and abdominal pain. A total of 142 patients were identified as having DS at one of the following postoperative periods: (1) early postoperatively (3 to 6 months), (2), late postoperatively (> 18 months), (3) early plus late, (4) no DS early or late. Anthropometrics for DS and non-DS patients at each of the observation periods were also collected and the percentage excess weight loss was calculated.
Results: The data show that the incidence of early DS was 10.5%; late DS, 21.2%; early plus late DS, 24.6%; and that 43.7% of RYGBP patients experienced no DS early or late. DS prevalence was unrelated to changes in excess body weight ($p=0.1581$). Foods related to the occurrence of DS were found to include: sweets (ice cream and pies), followed by high fat foods (butter, palm oil) and to a lesser extent, sugar-sweetened beverages (coffee, juices and soft drinks).
Conclusion: Over half the population presented with DS following RYGBP. In our patient population, the prevalence of RYGBP did not decline with time and was greater late than early postoperative. The occurrence of DS, however, was unrelated to weight loss success.

P.118 Validation of the Korean Translation of the Questionnaire for Assessing the Quality of Life in the Obese Korean

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Background: Quality of life is considered an important outcome for the patient with bariatric surgery. However, there is no verified questionnaire in Korean for assessing quality of life of morbidly obese Korean patients. The purpose of this study is to translate and validate questionnaire such as the Obesity-Related Problem Scale (OP Scale) and Moorehead-Ardelt Quality of Life Questionnaire II (MA II) which is accepted and used worldwide.
Method: The translation and back-translation procedure were completed outlined by "Translation and Cultural Adaptation of Patient Reported Outcomes Measures - Principle of Good Practice". The pilot study was carried out on 20 morbidly obese patients; 10 patients who already had bariatric surgeries within 1 year and 10 patients on lifestyle modification with medication for weight-control.
Result: In order to complete validation process of Korean version for OP scale and MA II, documentations of forward and back translation along with pilot study will be sent back to developers accordingly. After the approval, Korean OP Scale will be used in patients with any obesity related problems. The Korean MA II, incorporated into the Bariatric Analysis and Reporting Outcome System (BAROS), will be used to evaluate post-op change of bariatric surgery candidate.
Conclusion: Approved Korean version of OP Scale and MA II would be adapted into clinical settings to assess quality of life in Korean patients and provide standardized comparison for outcomes among various bariatric procedures in Korea.

P.119 Carcinoid Tumor Diagnosed in the Preoperative Study of Morbid Obesity

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Background: In the preoperative period for morbid obesity surgery, It's essential to study the stomach that will be excluded during the gastric bypass, because it can not be measured by conventional endoscopic techniques after surgery. The barium examination is being replaced by upper endoscopy to diagnose pre-existing gastric lesions or premalignant lesions . In some cases leads to other surgical technique.
Clinical case: 28 year old patient with a BMI of 46 who performed the preoperative evaluation for bariatric surgery established by Obesity Functional Unit of the Complejo Hospitalario de Pontevedra. In the preoperative upper endoscopy we found an 1 cm lesion in the stomach body whose biopsies were nonspecific. The ultrasonography Endoscopic observed a submucosal lesion of 1 * 1.3 cm suggestive of GIST, it is marked with ink for laparoscopic localization. Exploratory laparoscopy was done and it found bigger than 1 cm lymph nodes in the territory of the left gastric artery, it was sent for intraoperative pathological study: metastasis from carcinoid tumor. Intraoperative endoscopy was repeated and found the injury in the lesser curvature of the stomach, less than 4 cm to the cardia. Total laparoscopic gastrectomy and lymphadenectomy (1–9 groups) was performed. Circular mechanical esophagoyeyunal anastomosis (25 mm). Roux en Y reconstruction. The evolution was favorable with good postoperative loss weight AP: Gastric carcinoid tumor 1 * 1.4 cm. (free surgical margins).
Conclusion: The preoperative upper endoscopy should be a test to be considered in preoperative of morbid obesity surgery because the exclusion of a not studied stomach could lead to the progression of premalignant or malignant patology and it could not be diagnosed by conventional endoscopy in the postoperative follow-up.

P.120 Building a Private Practice Based on Bariatrics

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Weight loss following bariatric surgery results in improvements in many health conditions. For example, "Bariatric surgery has been proved as the most effective way of treating type 2 diabetes in severely obese patients. Portes et al. demonstrated that 83% of patients with diagnosed type 2 diabetes exhibited normal blood glucose and normal glycosylated hemoglobin levels 7.6 years after bariatric surgery… The 10-year follow-up in the Swedish Obese Subjects (SOS) study demonstrated that a bariatric surgery is a viable option for the treatment of severe obesity, resulting in long-term weight loss, improvement in lifestyle… After 10 years, the average weight loss from baseline was 25% after gastric bypass, 16% after vertical banded gastroplasty, and 14% after gastric banding… The most important recent finding of the Swedish Obese Subjects study is a reduction of overall mortality by 24.6% in the surgery group versus control subjects." (*Vojtech Hainer*, *Hermann Toplak*, *Asimina Mitrakou* (2008).
That is good news. However, a 14% to 25% average weight loss may be improved upon if patients were encouraged to address the psychological issues associated with obesity in ongoing therapy. "When looking across the obesity literature, the impact of psychological variables in the development and treatment of obesity is certainly acknowledged but overshadowed by the physical and medical components of obesity, which dominates the literature. Given the failures of weight loss methods, even surgical methods, an understanding of the psychological variables that impact success of surgical and non- surgical weight loss is imperative, as the field continues to strive to reduce the public health impact of obesity." (Davin & Taylor, 2009). The evidence for food's addictive properties is steadily growing.
Educating patients about the psychological correlates of obesity, establishing a rapport with the patient during the pre-surgical mental health evaluation, and sharing with them how their unique history has the potential to negatively affect their long-term success are the building blocks of a successful private practice specializing in bariatrics. Conducting a thorough psychosocial pre-surgical evaluation, complete with suggestions for addressing personal issues in a therapeutic environment may encourage surgical weight loss patients to engage in pre- and/or post-surgical mental health counseling, which could impact their long-term commitment to healthy behaviors, increased self-efficacy and self-esteem, and ultimately, greater opportunity for sustained weight loss.
Few therapists have education or training to work specifically with the obese population. This presentation will focus on how to build a successful private practice of bariatric patients and increase the likelihood of patients' sustained weight loss.

P.121 Gastric Bypass in a University Hospital in Brazil: Six-Month Follow-Up

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Introduction: Obesity is a public health problem in nowadays. There is a remarkable increase in the number of morbidly obese patients. Bariatric surgery has emerged as an effective procedure to seek better results for this group of patients.
Objective: To evaluate and present the preliminary experience of a single team of gastrointestinal surgeons on a public University Hospital in Brazil.
Methods: We evaluated the data of the first 50 patients. Chart review and follow-up of patients who underwent gastric bypass from November 2008 until Mar 2010 were analyzed. Sex, patient age, comorbidities, weight and BMI for surgical indications, the average excess weight, duration of hospitalization and laboratory data were colected.The descriptive analysis of the data is stored in a database created in Excel and SPSS system for Windows.
Results: Among the first 50 patients operated, six were men with a mean age of 36.3 years, and 44 were female, mean age of 39.5 years. The most prevalent pre-surgical comorbidities were: hypertension, diabetes, musculoskeletal pain and swollen legs. In men the mean BMI and weight before surgery was 56.11 and 189, 67 pounds respectively, decreasing to an average BMI of 40.53 and 145.12 pounds of weight in

the sixth month of follow-up after surgical. We observed a reduction of around 53% of excess weight during the first 6 months of follow up after surgery. Among women, the mean preoperative weight was 126, 33 pounds, falling to an average weight of 95, 37 pounds at six months follow-up after surgery. The most common complaints reported by patients in outpatient treatment after surgery include: hair loss, feeling of weakness and fatigue, intolerance to solid foods, abdominal pain, nausea and postprandial vomiting.

	Before Surgery	First Month PO	Six Month PO
Hemoglobin(g/dl)	13	12.68	12.58
High-density lipoprotein (mg/dl)	49.42	41	51
Triglyceride(mg/dl)	148.02	103	106
Fasting glucose (mg/dl)	106.78	91.16	88.83
Ferritin (ng/dl)		138.22	100
Vitamin B12 (pg/dl)		346	378

[Glucose level and lipid profile]

Conclusion: The surgical procedure to treat morbid obesity is concerned with changing lifestyles, involving changes in eating habits and physical activity. Through these preliminary data, it can be suggested that surgical treatment of morbid obesity through gastric bypass is a safe and effective method, with therapeutic success.

P.122 Are Health and Quality of Life Outcomes Significantly Worse in Super Obese Patients?

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Background: Bariatric surgery improves metabolic syndrome and quality of life (QOL) in morbidly obese patients. It is postulated that these benefits have direct correlation with the baseline BMI. The aim of this study was to compare health and QOL outcomes in morbidly obese patients versus super obese at one year after laparoscopic roux-en Y gastric bypass (LRYGB) surgery.
Method: All consecutive patients with baseline BMI<45 kg/m^2 (group 1) and >60 kg/m^2 (group 2) who underwent LRYGB between January 2008 and September 2009 were identified from a prospective database. A questionnaire survey was sent out to all the patients. Health and QOL outcomes were measured using BAROS and EQ5D scoring systems. Retrospective case note analysis was performed for all responders.
Results: Questionnaire was sent out to 85 patients of whom 52 responded- 24 and 28 in group 1 and group 2 respectively. There was no mortality in either group. 2 patients from each group required re-operation for complications within 48 hours. Mean excess weight loss at one year follow up was 80% in group I compared to 53% in group 2.
Mean BAROS score were 5.18 (±2.03) and 4.12 (±1.99) for group 1 and 2 respectively; corresponding EQ5D VAS scores were 83 (range 30–100). And 70 (range 30–95). These differences were statistically significant (t-test, p=0.042 and Mann-Whitney, p=0.014, respectively).
Conclusion: Within the limitations of relatively small power, this study shows that improvements in health and QOL following LGRYB is significantly better in patients with lower pre operative BMI. This may have bearing on patient selection in future and also cost effectiveness of the treatment. Further studies are needed to confirm these findings.

P.123 Improvement in Health and Quality of Life Following Gastric Bypass Does Not Affect Employment Status of Bariatric Patients

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Background: Bariatric surgery improves metabolic syndrome and quality of life (QOL) in morbidly obese patients. The aim of this study was to evaluate impact of preoperative weight and post operative improvement in health, QOL on employment outcomes at one year after laparoscopic roux-en Y gastric bypass (LRYGB) surgery.
Method: All consecutive patients with baseline BMI<45 kg/m^2 (group 1) and >60 kg/m^2 (group 2) who underwent LRYGB between January 2008 and September 2009 were identified from a prospective database. A questionnaire survey was sent out to all the patients to identify employment status before and after surgery. Health and QOL outcomes were measured using BAROS scoring system. Case note analysis was performed for all responders. was also recorded.
Results: Questionnaire was sent out to 85 patients of which 52 responded- 24 and 28 in group 1 and group 2 respectively. There was no mortality in either group. Mean excess weight loss at one year follow up was 80% in group I compared to 53% in group 2.
Mean BAROS score was 5.29 (± 2.11) and 4.023 (± 1.95) for group 1 and 2 respectively; this difference was statistically significant (t-test, p=0.038).
Seventeen patients in group 1 were employed preoperatively compared to 13 in Group 2. Employment status remained unchanged in all but 6 patients as a result of surgery. 3 patients in group 1 and 2 from group 2 gained employment as a result of their surgery. One patient from group 1 lost employment as a result of his surgery. Mean BAROS score for those unemployed postoperatively was 5.77 and 3.53 in Group 1 and 2 respectively. Corresponding scores for those employed post operatively were 4.9 and 4.8.
For both the groups together, BAROS scores for those employed and unemployed postoperatively were 4.9 and 4.2 respectively.
Conclusion: Within the limitations of relatively small power, this study shows that neither preoperative weight nor improvement in health and QOL following LRYGB affect employment status within the first year after surgery. However there is likely to be a positive correlation between QOL and employment status. Whether better QOL is cause or effect of employment is difficult to determine from this study. Larger studies are needed to confirm the findings of this study.

P.124 A Multimodal Approach of Preoperative, Inpatient Weight Loss of Super Obese Patients before Performing Laparoscopic Sleeve Gastrectomy

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Introduction: The laparoscopic sleeve gastrectomy (LSG) was initially established as a first step of a two-stage operation (OP) in obese patients. Recently, LSG emerged as a separate surgical procedure in treatment of morbid obesity. In the literature LSG is described as a safe and effective surgical technique. However, especially in super obese patient (body mass index (BMI)>60 kg/m²) due to the intra-abdominal fat distribution or severe hepatic steatosis, performing LSG can technically be very difficult. For a short term improving of these parameters we followed a multimodal approach of preoperative, inpatient weight loss in super obese patients.
Method: Super obese patients (BMI>60 kg/m²) were preoperatively hospitalized for weight loss. In this setting the daily calories were reduced to 1200 kcal/d. 10 days before operation, a further calories reduction was performed by a liquid diet containing 800 kcal/d. During the preoperative hospital stay patients underwent an intensive physical therapy program containing exercise pool, breathing exercises, physical therapy, exercise bike training and gait training. Surgery was dated when patients' weight lost was approximately 10 kg.
Results: From September 2009 to December 2010 data of twenty-two super obese patients, average BMI 68 kg/m² (62–84), were collected in this retrospective analysis. All these patients underwent the aforementioned nutrition and physical therapy program. The average pre-operative hospital stay was 21 days (8–49). At the time of operation the mean percent weight was 9% (3–20) and mean BMI was 62 kg/m² (52–68). The average operating time was 92 minutes (75–210) and the mean postoperative hospital stay lasted 4 days (3–7). All operations were laparoscopically completed. No intra- or postoperative complications were observed.
Conclusion: Due to short-term, inpatient, preoperative weight lost high risk super obese patient could undergo LSG without any complications. Improved intra-abdominal conditions for a safe LSG performing could be created by preoperative weight lost

P.125 The Importance of the Caregiver in the Postoperative Period of Bariatric Surgery

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Background: The objective of this study was to evaluate the importance, the participation, and the characteristics of the caregiver in the postoperative period of bariatric surgery.
Methods: 180 bariatric patients were submitted to Roux-en-Y gastric bypass in our Institution. It was advised to all patients the selection of a caregiver for the first postoperative month. The caregiver received orientations regarding the surgical procedure, postoperative feeding, and postoperative patient care. The patient and the multidisciplinary team evaluated the caregiver role through questionnaires.
Results: 78.7% of patients selected a caregiver. The caregiver was a family member in 97% of cases (spouse, son/daughter, parent or sibling). The caregiver was a female in 64.2%. More than one caregiver was selected in 24.6% of cases. 94.1% of caregivers were considered important or very important in the first month of postoperative. 65.7% of caregivers continued to assist patients until the third postoperative month.
Conclusions: A caregiver was important and beneficial to patients in the postoperative period of bariatric surgery.

P.126 The Mini-Gastric Bypass Results in a Major Decline in Percieved Hunger

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Background: Obesity is associated with excessive hunger leading to excess caloric intake. One of the goals of bariatric surgery is to decrease the drive to eat (hunger), improve satiety, deceasing caloric intake and driving significant weight loss. The purpose of this study was to quantitate the effects of the Mini-Gastric Bypass on perceived levels of hunger. The hypothesis was that the MGB would lead to decreased levels of perceived hunger and increased levels of satiety.
Methods: 1,520 post MGB patients were surveyed and asked to assess their overall perceived levels of hunger before and after MGB. Patients were give a visual analogue scale and asked to rate their overall feeling of hunger from 1 to 10.
Results: Patients were morbidly obese with BMI mean of 46, mean age of 39 and 85% were female. Preoperatively patients graded their daily feeling of hunger as very high. (Mean 7.9±2.3) After surgery all patients reported a marked decrease in feelings of hunger (mean 3.4±3.2). The level of hunger was lowest in the month following surgery and tended to rebound somewhat as years after surgery increased (0.4±1.4 / year).
Conclusion: Pure restriction without a decrease in the desire to eat predictably leads to weight loss failure (in either dieting or band placement.) The Mini-Gastric Bypass leads to major decreases in hunger following surgery and this is durable for the course of follow up through 10 years.

P.127 Understanding the Obese Patient

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Target Audience: Mental Health Professionals, Nurses, Registered Dieticians, Physicians, Exercise Physiologists, Chiropractors
Course description: This course will focus on the psychological makeup of the obese patient, with the intent of informing and assisting medical and allied health professionals in working effectively with the obese patient. The course will cover current statistics about obesity, facts versus myths about the causes, and the differences between disordered eating and eating disorders. Up-to-date research on the psychological profile of the obese patient will be presented along with the reasons this information is essential for all professionals who work with the obese. Information about obesity as an addiction will presented and discussed in relation to other addictions and the frequent cross-addiction by obese patients. The most effective and researched forms of medically-based and psychologically-based treatments for obesity will be reviewed, as will alternative therapies. Participants will learn the most frequent stigmas encountered by obese patients and will be informed of ways to prevent offending patients in order to most effectively aid them in getting the proper treatment for their obesity. In addition, participants will observe role-playing situations in order to learn empathic responses and active listening skills for using with obese patients. Finally, healthy daily eating and cooking skills will be reviewed.
Learning Objectives:
At the end of this course, participants will:
1) Understand the statistical demographics of the obese patient
2) Understand the facts vs myths about the causes of obesity.
3) Understand the psychological and bio-psycho-social profile of the obese patient and its relevance to all health care providers when working with the obese patient
4) Understand the recent research on eating/food/obesity as an addiction and the cross-addiction behaviors of the obese patient
5) Understand the researched types of medically-based and psychological treatments of obesity and the research on each
6) Understand the stigmas most frequently encountered by the obese patient and how to avoid these in working with the obese patient.
7) Understand and be able to utilize specific concepts of effective communication such as active listening and empathic responding.
8) Culinary Basics: Understanding healthy daily eating and cooking behaviors.

Syllabus
8:00–9:30 Introduction, Statistics about obesity
9:30–9:50 Causes of obesity
9:50–10:00 Break
10:00–11:30 The psychological and bio-psycho-social profile of the obese patient
11:30–12:00 Obesity as an addiction
12:00–1:00 Lunch
1:00–2:00 Treatments of obesity
2:00–2:30 Stigmas
2:30–3:00 Effective communication with the obese patient
3:00–3:15 Break
3:15–3:45 Effective communication with the obese patient
3:45–4:45 Healthy eating and cooking behaviors

P.128 Diabetic Autonomic Neuropathy of the Gastrointestinal Tract and Bariatric Surgery: a Two-Case Report and Literature Review

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Background: The prevalence of diabetic gastroparesis and enterophaty has been estimated to vary between 8 and 40%. Disordered bowel habits after obesity surgery had many causes, like bacterial overgrowth, short bowel syndrome, fistula, internal hernia, fat ingestion among others. Diarrhea impairs quality of life. The aim of the present study was to report the occurence of serious diarrhea in two patients submitted to bariatric surgery.
Methods: Two patients, a 45-year-old woman and a 52-year-old woman (body mass index, 41 and 37 kg/m2), with diabetic autonomic neuropathy of the gastrointestinal tract (DANGT), were submitted to Y-en Roux gastric bypass.
Results: The first patient evolved with more frequent painless watery diarrhea 2 weeks after surgery. The other, presented vomits and upper abdominal pain after 2 weeks, and then, intermittent watery diarrhea from the first month. Both patients had a good metabolic control after surgery. A respiratory hydrogen test suggested

bacterial overgrowth, but after several antibiotics schemes, the diarrhea persist. At the moment, both patients are in good nutritional conditions, HbA1c<6% without antidiabetic therapy and taking full dose loperamide in order to control the diarrhea.

Conclusions: DANGT is an important diabetes complication that can compromise clinical evolution of patients submitted to gastrointestinal surgery. In cases of clinical suspicion or a confirmed diagnosis, we need to evaluate, in a multidisciplinary team, the best surgical approach.

P.129 Preoperative Educational Group Forums for Bariatric Surgery: Changing Patient Perceptions

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Introduction: Bariatric surgery is a life changing operation and many centres offer preoperative educational group forums to provide additional support for their patients. The aim of this study is to understand the impact of this service on patient's level of knowledge of bariatric procedures, sense of emotional support from health care professionals and enthusiasm for surgery.

Method: Patients referred to our bariatric unit were invited to an educational group forum prior to clinic consultation. The two hour session led by our specialist bariatric nurse, included a discussion about the range of bariatric procedures available and the dietary, physical and psychological impact of the operation. A questionnaire was used to determine the impact of the forum for different variables on a ten point rating scale. A paired sample t-test was used for data comparison.

Results: 34 patients (23 female, 11 male) with a median age of 50 (range, 20–69) completed the questionnaire. There was a statically significant increase in the ten point rating scale score for the following question categories: perceived level of knowledge about bariatric surgery before (Mean=5.68) and after (Mean=9.32) the session (Mean increase in score of 3.65, 95% CI 3.03 to 4.26, p<0.0005); subjective feeling of emotional support from health care professionals before (Mean=6.97) and after (Mean=9.21) the session (Mean increase in score of 2.24, 95% CI 1.51 to 2.96, p<0.0005) and enthusiasm for surgery before (Mean=7.97) and after (Mean=9.32) the session (Mean increase in score 1.35, 95% CI 0.65 to 2.06, p<0.0005).

Discussion: The results suggest that a preoperative group forum can increase patient's perceived level of knowledge about bariatric surgery, provide emotional support and promote enthusiasm for surgery. Such intervention may provide a more complete bariatric service, improving patient satisfaction.

P.130 Laparoscopic Sleeve Gastrectomy is Not Associated with Post-Operative Iron Deficiency

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Background: Nutritional deficiencies after bariatric surgery are well described and routine supplementation of vitamin and mineral intake is common practice. Although laparoscopic sleeve gastrectomy (LSG) is not thought to be associated with changes in small bowel absorption, there have been reports of up to 43% of patients developing iron deficiency after LSG [1]. Serum ferritin is most often used to screen for evidence of iron deficiency. However it is also an acute phase reactant which may be elevated in obese patients. The aim of this study was to determine if there are any significant changes to iron indices following LSG.

Methods: We prospectively studied 19 participants (13 females, mean age 45 years; range 27–64) who underwent LSG in our institution. They had routine laboratory evaluation of the following indices: full blood count, including the measurement of red cell distribution width (RDW) and mean corpuscular volume (MCV), total iron binding capacity (TIBC), serum ferritin, serum iron and serum erythropoietin before surgery, at 6 weeks and 6 months post-operatively.

All results are expressed as Mean±SEM. Statistical analysis employed one-way ANOVA with repeated measures.

Results: BMI fell significantly over time (pre-op 60.0±2.59 kg/m^2, vs 53.0±2.35 at 6weeks, 45.8±2.0 at 6 months, p<0.0001). There were no significant changes over time in Haemoglobin (13.4±0.3 g/dl vs 13.1±0.3 vs 13.3±0.3, p=0.40) or RDW (14.2±0.2% vs 14.5±0.2 vs 14.3±0.3; p=0.48). Although MCV did increase slightly (84.4±0.8fL vs 85.1±1.0 vs 86.3±1.1; p=0.037), the change was within the normal physiological range.

Changes in serum ferritin were not statistically significant (81.7±15.3 mg/L vs 104.7± 23.8 vs 86.9±23.2; p=0.254). Although changes in TIBC over time did reach statistical significance, the levels remained within the normal physiological range and were not clinically significant (65.7±3.0mmol/L vs 54.8±2.2 vs 56.1±2.1; p<0.0001). Serum Iron levels also changed over time, but this was of no clinical significance (10.6±0.9mmol vs 8.4±0.8 vs 12.7±1.0, p=0.001). There was no statistically or clinically significant change in serum erythropoietin levels (16.8±1.7 IU/L vs 19.0±4.7 vs 15.1±1.6, p=0.521).

Conclusions: Morbidly obese patients undergoing LSG do not develop iron deficiency anaemia or experience clinically significant changes to their iron indices. This suggests that although patients experience dramatic changes to their eating habits post-operatively, the ability to absorb the available iron in their diet is still sufficient.

Reference:

[1] Aarts EO et al. The gastric sleeve: losing weight as fast as micronutrients? Obes Surg 2011 2: 207–11

P.131 The "Villinger-Box" - a Basic Bariatric Supplementation Kit

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Co-authors: S. Mueller[1], N. Runkel[1]

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Aim: Supplementation is mandatory after bariatric surgery, however, a significant number of patients receive no regular medication despite recommendation. Detailed information by the bariatric surgeon or the bariatric center alone does not guarantee for postoperative adherence. Here we present a summary of reasons derived from personal interviews of patients and their support groups. Furthermore, a practical solution with a standardized supplementation-kit is proposed.

Analysis: All patients are aware of the need for permanent supplementation after gastric bypass. However, the current practice is impractical leading to mounting frustration.

Medication: There are no evidence-based recommendations on type and dosage of vitamins and minerals. Each center proposes its own specific list of medications. The pharmaceutical industry does not provide an easy to take "one-pill-per-day". Patients need prescriptions of several medications. The different durations of each package add further confusion and increase costs significantly.

Costs: Most German health-insurances do not cover chronic supplementation. Although bariatric patients save money on food after surgery, they are rather reluctant to pay significant amounts for live long medication.

Consequences: Adherence to recommendations regarding supplementation requires simplification and standardization of prescription and reduction of costs. We have designed a basic supplementation-kit with a concise selection of high-quality over-the-counter products for a minimum price. Our "Villinger-Box" can be ordered by a click on the homepage and will be delivered home. The costs are 75,- € for 3 months (0,83 Cent/day).

The "Villinger-Box" contains following contents: Vitamin B12 1 mg ampoule every 3 months, Calciumcitrat tetrahydrat 950 mg (~ 200,22 mg Ca Ion) daily, Calciumcarbonat 1500 mg (~ 600,65 mg Ca Ion) / Colecalciferol 400 I.E. daily, Iron-II Fumarat H2O~155 mg (~ Iron II Ion 50 mg) 2–4 x weekly (dep. gender prä or postmenop.), Vitamin A-Z: 2x day, Vit C 60 mg, Vit. E 10 mg, Vit K 30ug, Vit B1 1,4 mg, Vit B2 1,6 mg, Vit B6 2 mg, Vit B12 1ug, Vit D 5µg, Biotin 150ug, Folsäure 200ug, Niacin 18 mg, Pantothenat 6 mg, Calcium 162 mg, Phosphor 125 mg, Eisen 4 mg, Mg 100 mg, Iod 100 ug, Kalium 40 mg, chlorid 36,3 mg, Kupfer 1 mg, Mangan 1 mg, Chrom 25ug, Molybdän 25ug, Selen 25ug, Zink 5 mg.

Conclusion: The "Villinger Box" is a basic supplementation-kit including a range of vitamins and minerals for easy purchase and simple intake at minimum costs. This Box has been greatly acknowledged by our patients. Further studies are needed to show whether a supplementation-kit-product increases adherence to recommendations regarding postoperative supplementation.

P.132 Can Bariatric Surgery Improve Family Alimentary Pattern?

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Background: The purpose of this study was to evaluate if bariatric surgery may improve family alimentary pattern.
Methods: Validated nutritional questionnaires analyzed the preoperative and the postoperative (6 months of follow-up) family alimentary pattern of 180 patients submitted to gastric bypass in our Institution.
Results: Alimentary pattern improvement of at least 1 non-operated family member occurred in 34.8% of families. Alimentary pattern improvement of all non-operated family members occurred in 17.8% of families. Changes included: option for healthier and less caloric meals, reduction in the number of oil cans used each month (1.4±0.5 oil cans per family member per month to 0.4±0.2 oil cans), better definition of eating periods, and/or reduction of meal simultaneous activities (watch TV, work, read, drive). Weight reduction occurred in at least 1 non-operated family member in 26.4% of families.
Conclusions: Bariatric surgery may improve family eating pattern. The bariatric multidisciplinary team should explore this potential.

P.133 Body Image Perception and Bariatric Surgery of Patients Coming from the Center for Bariatric Surgery at the University Hospital of Ribeirao Preto, University of São Paulo, Brazil.

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This study aimed to evaluate the perception of normal body image, real and ideal, through Drawing of Silhouettes. 257 patients coming from Center for Bariatric Surgery, Ribeirão Preto, Brazil, were evaluated before and after bariatric surgery. Of these evaluations, 27% were pre-operative (PreO), 26% were performed after 12 months of surgery (PO-12), 15% after 24 months (PO-24), 14% after 36 months (PO-36) and 18% after 48 months or more (PO-48). Reponses were classified according to the size of the silhouette chosen for each question, proceeding to the comparison of groups using one-way analysis of variance (ANOVA, SPSS 17.0). When choosing figures that represented a normal size man, the group PreO differed from the PO-12 ($p \leq 0,05$), showing that before surgery patients chose more eutrophic figures and after 12 months more figures with obesity class I. In the choice of figure of normal size woman, differences were observed between groups PreO and PO-36 ($p \leq 0,05$), and between PO-12 and PO-36 ($p \leq 0,05$), showing that before surgery and 12 months after the choices have focused more on eutrophic figures. After 36 months, there was greater distribution in choices, including figures representing obesity as figure of a normal size woman. In relation to choices of actual size figure, the group PreO differed from all groups ($p \leq 0,001$), choosing figures significantly higher. The choices of figures concerning the size that the patients believed they could achieve, PreO differed from PO-12, PO-24 and PO-36 ($p \leq 0,05$), showing a tendency to choose larger size figures over time of surgery. As the choices of figures representing a desired body size, most participants selected representative figures of low body weight, no significant differences between groups. The data indicates the relativity of the choices of figures of normal size over time of surgery. In relation the choices of actual size figure - real body image - despite patients have experienced significant changes in body size for weight loss, these changes did not seem to influence the self-body awareness. When patients made choices for an ideal body image guided by the real, they seemed aware about the real possibilities of weight loss. However, when choosing figures representing the desire size, the data point to feelings of dissatisfaction and discontent with body image and a desire to be different than they are. Sometimes such people fail to consider that the ideal possible after bariatric surgery is different from an ideal aspiration. This may contribute to these people to experience failures in this process, which may lead to feelings of dissatisfaction and little use of real benefits for health and quality of life. Drawing of Silhouettes contributed to discrimination between perceptions of real and ideal body image. This may be valuable in clinical settings, to allow an approximation of perceptive adaptation as opposed to desirable and possible with regard to changes and body image.

P.134 Psychological Factors Associated with Success Following Adjustable Gastric Banding: a Qualitative Study

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Background: A significant minority of laparoscopic adjustable gastric banding (LAGB) patients fail to achieve satisfactory weight loss. However, little is known about the factors that are associated with weight loss success following LAGB. This study aimed to generate hypotheses about the cognitive, behavioural, and emotional factors associated with treatment outcome following LAGB.
Method: During in-depth, semi-structured interviews, eight successful (>50% excess weight loss) and eight unsuccessful (< 50% excess weight loss) LAGB patients described the factors that they believed were influential in their post-operative weight loss (> 24 months).
Results: Grounded theory analysis identified that successful patients were able to *manage hunger and use information about satiety* to guide eating by developing an awareness of satiety, eating slowly, eating mindfully, and using low calorie snacks to manage hunger. Four factors interfered with this process for unsuccessful patients: emotional eating, problems with under or over-restriction of food intake, failure to prioritise regular eating, and abandoning efforts of weight loss.
Conclusion: Results suggest that factors associated with post-LAGB weight loss are linked by their impact on the process of managing hunger and using sensory information about satiety to guide eating. This grounded theory may provide a useful framework for understanding and theoretically integrating the psychological factors associated with post-operative weight loss following LAGB.

P.135 Gastric Bypass in a Schizophrenic Patient: a Case Report

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Introduction: It is generally known that some psychotropic drugs induce obesity. The indication for a bariatric procedure in psychiatrically ill patients is very difficult. In our consultation-hour we were confronted with a morbidly obese patient who had been suffering from schizophrenia for 23 years.
Method: A 49-year old female patient with a BMI of 63 kg/m^2 asked for information about bariatric procedures. She had been treated for schizophrenia with psychotropic drugs since 1983 and had often needed inpatient treatment in a psychiatric department. In addition to her schizophrenia, the patient presented with Type II diabetes requiring insulin, hypertension, chronic obstructive pulmonary disease, sleep apnea, and hyperuricemia. Upon review of the patient's health status and psychiatric

status, the interdisciplinary team and psychiatrist agreed that bariatric surgery was indicated and that the patient was capable of a long-term positive follow-up.
Result: Two years postoperatively, the patient reached an excess BMI loss (EBMIL) of 75%, a BMI of 33.8 kg/m^2. All metabolic co-morbidities were resolved and no pharmaceuticals were required other than her psychiatric medication. Postoperatively, the patient has been extremely compliant with the bariatric nutrition and supplementation regimen, and her blood tests have shown no vitamin/mineral deficiencies. She continues to maintain a constant excess weight loss.
Conclusion: It is a great risk to operate on a patient with schizophrenia since there is never a guarantee that these patients take their medication regularly and so control the psychiatric disease. In our case this patient showed an extreme compliance and the approach is justified by the result.

P.136 Emotional Eating and Age of Onset of Obesity: Predictors of Weight Loss after Bariatric Surgery?

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Background: The importance of a pre-operative psychological assessment for those considered for bariatric surgery has been established. We aim to look at two specific areas, emotional eating and age of obesity, in our pre-operative psychological assessment to review their value in predicting weight loss after bariatric surgery.
Methods: The study was carried out over two centres providing full bariatric services. All patients undergoing bariatric surgery from January 2009 to October 2010 were included. Pre-operative psychological assessments were carried out by a single chartered psychologist. All psychological data gathered has been collected prospectively and then entered into a dataset. The presence of eating triggered by emotion and the age of onset of obesity (child or adult) were extracted from each preoperative psychological assessment and reviewed. Pre-operative and follow-up data was extracted from the prospectively collected National Bariatric Surgery Registry. Data was analysed using SPSS version 19.
Results: 105 patients (n=79 female) underwent bariatric surgery during the study period. The median age was 47 (range 25–62) years.
The age of onset of obesity compared with percentage excess body weight loss were: childhood onset (n=36) lost average 53% excess body weight compared to adult onset obesity (n=29) who lost an average of 45% excess body weight (p=0.222).
Emotional eating was identified in 50 patients preoperatively. Those patents lost average 46% excess body weight (n=33) in comparison to those without evidence of emotional eating (n=33) who lost average 54% excess body weight (p=0.178).
Conclusion: Age of onset of obesity and emotional eating are two interesting factors evaluated in our pre-operative psychological assessment. Although this study revealed no significant difference in weight loss within the two groups we must continue to review the impact of certain factors of our pre-operative psychological assessment on bariatric surgery outcomes in order to improve patient selection and service provision.

P.137 The Morbid Obesity Impact Score (Mois) - Initial Analysis and Comparison with SF36

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Background: Bariatric surgery results in significant health gains including quality of life (QoL). At present there are few specific scoring systems reflecting QoL improvement in the morbidly obese after bariatric surgery. The gold standard QoL tool is the SF36 however, it is not specific to the problems the morbidly obese face. Some units have adopted BAROS, but again the QoL component is not specific to the morbidly obese. We designed the MOIS to assess five specific domains that affect the morbidly obese (co-morbidity, self-care, social, negative comments and guilt).
Methods: MOIS and SF36 were administrated concurrently to a study population drawn from attendees at a weight-loss surgery support group. The study group consisted of both pre-operative and post-operative patients. MOIS consists of a 13 point score (higher scores reflecting poorer quality of life). Scores from the SF36 and MOIS were then compared using the Spearman Rank Correlation test.
Results: Thirty-seven attendees piloted the MOIS (12 pre-op and 25 post-op). Median (range) preoperative scores for the SF36 and MOIS were 18 (5–55) and 7 (4.5-11) respectively. Median postoperative scores for SF36 and MOIS were 87 (25–100) and 1 (0–8) respectively. Scores for both the SF36 and MOIS were significantly different after surgery ($p<0.01$). Furthermore, there was a significant correlation between the SF36 scores and MOIS scores (Spearman's Rho= −0.8).
Conclusions: The MOIS appears to be able to correlate QoL with the formal SF36. MOIS has the advantage of being specific to problems the morbid obese encounter and is quicker to administer. Further work in a larger cohort of patients is needed to clarify these findings and allow examination of the relationship between the domains scored in the SF36 and the MOIS.

P.138 "Word of Mouth" and the Choice of Bariatric Surgical Procedure: Survey Results of Roux En Y Bypass, Gastric Band and Mini-Gastric Bypass in Friends and Family of 1,515 Mini-Gastric Bypass Patients

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Background: Patients that choose the Mini-Gastric Bypass (MGB) often pay cash for the MGB rather than accept insurance coverage for a gastric band (LB) or a Roux-en Y bypass (RNY). Many patients had reported good experiences with the MGB and poor experiences with the LB and the RNY in their friends, family or other acquaintances. The purpose of this study was to investigate MGB patient's reported perceptions of the results of bariatric surgical procedures in their friends, family and acquaintances.
Methods: A survey of patient's experience with bariatric surgery in their friends, family and acquaintances was created and completed by 1,515 pre or post operative MGB patients.
Results: In response to the question: Have your family, friends or acquaintances had a RNY, a gastric band or an MGB, patients responded yes in 46%, 40% and 44% respectively. Overall 68% of survey respondents had FFA with some prior bariatric procedure. When asked the results of the bariatric surgery in their friends, family or acquaintances (FFA) 36.2%, 23.9% and 92.7% of FFA were perceived to have done well with the RNY, Band and MGB respectively. 29.0%, 42.4% and 5.2% of patient reported complications in FFA respectively and finally, 34.8%, 33.7% and 2.1% of FFA were reported to "have gained their weight back" following RNY, Band or MGB respectively. ($P<0.001$ for each comparison of MGB vs. LB/RNY.)
Conclusion: Many people investigating their choices for bariatric surgery have already had experiences with bariatric procedures in friends, family or other acquaintances. In most cases, patients who choose to have the MGB could have obtained a RNY or a LB for no out of pocket costs. This study suggests that one reason that might explain patients' willingness to pay cash out of pocket for the MGB might be the perception that friends, family or acquaintances have had poor results from the RNY and the LB. Patients reported that only 36% of RNY and 23% of band patients had "done well" after their RNY/LB operations. In contrast patients reported that the results of the MGB in FFA was surprisingly good, with MGB patients reported as "doing well" in 93%. One of the greatest fears of patients undergoing weight loss surgery is weight regain. Patients reported weight regain in roughly a third of RNY and Band friends, family or acquaintances as compared to only 2% of MGB patients FFA.
These findings may help to explain the growing popularity of the MGB.

P.139 History of Sexual Abuse: Impact on Bariatric Surgical Outcomes

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Background: There is debate with regards the importance of certain pre-operative psychological factors and their relationship to bariatric surgical outcomes. History of

sexual abuse is one factor that has been looked at with a variety of conclusions. We aimed to review the impact of a history of sexual abuse on bariatric surgical outcomes within our service.

Methods: The study was carried out over two centres providing full bariatric services. All patients undergoing bariatric surgery from January 2009 to October 2010 were included. Pre-operative psychological assessments were carried out by a single chartered psychologist. All psychological data gathered has been collected prospectively and then entered into a dataset. The history of sexual abuse for each subject was documented and reviewed against pre-operative and follow-up data from the prospectively collected National Bariatric Surgery Registry. We looked at the hospital stay, functional capacity and percentage excess weight loss as post-operative outcomes. Data was analysed using SPSS version 19.

Results: 105 patients (n=79 female) underwent bariatric surgery during the study period. The average age was 47 (range 25–62) years. Of these 9% (9/105) were identified as having a history of sexual abuse. The average hospital stay of these patients (n=8) was 4 days the same as that of the control group. One of the patients in the sexual abuse group died in hospital.Of the sexual abuse group 29% (n=7) improved there functional capacity (stair climbing) post operatively compared to 44% (n=66) in the control group. On comparison of percentage excess weight loss the sexual abuse group lost average 41% (n=7) compared to 50% (n=57) in the control group.

Conclusion: The prevalence of sexual abuse amongst bariatric patients in this study highlights the importance of the pre-operative psychological assessment. We have shown a difference in post-operative outcomes but larger numbers are required to draw significance before making changes to our patient selection and service provision.

P.140 Anxiety and Depression in Obese Patients Eligible for Bariatric Surgery: a Correlational Study

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Background: Depression and anxiety are often related to obesity psychopathology, since they prevent the individual from engaging in behaviors conducive to weight loss, and promote engagement in episodes of binge eating. Generally, obesity is associated with increased risk of depression and anxiety, but it is influenced by variables, such as gender.

Methods: Participants were 122 obese patients, eligible for bariatric surgery, beginning a program of psychological counseling for surgery. Beck Depression Inventory - BDI, and Beck Anxiety Inventory - BAI were completed in the first session of the program.

Results: 78% (n=95) were women. Age average was 36 years. Data from BAI showed that 46% of patients had minimal levels of anxiety, 28% had low levels, 17% moderate, and 9% severe levels. As for gender distribution, 60% of men had minimal levels of anxiety, 29.6% light levels, 7.4% had moderate, and 3% severe levels. On the other hand, 44.2% of women had minimal levels of anxiety, 26.3% light levels, 18% moderate levels and 11.5% severe levels of anxiety. Regarding depression, the BDI data show 40% of patients as having minimal levels of depression, 37% light levels, 21% moderate and 2% severe levels. However, when considering the gender, 59.2% of men have minimum levels of depression, 33.3% light levels, 7.5% had moderate depression and there is no record of serious levels of anxiety. For women, 32.7% showed minimal levels of depression, 40% light levels, 25.3% moderate and 2% severe levels. More specifically, 26% and 23% of patients had moderate to severe levels of anxiety and depression, respectively. However, the gender difference becomes strongly present: only 10.5% of men had moderate to severe levels of anxiety, compared with 29.5% women. Already in the case of depression, the BDI showed 7.5% of men as having moderate or severe depression against 27.3% of women.

Conclusions: Data confirmed what literature shows: a relationship between obesity and extreme anxiety and depression. More than half of participants had significant levels of anxiety and depression - which left the minimum degree level and fit into mild, moderate or severe. Comparing genders, levels of anxiety and depression were strongly higher in women. These data show that gender factor influenced the emergence of depression and anxiety, especially in obese people, and must be considered in treatment. Health staff must give importance to the psychological aspects of obesity in these patients, since, involves their adherence to treatment and, if not properly treated and previously worked, overall success of the surgery could be prejudiced. It is suggested that effective psychosocial strategies, that minimize the symptoms of anxiety and depression, and consider individual differences and gender, are established in treatment of obesity.

P.141 Quality of Life after Chosen Bariatric Procedures Basing on Baros

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Background: The most often performed procedures in bariatric surgery is laparoscopic adjustable gastric banding (LAGB) and roux-Y Gastic Bypass (RYGB). Evaluation of quality of life after bariatric operations is very important component of treatment results evaluation. The purpose of the study is evaluation of quality of life after the most often performed bariatric procedures.

Methods: The study was performed among randomized group of patients operated between 2006 and 2008 in our Department because of morbid obesity at least 6 months after surgical intervention. The study was performed using the questionnaire based on The Bariatric Analysis and Reporting Outcome System (BAROS) in own modification.

Results: We have received 25 questionnaires from 45 patients qualified to the study. In 20% of patients we noticed excellent result of surgical treatment of obesity, in 56% the result was very good, in 16% - good, in 4% (1 patient) poor, and in 4% unsuccessful results. Quality of life in 64% of patients was much better, in 28% - better, in 4% we noticed no change in the quality of life and in 4% - worsening. In 90% of patients after LAGB the quality of life was much better. In patients after RYGB procedure the quality of life in 46,7% was much better and in 46,7% - better.

Conclusions: In patients operated in our Department because of morbid obesity we have noticed beneficial influence performed treatment on quality of life. The group of patients after LAGB in comparison to patients after RYGB received advantage in quality of life assessment.

P.142 Comparison of Different Band Types Used for Laparoscopic Adjustable Gastric Banding (LAGB)

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Aims: To study the early and long term results of LAGB with different band types.

Materials and methods: A retrospective review of all patients with obesity, operated in our Department since 2006, was performed. There were 504 patients who underwent LAGB, 224 of them underwent LAGB combined with Toupet fundoplication because of symptomatic hiatal hernia. We used: AMI (AMI, Austria) - 149 (29.5%) (70 - with fundoplication), SAGB (ETHICON, USA) - SAGB - 83 (16.5%) (50 - with fundoplication), SAGB Velocity+Velocity VC - 102 (20%), LapBand (ALLERGAN, USA) - 129 (25.5%) (91- with fundoplication), Bioring (Cousin Biotech, France) - 32 (6%) (13 - with fundoplication), 9 (2%) - another types of gastric bands.

Results: Average operative time (laparoscopic part) was 24 minutes (14–90) in only LAGB group, and 39 minutes (24–110) in group of simultaneous operation regardless of band type.

Early complications was: 11 (2.2%) port site seromas (1 - LapBand, 4 - AMI, 6 - SAGB), 4 (0.8%) port site hematomas (2 - LapBand, 2 - Bioring).

Late complication was: 5 (1%) port inversion (LapBand - 2, AMI - 2, SAGB - 1) - correction with local anesthesia, 16 (4%) band slips (4 - LapBand, 6 - AMI, 5 - SAGB, 1 - Bioring), 9 of them operated (2 - LapBand, 4 - AMI, 3 - SAGB), 1 (0.2%)

band failing (SAGB) - operated, 4 (0.8%) band erosions (2 - Bioring, 1 - LapBand, 1 - SAGB) - 3 endoscopic band removing, 1 patient operated. Band defects: 2 (0.4%) band undoing (AMI), 4 (0.8%) disconnecton catheter from the port (3 - AMI, 1 - SAGB), 4 (0.8%) band aneurismas (3 - AMI, 1 - SAGB), 2 (0.4%) detachment catheter from the band (AMI) - all patients with band defects were rebanded.
Total % EWL after 12, 24 months was 77 and 78% respectively regardless of band type.
Conclusion: 1. All types of bands are effective in weight loss;
2. Lap-Band and Cousin are more useful for simultaneous LAGB with fundoplication because of special connection of band and catheter;
3. AMI demonstrates most of band defects leading to rebanding.

P.143 First Results of a Prospective Series of the SAGB VC™

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Background: Bariatric surgery is currently the only effective treatment for morbid obesity. The main advantage of Laparoscopic Adjustable Gastric Banding (LAGB) is that this operation is minimally invasive. Since 2007 the SAGB VC™ is used in our clinic. Few studies on the SAGB VC™ have been published. The aim of this study was to evaluate the results and its efficiency. The course of weight loss, medication use, co-morbidities and pre- and postoperative complications will be discussed.
Methods: Between 2007 and 2009, 622 patients (82% women and 17.8% men) were implanted with the SAGB-VC in our hospital. These patients were followed up for at least one year. All data (demographic, morphologic and operative follow-up) were prospectively collected in a computerized data bank. The postoperatively program was performed by the surgeon and nurses specialized in morbid obesity of bariatric surgery department.
Results: Follow up data were available for 622 patients (97%), 21 patients were lost (3%) to follow up. Mean follow up was 23 months. Total mean EWL after twelve months was 34.5% and after 36 months 41.2 %. Initial mean BMI was 44.0 kg/m², after twelve months 37.8 kg/m² and after 36 months 36.5 kg/m². A total of 361 complications occurred of which 64 (11%) needed surgical intervention and 297 (49%) were band related. The most common complications were vomiting 34%, puncture port pain 8 % and reflux (heartburn) 7%. There was no mortality.
Conclusions: From our experience, the SAVG-VC proves itself as an effective type of band with less complication's and better results in short term comparing with other type of gastric bands. However, long term results are not available yet. LAGB surgery is an effective treatment for morbid obesity.

P.144 Laparoscopic Adjustable Gastric Banding in Selected Patients is more Effective and Safer: a Prospective Study

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Introduction: Laparoscopic adjustable gastric banding (LAGB) is the most frequent procedure performed worldwide. Conversely, a high late morbidity and failure rate have been reported. We have previously identified five predictive success factors of LAGB: age under 40, Body Mass Index (BMI) lower than 50 kg/m2, team of skilled laparoscopic bariatric surgeons, patients able to follow dietary recommendations and regular physical activity. We report then the results on a large cohort of 389 selected patients.
Patients and methods: Between January 2005 and December 2010, 429 patients underwent LAGB according to the selected criteria except the age. Forty patients dropped out follow-up. Preoperative mean age was 39.7 years (± 19.75), mean weight was 114.61 kg (± 14.72),mean percent excess weight was 85.03%, mean BMI was 41.60 kg/m^2 (± 3.67) and mean follow-up was 29.24 months (291 at one year, 107 at three years, and 32 at five years). Safety and effectiveness were compared to our historical series of 1227 LAGB.
Results: No death was reported. Overall rate of complications was 9% (n=35): 11 slippages, 4 food intolerance, 4 oesophageal dilatations, 2 intragastric migrations and 14 port complications (12 rotations and 2 infections). Abdominal reoperation rate was 4.3% (n=17). Eleven bands were removed (2.8%). Mean weight was 92.21 kg, 88.80 kg, 83.84 kg, mean %EWL was 40.32%, 57.19%, 60.04% and mean BMI was 33.47, 32.33, 30.84 kg/m^2 at 1, 3 and 5 years, respectively.
Discussion: In our historical series of unselected patients, band removal rate was 10% (n=128) and reoperation rate was 26% (n=262) at 10 years. When we compare our results to our historical series we observed a decreased reoperation rate (4.3% vs. 10%, p<0,001) and a significant reduction of morbidity (9% vs. 26%, p<0,001). At five years weight loss was higher in the selected group (BMI 30.84 vs.33.9). The criteria selected could also influence the BMI observed at 5 years (30.84 vs. 33.9).
Conclusion: Patients undergoing LAGB selected on the basis of predictive criteria of success have a significant lower morbidity and failure with higher weight loss compared to the unselected patients. LAGB is safer and more effective in selected patients at long term.

P.145 the Role of Banding in Gastric Restrictive Surgery 30 Years of Clinical Experience

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Gastric restrictive operation for the treatment of morbid obesity is composed of small gastric pouch and a narrow stoma. The stoma can be kept tightened by band. We try to use our clinical experience to show the essentiality of banding at the long term follow up of the patients extending from five to 30 years after surgery.

Patients and methods: During 1978 to 1985 624 open gastric bypass were performed. Three to five years after surgery 66 (11%) of the patients had proximal banded gastroplasty on failed gastric bypass. Later 30 more patients had laparoscopic adjustable gastric banding on the gastric bypass. During 1985 to 1995 1500 morbidly obese had open banded gastroplasty (SRVG). During the next ten years (until 2005) 208 (14%) of whom had proximal laparoscopic gastric banding. Three patients had proximal banding after having both previous gastroplasty converted to gastric bypass. The mean age remains in all groups 38 years with 80% females. Average preoperative BMI was 43.
Results: Following the bypass patients for ten to twenty years after surgery, only the proximal non adjustable and adjustable banded patients could keep steady low Weight. The SRVG patients retained their weight loss until stapled line disruption which happened between one to eight years after surgery. 208 of the SRVG failures patients who had proximal Banding, followed for five to ten years after surgery had stable BMI of 29.
Conclusions: Our clinical experience shows that gastric restrictive surgery is safe and efficient operation but its long term success depends on the banded stoma that continuously control overeating.

P.146 Stitch-Less Gastric Bending. Controlled Clinical Study

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Nowadays among bariatric surgery's interventions, gastric bending is the mostly used procedure in Italy, Europe, Australia and others countries. Slippage is the most common complication (5-45%). Etiologic interpretations are different and conflicting. Perigastric access (or Pars-Flaccida), bending type, diaphragmatic hernia and pyloric malfunction are considered. Bending fixing is commonly considered necessary for slippage prevention. Gastric-gastric stitches complicate bending removal and the intervention of gastric by-pass. Many French experiences in literature consider these points unnecessary.
This abstract's aim is evaluate the utility of gastric bending's fixing.

Materials and methods: This study has been led over 1500 patients who has undergone an operation of gastric bending and participating a nutritional and clinical follow-up after the intervention, between 1997 and 2010, among a total of 2252, in the Bariatric Surgery Center of Azienda Ospedaliera in Pavia, Mortara's Hospital.
Average age was 40 yrs (range: 18–64 yrs), M/F ratio was 3/7, average BMI before intervention was 42.8 kg/m^2 (range 31–59). Selection respected SICOB criteria of intervention.
Follow up controls has been led by 1 or 2 surgeons, with nutritionists and other physicians when needed, at 3, 6, 12, 18 and 24 months and then every 6 months, with clinical and haematological exams. In this cohort history study has been picked 2 groups:
Patients who has undergone the operation in 2006 and 2007 (226 and 168 patients, 394 in total), and patients treated in 2008 and 2009 (196 and 152 patients, 348 in total). From Genuary of 2008 we quit fixing with stitches the bending. The groups are comparable because the type of bending, the surgeon, positioning technique and follow-up protocol are exactly the same. We considered only Midband gastric bending to avoid differences due to different type of bending. Every intervention has been led following "Pars Flaccida" technique.
Port has been filled up with 2 ml of bidistilled water at the end of the intervention, and after 3 months with other 0.5 ml.
Results: By now, none among patients with unfixed gastric bending presented slippage complication. Follow up check is at 15 months. Treatment in slippage case has been: 7 bending removals, 1 gastric by-pass, 1 re-positioning.
Conclusions: Even if this study is not randomized, results are clearly more positive in the unfixed bending group.
Without fixing stitches, gastric bending remains the first choice in bariatric surgery and still permits successive gastric by-pass or sleeve-gastrectomy interventions.
Considering that mortality and morbility of gastric by-pass, especially in patients with BMI>50 kg/m^2, is still moderate, we suggest a systematic sequential treatment protocol with unfixed gastric bending, followed by other intervention if necessary to upgrade security and avoid complications.

P.147 Does the Gastric Banding Need the Plication of the Stomach - Single Center Experience

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Background: Laparoscopic adjustable gastric banding (LAGB) is well-known and the most common surgical procedures of the treatment of morbid obesity patients. Still there are comming questions about the implantation technique. Especialy because of the fundus plications.
Methods: All 625 patients underwent LAGB without stomach plikation. The Age, gender, complications, mortality, change of body mass index, and of course weight loss were examined.
Results: From January 2002 to December 2010 625 patients underwent LAGB implantation. The mean age was 37.9 y. The mean reduction of preoperative body mass index after LAGB was 16,3. Total complications occurred 6.4%. The 90-day mortality rate was zero after operation. Early revisions rate was noted by one case. The conversion by primary operations were not performed in any case.
Conclusions: The general complication rate was similar like in literature accept Slippage which was noted only in one case.
Keywords: Morbid obesity, bariatric surgery, laparoscopic adjustable gastric banding.

P.148 Slippage after Gastric Banding - Case Report and Retrospective Review

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Backgound: Bariatric surgery has presented a dramatic increase due to the obesity epidemics and the laparoscopic approach. Slippage and pouch dilatation are significant late complications after laparoscopic adjustable gastric banding (LAGB). Treatment options are limited, and removal of the band is often required.
Methods: We present an interesting case report and a retrospective review of clinical and demographic data from the clinical records of 1105 patients with morbid obesity consecutively treated by LAGB between 2000 and 2010.
Results: A 39 year-old female patient with a body mass index (BMI) of 47,2 kg/m^2 was referred to our department. After proper evaluation and multidisciplinary consultation, a LAGB was performed by standard pars flaccida technique. A Swedish adjustable gastric band (SAGB) was used, without imbrication sutures. No peri-operative complications were noted, and the patient was discharged on the following day. After 6 months, her BMI was 40.0Kg/m^2, with 32.4% Excess Weight Loss (EWL), but no further weight loss was accomplished during the following months. Thus, 2 calibrations under radiological control were performed. In the day following the last calibration, the patient did not follow the prescribed liquid diet and ate solid food. She immediately developed persistent vomiting and epigastric pain, but only sought medical observation 5 days later. The gastric band was then deflated and esophagogastroduodenoscopy (EGD) revealed congestive gastric pouch mucosa. As the patient remained symptomatic, EGD was repeated 2 days later, showing pouch dilatation with extensive ischemic mucosa. An urgent exploratory laparoscopy was performed, confirming a large pouch dilatation and reversible gastric ischemia, without necrosis or perforation. After band removal, gastric reperfusion was immediately observed. Patient was discharged in the second postoperative day, without any further complications.
In the past 10 years, 1105 patients with morbid obesity were treated by LAGB in our center. Fifty three (4.7%) patients (52 females, 1 male; mean age=38 years) developed slippage or pouch dilatation, 35.2(±10.8) months after surgery. At that point in time, mean BMI and EWL were 31.0(±3.3) Kg/m^2 and 70.0%, respectively. Surgical treatment options included gastric band removal in 22 patients (41.5%), gastric band removal and placement of a new band in 30 (56.6%), and total gastrectomy in 1 case (1.9%), due to extensive gastric necrosis. The most frequent cause for only performing gastric band removal was local inflammatory reaction in 15 (68,2%) of the 22 patients.
Conclusions: Slippage and pouch dilatation after LAGB can be serious complications, leading to pouch ischemia and necrosis if adequate treatment is delayed. Minimally-invasive approach should be considered in most of these cases. Complications after bariatric procedures will increase in the future and general surgeons must be aware of the diagnosis and prepared to treat them.

P.149 Is Laparoscopic Adjustable Gastric Banding the Best Solutions in Morbid Obesity Treatment ?

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Background: Complications after bariatric procedures depend on type of operation and comorbidities. Laparoscopic Adjustable Gastric Banding (LAGB) is the most often performed restrictive bariatric procedure. This method is relatively the less invasive, because the gastrointestinal tract is not opened and the band can be removed. The most often complications after LAGB are: nausea or vomiting, esophageal dilation, band slippage, band erosion, band obstruction, wound infection. The purpose of the study was retrospective evaluation of complications after LAGB in our Department.
Methods: In the I Department of General and Endocrinological Surgery Medical University of Białystok from 2005 to 2010 LAGB was performed in 79 patients (55 women and 24 men) with BMI 41–49. We have performed the evaluation of complications after LAGB in our Department.
Results: Stomach rotation because of peritoneal adhesions and upper gastrointestinal tract obstruction symptoms (vomiting, dehydration, electrolytes deficiency) in 2 patients 3 and 10 months after LAGB. Pneumonia and left pleural abscess 7 days after LAGB treated with pleural drainage and antibiotics. Abscess of region gastric band's port noninvasively treated. Slippage of gastric band to pyloric region of stomach 4 months after LAGB. We observed band erosion and band migration to the gastrointestinal lumen in 3 patients.
Conclusions: From our observation we have concluded that patients with bad toleration of gastric banding are not exceptional. Moreover nausea, vomiting,

dehydration and deficiency of electrolytes are quite often complications after LAGB. Slippage or migration of band and obstruction symptoms are serious complications which should be treated by laparoscopy or laparotomy. In our opinion toleration of sleeve gastrectomy is better and it may be a better choice as restrictive bariatric procedure.

P.150 Effect of Number of Adjustments on Excess Weight Loss in Gastric Banding Patients - Interim Analysis of the Apex Trial

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Background: The optimal use of an adjustable gastric band (AGB) for weight loss requires after-care adjustments, which includes regular follow-up visits to assess the need for changes in band fluid volume. This evaluation seeks to determine the optimal number of band adjustments required to achieve optimum weight loss over one year, and the frequency at which adjustments should be made.
Methods: The APEX study is an ongoing 5-year, prospective, multi-center, open-label, observational study which will assess weight reduction, co-morbidities and quality of life after implantation of the LAP-BAND AP® gastric band (NCT00501085), often described as a restrictive weight loss technique. This is an interim analysis of subjects (n=410) who have completed at least the 1-year post-operative visit. Patients were seen at 2 and 4 weeks (wk) post-op, then monthly for the first six months, and then every 6 wk. Band-fluid adjustments were based on patient symptoms and satiety.
Results: The mean number of adjustments performed over one year was 5.2±2.1, with a median of 5.0. Four patients (1%) required no adjustment, 7 patients (1.7%) required 1 adjustment, and 8 patients (2%) required 10 adjustments. The majority (77%) of subjects required between 3 and 7 band adjustments over the first year. More than 50% of subjects required an adjustment at each monthly visit over the first 6 months (4 wk visit/72%, 8 wk/79%, 12 wk/67%, 16wk/59%, 20 wk/50%, 24 wk/50%). The percentage of adjustments tended to decrease over time. Additionally, during the first six months 94.6% of adjustments were to add fluid; 87.7% of adjustments added fluid during the second six months. The number of adjustments did not correlate with percent of excess weight loss (%EWL) or with change in BMI, with a correlation coefficient (r^2) of 0.03 for both measures. At one year, the %EWL was −46.1% and change in BMI was −8.3. 94% of patients reported being satisfied or very satisfied.
Conclusions: These data demonstrate that individual patient needs dictated the frequency and amount of band fluid adjustments required to yield optimal results. Moreover, there was no specific correlation between the number of adjustments and the amount of weight loss. Notably, the frequent follow-up of patients was important, as it allowed the clinician to optimally inflate or deflate the band to optimize satiety, while avoiding nausea. This was particularly true in the first six months after AGB, but remained significant throughout the year. Additionally, the periodic and regular patient visits may have contributed to the high patient satisfaction scores found with the AGB.

P.151 Simultaneous Toupet Fundoplication as Band Slip Prophylaxis after Laparoscopic Adjustable Gastric Banding (LAGB)

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Introduction: One of the most unique complications after LAGB is band slip. According to literature band slip occurs in 2-25%.
Methods: A retrospective review of 504 patients with obesity, operated in our Department since 2006, was performed. There were 224 (44.4%) patients (138 female) with obesity and symptomatic hiatal hernia, who underwent laparoscopic adjustable gastric banding combined with Toupet fundoplication. Mean age was 38 years (range 22–62 years), mean body mass index was 39 kg/m^2 (range 31–51 kg/m^2). We used a 4 trocar technique as for a usual fundoplication. Mobilization of diaphragm crura, distal oesophagus, fundus of the stomach and its small curvature at the cardial part are performed. Then posterior crurorraphy, passage of band catheter behind stomach and 270º fundoplication over the band catheter are performed. Afterwards the banding is accomplished. 81% of patients were available for 1 year follow-up. Median follow-up constituted 27 months.
Results: Average operative time (laparoscopic part) was 39 minutes (24–110) and tended to drop during the learning curve. There were no intra-operative complications. Median length of hospital stay was 1 day. The percentage of EWL (Excess Weight Loss) 6, 12, 24 months after the procedure was 60%, 77%, 78%, respectively. At 1 Year follow-up X ray exam no hernia recurrence or reflux of barium were revealed. During the follow-up period we revealed 16 (4%) band slips (9 - reoperated). From them only 2 patients underwent simultaneous Toupet fundoplication.
Conclusion: Toupet fundoplication combined with laparoscopic adjustable gastric banding seems to be an effective procedure for band slip prophylaxis.

P.152 Single-Incision Laparoscopic Adjustable Gastric Banding: the First Experience

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Background: Laparoscopic adjustable gastric banding is a widely accepted option in the treatment of patients with mild obesity. We report our first experience with single-incision laparoscopic gastric banding.
Methods: From April till December 2010 we performed 28 laparoscopic gastric banding procedure, including 6 single-port operations. There were 5 women and one man with BMI (Body Mass Index) from 32 to 39 kg/m^2. In all cases SILS®-port (Covidien) was employed trans-umbilically. An additional 5-mm trocar in the epigastrium was used in all patients for liver retraction and gold finger positioning. In 3 cases we used curved Endo-Stitch® instrument to fix the band with sero-muscular sutures. The catheter was first exteriorized via the epigastric port and afterwards placed in the subcutaneous fat to be connected with the port. The latter was always placed in the supra-umbilical fold.
Results: Operative time was 55–135 minutes. There were no intra- or post-operative complications. The length of stay was 1–2 days. All patients were extremely satisfied with the cosmetic result of the procedure.
Conclusion: Single-incision laparoscopic gastric banding with an additional epigastric trocar seems to be a safe procedure when performed in bariatric centers-of-excellence. This new approach to gastric banding might appear valuable in young obese patients with high cosmetic concerns.

P.153 Adjustable Gastric Banding with Jejuno-Ileal Diversion Novel Technical Procedure Preliminary Results

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Background: The gastric banding is probably the technical procedure with lower morbimortality among the different bariatric operations. Although presenting good results the reduction of EBW and BMI is lower than in gastric by-pass procedures or mixed procedures
The aim of this study was to present the preliminary results of the application of the AGB associated to an intestinal jejuno-ileal diversion.
Method and materials: After the initial application of the AGB a jejunoileal diversion was created by a laterolateral anastomosis 80 cm distally to the Treitz angle and 120 cm from the ileocecal valve.The procedure totally managed by laparoscopy was performed in 17 patients with mean BMI of 40, six of witch were diabetics.
Results: The EBW reduction in 6 months was of 51% and after a year of 70%.No immediate or late complications were noted nor operative mortality. All the diabetics patients normalized their glicemia.

Conclusion: Therefore, the addition of a laparoscopic jejunoileal laterolateral by-pass to the AGB may enhance the efficacy of weight-loss and insulin control in the treatment of morbid obesity and its resulting co-morbidities.

P.154 A 20 ML Water Bolus is an Acceptable Bolus Medium and Volume for the Measurement of Intra-Band Pressure in the Swedish Adjustable Gastric Band (SAGB)

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Background: Intraband pressure (IBP) measured through the subcutaneous injection port in SAGB patients may provide a less invasive method to assess the resistance of the adjustable gastric band. However, the characteristics of the optimal bolus medium that should be used for IBP measurement have not been studied. Our aim was to identify a bolus volume and viscosity that produces the most consistent results in IBP recordings during a swallow; and to understand changes in IBP with the chosen bolus medium across a range of band-fill volumes.
Methods: SAGB patients presenting for their first, second or third band adjustment were prospectively recruited for this feasibility study at three sites. IBP was measured via the injection port with a Huber needle connected to a pressure transducer and monitor. Esophageal peristalsis was elicited with 20 ml water (W) followed by one of the following 20 ml tomato juice (TJ), 10 ml pudding (PD) or 10 ml baby food (BF). The media showing most consistent results was then to test the extent different volumes (10, 20, and 30 ml) may influence before- and after-adjustment IBP. Deglutitive changes were measured after band adjustment. The band adjuster was blinded to IBP measurements. Statistics are presented as average±standard deviation. ANOVA models were used to test for significance.
Results: 207 patients from two Australian and one Czech bariatric centers were recruited for the study. 72 patients were excluded due to technical errors with the IBP measuring device and/or unblinding of investigator, stomal obstruction during recordings. The 135 evaluable patients were further stratified based on whether the perigastric fat was dissected (n=46; group 1) or not (n=89; group 2) during band placement Band fill volume ranged from 2.5 ml to 7.5 ml, and 444 swallows were studied. Average IBP during a swallow was 19.1, 15.6, 18.7 and 22.7 mmHg for TJ, PD, water and BF, respectively. Average IBP showed a positive linear correlation with band fill volume (r^2=0.21, p=0.0007). IBP behavior were not statistically significant among the different media (p=0.10). Fat dissection did not influence these results (p=0.74 and p=0.70 for group 1 and 2). Water was chosen as the optimal medium based on these results and for its ease of availability. There were no significant differences between the water volumes tested (average 22.9, 23.3, and 22.5 mmHg for 10, 20 and 30 ml, respectively (p=0.97). A statistical model showed that each 1 ml increase in band fill volume resulted in an associated deglutitive increase of 3.4 mmHg in IBP.
Conclusions: A 20 ml water bolus is acceptable for measuring intraband pressure and provides an accurate representation of intraluminal contractile activity. Intraband pressure is linearly correlated with band fill volume. These findings may have implications in pressure-guided band adjustment.

P.155 The Relationship between Intra-Band Pressure and Band Fill Volume for the Swedish Adjustable Gastric Band

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Background: Intraband pressure (IBP) measured through the subcutaneous injection port in Swedish Adjustable Gastric Band (SAGB) patients may provide a less invasive method than intraluminal manometry to assess the dynamic resistance imposed by the band during gastric pouch emptying. Since the primary means of achieving restriction is by adjusting the volume of fluid within the band, our aim was to understand and quantify the *in vivo* IBP relationship between changes in band fill volume and IBP during resting and deglutitive events.
Methods: Forty five SAGB patients in their second postoperative year were prospectively recruited for this feasibility study. IBP was measured (via the port with a Huber needle connected to a pressure transducer and monitor) at band fill volume starting at 4 ml, with increments of 0.5 ml, stopping at 9 ml or earlier if the patient experienced excessive discomfort . Concurrent esophageal manometry was performed in a subset of 10 patients and results have been presented earlier (Fried *et al*. *Obes Surg.* 2010; 20(8): 1102–1109). A 30 sec pre-swallow (resting) IBP recording followed by a 120 sec dynamic IBP recording in response to esophageal peristalsis elicited with a 20 ml water swallow were obtained. Average pre-swallow and deglutitive IBP as well as frequency and amplitude of IBP contractions were analyzed. Correlation was computed using the Pearson's coefficient (R^2). Statistics are presented as mean ± standard deviation.
Results: All 45 patients completed the study without any adverse events. Our prior study with concurrent intraluminal manometry and IBP showed that IBP reflects esophageal motor function in patients without significant lower esophageal sphincter relaxation impairment. Mean age of our group was 45.8± 10.7 years, mean pre-implant BMI was 39.9±4.1 kg/m^2 and mean post-implant BMI was 34.5±4.9 kg/m^2. The average post-implant follow-up period was 17.6± 4.0 months. 71 % of the patients tolerated band fills of up to 7.0 ml and 38 % tolerated the maximum fill of 9.0 ml. A positive linear relationship was observed between changes in band fill volume and resting IBP (r^2=0.98, p<0.0001), average IBP during a swallow (r^2=0.99, p<0.0001), maximum IBP amplitude (r^2=0.98, p<0.0001), and number of contractions (r^2=0.8762, p<0.0001). For every 1 ml increase in band fill volume, the average IBP increased by an average of 17 mmHg and the deglutitive IBP amplitude increased by an average of 26 mmHg. Analysis of covariance indicated that pre-operative BMI, change in BMI, gender, pre-study band fill volume, and time since implant did not confound the linear relationships observed.
Conclusion: A positive linear correlation exists between IBP and band fill volume during resting and deglutitive events. IBP is a reliable method for assessing the dynamic resistance imposed by the band during gastric pouch emptying, and may provide a more objective means of tailoring band adjustments to individual patient needs.

P.156 Band Slippage and Erosion Post Laparoscopic Gastric Banding - Incidence in the Past 17 Years

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Background: Gastric band slippage and erosion remain complications that result in significant morbidity and re-operation rates. Rates of slippage have reduced due to changes in insertion technique and erosion rates also appear to have reduced. We conducted a meta-analysis to investigate any correlation between band slippage and erosion, as both these complications may be related.
Methods: Data of totally 1934 gastric banding procedures from May 1994 until February 2011 were analyzed. Insertion techniques, band types, experiences of the surgeons and complication rates were recorded. Multivariate analyses were conducted examining insertion technique and any link between rates of erosion and slippage.
Results: The procedures were further subdivided according to technique of band placement. There was a strong correlation between erosion and slippage if perigastric insertion was used (r=0.96; p<0.001). However this correlation reduced once pars flaccida insertion was utilised (r=0.36; p=0.36). The frequency of erosions was related to the number of gastric-gastric sutures to cover the band. The expected increase of the frequency of erosions with time of band placement was not stated (p>0,5).
Conclusions: The high correlation rate between erosion and slippage for the perigastric group provides irrefutable evidence that these complications share a common pathophysiology. This correlation has reduced with changes in technique (fixation of band, pars flaccida dissection) suggesting a different aetiology associated

with erosion in this study. Surgical techniques which help eliminate gastric band slippage should also reduce rates of erosion. The number of gastric-gastric stitches was not related to the frequency of slippage situations, but shows a relation to the incidence of erosion. With increasing number of non-absorbable stitches to prevent slippage led to increased incidence of erosions.

P.157 Prospective Randomized Comparison among Three Different Sort of Gastric Band at 4 Years Follow Up. Single Centre Experience

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Aim of this study is the 4-years prospective evaluation of results with 3 different sort of gastric band.
Methods: 150 patients were selected according to the following criteria: age ≤ 40 yo, BMI ≥ 40 ≤ 46 Kg/m^2, absence of psychological or medical contraindications, agreement to apply the follow up. They were randomized into 3 group according to the manufacturer of different band of last generation: Group Al: Allergan (n=50), Group Et: Ethicon (n=50), and Group He: Helioscopie (n=50). All band were positioned via pars flaccida by the same surgeon. Statistical analysis was done by means of Fisher's exact test or Student t test. P<0.05 was considered significant.
Results: 30-days mortality, intraoperative complications, laparoscopic conversion were absent in all groups. Operative time and hospital stay were not significantly different (p=ns). Overall postoperative complication rate was 11/50, 10/50, and 9/50 in group Al, Et, and He respectively (p=ns). Pouch dilations were significantly higher in group Al (10%) and He (12%) patients as compared with group Et (0%) (p <0.01). Slippage and early intragastric band migration (initial 24 months FU) were without significant difference among groups. Late intragastric migrations (> 24 months FU) were observed only in Group Et (10%) (p<0.001). BMI and %EWL were without statistically significance at 4-years-FU: 42±2.4, 42.2±2.1, and 41.9± 2.6 Kg/m^2, and 80±4.9, 82.1±4.2, and 79.2±5.1% in Group Al, Et and He respectively
Conclusions: The last generation of gastric band positioned in this trial can be considered safe and efficacy in terms of weight loss and low complication rate. More technical changes in band manufacturing together with better patient management are requested to lower some late complications.

P.158 Clinical Evaluation of the Realize™ Adjustable Gastric Band-C (SAGB-VC)

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The SAGB-VC has been in use in Australia since 2007. Efficacy and safety was evaluated from retrospective analysis of prospective clinical data of patients implanted between November 2007 and June 2009 at three bariatric centers.
1176 patients (45.5±12.1 yr, BMI 43.4±7.6 kg/m^2) had the SAGB-VC implanted. 172 patients with ≤ 6 months of follow-up were excluded. No significant differences were recorded between the three centers hence data is pooled. At a follow up of 11±3 (SD) months, follow up weight reduced by 18.5±11.1 kg with an, excess weight loss of 37.8±20.1%. BMI fell from 43.5±7.6 to 37.0±6.5 kg/m^2 (pP<0.001).
Type 2 diabetes was reported in 178 (18%) patients. Remission or improvement occurred in 80% with either reduction or cessation of medication. Hypertension was reported in 349 (30%) and 21% of these ceased medication The metabolic syndrome improved with weight loss: HDL cholesterol (1.3±0.3 vs 1.4±0.3 mmol/L, p<0.001), triglycerides (1.6±0.8 vs 1.3±0.7 mmol/L, p<0.001), waist circumference 123±55 vs 109±16 cm, p<0.001), C reactive protein (9.4±7.9 vs 5.6±6.5 g/L, p<0.001). Complications (total 4.2%): pPost op wound infections occurred in 10 (1%), (in 9, infection required removal and later replacement of the port; in1 the SAGB-VC was also removed), port revision in 20, catheter revision 11; proximal band slippage 1. There were no erosions. Three patients had the SAGB-VC removed at their request. We conclude that Tthe SAGB-VC is safe and effective in the treatment of obesity and its co morbidities. T and the results are reproducible in separate centers.

P.159 A Five-Year Prospective Quality of Life Analysis Following Laparoscopic Adjustable Gastric Ganding for Morbid Obesity

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Purpose: In addition to actual weight loss and the possible resolution of obesity related co-morbidities following bariatric surgery, another widely recognized important outcome measure is the improvement of quality of life (QOL).
Material and methods: Disease-specific quality of life (DSQOL) and general health-related quality of life (HRQOL) were measured preoperatively and at one and five years postoperatively following laparoscopic adjustable gastric banding (LAGB) for morbid obesity. The Moorehead-Ardelt questionnaire was used for DSQOL assessments and a generic 15-dimensional questionnaire (15D) was used for HRQOL measurements. In addition, HRQOL was compared with that of age- and gender-standardized general population.
Results: DSQOL scores were significantly improved on all domains after one year from the operation and this improvement was maintained at five years. This improvement was also seen in the total HRQOL scores. Despite this improvement the HRQOL after LAGB remained worse compared to age- and gender-standardized general population.
Conclusions: DSQOL and HRQOL improve both significantly after LAGB. This QOL improvement is maintained at five-year follow-up although QOL does not reach the level of the general population.

P.160 Lap-Band® AP Results of a Single Centre Series in the First 103 Patients

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Background: Aim of this study is to evaluate the safety and efficacy of this type of gastric band in a series of 103 consecutive patients at a single centre.
Methods: A longitudinal single-centre study of LAP-BAND AP System patients was performed. Data were inserted in a prospective database from January 2006. For the purpose of this study items considered were: age, sex, BMI, intra-operative complications, laparotomic conversion, postoperative complications and intra-operative blood loss. Data are expressed as mean±standard deviation (SD), except as otherwise indicated.
Statistical analysis: Fisher's exact test, p<0.05 was considered significant.
Results: From January 2006 to December 2007, 103 patients were operated (36M/64F; mean age: 38.5±18.2, range 21–62 years; mean BMI: 46.7±7.7, range 37.3-68.3 Kg/m^2, EW: 61.8±25.4, range 36–130 Kg; %EW: 91.1±32.4, 21–112 Kg). Intra-operative complications, mortality and laparotomic conversion were absent.

During the three years of follow up, the overall complication rate was 9/103 (8.7%), and 6/9 patients with complications underwent band removal. Only one complicated patient (1/103; 0.9%) was scheduled for another bariatric procedure. Band slippage and intragastric migration were observed in one patient each. After 12, 24 and 36 months, the mean BMI was 41.5±6.8, range 29–62.8, 37.1±5.7, range 26.8-47.2 and 32.5±4.9, range 22–38.9 Kg/m^2, respectively.
Conclusion: After 3 years of follow up, intragastric migration and gastric pouch dilation were very rarely observed, with a very low rate of other complications, and satisfactory results in terms of weight loss. We believe that this latest version of gastric band can be considered an improvement to minimize the disturbing complications of gastric banding.

P.161 Greek Experience of the Midband® Gastric Band in 458 Patients

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Background: Gastric banding is commonly used for the surgical treatment of morbid obesity. The experience with MIDBAND® in Greece is presented.
Methods: From 2006 to 2010, 458 patients who operated using the MIDband®, in one Greek centre, by the same surgical team, were studied prospectively. All patients underwent comprehensive multi-disciplinary team assessment preoperatively. Post-operative follow up has been completed in all patients from 3 to 60 months Band placement was performed using a standardized pars flaccida laparoscopic technique.
Results: The median age of patients was 41 (range 19–68) years with a median BMI of 44 (range 36–71). All patients underwent LAGB using a standardized aproach with a median hospital stay of 1 day (range 1–3 days).The early complication rate was 5,4% (1 intra-operative bleed, 1 total dysphagia, 2 port-site infections), 6 slippages and there was 1 prosthesis replacement due to leak. There was one conversion to open surgery. Mean excess weight loss was 19%, 51%, 63% and 88% at 3, 12, 24 and 60 months respectively. Of the 52 patients with diabetes, there has been a significant reduction in diabetic medication.
Conclusions: Laparoscopic gastric banding, using the MIDband® is a safe procedure with a very low complication rate and excellent long term results

P.162 Laparoscopic Adjustable Gastric Banding as a Revision Operation after Failed Vertical Banded Gastroplasty, a Case Control Study

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Aims: To evaluate whether Lap gastric banding is a viable solution for patient with previous vertical banded gastroplasty.
Methods: A retrospective case-control study, which included a research group that is composed of patients who have undergone LAGB between the years 2000–2003 at the, Surgery Dept. A, after the failure of SRVG performed 5–15 years earlier. The control group was randomly chosen among a group of patients who underwent a primary LAGB between the years 2000–2003. The two groups were matched regarding demographical variables.
Results: The study included 92 patients, 45 in the research group and 47 in the control group. In both groups the BMI decreased after the procedure without significant statistical differences (p=0.12). In the study group, the average decrease was of 15.1 (44.3±8.2 to 29.2±7.8) versus an average decrease of 12.2 (44.1±6.1 to 31.9) in the control group. There was no significant difference in the BAROS score (p=0.14) between the two groups. No pronounced difference was found in the general amount of post surgical complications 14/45 (31%) in the study group compared to 24/47 (51%) in the control group (p=0.052), but the in specific complications, we found that slippage of Gastric Band was clearly more prevalent (p<0.001) in the control group (19 cases), versus a single case in the study group. Operating time was significantly longer in the study group [58±18 minutes versus 28±13 minutes in the control group (p<0.001)].
Conclusions: Laproscopic Adjustable Gastric Band as revision operation is effective as Laproscopic Adjustable Gastric Band as a primary procedure.

P.163 Spontaneous Unbuckling of Gastric Band- Manufacturing Defect or Safety Feature?

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Background: Although a safe operative procedure, gastric bands are known to have a relatively high incidence of post-operative problems requiring surgery. These problems can be serious events such as gastric band slippage or erosion, particularly in the context of an over tight band, or rarer complications such as spontaneous unbuckling. The band fill protocol we use is designed to avoid an overtight band. We have previously described our low band slippage/erosion rates but recently noted an increasing number of spontaneous unbucklings with the AMI Soft Gastric Band. We performed a detailed audit and present our findings.
Methods: Analysis of prospective database from January 2007-November 2010. Endpoints were incidence of unbuckling, slippage and erosion as seen on contrast imaging or endoscopy.
Results: 305 patients underwent laparoscopic gastric banding (median BMI 43.6, 84% female). Excess weight lost was 37% and 70% at one and two years respectively.

	N	%
Spontaneous Unbuckling	7	2.3%
Erosion	Zero	Zero
Slippage	5	1.8%
Port site problem	12	3.9%

[Outcomes]

Unbuckling was diagnosed a median 11 months (range 7–29) postoperatively. 60% of cases had recorded episodes of significant vomiting before the unbuckling was diagnosed.
The manufacturers were made aware of the unbuckling rates and increased the band buckle strength by 30% in 2010.
Conclusions: The high incidence of unbuckling may well represent a manufacturing defect, however it could be a serendipitous safety feature that reduces the incidence of potentially fatal band slippage or erosion induced by an over tight band with vomiting. Our band fill protocol may have contributed to the low slippage rate and it would be useful to compare our findings to units with differing protocols using the same gastric band.

P.164 7 Year Experience of a Simplified Technique for LAGB

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Background: LAGB is one of the most commonly performed bariatric procedures worldwide. Although technical advances have led to improvements in safety and outcomes following LAGB, there is still some controversy as to the optimal technique.
Methods: Since the bariatric programme began in 2004, 709 patients have undergone LAGB in our unit. We utilise the pars flaccida technique to place the device with very minimal dissection as the angle of His. MIDband™ or Allergan APL™ bands are placed without the use of gastro-gastric or gastropexy fixation sutures. Our ports are buried in a sub-cutaneous pouch created with blunt dissection, without fixation.
Results: Mean percentage excess body weight losses (%EBWL) of 66.3% and 63.4% have been achieved at 4 and 5 years, respectively. Our unit mortality rate is 0%. The slip rate in our cohort of patients is 1.98% (14 patients, all anterior slips), whilst our

erosion rate remains 0%. Less than 2% of patients have suffered port-site complications, with no cases of deep infection or band loss due to infection. 8.7% (62) patients required re-operations under general anaesthetic due to complications. All re-operations were performed laparoscopically, with an average inpatient stay of 1night. Only 5.5% (39) of patients required removal of their original gastric band; the majority of these underwent a secondary LAGB procedure.
Conclusions: Our simple technique affords patients good %EBWL whilst providing an excellent safety record. Non-suturing of stomach around band does not increase slippage rate and allows re-operation to be performed simply and safely if required. Non-fixation of the access port is associated with a low rate of complications.

P.165 Non - Fixation of the Access Port Remains Successful at 7 Years Post Gastric Banding

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Background: Laparoscopic adjustable gastric banding (LAGB) is a popular bariatric procedure for the treatment of morbid obesity. Suturing of the access-port in LAGB is felt necessary by many surgeons to prevent migration and facilitate band adjustments. This can prove to be difficult and time consuming and may not be necessary.
Methods: All patients undergoing LAGB in our unit between 2004 and 2011, were included in the study. All had placement of either MIDband™ or Allergan APL™ by the pars flaccida approach. The access-port was positioned in a subcutaneous pouch adjacent to the left hypochondrial port site and was not secured. Regular follow-up and band fills were offered. All outcomes, including band or port related complications were duly recorded in a prospectively maintained database .
Results: A total of 727 patients (18% male, 82% female) were identified. Mean pre-operative age was 46 years (range 18 years to 74 years) and mean pre-operative BMI was 48 kg/m² (range 35 kg/m² to 83 kg/m²). Difficulty in accessing the port in outpatient clinic, necessitating x-ray guidance occurred in 15 patients (2%). 5 of these patients had their ports successfully located under x-ray guidance, the remainder requiring surgical re-positioning. A total of 14 patients (1.9%) required surgical intervention for access port complications (12 for repositioning, 1 for port site infection, 1 for puncture of port tubing. All operations were performed under local anaesthetic. 1 patient (0.14%) reported to their general practitioner with a minor port site infection, successfully treated with antibiotics.
Conclusion: Non-fixation of the access port in LAGB continues to have a low complication rate with long term follow up. In addition, the subcutaneous position enables easy access in case emergency deflation is required.

P.166 The Effects on Obesity Related Peptides of Laparoscopic Gastric Band Applications in Morbidly Obese Patients

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Background: The aim of this study is to examine the relationship between resistin, apelin, chemerin, visfatin and weight loss after laparoscopic adjustable gastric banding (LAGB).
Methods: Study group consisted 19 patients who were operated for morbid obesity (BMI: 48.7±6.6 kg/m^2) and 22 normal weighted (BMI: 22.8±2.0 kg/m^2) and healthy subjects formed the control group. We obtained blood samples from the study subjects for three times, before the surgery, one month and six months after the surgery, and once from the control group.
Results: Significant weight loss was achieved at the first and six month after the surgery. Plasma levels of apelin, resistin, chemerin and visfatin were higher in morbidly obese patients compared with control group. Obesity related this peptides decreased one month and six months after surgery.
Conclusions: Elevated plasma resistin, apelin, chemerin, visfatin levels in morbidly obese patients are reduced after weight loss. These findings suggest that LAGB surgery is a valuable tool not only to reduce excessive weight in morbidly obese patients but also to improve the metabolic risk profile within a short time-frame.

P.167 The Effects on Oxidative DNA Damage of Laparoscopic Gastric Band Applications in Morbidly Obese Patients

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Background: The objective of this study is the difference in oxidative DNA damage at post-operative month 6 to be determined in patients received gastric banding upon morbid obesity diagnosis.
Materials and method: 20 patients with BMI: 46.82±4.47 who have received laparoscopic gastric banding upon morbid obesity diagnosis and a control group of 20 healthy volunteers with normal BMI (22.52±2.08 kg /m2) were enrolled. Blood and urine samples were collected preoperatively and six month after the operation from the patient group, and once from the control group. Parameters which were used in the study have been evaluated by ELISA method.
Results: A significant weight loss was achieved in the patient group six months from the operation. Serum 8-OHdG levels in the control group were found with an average of 1.864±1.919 ng/ml and 2.098±2.322 ng/ml preoperatively in the study group. six months after the operation, the values were recorded as 1.175±0.296 ng/ml, a significant decrease was observed when compared to the preoperative period. Urine 8-OHdG levels were found as 7,841±7,041 ng/ml on average in the control group, and as 21,021±28,836 ng/ml preoperatively in the study group. By the end of the six-month postoperative period, it was recorded as 8.698±8.115 ng/ml showing a significant decrease when compared to the preoperative values.
Conclusion: The oxidative DNA damage was increased by the morbid obesity, but this increase is not related to weight gain, and it is more evident in the serum levels than the urine samples' levels. After LAGB surgery, due to the morbid obesity, the oxidative DNA damage is declined by surgery both in serum and urine. This difference is evident for ELISA values in both urine and serum 8-OHdG.
This study was supported by the Research Fund of Istanbul University (Project number: 3133).

P.168 Gastric Banding for Surgical Treatment of Obesity: Choosing the Best Candidates?

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Background: Adjustable Gastric Banding (AGB) appears questionable results compared with other bariatric operations. Our aim is to analyze the preoperative parameters of patients that affiliate the success or failure of this procedure.
Methods: We analyzed age, gender, preoperative BMI and excess weight loss (EWL %) reduction at 60 months. From 2006 to 2010, 458 patients underwent Laparoscopic Adjustuble Gastric Band using the pars flaccida technique. We considered of success if EWL>50% and failure if EWL<50%.
Results: The rate between males and females was 1:3 (M:F), average age 41 years (19–67) and mean preoperative BMI 44 (36–68), EWL 64±4.83%. Follow-Up at 36 months: The M group: N=130, mean preop BMI: 37.6±3.7, mean age was 39.8 years. The F group: N=328. mean preop BMI 38.2±5.5. Mean age was 42,3 years. Mortality 0%, slippage 2,5% in both groups. Between successful and failure patients there is a significant difference in Preop BMI ($p<0.0001$). There are no statistic differences by sex or age.
Conclusions: In our study with at least 60 months follow-up, patients with lower preoperative BMI near 40 are more successful than patients with BMI over 47. There are no statistic differences in success considering by age or by gender.

P.170 Metabolic Surgery Modulates the Systemic Metabolic Profile and Gut Microbial Ecology

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Background: The beneficial effects of gastric bypass on improving the metabolic profile to resolve diseases such as type 2 diabetes and achieving consistent weight loss are not completely understood. At a physiological level metabolic operations offer several mechanistic actions that include the so-called BRAVE effects: 1) Bile flow alteration, 2) Reduction of gastric size, 3) Anatomical gut rearrangement and altered flow of nutrients, 4) Vagal manipulation and 5) Enteric gut hormone modulation; although the combination of these effects require further elucidation at cellular and molecular levels. Investigating the metabolic modulation and weight loss mechanisms of surgery can offer enhanced patient benefits and operative outcomes.
Methods: We performed a unified metabonomic and metagenomic study to investigate the effects of Roux-en-Y gastric bypass (RYGB) on a rodent model.
Results: Following RYGB we demonstrate substantial shifts of the main gut phyla towards higher levels of Proteobacteria (over 50 fold) with the specific modulation of the bacterium *Enterobacter hormaechei*. We also find lower levels of Firmicutes and Bacteroidetes (2–5 fold) in comparison to sham-operated rats. Faecal extraction analysis revealed a decrease in faecal bile acids and a shift from protein degradation to putrefaction through decreased faecal tyrosine with concomitant increases in faecal putrescine and diamnoethane. Following surgery, there were also decreased urinary amines and cresols and a modulation of energy metabolism indices including decreased urinary succinate, 2-oxoglutarate, citrate and fumarate. These changes could also indicate activity along the entero-renal axis which associates with increased flux of mitochondrial tricarboxylic acid cycle intermediates. A surgically-induced effect on the gut-brain-liver metabolic axis is inferred by increased neurotropic compounds; faecal g-aminobutyric acid (GABA) and glutamate.
Conclusion: We demonstrate an underlying mammalian microbial co-dependence that is systematically altered following RYGB surgery, identifying that RYGB has local and global metabolic activities to achieve its characteristic beneficial metabolic modualtion. These surgically induced changes on the host metabolic-microbial crosstalk can help increase our understanding of bariatric treatments to enhance our management of obesity-related diseases. This includes advances in surgical disease resolution, decreased systemic cardiovascular and cancer risk and also "auto-bionic" physiological augmentation.

P.171 Mini_Gastric by_Pass (Omega Loop Gastric by_Pass) Controversies about a Personnal Experience of 1300 Cases (2005_2011)

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During the last 5 years (2005_2011) we have realized 1300 minigastric by pass (oméga loop by_pass) and 130 Roux en y gastric by_pass for morbid obesity.
Série: Men 12% B.M.I>50: 50% ,45% with a past of gastric banding 50% with one or more co-morbidities 15% are diabétics
Omega Loop by_Pass (1300 Cases)
Technique:
SIMPLICITY? *One anastomosis no Petersen space* standart laparoscopy :technique de Rutledge 4 or 5 ports a long and narrow gastric tube a loop of 150 _250 centimeters a totally mechanical anastomosis with endolinear stappler SILS, transumbilical : 30 cases
Results:
SECURITY?
No mortality only 3% redo surgery (laparoscopiclly 80%) hemorrage less than 1% (hemoperitoneum perigastric hematomas) anastomotic stenosis, Richter's hernias< 1% péritonitis (3cases)and subphrénic abcess (9cases) in case of banding risk is higher even if the band is remove before anastomotic ulcer 4% with hemorradge, stenosis ,or perforation (5 cases) inflammatory stenosis 1%
EFFICACITY?
E.W.L.> 50 at 5 years : 85% in case of failure its possible to resect an enflated pouch (27 cases) diabete type 2 completetly recovered at 3 months 99% too much EWL: shorten the loop or reverse 5 cases Biliary G.E.R.D (2%) :transformation en Y cholécystectomy for lithiasis 10% 60 normal prégnancies occur during time of study
By_Pass Roux En Y (130 CAS)
Technique: Technique of Lonröt totally mechanical (endolinear stappler)with closure of Petersen's space
Results: No mortality,morbidity (redo surgery) 6% fistula;sténosis,occlusion occuring at level of secund anastomosis no bliary gerd anastomotic ulcer 7% same functionnal results.
Conclusion: Omega loop lgbp is more easy and faster than lgbp roux en y it give less complications (only one anastomosis no Petersen's space) it's easy to change laparoscopicly it seam possible to take place in bariatric surgery

P.172 The Lipolytic Effects of Gastric Bypass Surgery in Patients With and Without Type 2 Diabetes Mellitus

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Background: Defects in fat processing, in particular non-esterified fatty acids (NEFA), may hold the link between obesity, hyperlipidaemia, insulin resistance (IR) and type 2 diabetes mellitus (T2DM). The secretion of insulin, which is more effective at inhibiting lipolysis than glucose production, is inhibited by high NEFA levels.
We hypothesised that Roux-en-Y gastric bypass (RYGB) improves glycaemic control in part through changes in fat processing at the adipocyte.
Methods: 10 participants without T2DM (NDM) and 7 with T2DM underwent RYGB for morbid obesity (BMI 50.3 and 46.0 respectively). Blood was collected after a 12hr fast and serial sampling following a 420kcal fixed meal before surgery and on post-operative day 4. Intra-operatively, adipose tissue biopsies were taken from omental and subcutaneous depots and fresh adipocytes isolated. Lipolysis was assessed as glycerol release during a 2hr incubation with pre- and post-RYGB plasma and relevant hormonal concentrations, in both basal and stimulated conditions. Data are expressed as mean±sem. Δ is difference between pre- and post-RYGB. Two-tailed *t*-test was used for comparison unless otherwise stated.
Results: By post-operative day 4, significant improvements in IR were noted, greater in T2DM (NDM vs T2DM, ΔHOMA-IR 5.267±3.925 vs 12.55±8.372, ANOVA $p<0.0001$), associated with falls in fasting insulin levels (Δ21.23±17.05 mU/L and Δ23.38±18.80 mU/L, ANOVA $p=0.0017$). No significant reduction in post-prandial insulin levels was detected (ΔAUC [360min], ANOVA $p=0.3736$).
Fasting NEFA levels were significantly reduced in NDM (Δ0.1650±0.1988 mmol/l, $p=0.02760$) but not significantly in the T2DM group (Δ0.1986±0.2514 mmol/l, $p=0.0816$). Whilst post-prandial NEFA (ΔAUC [360min]) did not significantly change in the NDM group (15.74±54.56, $p=0.4111$) it was highly significantly reduced in T2DM group (89.84±20.27, $p<0.0001$), ANOVA $p=0.0185$.
Incubation of adipocytes in both fasting and post-prandial plasma post-RYGB resulted in increased lipolysis versus pre-RYGB plasma (peripheral Δ54.60±18.94%, $p=0.0235$ and Δ75.62±25.38%, $p=0.0205$, respectively [n=8]) however no significant difference was found in visceral adipocytes (Δ104.6±58.94%, $p=0.1264$ and Δ194.1±133.4%, $p=0.1958$, respectively [n=7]).
Conclusions: Post-RYGB plasma is more lipolytic for peripheral fat in both NDM and T2DM subjects. Concurrent reduction in fasting (NDM) and post-prandial (T2DM) plasma NEFA levels post-operatively suggests that improved plasma NEFA

clearance may be occurring through insulin-stimulated mechanisms at the adipocyte level. Further research in this field is required.

P.173 Laparoscopic Roux-En Y Gastric Bypass Versus Laparoscopic Adjustable Gastric Banding: Gender Differences in Body Mass Index Reduction

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Background: Laparoscopic Roux-en-Y gastric bypass (LRYGB) and laparoscopic adjustable gastric banding (LAGB) are the two most commonly performed bariatric procedures for the treatment of morbid obesity. The literature has consistently shown that LRYGB results in better weight loss outcomes versus LAGB. Little is known about how weight outcomes vary by gender within surgery-type, however.
Methods: A retrospective medical chart analysis of 1,603 adults (77% female, mean age at surgery 41.18 years, SD 11.7 years) originating predominantly from Central and South America and the Caribbean (66% Hispanic, 17% black, 9% white, and 8% mixed race or other) who met NIH criteria for, and underwent LRYGB/LAGB in South Florida between 2001–2010 was conducted. Pre- and 1-year post surgery change in mean body mass index (BMI) was conducted via analysis of covariance (ANCOVA via GLM) models. Separate slopes and intercepts were fit because pre-surgery weight varied significantly by gender.
Results: LRYGB resulted in a significant BMI reduction versus LAGB at 1-year post-surgery for both men (8.41 versus 5.93, $P<0.0001$) and women (8.48 versus 6.22, $P<0.0001$). Men and women had very similar BMI reductions following LRYGB and women had a slightly more BMI reduction following LAGB versus men (NS gender differences were found within surgery type). BMI reduction outcomes strongly favored LRYGB versus LAGB, regardless of gender. Men and women have very similar reductions in BMI following LRYGB indicating it is an equally effective weight loss surgery for both genders.
Conclusion: BMI reduction outcomes strongly favored LRYGB versus LAGB, regardless of gender. Men and women have very similar reductions in BMI following LRYGB indicating it is an equally effective weight loss surgery for both genders.

P.174 Cardia Adenocarcinoma in the Context of a Roux-En-Y Gastrojejunal Bypass for Morbid Obesity

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Aim: The surgical procedures that alter the function of the digestive tract may predispose to the emergence of cancer. Cases have been published of cancer in the neo-esophagus after colonic interposition or a Collis gastroplasty. The aim of this paper is to report the case of a female patient suffering from cardia adenocarcinoma who had previously undergone a gastric bypass for morbid obesity and to review whether there are any risk factors that may associate the gastric bypass with the emergence of cancer at the gastroesophageal junction.
Material and methods: We report the case of a 63-year-old female patient with a history of type 2 diabetes mellitus who had had an adjustable gastric band inserted when she was 52 years old. Three years later she had not lost a sufficient amount of weight and her comorbidities had not improved so she underwent a second intervention during which the gastric band was extracted and a gastrojejunal bypass performed. Seven years after the gastric bypass, she presented symptoms of progressive dysphagia. A fibrogastroscopy revealed a neoformative process in the cardia compatible with adenocarcinoma, and multiple hepatic metastases in the extension study. The fibrogastroscopy performed prior to the gastrojejunal bypass enabled pathology of the gastroesophageal junction to be discounted at that time.
Results: Chemotherapy was initiated but the disease advanced and an expandable prosthesis had to be placed at the level of the cardia. The patient did not respond well to the treatment and died one year after the cardia adenocarcinoma had been diagnosed.
Conclusions: Several studies have observed an increase in the incidence of cardia adenocarcinoma in morbidly obese patients. Of all the hypotheses that associate obesity with the risk of cardia adenocarcinoma, the most commonly accepted is that of acid reflux. Obesity favours gastroesophageal reflux disease because it increases intra-abdominal pressure. It has been suggested that the changes in gastric motility after the gastric bypass increase the exposure of the proximal stomach to acid. In 2007 Harutaka and Rubino conducted an experimental study in rats to investigate the risk of gastric cancer subsequent to gastric bypass. They observed that after the gastric bypass the risk of developing a gastric adenocarcinoma was lower. This could be associated with the increase in the rate of gastric emptying after this sort of technique and with the increase in the pH of the proximal portion of the stomach that reduces the conversion of salivary nitrates into nitrosamines, a critical point in the development of gastric cancer. They concluded that the gastric bypass is a safe therapeutic option in patients suffering from morbid obesity even in areas with a high incidence of gastric cancer.The presence of adenocarcinoma of the gastroesophageal junction seems to be more associated with obesity itself and factors such as diet than to having undergone a previous bariatric procedure.

P.175 Well-Directed Long-Term Supplementation after Roux-En-Y Gastric Bypass in Morbid Obesity

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Roux-en-Y gastric bypass (RYGB) is the most frequently used type of bariatric surgery. Because of its malabsorptive component long-term supplementation is recommended. The aim of this study was to analyze the efficiency of supplementation in patients after RYGB. From January 2006 to July 2008, 60 patients received laparoscopic RYGB (34 female, 45 (26–66) years). Mean preoperative BMI was 53.7 (37–77) kg/m^2. Recommended supplementations were daily vitamin and mineral preparations, calcium orally, and B12 injections every 3 months. Blood samples were taken every 6 months.
Mean follow-up was three and a half years (29–60 months). At that time BMI loss was 17.4 kg/m^2, mean excess body weight loss was 61.2%. Comorbidities were significantly improved or healed. E.g. diabetes was healed in 8 / 23 patients and improved in 11 / 23 patients. 25 of 50 patients with normal B12 had the recommended supplementation, 3 of 45 with normal blood iron levels had oral or parenteral iron supplementation and 13 of 51 with normal folic acid had supplementation. Deficiencies were only detected in patients without substitution. Iron deficiency was observed and treated in 5 patients, one patient had low calcium, and one patient had low B12.
It is necessary to monitor blood samples of patients after RYGB. Most frequently, iron deficiencies were detected. In patients using the recommended supplementation other deficiencies were not observed.

P.176 *C825T* Polymorphism in GNB3 is Significantly Associated to Postoperative Weight Loss in Morbidly Obese Patients Undergoing Roux-En-Y Gastric Bypass

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Background: Obesity has been related to a complex interaction between genetic, behavioral, social and environmental factors. Heritability varies from 40 to 70% in twin/relative studies. Multiple genetic loci and genes have been associated.

Aim: To evaluate the impact of selected SNP genes on weight loss in morbidly obese patients undergoing a Roux-en-Y Gastric Bypass (RYGB).
Patients and methods: Clinical variables, and weight loss after RYGB were evaluated in 61 Mexican patients. Genomic DNA from lymphocytes was extracted and 23 SNP of gene candidates for obesity were evaluated. Allelic discrimination was determined using real-time PCR (ABI Prism 4700 HT Thermal cycler; Applied Biosystems). SPSS 17.0 was new to evaluate selected variables. Bivariate analysis according to the variable scaling was utilized.
Results: Most patients were women (91%) with a mean age of 43 years. A 1st degree family history of obesity was found in 86.7% of patients. Preoperative mean BMI was 48.12 Kg/ m^2 with a fat mass percentage of 48.9 %. Potential variables with impact on weight loss were controlled. The most significant polymorphism associated to weight loss was C825T in GNB3. Homozygous for the major allele showed higher weight loss at 6 months than homozygous for the minor allele (33.7 kg vs 18 kg; $p \leq 0.015$). EWL also showed significant differences between the aforementioned genotypes (64.1% vs 36.4% respectively, $p \leq 0.034$).
Conclusion: The *C825T* polymorphism was statistically associated to lesser changes in weight loss. A strategy based on genomic predisposition may improve patient selection.

P.177 An Audit of 192 Patients Undergone Bariatric Surgery in a Rural Centre of South India

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Objective: To review our results of laparoscopic adjustable gastric banding, laparoscopic sleeve gastrectomy, and laparoscopic gastric bypass for the treatment of morbid obesity.
Materials and methods: It was a prospective cohort study in which the 192 patients who had undergone bariatric surgery (laparoscopic adjustable gastric banding, laparoscopic sleeve gastrectomy, and laparoscopic gastric bypass) during the period January 2006 to January 2011 were followed up at 1month,6months,1 year and 2 years interval. The various parameters studied included weight loss, excess weight loss, percentage excess weight loss, resolution of comorbidities like diabetes mellitus, hypertension ,sleep apnoea etc. Also studied were the operating time, hospital stay, complications- perioperative and delayed and the mortality.
Results: The percentage excess weight loss was 74.6% in the laparoscopic roux-en-y bypass group but was 62,9% in the laparoscopic sleeve gastrectomy group. The resolution of diabetes mellitus was 72.7% in the laparoscopic roux-en-y bypass group but 66.6% in the laparoscopic sleeve gastrectomy group. However the LRGB group had perioperative complications like bleeding from the remnant stomach and anastomotic leak and delayed complication presenting as a case of intestinal obstruction. There was one delayed mortality as a result of DVT.
Conclusion: All three types of bariatric surgery are safe and effective. Though the long term excess weight loss and resolution of comorbities was maximum in the laparoscopic roux-en-y bypass group, the operating time, hospital stay and complications were slightly higher in this group.

P.178 Comparative Evaluation of Laparoscopic Gastric Bypass (LGB) Vs Adjustable Gastric Band (AGB) Over 5 Year Period: Bypass or Band?

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Background: LGB and AGB are the most frequently performed bariatric procedures. Initial enthusiasm with AGB is being gradually replaced by significant disillusionment with this procedure. Opponent of LGB quite to the contrary cite poor excess body weight loss (EBWL) at follow-up over 2 years. Aim of this study was to evaluate morbidity, mortality, long-term morbidity and EBWL in retrospective analysis of contemporarily accrued groups of patients with LGB and AGB in 2005–2010.
Study Design: This is a retrospective analysis of a prospectively-maintained Bariatric database of patients undergoing procedures (Bypass or Band) from 2005–2010.
Results: There were 1471 patients with LGB with average preoperative weight of 307 Lbs, Excess Body weight of 151 Lbs and BMI of 49.8 kg/m^2 and 1368 patients with AGB with respective parameters of 275 Lbs, 120 Lbs, and 44.5 kg/m^2. Thirty day mortality was 0.07% and 0%, respectively. Major postoperative morbidity occurred in 7% and 1.5%, respectively. In LGB group 1.3% underwent reoperations compared to 0.3% in AGB group.Delayed morbidity in LGB group included intestinal obstruction 1.3%, marginal ulcer 2% and revisional procedures due to insufficient weight loss in 1%. AGB patients had band erosion in 0.14%, slippage - 0.65%, port complications - 0.5% and revisions to other procedures due to insufficient weight loss in 2%.Average BMI in LGB patients decreased to 32.6 at 2 years with increase to 37.4 at 5 years. AGB patients had gradual decrease of BMI over 5 year period to 37.7. Percent EBWL at 1, 2 and 5 years was 68%, 67% and 55% in LGB group and 35%, 40% and 45% in AGB group, respectively.Same analysis between group of patients with BMI<50 and mega-obese demonstrated %EBWL of 74%, 74% and 62% vs 59%, 62% and 46% in LGB subgroups while in AGB subgroups these parameters were 36%, 35% and 50% compared to 28%, 35% and 40%, respectively.Failure rate as defined by %EBWL<50 with LGB at 1, 2 and 5 years was 17%, 17% and 42% and with AGB 75%, 66% and 46%, respectively. While proportion of patients with EBWL>50% has decreased over 5 years in LGB group, in AGB group it went up from 21% at 1 year to 50%.
Conclusions: Both LGB and AGB patients experienced low morbidity and mortality postoperatively with delayed morbidity in AGB increasing with duration of follow-up. LGB patients do exhibit higher %EBWL in first 1–2 years with substantial weight regain at 5 years especially in subgroup of mega-obese patients. AGB while generally producing lower average %EBWL demonstrated more stable weight loss maintenance in patients who have succeeded and kept the band. While safety profile and effectiveness of LGB and AGC are different, and LBG being undisputed "standard of care", at present both procedures have place in bariatric surgery.

P.179 Probiotics Improve Annoyed Gastro-Intestinal Symptoms after Gastric Bypass: a Prospective Randomized Trial

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Background: Gastric bypass surgery is a recommended treatment for morbid obese patients. However, annoyed Gastro-Intestinal (GI) symptoms are a common complaint after gastric bypass. The aim of this study was to determine whether probiotics would improve annoyed GI symptoms after gastric bypass.
Methods: From Jan 2010 to Oct 2010, double blinded randomized controlled trial was conducted among 60 patients undergoing gastric bypass for morbid obesity who had annoyed GI symptoms. Patients were randomized to the probiotic group (n=30) and control group (n=30). Probiotics (2.4 billion colonies of Lactobacillus were administered twice daily to the probiotic group. Digestive enzyme (Biotase, Yung Shin Pharmaceutical Inst., Taiwan), one tablet contains Biodiatase 1000: 30 mg, Lipase AP6: 5 mg, and Newlase: 10 mg was administered twice daily to the control group in a double blind setting. Quality of life was measured and compared by the Gastrointestinal Quality of life index (GIQLI) before and 2 weeks after in both groups.
Results: Of There was no difference in the basic data and GIQLI between the two groups before the study. At 2 weeks, a significant improvement in GIQLI (from 40.1 to 47.5; p=< 0.001) was achieved in the probiotic group but remained the same in the control group (from 40.6 to 40.3). The patients in the probiotic group had improvement in 3 specific items (foul smell flatus, oil flatus and over-flatus).
Conclusions: Probiotics administration improves the annoyed GI symptoms after gastric bypass.

P.180 Gastric Bypass: the Role of Routine Preoperative Endoscopy and its Effect on Changing the Patient's Surgical Indications

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Background: Preoperative management of patients candidates for bariatric surgery is complex and not yet clearly defined. Our investigation aims in pointing out the importance of preoperative gastroscopy in patients planified for BPG .
Methods: Medical records of 384 patients planified for BPG between 1/1/2008 and 31/12/2010 were retrospectively reviewed. Preoperative routine gastroscopies as well as elective biopsies were performed in all of our patients 2 months before admitting to our service for surgery.
Results: During this 36 months period pathologic findings found included gastritis, esophagitis of various grades, H.Pylori and more. In literature, very few cases of gastric cancer are reported in patients with remnant gastric pouch but gastritis, ulcer, esophagitis as well as patients with positive H. Pylori test were treated prior to surgery.More specifically in 13 patients we diagnosed gastric metaplasia (10), gastric nodules (1), gastric adenoma (1) and a case with pathologic Oddi sphincter (1). Taking under consideration the possible postoperative risk as well as trying to achieve best possible treatment, surgical indications for those patients' cases were discussed again. Finally, those patients underwent sleeve gastrectomy instead of gastric bypass (Roux en Y) permitting long term follow up of upper gastro intestinal tract.
Conclusion: Preoperative endoscopic evaluation of patients treated for obese morbidity allows us to choose the best possible surgical management for our patients planified for BPG.

P.181 Influence of Obesity-Susceptibility Loci (MC4R and INSIG2) on the Outcome of Weight Loss and Amelioration of Co-Morbidity in Obese Patients Treated By a Gastric-Bypass

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Background: Genome-wide association and linkage studies have identified multiple susceptibility loci for obesity.
Objective: We hypothesized that such loci may affect weight loss and co-morbidity amelioration outcomes following a gastric-bypass.
Design: A total of 200 obese patients who underwent a gastric bypass surgery were genotyped for single-nucleotide polymorphisms (SNPs) in insulin induced gene 2 (INSIG2) and melanocortin 4 receptor (MC4R) obesity genes.
Results: After a follow-up of 18 month, the patients (192) data of weight excess loss (72%) and co-morbidities (Hypertension −62- and Diabetes −39-) were analyzed and compared. 26 Patients with SNP were found (9 MC4R and 17 INSIG2). No significant differences in weight excess loss and amelioration of co-morbidities were revealed.
Conclusions: The data suggest no influence of weight excess loss and amelioration of co-morbidities after gastric-bypass by genetic susceptibility.

P.182 Roux-En-Y Gastric Bypass on Vertical Banded Gastroplasty via Laparoscopic Approach: Surgical Technique and Outcome

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Background: Roux-en-Y Gastric Bypass (RYGB) is one of the most widely performed bariatric operations, but its main disadvantage is that the gastric remnant, duodenum and biliary tree cannot be investigated during the follow-up by endoscopy or X-ray. Since 2002 a laparotomic modified technique was developed, the Roux-en-Y Gastric Bypass on Vertical Banded Gastroplasty (RYGB-on-VBG), which leaves a small outlet between the gastric pouch and the excluded stomach, allowing the passage of an endoscope. We report the outcome of this surgical technique performed laparoscopically in our series of patients.
Methods: 40 consecutive morbid obese patients underwent laparoscopic RYGB-on-VBG since March 2008. Mean age was 42±9 years. Mean preoperative BMI was 44.3±4.6, mean weight 120±19 Kg. Comorbidities included hypertension in 19 patient (47%), type 2 diabetes mellitus in 10 patients (25%), all in pharmachological treatment, and OSAS in 5 patients. Surgical technique: the gastric pouch is created first, doing a gastric window at 9 cm from the esophagogastric junction with a CEEA stapler, on the guide of an endoluminal 32-Ch bougie. The stomach is then sectioned with endoGIA from the gastric window to the angle of His, creating therefore a gastric pouch with a small gastroplasty outlet, that is encircled with a Gore-Tex® band. The gastric bypass is then created, sectioning the jejunum and doing the gastrojejunostomy at 30 cm from the Treitz, and the jejunojejunostomy 150 cm more distad. Mean operating time was 240 minutes (360–150). A postoperative Gastrografin® swallow showed that the main transit was through the gastrojejunostomy.
Results: Mean BMI decreased from 44.3±4.6 to 35.8±4.1 after 6 months, to 34±4.5 after 12 months and to 30.5±3.5 after 18 months. %EWL was 42±11.7 after 6 months, 54.2±22.6 after 12 months, 62.7±23.4 after 18 months. At 1 year follow-up all diabetic patients stopped or reduced the antidiabetic treatment, 13 patients (68%) recovered completely from hypertension and 4 patients (80%) from OSAS. A gastroscopy was done after 1 year in the first 14 patients, showing that the possibility to access the distal stomach remained unchanged. Early postoperative complications included a gastrointestinal bleeding in 2 patients: in both cases a gastroscopy accessed the distal stomach, showing in one case a gastritis and in the other a hemorrhage from the jejuno-jejunostomy, that was treated endoscopically with clips. No long term complications were observed, except one patient who died from acute myocardial infarction 6 months after the operation.
Conclusions: In our series the outcome and complications were comparable with other gastric bypass procedures. We may therefore suggest the adoption of this modified technique, that has the advantage of allowing the investigation of the distal stomach in case of bleeding or malignancy, as a reliable and laparoscopically feasible alternative to the traditional RYGB.

P.183 Short Term Outcomes of Bariatric Surgery at Bmi Abu Dhabi: the First Comprehensive Bariatric Surgery Program in Abu Dhabi

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Introduction: Obesity and Type II Diabetes Mellitus are two of the most common health problems in the UAE. We report on the structure of a comprehensive bariatric surgery program led by a US fellowship trained bariatric surgeon, and the short term outcomes of our first 100 cases.
Methods: Sheikh Khalifa Medical City (SKMC) is a large tertiary hospital that did not offer bariatric surgery. Hence, the hospital recruited a US fellowship trained bariatric surgeon to help establish a comprehensive bariatric surgery program. A multidisciplinary team was established (BMI Abu Dhabi team). The team meets on monthly basis, organizes a monthly public lecture, and a yearly obesity symposium. In addition, a multidisciplinary bariatric surgery clinic and a prospective database were established.
Results: We retrospectively reviewed all consecutive bariatric surgery cases performed at BMI Abu Dhabi from June 2009 to November 2010. A total number of 100 cases were performed. The types of procedures performed were: 44% LGBP,36% LSG,6% LAGB and 16% revisional bariatric surgery. The mean BMI was 45.8 kg/m2 range (35–78 kg/m2). Thirty percent of our primary bariatric surgery cohort had type 2 DM. The average operating time was 132 minutes, range (55–280). The average length of stay (LOS) was 2.3 days, range (1–9). The average 6 and 12 months excess weight loss (EWL) for LGBP was 51.8% & 77%, for LSG 45% & 60%, and for LAGB 27% & 50%. The 30 day hospital readmission was 8%. Conversion to open 2%, reoperation within 90 days 2%, stenosis 1.1%, leak 0%, sepsis after surgery 0%, pneumonia 0%, DVT/PE 2%, and the 90 day mortality 0%.

Conclusion: Establishing a comprehensive bariatric surgery program in the Middle East is feasible with excellent short term bariatric surgery outcomes.

P.184 Laparoscopic Gastric Bypass Versus Laparoscopic Sleeve Gastrectomy; Short Term Results in the First Obesity Clinic of the Government of Mexico City

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Introduction: Mexico occupies the second place worldwide in obesity, for this reason the government of Mexico City created the first clinic for surgical treatment for these patients. The most frequently used procedures are Laparoscopic Roux en Y Gastric Bypass (LRYGB) and Laparoscopic Sleeve Gastrectomy (LSG). The first proven to be safe and effective, with good long term results, and the second relatively easy to perform with good short term results. There are very few studies, none in Mexico, that compare these procedures.
Objective: The objective of the present study is to describe and compare the results we obtained during the first year of experience at this clinic.
Methods: From March 2009 to April 2010, 61 patients were operated. LRYGB (n= 40) and LSG (n=21). We compared age, gender, BMI, morbidity, comorbidity outcome, operative time, length to stay, complications, percentage of excess body weight loss during an average follow up period of one year.
Results: Difference in age, morbidity and length of stay was not statistically significant ($p>0.05$). BMI was higher in LSG patients (48.5±5 vs 43.2±4 kg/m2, $p=< 0.05$). There was no statistical difference in remission of diabetes or hypertension ($p=>0.05$), however LRYGB patients showed significant remission of mixed dyslipedemia (77% vs 25%, $p=< 0.05$) as well as a greater loss of mean excess body weight after an average period of 1 year (70.2±19 vs 41±10, $p=< 0.05$). The rate of complications for LRYGB patients was 27.5% vs 24% in LSG patients. We had no mortality in either of the groups.
Conclusions: LRYGB was more effective for short term loss of excess body weight, as well as remission of mixed dyslipediemia. The complications we experienced were high in both groups, yet very similar to results of initial cases of bariatric procedures published in worldwide literature.

P.185 Association of Bypass Limb Length and One Year Weight Loss in 4,114 Mini-Gastric Bypass Patients

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Background: Common sense suggests that a longer bypass should increase weight loss after gastric bypass. Although several studies have concluded that longer bypasses do not increase weight loss, the sample sizes were small suggesting a type II error. This study analyzed the association of limb length and weight loss in a large series of Mini-Gastric Bypass patients.
Methods: 4,114 patients underwent Mini-Gastric Bypass and completed 1 year of follow up. Bypass limb length was modified based on starting weight.
Results: Weight loss following MGB surgery followed a logarithmic decline though the end of the first year and then leveled off.
Bypass limb length varied from .5 - 3 meters. Weight loss increased as bypass limb length increased ($p<0.000l.$)
The preop weight was also strongly related to weight loss. A multivariate regression model using bypass length and preop weight improved the predictive value of the model, Wt Loss=13.04+Bypass*6.98+PreOP Wt*0.25 (p r2=0.38.) The model explains almost 40% of the variance in the weight loss and predicts a mean increase of 6.9 kgs of weight loss for every additional foot of bowel bypassed.
Conclusion: This is the largest reported study of bypass length and weight loss after gastric bypass. Prior negative studies with small sample sizes may have suffered from a Type II error. The study demonstrates that both preop weight and limb length are significantly associated with weight loss and that every additional foot of bowel bypassed is associated with a mean increase of 6.9 kgs to the expected one year weight loss.

P.186 Incidence of Ulcerations and Perforations after Roux-En-Y- and Omerga-Loop-Gastric Bypass

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Introduction: Ulcers in the area of the gastrojejunal junction are a common problem after gastric bypass surgery. Whose postoperative development is not only associated with helicobacter pylori related gastritis or the abuse of nicotine, alcohol or NSAID's, it is also dependent from the surgery-methods, as there are the Roux-en-y-gastric bypass and the omega-loop-gastric bypass.
Material and method: This study evaluates the follow-up examinations of 1931 patients over a period of 5 years (01/2006-12/2010). In 1861 cases a Roux-en-Y-gastric bypass and in 47 cases a Omega-loop-gastric bypass was performed in history.
Results: All patients with discomfort (N=407) like dysphagia, reflux, nausea, vomiting or epigastric pain underwent examinations including upper endoscopy (21,3 %). In 52 cases (12,8 % of investigated patients) were diagnosed ulcers at the gastrojejunal junction. 39 of these patients (75%, $p<0.0001$) consumed alcohol, nicotine or NSAID's. In14 patients (27%, $p<0.0001$) we detected a helicobacter pylori related gastritis.
2.4% of the patients after Roux-en-Y gastric bypass (45 of 1861) and 14.9% of the patients after Omega-loop-gastric Bypass (7 of 47) developed ulcers at the gastrojejunal junction. The difference is, by comparing with Fisher's exact test, clearly significant ($p=0.0002$). Furthermore there are significant differences regarding the recurrence rate. 86% in the group of Omega-loop-gastric bypass needed to be treated several times (Roux-en-Y-gastric bypass 13.3%).
Conclusion: Every patient needs to know preoperative, that there is a clearly increased risk for ulcers at the gastrojejunal junction, if the patient can't avoid potential risk factors (nicotine, alcohol, NSAID's) lifelong. A preoperative upper endoscopy with helicobacter pylori testing and its eradication if necessary, can also reduce the risk of ulcers. The increased incidence of peptic ulcers after Omega-loop-gastric bypass was stated. All these patients were transformed into roux-en-y-situation.

P.187 Nissen Fundoplication for the Treatment of Reflux Following Roux-En-Y Gastric Bypass

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While the majority of patients are cured of reflux following Roux-en-Y gastric bypass (RYGBP), a significant number either develop new reflux postoperatively or experience a recurrence of their symptoms. We report our experience with Nissen fundoplication (NF) for the treatment of reflux in patients who have had a RYGBP. A retrospective chart review was performed for all patients from 2009–2010. A total of 19 patients were identified in whom NF was performed for the treatment of reflux following RYGBP. 2 patients (10.5%) had a hiatal hernia repair performed at the original operation. The average age prior to RYGBP was 40 years old, and the average BMI was 46.2. Excess weight loss was 73% at its nadir, however significant weight recidivism was seen in those who subsequently developed reflux, with an average weight regain of 18.1 (8.6-35.8) kg prior to NF. On average, patients were seven years out from RYGBP when NF was performed. All but two had preoperative upper GI series performed prior to NF, and the other two were studied with preoperative endoscopy. 10 had objective evidence of reflux on preoperative studies, and the remaining 9 had classic symptomatology with evidence of a hiatal hernia. Laparoscopic hiatal hernia repair with NF using the excluded stomach were performed in all 19 patients. At an average follow up of 251 days, 11 (57.9%) reported resolution of reflux. Average additional weight loss after NF following RYGBP was 3.6 kg. Of interest, 9 (47.4%) patients did not report reflux symptoms

prior to the original RYGBP. The Roux limb was lengthened in 5 (26%) of patients who had evidence of bile reflux preoperatively or intraoperatively. We conclude that acid and bile reflux are relatively common after RYGBP, especially following significant weight recidivism, and that NF is a feasible and effective treatment for reflux following RYGBP.

P.188 Mid Term Metabolic Outcomes Following Laparoscopic Roux-En-Y Gastric Bypass

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Background: Metabolic syndrome is a conglomeration of high risk factors that accelerate the onset of cardiovascular disease and diabetes and increase the chances of suffering from acute MI and stroke. The syndrome is closely linked to excess body weight and is known to improve and resolve following weight loss.
Objective: Our aim was to evaluate morbidly obese patients with metabolic syndrome undergoing laparoscopic roux-en-Y gastric bypass (LRYGBP) for its effect on various components of the syndrome over a period of 1–4 years.
Methods: A retrospective analysis of 212 patients having undergone LRYGBP from 01-01-2007 to 31-12-07 was done. Patients were diagnosed to have metabolic syndrome according to IDF guidelines. Sixty % were females, the mean age of the patients was 40.25 years (range 17–62 years), the mean BMI was 44.78 Kg/m^2 (range 36.73- 62.3 Kg/m^2). Patients having any two criteria positive apart from morbid obesity were selected for the study. Ninety four patients were diagnosed with MS at time of surgery. These patients were evaluated on the status of the MS criteria at 12 month intervals following surgery.
Results: Preoperatively 127 patients (59.9%) were diagnosed with MS. One hundred and eight patients (85%) maintained annual follow up. The mean reduction in BMI at 12months, 24 months and 48 months was 35.3 Kg/m2, 27.7 kg/m^2 and 27.8 Kg/m^2. The number of patients with MS decreased to 12 (11.1%) ($p<0.01$) at I year follow up , this improvement persisted in patients at 24 months and 48 months follow up. The various components of MS vis-à-vis HT, DM, low HDL and raised Triglycerides all showed improvement or resolution. Improvement was measured by a decrease in number and/ or dosage of medication.
Conclusion: The incidence of MS is high in the obese population. Following laparoscopic Roux-en-Y gastric bypass MS is seen to resolve or significantly improve. This improvement correlates well with the weight loss of patients. There is also improvement seen in all components of MS.

P.189 The Decrease in Resting Energy Expenditure 6 Months after Gastric Bypass Surgery is Explained by Decreases in Organ and Tissue Masses and Serum FT3 Levels.

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Background: Roux-en-Y bypass surgery leads to massive and rapid weight loss in most morbidly obese individuals. However, changes in the amount and composition of lean mass and their impact on resting energy expenditure (REE) remain unknown.
Methods: 15 patients (12 females, 3 males, BMI 40.5-54.4 kg/m^2, age 25-69y) were examined before and 6 months after gastric bypass surgery. Body composition was assessed by Magnetic Resonance Imaging (organ masses and visceral adipose tissue) and Air-displacement plethysmography (fat mass and fat-free mass). REE measured by indirect calorimetry (REEm) was compared to REE calculated from detailed body composition analysis (REEc) using specific organ metabolic rates (i.e., organ REE/mass).
Results: At baseline, mean BMI and %fat mass were 47.8±4.8 kg/m^2 and 50.0±7.6%. After surgery, BMI decreased by 11.9±3.7 kg/m^2 and body weight by 34.3±9.8 kg (both $p<0.001$). Weight loss consisted of 69.6% fat and 30.4% fat-free mass. There were significant decreases in liver and kidney masses (−732±531 g and −36±31 g, both $p<0.001$) whereas heart and brain mass remained unchanged (0±32 g and −11±20 g; both n.s.). The total volume of visceral adipose tissue decreased from 5.13±1.88 l to 3.00±1.44 l (−41%, $p<0.001$). Serum levels of free triiodothyronine and REEm also declined after surgery (2.96±0.30 vs. 2.59±0.26 pg/ml and 9.07±1.66 vs. 7.54±0.94 MJ/d; both $p<0.001$). Although the mean change in REEm-c did not significantly differ before and after weight loss (0.10±0.86 vs. -0.01±0.47 MJ/d, $p=0.61$) the difference in REEm-c between both time points correlated with the decrease in fT3 levels ($r=0.57$; $p<0.05$).
Conclusion: A 25% decrease in body weight after gastric bypass surgery led to a considerable decrease in fat mass (−34%), fat-free mass (−17%), liver mass (−25%), kidney mass (−10%) and REE (−17%). Because the agreement between measured REE (REEm) and REE predicted form organ and tissue masses (assuming constant specific organ metabolic rates, REEc) was similar before and after surgery, weight loss associated decline in REE was mainly explained by the decrease in organ and tissue masses. However, we cannot exclude adaptive thermogenesis (i.e. a reduction in REE beyond that explained by losses in organ and tissue masses) since the number of subjects was small and the decrease in REE adjusted for the decrease in organ and tissue masses correlated with a decline in fT3 levels.

P.190 Is 23 Hour Observation for Gastric Bypass Surgery Safe?

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Introduction: Currently most laparoscopic gastric bypass surgery done in Centers of Excellence within the United States is performed on an inpatient basis with an average length of stay of 2–3 days. It has been recently suggested, however, that laparoscopic gastric bypass surgery may be performed safely as an outpatient or 23 hour stay procedure. We herein present our series of laparoscopic gastric bypass surgeries performed on a 23-hr outpatient basis. We discuss factors that may contribute to select patients undergoing laparoscopic gastric bypass candidates for safe early discharge.
Methods: A retrospective analysis of a community hospital's database from 2005 to 2010, that reviewed 1700 patients undergoing laparoscopic Roux-en-Y gastric bypass was examined. Patients were categorized into those who were discharged within 23 hours and those who had longer length of stays. Comorbid conditions and demographic information were variables studied to identify factors contributing to longer in-patient admissions.
Results: Of the patients in this series, over 80% were discharged on the first postoperative day. The vast majority of these patients did not require readmission and had no complications. The anastomotic leak rate in this series of patients was less than 1%. More than 90% of patients with demonstrated postoperative leaks were diagnosed during their initial admission before discharge based on clinical suspicion or results of selective postoperative upper gastrointestinal series performed prior to discharge.
Conclusion: This study suggests that laparoscopic gastric bypass may be safely performed on a 23-hour observation basis in select patients when certain clinical criteria are met and satisfied.

P.191 Enhanced Recovery is Feasible, Safe and Effective in Bariatic Patients: Single Centre Experience and Early Outcomes Following Laparoscopic Roux-En-Y Gastric Bypass in 305 Patients

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Background: We introduced an enhanced recovery protocol (ERP) for our bariatric patients in May 2009. We aimed to evaluate our early ERP outcomes for patients following laparoscopic roux-en-y gastric bypass (LRYGB). Early outcomes would include mean operating time, postoperative hospital stay, early (< 30d) readmissions and excess weight loss.

Methods: Our ERP includes
Preoperative management: Ten day liver reducing diet
Intraoperative management:
- Catheters, nasogastric tubes & postoperative surgical drains are not routinely used - Compression stockings, intermittent compression devices & prophylactic enoxaparin
Postoperative management:
Day 0 - early ambulation and sips
Day 1 - free fluids
Day 2 - soft diet
Home on the 2nd / 3rd postoperative day
We compared early outcomes for LRYGB in historical (group A, n=121) versus enhanced recovery patients (group B, n=305) with the appropriate use of statistics.
Results: 426 patients underwent LRYGB between January 2005 and February 2011 with one mortality (12 months post LRYGB) in group B.
The following comparisons between group A and group B did not reveal any statistically significant results: Percentage males (19.8% in group A versus 17.0% in group B, p= 0.4867), mean age at bypass (43.3 years versus 43.8, p=0.6193), mean preoperative BMI 51.4 kg/m^2 versus 50.9, p=0.5430 , percentage early (< 30d) readmissions (9.1% versus 4.8%, p=0.1067) and percentage early reoperations (1.7% versus 2.0%, p=1.000).
The following were found to be statistically significant: Mean operating time (03h 21m in group A versus 02h 43m in group B, p<0.0001), mean postoperative stay (5.1d v 2.7d, p<0.0001) and mean follow-up time (36.9 months versus 10.0 months, p<0.0001).Mean excess weight loss in group A was 65.9% versus 49.5% in group B. No comparison was made for weight loss due to the statistically significant difference in mean follow-up time between the two cohorts. This data includes the learning curve of all three of our surgeons.
Conclusions: We conclude that ERP is feasible in bariatric patients. We report the safe adoption of an ERP for LRYGB with acceptable morbidity, mortality and weight loss that is comparable with our historical patients and that of other reported series during the study period. Operating time and hospital stay have significantly reduced without evidence of adverse outcomes, some of which may be attributed to learning curve experience.
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P.192 Laparoscopic Roux-En-Y Gastric Bypass: Single Centre Experience of 426 Cases

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Background: Laparoscopic roux en y gastric bypass (LRYGB) is one of the most commonly performed bariatric procedures. This study presents our experiences. We include demographics, complications and excess weight loss achieved during the study period. In May 2009 we implemented an enhanced recovery protocol (ERP) for our LRYGB patients, and 305 patients have now undergone LRYGB using our ERP.
Methods: Data was retrospectively analysed from a prospectively maintained database.
Results: 426 patients underwent LRYGB between January 2005 and February 2011. 1 patient (0.2%) died during the study period, twelve months post LRYGB.
Demographics: 350 (82.2%) females and 76 (17.8%) males underwent LRYGB with a mean age of 43.7 (range 18–68) years, BMI of 51.0 (range 34.0-80.3) kg/m^2 and mean follow up of 17.7 months. 22 (5.2%) patients were aged≥60 years and 50 (11.7%) had BMI≥60 at LRYGB. 48 (11.3%) patients had undergone intragastric balloon insertion, 41 (9.6%) had gastric band with 2 (0.5%) undergoing vertical banded gastroplasty prior to LRYGB.
Intraoperative data: Mean operating time 2h 54m, postoperative hospital stay 3.3 days with 5 (1.2%) patients requiring conversion to an open procedure.
Postoperative data: 25 (5.9%) patients required≥1 readmission in the early (< 30d) postoperative period and 49 (11.5%) patients required≥1 late (>30d) readmission. To date, mean percentage excess weight loss is 54.1%
Early (< 30d) postoperative complications requiring surgery: seen in 8 (1.9%) patients; 1 anastomotic leak, 1 haemorrhage, 1 paraumbilical hernia, 1 incarcerated umbilical hernia and 2 laparoscopic cholecystectomies (perforated cystic duct post planned same day laparoscopic cholecystectomy, and gallbladder empyema).
Late (>30d) postoperative complications requiring surgery: seen in 19 (4.5%) patients; 5 incisional hernias, 5 adhesiolysis, 4 internal hernias, 3 redo jejujejunostomy, 1 perforated jejunum, 1 gastroenterostomy and 1 choledochoscopy.
Conclusions: We report safe and effective performance of laparoscopic roux en y gastric bypass in a new bariatric unit with acceptable morbidity, mortality, and weight loss that is comparable with other reported series. This data includes the learning curves of all three of our bariatric surgeons as well as the successful implementation of an enhanced recovery protocol.
Reference:
1. Buchwald H, Avidor Y, Braunwald E, Jensen MD, Pories W, Fahrbach K, Schoelles K. Bariatric surgery: a systematic review and meta-analysis. JAMA. 2004 Oct 13;292(14):1724–37.

P.193 is Single Incision Sleeve Gastrectomy as Good as Traditional Laparoscopy?

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Background: Single incision laparoscopy continues to gain momentum as a viable technique in bariatric surgery. However, for sleeve gastrectomy (SG), the single incision approach has been criticized as being an inferior operation due to the technical challenges for the dissection of the angle of His and a smaller specimen size. This study aims to evaluate the safety and feasibility of the single incision SG when compared to the traditional laparoscopic approach.
Methods: This is a retrospective analysis of prospectively collected data. All patients underwent SG at a single institution by one surgeon (RL) over 27 months. Of 75 consecutive patients, 23 underwent single-incision laparoscopic SG and 52 had multi-port laparoscopy. 10 of the single incision patients and 35 of the traditional laparoscopy patients had 3 month post-operative weight loss information and were used in the analysis. Patients were divided into two groups according to surgical technique. The outcomes measured are mean excess weight loss and mean weight loss after three months post-operatively, mean operating room time, mean volume of resected stomach, and mean number of stapling cartridges used. An independent samples t-test was used to calculate statistical significance between the two groups.
Results: Mean excess body weight loss at 3 months post-op was 45% for the single incision group versus 29% for the traditional laparoscopy group which was statistically significant. This higher percentage excess weight loss can be explained by our selection of smaller patients for the single incision approach for technical ease. Indeed, mean weight loss was similar for both groups at 3 months post-op: 37 pounds for the single incision group and 40 pounds for the traditional laparoscopy group which was not statistically significant. There was no statistically significant difference found between both groups with regards to mean operative time, mean volume of resected stomach and mean number of stapling cartridges. There were no conversions to traditional laparoscopy or the open approach. In the traditional laparoscopy group, there was one readmission for severe constipation, and one reoperation for a leak (successfully managed laparoscopically with suturing and drainage).

	Single Incision	Traditional Laparoscopy	Statistical Significance (p value)
Number of Patients	10	35	N/A
Mean Excess Weight Loss at 3 Months Post-op (%)	45±19	29±11	<0.001
Mean Weight Loss (lbs)	37±11	40±12	0.35
Mean Operative Time (mins)	144±22	137±43	0.07
Mean Volume of Resected Stomach (cc)	1153±193	1220±330	0.29
Mean Number of Stapling Cartridges	6.7±0.7	6.5±2.4	0.24

[Comparison of Sleeve Gastrectomy Techniques]

Conclusion: From a technical standpoint, single incision SG could be performed safely and as well as traditional laparoscopy. Longer term weight loss data will determine if the two techniques are truly equal.

P.194 Type 2 Diabetes in Bmi 30–35 Obese Patients: Sleeve Gastrectomy Vs Medical Treatment

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Introduction: Type 2 diabetes mellitus (T2DM) and obesity are diseases of epidemic proportions. Long-term realistic weight loss by nonsurgical methods has a variable impact on glycemic control, and only a proportion of T2DM patients have a worthwhile response. Laparoscopic Sleeve Gastrectomy (LSG) has been proposed as an advantageous bariatric procedure for lower body mass index (BMI) patients.
Purpose of the present study was to compare the effect of LSG and of medical therapy on T2DM patients with BMI<35 kg/m2.
Materials and methods: Nine non morbidly obese patients with T2DM, diagnosed according to American Diabetes Association guidelines, were consecutively enrolled and underwent LSG (GROUP A) and 9 non morbidly obese diabetic patients were enrolled and underwent conventional medical therapy (GROUP B). The 2 groups were matched for BMI, HbA1c and C-peptide levels, pre-trial type of therapy and number of patients with T2DM duration >10 years.
Results: Group A: The T2DM resolution was achieved in 8/9 patients (88,8%; T2DM duration: 5.2 years). Hypertension was controlled in all patients but one. Dislypidemia was cured. 1 OSAS was improved.
Group B: All patients continued T2DM, hyperthensive and hypolipemic therapies through all the observation period. At baseline 3 patients were affected by OSAS and remained affected 1 year after.
Conclusion: This study confirms the efficacy of LSG in the treatment of non-morbidly obese type 2 diabetic patients with a percentage of cure of 88,8% without an undesiderable excessive weight loss. The results in this group of patients were superimposable to those obtained by us in patients with BMI>35 kg/m^2.

P.195 Early Results of Sleeve Gastrectomy, the Most Feasible Weight Loss Procedure for Morbidly Obese Patients in Pakistan

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Background: The laparoscopic sleeve gastrectomy is a new tool in the surgical treatment of the morbidly obese patients with comparable safety and efficacy to other available procedures.
We describe initial results of laparoscopic sleeve gastrectomy for morbid obesity in two academic centers of Pakistan.Our hypothesis was that sleeve gastrectomy is more feasible weight loss procedure in our set up because of higher cost of gastric band and more complications associated with gastric bypass.
Methods: Prospective data was collected on consecutive morbidly obese patients undergoing laparoscopic sleeve gastrectomy, and evaluated retrospectively.
Results: 28 consecutive patients underwent laparoscopic sleeve gastrectomy from Nov 30, 2008 to December 31,2010 with follow up ranging from 2 to 24 months. The 8 men and 20 women had an average age of 42.1 years (range 21–52 years) and an average body mass index (BMI) of 49.6 kg/m^2 (range 35.2-72.2 kg/m^2). No operation required conversion to laparotomy.
Mean length of stay was 2.1 days (range 1–10 days). There was no death in the 30 days postoperatively. One patient was admitted with pain abdomen after 10 days of operation with portal pyemia but settled conservatively. Other complications included one suspected clinical leak but no radiological leak. Patient got settled with conservative management in one week. Two patients had repeated vomiting off and on for one month and inability to take water which resolved spontaneously. At 1-year follow-up all patients had lost an average of 52.0% excess body weight but weight loss plateau after 18months in five cases with follow up of 24 months
Conclusion: Laparoscopic sleeve gastrectomy is quite feasible in developing country like Pakistan because it is safe and effective but weight loss tends to get slower after one year and plateaus at 18 months.

P.196 Laparoscopic Sleeve Gastrectomy With and Without Staple Line Reinforcement: a Randomized Study

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Background: Laparoscopic Sleeve Gastrectomy has become popular as a stand alone operation for treatment of morbidly obese patients. Staple line reinforcement (SLR) is practised variably by surgeons. Its role in prevention of leaks is doubtful though the bleeding complications are reduced. There are few studies which have compared the two groups in a randomized manner. We conducted a randomized study to study the role of staple line reinforcement during LSG.
Methods: 60 consecutive patients undergoing laparoscopic sleeve gastrectomy were randomized into two groups:-
Group A -without any reinforcement
Group B - Staple line was reinforced with continous sero-serosal sutures using 2–0 polydiaxonone (PDS).
The sleeve was created over a 36 F gastric caliberation tube by sequential firings of Echelon 60 (Ethicon Endosurg Cincinnati OH) using green cartridges for the first two firings and blue cartridges for the remaining. No buttressing material was used in any of these cases. In group B, the staple line was reinforced with a continous 2–0 PDS suture starting at Angle of His. No such reinforcement was done in Group A. A routine intra-operative leak test was done using air insufflation with saline immersion in both the groups.The primary outcomes were leak from staple line, bleeding requiring blood transfusion/reoperation and stricture. The secondary end points were early nausea-vomitings, weight loss and length of operaive time.
Results: 60 patients were included in the study and were followed up for at least 6 months. The two groups were matched in parameters such as age, mean pre-operative body mass index (BMI) and mean number of co-morbidities. There were two leaks in Group A and none in Group B. Both the leaks were proximal and presented on 3rd postoperative day. One patient in Group B had postoperative bleeding. However the bleeding was from an omental vessel and not from the staple line. None of the patients had a stricture. The mean operative time in group A was 80 minutes and in Group B was 110 minutes. There was no significant difference in mean postoperative weight loss and percentage excess weight loss at 6-months in the two groups. The incidence of early posstoperative nausea and vomitings was slightly higher in Group B patients. However the difference was not statistically significant.
Conclusions: Staple line reinforcement seems to be a useful measure to prevent leaks after LSG. Though it does lead to prolongation of operative time, there were no adverse effects due to staple line reinforcement. However a larger study is needed to reach a more meaningful conclusion.

P.197 Effect of Laparoscopic Sleeve Gastrectomy on DM Type 2 in Obese Patients

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Background: Data on the effect of Laparoscopic Sleeve Gastrectomy (LSG) on Type II Diabetes Mellitus (T2DM) is still limited. LSG is gaining increased popularity, however the appropriate selection of T2DM candidates for this procedure is still vague. Our study aimed to evaluate the effect of LSG on T2DM in morbidly obese patients.
Methods: A retrospective review of a prospectively collected database between June 2008 and April 2010 was conducted. 82 patients underwent LSG. Of the 82 patients, 13 had T2DM and were on medical treatments (16%). We studied the variation of fasting serum glucose, glycosylated hemoglobin (HA1c), body mass index, excess body weight loss and the need for medical treatment at the 6-month and 12-months follow-up visits.
Results: Of the 13 patients 10 (77%) had≥6months follow-up. 7 were on oral medications before surgery and 3 were Insulin dependent. Median BMI decreased from 46.5±9.22 (n=10) preoperatively to 35±7.79 (n=10) at 6 months and 32±13.5 (n=5) at 12 months after surgery. Excess Body Weight Loss (EBWL) was 54% (n=10) at 6 month and 65% (n=5) at 12months. HA1c decreased from 7.96% (n=10) preoperatively to 6.1% (n=10) at 6months and 6.5% (n=5) at 12 months. All Non-Insulin dependents (n=7) achieved resolution of DM at 6 months and maintained at 12 months. Among the Insulin dependent patients, only one achieved resolution (33%), the other 2 patients (66%) had considerable improvement with lower dosage of Insulin.
Conclusion: LSG seems to be a very effective procedure in the resolution of Non-Insulin Dependent DM in morbidly obese candidates. Insulin Dependent patients achieved less favorable resolution rates. Larger studies are needed to evaluate the appropriateness of LSG in this subgroup of patients.

P.198 Short Term Morbidity Following Laparoscopic Sleeve Gastrectomy (LSG) as Compared to Laparoscopic Roux- En-Y Gastric Bypass (LRYGB): a Retrospective Analysis

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Background: Laparoscopic sleeve gastrectomy (LSG) is conceived as a technically simpler undertaking and associated with less morbidity and mortality than laparoscopic Roux-en-Y gastric bypass (LRYGB).The aim of this study was to evaluate our experience and compare the short term morbidity and mortality associated with LSG as opposed to LRYGB.
Patients and methods: All morbidly obese patients, who underwent LSG or LRYGB during a period of 3.3 years, were included in this analysis. Operations were performed by 3 surgeons using the same technique. Demographical data were collected as well as data concerning all intra- and postoperative adverse outcomes during the first 30 postoperative days.
Results: During the study period, 251 patients underwent LRYGB and 645 had LSG. Both groups were matched with regards to age, BMI and previous bariatric procedures: mean age of 38.2 years and 39.1, mean BMI of 45.2 and 46.6 and previous bariatric procedures of 23 (9.1%) and 58 (9.0%) for bypass and sleeve respectively. Operating time was longer in the bypass group: 104 minutes (55–230) vs. 70 (35–220) in the sleeve group. Similar simultaneous procedures and conversion rates were seen in both groups: 18 patients (9.1%), 31 (4.8%) and 2 conversions (0.8% and 0.3%) in the bypass and sleeve groups respectively. Bleeding, leakage, stenosis, wound infection, abdominal abscess and food intolerance rates were: 6 (2.4%) vs. 26 (4%), 1 (0.4%) vs. 5 (0.8%), 3 (1.2%) vs. 0%, 3 (1.2%) vs. 4 (0.6%) and 1 0.4%) vs. 6 0.9%) in bypass and sleeve groups respectively, with no significant difference. Food intolerance, hospital stay, re-admission rate and trocar site hernia were similar in both groups: 12 (4.8%) vs. 24 (3.7%), 3.4 days vs. 3.3, 14 (5.5%) vs. 12 (5.7%) and 2 (0.8%(vs. 2 (5.7%) in bypass and sleeve groups respectively. Overall complication rate and severe complication rate were not different either: 26 (10.3%) vs. 65 (10%) and 7 (2.8%) vs. 31 (4.8%) in bypass and sleeve groups respectively. One mortality was observed in the sleeve group.
Conclusions: In our hands, and although RYGB is a technically more demanding procedure, the occurrence of short term morbidity and mortality is not significantly different from that of LSG. LSG didn't prove to be a safer option than RYGB.

P.199 Bile Acid Absorption Does Not Change after Laparoscopic Sleeve Gastrectomy

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Background: Pathophysiological changes in the enterohepatic circulation of bile acids (BAs) are thought to play an important role in the metabolic effects of morbid obesity. Post-operative changes in BA flow after Roux-en-Y gastric bypass may result in post-surgical improvements in glucose and lipid metabolism. Despite no anatomical change in BA flow, the laparoscopic sleeve gastrectomy (LSG) is also associated with an improvement in pre-existing type 2 diabetes. Several studies have demonstrated that gastric emptying post LSG is significantly faster which may be important. Production of Fibroblast growth factor 19 (FGF-19) in the ileum is stimulated by increased flow and absorption of BAs and has a negative feedback effect on hepatic BA synthesis. We measured FGF-19 in patients undergoing LSG to study if BA flow is altered by LSG.
Methods: We prospectively studied 19 patients (13 females, mean age 45 years; range 27–64) who underwent LSG at our institution. Fasting blood samples were taken pre-operatively and at 6 weeks and 6 months post surgery. FGF-19 was measured using enzyme-linked immunosorbent assay. Fasting blood glucose and serum insulin were also measured at the same time points. HOMA-IR was used as a measure of insulin resistance. Results are expressed as mean ± SEM. Statistical analysis employed one-way ANOVA with repeated measures and Pearson's coefficient was calculated for correlations.
Results: LSG was associated with significant weight loss (pre-op 60.0±2.59 kg/m^2, vs 53.0±2.35 at 6 weeks, 45.8±2.0 at 6 months, $p<0.0001$). Insulin resistance decreased significantly (HOMA-IR 8.7±1.4 vs 3.8±0.7 vs 2.4±0.5, $p<0.0001$). FGF-19 concentrations increased over time post-operatively, although the changes were not statistically significant (142.5±15.5 ng/L vs 192.7±26.6 vs 217.9±35.8, $p=0.075$). FGF-19 concentrations did not correlate significantly with HOMA-IR, fasting insulin or fasting blood glucose.
Conclusions: Despite significant changes in insulin resistance and BMI, the change in FGF-19 post-operatively after LSG was not statistically significant. Post-LSG changes to dietary habits and an increased rate of gastric emptying has an effect on weight loss but has no effect on the bile flow to the ileum. Bile acid metabolism is not likely to be involved in the improvements in insulin sensitivity following LSG.

P.200 Laparoscopic Sleeve Gastrectomy Feasible for Bariatric Revision Surgery: an Update

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Background: Bariatric revision surgery is associated with complications. This is due to the decreased quality of tissue and increased complexity of the procedure performed. With regard to the advantages of a laparoscopic sleeve gastrectomy as a primary procedure, the results of sleeve as a revision option were evaluated.
Methods: Fifty-one patients with complaints of insufficient weight loss (34 patients, group I) or vomiting (17 patients, group II) following an adjustable gastric banding or vertical banded gastroplasty underwent a laparoscopic sleeve gastrectomy (LSG). Patients and procedure characteristics as well as outcome were collected prospectively.
Results: Of the eight previous open procedures, half of the revisions to sleeve gastrectomy was performed laparoscopically. In the other operations no conversion was necessary. The median procedure time was 99 min (range 54–221) and hospital stay 3 days (range 2–38). There was no mortality encountered. The main complications were 6 bleedings (one re-intervention) and 7 leakages (treated with two re-interventions, five (repeated) CT-guided drainages and three endoscopically positioned stents). Mean follow-up was 13.8 (2–46) months. In group I the extra weitght loss was 52.7%, the overall extra weight loss was 49.3%. In group II, 82% was able to eat solid food at follow-up. Of the 65 pre-existent co-morbidities, 21 were resolved and 18 improved.

Conclusions: A LSG as a revision procedure is feasible. An additional weight loss and further resolution of co-morbidity seems achievable, however, at the cost of a high number of complications. Therefore, revision bariatric surgery should be limited to expert tertiary bariatric centres.

P.201 Safety and Perioperative Outcome of Laparoscopic Sleeve Gastrectomy (LSG) for Patients with Excessive Perioperative Risk

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Background: Even though morbidly obese patients with excessive concomitant disease carry a significantly increased perioperative risk, they may benefit most of a bariatric intervention due to resolution of those comorbidities.
Perioperative risk can be estimated using American Society of Anesthesiologists physical status score (ASA), Revised Cardiac Index (RCI), Obstructive Sleep Apnea-Severity Index (OSA-SI) and Obesity Surgery Mortality Risk Score (OS-MRS).
This study was performed to analyze the safety and perioperative outcome of LSG in patients classified to the highest risk groups of those anesthesiologic, cardiac, pulmonary and general bariatric risk assessment scores.
Methods: 54 patients (33 females, 21 males) with an excessive perioperative risk underwent LSG (32 French bougie) between 2007 and 2010. Median age of patients was 44 years (range 18–69), median BMI was 52.2 kg/m^2 (38.9-77.5 kg/m^2), whereof 19 patients (35.2%) had a BMI≥60 kg/m^2. Excessive perioperative risk was defined as either ASA≥4, RCI≥3, OSA-SI≥5 or OS-MRS≥4. 41 of the 54 patients (76.0%) had ASA≥4, 48 patients (88.9%) had RCI≥3 and/or OSA-S≥5. Additionally, 11 patients (20.4%) showed an insulin-dependent diabetes mellitus, 15 patients (27.7%) had a history of pulmonary embolism, 22 patients were under aspirin and 9 patients under steroids. 13 patients (24%) suffered from neurological disease (multiple sclerosis, intracranial hypertension requiring ventriculoperitoneal shunt, epilepsy). 25 patients (46.3%) already underwent previous upper abdominal surgery. All data for 30-day morbidity and mortality were studied prospectively.
Results: The median operating time of LSG was 120min (range 35-240min) including additional laparoscopic cholecystectomy performed in 25 patients (46.3%). In two cases, conversion to open surgery was necessary due to a subfascial bleeding in vena cava-syndrome (1) and a staple line leak (1). One patient returned to the operation room to overstitch a leak. The median hospital stay was 6 days (range 3-70d). One patient (1.8%) died after the induction of anesthesia due to complete spinal block after peridural anesthesia despite immediate resuscitation. There were a total of 22 complications in 12 patients (22.2%) within the first post-operative 30 days: early leak (2), late leak (1), stenosis (1), pneumonia (3), cardiac complications (3) and successful reanimation after cardiac arrest (3), transient renal insufficiencies (4), epilepsy (1), wound infection (4). No postoperative bleeding or pulmonary embolism occurred.
Conclusion: This prospective study shows LSG to be a safe bariatric procedure in patients with excessive perioperative risk. However, postoperative morbidity is considerably increased reflecting the severity of comorbidities expressed by inclusion of patients into the highest risk classes of cardiac, pulmonary and anesthesiologic risk assessment scores.

P.202 Gastric Sleeve is a Single Restrictive Procedure?

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The authors present in their 237 gastric sleeve patients the criteria in which they consider gastric sleeve is both a metabolic and restrictive procedure.The improvement of the associated diseases, visceral fat, BMI and EWL, the levels of grelin, obstatin, grelin/obstatin ratio, PP-YY, the gastric emptying before and after surgery, are evaluated in this series two years after surgery to demonstrate both metabolic and restrictive features of this procedure.

P.203 Laparoscopic Sleeve Gastrectomy as a Short Efficient and Safe Method of Morbid Obesity Treatment

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Background: Surgical treatment of morbid obesity causes many technical difficulties and often gives intraoperative or postoperative severe complications. For those reasons searching for simpler, safer and faster methods of bariatric surgery still continues. Sleeve gastectomy - SG was introduced for the first time in 1987. Initially there was only few followers of this method, but actually this is widely accepted method especially in treatment of super obese patients. SG is indicated in surgical treatment patients with BMI above 50 as the first stage of therapy. In our Department since 2007 when the first SG procedure was performed we observe rising number of this operations.
Aim: Evaluation of results of body mass reduction and occurrence of intraoperative and postoperative complication after SG.
Methods: At 1st Department of General and Endocrinological Surgery, Medical University of Bialystok between 2007 and 2010 years 117 patients were operated with SG method. There were 67 woman and 50 man at the age from 44 to 62 (mean - 48). BMI was between 48 to 69 (mean - 52). All patients were operated with laparoscopic method using 5 trocars and staplers in 3 sizes of thickness.
Results: The time of operation was from 1 hour and 25 minutes to 2 hours and 20 minutes (mean 1,7 hour). The time of operation decreases with experience. Patients were discharged on 2 or 3th day after operation. Observed decrease of body mass after 1 month was between 8 and 12 kilograms, after 3 months 16 and 25, 6 months 18 and 41, and after 1 year 21 and 51. The mean excess weight loss after 1 year was 38%. We observed such complications: intraperitoneal bleeding - successfully treated pharmacologically, deep venal thrombosis of lower limb and upper airways inflammation.
Conclusions: SG is efficient and safe method in morbid obesity and super obese treatment. The time of operation and hospitalisation is short what gives decrease of costs. The percentage of intraoperative and postoperative complications is low. The popularity of SG is constantly rising.

P.204 How to Prevent Heartburn after Sleeve Gastrectomy

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Background: Heartburn develops in up to 30% of patients after Sleeve Gastrectomy (SG) and is one of the factors decreasing the quality of life after this operation. To prevent this complication we significantly modified the technique of Sleeve Gastrectomy, calling it *Modified Antireflux Sleeve Gastrectomy (MASG)*.
Methods: The first MASG was done in Sept 2010. Up to date we have performed this form of surgery in 22 patients of both sexes, aged 17–55 and with BMI range 30–70. Four trocars + a liver retractor were used. The stomach was mobilized along the greater curvature as described for a standard SG. Then the stomach was stapled along the 33 Fr bougie from the antral part to the upper part of the stomach. The difference between a standard SG and MASG was as followed: the last 10 cm of the staple line deviated significantly from the standard vertical line to the left (45 degrees) and then the last stapling (60 mm blue cartridge) went vertically up. This deviation created a relatively large pouch in the upper part of the stomach. Then the pouch was imbricated into the stomach, the line of imbricating stiches went vertically from the His angle downwards.

Results: MASG was performed without major complications in all the patients. The most frequent problem was temporary dysphagia for 2–4 days after surgery that resolved spontaneously in all cases. One male patient developed heartburn-like symptoms in the early postop period, later this symptoms disappear without treatment. Weight loss dynamics was similar to a standard SG.
Conclusions: This modification of Sleeve Gastrectomy saves the internal oblique muscle layer of the stomach in the His area and creates a new valve-like structure in the upper part of the gastric sleeve. This form of surgery can potentially eliminate the heartburn symptomatics after Sleeve Gastrectomy. Further studies of this operation are necessary.

P.205 Portal Vein Thrombosis (PVT) after LSG: Two Cases Requiring Surgery

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Background: Post operative DVT is a major concern and prophylaxis protocols based on LMWH entered daily routine clinical practice. Although obesity is considered a risk factor for DVT and eventually PE, recommended therapeutic schedules are based on normal weight people. Few case-reports have been published on PVT after LSG, most of them with resolution after i.v. heparin.
Aims: The aim of this paper was to report and discuss two cases of late PVT after LSG that required surgery.
Patients: # 1: 53 yo male, BMI 56, discharged on POD 5 after uneventful LSG on Dalteparin 10000 UI/d. Medical ward admission on POD 25: since a week, intermittent fever, post-prandial abdominal pain with profuse sweating, CPR 333 mg/L, WBC 16310, large fluid abdominal collections on CT, no clues of leak. Transferred to OR for worsening conditions: segmental venous infarction of the ileum, diffuse mesenteric venous congestion. Ileal resection. PO course complicated by PE (+6d). Successful discharge on POD 20.
#2: 39 yo female, BMI 45, discharged on POD 4 after uneventful LSG on Dalteparin 7500 U.I./d. Medical ward admission on POD 30: for 10 days fever, vomiting and abdminal pain with tenderness, WBC 14450, CPR 146, PV thrombosis at CT scan. Resolution with Enoxaparin 10000 UI/bid and discharged after 10 days without symptoms. 45 days later she reported intractable vomiting, dilation at first jejeunal loop with no further progression at upper GI series. Transferred to OR: tight segmental jejeunal stenosis with fibrosis 10 cm beyond the Treitz ligament. Side-to-side jejeunal anastomosis, successful discharge on POD 7.
Discussion and conclusion: Late onset PVT should be taken in account as routine DVT prophylaxis does not properly fit bariatric patients. Early recognition and successful treatment does not necessarily prevent from further surgery for sequelae.

P.206 LSG And Crura Mesh Repair for Large Hiatal Hernia: Reporting 2 Cases

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Background: It is still controversial whether obese patients with large hiatal defect are good candidates for LSG, as mesh repair is usually concurrently offered with fundoplication in non-bariatric patients. Occasional reports have been published up to now for bariatric procedures.
Aims: The aim of this paper was to report and discuss on 2 patients with large hiatal hernia undergone LSG and crura mesh repair.
Patients and methods: Pt#1: 53 yo, male, BMI 56, type I large (9X10 cm) paraesophageal hernia, no Barret, Ph monitoring positive for GERD, normal manometry. He underwent LSG and hiatus repair with bilayer mesh. Early post-operative course uneventful and asymptomatic. Discharge on POD 5 on soft diet. 6-mo follow-up: portal vein thrombosis (+25d) and PE. Now good weight loss, still no GERD symptoms.
Pt#2: 50 yo, female, BMI 38 after band removal for late slippage, large sliding hiatal hernia, DeMeester score 54.3, esophageal body with mild dysmotility. She underwent staged de-banding and LSG+ mesh hiatus repair. Early post-operative course uneventful and no GERD symptoms. Discharge on POD 5 on soft diet. 6-mo follow-up uneventful. Satisfactory weight loss, no symptoms.
Discussion and conclusions: Concurrent mesh crura repair and LSG seem to be feasible and beneficial for properly selected patients bearing large hiatal hernia, not amenable of conventional hiatoplasty. Longer follow-up and more patients are needed to confirm these results.

P.207 Comparison of Conservative and Surgical Therapy of Obesity Regarding Weight Loss and Metabolic Changes

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Objectives: Over the last few years obesity and overweight were increasing rapidly. Therefore effective weight reduction programs with persistent weight loss and improvement of comorbidities became elementary. As most methods of bariatric surgery are irreversible, conservative programs are of interest. The objective of the study was to investigate the influence of laparoscopic sleeve gastrectomy (LSG) - a relative new bariatric method - and Optifast 52 - a 52 week conservative multidisciplinary intervention program - on weight loss and metabolic changes.
Methods: 118 morbidly obese individuals were included in the analysis. 61 patients underwent LSG (group I) and 57 participated in the Optifast 52 program (group II). The participants of the study were examined before, 3, 6 and 12 months after the intervention. At each timepoint vital signs were measured, anthropometric data were collected and blood samples were taken.
Results: Prior to the intervention, mean BMI was 52±7.0 kg/m² (mean ± SD) in group I and 42±6.9 kg/m² in group II. There was no difference in mean age and gender ratio between the groups. Twelve months after the intervention patients of group I lost 32.7±9.2 % of their initial weight, in group II weight loss was 13.9± 8.3 %. In group II there was a significant weight gain between month 6 and 12. Both intervention programs were associated with a significant reduction of waist circumference (group I by 31.4±12.0 cm and group II by 13.4±13.4 cm). Furthermore a significant decrease in the blood levels of CRP and leucocytes by 10.8± 6.7 mg/l and 2.4±2.1 thousand/µl in group I and by 3.1±3.2 mg/l and 1.2±1.1 thousand/ µl in group II were achieved. One year after the intervention the inflammation values were not significantly different between the groups. At twelve months follow-up blood glucose, HbA1c, blood pressure and resting pulse were reduced in both groups. The levels after twelve months for blood glucose, HbA1c, blood pressure and resting pulse in group I were 91.0±13.2 mg/dl, 5.8±0.5 %, 128.7±20.0 / 80.3±10.9 mmHg, 67.3±11.5 beats/min and in group II 97.7±11.8 mg/dl, 5.6±0.6 %, 122.9±15.7 / 81.5±8.0 mmHg, 71.3±12.2 beats/min. In group I pre-interventional hypertension with 70 % and diabetes mellitus with 40 % were more frequent than in group II with 54.2 % hypertension and 4.2 % diabetes mellitus. After twelve months in group I hypertension disappeared in 35 % and diabetes mellitus in 25 %. No changes were observed for group II.
Conclusion: Laparoscopic sleeve gastrectomy appears to lead to a greater and sustained reduction of weight, BMI and waist circumference than the Optifast 52 program. Furthermore it seems to be more effective regarding the remission of the comorbidities hypertension and diabetes mellitus. Nevertheless, both programs are associated with an improvement in blood glucose and HbA1c levels, blood pressure, resting pulse and the inflammation markers CRP and leucocytes.

P.208 The Impact of Laparoscopic Sleeve Gastrectomy on Body Composition in Morbidly Obese Patients

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Objectives: The growing number of overweight and obese individuals requires evidence-based treatment options. In the last years bariatric surgery has become a

common tool for treating morbid obesity. There are several operations performed but trends indicate a change for operations which can be performed laparoscopically. The sleeve gastrectomy is one of them. As the interest in using this method as an alone technique has risen, nutritional and metabolic consequences should be determined. The aim of the study was to examine the influence of laparoscopic sleeve gastrectomy on body composition in obese patients.

Methods: 62 patients (15 males and 47 females) who underwent laparoscopic sleeve gastrectomy (LSG) were included in the analysis. Body composition was measured before (M0), as well as three (M3) and six months (M6) after intervention by using the body impedance analysis. The received data were evaluated by the NutriPlus Software of Data Input.

Results: Before intervention, mean age of the patients was 44.6±11.1 (mean ± SD) and mean BMI was 51.5±7.0 kg/m^2. Six months after bariatric intervention the initial body weight (146.4±22.4) was reduced by 37.0 kg on average. The fat mass before intervention was 49.0±7.3%. It decreased statistically significant to 47.0±7.7% three months after the intervention and led to 43.0±8.1% six months after LSG. Also, total body water was reduced significantly (M0:54.7±10.3 l; M3:46.6±8.5 l; M6: 44.9± 8.5 l).

Fat free mass before LSG was 76.1±16.2 kg. It decreased to 62.5±12.9 kg three months later and finally to 61.3±11.7 kg six months after intervention. Reason for this is a significant loss of body cell mass (M0:37.3±9.2 kg; M3: 28.6±6.1 kg; M6: 25.7±7.0 kg) and a reduction in extra cellular mass, which however is not significant after six months (M0: 38.8±8.8 kg; M3: 35.1±7.1 kg; M6: 35.6±8.3 kg). The index of those two is increased statistically significant after three as well as after 6 months regarding the initial value prior to LSG (M0: 1.1±0.2; M3: 1.3±0.3; M6: 1.5±0.6).

Conclusion: Laparoscopic sleeve gastrectomy seems to be a promising method in bariatric surgery regarding weight loss, reduction of fat mass and normalisation of total body water. Unfortunately, it appears to be associated with a great loss of body cell mass and a significant increase in ECM/BCM-Index, which indicates a severe catabolism.

P.209 Laparoscopic Sleeve-Gastrectomy (LSG) and Laparoscopic Roux-Y-Gastric Bypass (LRYGB): Mid-Term Results of a Prospective Randomized Trial

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Introduction: LSG as an isolated intervention is a promising novel bariatric operation but long-term results are lacking. In this randomized, prospective, parallel group study, we compared early and mid-term results of LSG with today's gold standard operation, the LRYGB.

Methods: After a minimal follow-up of 1 year data were obtained from all eligible patients: 53 LSG- and 56 LRYGB-patients. Average follow-up time was 17 (12–36) months. Endpoints were: early morbidity, weight loss, reduction in co-morbidity and improvement of quality of life (BAROS- and GIQLI-score), and eating quality (Suter score).

Results: The two groups were similar in terms of initial BMI (LSG=44 vs LRYGB= 42 kg/m^2), age (44 vs 42 years), and female gender (79% vs 71%, p=0.15). Early morbidity of LSG-patients: 6% major, 2% minor complications, in LRYGB-patients: 9% and 9% respectively. Excessive BMI loss 1 year postoperatively was 67.5% for LSG vs 75.8% for LRYGB-group, at 2 years 73% for both groups, and at 3 years 82% for LSG (n=4) vs 76% for LRYGB (n=5, p=0.1). Co-morbidities were cured or improved in the majority of patients, post-LSG, patients suffered more often from reflux. Average BAROS-QoL-score improved from 0.07 to 2.3 2 years postoperatively. in the LSG and from 0.16 to 2.03 in the LRYGB group, the GIQLI-score from 100 to 130 and 101 to 132 respectively, reaching values of healthy individuals. Total BAROS-Score 2 years after either operation was 7.7 and 6.9 reflecting an excellent or very good over all result for both groups. The Suter score (1=very poor eating quality, maximum=27 points) was 24.7 in the LSG group and 25.5 in the LRYGB group.

Conclusions: LSG and LRYGB seem to be equally effective at one and two years postoperatively in terms of weight loss, reduction in co-morbidity and increase of quality of life.

P.210 Presence of Gastric Balloon Does Not Effect Either Incidence OF H.Pylori Infection or Dyspepsia

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Introduction: Currently, there is no enough data on simultaneous removal of gastric balloon+sleeve gastrectomy. One of the concerns raised was increased incidence of dyspepsia and H.pylori as a result of stasis due to presence of gastric balloon. Our primary aim was to compare pre-operative dyspepsia symptoms and the presence of H.pylori on histology amongst patients who underwent simultaneous balloon removal+sleeve gastrectomy and sleeve gastrectomy (primary+band to sleeve gastrectomy).

Methods: All patients undergoing sleeve gastrectomies inclu from March 2007 to October 2010 were included in this study. We analysed the histology of the resected stomach for H.pylori infection. We also evaluated their pre-operative symptoms and proton-pump inhibitor (PPI) requirements. All patients were commenced on PPI for 6 weeks post-operatively and followed up in clinic.

Results: A total of 62 patients (43 female: 19 male) underwent sleeve gastrectomies during our study period, 13 (20%) of whom had a revisional procedure with gastric band removal and formation of sleeve, 25 (40%) underwent simultaneous removal of balloon+sleeve gastrectomy and the remainder underwent primary sleeve gastrectomy. The mean age was 43.8 years, mean BMI was 56.7 kg/m^2 and mode ASA grade was 2. Total incidence of H.pylori on histology was 35(56.45%), 12(44%) of simultaneous balloon removal+sleeve gastrectomy were found to have H.pylori in specimens compared with 23(62%) of primary sleeve gastrectomy specimens. There were 9/62 (19%) patients with dyspeptic symptoms, three in the balloon to sleeve group and six in the other group. Eight out of these 9 patients had H.pylori infection and remaining 27 patients with H.Pylori in the specimen were asymptomatic pre-operatively. Patients were followed-up post-operatively for a period of between 3 to 37 months (mean 19 months). Within this period, no patients complained of dyspeptic symptoms and none required routine PPI use beyond six weeks.

Conclusion: Similar to published literature, this study found that H.pylori is frequently found in the resected stomachs of patients undergoing sleeve gastrectomies. Our study shows presence of balloon does not increase incidence of H.pylori infection or incidence of dyspepsia.

P.211 Previous Abdominoplasty Limits Working Space During Laparoscopic Bariatric Procedures

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Background: A clear view of the abdominal cavity is crucial in laparoscopic procedures. In patients with previous abdominoplasty it may prove difficult to obtain a satisfactory view of the abdominal cavity due to increased abdominal wall tension. The aim of this study was to measure the effect of previous abdominoplasty on working space at different insufflation pressures during laparoscopy.

Methods: The study group consisted of 24 consecutive female patients who had undergone previous abdominoplasty. Age range was 25–58 years and BMI range was 30,5-42,1. An age- and BMI-matched control group (n=26 females, age 20–67, and BMI 30,3-44,7) was used to compare insufflated gas volume at different insufflation pressures. No patient had previously been subjected to an intraperitoneal operation. After induction of general anaesthesia with muscle relaxation, access to the abdominal cavity was obtained with a single use Veress needle (Covidien) and

insufflation was begun (Aesculap insufflator). We measured the total volume of inflated CO_2 at 12, 15 and 18 mmHg. A standard bariatric procedure was then performed (sleeve gastrectomy or gastric bypass).
Results: In controls, the insufflated CO_2 volume at 12, 15 and 18 mmHg was 2,8, 3,7 and 4,4 liters respectively. In abdominoplasty patients, the respective volumes were 1,7, 2,4 and 2,9 l. We observed a relationship between intraperitoneal pressures and insufflated CO_2 volume in both controls and abdominoplasty patients. The insufflated volume was significantly lower ($p<0.05$) at all pressure levels in patients with previous abdominoplasty.
Conclusion: Previous abdominoplasty limits the working space during laparoscopy. Increasing inflation pressure can to a certain extent compensate for this.

P.212 Laparoscopic Sleeve Gastrectomy is a Safe and Effective Procesure Both as First Operation and as Correction for Laparoscopic Gastric Banding Failure in Severe Obesity.

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Background: Laparoscopic sleeve gastrectomy (LSG) is a relatively newly introduced surgical option for morbid obesity, with few long-term outcome studies reported and especially as correction for laparoscopic gastric banding (LAGB) failure.
Methods: We performed SG on 58 (40 women and 18 men) severely obese patients (BMI>40) with a mean age of 40 years and an average preoperative BMI of 49 kg/m^2 (range 41–80). Of these patients, 16 (27,5%) were converted from laparoscopic gastric banding (LAGB) to SG, because of insufficient weight loss or weight regain or various complications (slippage, erosion). We followed all patients regularly for at least 12 months and report % excess weight loss and % BMI loss at 12 months, as well as quality of life changes using Bariatric Analysis and Reporting Outcome System (BAROS). All operations were performed in a single Center.
Results: At 12 months, the overall mean±SE % BMI reduction was 30±2.5, while % excess weight loss was 75±7.5, with no significant differences observed between the patients who had SG as a first operation and those who had it as correction for LAGB failure. Intraoperative complications included leak in 2 patients (3,4 %), intra-abdominal abscess in 3 patients (5,1 %) and hemorrhage in 5 patients (8,6 %), all in the group where SG was performed as correction to LAGB failure. Quality of life according to the scoring key, 0 % were classified as failure, 5 % were fair results, 23 % good, 30 % very good and 42 % excellent results.
Conclusions: Treatment of severe obesity by LSG, either as a first operation or for LAGB correction, can achieve over a 12 month period significant weight loss with concomitant improvement in quality of life for in the majority of patients, with few complications exclusively to those who were operated to correct LAGB failure.

P.213 Greek Experience: First Results of a Continuing Serie of 123 Sleeve Gastrectomy

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Background: Evaluation of sleeve gastrectomy, regarding operative difficulty, morbidity, mortality and results as criteria for the continuation of this surgical method.
Methods: During 2006–2009, 123 sleeves (99 women 24 men) were undertaken, averaging 39,9 years old, with an average BMI 46,4. Twenty-one patients reported a history of GERD.All the cases -except one- were performed using the same type of stapler (6 lines, length 60 mm, clips 1,8 mm and Peristrips).
Results: 1. No conversion. Average surgical time: 107'. Average time for the first 50 operations: 128'. Next 50: 95' and for the last 22: 86'2. 2. Average hospitalization time 3,22 days. In one case, there was a leak at the upper point of stomach. It was the only case in which the usual stapling materials were not used. The leak was managed conservatively during a 9 day hospitalization. In 4 cases, blood transfusions took place.3. In one case, a mesogasrtic pseudo-stenosis - due to an adhesion between stomach and the place of introduction of a trocart - was diagnosticated and cut during a cholecystectomy 10 months later.4. Twelve of the 21 GERD patients got better after sleeve. At the same time, 11 other patients developed esophagitis, which was treated medically.5. Evaluation of excess weight loss (EWL) took place for the first 68 cases with a minimal follow-up of 12 months. Average EWL was 71% and 89,7% had EWL up to 50%.
Conclusions: Sleeve gastrectomy by laparoscopy approach (0% conversion) appears to be a steady technique even for high BMI, in a learning curve of 50 to 100 cases. Leaks problems (appearing at 7% in some studies) are minimal. The ratio of new GERD appears lower or equal when improved by the sleeve GERD and respond to the treatment with medication.First results are encouraging, which justifies continuing this technique in the frame of well established protocols.

P.214 Radiological Examination of Anatomical and Functional Changes after Sleeve Gastrectomy

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Introduction: In the year 2008 more than 18.000 sleeve gastrectomies were performed worldwide. Most patients show a good loss of weight up to three years. Up to now little is known about morphological and functional changes after the sleeve gastrectomy. It is however seen that some patients regain weight years after the operation.
Material and methods: Patients with regain of weight and unclear abdominal complains received a multi sliced computed tomography of the abdomen followed by 3D reconstruction and sleeve size evaluation. Patients scheduled for sleeve gastrectomy also received abdominal time resolved MRI for evaluation of gastric motility prior to and after the operation.
Results: There was a correlation of volume, length and diameter of the gastric sleeve and time after surgery, thus a dilation of the sleeves. Furthermore a thoracicl migration of the sleeve could be seen in one third of the patients, corresponding to clinical symptoms of regurgitation. The evaluation of postoperative gastric motility revealed a accelerated peristalsis in the antrum, whereas there was no active motility in the sleeve itself.
Conclusion: The examinations reveal so far unknown details of morphological and functional changes after sleeve gastrectomy. To prevent a thoracic migration of the sleeve we propose a fixation at the crus of the diaphragm. As gastric motility is only seen in the antrum after sleeve gastrectomy, the antrum should not be resected but be left to ensure a proper emptying of the sleeve.

P.215 Laparoscopic Sleeve Gastrectomy. Our Experience and Results

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Aim: Laparoscopic sleeve gastrectomy is gaining acceptance among bariatric surgeons as a option for the treatment of morbid obesity.The aim of this study is to evaluate and present our experience with this bariatric technique.
Methods: Seventy nine obese patients (51 females and 28 males) that underwent resection of the fundus and the greater curvature - sleeve gastrectomy (LSG) from January 2009 to January 2011 were studied in terms of postoperative complications and weight loss.
Results: The average mean preoperative weight and body mass index (BMI) were 146.89±24.03. Kg (range 94–191) and 50.73±6.48 Kg/m^2 (range 35–71), respectively. From the 79 patients , 59 of those had BMI≥45 Kgr/m^2. The mean operative time was 146 min, and the patients were discharged from the hospital after an average 3.85±0.8 days. The mean capacity of the excised portion of the stomach was 820 ml,

while the capacity of the remaining stomach measured intraoperatively was always less than 100 ml.
Postoperative complications appeared in four patients (1 postoperative leakage treated with TPN, 2 DVT and 1 postoperative fever). The mean excess weight loss (% EWL) was 83.75% one year after and 84.91% after two years. The mean excess body mass index loss (%EBMIL) was 81.6%. The average time of follow-up was 18 months.
Conclusion: From our experience the laparoscopic sleeve gastrectomy is a safe operation that does not disturb the normal anatomy of the gastrointestinal tract and is well tolerated from the patients, has a sufficient degree of weight loss and has no major postoperative complications.

P.216 Can Sleeve Gastrectomy be Used for Conversion from Gastric Bypass? Indications, Results and Technical Aspect of Surgery

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Laparoscopic gastric banding is a commonly performed operation in Australia and also around the world. However long term follow-up review revision surgery can be up to 30% for different surgery. Sleeve gastrectomy has been an operation that has been performed more and more recently. We analysis retrospective among our cohort of 800+ mix bariatric operations among 2 surgeons. Among the 85 re-operative surgery 45 were for conversion from gastric banding either 2 stages or single stage procedures. We document the reason of conversion, results and technical aspect of surgery with no mortality and minimal complications. It demonstrated that re-operative surgery is an essential part of Bariatric surgery and complications can be catastrophic if not performed with care and careful follow up.

P.217 Does Staple-Line Reinforcement Reduce the Rate of Leaks after Laparoscopic Sleeve Gastrectomy- a Prospective Study

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Background: Laparoscopic sleeve gastrectomy has recently been added to the list of appropriate weight loss operations presently performed by bariatric surgeons.
Staple-line reinforcement was initially suggested to decrease leaks. According to the first International Sleeve Consensus, surgeons were divided to those who reinforced with buttress material, those who over sewed and those who did not do either.
The purpose of our study was to evaluate prospectively our initial results with or without reinforcement of the staple line.
Methods: We prospectively evaluated the data from all patients who had undergone LSG at our institution between June 2007 and March 2009. The analyzed data included baseline patient characteristics (age, gender, body mass index (BMI)), intra and postoperative complications.
Results: Two hundred forty three patients with a mean age of 36±12 years and a BMI of 46±5 kg/m^2 were enrolled in the study. One hundred eleven patients had underwent reinforcement of the staple line by over swing it with continuous suture, while the rest did not. Mean operative time was 87±25 min and 67±35 (in the first and second group, respectively). There were no major intra-operative complications or conversion to open surgery at either group. The median hospital stay was 3 days in both groups. Post-operative leaks were diagnosed in one patient of the first group and in 5 patients of the second group. The leaks were treated conservatively. Two patients from each groups suffered postoperative bleeding and 3 patients from the first suffered transient obstruction. All were treated conservatively.
Conclusions: in reviewing our results, a slight advantage can be reflected upon the first method (which is the reinforcement of the staple line), mostly in the sense of less complications. Potential Bias (size -bias) our study enrolled a limited number of patients at each group. And in order to reach a widely accepted consensus in the subject, a larger, potentially multicentric study should be performed

P.218 Sleeve Gastrectomy as a Single Stage Definitive Procedure in the Super Obese? Comparison of Medium Term Results with Roux En Y Gastric Bypass

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Background: The surgical treatment of super obese patients (BMI≥50 Kg/m²) with significant co-morbidities remains a challenge. Sleeve gastrectomy (SG) has been generally considered a first-step procedure followed by either duodenal switch (DS) or roux en Y gastric bypass (RYGB) in these patients. We compare our outcomes following SG done as a single stage definitive procedure and RYGB in the super obese.
Methods: Super obese patients undergoing single stage bariatric procedures (Jan 2007 - Dec 2009) were extracted from our prospectively maintained database. Patient parameters were analysed along with the surgical outcomes. The results were compared in those undergoing RYGB versus single-stage SG performed as a definitive procedure.
Results: 310 patients (Male=67) with BMI≥50 kg/m² (median 54.5, range 50–77) underwent laparoscopic single stage bariatric procedure during this period. The median age was 44 (range 19–69) years. Co-morbidities of diabetes, hypertension and obstructive sleep apnoea (OSA) were present in different combinations in 187 patients (60.3%). The median length of stay was 3 (Interquartile range 2–4) days. Complications occurred in 17 patients (5.5%) and 7 patients needed re-laparoscopy (Intra-abdominal bleed=2; Staple line leak following SG=2, Leak from remnant stomach (previous fundoplication) =1). There was no mortality.
255 patients underwent RYGB (Group A) and 55 patients underwent a SG as a single stage definitive procedure (Group B). Groups A and B, were similarly matched in terms of demographics and outcomes in terms of morbidity and length of stay were not statistically significant. Patients in Group A lost 47%, 59% and 65% of their excess weight at 6 months , 1 year and 2 years respectively compared to 41%, 58% and 55% for patients in Group B. The weight loss in these two groups was not statistically significant (Mann Whitney U test).
Conclusion: In the super-obese population, there is no significant difference in outcomes between SG performed as a definitive procedure and RYGB, in the medium term. Longer follow up data is needed to see whether the weight loss is maintained in the long term.

P.219 Treatment of a Severe Complication of a Laparoscopic Sleeve Gastrectomy with a Oesophagus-Coloplasty

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Objective: Leakage at His angle is a known complication of the laparoscopic sleeve gastrectomy and sometimes difficult to treat. This complication has been described in the immediate postoperative recovery as well as several months later. It presents in different ways but probably the most difficult to treat is the gastrobronchial fistula; a challenging case due to the high morbidity in obese patients. We hereby describe the case of a gastrobronchial fistula presented two months after a laparoscopic sleeve gastrectomy, as well as the diagnostic workup and treatment.
Methods: A laparoscopic sleeve gastrectomy was performed in a 32 year old woman with a BMI of 42. 48 hours after the procedure, she presented a gastroesophageal junction fistula which was managed surgically (drainaige and primary closure). Two months after discharge she complained of oral intolerance, a necrotizing pneumonia of the left inferior lobe and persistent cough related to food intake. Initial tests showed a gastrobronchial fistula which required an endoprosthesis. After failure of this procedure, surgical treatment was indicated; closure of the fistulous diaphragmatic orifice, total gastrectomy, closure of the distal oesophagus, cervical oesophageal stoma and a feeding jejunostomy were performed. A second procedure was performed later on; a reconstruction of the oesophageal transit with a retrosternal coloplasty.
Results: A prompt and adequate treatment is required in the suspicion of a gastric fistula as a complication of a laparoscopic sleeve gastrectomy, specially in the critically ill patient. In this particular case, decisive treatment has enabled the patient to have an adequate bowel transit restored and a normal oral intake at present time.

Conclusions: Leakage through the staple line in the laparoscopic sleeve gastrectomy is a severe complication, with an incidence between 1–5 % as described in published series. Gastrobronchial fistula is less commonly outlined. It is a complication that requires a high index of suspicion and a prompt and aggressive treatment.

P.220 Further Study of Non-Resectional Sleeve Gastroplasty: the "Mini" Sleeve Gastroplasty

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Background: The sleeve gastrectomy (SG) has gained popularity because of several advantages. Unfortunately the SG surgery is irreversible.
Methods: The Mini-Gastric Bypass (MGB) has used a gastric "sleeve" type reconstruction since 1997. During the performance of the MGB in some patients the bypass portion was omitted. This "Mini" Sleeve Gastroplasty (MSG) was performed when 1: patients where the bypass could not be performed or 2: in cases for lesser weight loss. The "MSG" consists of sleeve type gastric pouch. The neo-gastric tube is then reattached to the distal stomach with a 1 cm diameter anastomosis.
Results: The MSG was chosen for 1: 61 morbidly obese (MO) patients because of an inability to perform a bypass and for Group 2: 387 patients with Less Severe Obesity (LSO). Mean preoperative BMI in MO patients was 45 kg/m2, and mean Excess Body Weight (EBW) was 64 kg.
The mean BMI in LSO patients was 35 and the mean EBW was 32 kg. There was no mortality. Mean weight loss was 30 kg (±10 kg), equal to 47% of EBW in MO patients. Mean weight loss in LSO patients was 29 kg (±9 kg), equivalent to 86% of EBW.
Conclusion: This study confirms previous work showing that the results of the MSG are similar to the Band and Excisional (irreversible) Sleeve Gastrectomy. The MSG is simple and successful in Less Severe Obese patients. The Mini-Sleeve Gastroplasty avoids the foreign body of a band and unlike the "Excisional" Sleeve Gastrectomy is easily reversible.

P.221 The Introduction of Laparoscopic Sleeve Gastrectomy to an Established Bariatric Practice is Safe and Effective

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Background: Laparoscopic sleeve gastrectomy (LSG) is a relatively new and seemingly simple procedure. We performed our first LSG in 2006 after a 3 years experience with more than 200 laparoscopic Roux-y-gastric bypasses (RYGB). The aim of this study was to examine the learning curve of the LSG and compare the results of consecutive Lap SG and RYGB performed by the same surgeon over a 4 year period.
Methods: Retrospective review of a prospective bariatric surgical database from February 2007 until February 2011 was conducted. Revisional cases were excluded from the analysis. Complications graded Clavien III or above were recorded. Percent excess weight loss (%EWL) at one and two years were calculated.
On multivariate linear regression analysis,and after adjusting for age and diabetes presence, surgery type was independently associated with EWL-1 (p=0.026) and EWL-2 (p=0.043).
Results:

	Lap SG (N=75)	Lap RYGB (N=104)	p-value
Age (years)	37.4±13.9 (14–75)	41.6±11.2 (19–66)	0.024
Gender	F=43(57%) M=32(43%)	F=55(53%) M=49(47%)	NS
Weight (kgs)	124±28 (75–206)	127±23 (89–209)	NS
BMI (kg/m^2)	43.1±7.8	44.7±5.7	NS
%diabetes	16%	37.5%	0.002
% 30-day morbidity	1.3	5.8	NS
% Late morbidity	2.7	4.8(internal hernias)	NS
%EWL at one year	80±30 (n=63)	68±19 (n=97)	0.013
%EWL at two years	81±30 (n=42)	69±18 (n=64)	0.025

[Comparison of consecutive Lap SG and Lap RYGB]

Conclusion: Laparoscopic SG in the setting of an established laparoscopic RYGB program can be introduced safely. Short term results are comparable if not better than the RYGB in terms of weight reduction. Long-term data in needed to confirm durability and safety of the procedure.

P.222 Oversewing Vs Invaginated Sleeve in Preventing Staple Line Failure (Leak) in Sleeve Gastrectomy

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Background: Staple line failure is considered one of the major hazards that can complicate sleeve gastrectomy. Different techniques were described in the literature to eliminate or decrease such complications. These include staple line over sewing and invaginated sleeve. In this study, the author compared clinical outcomes including staple line failure as a possible adverse event in two groups of patients went through laparoscopic sleeve gastrectomy for morbid obesity.
Material and method: A retrospective study on a consecutive series of patient's operative by the author in a single institution between January 2010 and February 2011 was carried out. Over sewing technique was used in group A patients aiming to prevent possible post operative leak. In group B, patients instead had an invaginated sleeve technique.
Results: Sleeve gastrectomies were performed in 83 patients. In group A, 35 patients (23 female and 12 male) and 48 patients in group B (35 female and 13 male). The clinical data of both groups were comparable. Including age, preoperative weight, body mass index (BMI), associated co morbidities, postoperative excess weight loss (EWL) and postoperative mortalities and morbidities. No mortalities were encountered in this series of patients. A single event of Staple line failure was encountered in one out of the 83 patients (1.2 %). This case was encountered following an over sewing technique. The patient was treated conservatively with excellent outcome. Two patients had postoperative abdominal collection (one in each group).
Conclusions: Sleeve gastrectomy continues to be a safe and efficient option of treatment for patients with morbid obesity. Post operative staple line failure (leak) can be markedly improved using either over sewing or invaginated sleeve techniques.

P.223 Comparative Study between Bougie Sizes in Laparoscopic Sleeve Gastrectomy

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Background: Relationship between bougie size and weight loss after laparoscopic sleeve gastrectomy (LSG) is still controversial and has poorly been studied. The aim of this study was to evaluate weight outcome at one-year follow-up when using different bougie sizes at our institution.
Materials and methods: Our prospective database of bariatric surgery was reviewed. The study included the patients who underwent LSG between August 2005 and December 2009 with one-year for weight loss follow-up. Bougie size used for gastric calibration ranged between 34 to 60F. Decision of which bougie was used depended on the discretion and experience of surgeon. Three groups were studied according on the size of the bougie used (32 patients with 34F, 49 patients with 50F and 411 patients with 60F bougie size). 120 patients were randomly selected from the 60F group for a 4:1 matching with the 34F group. Groups were compared with Anova and chi-square tests.
Results: No significant differences between the three groups were found for age (34.7 v/s 35.8 v/s 36.9 years), sex (female 68.8% v/s 67.3% v/s 79.2%) and preoperative BMI (36.5 v/s 36.8 v/s 36.7 kg/m^2). The length of hospital stay was 2.7 ±0.5 days for all groups. At one-year follow-up, there were no difference in either BMI (27 v/s 24.4 v/s28, p=0.472) or % excess weight loss (%EWL) (85.4% v/s 82.6% v7s 78.1%, p=0.539) in groups 34F, 50F and 60F respectively. Two suture line leaks were found, one in the 34F group and the other in the 50F group.
Conclusions: Three different bougie diameters used for gastric calibration in LSG had no differences in weight loss outcomes at one-year follow-up.

P.224 Does Sleeve Size Effect Weight Loss One Year after Sleeve Gastrectomy?

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Background: Laparoscopic Sleeve Gasterctomy (LSG) is becoming more common as a single-stage operation for the treatment of morbid obesity, yet, the relation between the remaining sleeve size, weight loss and quality of eating was not investigated so far. In this prospective study we assessed the relationship between the gastric sleeve size, weight loss and quality of eating one year after LSG.
Methods: The study included 96 patients (55f/41m) who underwent LSG with a bougie of 40Fr. All patients performed a contrast swallow test on the first postoperative day. The gastric sleeve diameter was measured in the frontal and lateral projections on 3 of the widest locations at each third of the sleeve and the average measurements were chosen. 50 Patients who completed a one year follow up were included in this analysis. Patients filled out a quality of eating questionnaire pre operatively, six and 12 month postoperatively and an average score was calculated. The score varies between 1 and 27, with maximal score representing excellent food tolerance. The effect of the sleeve size on quality of eating was analyzed by T-Test analysis. Association between sleeve size and weight, BMI and %EWL was performed using Pearson Correlation coefficient. P values<0.05 were considered statistically significant.
Results: The average sleeve size was 2.97±0.79 cm (range: 1.21-5.82 cm) The average Excess Weight Loss (%EWL) at one year after surgery was 79%±21. No association was found between sleeve size and weight loss($p=0.2$), BMI ($p=0.9$), %EWL($p=0.9$) one year postoperatively. The average score of quality of eating was 20 ±5 points and no relationship was found between sleeve size and vomiting ($p=0.2$), food tolerance ($p=0.5$) and quality of eating ($p=0.9$).
Conclusions: Sleeve size does not affect weight loss, frequency of vomiting and quality of eating one year after LSG. More researches in this field are needed.

P.225 Laparoscopic Sleeve Gastrectomy: Intra-Operative Manometry of the Gastric Tube

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Aims: Laparoscopic sleeve gastrectomy is a frequently performed bariatric procedure, but the mechanism by which it determines weight loss is not completely understood. One hypothesis is based on the assumption that it may lead to gastric pressure that leads to faster gastric emptying with earlier arrival of food into the distal bowel; the intragastric pressure may furthermore explain the onset of post-operative gastro-esophageal reflux (GER). Aim of the study was to assess the pressure in the gastric tube by means of an intra-operative manometry.
Methods: Between December 2009 and January 2011, intra-operative gastric tube manometry was performed in 13 laparoscopic sleeve gastrectomy. Patients' mean age, weight and BMI were 46.0 years, 120.7 kg and 43.9 kg/m² (range 38.2-50.1) respectively. Pre-operatively, all patients underwent upper gastrointestinal swallow study, upper endoscopy, esophageal manometry and 24h pH-metry in order to assess any presence of GER; they were also asked to fill in a validated questionnaire for GER symptoms. All procedures were carried out with a CO2-pneumoperitoneum pressure of 14 mmHg; the sleeve gastrectomy was performed with an intralumenal calibrating tube 12mm in diameter in all cases. Manometry was performed using a low-compliance pneumohydraulic perfusion system (Dyno 2000 Menfis Biomedica, Bologna, Italy) at 5-cm intervals inside the gastric tube.
Results: All intra-operative manometries showed an asymmetric increase in pressure in the upper third of the gastric tube, between 40 and 65 cm from the nose (in 53.8% of cases the pressure increase was localized between 45 and 55 cm). The maximum increase in pressure was registered between 45 and 55 cm (mean pressure: 9.14 mmHg at 45 cm, 9.98 mmHg at 50 cm, 8.11 mmHg at 55 cm).
Conclusions: The present study demonstrated an asymmetric pressure increase in the upper third of the sleeve gastrectomy. The second part of the study will entail the X-ray measurement of the gastric volume and the manometric assessment of the tube at different follow-up times, in order to study if there is any correlation between sleeve anatomy and intra-gastric pressure and, if so, whether it is related to the patient's weight loss and any GER onset.

P.226 Effect of Laparoscopic Sleeve Gastrectomy on Obesity-Related Complications in Japanese Patients

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Laparoscopic sleeve gastrectomy (LSG) is gaining popularity as a solo surgery recently. The short term results of LSG seem to be comparable to laparoscopic Rou-en-Y gastric bypass, but the date of the long term results and the effect of LSG on complications related to obesity are still scarce and controversial. This time we have evaluated the effect of LSG on obesity related complications for Japanese morbidly obese patients. For this study, 86 patients (male 47, female 39) undergoing LSG were retrospectively analyzed. We have compared the prevalence rate of obesity-related complications and quality of life before and 12 months after surgery. Mean initial body weight, BMI and age were 124.1 kg, 44.2 kg/m^2, and 38.0. They had type 2 diabetes (23%), dyslipidemia (66%), hypertension (67%), hyperuricemia (50%), arthritis (56%), irregular periods (55%), sleep apnea (86%), and urinary incontinence (30%) before surgery. We routinely perform LSG with 36-French bougie as guide for tubulization, starting 4 cm from the pylorus up to His's angle. we reinforce the staple line to prevent surgical complications. The estimated volume of gastric tube is about 100-150cc.
Laparoscopic procedures were performed successfully in all patients. 12 months after surgery, the percentage of the excess weight loss was 76.8%. The prevalence rate of diabetes, dyslipidemia, hypertension, hyperuricemia, arthritis, irregular periods, sleep apnea and urinary incontinence were 3.7, 35.2, 27.8, 15.1, 40.7, 19.2, 20.0, and 10%. LSG could reduce each prevalence rate effectively in all factors after surgery. Regarding quality of life, we have observed improvement after surgery by SF-36. In addition to the weight loss effect, LSG can lead to improvement or remission of obesity-related complications and better quality of life.

P.227 Laparoscopic Sleeve Gastrectomy and Hiatal Hernia Repair: a Valuable Option for Patients with Morbid Obesity and Hiatal Hernia

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Background: The incidence of hiatal hernia, with or without symptoms, in morbid obese patients (BMI>35 kg/m²) could be very high (15% to 52%). Laparoscopic Bariatric Procedures, especially Adjustable Gastric Banding (AGB) and Roux-en-Y Gastric Bypass (RYGBP), have been proven to be more effective than Laparoscopic Antireflux Surgery (LARS) for the treatment of morbid obese patients with hiatal hernia (HH). The indication to Laparoscopic Sleeve Gastrectomy (LSG) associated with hiatal hernia repair (HHR) in these patients is still debated.
Aim: To report our experience of 32 patients submitted to LSG and HHR in our department.

Methods: From October 2008 to January 2011, 32 patients with a mean BMI of 44.9±6.3 kg/m² underwent LSG with HHR, in an addition 22 patients the preoperative diagnosis of HH was not confirmed intra-operatively. Clinical outcomes have been evaluated in terms of GERD symptoms improvement or resolution, interruption of antireflux medication, and X-ray evidence of HH recurrence. Ten patients (31.2%) had a symptomatic gastroesophageal reflux and were taking antireflux medication before surgery, the remaining patients were asymptomatic and the diagnosis of HH was made pre- or intra-operatively. In two symptomatic patients, the HH was>5 cm. In 30 cases the HHR was performed by means of two or three interrupted non adsorbable stitches, while in the two cases with a hiatal hernia>5 cm a shaped polypropylene mesh was superimposed to the crural closure.
Results: After a mean follow-up of 6 months median BMI was 34.7±7.4 kg/m². Resolution of symptoms occurred in 4 patients (40%) while in the other 6 cases the symptoms were improved and well controlled by antireflux medications. In one case (3.1%) a small asymptomatic HH recurred in a patient submitted to both suture and mesh hiatal repair. There were no mesh related complications.
Conclusion: HHR in addition to LSG can be considered a feasible and valuable option for the treatment of morbid obesity complicated by HH, providing good results in terms of weight loss and resolution or improvement of the symptoms related to HH. It is also important to highlight that endoscopy diagnosis of HH has not confirmed intra-operatively in a large number of patients. The reinforcement of HHR with a mesh seems may be used in selected cases with large HH.

P.228 Prevalence and Management of Staple Line Disruption after Laparoscopic Sleeve Gastrectomy for Morbid Obesity

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Background: Staple line disruption (SLD) after laparoscopic sleeve gastrectomy (LSG) for morbid obesity (MO) is an unusual but feared complication that can result in significant morbidity and mortality. Aim of this study was to review the reasons, prevalence and management of SLD.
Methods: Between 2006 and 2010 we conducted a retrospective review of a prospectively collected database for all patients treated at our institute for a SLD after LSG. We analyzed the prevalence, time of onset, location, management and outcome.
Results: Total of 8 patients were treated for SLD. 2 patients had the original surgery at CCF (0,3 %, n512) and 6 patients were transferred from an outside institution (75%). 2 patients had an acute onset (less than 30 days of the primary procedure) and in the remaining 6 patients the onset was delayed (more than 30 days). In 7 patients the SLD was proximal (87.5%). 4 patients (50%) required immediate reoperations. Two cases relaparoscopy and drainage, one case a laparoscopic placement of a T-Tube and fourth case had a laparotomy and gastrostomy. Percutaneous drainage and total parenteral nutrition were used in 2 cases. The remaining 2 cases required a conversion to a gastric bypass. There was no mortalities in this series.
Conclusions: SLD after LSG is a rare complication (0,3%). Despite that 75% of patients will need surgical re-intervention; complications can be managed with negligible mortality using a multimodal approach.

P.229 Effect of Laparoscopic Sleeve Gastrectomy on Dyslipidemia and Hypertension : Results at the End of Three Years

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Background: Morbid obesity, hypertension and dyslipidemia are known to increase coronary heart disease (CHD) risk. Improvement in above can reduce this risk. Bariatric surgery has proven to achieve this improvement. Laparoscopic sleeve Gastrectomy is becoming popular as an effective bariatric operation. This study aims to evaluate changes in lipid profile and blood pressure in morbidly obese patients of hypertension and dyslipidemia before and after laparoscopic sleeve gastrectomy(LSG).
Methods: Total 87 obese hypertensive patients with dyslipidemia underwent LSG at laparo-obeso center from 2004 till 2009. This is the retrospective study of the prospectively maintained database of 32 patients preoperatively & at 36 months after LSG. For analysis paired T test was used.
Results: The mean age was 44±20 yrs .N=32. The mean preop systolic BP (136.4 mm of Hg), total cholesterol(182.8 mg%), HDL (43.1 mg%), triglycerides (164.1 mg%), was compared to mean postop systolic BP (127.6 mm of Hg), total cholesterol (178 mg%), HDL (44.7 mg%), triglycerides (122.9 mg%) .
Statistically significant difference was found between pre and post operative systolic BP($p<0.001$), triglycerides($p=0.01$). Difference between pre and post operative total cholesterol and HDL was not statistically significant.
Conclusion: LSG is effective in decreasing the systolic blood pressure and some parameters of dyslipidemia : but not all. LSG thus modifies the risk of CHD in morbidly obese patients with hypertension and dyslipidemia. Further studies with a larger sample & long term results are needed.

P.230 Improvement in Glycemic Index after Laparoscopic Sleeve Gastrectomy in Obese Indian Patients: Does it Correlate with Anthropometric Changes?

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Background: Elevated HbA1c values are known to increased risk of macro and micro angiopathy in T2DM patients. ADA guidelines recommend maintenance of HbA1c<7%. This is a study to assess the effect of LSG on HbA1c levels in type 2 diabetic patients.
Methods: A prospective observational study of 58 T2DM and Obese patients who underwent LSG during the period of 2005 to 2008 was done. The preoperative and postoperative Weight, Waist circumference, BMI, HbA1c was recorded. The %EWL and % EBL was also calculated. The record of pre and postoperative anti diabetic medication was maintained. Statistical analysis was performed using Spearman Rank Correlation test.
Results: N=58, M: F=33 :25, age range**:** 33 to 67 yrs, Duration of diabetes ranged from 6 montths to 2 yrs (=< 5 YRS:45, >5 YRS 13), 52 out of 58 patients were anti diabetic medication, 6 out of 58 patients were on diet control before operation. Pre surgery mean weight was 118.043±29.325, post surgery was 76.767±12.482, Pre surgery mean waist circumference was 117.224±17.913, post surgery was 99.655± 6.661, Pre surgery mean BMI was 44.613±9.496, post surgery was 29.293±4.173, Pre surgery mean HbA1c was 8.369±1.634 , post surgery was 6.064±0.468. The % EWL was 66.976±7.887 (range 40.75)
The % EBL was 82.703±17.922 (range 87.37)
Conclusion: Patients undergoing LSG had a significant improvement in HbA1c which had a correlation with EWL, EBL, Waist circumference change at the end of 1 year.

P.231 Sleeve Gastrectomy: a Revision Operation in Obesity Surgery?

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Introduction: The laparoscopic sleeve gastrectomy (LSG) was initially performed as a first step of a two-stage operation (OP) in obesity surgery. Recently, this surgical procedure is established as a one-step procedure in morbid patients. Treatment

failures of obesity surgery technics are reported. For instance slippages of gastric banding (GB) are observed. A restrictive-malabsorptive technique is discussed as an alternate operation for failed restrictive surgical procedure. The aim of this study was to determine the feasibility and efficiency of LSG in case of bariatric procedure failure.

Method: From June 2008 to December 2010 data of patients having unsatisfactory outcome after bariatric surgery, in which a LSG as a revisional procedure was performed, were collected in this retrospective analysis. Data collection included demographics, indication for revision, operative time, length of hospital stay, postoperative complications and degree of weight reduction.

Results: Twenty one patients (7 males and 14 females) had revisional surgery converting a bariatric surgery to a LSG. In 17 cases previous bariatric procedures were GB and in 4 cases a Mason's vertical gastroplasty had been performed. In thirteen patients (62%) indication for revision operation was weight regain and eight patients (38%) had a band slippage. Mean preoperative body mass index (BMI) was 49 kg / m² (31–68). The removal of GB and performing LSG was carried out simultaneously in 6 patients. In 5 patients the LSG was converted into an open surgical procedure (24%). The average operating time was 128 minutes (99–241). The postoperative median hospital stay was 5 days (2–119).Mean weight loss at 3 months postoperatively was 20 kg (7–40 kg). Mean % excess BMI loss was 33.4% at 3 months. One major complication, a proximal leakage occurred in a patient after simultaneous laparoscopic GB removal and LSG. Mortality was not observed.

Conclusion: The results of our data analysis have shown that LSG is a feasible and safe revisional procedure after primary restrictive bariatric surgery. Due to one major complication after simultaneous laparoscopic GB-removal and LSG, we perform this surgical operation in a time interval.

P.232 Robotic Sleeve Gastrectomy. An Intermediate Approach to Undergo Totally Robotic Gastric By-Pass

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Objective and study technique: Novel techniques such as laparoscopic sleeve gastrectomy (LSG) ais now used for the treatment of morbid obesity. In fact, the only publish article to our knowledge has been inaugust 2010. There is now enough experience with LSG in our group and we had the possibility to begin robotic sleeve gastrectomy. The application of robotic techniques has been reported for bariatric operations like laparoscopic Roux-en-Y gastric bypass and laparoscopic adjustable gastric banding, and more recently (august 2010) for LSG. We report herein our initial experience with LSG performed with the use of the Da Vinci surgical system as a previous step before Robotic Roux-en-Y gastric bypass.

Description of the method: Eighteen consecutive patients underwent LSG with the use of the Da Vinci surgical system by the same surgical team. Surgical techniques followed the principles of standard LSG. We used three 12 mm standard trocars and a 8mm DaVinci trocar to perform this novel technique. The 8-mm metallic robotic ports were inserted through the standard, disposable 12-mm trocars. Preparation of the stomach was performed by the console surgeon alone and its division with the staplers by the patient-side surgeon. We completed a sleeve gastrectomy at 2 or 5 cm from the pylorus with a 36F boggie inside the stomach and performing stappeling through a standard 12 mm trocar. A complete robotic prolene® suture for reinforcment. Also Seamguald® was used as reinforcements. A drain is finally placed next to the sleeve.

Prelinimary results: Twenty patients (2 men and 18 women) with a mean age of 44.4 years (17–63) and a mean body mass index (BMI) of 48.0 kg/m^2 were operated by Robot. Mean total operative time (including docking time) was 104.1±15.3 min. Mean set-up time was 35 minutes and mean docking time was 6 min. There were no conversions. Complete robotic prolene® suture for reinforcement was performed in 14 patients. Also Seamguald® was used as reinforcements in 6 patients. Peri-operative morbidity and mortality was zero. Mean time for discharge was 4.16 days. We had a patient who required a conversion to laparoscopic gastric by-pass after one month because of an unusual complication of *curling stomach*. Mean BMI at 3 months post-operatively was 35.8±25.6%. The procedure can be completed with only one assistant and with four trocars instead of five in LSG.

Conclusions / expectations: Robotic laparoscopic sleeve gastrectomy is a feasible and safe approach. In experienced laparoscopic hands it is still an efficient surgical technique for the treatment of morbid obesity. No added operating time for the procedure has been reported. The application of robotics to this type of surgery might have less obvious advantages than with LRYGBP. However, to our knowledge few groups use the Da Vinci system in the world. Our Group has considered as a novel and first approach before being involved in Robotic Gastric Bypass.

P.233 Gastric Leakage after Sleeve Gastrectomy - Clinical Presentation and Therapeutic Options

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Objective: To analyze gastric leakage following sleeve gastrectomy depending on its point of detection and localization in order to evaluate therapeutic strategies.

Method: From 12/2006 until 6/2010 data of all patients undergoing bariatric surgery were entered into a prospectively documented database. Evaluation contained patient`s gender, age, BMI, type of surgery, clinical symptoms, diagnostics, onset and localization of leakage, type of therapy, LOS, clinical outcome.

Results: 45 of 196 bariatric patients underwent sleeve gastrectomy. 22 male, 23 female. Mean age 43±9.7 years, mean BMI 54.9±10 kg/m2 . Four patients developed a gastric leak (8.9%): three proximal leaks and one distal leak. Leakage was detected by UGI radiography in two cases, in one case by gastroscopy and in one case by abdominal CT-scan. In two cases CT-scan was not feasible because of patient`s conditions. Three patients underwent re-laparoscopy with re-suture of staple line, abdominal lavage and placement of an intraabdominal drain. Both patients with proximal leaks required stent graft application as leakage reoccurred within five days after relaparoscopy. LOS varied between 30 and 120 days. None of the patients died.

Conclusion: The location of leakage and the presence or absence of an intra-abdominal drain are determining factors for its treatment. UGI radiography with contrast media and gastroscopy are comparable and superior to standard CT-scan. Stent-graft-application is a promising therapy in case of proximal leakage, re-suture or resection of the staple line are possible solutions in case of distal leak.

P.234 Outcomes of Biliopancreatic Diversion With or Without Gastric Preservation in Older Patients

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Introduction: The safety of bariatric surgery in older patients is still questioned. The aim of this study was to quantify the morbidity and mortality of patients older than 60 years undergoing bilio-pancreatic diversion (BPD) with or without gastric preservation at our Institution.

Materials and methods: We selected, from our database, a group of obese patients older than 60 years who underwent a bilio-pancreatic diversion with gastric preservation (BPD-DS) or without gastric preservation (BPD-AHS) since January 1999 till January 2010 at our Institution.

Results: We identified 18 patients (M/F: 6/12). The mean age was 62.5 years (range 60–72) and the mean BMI was 44 (range 35–52)Kg/m^2. Ten of 18 patients underwent a BPD-DS and 8 patients a BPD-AHS.

The overall BMI and EWL% follow-up is represented on the table:

	Preop.	1 year postop.	5 year postop.
N	18	14	7
Weight (Kg)	115 (81-140)	79 (69-105)	67 (50-87)
BMI	44 (35-52)	39 (31-42)	30 (25-35)
%EWL		56 ± 11	54 ± 8

The evolution of the co-morbidities are represented in the follow table:

	Preop.	1 year postop.	5 year postop.
Diabetes Mellitus (%)	10 (55,5)	2 (14,3)	1 (14,2)
Hypertension (%)	14 (77,7)	7 (50)	3 (42,8)
Degenerative joint disease (%)	15 (83,3)	5 (35,7)	2 (28,7)
GERD (%)	8 (44,4)	2 (14,2)	0
OSAS (%)	9 (50)	1 (7,1)	0

No perioperative mortality occurred within 30 days. The perioperative morbidity rate was 5.6% after BPD-DS and 8.1% after BPD-AHS. We observed an higher incidence of iron, calcium and albumin deficiency in BPD-AHS (62.5% after 1 year and 75% after 5 year) than BPD-DS group (50% after 1 year and 66% after 5 year). However using the BAROS classification after 5 years all patients were satisfied.
Conclusion: Our data suggest that BPD with or without gastric preservation is a safe procedure in terms of morbidity and mortality rate in old patients. In our opinion, this procedure, regardless to the gastric teatment, should be suggest only in well selected older patients, considering the malnutrition effects associated

P.235 Histological Changes in Liver of Morbidly Obese Patients after Biliapancreatic Diversion

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Background: The majority of morbidly obese patients are also diagnosed with steatosis or nonalcoholic steatohepatatis (NASH). The aim of this study was to examine ultrasonographic (US) and histological changes in liver of morbidly obese patients two years after they underwent Scopinaro biliapancreatic diversion (BPD).
Methods: 40 patients with body mass index (BMI) of 40–75 underwent BPD. All of them passed preoperative US liver examination. The changes in patients' liver were estimated by the US scoring system based on degrees of parenchymal echogenecity, far gain attenuation, gallbladder wall blurring, portal vein wall and intrahepatic dutcs blurring. A liver biopsy was performed at the time of surgery. Histological classification was based on the system proposed by Brunt (2000). The results of US liver examination and histological findings were compared. Two years after BPD, patients were examined by US for the second time. Five of them had a second surgery due to presence of ventral hernia and liver biopsy was repeated for them. These results were compared to the results of the first biopsy.
Results: All patients were divided into two groups: first group with an average BMI of 44.6±3.0 and second group with an average BMI of 53.0±6.7. US liver examination showed that 60% of the first group had grade 1 steatosis, 33% had grade 2, and 7% had grade 3 steatosis. At the same time, 42% of the second group had grade 3 steatosis, 42% had grade 2 steatosis, and only 16% had grade 1. The severity of steatosis and NASH was positively correlated with baseline BMI. Two years after BPD the average percentage of excess weight loss (EWL) was 72.8% in the first group and 53.2% in the second. According to US examination the best results were achieved in the first group: 40% of patients did not have any steatosis and 60% had grade 1 steatosis. In the second group, 22.2% of patients did not have any steatosis, 33.3% had grade 1 steatosis, 33.3% had grade 2 steatosis, and 11.1% had grade 3. The second biopsy was obtained 26–30 months after the BPD. The baseline BMI for the patients who underwent the second surgery was more than 50. Two years after the BPD, three of these patients experienced a significant weight loss: their BMI decreased to 26–30. Two of these patients had a less successful outcome: their BMI decreased to 38 and 36. For all patients, the degree of steatosis, lobular necrosis, ballooning degeneration of liver tissue and even liver fibrosis decreased, at the same time, mononuclear infiltrates in the portal tracts increased (in 3 cases) or didn't change (in 2 cases).
Conclusion: Overall, reduction of BMI after BPD improved steatosis, lobular necrosis, ballooning degeneration of liver tissue and even liver fibrosis, but additional research needs to be conducted to investigate why a less positive outcome was achieved for mononuclear infiltrates in the portal tracts.

P.236 Petersen Hernia Complicating Laparoscopic Duodenal Switch (LDS)

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Background: Petersen hernia is an increasingly recognised complication of laparoscopic Roux-en-Y gastric bypass (LRYGB). PH occurs when bowel is trapped between the alimentary limb and the transverse mesocolon (Petersen's space). The Petersen space is also created in the LDS procedure, but PH following LDS has rarely been reported.
Methods: We present three cases of Petersen hernia following LDS. Petersen Hernias are classified by type (Magee et al SOARD 2010)
Results:
Case one: A male patient presented to a non-bariatric unit with abdominal pain one year following LDS. At this point he had achieved 82% excess weight loss. At laparotomy the alimentary limb was found to be gangrenous as a result of volvulus and trapping in Petersen's space. A near-total resection of the alimentary limb was performed. The proximal bilio-pancreatic limb was anastomosed side-side to the duodenum (proximal to the ileo-duodenostomy). The distal BP limb and proximal common channel were exteriorised as a double-barrelled stoma. The patient made a slow recovery and was eventually discharged from hospital. We also identified two other cases of PH after LDS.
Case two: A male patient who underwent LDS in two stages presented with abdominal pain to a bariatric unit. Laparoscopy showed some adhesions which were lysed. He made poor progress and a second laparoscopy showed BP bowel prolapsing through Petersen's space (Type B Petersen hernia) and a perforation of the proximal BP limb. Petersen's space was repaired and the bowel perforation closed. He made a rapid recovery.
Case three: A female patient who had undergone LDS previously presented with colicky abdominal pain. At laparoscopy Petersen space containing BP limb (type B PH) was present as well as midline adhesions. Adhesiolysis and closure of Petersen's space was curative. In all cases Petersen's space was not closed at initial surgery.
Conclusions: Petersen Hernia can occur after LDS and surgeons should be aware of this potentially lethal complication. The rapidity and degree of weight-loss following LDS could predispose to Petersen Hernia. Closure of Petersen's space should be part of the standard LDS technique.

P.237 Early and Distant Results of Sleeve Gastrectomy in Combination with Duodeno-Jejunal Bypass

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Background: A new surgical procedure - Sleeve gastrectomy with Roux-en-Y Duodeno-Jejunal bypass (SG-DJBP) is being performed in the world since 2007. They generally brought to successful results but some certain indications to the operation might be developed.
Material and methods: We present results of six SG-DJBP procedures performed since July 2007 to September 2010. The mean age of patients was 38,1 7,3(29–48) years, mean BMI-47.4 7,8 kg/m^2(38,9-59,8), initial weight-130,6 22,6 kg(111–159). A "Roux-en-Y" procedure was performed with a biliopancreatic loop 60 cm and alimentary loop-100 or 150cm depending on initial BMI (less or more 50 kg/m^2 respectively) - four operations within a period of follow up control for 3 years and 6 months. Two operation were performed with alimentary loop-180 with the follow up control up to 1 year. A bandage was placed on the gastric tube intersurgically to two patients.
Results: All the patients tolerated the procedure well. During 6 months the percentage of %EWL was 45,7 5,1%. Up to 1 year all the patients could lose more than 53,8%EWL (48,4-64,4%). Up to 3 years four patients could lose more than 59,1%EWL(45,8-64,4%). The patient with a bandage had the best result - 64,4%, and maximum 68,6% in two years. All the patients have a tendency to further weight gaining up to 3-8 kg or became stable at about 90 kg.
Conclusion: The positive influence on the carbohydrate and lipid metabolism is noticed, all the patients have a slight weight gaining, but there is a less weight gaining with a bandage. It is connected with the stomach extension and lesser malabsorption in contrast to BPD, a bandage gives additional restriction. SG-DJBP is an effective and safe surgery with the slightest metabolic disturbances. It might be offered to patients with BMI<50 kg/m^2. However, it is necessary to control a follow up period and compare it with those of SG and BPD.

P.238 Duodenal Electric Stimulation for Glycemia Control and Weight Loss in Diabetics - Preliminary Results of First Human Study

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Background data: Obesity related dmt2 is a worldwide dramatically increasing disease with many known severe complications. Bariatric surgery achieves the best results, not only in weight control, but also results in dramatic remission rates in dmt2 - especially for duodenal excluding procedures. Therefore, a duodenal pacer was developed in order to mimic the effect of duodenal exclusion of the roux-y-gastric bypass on dmt2 and weight loss. These are worldwide the first preliminary results of electric duodenal stimulation in humans.
Methods: In an open labeled, prospective, single-arm, non-randomized multicenter study 12 obese dmt2 patients with an HbA1c between 7 and 10% received a laparoscopic implantation of the duodenal stimulating device under endoscopic control. Adverse events, changes in glycaemic control and weight were collected. Due to the individual response, adjustments of the device in order to optimize stimulation were made. The follow up was 5–12 months.
Results: There was no mortality and no major morbidity. Device depending severe adverse events did not occur. The meal tollerance test under electric stimulation showed a highly significant slower rising of the mean postprandial glucose level than without. In 11 of the 12 patients a decrease of HbA1c was seen, but at month 8 only 5 of 8 patients had a lower HbA1c in comparison to baseline visit. The mean excess weight loss after 8 months was 8,8% (8 patients).
Conclusions: Electric duodenal stimulation is a feasible and safe approach with positive effects on dmt2 and weight control. Further studies are needed in order to evaluate the potential of this new promising minimally-invasive method.

P.239 Lifestyle Changes Using a Closed Loop Stimulation Device in Obese Subjects

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The importance of regular physical activity and exercise cannot be undervalued in the treatment of Obesity. The abiliti™ System (IntraPace, Inc.) is a behavior modification, closed loop device to treat obesity. The system features a transgastric sensor to detect food intake, which directs a stimulator to deliver a tailored gastric stimulation, resulting in early satiety. The system also records subjects' physical activity (using an accelerometer). Subjects have the ability to download their activity and food intake data using My.abiliti website. The data recorded with the abiliti™ system allow the subjects to quantify their physical activity and visualize their eating pattern, and allow the physicians to monitor closely the subject's behavior and optimize their treatment plan.
We report the physical activity changes and the weight loss observed after 3 and 6 months of therapy for 27 subjects participating in an ongoing clinical trial conducted in Germany. The system was laparoscopically implanted in 33 obese subjects ($35 \geq BMI \leq 55$ kg/m^2), and to date 27 subjects have reached 6 months of therapy. The subjects were seen regularly for weight measurement, review of the food intake and activity data, and stimulation adjustment if required.
The daily accelerometer data were used to assess the change in subject's activity. The output of the accelerometer was processed using a validated custom model to

estimate activity in METS (Metabolic Equivalent Task). We report the mean time per week at "light-moderate" and "moderate-vigorous" activity.
Results:

- Compared to baseline, at 3 months the average time spent in "light-moderate" activity increased from 165 to 302 minutes per week, and "moderate-vigorous" activity increased from 24 to 69 minutes per week (paired t-test $p<0.005$). At 6 months the time spent in "light-moderate" activity per week still increased significantly from baseline (231 vs 165 minutes, paired t-test $p=0.02$), but the average time spent in "moderate-vigorous" activity returned close to baseline level.
- Subjects who increased steadily their weekly "moderate-vigorous" activity during the 6 months had significantly higher weight loss (EWL=29.08%, $p=0.02$).
- Results for weight loss outcomes (mean, SD) at 3 months of therapy are available for 33 subjects, with a mean EWL of 15.9% (±9.3) and a mean total WL of 7.2 kg (±4.0). Twenty seven subjects reached 6 months therapy with a mean EWL of 23% (±11.7) and a mean total WL of 10 kg (±5.5).

The preliminary study results of this one year clinical trial show a significant change in activity correlated positively to weight loss. The objective assessment of a subject's activity, as oppose to self report, allows the physician to deliver more meaningful lifestyle coaching and provides a real feedback of daily energy expended to the patient.

P.240 Bariatric 100% Robotic-Assisted Surgery in Brazil - Sirio Libanês Hospital Initial Experience with 20 Cases

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Background: Robotic-assisted surgery is an evolving minimally invasive treatment for many benign and malignant diseases. This is our initial experience, in Latin America, of the first 20 consecutive cases, in 3 different bariatric procedures, adjustable gastric band, Roux-en-Y gastric bypass and sleeve gastrectomy. We analyze the process in coordinating da Vinci System® installation, on-site training, staff in-servicing and surgeon training. We created The Robotic Training Center to work with surgeons to help enhance their surgical skills.
Methods: 20 patients underwent 03 procedures from March 2008 to October 2010.12 female and 8 male patients. Patient's mean age was 43,29 years (range 24–63 years); The mean body mass index (BMI) was 42,7 Kg/m² (range 38–50 Kg/m²). All patients were informed of lack of experience in robotically-assisted procedures and all surgical staff were certified-trained.
Result: Surgical time was from 2 h and 30 min until 9 h. The 9 h procedure was in a slipped gastric band. The console time was around 1 h less than total surgical time. One patient had a stapler leak in the biliopancreatic limb at day one PO. There were no others peri-operative complications.
Conclusion: All robot procedures were feasible and safe. This new technology enhanced endo surgery dexterity. The learning curve for the console surgeon is intuitive, shorter in time than video surgery and could be done in our provided laboratory. The anastomosis sewed by robotic hand is easier and despite of the machine, could be less expensive than video surgery. The importance of the patient-side assistance became evident, and therefore is focused on during training. Bariatric robotic surgery indicated that many procedures could be initiated robotically in a safe enviroment.

P.241 Laparoscopic Vertical Gastric Plication as Ana Alternative Treatment for Morbid Obesity - Injitial Experience

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Background: Since the first paper published by Talebpour in 2007 of this new procedure for treating morbid obese patients, several studies show that the short term results were acceptable. In 2010 we started to perform this new technique as an alternative bariatric procedure to sleeve gastrectomy. In this study we present our first experience with vertical gastric plication.
Methods: Starting 2010 we perform only 7 laparoscopic gastric plication in patients with a mean age of 41.4 years (25 to 54) and a mean BMI of 45 kg/m^2 (41 to 53). We used five-port approach (three 10 mm, two 5 mm) in the same postion as for sleeve gastrectomy. The first part of the procedure was similar to sleeve gastrectomy. After dissecting greature curvature of the stomach we invaginated it using non-absorbable runing suture. We perform a gastric plication in two layers starting from the fundus to 5 cm of the pylorus. We ensure a patent lumen using a 36-Fr bougie.
Results: All 7 procedures were completed laparoscopically. Mean operative time was 60 min (40 to 90 min) and mean hospital stay was 48 h (24 to 72). Patients returned to their regular activities at an average of 7 days (4 to 9) following surgery. No intra-operative complications occurred. Excess weight loss (EWL) after 1 month was 25% (20% to 30%) and after 3 months was 35 % (28 % to 47 %).
Conclusions: This new procedure has the same result of weight loss as others with minimal risk of complication and very low cost, especially in developing countries. Early postoperative complications of this method are minimal. Longer follow-up and prospective comparative trials are needed.

P.242 Continued Excellent Results with Laparoscopic Mini Gastric Bypass - a Study of 274 Patients from the Indian Subcontinent

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Background: Laparoscopic Mini Gastric Bypass (LMGBP) was first reported to be safe , simple and effective procedure for treating morbid obesity by Dr Rutledge. Now there is a growing evidence of good results with LMGBP from different parts of the world. This study reports the results of 274 cases of LMGBP in morbidly obese patients at one year follow up.
Methods: A prospective database of 274 patients (116 males and 158 females) who underwent LMGBP from 1 February 2007 to 30th September 2009, was used to compare the results .Minimum postoperative follow up was 1 year. Mean age of the patients was 36.5 years, mean body weight was 126.4 kg and mean BMI was 45.2 kg/ m^2.
Results: All procedures were completed laparoscopically. Average operative time was 71.4 minutes. Mean hospital stay was 2.5 days. Mean excess weight loss was 63.9 % at 1 year. 30 day mortality was 0.36%. Major intra operative complications were seen in 4.4 %. There was one leak. Early postoperative complication rate was 2.9 % and 2.2% had major late (1 year) complications, out of which dyspepsia was the commonest and bile reflux was seen in one patient (0.36%).
Conclusion: LMGBP is a safe and simple procedure .It has an effective weight loss and complications similar to the other forms of gastric bypasses. Longer follow up is awaited.

P.243 Laparoscopic Total Vertical Gastric Plication: Initial Results of an Alternative Restrictive Bariatric Procedure

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Aims: Laparoscopic total vertical gastric plication (LTVGP)is a new restrictive bariatric technique. It has similar results of weight loss as others techniques with minimal risk of postoperative complication, less traumatic, no of foreign implants are used, it is reversible and has significantly lower cost.
The aim of this paper is to present our 2 years experience of this new bariatric technique in a series of 76 consecutive LTVGP.

Methods: From January 2009 to January 2011,75 obese patients underwent voluntary LTVGP (mean age, 32), mostly female (F/M=57/19) Patients were placed with a 30-degree reverse Tredelenburg position. Trocars were inserted based on an ergonomic assessment (three 12mm and one 5mm). After the division of the vascular supply of the greater curvature, starting at 2–3 cm from the pylorus and proceeding upwards to the angle og His. Placement of a bougie 36F.Gastric greater curvature invagination starts 1-2 cm from the fat pad, proceeding downwards to the pylorus. The first layer of plication is made with interrupted Vicryl 2–0 , sewing the anterior to the posterior gastric wall and a second layer of continuous prolene 2–0.

Results: The average mean preoperative weight and body mass index (BMI)were 115.026±18.22 Kg(range 75–161) and 40.81±4.58 Kg/m^2 (range 35–59), respectively. From alll 76 patients only 15 had BMI above 45 Kg/m^2 Mean follow-up was 14±2.1months(range 6–24).

The mean postoperative weight loss was 36 Kg and the mean excess weight loss (% EWL) was 81.124% after 12 months and 82.9% after 24 months.The average time of follow-up was 18 months.The mean time of the operation was 98 (range 70–152) minutes and all the patients were discharged from the hospital after an average 1.3 days (range 1–4). The main postoperative complications were nausea at early postoperative period with no major perioperative or postoperative complications.

No drains were placed and the bougie was removed at the end of the procedure.

Conclusion: Laparoscopic total vertical gastric plication (LTVGP) is a safe alternative technique of restrictive bariatric operation. Short term results are similar of those of a laparoscopic sleeve gastrectomy although the majority of the patients involved had BMI ≤ 45 Kgr/m^2. Long term follow-up is still required in order to evaluate the efficacy of the method.

P.244 Short-Term Outcome of Laparoscopic Total Vertical Gastric Plication (TVGP); Interim Report of a Long-Term Prospective Study

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Background: Morbid obesity is a growing health problem worldwide. The present study shows results of laparoscopic total vertical gastric plication (TVGP), which is a new restrictive bariatric surgical technique.

Methods: A prospective study was carried out, following TVGP in 16 female morbidly obese patients with a mean age of 37.8 years (25 to 56), mean initial weight of 113.4 kg (91 to 155) and mean BMI of 41.35 kg/m² (35 to 54). Greater curvature of stomach released by Ligasure from 4 cm of pylorus to angle of hiss at first followed by one-row continuous, non absorbable sutures to invert all of gastric tissue into the stomach longitudinally. After surgery all patients were invited to a weekly group meeting for behavior modification and psychotherapy.

Results: All procedures were completed laparoscopically. Mean operative time was 100 min and mean hospital stay was 36 h. No intra-operative complications occurred. The mean weight loss in our patients was 26.6% of excessive weight loss (EWL) 1 month after the operation, 67% after 6 months, and 84.5% after 12 months. There has been no record of weight regain in any patients so far.

Conclusions: TVGP is feasible, safe, and effective for at least 12 months when performed on morbidly obese patients. We believe that integrating periodic psychotherapy and behavior modification after surgery can help the patients to achieve more satisfactory results. Longer follow-up and randomized comparative trials are needed to confirm this idea.

Keywords: Laparoscopic bariatric surgery, laparoscopic total gastric vertical plication, morbid obesity, restrictive procedure

P.245 Role of Excessive Weight Loss in Treatment of Infertility and Irregular Periodic Cycle in Morbid Obese Female Secondary to Bariatric Surgery

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Aim: Infertility is a dramatic problem in young female. An important factor increasing the risk of infertility is morbid obesity. The aim of this study is to find out role of bariatric surgery and weight loss in treatment of infertility and any form of gynecologic problem.

Material & Method: All morbid obese female (BMI>40 or BMI>35 with co morbidity like diabetes and so on) who were candidate of bariatric surgery included in this study from 2002 to 2008. Patients subdivided into three groups: postmenopouse (A), premenopouse married (B) and premenopouse virgin (C). Technique of choice in morbid obesity was total gastric vertical plication (TGVP) and in super obesity was TGVP or gastric bypass. Changes of all obesity related problems including infertility or irregularity of periodic cycle recorded during first year of operation.

Result: 300 cases of bariatric operation performed by one surgeon during 6 years. 254 of them were female with mean age of 30 years old and mean BMI of 43. Follow up of 47 cases was impossible (29 female). Cases of group A was 21 (mean age 52 years, mean BMI 45), group B was 69 (mean age 34 years, mean BMI 44) and group C was 135 (mean age 25, mean BMI 42). 30 cases of group B (43%) complained of irregular cycle and 14 of them (20%) were infertile. 57 cases of group C (42%) complained of irregular cycle. Mean weight loss after one month was 20% EWL, 6 months 60% and 12 months 75%. In 220 cases technique of choice was TGVP and in remaining it was gastric bypass. 10 cases of infertile group got pregnant (71%) after one year of operation. In 24 cases of group B and 46 cases of group C periodic cycle got regular (81%) at the end of one year (after one month the first case got regular). 27 cases of this group were known cases of polycystic ovary (PCO) and in 16 of them regular cycle after operation recorded.

Conclusion: Rate of infertility and irregular cycle in morbid obese female is higher than general population (20% and 42%). The main option for treatment of this problem is weight loss with good response (71% and 81%) and after one year of weight loss other options of treatment is advised.

P.246 Long Term Bariatric Effects and Anatomical Changes of Fundogastroinvagination in Wistar Rats

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Background: Several restrictive procedures for the treatment of morbid obesity have been employed with wide variations regarding to the weight loss at long term. Gastric restriction can be achieved by invagination of the anterior and posterior layers; this technique has been applied in humans with good results, nevertheless experimental studies are required in order to inference the weight and macro- and microanatomical changes at the long term.

Methods: 12 Wistar rats were employed and distributed into two groups: 8 in fundogastroinvagination (FGI) group and 4 in control group. Food ingested was measured and registered daily only in first month and the corporal weight weekly during 10 months. FGI technique: gastric fundus was invaginated transversely and greater gastric curvature was invaginated vertically keeping in this position by the placement of interrupted stitches of non-absorbable suture (4–0). The data was expressed at media ± DE. Statistic evaluations were realized employing t Student test considering statistical significative $p<0.05$.

Results: Median food ingested in the first month was 15 % lower in FGI than the control group (16.88±0.6 vs 23.1±0.6 g). The percentage of body weight change was significantly inferior in the interventional group at 14 days (−5.35±7.4 vs 6.05± 2.1%, p=0.01), 1 (3.80 vs 11.20 % p=0.04), 2 (11.40 vs 22.60 %, p=0.03), 4 (17.20 vs 26.40 %, p=0.10), 6 (17.20 vs 42.70 %, p=0.0002), 10 months (25 vs 44.70 %, p=0.01) than control group. After 10 months greater gastric invagination persists in all biomodels, but only in 4 persist along with fundoinvagination, because 3 biomodels develop a protrusion in the fundus. Histologically at the level of epithelial surface were not observed structural alterations, but the muscular layer in the invaginated folds was observed adipose degeneration. There was only a death in the surgical group at 9 postoperative day.

Conclusions: The gastric restriction-occupation decrease the ingestion of food and provokes weight loss and lower weight gain in the short and long term, respectively.

We established the fundogastroinvagination biomodel for future investigations about the effects of this technique in the digestive, absorptive and endocrine physiology of the gastrointestinal tract.

P.247 Single Incision Laparoscopic Bariatric Surgery (SILS): Results of an Innovative Surgical Approach

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Introduction: Single-incision laparoscopic surgery (SILS) has the potential advantages of reduced postoperative pain and reduced port-site complications. In this article, we present our first experiences with SILS laparoscopic bariatric surgery including adjustable gastric banding (LAGB), sleeve gastrectomy (LSG) and gastric bypass (LGB) in the UAE in comparison to the international results.
Methods: Since May 2009, 48 carefully selected patients (Average body mass index 41.2, between 38.5 and 47.5 kg/m(2) with peripheral obesity) underwent LAGB in 17 patients, LSG in 30 patients, and LGB in 1 patient using this single incision technique. The same surgeon performed all surgical interventions. For all patients, the same perioperative protocol and operative techniques were implemented.
Results: four operations (three LAGB and one LSG) were converted to standard laparoscopy. three LSG and two LAGB needed an additional 5 mm port. Mean operative time was 141 (93–212) minutes for LAGB and 186 (95–354) minutes for LSG. The mean postoperative pain score was 06/10. 5 patients were totaly pain free, 6 hours after LGB. There was one port misposition (turned over) which is corrected after LAGB. After LSG, there were two wound healing problems, two intraabominal bleedings and three leaks from the stapler line at the level of oesophageo-gastric junction. The one patient with LGB has developed internal hernia after one year which necessitates laparoscopic revision. All patients were very pleased with the cosmetic outcome. Te weight loss results were comparable to the conventional laparoscopic procedures.
Conclusion: Single incision laparoscopic surgery is feasible, allowing for scarless abdominal operations. This early experience suggests that outcomes are comparable to standard laparoscopic but with improved cosmesis, however, long term results are awaited to confirm these findings. A new learning curve to reduce the timing of operation and the rate of poststoperative complications is needed even for those surgeons who are performing advanced minimal access surgical procedures.

P.248 Single-Port Bariatric Surgery: French Experience in Sleeve Gastrectomy

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Background: Laparoscopic sleeve gastrectomy is an interesting alternative for the surgical treatment of morbid obesity. Single port surgery was developed for many procedures, such as cholecystectomy or colectomy. Single port method in bariatric surgery was tested in patients who underwent a sleeve gastrectomy.
Methods: Prospective study of 26 consecutive patients with morbid obesity who underwent a Single port Sleeve gastrectomy (SPSG) performed by the same surgeon between July and December 2010. We collected data about demographic characteristics, surgery procedures (duration, type of single port, additive trocars, number of stepler charge, bledding, pre, per and post-operative complications), efficacy and quality of life (Baros scoring).
Results: Mean age was 40,2 years (range: 21–63), 3 were male, 22 Caucasian (84,6%). Body mass index (BMI) was 46,4 kg/m^2 (range: 36–56). The comorbidities were followed: diabetes (n=5, 20%), essential hypertension (n=13, 50%), nocturne apnoea (n=16, 61%), dyslipidemia (n=4, 15,4%), coronaropathy (n=4, 15,4%), previous laparotomy (n=4, 15,4%) and previous bariatric surgery (3 gastrosplasties in 2 patients).
Mean surgery duration was 159 minutes (range 75–285). Peroperative blood loss was 15 ml (range: < 10–50). No patient needed blood transfusion. All procedures were technically successful without conversion to an open surgery. A second trocar was used in 9 cases and 2 additional trocars were needed in 4 patients. Five stepler charge was used in mean (range: 4–7). Only, one minor complication (cubital sideration improved after few hours) was occurred in 1 patient (4%). Opioids were used for all patients during the first 12 hours postoperatively with a higher dosage at 60 mg intravenous morphine equivalents. Patients discharged in mean 4.4 days after the surgery (range 3–9). The quality of life, assessed using one of the three criteria of the BAROS scoring, was in mean 2,4/3 (range: 2–3 /3). For the patients with more of 6 months of follow-up (n=14), the BAROS score (quality of life, weight loss, reduction of comorbidities) was 6,8/9 in mean.
After a mean follow-up period of 7 months, no severe complication, no new surgery or death were reported.
Conclusion: Single Site Sleeve gastrectomy is feasible and safe. New instruments and specific training are necessary. A second trocar may be needed and easily used without any substantial changes in the technique. We believe that this technique is a natural evolution in minimal invasive surgery. These good results should be confirmed by largest prospective studies.

P.249 Re-Do in Bariatric Surgery, Experience from Saudi Arabia

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Introduction: Bariatric surgery is the most effective treatment for severe obesity, producing durable weight loss, improvement of co-morbid conditions,and longer life. In Revision (RE-Do) Bariatric Surgery the results can vary widely depending on the original procedure and the reason for the revision. Bariatric surgery revisions are usually successful in resolving the associated problems and promoting further weight loss, which is usually not as dramatic as the initial bariatric procedure, but it can be substantial over time. As revision surgery can be more complex, it is important to performed in Center of Excellence for Bariatric surgery. We do Re-Do bariatric surgery because failure to lose weight, recidivism, and complications.
Method: This is a retrospective study for cases underwent re-do bariatric surgery from April 2005 to January 2011 in our hospital (King Fahad Medical Military Complex), the study include the type of the revision bariatric surgery, high-light the reasons to do revision bariatric surgery, describe the expected difficulties and the unexpected challenges, and describe techniques used in revision surgery and the outcome.
Results: Cases had RE-DO surgery out of 560 cases in bariatric patients 19.5%, 98 cases conversion from Laparoscopic Gastric Banding LGB to laparoscopic R-Y gastric bypass LRYGBP 90%. 3 cases conversion from LGB to laparoscopic biliopancreatic diversion. 2 cases conversion from LGB to laparoscopic sleeve gastrectomy LSG. 4 cases from vertical banded gastroplasty to LRYGBP. 2 cases complicated sleeve gastrectomy to LRYGBP.The most common re-do bariatric surgery in KFMMC is conversion from gastric banding to laparoscopic R-Y gastric bypass 98 / 109=90% which is from the total 98 / 560=17.5 %. The male patients 34.6% and the female patients 65.4%. Removal of Gastric band and LRYGBP in same procedure (one step) 82 / 98=83.6%. Two steps or delayed LRYGBP 16 / 98=16.4%,the average weight reduction post conversion of LGB to LRYGBP 45% to 80% of their access body weight with the mean 60% over 1–4 years, while VBG to LRYGBP less weight reduction about 40% of their access body weight.
Conclusion: Re-Do in Bariatric Surgery is challenging need expert and Excellence Center for Bariatric Surgery.Re-Do in bariatric surgery not as dramatic as the initial bariatric procedure, but it can be substantial over time To obtain good results all efforts to decrease the number of failed weight loss cases which will decrease the revision bariatric surgery by good selection of the best procedure for the patient, education for the patients and good follow up.
Keywords: Re-Do, revision, bariatric surgery, failed weight loss

P.250 Laparoscopic Treatment of Gastric Leaks after Duodenal Switch 3 Years Follow Up

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Introduction: Open and laparoscopic bariatric operations are very effective for morbidly obese patients, not only in terms of weight loss but also for the management of associated co-morbidities. Duodenal Switch is bariatric restrictive and malabsorptive technique that has showed the best results in terms of weight loss, quality of life and resolution of co-morbidities with acceptable complication rates. Leaks after bariatric operations are usually life-threatening complications, traditionally treated with surgery, distal enteral feeding or total parenteral nutrition (TPN). Anastomotic leaks after DS are difficult to detect because the associated symptoms may be subtle and nonspecific. The routine postoperative upper gastrointestinal series has a low yield but otherwise may detect small leaks in asymptomatic patients. We report a case of Laparoscopic treatment of EGJ Leaks after DS with a great 3 years follow up.
Background: A 48 years old female with BMI 35 underwent an uneventful DS in December 2007 as the only treatment for morbid obesity due to the patient's choice. The methylene blue test on intraoperative was negative. She developed chills and temperature. Contrast radiology series showed a minimal leak at the gastric pouch. After 16 weeks of unsuccessful management of the leak, including endoscopic treatment, a laparoscopic was indicated. The fistula was identifying with help of gastro-endoscopy. The leak opening was enlarged and an antecolic 100-cm Roux-en-Y limb was brought up to the EGJ and anastomosed side-to-end to the fistula. During follow-up, an early GI series showed that all the contrast was only being drained by the Roux-limb. At 3 months, the GI series showed that both the DS and the Roux-limb have functioned. Her BMI has dropped to 23.
Conclusion: In the hands of the most experienced surgeons, complication rates after primary bariatric operations are today within acceptable limits, although morbidity and mortality, in this patients are inevitable. Surgical repair of the fistula usually leads to a new fistula, because the cause is most likely not related to poor local tissue healing, but to high pressure or poor emptying of the sleeve. The Roux-limb with a low compliance and good propulsive activity works as a relief pathway to the sleeve, and, when the function of the sleeve in DS returns, finally both pathways may remain open. The use of a Roux-en-Y limb to treat this kind of fistula has not been previously reported. In our patient, the emptying of contrast medium initially occurred through the Roux-limb during the first 2 months. Later, both the Roux-limb and the sleeve of DS have functioned. Patient feels satiety and restriction produced by the sleeve and Roux limb. Results in terms of weight loss are quite good in 3 years follow up.

P.251 Short Term Follow Up of Single Stage Conversion of Failed Laparoscopic Adjustable Gastric Banding to Laparoscopic Roux-En-Y Gastric Bypass

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Background: The most common bariatric procedure in Australia is laparoscopic adjustable gastric banding (LAGB). This procedure is successful in producing sustained excess weight loss (EWL) of >50% and health benefits in the morbidly obese population. There is however, a significant long-term failure and complication rate with the LAGB so various surgical options have been proposed as second line treatment. We present short-term, prospective data for 60 patients having a single stage conversion to laparoscopic roux-en-Y gastric bypass (RYGB) after previous complication of, or failed LAGB.
Methods: Between December 2007 and February 2011 all patients who had revision of a LAGB to RYGB were prospectively included in this study. The indications for surgery were failure to lose sufficient weight, or band related complications. During operation the LAGB was removed and the adjacent scar dissected from the underlying stomach. In the same procedure a standard RYGB was performed. Short-term morbidity and mortality were recorded. Weight loss was recorded for a median of 6 months.
Results: 60 patients had removal of a LAGB and conversion to RYGB over the study period. Four patients (7%) required conversion to laparotomy for completion of the gastrojejunostomy. There was no 30-day mortality, but one postoperative death from an acute coronary event at 6 weeks. Perioperative morbidity was 28% and included port sepsis (10%), anastomotic stricture (10%), and bleeding requiring reoperation (8%). Patients after revision RYGB had significantly improved EWL compared to their primary procedure (mean preoperative body mass index (BMI) 42.4 kg/m^2, mean BMI at 6 months 35.2 kg/m^2).
Conclusions: LAGB is an effective bariatric procedure, but has a well defined complication and failure rate. Single stage conversion of patients who have failed or had complication to laparoscopic RYGB is effective for further weight loss. It can be performed with minimal additional morbidity nor mortality in comparison to staged procedures.

P.252 Redo Laparoscopic Surgery after Laparoscopic Roux-En Y Gastric Bypass in Japanese Series

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Background: In Japan, weight loss surgery has not been performed very often, because the prevalence of morbid obesity is small, and because the health insurance does not cover laparoscopic bariatric surgery. In our country, Laparoscopic Roux en Y Gastric Bypass (LRYGBP) was first introduced in 2002, and only 147 cases have been operated. Therefore, there are only few reports on redo surgery following the LRYGBP.
Methods: We carried out a retrospective investigation of the LRYGBP cases from our institution that required reoperation. In particular, we examined whether the repeat surgery was safely performed laparoscopically.
Results: Eighteen patients with morbid obesity underwent LRYGBP surgery. There were four cases that required a total of 8 repeat operations. The reasons for the repeat operations were the following; acute appendicitis, cholelithiasis, two incidents of small bowel obstruction, two incidents of perforated ulcer, intra-abdominal abscess, and hemorrhage from marginal ulcer. Despite the fact that all of these operations were re-do surgery, they could be performed laparoscopically. There were no cases that were converted to open surgery. There were no postoperative mobidity or mortality.
Conclusions: Redo surgery after LRYGBP can be safely performed laparoscopically.

P.253 Totally Robotic Revisional Surgery

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Introduction: The da Vinci robotic surgery system facilitates the performance of difficult operations. This study was conducted to determine the feasibility of utilizing totally robotic procedures for revisional bariatric surgery.
Methods: From 2010 to 2011, 19 totally robotic revisional surgeries were performed by a single surgeon. These included: 4 conversions from vertical banded gastroplasty (VBG) to Roux-en-Y gastric bypass (RYGBP), 4 conversions from adjustable gastric band (AGB) to RYGBP, 1 AGB to sleeve gastrectomy (SL), 1 previous jejunoileal bypass to RYGBP, 1 gastrogastric (GG) fistula, and 7 gastrojejunal (GJ) anastomotic ulcers and/or repairs. Length of hospital stay (LOS), operative time (console plus docking), and complications (intra-operative and 30-day) are reported.
Results: Operative time for revision of GJ anastomosis or GG fistula ranged between 73 and 215 min; LOS was 2–3 days; intra-operative blood loss averaged less than 100 cc; and there were no intra-operative or 30-day complications. Surgeries involving conversion of AGB to RYGBP had operative times averaging 133.5 minutes, blood loss<100 cc, LOS=2.5 days; and no complications (intra-operative or 30-day). For all other conversions to RYGBP, operative times averaged 174.5 min,

blood loss<100 cc; LOS=2.5 days; intra-operative complications=one bleed, and there occurred only one 30-day hospital readmission involving exploratory lap surgery with diagnosis of a mid-abdominal abscess.
Conclusion: To our knowledge, this study details the first report of the use of the da Vinci surgery system for totally robotic revisional surgery and demonstrates the procedure's feasibility and safety.

P.254 New Onset of Severe Dysphagia Six Months after Sleeve-Gastrectomy - Diagnosis and Surgical Treatment

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In July 2010 an uneventful laparoscopic sleeve-gastrectomy was performed in a 50 year-old non-smoking patient for morbid obesity with BMI 44,5 kg/qm (124,6 kg, 167,5 cm). An asymptomatic very small (< 3 cm) axial diaphragmatic hernia without oesophagitis was detected preoperatively by gastroscopy.
Intraoperatively the oesophagogastric junction appeared mobile, but in orthotopic position without appearance of major diaphragmatic hernia. Nevertheless a left-sided gastrophrenicopexie as a prophylactic measurement was done (diaphragmatic stitches included in the routinely performed total oversewing of the stapleline).
In the post-operative follow-up observation of an uneventful course with only mild reflux synptomes, successfully treated by PPI-medication. EWL (excess weight loss) 35,2 kg (> 65 %) within 6 months.
6 months postoperatively rather sudden onset of severe dysphagia with intolerance for almost any solid foods and partially even liquids.
Gastroscopically detection of an axial hiatal hernia with 2nd degree oesophagitis , otherwise no pathology at the level of the sleeve, pylorus and duodenum. Barium swallows reconfirmed an axial hiatal hernia of 4 cm size.
A conservative trial with high PPI dosage (40 mg Pantozol 3 times daily plus procinetic medication) remained unsuccessful. Symptomes even worsened.
So a laparoscopic exploration with posterior diaphragmatic hernia repair and bilateral gastro("sleevo")-phrenicopexie with non-resorbable stitches was done.
Postoperatively all symptoms disappeared straight-away and the further clinical and radiographic course was uneventful.

P.255 Managing the Failed Gastric Bypass: use of the "Weetabix Test" in Deciding on B-Band or Band on Bypass

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Background: Weight regain following laparoscopic gastric bypass can be difficult to manage. An enlarged gastro-jejunal complex (gastric pouch, gastro-jejunal stoma and jejunum) can be the source of weight regain. Conventional management of weight regain after gastric bypass has involved surgical resection of the pouch or limb-lengthening procedures. Endoscopic therapies have been limited in their usefulness. Two novel approaches for this problem have been introduced: the B-Band and the "Band on Bypass". Choice between these procedures is largely through surgeon preference. We present a novel imaging investigation that can guide surgeons in the choice between these two operations.
Methods: A semi-solid cereal based meal (Weetabix) mixed with contrast material (barium sulphate) is administered to patients under fluoroscopic guidance. The following features are noted: pouch anatomy and the presence of dilation, stomal anatomy and the presence of stenosis or dilation, pouch emptying.
Results: Four patients underwent Weetabix testing. In two cases rapid pouch emptying with pouch dilation was noted. These patients underwent B-Band placement. In the other two patients the principal finding was of a dilated gastric pouch and these patients underwent Band-on-Bypass.
Conclusions: The Weetabix test can be used to guide surgeons in the choice of procedure to offer patients with weight regain following gastric bypass. The Weetabix test could be used to stratify patients in future trials comparing B-Band to Band on Bypass.

P.256 Case Studies for Revisional Procedure after Failed Restrictive Bariatric Surgery

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Restrictive bariatric surgery such as gastric banding(LAGB) and sleeve gastrectomy (LSG) was a common(over 80%) in Korea from 2003. Revision of failed bariatric procedures is a significant challenge for bariatric surgeons, because of the increasing number of recurring morbid obesity or complications. Since January 2008, we did 5 revisional surgery after failed restrictive procedure. Primary procedure was LAGB in 3 cases, LSG in 1 case, and LSG plus gastric banding in 1 case. Reason for surgery was procedure-related complication in 2 cases, weight regain in 2 cases and intolerance to band in 1 case. Revision to sleeve gastrectomy (including re-sleeve gastrectomy) was done in 3 cases and near-total gastrectomy was done in last two cases. There were no conversion to open and no surgery related complications.

P.257 Open Conversion to Roux-Y Gastric Bypass after Failed Vertical Banded Gastroplasty

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Background: Following the first description of the vertical banded gastroplasty by Dr. Edward E. Mason in 1980, this procedure was widely performed as a restrictive procedure throughout the world. Long term complications of the procedure are for example outlet stenosis and more often disruption of the staple line leading to weight gain. In our institution the open vertical banded gastroplasty (VBG) was performed since the early 1990s. We therefore reviewed our patients who underwent conversion from VBG to open proximal Roux-Y bypass.
Methods: We reviewed all 44 patients who underwent open conversion from VBG to Roux-Y bypass from January 2005 until December 2010. Reasons for the conversion operation were insufficient weight loss due to disruption of the staple line and VBG related complications such as outlet stenosis or migration of the band.
Results: The VBG procedure was performed in all patients between 1997 and 2001. Overall 44 patients underwent the procedure, median age was 44±8 years (range 31 to 68). Seven were male and 37 were female patients. Median BMI was 43±9 kg/m² (range 31 to 57). Staple line disruption was the reason for the conversion operation in 34 patients, 10 patients underwent surgery for VBG complications, such as migration of the band (n=3) and outlet stenosis (n=7).
The conversion operation was performed in all cases by re-laparotomy as all primary VBG procedures were performed in the same manner.
Postoperative complications were observed in 8 patients (18%) and were mainly minor wound infections (n=6; 13,6%). One abscess and one bleeding episode were reasons for relaparotomy.
The conversion operation could be performed without anastomotic leaks and with no mortality. The patients average BMI was 34±7 (range 28 to 50) at a median follow-up of one year (range 4 to 42 months).
Conclusion: VBG is associated with a high rate of reoperations for failure and VBG related complications. The conversion of a VBG in a proximal Roux-Y bypass is one option of treatment leading to an acceptable weight loss moderate morbidity and no mortality in our institution. Due to the technical challenge of the operation the re-do's in VBG should be performed in high volume centers.

P.258 Laparoscopic Conversion from Restrictive Surgery to Roux-En-Y Gastric by-Pass Leads to a Higher Complication Rate Compared to Primary Gastric by-Pass

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Aims: Given the long-term incidence of failure of bariatric restrictive procedures, an increasing number of patients undergo conversion to Roux-en-Y gastric by-pass (GBP); aim of the study was to assess the incidence of intra-operative and post-operative complications in this group of patients, compared to laparoscopic gastric by-pass results in patients without previous bariatric surgery.
Methods: Between January 1996 and December 2010, 472 patients underwent a laparoscopic Roux-en-Y gastric by-pass at the University of Torino; in 387 cases the operation was the first bariatric procedure, while in 85 cases patients were converted from a previous restrictive procedure (21 cases of adjustable gastric banding and 64 of vertical banded gastroplasty).
Results: In the revisional-GBP group, mean pre-operative age, weight and BMI were 46.0 years, 105.3 kg and 38.9 kg/m² respectively; in the primary-GBP group, they were 41.3 years ($p<0.01$), 129.0 kg ($p<0.01$) and 47.2 kg/m² ($p<0.01$), respectively. Mean operative time was 213.7 minutes in the revisional-GBP group and 203.8 minutes (p ns) in the primary-GBP group. Laparotomic conversion rate was 33.3% in the revisional-GBP group and 5.0% in the primary-GBP group ($p<0.01$). Mean length of hospital stay was 8.8 days in the revisional group and 6.3 days in the primary group ($p<0.05$).The incidence of gastrojejunostomy leak was 2.4% in the revisional group and 0.8% in the primary group (p ns), whereas the incidence of gastrojejunostomy stricture was 4.7% in the revisional group and 4.7% in the primary group (p ns).
Conclusions: The present study shows that laparoscopic conversion from gastric banding and vertical banded gastroplasty to gastric by-pass, although feasible and effective as demonstrated by similar operative times, leads to a high conversion rate and a higher incidence of gastrojejunostomy complications compared to patients without previous bariatric surgery.

P.259 Revisional Surgery in the Bariatric Field: When and How?

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Background: Bariatric surgery has become more common due to the worldwide growing incidence of obesity. Revisional surgery in bariatric field is becoming an important issue. It has been associated with higher complication rates, and there is no consensus on the standardized surgical approach to revisional surgery. The aim of this study was to review the revisional procedures performed at our institute.
Methods: A retrospective review of a prospectively maintanied databese was performed. Data were reviwed for all patients undergoing revisional procedure. Data included age, gender, preoperative weight, body mass index (BMI) (prebariatric and prerevisional surgery) and postoperative complications.
Results: Eleven patients (one male and ten females) had revisional surgery. In the patients who had a previous vertical banded gastroplasty, failed weight loss was the indication for 3 patients (75%) and outlet stenosis for one patient (25%). In the patients who had previous laparoscopic adjustable gastric banding, mechanical side effects were the indications (1 band slippage, 5 band migration) of surgery. The gastrocolic fistula was the indication of surgery in the patient who had been revised from vertical banded gastroplasty to sleeve gastrectomy. At the mean follow-up of 10.9 months (3–16 months), the mean BMI and persentage of excess BMI are 32.3 kg/m^2 and 37.4%, respectively. There was one stapler-line leake.
Conclusion: Our study suggest that revision can be performed safely. Weight loss is satisfactory. The type of revisional procedure as well as appropriate patient follow-up and compliance will be important for the final outcomes.

P.260 Strategies for Revisional Bariatric Surgery after Failed Gastric Banding

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Background: The most common bariatric operation in Europe, laparoscopic adjustable gastric banding (LAGB), is reported to have a high incidence of long-term complications. Most of these complications require revision and redo-operations. The strategies for revision are individual just as the primary procedures.
Methods: From January 2008 to December 2010 our data base showed 15 patients with revision procedures after laparoscopic gastric banding. Reasons for band failure, strategies for redo-operation, complications and weigt loss after revision were analysed.
Results: 15 patients (9 female , 6 male) underwent redo-operation at our department after previous laparoscopic gastric banding. Reasons for revision were slippage of the band in 9 cases, esophageal dilatation in two cases, leakage of the band in two patients and 2 patients with insufficient weight loss. All redo-operations were done laparoscopically as a one step procedure. 9 patients were revised after band removement with sleeve gastrectomy, 6 with Y-Roux gastric bypass. There was no postoperative leakage, no intra-abdominal abscess or bleeding. One patient suffered from aspiration pneumonia, one from hematoma of the abdominal wall. There was no mortality. Excess weight loss 3 to 36 month after redo-operation was median 70,6 %.
Conclusions: Redo surgery after gastric banding is effective. The strategies of revisional procedures are individual. One step revision for failed gastric banding is possible. A higher complication rate should be considered.

P.261 Redo Bariatric Surgeries after Failed Gastric Banding - a Review of 72 Cases

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There is high failure rate after gastric banding in terms of weight loss and occurrence of complications, which can reach up to 40 % of the cases.
The complications after gastric banding include pouch , esophageal dilatation, slippage and erosion. There is a direct relation between the number of adjustements, the duration of the tightness of the band and the non compliance of the respective patient with the compication rate.
Redo operation have to be planned carefully and taken into consideration that since the patient did not respond to a purely food restrictive operations, malabsorptive or mixed procedures should be offered.
My experience is presented and recommendations are given.

1. Sleeve should not be performed in the same session with band removal and should definitely not attempted after an eroded band.
2. Mini or Roux en Y bypass can be done simultaneously with the band removal , but special care given to previous band location.
3. Not recommended after erosion as well.
4. The safest and most recommended redo procedure after failed banding and can be done simultaneously even in band erosion would in my opinion be the Scopinaro operation.

Short videos about tricks and technique are presented.

P.262 Laparoscopic Gastrojejunal Sleeve Reduction after Roux-En-Y Gastric Bypass

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Background: Weight regain after Laparoscopic Roux-en-Y gastric bypass (LRYGB) could be as high as 35% in some cases and 60% in super obese. Laparoscopic gastrojejunal sleeve complex reduction is a surgical option to revise a dilated gastric

pouch and complex. The aim of our study is to determine the results of revision surgery following weight regain post LRYGB.
Methods: Patients were identified due to weight regain post LRYGB. They all had dietetic review and had no restriction anymore. Oesophageogastroscopy and contrast studies showed dilated complex. Patients were re-laparoscoped. Sleeve reduction entails serial firing of a linear stapler along the jejunal alimentary limb and the left stapled side of the gastric pouch towards the left crus, with a bougie size 32 in place as calibration, thus, creating a new reduced gastrojejunal complex. Data analysed included demographics, body mass index (BMI) and status of comorbidity.
Results: Four patients (M: F, 1:1) were selected. The mean age at revision was 42 years (31–56) and the mean interval between the primary and the revision procedures was 38 months (range 31–72). Mean BMI prior to revision was 37.1±4.0 kg/m^2 and weight of 102±7.5 Kg Post-revision mean BMI was 30.9±4.7 kg/m^2 and weight of 82±8 Kg with mean follow-up of 12 months. All patients were operated upon laparoscopically. All patients had obesity-related comorbidities prior to the revision. Three patients had diabetes mellitus and hypertension and they came off their oral hypoglycaemic medications and antihypertensives after revision. One patient had obstructive sleep apnoea and he came off the night CPAP. There was neither major complication nor mortality among this group.
Conclusion: Although we had small numbers, but this study showed for post LRYGB patients who regained weight, laparoscopic gastrojejunal sleeve reduction is a valid option with reasonable weight loss results in the short term.

P.263 Treatment Algorithm in Superbese - is the Two Step Approach Working Everywhere?

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The treatment algorithm of superobese patients especially males is controversial. This patient group has the highest incidence of per operative morbidity and mortality. In the light of these facts different approaches are under investigation.
Method: We have introduced in our clinic a two step approach in male patients with BMI above 60 and female patients with a BMI above 65.
In step one after a 2 week high protein, low carb diet the patients receive a laparoscopic sleeve resection. In case of weight regain of more than 5 kg in the presence of substantial diet counseling as a second step a Y-en-Roux Bypass with a limb length of 140 cm is added.
Patients: So far we treated 7 male and 3 female patients in this manner. The initial median BMI was 64 in the male and 67 in the female group.
Results: The median time span between first and second operation was 14 month overall. Another 6 patients who are enrolled in this study have not experienced a weight regain so far and therefore the second step is not yet planned despite the fact that the sleeve resection has been performed median 17 month before. Another 4 patients presently do experience weight regain, however have not succeeded in acquiring insurance coverage for the second operation.
Per operative mortality so far is zero, major complications occurred in one patient (leak after sleeve resection), minor complication rate overall is 10%. The overall median reduction in BMI is 33. Female patients performed better with a BMI reduction of 36.
Conclusions: In the present treatment protocol for super obese patients we have experienced a acceptable reduction of BMI with a tolerable per operative risk. Unfortunately our insurance system does currently not allow dividing the planned procedure in two steps per se. The patients have to seek twice for cost coverage by their insurance which is often denied to the fact that the patient has already lost a substantial amount of their overweight even though they have not reached the treatment goal.

P.264 Two Stage Approach to Super Obese: Balloon to Sleeve Gastrectomy on Same Admission is Safe and Effective

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Introduction: Definitive laparoscopic weight loss surgery (WLS) in super obese and obese with difficult body habitus is challenging. Gastric balloon is a recognised procedure in reducing weight prior to definitive weight loss surgery in super obese. There has been a suggestion that simultaneous removal and definitive weight loss surgery is associated with increased complication rate due to thickness and size of the stomach. Our aim of the study was to evaluate safety of simultaneous removal of balloon and Laparoscopic sleeve gastrectomy (LSG).
Methods: This is a Retrospective review of a prospectively collected data over 15 month period. Information was collected from clinical notes. All followed a standard diet two weeks prior to definitive WLS. A standard laparoscopic technique was used by three experienced surgeons to perform LSG. All used staple line re-enforcement either Duet or Peristrips.
Results: 32 (26F: 6M) underwent simultaneous balloon removal+LSG between June 2009 and October 2010
Mean age 43.42 yrs (range 27–61 yrs.). Mean length of stay following balloon insertion was 1.7days (range 1–3 days) and was 4.7 days (range2-8 days) following LSG. Mean BMI pre-balloon insertion was 65.7 kg/m^2 (range 52–78) and before LSG was 61.37 kg/m^2(range 49–73). Mean excess weight loss 6/12 following gastric balloon was 11.4% and 5/12 following LSG was 25%. Only two patients developed minor sepsis (1xUTI, 1xChest infection). None developed major complications such as staple line leak, major bleeding or death
Conclusion: Our experience shows intra gastric balloon effectively reduces weight in majority prior to definitive weight loss surgery. This study shows simultaneous removal and laparoscopic sleeve gastrectomy is safe and effective. We did not notice any major immediate post operative complications.
However, low case numbers and non-randomisation limit this study.

P.265 Bariatric Treatment: a Novel Way to Treat Obese Patients with Lymphoedema

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Background: Lymphoedema patients commonly suffer from obesity leading to restricted mobility and reduced quality of life. The aim of this study was to assess the effectiveness of Bariatric Treatment in super and super-super obese lympoedema patients by measuring objective and subjective outcomes.
Methods: It is a prospective study of 16 lymphoedema patients with a mean BMI of 73.9 (range 52.4-104.1). The patients underwent the bariatric treatment in two stages. Firstly, intra-gastric balloon was inserted and after 6 months, simultaneous removal of balloon and laparasocopic sleeve gastrectomy was carried out. BMI, weight loss, excess leg volume, mobility and the recognised Bariatric Analysis and Reporting Outcome System (BAROS) questionnaires were carried out at each stage and post-operatively.
Results: Sixteen patients underwent intra-gastric balloon insertion. Eight of which completed the both stages and the remainder awaiting second stage of treatment. The 16 patients who underwent intra-gastric balloon insertion at a mean follow up of four months showed a mean excess body weight loss of 27%, excess leg volume loss of 37% and showed 'moderate' improvement in mobility. Patients who completed both stages of the bariatric treatment were followed up at 6 months. These eight patients showed an excess body weight loss between 51-62%, reduction in excess leg volume between 43-61%, 'good' improvement in mobility and were all in the 'excellent' category in the BAROS outcome.
Conclusion: Our study, with objective and subjective measurements shows significant improvement in quality of life in lymphoedema patients with obesity. However, low case numbers and short follow up limit this study.

P.266 Adjustable Laparoscopic Gastric Banding in Super Obese Patients after Intragastric Balloon Placement

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Background: Morbid obesity is a serious health problem affecting individuals globally. There are many surgical and interventional techniques to combat with this issue. Surgery is the only durable and most effective technique to treat morbid obesity and related metabolic disorders currently. In our clinic we are able to treat super obese patients which have BMI>55. We believe that super obese patients should be treated with a two step approach rather than a single procedure. Intragastric balloon placement is an effective pre-surgical therapy for super obese patients who would undergo laparoscopic bariatric surgery.
Methods: In our clinic we prefer intragastric balloon placement for the initial management of super obese patients who would undergo laparoscopic adjustable gastric banding operation. We consider patients as super obese who has a BMI >55. We have included two patients groups in this study to evaluate the effectiveness and safety of bariatric surgery combined with an initial gastric balloon placement. First group of patients are the ones who were operated after 6 months after intragastric balloon placement and the second group are the ones who got the intragastric balloon placement only. The first group consists of 20 and the second group has 40 patients. All patients have provided a written consent form. We have used BIB® intragastric balloon system in all the patients and the balloon is infused with 750 ml of saline in all the patient groups. AMI® band is used in patients undergoing laparoscopic band placement. Pars flaccida technique is used for band placement.
Results: All the patients are fallowed up in 1. 3. 6. 12. Months. The mean percent excess weight loss was 46 ±26.1 in all group of patients. The resolution of co morbidities and the properties of the patients are shown in the table1.

	Male	Female	Total
Number of patients	24	36	60
Age	40 ± 12.9	38 ± 12.1	37.5 ± 12.4
Weight (hg)	134.4 ± 36.5	118± 21	120 ± 34.4
Excess weight	42.8	27.4± 19.5	38.7 ± 29.9
BMI (kg/m2)	42.8 ± 10.6	40 ± 12.8	41.2 ± 9.4
Co-morbidities:	17 (%74)	10 (%30)	27
Hypertension	12 (%50)	24 (%18)	36
Arthropathies	5 (%19)	9 (%24)	36
Hyperlipidemia	5 (%21.3)	9 (%8.2)	14
Sleep Apnea	5 (%20.8)	2 (%5)	7

Conclusion: We believe that super obese patients should be treated with a multi step approach rather than a single step bariatric procedure. In our clinic we treat these patients with intragastric balloon system before a bariatric procedure is done. We believe that adjustable gastric banding is the procedure of choice for the super obese patients after these patients are treated by an intragastric balloon system. This multistep approach is necessary for safer surgery and dramatically reduces perop and post op complications.

P.267 Preoperative Weight Loss with Intragastric Balloon Decreases the Risk of Significant Adverse Outcomes of Laparoscopic Gastric Bypass in Super-Super Obese Patients

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Background: Super-super obesity (BMI>60 kg/m2) increases morbi-mortality in bariatric surgery. We previously showed that significant weight loss can be obtained in these patients with an intragastric balloon (IB). Here, we explored the potential benefit of preoperative IB on the outcome of laparoscopic gastric bypass (LGBP).
Methods: We compared in a case-control study the prospectively collected records of 60 super-super obese patients (66.5±3.4 kg/m2) submitted to a LGBP between 2004 and 2009, with preoperative IB (n=23, cases) or without (n=37, controls).
Results: Baseline characteristics were homogenous in both groups. In the case group, IB was maintained during 155±62 days and induced an 11.2±3.2 of excess BMI loss (%EBMIL), resulting in a lower BMI at surgery (60.5±4.3 kg/m2 vs 66.3±6.8 kg/m2 in controls; $p<0.05$). Systolic blood pressure and GGT were also decreased after IB therapy ($p<0.05$ vs baseline). Operative time was reduced after IB (146±47min vs 201±81min in controls; $p<0.01$) and mean ICU/overall hospital stay were lower than in the control group (NS). The composite end point of significant adverse outcomes (conversion, reoperation, ICU stay >2 days, overall stay >2 weeks) was significantly reduced in the IB group (2 vs 13 in controls; $p<0.05$). All patients were alive at one year and overall weight loss was similar in the case (52.4±17.3 %EBMIL) and control group (50.3±12.7 %EBMIL).
Conclusion: Preoperative weight loss induced by IB prior to LGBP in super-super obese patients was associated with a reduced operative time and a lower overall risk of significant adverse outcomes.

P.268 Lower Striatal Dopamine $D_{2/3}$ Receptor Availability in Obese Compared to Non-Obese Subjects

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Introduction: Obesity results from a complex interplay between an increase in energy intake by changes in appetite regulation and a decrease in energy expenditure. These processes are controlled by genetic, environmental, psychological and biological factors. One of the factors involved in the regulation of food intake and overeating behavior is dopamine. It has been shown that striatal dopamine D2/D3 receptor (D2/3R) availability is lower in morbidly obese subjects. To confirm the role of D2/3R in obesity, we intended to replicate these earlier preliminary findings.
Patients and methods: We measured striatal D2/3R availability, using [^{123}I]IBZM SPECT, in 15 obese women and 15 non-obese controls.
Results: Striatal D2/3R availability was significantly lower in the obese than non-obese women. The difference in availability was 23%. Therewith, this study is a robust and independent replication of the finding that severely obese subjects have lower striatal D2/3R availability.
Conclusion: This invigorates the evidence for lower striatal D2/3R availability in obesity and confirms the role of the striatal dopaminergic reward system in obesity.

P.269 Gastric Bypass in Type 1 Diabetic Patients 4 Years Follow Up

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Introduction: Numerous reports have been published about the beneficial effects of Gastric bypass (RYGBP) on glucose control and metabolic disorders in impaired glucose tolerant and type 2 diabetic subjects. This significant impact of RYGBP on glucose control is thought to not only result from significant weight loss but also from metabolic hormone changes. It's notorious that obesity is common in type 2 diabetes but is rarely seen in autoimmune type 1 diabetes. However, as shown in the Diabetes Control and Complications Trial cohort, a subset of type 1 diabetic patients are overweight, and it has been suggested that intensive insulin therapy may unmask the central obesity or metabolic syndrome in susceptible individuals.
Background: We performed gastric bypass operations in three patients with autoimmune type 1 diabetes associated with severe obesity completing 4 years follow up at moment. The patients had been obese for many years and were unsuccessful in their previous multiple attempts at losing weight. The first patient was a 34 years old woman with type 1 diabetes since 29 years old, which was poorly controlled (HbA1c 9,5%) and treated with a basal bolus insulin regimen (daily insulin dose 80 IU). Her body weight was 90 kg, height 1,58 cm, and BMI 39 kg/m^2. The patient underwent Roux-en-Y gastric bypass surgery 4 years ago. At moment, her glucose control has improved (HbA1c 7,2%), with daily insulin dose reduced to 40 IU. The second patient was 30 years old man also with type 1 diabetes since 6 years old. He present HbA1c 8,2% and treatment with basal bolus insulin of 100IU. The patient underwent RYGBP 4 years ago. At present, his glucose control has maintained levels (HbA1c 8,4%), although daily insulin dose reduced marbled to 30 IU. The third patient was 31 years old with type 1 diabetes since 29 years old. She present HbA1c 13,2% and treatment with basal bolus insulin of 70IU. She also underwent RYGBP 4 years ago and presented uneventful post operatory. She also improved daily insulin dose reduced to 40 IU. Besides these results, all the patients have maintained a good weight loss in 4 years follow up.
Conclusion: In this 4 years follow up in overweight type 1 diabetic patients, the gastric bypass surgery not only leads to a significant and maintained weight loss, but also results in remarkable improvement in metabolic control and concomitant disorders. Consequently RYGBP is a good option to improve type 1diabetes treatment at long time.

P.270 Sleeve Gastrectomy in Type 2 Diabetic Obese Patients

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Background: The aim of this report is to present our experience in treating type 2 diabetic (T2DM) obese patients with LSG in reference to %EWL, metabolic performance after surgery and morbi-mortality.
Methods: Prospective case series of 31 obese well controlled type 2 diabetic patients who underwent LSG between April 2006 and October 2010 and who were followed with a specific protocol.
Results: Mean follow up of12 months (6 to 20 months) Total 31 patients. 21 male and 10 females were operated. Mean preop BMI was 37 (31–51). Mean preop HbA1c was 6, 95% (5, 2–9,5). They were managed with oral medications. No patient was treated with insulin on a regular basis. At twelve months of follow-up the mean BMI was 28,5 the %EWL was 73,9% in the same period, the mean postop HbA1c was 5,73%. The mean preop fasting glucose level was 130,5 mg% (84–275) vs 92 mg (72–111). The preop mean fasting insulin level was 31 uU/ml (12–108) compared to 17 uU/ml at twelve months after SG. At twelve months, 28 patients had no farmacological treatment (90%) and 3 lowered the doses. 1 patient (5%) presented hemoperitoneum that was managed non operatively. No mortality. No conversions
Conclusions: LSG is a safe and effective treatment for the mild and well controlled T2DM obese patients with excellent metabolic control of their diabetes at one year follow up. Longer follow up is needed.

P.271 Increased Energy Expenditure in Gastric Bypass Rats is Not Caused by Activated Brown Adipose Tissue

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Objective: Roux-en-Y gastric bypass (RYGB) surgery increases energy expenditure in rats through enhanced maintenance energy expenditure and diet-induced thermogenesis. We hypothesized that RYGB also induces a higher activity of brown adipose tissue and greater levels of the brown adipose tissue specific uncoupling protein-1 (UCP-1) in rats.
Methods: Obese male Wistar rats were randomized either to a RYGB or sham operation (each n=8) and underwent whole body 1H-MR spectroscopy for analysis of body composition and 18F-fluorodeoxyglucose positron emission tomography combined with computed tomography (18F-FDG PET/CT) imaging for measurement of the metabolic activity of brown adipose tissue. Brown adipose tissue was harvested, weighed and UCP-1 mRNA content was measured by Northern Blot technique.
Results: Body weight and daily food intake was significantly lower in RYGB rats compared to sham-operated controls ($p<0.001$). RYGB rats had a significantly lower percentage of whole body adipose tissue mass compared to sham-operated rats ($p=0.001$). There was no difference in brown adipose tissue activity between the two groups (sham: 2.81±0.58 SUV vs. bypass: 2.56±0.46 SUV, $p=0.73$). Furthermore, there was no difference in the UCP-1 mRNA content of brown adipose tissue between the two groups (sham: 49.5±13.2 vs. bypass: 43.7±13.1, $p=0.77$).
Conclusion: RYGB does not increase the activity of brown adipose tissue in rats suggesting that other mechanisms are involved to explain the increased energy expenditure after bypass surgery. Our results cannot justify the radiation dose of 18F-FDG PET/CT studies in humans to determine potential changes in brown adipose tissue after gastric bypass surgery.

P.272 Alterations of Sucrose Preference after Roux-En-Y Gastric Bypass

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Objective: Gastric bypass patients anecdotally report changes in sweet taste perception and reduce their preferences for sweet foods. We aimed to investigate how Roux-en-Y gastric bypass (gastric bypass) alters sweet food preference.
Methods: Preference for sucrose (sweet), sodium chloride (salty), citric acid (sour) and quinine hydrochloride (bitter) was assessed in a standard two-bottle preference test in naïve and non-naïve obese Wistar rats randomised to gastric bypass or sham-operations. Intestinal T1R2 and T1R3 expression was measured together with plasma levels of Glucagon-like-peptide 1 (GLP-1) and peptide YY (PYY). Obese patients and normal weight controls were tested for sucrose taste detection thresholds pre- and postoperatively. Visual analogue scales measuring hedonic perception were used to determine the sucrose concentration considered by patients and controls as "just-about-right" pre- and postoperatively.
Results: Gastric bypass reduced the preference for sucrose ($p<0.001$), but not for compounds representing other taste qualities in naïve rats. Preoperative sucrose exposure reduced this effect. Intestinal T1R2 and T1R3 expression was significantly altered while GLP-1 and PYY levels were elevated after gastric bypass in rats ($p=0.01$). Bypass patients showed increased taste sensitivity to low sucrose concentrations compared with controls ($p<0.05$), but both groups considered the same sucrose concentration as "just-about- right" after surgery when sucrose was not ingested.
Conclusions: Gastric bypass reduces sucrose preference in sucrose-naïve rats, but preoperative sucrose experience attenuates this effect. Mean changes in sucrose taste detection do not predict hedonic taste ratings of sucrose in bypass patients, the latter of which remain unchanged. Thus, factors other than the unconditional affective value of the taste may play a more important role in determining food preferences after gastric bypass.

P.273 Exogenous Peptide YY 3–36 and Exendin-4 Further Decrease Food Intake, While Octreotide Increases Food Intake in Rats after Roux-En-Y Gastric Bypass

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Background: Postprandial satiety gut hormones such as glucagon like peptide 1 (GLP-1) and peptide YY3-36 (PYY3-36) are elevated after Roux-en-Y Gastric bypass (gastric bypass) surgery in rats and humans. Patients with poor body weight loss after gastric bypass surgery have attenuated gut hormone responses, while peripheral administration of PYY3-36 and GLP-1 can reduce body weight in unoperated rats and patients. However, the effects of gut hormone administration after gastric bypass are unknown.
Methods: We evaluated the acute treatment effects of high doses PYY3-36 (300nmol/kg), GLP-1 analogue Exendin-4 (20 nmol/kg) and the somatostatin analogue octerotide (10μg/kg) on food intake in rats after gastric bypass.
Results: PYY3-36 and Exendin-4 led to a further decrease of food intake, while octreotide increased food intake after gastric bypass in rats.
Conclusion: Acute intraperitoneal administration of satiety gut hormones (PYY3-36 and Exendin-4) reduces food intake, while octreotide increases food intake in gastric bypass rats. The endogenous satiety gut hormone responses after gastric bypass can thus potentially be manipulated by pharmacological interventions to explore the underlying physiological mechanisms of the sustained weight loss.

P.274 Improvement in Type 2 Diabetes Mellitus Following Bariatric Surgery in Morbidly Obese Individuals

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Background: Weight loss following bariatric surgery in morbidly obese patients has been shown to improve the control of type 2 diabetes mellitus (T2DM).
Aims of study: To evaluate the impact of bariatric surgery on T2DM in morbidly obese individuals.
Methods: From August 2008 to February 2011, 54 consecutive patients underwent bariatric surgery at the Singapore General Hospital. 19 patients who were being treated for T2DM prior to surgery were included in the study.
Results: There were 19 patients suffering from T2DM, 10 males and 9 females. The median age was 39 years (range 29–61). 10 patients underwent laparoscopic sleeve gastrectomy (LSG) and 9 underwent laparoscopic gastric bypass (LGB). Median length of stay was 5 days (3–15). The median pre-operative weight was 114 kg (79–170) and body mass index (BMI) 39 kg/m2(33–68). Median follow-up was 8.7 months (1.7 - 29.9). Patients who underwent LSG had a median pre-operative HbA1c of 7.2% (6.1-8.2). 5 of these patients were on oral hypoglycaemic agents(OHA) with 1 requiring subcutaneous insulin injection in addition to the OHAs. Median post-operative HbA1c levels were 5.95% (5.3-6.2), and all diabetic medications were discontinued. Patients who underwent LGB had a median pre-operative HbA1c of 8.6% (6.7-10.1). 8 patients were on oral hypoglycaemic agents with 6 requiring subcutaneous insulin injection in addition to the OHAs. Median post-operative HbA1c levels were 5.8% (5.5-7.0). Although 1 patient remained on insulin with OHAs, her dose of insulin was reduced by $1/6^{th}$ of her pre-op dose. A total of 3 patients remain on OHAs alone.
Conclusion: Bariatric surgery provided rapid and effective control of T2DM, allowing all patients to reduce or eliminate diabetic medication completely. Bariatric surgery may be considered as an adjuvant therapy for T2DM especially in those who are poorly controlled and morbidly obese.

P.275 Complete Remission of Type 2 Diabetes Mellitus Five Years after BPD-DS. What are the Determinants of Success or Failure? An Analysis of 92 Patients

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Background: In patients with type 2 diabetes mellitus (T2DM), a biliopancreatic diversion with duodenal switch and gastric sleeve resection (BPD-DS) has a 95% resolution rate of diabetes (Buchwald H et al., Am J Med 2009; 122:248–256). A preliminary study from our team on 74 diabetic patients did not reveal a dependence of remission on severity and duration of T2DM (Cho E-Y et al., Obes Surg 2009; 19:953–1076, O-072). Thus, it is at present not clear, why some patients fail to achieve complete remission of T2DM after BPD-DS.
Methods: Data of n=92 consecutively operated patients with T2DM undergoing an open BPD-DS (mean age 51 years, range 26–68; 53 females; mean BMI 47 kg/m^2, range 26–71) were retrospectively divided into 4 groups: n=18 patients were treated with oral antidiabetic drugs (OAD) only (group 1), n=33, 26 and 15 patients were treated with insulin for less than 5 years, for 5 to 10 years, and for more than 10 years (group 2, 3 and 4), respectively.
Results: Mean duration of pharmacological diabetes treatment before surgery was 9.8 years (range 0.3 to 40) for the whole population of 92 patients, mean HbA1c level on the day before surgery was 9.4% (range 6.0 to 14.3). Seventy-four patients, who required insulin before surgery (group 2–4) used on average 125 I.U. insulin per day (range 20–500). Within 2 weeks after surgery an immediate freedom of antidiabetic therapy was observed in 80% of the patients, at discharge from hospital no patient used OAD and only 18 of 74 patients still used insulin in small amounts (mean 24 I.U. per day, maximum 48 I.U.) to keep plasma glucose below 200 mg/dl. A strong correlation of insulin requirement postoperatively with duration of insulin usage preoperatively was

observed. Zero %, 29% and 73% of the patients of group 2, 3 and 4 needed insulin at discharge. After one year, insulin dependence was exclusively noted in patients of group 4. One third of the patients of group 4 (n=5) required small amounts of insulin persistently for one year after surgery and further on (up to 5 years). These 5 patients share the following characteristics: long duration of diabetes therapy and insulin dependence combined with a low C-peptide (< 1.2 ng/ml). The mean HbA1c level decreased in all 4 groups to normal values (< 6%) and persisted at normal values up to 5 years.
Conclusions: BPD-DS reliably causes rapid resolution within few days after surgery and complete remission of T2DM in patients who are treated either with oral antidiabetic drugs only or with insulin for less than 5 years. Patients with insulin-dependence of more than 10 years may suffer incomplete remission of T2DM, especially if C-peptide is low.

P.276 Five-Year Follow-Up of Obese Patients with Type 2 Diabetes Who Underwent Bariatric Surgery

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Introduction: In addition to weight loss, bariatric surgery has profound metabolic effects, the most striking of which is the prompt resolution of obesity-related comorbidities such as type 2 diabetes mellitus (T2DM). However, the durability of these metabolic benefits is largely unknown. The aim of this study was to determine 5-year outcomes of morbidly obese diabetic patients who underwent bariatric surgery, and to identify factors associated with durable diabetes remission.
Methods: We identified all T2DM patients who underwent bariatric surgery at our institution and had 5-year follow-up data available. Patient's current T2DM status (complete remission, improvement, or no change) was determined by biochemical analyses and review of medication usage. Prolonged remission was defined as per ADA criteria; normal glycemic measures with no active pharmacologic therapy, for at least 5 years. Data are presented as means±SD.
Results: 52 T2DM patients who underwent weight loss surgery between May 2004 and Feb 2006 had 5-year follow-up data available (25% male, age 51.2±10.1 yrs). Preoperative BMI was 49.0±8.7 kg/m^2, the mean duration of T2DM was 102.6 months (range 3–468) and at baseline, fasting plasma glucose and HbA1C were 172.6±64 mg/dL and 7.9±1.3%, respectively. Roux-en-Y gastric bypass was the most commonly performed procedure (73%), followed by restrictive operations (27%). At a mean follow-up of 64 months (range 60–85), weight loss was 26.5±22.8 kg, and BMI decreased to 37.4±8.5 kg/m^2. The remission and improvement rates for T2DM were 44% and 40%, respectively. In the latter cohort, insulin and oral hypoglycemic requirements, and indices of glycemic control, decreased in all patients. Mean reductions in fasting glucose and HbA1c were 48.7 mg/dL and 1.3%, respectively. The remission or improvement rates for co-existing hypertension and dyslipidemia were 66% and 59%, respectively. In the 16% whose T2DM status was unchanged after 5 years, all had regained weight in that interval and the majority (75%) had restrictive procedures. Using regression analysis, a shorter preoperative duration of T2DM (≤60 months) was predictive of durable remission (p=0.01).
Conclusion: Bariatric surgery can induce a significant and sustainable improvement in T2DM, with a large proportion of patients experiencing long term remission. These data further support bariatric surgery as an effective treatment for obesity and related metabolic diseases.

P.277 Metabolic Changes after Sleeve Gastrectomy

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Aim: Bariatric - metabolic surgery is fully accepted treatment modality in severe obesity nowadays. Some controversies still exsit concerning metabolic changes after different procedures. The authors present results from the pilot study after sleeve gastrectomy.

Patiens and methods: 53 consecutive patiens (42 women, 11 men) from 2 bariatric centers scheduled for sleeve gastrectomy were enrolled into the prospective study. All patiens fulfilled inclusion criteria. Concentration of serum Ghrelin, Leptin, TNF- α , Adiponectin, Resistin and FABP4 were determined before the operation, three and six month after the operation. Statistical analysis was performed . For this study results in 16 women with follow up interval 3 month were analysed.
Results: Concentration of Ghrelin, Leptin were significantly lower, while concentration of FAB4 were higher. Changes in concentration of Resistin, TNF- α and Adiponectin has shown no significance.
Conclusion: Lower concentration of Ghrelin and Leptin corelate with performed procedures and weight reduction. For increase concentrations of FABP4 the authors have no explanation now. Study in larger interval with greater cohort of patiens is needed.

P.278 Changes in Bone Density after Sleeve Gastrectomy

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Background: Bariatric- metabolic surgery is fully accepted treatment modality for severe obesity nowadays. Moderate obesity seems to be protective factor for bone density. Some controversies still exsit concerning metabolic changes after different procedures. The authors present surprising results in bone density from the pilot study in patiens scheduled for sleeve gastrectomy.
Patiens and methods: 60 patiens (51 women, 9 men, average age 41,3 and 40,5 years) from 2 bariatric centers scheduled for sleeve gastrectomy were enrolled into the prospective study during 6 month in 2010. All patiens fulfilled inclusion criteria. The sample was examined by DXA (Hologic Discovery W). The results were statistically processed using StatSoft Software Package Version 6.
Results: Average BMI was 41,2 for men and 40,1 for women. All women were praemenopausal. Patients with osteoporosis risk factor were excluded. Average Z score was 0,84 SD. In 3 patients Z score was −1 to −2,5 SD (osteopenia), in 3 patients lower than −2,5 SD (osteoporosis). In 1 patients extremely low density was found (Z score - 4,2 SD).
Conclusion: Mutual communication between fat and bone tissues express a homeostatic feedback system. Authors observations show the protective effect of increased body mass on bone mineral density. For some individuals with BMI over 40 kg/m^2 very low mineral bone density was found. The reason for this is uknown. The role of cytokines, hypovitaminosis D and secondary hyperparathyroidism could be discussed.

P.279 Laparoscopic Roux-En-Y Gastric Bypass for Normal Weight Type II Diabetes Mellitus

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Background: Laparoscopic Roux-en-Y gastric bypass (LRYGB) can dramatically ameliorate type 2 diabetes mellitus (T2DM) in morbidly obese patients. However, little evidence supports the effectiveness of LRYGB in normal weight patients.
Material and methods: After getting E-Da IRB approval, twelve normal weight patients with T2DM underwent LRYGB. Data, including patient demographics; BMI; co-morbidities; and details of diabetes mellitus, including disease duration, family history, medication use, and remission were prospectively collected and analyzed.
Results: The mean age of 5 men and 7women was 51 years (range, 35–65 years); mean BMI, 23.6 (range, 22.9-24.7 kg/m^2); and mean duration of T2DM onset was 11 years (range, 3–20 years). Mean operation time was 89 min (range, 46–229). Mean

hospitalization was 2 days (range, 1–4). There was no mortality. One patient received laparoscopic repair of Peterson's defect due to symptoms from internal hernia 6 months later after surgery. BMI dropped to 20.3 at 3rd month and became stable. 83.3% patient could achieve the status of off medicine and glycemic control (HbA1C <7) was found in 85.5% patient.
Conclusions: In this preliminary report, LRYGB is safe in normal-BMI diabetic patients without malnutrition. LRYGB could be postulated as one of the surgery in this investigational status.

P.280 Integrated Transcriptome Analysis of Human Stomach and Omental Adipose Tissue Serum Identifies Novel Candidates of Obesity

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Background: Obesity is associated with multiple adverse health effects and a high risk of developing metabolic and cardiovascular diseases. However, circulating parameters that may be secreted by both the stomach and visceral adipose tissue are poorly defined.
Methods: Here we used a parallel stomach and omental adipose tissue AT transcriptome analysis approach to identify previously unrecognized circulating molecules that are co-regulated in the stomach and AT of 5 individuals which underwent gastric sleeve resection. Subjects were extensively phenotyped with regard to circulating adipokines, parameters of inflammation, glucose and lipid metabolism and adipose tissue morphology, function and mRNA expression in abdominal subcutaneous (SC) and omental fat.
Results: Among several secreted molecules, which were expressed either by the stomach or by omental AT, visceral adipose tissue-derived serpin (vaspin) was expressed in both tissues. We found vaspin expression in the gastric mucosa with regional expression differences between the fundus and corpus, but undetectable expression in the antrum. In parallel, vaspin mRNA was expressed in visceral AT. Vaspin protein expression was confirmed in both tissues by Western blot. Stomach and AT *vaspin* mRNA expression correlates with fasting plasma glucose, HbA1c, and fasting plasma insulin concentration ($p<0.01$ for all).
Conclusions: Parallel vaspin expression in function of glucose metabolism parameters suggests a previously unrecognized role of this molecule in the regulation or response of deteriorated glucose metabolism in human stomach.

P.281 Evaluation of Inflamatory and Metabolic State of Patients with Steatosis before Roux-En-Y Gastric Bypass Procedure and after Six Months of Operation

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Background: Non Alcoholic Fatty Liver Disease (NAFLD) is one of most commons comorbidities in obese patients. An inflammatory state as well as metabolic impairments are related to NAFLD. Our aim is to evaluate improvement of metabolic and inflammatory parameters of patients who underwent bariatric procedure.
Methods: Between January/2004 and June 2010, 77 patients with pre-operative NAFLD diagnosed by abdominal ultrasonography were submitted to Roux-en-Y gastric bypass and were followed-up between 6 months and 18 months. We evaluate metabolic state regarding to Metabolic Syndrome(**MS**); serum levels of Triglycerides(**TL**), total Cholesterol (**CL**), Glucose(**GL**); Glutamic Oxaloacetic Transaminase(**GOTL**), Glutamic Pyruvic Transaminase(**GPTL**) and C-reactive protein (**CRPL**). The paired tests were performed by Microsoft Access® and GraphPad InStat® softwares.
Results: From all patients (77), 67(87%) were females and 10(13%) were males. Mean age was 41±11.7(18.3-62.9). Pre-operative mean BMI was 41.3±4.8(35–57.3). 51(66,2%) had MS before operation. Mean follow-up was of 10.7±2.5(6.2-16.1) months.
Pre-operative plasma levels *vs.* Post-operative plasma levels: Mean TL: 164.9±95 (64–630) *vs.* 104.9±45.14(38–291); $p<0.0001$. Mean CL: 200.18±45.1(110–413) *vs.* 171±29.5(113–264); $p<0.0001$. Mean GL: 103.2±30.5(71–263) *vs.* 86.2±14.8 (63–174); $p<0.0001$. Mean GOTL: 28.2±15.7(10–102) *vs.* 24.1±10.4(1–69); $p=0.04$. Mean GPTL: 36.7±24.5(13–153) *vs.* 27±12.2(5–78); $p=0.0036$. Mean CRPL : 6.8±8.4(0.1-36.7) *vs.* 1.8±3.1(0.01-17.7); $p<0.0001$.
Conclusions: Patients after bariatric procedure showed significantly lower plasma levels of triglycerides, total cholesterol, glucose, GOT, GPT and hs-CRP when compared with pre-operative plasma levels. The inflammatory and metabolic parameters had an improvement.

P.282 Preoperative Fasting C-Peptide is a Strong Predictor of Complete Remission of Type 2 Diabetes after BPD-DS

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Background: Biliopancreatic diversion with duodenal switch and gastric sleeve resection (BPD-DS) is a highly effective procedure to cause remission of diabetes in long-standing type 2 diabetes mellitus (T2DM). A remission rate of 93% has been reported in a series of 68 morbidly obese patients with insulin-dependent T2DM four years after BPD-DS (Frenken M, Cho E-Y: Four-year results after BPD-DS in patients with insulin-dependent type 2 diabetes mellitus. 15th World Congress of IFSO, Los Angeles, USA, Obes Surg 20: 969, O-007). The role of duration of insulin requirement as a predictor of success to induce complete remission has well been characterized. What is the relevance of preoperative fasting C-peptide in the prediction of the chance of remission?
Methods: Biliopancreatic diversion with duodenal switch and gastric sleeve resection was performed in n=41 patients with T2DM treated with insulin. Fasting C-peptide was determined preoperatively and 3, 6 and 12 months after surgery. Primary endpoint was complete remission of diabetes (level of HbA1c being<6% one year after surgery in the absence of pharmacological therapy). Duration of insulin treatment and level of C-peptide were correlated with remission.
Results: Thirty-two patients had a preoperative C-peptide >1.5 ng/ml and experienced a complete remission of type 2 diabetes, irrespective of duration of insulin dependence (mean duration 6 years, range 0.5-25). The mean level of C-peptide in these 32 patients decreased from 3.6 ng/ml preoperatively to 2.2, 1.8 and 1.6 ng/ml after 3, 6 and 12 months after surgery, respectively. The mean HbA1c level one year after surgery was 5,2% (range 3.7-5.9). In 9 patients with a level of C-peptide<1.5 ng/ml complete remission occurred in 5 cases, failure was observed in the other 4 cases. These 4 patients were insulin-dependent for 8 to 13 years. There is a high correlation between C-peptide and remission. However, this correlation does not predict failure of remission reliably in every single case. One patient was treated with insulin for 17 years and had a fasting C-peptide of only 0.8 ng/ml, but experienced complete remission.
Conclusions: The chance of complete remission of type 2 diabetes after BPD-DS is highly dependent on duration of insulin usage and on the level of fasting C-peptide. A low preoperative fasting C-peptide in patients with T2DM and a long-standing insulin requirement may indicate an irreversible failure of beta cell function.

P.283 T2DM Remission after Bariatric Surgery. A Long Term Follow-Up Study Comparing LAGB, LGBP and LBPD

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Background: The surgical treatment of obesity and its effects on diabetes have been notified for more than 15 years. Therefore, it had motivated many clinical and experimental studies in the last 5 years to establish surgical techniques to treat T2DM in eutrofic and overweight patients. The proposal of our study is compare the efficacy of three different surgery techniques (LAGB, LGBP and LBPD) in the management of obese T2DM patients.
Methods: During November/98 to Feb/11, we have performed 3.200 bariatric surgery procedures, including 480 LAGB (15%), 2624 LGBP (82%) and 96 LBPD

(3%). The prevalence of T2DM was 21% (n=100), 27% (n=708) and 33% (n=32), respectively. The follow-up of these T2DM patients was preserved in 58% of the patients submitted to LAGB, such as 59% for LGBP and 64% for LBPD group. The glucose homeostasis was studied analyzing HbC1.

Results: The LAGB group showed 19% of unchanged results, 75% improvement, 47% resolution. The LGBP group showed 3% of unchanged results, 97% improvement and 83% resolution. The LBPD group showed 0% unchanged, 100% improvements and 91% resolution on T2DM. Two patients developed nesiodeoblasthoses in LGBP group.

Conclusion: The best results in terms of T2DM improvement were in the LBPD and LGBP groups. LAGB group showed good results, but lower than the others, considering the high incidence of reoperation (17%) due to LAGB complications in the long term follow-up.

P.284 LRYGBP in T2DM Patients with BMI<35 Kgs/M^2- Impact on Anthropometry and Different Parameters of Metabolic Syndrome - Initial Indian Experience

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Background: The metabolic syndrome is a complex disorder with a number of cardiovascular risk factors associated with central adiposity. The effectiveness of RYGBP on improvement of metabolic syndrome in patients with BMI>35 kgs/m^2 is well known. This study aims to evaluate the change in anthropometry and the improvement in the metabolic syndrome after RYGBP in T2DM patirents<35 kgs/m^2.

Methods: A prospective study was conducted with approval of institutional ethics committee. 15 T2DM patients with BMI<35 kgs/m^2 underwent RYGBP. The data regarding weight, BMI, Waist circumference, HbA1c, FBSL, Systolic BP, Lipid profile pre-operatively and at 9 months post operatively was compared.

Results: Among the study population n=15, M:F 8:7, mean age 35±15 years, mean BMI 28±6 kgs/m^2, mean HbA1c 11±3.5 %, and mean WC was 100±9 cms At 9 months all patients were euglycemic with mean HbA1c of 5.9±1.5 %. The mean reduction in BMI was 2±1.5 kgs/m^2. There was significant reduction in weight, WC, and also similar improvements in mean HbA1c, mean FBSL, Systolic BP and Lipid profile.

Conclusion: This study favours the use of RYGBP to improve Metabolic syndrome even in individuals with BMI<35 kgs/m^2.Long term and larger studies are needed to confirm the benefits.

P.285 Critical Analysis of the Reinhold Criteria for Success and Failure of Bariatric Surgery

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Introduction: Before body mass index (BMI) became a common measure in bariatric surgery, Randolph Reinhold in 1982 was the first to recognize the importance of obesity related excess health risk to depend not on excess weight, but on excess body mass. He concluded that the balance between the immediate operative risk and the body mass related health risk reduction could be used to define success of a bariatric procedure. He expressed body mass as a multiple of a patient's ideal weight (IW) (derived from the Metropolitan life tables, combining weight and height.) The true Reinhold criteria are 1.5x IW for success and 2x IW for failure, or 50% and 100% respectively of IW as excess weight. These criteria are misquoted ever since as 50% and 25% excess weight loss (EWL) that became the most widespread used outcome measures in bariatric surgery over the last decade. Are the original Reinhold criteria still supported by evidence and are the EWL-criteria evidence based?

Method: The reasoning and evidence on which Reinhold based his criteria are analysed and compared with new evidence since 1982, including the use of BMI, metabolic syndrome and co-morbidities. The EWL-based so-called Reinhold criteria are scrutinized and literature is searched for evidence to support them.

Result: The original Reinhold criteria are based on body mass related excess health risk, operative risk, the balance between them, operative indication and equality: a same value of success rate should correspond with a same amount of health risk reduction in every patient. There is overwhelming new evidence confirming the correlation between body mass and excess health risk, depending however on other factors as well like cardiovascular risk and ethnicity. Peri-operative mortality dropped from 1.5% to 0.3%. Long-term mortality studies from Utah and Sweden show the balance to be in favour of surgery. Operative indications were lowered in 1991 from 100 pounds excess weight or 2x IW to BMI 40 or BMI 35 with co-morbidities. As EWL depends on a patient's initial BMI, one EWL value can correspond with a wide variety of possible BMI results in different patients. Therefore EWL is not able to express health risk reduction unequivocally in different patients. Obesity in the metabolic syndrome is measured not by excess weight but by waist circumference. The metabolic effect of bariatric surgery is not directly related to the bariatric effect. IW can be translated into BMI 23.

Conclusion: The so-called Reinhold criteria 50%EWL and 25%EWL are not evidence based. The original Reinhold criteria can be translated into<BMI 30 for excellent results, < BMI 35 for good results and>BMI 40 for failure. They are still supported by strong evidence, but with new insights in the metabolic effect of bariatric surgery, they become less important. A new scoring system incorporating reduction of both BMI, metabolic syndrome and cardiovascular risk should replace the use of EWL-based outcome measures.

P.286 Gastric Bypass Increases Post Prandial Insulin and GLP1 in Absence of Obesity in the Minipig

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Background: Gastric bypass in obese patients induces a dramatic increase of post prandial insulin and GLP-1 secretion, independently of weight loss. If confirmed in absence of obesity, this specific feature of GBP could have considerable implications for treating diabetes. We explored here postprandial insulin and GLP1 secretion prior to, and after gastric bypass, in non obese minipigs.

Methods: Adult Gottingen lean minipigs (n=6, 38±4 kg) were submitted to a gastric bypass mimicking the clinical procedure (30 cc gastric pouch /150 cm alimentary limb). All animals underwent repeated metabolic evalution at baseline, and 10 days and 1 month after surgery. At each time point, serum insulin and GLP-1 levels were measured (Luminex) during 3 hours after a standardized mixed meal and, the next day, after intra venous glucose infusion.

Results: Body weight slightly decreased following GBP, reaching 33±3kgs at one month ($p<0.05$ vs baseline). Insulin and GLP1 responses to the test meal were dramatically and similarly increased at 10 days and 1 month after GBP (Fig.1). Maximal post prandial insulin and GLP1 levels reached, respectively,16.3±1.7 mUl/L and 71,7±16.5 pmol/L at baseline, 111.5±38.9*mUl/L and 320.8±84.0*pmol/L at 10 days, and 96.6±10.4*mUl/L and 297.3±79.1*pmol/L at 1 month (* $p<0.05$ vs baseline). Conversely, insulin and GLP-1 responses to intravenous glucose were not significantly modified after GBP

Conclusion: Like in obese patients, GBP induced a dramatic increase of postprandial insulin and GLP1 responses in lean minipigs. Our results support the use of GBP for treating diabetes in patients with a BMI under 35 kg/m^2. Further studies in this relevant preclinical model could help to decipherate the underlying metabolic effects of GBP

P.287 Management of an International Cooperation for Bariatric Procedures in Super Obese Patients

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In 2010 the center for the treatment of obesity of the University of Giessen (UAZM) took care of four super obese patients from Kuwait. Despite of the presence of a working health system in Kuwait, the medical assistance of these patients in their country is apparently not ensured. For that reason contact to our center was made by the Kuwait ministry of health.

Patients: Due to their morbid obesity (weight between 250–350 kg), all bedridden patients were transferred to Germany with a military aircargo plane. On admission two of the patients suffered from pneumonia, one was compromitted by a severe

dermal infection. The microbiological screening showed in one patient two locally unknown strains of multiresistant bacteria. All patients had insulin-dependent diabetes, malignant arterial hypertension and Dyslipoproteinemia. Two Patients hat latent hypothyroidism.
After stabilization of the general condition we performed successfully laparoscopic gastric sleeve resection in all patients. The postoperative process was straightforward. Postoperative one patient developed severe pneumonia, one had episodes of panic attacks.
10 days after surgery, all patients were discharged to their home country, where ongoing therapy and mobilization were pushed on.
In our poster presentation we want to rule out the importance of experience and management in the treatment of Arabian super obese patients focusing on surgical procedure, language, culture and general medical condition of the patients.

P.288 An Initial Experience in Foundation of Center for Treatment for Morbus Obesity

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Background: The increasing prevalence of obesity is now the target of public health effort in most developed countries. The cause of this increasing prevalence of obesity is attributed to societal changes leading to reduced physical activity and increased consumption of energy dense foods. Obesity-reduction strategies in the form of community-based interventions and social marketing campaigns have been established often emphasizing the desirability of an ideal body weight. Limited long-term success of behavioral and pharmacologic therapies in severe obesity has led us to start for interest in bariatric surgery in our country. It is well known that bariatric surgery should be considered for obese patients at high risk of morbidity and mortality who have not achieved adequate weight loss with lifestyle and medical management and who are suffering from the complications of obesity. The purpose of this paper is to highlight the preparation period for starting obesity surgery program in Serbia.
Methods: One multidisciplinary team including endocrinologist, nutrition's, psychiatrist, surgeon, anesthesiologist, gastroenterologist, operation room (OR) nurses, and radiologist was formed. Our Institution is largest University center in Serbia and offers an advantage of all necessary specialists working together in every day praxis. After several meetings covering all are of this topic, it was decided to visit one of the centers of excellence in Europe for several days for a introduction purposes for the whole team. During the next few months all surgeons, anesthesiologist, O.R nurses was sent to basic and advance courses in bariatric surgery. Via several appearances of different members of team in media (TV, newspaper, electronic..) we very patiently informed nation that Center for treatment for morbid obesity is formed in our Institution. In general these appearances have had a whole population focus.
Results: Serbian population is around 8 million inhabitants. Starting from November 2010 to February 2011 in database in our center 100 patients are included. There were 33 (33%) male and 67 (67%) female patients with mean age of 40.5 (± 23) years. The mean body mass index (BMI) was 45.36 kg/m^2(± 14). There were 22 (22%) patients with diabetes 16 (16%) with impaired glucose toleration. 77(77%) patients have hypertension There were no significant differences between males and females in BMI ($p=0.46$) and in appearance of glucose intolerance ($p=0.29$). About 10% shows interest for surgery, and 90% rather choose conservative treatment.
Conclusions: We are planning to start with first surgical procedures in June 2011. For this purpose some experienced surgeons and anesthesiologist from high volume centers will be invited to perform several initial operations. Precise patient selection criteria, choice of the procedure and the extent of the multidisciplinary preoperative and postoperative care, are yet to be clearly defined.

P.289 Gut Microbiota Changes with Roux-En-Y Jejunum Exclusion: How Closely Blind Loop Relates with Small Intestinal Bacterial Overgrowth and Translocation?

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Background: The major concern of creating a blind loop (BL) in bariatric and other surgical conditions is due to the hypothetical permanent small intestinal bacterial overgrowth (SIBO) induction and bacterial translocation (BT), although no substantial scientific findings supports this assumption. In this experimental study we evaluated gut microbiota following a long jejunum blind loop construct regarding SIBO and BT.
Methods: Adult female Wistar rats (n=17) were randomly distributes in 3 groups: 1) Long blind loop group (BL-G), where almost entire jejunum was used as BL plus end-to-side jejunum-ileal anastomosis; 2) Resection group (R-G) where animals were submitted to jejunum resection plus end-to-side jejunum-ileal anastomosis and; 3) Sham group (S-G), where animals were submitted to only end-to-side jejunum-jejunal anastomosis without any resection. All groups were followed for 12 weeks monitoring fecal kinetic bacterial concentration. At the sacrifice, stools and segments of duodenum, jejunum, proximal and distal ileum, ceacum and BL (3 segments: proximal, intermediate and distal) were collected for microbiological analysis. Besides, fragments of liver, spleen, lung and mesenteric lymph nodes (MLN) were harvested to examine BT occurrence. All samples were minced, homogenized and cultured on MacConkey's agar for quantitative determination of the Gram negative aerobes and facultative anaerobes microorganisms and the results were expressed in log10 CFU/g (Colony-Forming Units per gram).
Results: In S-G, gut microbiota concentration kept into normal values, similar to naive animal's pattern and BT was not observed, although, transient fecal overgrowth was seen returning to basal values within 4 weeks, suggesting that gut microbiota is influenced by enduring surgery related host metabolic changes. In BL-G, significant SIBO occurred in all segments of alimentary transit, but in contrast, BL segments showed absence of bacteria at the stump, minor overgrowth in the middle and moderate overgrowth adjacent to the anastomosis. This lower overgrowth finding at BL as compared to the non-BL segments contradicts the old and persistent concept of dangerous bacterial reservoir of the BL pouch. In R-G, the gut microbiota overgrowth rate was similar to BL-G and both were significantly higher than S-G ($p \leq 0.05$). The BT to MLN in BL-G was 83% against 50% of the R-G ($p \leq 0.05$).
Conclusion: The overall findings demonstrated that BL segment might not represent a bacterial reservoir and thus SIBO condition could not be correlated with BL pouch. The SIBO and BT events were possibly interrelated to changes due to the severely reduced functional small bowel length and subsequent intestinal environment dysfunction.

P.290 Previous Open Splenectomy and Bariatric Surgery

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Background: Previous upper abdominal surgery, above all if it has been done in the perigastric area and open, adds important difficulties to bariatrics surgical techniques. This poster shows our approach in patients previously submitted to open splenectomy.
Material and methods: Since 1999 until 2010, 1441 patients have been operated for morbid obesity. Laparoscopic banded gastric bypass has been the bariatric technique mainly performed. Three patients had been previously splenectomized by laparotomy, two because abdominal trauma and one because autoimmune anemia secondary to radiotherapy for a low grade breast fibrosarcoma 17 years before. This last one had a left subcostal laparotomy; the other two, a midline one.
Results: A sleeve gastrectomy was performed to one of the patients with posttraumatic splenectomy; a laparoscopic banded gastric bypass to the other two. The first challenge is

epiploperitoneal adhesions, above all in the left subcostal incision. Adhesions from the stomach to the diaphragm are the following problem. The sleeve gastrectomy beguns with the gastric section, before than the great curvature disconnection. In the gastric bypasses, only the necessary adhesiolisis to make the technique was performed. The postoperative course and posterior evolution were similar to the complete series.

Conclusions: Open splenectomy is an added difficulty to the laparoscopic bariatric surgery, but it can be safely performed. Depending on the previous incision, different approaches can be done.

P.291 The Creation of Pneumoperitoneum in Obese Patients

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Introduction: The creation of the pneumoperitoneum is the first surgical procedure in laparoscopic abdominal surgery. The main techniques used are: the open laparoscopy (OP), the direct trocar insertion without pneumoperitoneum (DTI) and the blind technique with Veress needle (VN). Each of these techniques are associated with small percentage of complications. Morbid obesity is a risk factor for iatrogenic injuries due to the considerable thickness of the abdominal wall.The purpose of this study was to assess the feasibility and the incidence of complications of the use of VN in obese patients undergoing bariatric surgery.

Material and methods: A non-randomized retrospective study was performed on 139 patients (199 women, 40 men and mean age=39,87±18,86 years) with morbid obesity (mean BMI=45,94 kg/m^2) who underwent bariatric surgery during the period between March 2004 and December 2010. Inclusion criteria: BMI≥35 kg/m^2 in the presence of obesity-related comorbidities or BMI>40 kg/m^2. The surgical interventions were: gastric banding, sleeve gastrectomy, gastric bypass and reoperations. Blind VN insertion and insufflation followed by optical trocar insertion was the most widely used technique.

Surgical technique: Skin incision of about 2mm, lifting of the abdominal wall with two Bernard clamps and then VN insertion. The VN was inserted in the midline above the umbilicus or in the left upper quadrant of the abdomen. The needle insertion site was chosen by the surgeon. Once the needle is inserted, the saline drop test and confirmation of an initial low intra-abdominal pressure were performed in order to confirm proper intra-abdominal placement. If any concerns existed about proper positioning, the needle was removed and other attempts were performed.

Results: Of 139 patients, VN was successful used in 138 cases (99,28%), in one patient the procedure failed and it was necessary to perform an open laparoscopy (0.72%). During the study period, there were 63 gastric bypass, 18 sleeve gastrectomy, 52 gastric banding and 8 reoperations. The VN was inserted at left upper quadrant in 46 cases and the midline just above the umbilicus in 92 cases. One complication was recorded: a full-thickness colonic perforation with fecal spillage in a young obese woman (BMI=63 kg/m^2) occurred after VN insertion at the left upper quadrant.The overall rate of complications was 0,72% (1/138). There were no access related complications when VN was inserted above the umbilicus; complications rate was 2.17% (1/46) at upper left quadrant VN placement. No cases of subcutaneous emphysema or extraperitoneal insufflation were observed.

Conclusions: In our experience, the success rate was 98.28% and the overall rate of complications was 0.72%. The Veress needle technique can be considered feasible and safe even when used in obese population.

P.292 Persistent Organic Pollutants (Pops) Levels in Human Visceral and Subcutaneous Adipose Tissue in an Obese Portuguese Population - Metabolic Improvement after Bariatric Surgery Versus Pops Burden

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Persistent organic pollutants (POPs), compounds that are both persistent and bioaccumulative, have the potential to induce adverse effects on human health. Due to their lipophilic nature, they tend to accumulate in adipose tissue (AT). We aimed to evaluate POPs presence in human AT in an obese population subjected to bariatric surgery, and assess its putative association with metabolic parameters.

Adipose tissue samples (visceral, vAT and subcutaneous, scAT; n=90) from an obese Portuguese population (body mass index, BMI>40) were collected during surgery at the Hospital S. João (protocol approved by the Hospital Ethics Committee). The levels of 12 POPs residues (HCB, HCH, aldrin, endrin, dieldrin, lindane, endosulfan I, endosulfan II, p,p'-DDD, p,p'-DDE, o,p'-DDT, methoxychlor and TCDD) were determined by GC-ECD. Adipocyte size was also measured on histologic preparations. Anthropometric and biochemical data were collected, both before and –- weeks after surgery.

BMI reduction –- weeks after surgery was significantly higher in the younger age group (24–45 years), by comparison with the elder group (46 - –-years). [POPs] determination shows the presence of POPs in vAT and scAT in all samples evaluated and a moderate correlation between [POPs] and age, as well as between [POPs] and duration of obesity. Total [POPs] was lower in the younger age group (395.42 ng/g fat versus 628.59 ng/g fat), along with a higher scAT/vAT [POPs] ratio (1.00 versus 0.89). Finally, regarding the size of adipocytes, both the mean area and the maximum size were significantly higher in scAT, by comparison with the vAT, regardless of age. But whereas the dimensions of adipocytes were rather similar in the vAT from the younger and the elder groups, they tended to be larger in the scAT adipocytes from the elder group. In this group the duration of obesity was also significantly longer than that of the younger group.

These preliminary results confirm that POPs are pervasive in this obese population, their abundance increasing with age and/or with the duration of obesity. Their putative association with metabolism and response to surgery will be investigated.

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P.293 Significant Improvement of Pulmonary Fibrosis after Sleeve Gastrectomy in Morbidly Obese Patients

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We describe here the case of a 44 year old female patient with fibrotic lung disease of UIP type (unusal interstitial pneumonia), global respiratory insufficiency with non-invasive ventilation, morbid obesity III° with a BMI of 45,4 kg/m^2 with body weight of 139 kg and height of 1,75m, steroid-induced diabetes, autoimmune thyreoiditis with hormone substitution for hypothyroidism. With progression of pulmonary disease lung transplantation was soon becoming necessary but operability was not given mainly on account of the adding effects of obesity. After laparoscopic sleeve gastrectomy a significant weight reduction was achieved and the lung transplantation could soon be postponed as ventilation parameters improved significantly.

We show that weight reduction through laparoscopic gastric sleeve resection can be the means of creating operability for lung transplantation as well as improving pulmonary function in severe cases of lung fibrosis and morbid obesity.

P.294 Improved Adipose Tissue Function after Bariatric Surgery

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Background: Adipocyte and adipose tissue dysfunction belong to the primary defects in obesity and may link obesity to several health problems including increased risk of insulin resistance, type 2 diabetes, fatty liver disease, hypertension, dyslipidemia, atherosclerosis, dementia, airway disease and some cancers. Here we tested the hypothesis that adipose tissue dysfunction improves after significant weight loss following bariatric surgery.
Methods: Fourteen Caucasian obese volunteers (9 females, 5 males) participated in a prospective weight loss study before and 12 months after gastric sleeve resection. The baseline BMI was 54±8 kg/m² and the BMI 12 months after bariatric surgery was 36.3±7.3 kg/m². We measured fat distribution, circulating adipokines, parameters of inflammation, glucose and lipid metabolism and characterized adipose tissue morphology, function and mRNA expression in abdominal subcutaneous (SC) and omental fat.
Results: Significant weight loss after gastric sleeve surgery significantly improved number of macrophages in omental adipose tissue (before: 10.5±1.8, after: 4.1± 1.1%), mean omental adipocyte size (before: 698±79, after: 532±53 pl), circulating C-reactive protein (CrP), progranulin, chemerin, retinol-binding protein 4 (RBP4) and mRNA expression of *RBP4, chemerin, adiponectin, BMP7, BMPR1A, progranulin* and *fetuin-A* (all p-values<0.05). In addition, higher serum adiponectin (before: 2.9±1.1; after: 5.9±1.5ng/ml) and omental adipocyte insulin sensitivity (all p-values<0.01) significantly predicted improvements in parameters of glucose and lipid metabolism as well as ion subclinical inflammation.
Conclusions: Significant weight loss after bariatric surgery improves adipose tissue function, further suggesting that impaired adipocyte function contributes to the adverse effects of fat accumulation on metabolic and cardiovascular parameters.

P.295 Air- and Liquid-Filled Intragastric Balloons in Preoperative Weight Loss in Obese and Super-Obese Patients

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Background: Intragastric balloon (IB) treatment has been developed as a temporary aid for obese people, who have had unsatisfactory results after diet-therapies and super obese patients with a higher surgical risk. The clinical effects of the air-filled (Heliosphere, France) and liquid-filled Bioenterics intragastric balloons (BIB or Allergan, Irvine, California, USA) compared with each other for the weight loss in bariatric patients are uncertain.
Methods: 186 obese and super-obese patients were treated with liquid-filled BIB (123), Allergan (14) and air-filled (49) IB. Average BMI was 47.3±4.2 kg/m². IB placement and extraction were performed in supine position under general anesthesia. Indications for IB placement were: - unsatisfactory results after diet therapies; - preoperative weight loss in obese patients before bariatric or cosmetic surgery; - super-obese patients with higher surgical risk. The tolerance and efficacy of the IB was evaluated.
Balloons were extracted after 204±3.7 days. In three patients IB were extracted after much longer than manufacturer recommended time. One patient had balloon extracted after 12 months, one patient after 18 and one after 22 months. The air-filled balloons were partially deflated if extraction procedure was performed in longer than manufacturer recommended six months period of time.
Results: Average preoperative weight loss was 17.1±2.4 kg, average BMI decrease was 5.1±2.3 kg/m^2, and average excess weight loss was 27.6%. There were no major complications during IB insertion or extraction. 11 patients with liquid-filled IB had mild erosions of gastric mucosa and only one patient with air-field IB. 26 patients with liquid-filled BIB had nausea, vomiting and heaviness in epigastria and only two patients in a group with air-filled IB had nausea first two days after balloon insertion. It was no deaths, full spontaneous deflation, moving IB from stomach to the bowel or earlier IB removal. In one patient with very short neck and small mouth it was not possible to insert the IB. In one patient with difficulties of IB retrieving the balloon was removed through the gastrotomy during gastric bypass surgical procedure. 9 patients who did not follow the program accurately did not loose weight at all.
Conclusion: The IB use was safe and successful procedure in preoperative weight loss. The air-filled IB had equivalent efficacy on weight loss and demonstrated a better patient's tolerance compare to a liquid-filled balloons. The successful weight loss and maintenance of weight depends on motivation and the encouragement to changing eating habits following a well-organized program of diet and behavioral modification.

P.296 Quality of Life Pre and Post Bariatric Surgery in South Thames Bariatric Unit

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Background: Many studies in Bariatric surgery looked at weight loss post surgery but few studied the quality of life (QOL). The Bariatric Analysis and Reporting Outcome System (BAROS) is an established tool which evaluates the results of obesity surgery. The final score classifies the results in 5 outcome groups, providing an objective definition of success or failure.
The aim of this study was to evaluate the QOL before and after Bariatric surgery using the BAROS.
Methods: Three hundred and forty one patients who underwent Bariatric surgery between February 2009 and August 2010 were enrolled in the study. BAROS questionnaires were completed by the patients before the surgery and 6 months postoperatively. We correlated the change in QOL scores with weight loss success and status of obesity-related comorbidities. The final score classifies the results in 5 groups; Failure < =1 point, Fair >1-3, Good >3-5, Very Good >5-7, Excellent >7-9 points.
Results: Two hundred and nine patients (62%) underwent laparoscopic roux-en-y gastric bypass (RYGB), 96 patients (28%) underwent sleeve gastrectomy and 36 patients (10%) underwent gastric band.
The QOL score showed >50% improvement in 76% of the patients.The mean preoperative body mass index (BMI) was 50.1 (37.2- 63) compared to 42.7 (range 31.1-52) postoperatively. The percentage excess weight loss was 38.5% in RYGB, 32.6% in sleeve and 18.5% in Band patients.
The outcomes group scoring was as follow; excellent in 26 patients (7%), very good in 137 (40%), good in 113 (33%), fair in 52 (15%) and 13 (5%) were among the failure group.
Conclusion: During the early postoperative period, obesity surgery is associated with a reduction in weight, BMI, improvement of obesity-related diseases and QOL.
The BAROS is useful for evaluating and reporting the results of obesity treatments.

P.297 Over 60; Over the Hill?

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Background: Performing bariatric surgery in the over 60 population remains a controversial topic when the primary outcome is quantified as a change in major co-morbidities, however, as longevity is increasing worldwide many countries are begining to increase the expected age of retirement which would infer that increasing quality of life for these patients would enable them to work for longer. This could have a major economic impact. Changes in quality of life in those undergoing surgery over 60 years of age has until now been a neglected topic. The aim of this study was to compare the quality of life and co-morbidity status pre and post-operatively in the over 60 age group undergoing laparoscopic sleeve gastrectomy and gastric bypass operations.
Method: A retrospective study of a prospectively maintained database was used to identify patients during an 18 month period (March 2009 - September 2010). Twenty one patients undergoing laparoscopic bariatric procedures were identified and requested to complete the BAROS questionnaire (Bariatric Analysis and Reporting Outcome System) pre- and post-operatively. Co-morbidity status was assessed pre & post-operatively at the first follow-up appointment.

Results: Thirteen patients underwent a laparoscopic roux-en-y gastric bypass procedure (age=61.5±2.0 yrs) with 8 patients undergoing a laparoscopic sleeve gastrectomy (age=62.5±3.1 yrs). Moorehead-Ardelt scores for the whole group improved significantly in four out of six categories. Around 62% of patients who underwent follow-up reported an improvement or complete resolution of major medical co-morbidities. Over 90% reported an improvement in minor medical conditions.
Conclusion: Despite the controversy surrounding the safety of bariatric surgery in the over 60 age group this study has shown that the improvements in quality of life experienced by many patients within this demographic compares favorably with their younger counterparts and has a significant impact upon many of this groups minor co-morbidities which collectively creates a greater positive effect upon their perceived post-operative wellbeing.

P.298 Bariatric Surgery in Mental Retarded Patients

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Background: Extreme obesity in mental retarded patients is challenging. Conservative obesity therapy is not feasible, because patients are unable to understand and follow nutritional advices and it is very hard to implement these patients in sport programs. There is very little experience with surgical bariatric therapy in mental retarded patients.
Material and methods: We retrospectively reviewed our database of obese patients with intellectual retardations. We could identify 10 patients with morbid obesity and mental retardation, of which 5 already underwent bariatric surgery. The mean age of all screened mentally handicapped patients was 36.0±2 years with a mean BMI of 55.5±3 kg/m². There were 7 women and 3 men. Since January 2010 a total number of 105 patients underwent bariatric surgery at the University Hospital of Tübingen, which means that the proportion of mentally retarded patients is very low. The indication for surgery was made in all cases by an interdisciplinary case conference. On man and four women underwent bariatric surgery between October 2009 and December 2010. Four patients had a sleeve gastrectomy and one patient had a roux-y-gastric bypass. The mean age of the operated patients was 35±2 years, the mean preoperative body mass index (BMI) was 53.8±2.5 kg/m².
Results: Patients follow-up is very close (1 month, 3 months, 6 months and 12 months postoperative). Within 1 year after bariatric surgery mean BMI dropped from 53.8±2.5 kg/m² to 35.2 kg/m². This corresponds to an excess weight loss (EWL) of 61±8%. No complications occurred in this patient group, but one patient was still struggling with portion size after one year and complained of repeated vomiting. Overall EWL in all patients operated in Tübingen one year after sleeve gastrectomy was 58±2%.
Conclusion: The short course is very promising. One year after bariatric surgery EWL of mental retarded patients is adequate. There is no difference to weight reduction and EWL after sleeve gastrectomy in normal patients (61±8% vs. 58±2%). A longer-term observation of these patients is obviously necessary. Possible problems after bariatric surgery in this patient group are the dietary change and compliance. It is very important that this patient group has a narrow follow-up schedule, that exact dietary advice is given and that caregivers are included in the treatment at an early stage.

P.299 Bariatric Surgery in Medical Induced Obesity

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Background: There are many medications that can induce obesity which among these are antidepressants like tricyclic antidepressants and Mirtazapin, neuroleptic drugs like Risperidon, Olanzapin and Clozapin, some anticonvulsive drugs and cortisone. Until now it is totally unclear, what is the best treatment for these patients, when obesity inducing medication can not be discontinued.
Material and methods: We retrospectively reviewed our bariatric surgery database for patients with medical induced obesity. Since January 2009 we could identify 4 women and 4 men with medical induced obesity that had bariatric surgery. Mean age in this patient group was 38±3 years, the mean preoperative BMI was 49±2 kg/m². Four patients were on neuroleptic drugs against schizophrenia, two patients were on high dose steroids and two patients were on an anticonvulsive medication. Treatment is rather heterogenic. Five patients had a sleeve gastrectomy, one patient had gastric banding, one patient had a Roux-Y-gastric bypass and one patient had a gradual approach with intragastric balloon and sleeve gastrectomy. Mean follow-up time is 256±45 days.
Results: Patients follow-up is very close (1 month, 3 months, 6 months and 12 months postoperative). Within 1 year after bariatric surgery mean BMI dropped from 49±2 kg/m² to 31±2 kg/m². This corresponds to an excess weight loss (EWL) of 62± 11 %. No major surgical complications occurred in this patient group but one schizophrenic patient had to be admitted to hospital due to a schizophrenic thrust. Right now he feels good, his body weight is 75 kg with a BMI of 25 kg/m² and he lost a total of 75 kg within one year after surgery.
Conclusion: The short course is very promising. One year after bariatric surgery EWL of patients with medical induced obesity is adequate. There is no difference in terms of weight reduction and EWL to normal patients after sleeve gastrectomy (EWL: 62±11 % vs. 58±2) A longer-term observation of these patients is obviously necessary. Possible problems are changes in blood drug levels due to malabsorption and weight loss. Therefore this patient group has to be under close observation, and interdisciplinary support for this patient group is crucial.

P.300 An Unusual Case of Acquired Morbidly Obesity after a Cerebral Vascular Accident in a Young Woman: a Case Report

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Introduction: Cerebrovascular Accident (CVA) is a common cerebral vascular ischemia that results in a commitment of cortical neuronal function, motor and cognitive-perceptual impairments and death. Occurrence of CVA is related to smoking, diabetes, obesity, hypertension, use of oral contraceptives and aging.
Case presentation: A 30 years old woman from Brasília (Brazil) presented with acquired morbidly obesity after a cerebral vascular accident at 26 years old and pregnancy. The patient was treated with oral contraceptive medication before CVA. After CVA the patient was lead to intake anti-coagulant and anti-convulsive medication, becoming to acquire obesity without any impairment of cortical neuronal function apparently. After pregnancy, few months after CVA (2006), patient had another weight gain. She was treated surgically by Roux-en-Y Gastric Bypass three years after CVA (February/2009) with 105,1 kilograms and 39,55 of BMI (kg/m²). A vena cava filter was placed before operation until one month after bariatric procedure because the high risk of thromboembolism. Patient at June/2010 weighted 74,8 kilograms and had 28,15 of BMI, representing a weight loss of 29,7 kilograms in 4 months.
Conclusions: We described a case of a young female with a CVA at 26 years old and becoming morbidly obese. She had a vena cave filter placed due to the high risk of thrombosis. She has had a Roux-en-Y gastric bypass with a eventless post-operative. After gastric bypass the patient had a weight loss of 29.7 kilograms in four months.

P.301 Bariatric Surgery in the Elderly - Comparing the 3 Major Bariatric Procedures

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Background: Even though risks are higher and long-term results may be less favorable, the elderly obese can still benefit from bariatric surgery. The risk/benefit profile for each type of bariatric procedure has not been clearly established for this population.
Materials and methods: We reviewed our database and identified all patients aged 65 or greater who underwent bariatric surgery between 7/04 and 9/10. Variables collected included patient demographics, surgical procedure, BMI, %Excess weight loss (EWL), co-morbidities, length of follow-up, post-operative complications, re-operations, length of hospital stay, and mortality.
Results: One hundred sixty five patients (mean age 67.9) underwent laparoscopic roux-en-y gastric bypass (LRYGB, 86 pts), laparoscopic sleeve gastrectomy (LSG, 30 pts), and laparoscopic adjustable gastric banding (LABG, 49 pts). Mean preoperative BMI was 44.9, 48.4 and 46.5 for the LRYGB, LSG, and LAGB groups, respectively. Patients achieved an overall mean EWL of 45.8%. LRYGB, LSG, and LAGB resulted in 60.3%, 35.5% and 26.5% of EWL with a mean f/u period of 15, 18 and 25 months, respectively. Forty one patients (25%) developed 66 post-operative complications. Major complication rates were 16% for LAGB and LSG, and 24% for LRYGB. Four (2.4%) patients expired post-operatively: one 8 days following gastric bypass due to anastomotic leak, 2 expired 5 days after LAGB due to sudden arrest at home, and one patient expired 10 months following LSG. The mean number of obesity-related co-morbidities decreased from 3.8 to 2 following sleeve gastrectomy and gastric bypass.
Conclusion: LRYGB, LSG, and LAGB can be performed safely for most elderly patients, but this patient population has a higher risk of morbidity and mortality. In our experience, LRYGB and LSG provided the most benefit in terms of weight loss and comorbidity reduction and are appropriate options in carefully selected patients.

P.302 Gastric Carcinoids Tumors and Bariatric Surgery

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Background: Gastrointestinal neuroendocrine tumors (GNT) of stomach are 2 to 4% of GNT of gastrointestinal tract, and 0,3% of gastric cancer. Diagnosis is generally endoscopic incidentally. Carcinoids of the stomach are generally divided into three distinct groups based on their clinical and histological characteristics: carcinoid tumors associated with chronic atrophic gastritis type A (CAG-A), carcinoid tumors associated with Zollinger-Ellison syndrome (ZES) or MEN-1, and carcinoid tumors that occur sporadically.
Methods: We present four cases of patients who received bariatric surgery for obesity and treatment for gastric carcinoid (2008–2010).
Results:
Case 1: Was a 54 years old woman with: hypertension, metabolic syndrome, hypothyroidism and BMI 50. Preoperatory endoscopy informed a fundus polyp, biopsy was negative for gastric carcinoid. Resective gastric bypass was done without problems. Definitive biopsy was positive for chronic atrophic gastritis and gastric carcinoid type I.
Case 2: Was a 52 years old woman. She gets treatment for hypothyroidism and COPD, and her BMI was 45. Endoscopy showed chronic atrophic gastritis, and biopsy resulted positive for gastric carcinoid. Abdomen CT Scan was negative for metastasis. A resective gastric bypass was done without complications. The definitive biopsy informed gastritis and gastric carcinoid type I.
Case 3: Was a 38 years old woman with: diabetes mellitus, metabolic syndrome and BMI 47. Preoperatory endoscopy informed seven fundus polyp, biopsy was positive for gastric carcinoid. Abdomen CT Scan was negative for metastasis. Resective gastric bypass was done without problems.
Case 4: Was a 34 years old woman. She gets treatment for metabolic sindrome, and her BMI was 41. Endoscopy showed duodenal polyp, and biopsy resulted positive for carcinoid type I. Abdomen CT Scan was negative for metastasis and quantification 5 hidroxiindolecetic acid in urine of 24 hrs in normal values. A resective gastric bypass was done without complication, previus bearing endoscopica of injury duodenal.
None patient had a surgery complication. Oncological and obesity surgery was successful for even patients. The survival is 6 months to 2 years.

P.303 The Usefulness of Cystatin C Assessment in Morbidly Obese Patients Treated Surgically

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Background: Morbid obesity is associated with many comorbidities, mainly type 2 diabetes and arterial hypertension. Also renal dysfunction is more common in this group of patients. Creatinine is not a perfect marker of kidney excretory function, because it is affected by muscle mass and physical activity. Serum cystatin C is a promising new marker of renal function.
Aim: The aim of the study was to assess serum cystatin C concentrations in morbidly obese patients, in relation to clinical and laboratory data.
Methods: The study was performed on 41 patients undergoing bariatric procedures (sleeve gastrectomy - 32 and laparoscopic adjustable gastric banding - 9) in the 1st Department of General and Endocrine Surgery, Medical University of Bialystok, Poland. The blood was taken before, 1 and 3 months after the surgery. A control group consisted of 11 age-matched healthy subjects. Serum cystatin C was assessed using ELISA commercially available kits. CRP, creatinine and other laboratory tests were performed in a routine fashion. Estimated glomerular filtration rate (eGFR) was calculated using CKD EPI formula.
Results: We found significantly increased levels of cystatin C in morbidly obese patients as compared to the control group. A significant decrease in serum cystatin C was demonstrated 1 month after bariatric operation and further decrease after 3 months. However, it remained higher than in the control group. Cystatin C correlated negatively with kidney function (calculated using CKD EPI formule) and was associated with BMI. No significant differences between male and female patients were found.
Conclusion: Serum cystatin C is increased in morbidly obese patients and decreases after bariatric procedures. Although the rise in cystatin C has been attributed to obesity, our results show that it is associated with renal function also in this group of patients.

P.304 Bariatric Surgery in the Elderly: A New Paradigm

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Bariatric surgery in the elderly is controversial. By NIH 1991 statement, 65 years old is the age limit for patients who are candidates for surgical treatment of obesity, and most countries have been following this rule since then. In Brazil elderly patients are defined as those over 60 years old, and they must be evaluated individually to access surgical risk and potential benefits of the operation. However, in the last 20 years, life expectancy and the population over 60 years has grown tremendously in Brazil and worldwide, and also the incidence of obesity in this population is becoming epidemic. Previous experience in our institution has shown similar morbidity and mortality of bariatric surgery in patients over and less than 60 years old. The aim of this study was to evaluate the demographic data and presence of co morbidities in patients over 60 years waiting for bariatric surgery in a public university hospital. In February 2011, 217 /1600 (13, 5%) patients over 60 years were waiting for surgical treatment in our institution. The mean age was 65±5, 5 years, 49 (22, 6%) male and 168 (67, 4%) female. The mean BMI was 46±8, 7 Kg/m^2 (range 36–108), 45 (21, 1%) patients have BMI over 50 Kg/m^2. The most common co morbidities were hypertension in 198 (91%), type 2 DM in 101 (46,5%), dyslipidemia in 96 (44%), sleep apnea in 43 (19,8%), congestive heart failure in 13 (6%), coronary disease in 10 (4,6%) and major orthopedic problems in 52 (24%). 52 patients (24%) have been classified as high risk, based on the very high BMI or the severity of the co morbidities. We concluded that an expressive number of patients over 60 years are

candidates for bariatric surgery. These patients also have high prevalence of co morbidities. Based on this data, age limits for bariatric surgery should be revised.

P.305 Non Invasive Evaluation of Liver Fibrosis by Apri Index in Morbid Obese Patients Before and After Gastric Bypass

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Background/aims: Nowadays non-alcoholic fatty liver disease (NAFLD) is frequently diagnosed in clinical practice owing to the increasing prevalence of obesity and type 2 diabetes mellitus in the general population worldwide. NAFLD is detect in about 70% of adult obese and in 85-95% of morbid obesity patients, since simple steatosis to non-alcoholic steatohepatitis (NASH), which can lead to liver cirrhosis. The aspartate aminotransferase to platelet ratio index (APRI)>0,786 and other noninvasive laboratory tests designed to predict cirrhosis in patients with HCV are also useful in patients with NASH. The aim of the present study is to determine APRI index in morbid obese patient submitted to bariatric surgery.
Casuistic and methods: 400 patients were studied before and after bariatric surgery at Hospital das Clinicas, University of Sao Paulo Medical school between 2007 and 2010. Laboratory evaluation included AST, ALT, alkaline phosphatase, basal insulin, total cholesterol, triglycerides, plasma glucose, and platelet count were routinely determined by standard procedures. APRI index was calculated as follows: [AST/ upper limit of normal)/platelet count ($x10^9$/l)] x 100.
Results: The mean age was 47±12 years (range 23–62) with a mean body index of 46,9±7,6 (range 36–78). The mean APRI score, ALT, AST and GGT pre and post-op. were: (0,32±0,27×0,27±0,1)*, (29,04±21,07×19,11±7,97) **, (25,99±18,72×20,21±5,11) *, and (39,4±32,07×19,29±15,29) ** // *=p>0,05 // **=p< 0,05
Conclusions: The low APRI score before surgery suggests absence of significant fibrosis and cirrhosis in morbid obesity and its maintenance after one year suggests no changes on the hepatic histology.

P.306 Effects of Weight Loss Surgery on Sex Hormone Levels in Morbidly Obese Men

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Objective: Influence of weight loss on sex hormones in obese patients is not entirely elucidated. In men with morbid obesity, levels of total testosterone (TT) are decreased and associated with increased cardiovascular mortality. The aim of this prospective study was to measure levels of TT, SHBG, FSH and LH in obese patients undergoing bariatric surgery (RYGB and sleeve gastrectomy), perioperative and in a longer period interval.
Methods: In a group of 10 men with morbid obesity (BMI=50,8±7,5 kg/m^2), levels of TT, SHBG, FSH and LH were measured via RIA assay at baseline (d0) and three times after intervention (d3, d6, d90 and d180, d=days; TT assay: normal area >12 nmol/l, grey area 8–12 nmol/l. Wilcoxon test was used to assess differences.
Results: TT levels showed significant decrease at d3 and increases at d90 and d180 relative to d0 (7,4±3,5 nmol/l): d3 (4,4±3,0 nmol/l)*, d6 (5,7±3,0 nmol/l), d90 (13,3±9,22 nmol/l)*, d180 (13,7±7,2 nmol/l)*. SHBG increased at d6*, d90* and d180*. LH and FSH (d3,d6,d90,d180) showed no differences. BMI decreased until d90 (40,7±8,7 kg/m^2)* and to d180 (37,8±8,8 kg/m^2)*. *(p<0,05).
Conclusion: Low testosteron levels in morbidly obese men are partially restored after 3 to 6 months. This may be due to minor conversion of testosteron by visceral adipose tissue aromatase after surgery or minor inhibition of hypothalamic-pituitary-gonadal axis. Moreover a rebound from a preexisting inhibiting effect by Leptin at the level of the Leydig cells or centrally may play a role. Decreased TT at d3 may be due to stress of operation.

P.307 Tricks and Pitfalls in Building up a Bariatric Unit in the Fourth Biggest City of Germany

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Summary: In spite of highest prevalence-rates of morbid obesity in Germany, surgical treatment of this condition remains rather seldom in this country (4/100.000 citizens) as result of a very restrictive attitude of the health insurances.
Our presentation analyses and summarises the difficulties and solutions of our attempt in setting up a bariatric unit in a 310 beds general hospital in the country's fourth biggest city, Cologne.
Prejudices among hospital staff could be overcome by repetitive information and training sessions. Struggling for the engagement of a minimum of collaborators and for purchasing the necessary equipment remains daily routine.
The implementation of a conservative multimodal therapy programme revealed as a key function to improve the percentage of bariatric patients being financially covered by their health insurances.
The named key points are presented more in detail in this presentation.

P.308 Morbidity and Mortality of Bariatric Surgery in Patients Over 60: How to Deal with Morbid Obesity in the Elderly?

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Introduction: In the last 20 years, the population over 60 years old has grown tremendously in Brazil, as well as in the rest of the world. The incidence of obesity in this population is becoming epidemic, as well as in the population under 60. In February 2011 there were 217 patients (13,5% of the total) over 60 in the waiting list for bariatric surgery in our institution, the majority carrying high number of comorbidities. Since this population is increasing, the decision of operating these patients is becoming a frequent concern and a big challenge for bariatric surgeons. Surgery related morbidity and mortality is one of the big issues of this matter.
Aim and method: The aim of this study was to access the morbidity and mortality of surgical treatment of obesity in a group of patients over 60 who have underwent to gastric bypass between January 2006 and January 2011. 39 patients (8,6% of the total number of operated patients in the period) were retrospectively analyzed. The incidence of major complications (fistula, abscess, bleeding, bowel obstruction, deep wound infection, pulmonary embolism, pneumonia, pleural infusion, deep vein thrombosis, acute heart failure, acute renal failure, need of reoperation) and mortality were analyzed.
Results: The mean age was 62,64 years (60 to 70), mean BMI 48Kg/m^2 (35 to 64), mean hospital stay 7 days (4 to 45) and mean ICU stay 1,9 days (0 to 30). Major complications were 2 fistulas (5,1.%) , both without reoperation, 1 pulmonary embolism (2,5%), 2 deep wound infections (5,1%), 1 pleural efusion (2,5%). Mortality was 5,1%. (1 patient with pulmonary embolism and 1 deep wound infection with fasciitis in a diabetic patient). The two patients were over 65 (65,5 and 70).
Conclusion: Morbid obesity in the elderly population is increasing. In this study, mortality of bariatric surgery in patients over 65 was high. Special attention to these patients in pre-op evaluation and post-op care must be driven.

P.309 What Characteristics are Noticeable in Morbidly Obese Patients? An Analysis of Epidemiological and Medical Data of 366 Examined Insured Patients from 2006–2010.

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From the 01st of September 2006 till the 31st of August 2010 366 insured patients who applied for payment for a bariatric operation were examined. A specially developed questionnaire was used to collect relevant data in a uniform way. Epidemiological and medical data of this group including basic data such as age (41,6±11,4, 15–71 years), gender (248 women, 118 men), social status, but also medical data such as grade and duration of obesity (body weight 145,7±30,5, 91 - 260 kg; BMI (body-mass-index) 50,2±9,0, 31,0 - 83,4 kg/m²) were analyzed. Comorbidities and the applied bariatric procedures were evaluated. Trends concerning the favoured bariatric procedures were identified. The data was compared with the corresponding data of the general population of Hessen. Noticeable developments in this relatively short time of 4 years are discussed in detail.

P.310 Increased Thermic Effect of Food after Gastric Bypass Surgery

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Introduction: The mechanisms of weight loss after gastric bypass surgery are incompletely understood. We hypothesize that changes in the metabolic processing of ingested food may contribute to the weight-reducing loss of gastric bypass.
Methods: In a cross-sectional case-control study we tested 10 formerly obese women (mean±SEM; age: 44.2±2.0 years; BMI: 26.6±0.9 kg/m^2) who had undergone a gastric bypass operation 41.9±9.7 month before, 6 severely obese women (age: 40.0±4.4.2 years; BMI: 41.4±1.2 kg/m^2), and 9 normal-weight women (age: 33.3±2.3 years; BMI: 21.0±0.6 kg/m^2). Blood glucose levels as well as the thermic effect of food (TEF) and the respiratory quotient (RQ) were assessed before and repeatedly during the first 90 min after the ingestion of a standardized liquid mixed meal containing 39.2 g carbohydrates, 15.4 g protein, 2.8 g fat.
Results: The TEF area under curve $_{0–90\text{-}min}$ was distinctly greater in gastric bypass than in the severely obese and normal-weight group (both $p<0.05$). Also, the increase in blood glucose levels following the ingestion of the mixed meal was remarkably higher in the gastric bypass group than in the severely obese and the normal-weight group ($p<0.001$ for ANOVA time x group interaction) as was the blood glucose area under curve $_{0–90\text{-}min}$ ($p=0.005$ for both comparisons). In parallel, the increase in the RQ after the meal was significantly greater in gastric bypass than severely obese and normal-weight group ($p<0.001$ for ANOVA time x group interaction).
Conclusion: Our data provide first evidence for an increased thermic effect of food after gastric bypass surgery which may contribute to the weight-reducing effects of the operation. Furthermore, our data point to distinct alterations in the metabolic processing of food after gastric bypass surgery the underlying mechanisms of which clearly call for further investigations.

P.311 Development of Cholelithiasis after Obesity Surgery and Preoperative Ultrasonography for Selective Cholecystectomy: our Experience in 100 Patients Who Underwent Laparoscopic Bariatric Surgery

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Objectives: Evaluate the results of routine abdominal ultrasonographic evaluation (AUS) and selective cholecystectomy in patients undergoing laparoscopic surgery for morbid obesity, and to evaluate, postoperatively, the development of symptomatic/AUS-positive gallbladder abnormalities.
Materials and methods: A retrospective analysis was performed on perioperative data collected from 100 consecutive morbid obese patients who underwent laparoscopic surgery.The preoperative study included an abdominal ultrasonography to evaluate the presence of cholelithiasis and the patients with gallbladder disease underwent concomitant cholecystectomy.
Results: Of 100 patients, 14 (14%) had undergone previous cholecystectomy and were excluded. Of the remaining 86 patients, 75 (87%) were female and 21 (13%) were males. The mean age was 42.31 years (24–63 years). Roux-en-Y gastric bypass was performed was in 69 patients and sleeve gastrectomy in 17. 12 patients (14%) had positive AUS findings and concomitant cholecystectomy was performed at their bariatric surgery. The average hospital stay was similar with no statistically significant differences between both groups. 9 patients (12%) without preoperative gallbladder pathology developed symtomatic cholelithiasis after surgery. Laparoscopic cholecystectomy was performed in the 9 patients without complications.
Conclusion: The selective cholecystectomy at the time of laparoscopic obesity surgery requires a preoperative ultrasonography evaluation to prevent a future gallbladder disease. Several groups in the open gastric bypass era advocated prophylactic cholecystectomy, but this indication is controversial. In our study, the development of symtomatic cholelithiasis was low after obesity surgery, suggesting that concomitant cholecystectomy should be indicated only in selected cases with positive preoperative AUS.

P.312 The Influence of Gender on Obesity Surgery

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Background: The incidence of obesity is increasing in epidemic proportions. However, while rates of obesity are comparable across genders, women are much more likely to undergo bariatric surgery. Few studies exist on gender differences among patients undergoing surgery. Our aims were to study demographics, co-morbidity at time of presentation, patient reasons for seeking surgery with psychosocial factors.
Methods: From prospectively collected data, all consecutive patients undergoing bariatric surgery between April 2008 and October 2009 were grouped according to gender and compared. Data was collected using a proforma at the initial clinic assessment with a designated Allergan questionnaire.
Results: A total of 402 patients underwent surgery (male n=78, female n=324). The proportion of males and females with a body mass index (BMI) of 35.0 - 39.9 Kg/m^2 was 3% versus 3.1%, BMI 40.0 - 49.9 Kg/m^2 was 43.1% versus 59.5% and BMI >50.0 Kg/m^2 was 53.8% versus 37.5% ($p=0.04$). The distribution of surgery performed was comparable between genders. The median age in males was 47 years (23–63) versus 43 years (18–67) in females (p=ns). The mean BMI between male and female was 51.1 Kg/m^2 versus 49.4 Kg/m^2 respectively (p=ns). There were no significant differences in the reasons why males and females were seeking surgery (p=ns). At the time of presentation, there were significantly higher proportions of males with diabetes, hypertension and ischaemic heart disease ($p<0.05$) and comparable percentages of asthma, COPD, arthirits and previous thrombo-embolism. A significantly greater number of males presented with an Epworth score over 11 (53.6% versus 37.1%, $p=0.03$). Rates of smoking, employment and marital status was comparable with a greater proportion of immobility in males with 12.1% being wheelchair users versus 0.8% in females ($p=0.001$).
Conclusions: A greater proportion of females undergo bariatric surgery. Males present at a similar age to females with comparable BMI but with significantly more co-morbidity and immobility.

P.313 Pulmonary Function and Exercise Performance in Severely Obese Patients Before and After Massive Weight Loss Induced by Gastric Bypass Surgery

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Introduction: Pulmonary function and exercise performance are compromised in severely obese patients. However, little is known about changes in pulmonary function and exercise performance after massive weight loss induced by bariatric surgery. Here we report on results of cardiopulmonary function testing performed before and at least one year after a gastric bypass operation.
Methods: Pulmonary function (inspiratory vital capacity, CVin; forced expiratory volume in 1s, FEV1) and exercise performance were assessed in 18 severely obese patients (11 women; mean±SEM age: 42.5±2.3 years) by spirometry and bicycle ergospirometry, respectively. The average time that had been elapsed since surgery until the postoperative reassessment was 27.7±2.5 month. Bicycle ergospirometry started at 25 or 50 Watt depending on the presumed patients` fitness and lasted until

volitional exhaustion. Individual test protocols were matched before and after surgery. The maximally achieved heart rate (HF-peak), O_2-uptake (VO_2-peak),) load (Watt-peak), and respiratory quotient (RQ-peak) were recorded. Anaerobic threshold (AT) was defined by the V-slope method along with corresponding VO_2, HF, and load (VO_2-AT; HF-AT, Watt-AT, respectively) values.

Results: Preoperative BMI was 46.3±1.6 kg/m^2 and 33.5±1.4 kg/m^2 at the time of reassessment. VCin and FEV1 were significantly greater after than before surgery (both $p<0.001$). Ergospirometry revealed no changes in HF-peak as well as in absolute VO_2-peak and Watt-peak values after weight loss (all $p>0.3$). However, when VO_2-peak and Watt-peak values were related to the actual body weight (BW), respective values turned out to be significantly higher after than before the surgery (both $p<0.005$). HF-AT and absolute VO_2-AT values were lower after than before surgery (both $p<0.014$), but when related to actual BW VO_2-AT/kg was found to be unchanged ($p=0.21$). Of note, patients perfomed19.8±2.3% of the exercise above their individual AT, while after the weight loss they performed 30.3±2.5 % of the exercise above their AT ($p=0.002$). Correspondingly, RQ-peak achieved by the patients in end of the exercise was significantly higher after than before surgery ($p=0.03$).

Conclusion: Spirometric data indicate an improved VCin and FEV1 after the surgically-induced weight loss which is most likely explained by a decreased ventilatory restriction due to reduced abdominal fat accumulation. Ergospirometric data indicate that while absolute exercise performance does not change after surgery, VO_2-peak values are clearly higher after surgery when related to the actual BW. Intriguingly, the AT remains unchanged after the surgically-induced weight loss when related to actual BW, but patients show a remarkably increased anaerobic exercise tolerance which may compensate for the putative loss of muscle mass after surgery.

P.314 Cytokine and Adipocytokine Expression Profiling in Visceral Adipose Tissue of Patients with Colorectal Cancer and Morbid Obesity

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Introduction: For a long time, white adipose tissue (WAT) has been considered a passive organ storing energy as triglycerides. To date, it is becoming increasingly clear that WAT is an endocrine organ secreting a wide range of hormones and other factors which are able to modulate the immunological, metabolic and endocrine environment. Therefore, severe obesity is associated with several co-morbidities, including the development of the metabolic syndrome, insulin resistance, type II diabetes, dyslipidemia, cardiovascular disease and different types of cancer. Not only the quantity but mainly the distribution of WAT within the body, especially the amount of metabolically active adipose tissue, promotes different cancer types, including colorectal cancer. Pathogenesis of cancer in obese patients is mediated by several mechanisms and metabolites including insulin, insulin-like growth factors, insulin resistance, inflammatory cytokines and adipocytokines like adiponectin and leptin.

In this study the expression of adipocytokines and signal transduction molecules in visceral adipose tissue of patients with colorectal cancer (CRC) and morbid obesity (MO) was quantified.

Patients and methods: Quantification of cytokine expression in visceral adipose tissue of 10 CRC patients with different BMI) and two MO patients were first performed using the RT^2 Profiler PCR Array Human Inflammatory Cytokines & Receptors (superarray). Based on these results the expression levels of interleukin 8 (IL-8) of 57 patients diagnosed as MO (20 males, 37 females, BMI≥40 kg/m^2) and 55 CRC patients (32 males, 23 females, BMI 18.5 - 34.9 kg/m^2) and other cytokines were determined. Statistical analysis was performed using SPSS 13.0.

Results: Quantification of cytokine expression in visceral adipose tissue of CRC patients (with different BMI) and MO patients by RT^2 Profiler PCR Array revealed differences in the expression of IL-8 up to 48fold. Quantification of IL-8 in visceral adipose tissue of 55 CRC and 57 MO patients showed that the expression levels of IL-8 mRNA were higher in CRC females compared to MO females ($p=0.017$) whereas no differences of IL-8 expression within these two groups were observed in males. IL-8 expression correlated with BMI in both, females ($p=0.039$) and males ($p=0.0037$). However, IL-8 levels increased in female CRC patients in relation to their BMI, whereas in male CRC patients IL-8 mRNA levels decreased in relation to their BMI.

Conclusion: The association between obesity and colon-rectum cancer varies gender specifically and might depend on the cancer site. Furthermore, our data demonstrated that mRNA levels of IL-8 in visceral adipose tissue of MO patients are related to obesity-related parameters such as BMI. Female CRC patients showed the same correlation whereas males showed a reverse correlation. Further analyses are necessary to clarify the significance of these results.

P.315 Gastroesophageal Reflux after Vertical Banded Gastroplasty is Alleviated by Conversion to Gastric Bypass; an Acid Recording Study

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A minority of conversion operations after vertical banded gastroplasty (VBG) are performed because of vomiting and/or acid regurgitation. Although VBG has been shown to reduce short term gastroesophageal reflux (GORD), long-term follow-up studies have yielded more varied results.

Primary operation with gastric bypass (GBP) is known to reduce GERD in obese individuals. Previous studies have not been designed to differentiate between effects of surgery itself and of the ensuing weight loss. The clinical benefit of conversion is well-known. However, data on acid reflux before and after conversion from VBG to GBP have not been previously reported.

We invited eight consecutive patients with a previous VBG and with current clinical symptoms of GERD to participate in the study. All had intact staple lines as assessed by barium meal and upper GI endoscopy. Acid reflux to the esophagus was quantified using 48h Bravo-capsule measurements. Five of the patients consented to a postoperative endoscopy and pH measurement.

Conversion operations were performed using open technique, a new, isolated 15–20 ml pouch was created and the previously banded part of gastric wall was excised. Gastrojejunostomy was made end-to-end with a circular stapler (CEEA, 28 mm) in all cases.

All patients were women, with a mean age at operation of 49.5 years. The mean time since VBG was 132.1 months. Time from conversion to second measurement was 46.6 days.

There was no serious morbidity. All patients improved clinically and no patient had to go back on proton pump inhibition (PPI) medication. Patients reached normal values in the studied variables. Total time with pH<4.0 was reduced from 18.4 to 3.3% ($p<0.05$); the DeMeester score was reduced from 58.1 to 15.9 ($p<0.05$).

We conclude that the effect of converting VBG-operated patients to GBP results in near-normalisation of acid reflux parameters. The practice can be recommended and preoperative acid recordings seem not to be necessary.

P.316 Training in Bariatric Surgical Techniques: A Laparoscopic Cadaver Skills Workshop

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The near life-like tissue quality obtainable using fresh frozen cadaver (FFC) technology provides a superior teaching substrate for anatomical teaching courses and is increasingly utilised for training courses in surgical and percutaneous techniques. The pliable tissue quality and realistic dissection and handling properties present a significant departure from the traditional formalin–fixed models. Cadavers are prepared employing an internally–validated technique in which the bodies are frozen at −20°C soon after receipt and in preparation for procedural courses are thawed in a staged fashion over 4–5 days.

In our purpose-built state-of-the-art procedural skills facility we have developed a minimally-invasive cadaver workshop for surgeons and surgical trainees in advanced upper gastrointestinal and bariatric surgical techniques. Specifically the course includes adjustable gastric band insertion and explantation, hiatal reconstruction with total fundoplication, and vertical sleeve gastrectomy. Background pre–reading materials are provided and overview presentations are made on topics such as the

surgical correction of gastro–oesophageal reflux disease as well multi–disciplinary care in bariatric surgery. Participants are shown video footage of live surgery and provided with comprehensive guides to the surgical procedures. The tutor:participant ratio is 1:2. Evaluation of the course has shown a universally high level of agreement that the learning objectives had been satisfied by this resource–intensive short course. Evaluation of the outcomes informs change for the presentation of future similar courses.

Our procedural skills centre has facilitated the training of over 16,000 procedural medical practitioners over the last decade.

P.317 Development Formalised Assessment Tools in a United Kingdom Bariatric Surgical Training Program

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Background: Although there has been an exponential increase in bariatric surgery performed in the UK there are few dedicated training programs. Furthermore, surgical training in the UK has undergone significant changes with the introduction of formalised assessment of clinical skills and operative ability. The Intercollegiate Surgical Curriculum Project (ISCP) has delivered these changes. Currently there are no ISCP assessment tools available for bariatric procedures. Our unit has offered a training fellowship in bariatric surgery with appointments made through open completion for a number of years and have introduced a number of training tools.
Methods: A set of training materials was developed to augment our advanced laparoscopic bariatric fellowship. The materials were based on current ISCP assessment tools used for laparoscopic surgery.
Results: Procedure based assessments (PBAs) were designed and implemented for laparoscopic gastric bypass (including gastrojejunostomy and jejunojejunostomy), gastric band and sleeve gastrectomy. Direct observation of procedural skills (DOPS) were designed and implemented for gastric band inflation, gastric band fluoroscopic adjustments, post-surgery fluoroscopy and "Weetabix" imaging for failed gastric bypass. Standardised operative atlases of bariatric surgery with detailed step-by-step analysis and instructions were created.
In addition, a set of clinical scenarios (moulages) regarding pre-operative assessment of the bariatric patient and choice of procedure were developed.
Conclusions: The onset of standardised assessment in surgical training is to be welcomed. At present bariatric surgery is lacking in these tools and it is anticipated that the tools developed here may contribute to bariatric surgical training.

P.318 Mobile Health Media, A Cutting Edge Technology in Managing Morbidly Obese Patients

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Background: Obesity is a worldwide epidemic. Bariatric surgery is an effective way to manage morbid obesity; unfortunately resources are limited as surgeons are outnumbered by patients. Follow-up is critical for success after weight loss surgery. Worldwide there are more than 5 billion mobile phones. This represents a population greater than that of people with access to clean water. Mobile "smart phone" technology is a global market and represents a very efficient platform to enable access-of-care anywhere and anytime to obese patients.
Methods: We evaluated our most common bariatric surgical procedures, including gastric bypass and adjustable gastric banding. Applications for the iPhone and iPad were designed and developed based on the patient needs of our clinical practice. These applications were developed to enable patients to have real-time information about their weight, overall health and progress, and to preventively identify any potential complications.
Results: Development of a bariatric surgery mobile phone application (app) is feasible and quite inexpensive. The average time to develop app, from conception to market deployment, may take 1 to 3 months. Once made available, apps often require upgrades as specifics are learned about patient demands and needs. The cost to produce a professionally made app would vary from US$500 to $5,000, with an average price of $2,500.00. Preliminary results include an expression of great interest from patients and care providers.
Conclusions: Mobile technology is widely available and it is a suitable media platform on which to expand access to information in obesity-related healthcare, both in prevention and post-care follow-up. By exploiting mobile technology minimal resources are required to potentially deploy strategies on a large scale. Obesity surgeons should innovate in ways how to prevent, manage and care for patients before and after surgery. More innovative resources in mobile technology should be implemented.

P.319 Enteroendocrine and Anatomodigestive Classification of Bariatric and Metabolic Surgeries

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Background: Rationale for traditional classification of therapeutical surgeries for metabolic diseases are the expected reduction of caloric intake or the enhanced incretin effect in bariatric -in turn subclassified in restrictive, malabsorptive and mixed procedures- and metabolic surgery, respectively. However, intestinal adaptation for caloric nutrients and permanent malabsorption for non-caloric nutrients along with a wide range of enterohormonal secretory activity occurs after these procedures.
Methods: The methodology of this classification is based on the combination of different enteroendocrine patterns (EP) and anatomodigestive categories of the surgical procedures.
Types of EP are designed by the change of the enterohormonal secretory activity of ghrelin, GIP and enteroglucagon derivatives after surgical interventions.
Type I: Enterohormonal secretion (ES) is preserved and/or recovered.
Type II: ES is augmented.
Type III: ES is blunted.
Type IV: ES is augmented and blunted.
Anatomodigestive categories of surgeries are the results of the combination from restriction (gastric resection, exclusion or external compression) and malabsorption (intestinal resections or exclusions) procedures:
Category 1: without restriction and without malabsorption.
Category 2: with restriction and without malabsorption.
Category 3: without restriction and with malabsorption.
Category 4: with restriction and with malabsorption.
Article was selected if include at less 2 or more enterohormonal measures before and after bariatric or metabolic surgery and placed in humans patients. Procedures are presented by categories of this classification.
Results: Surgical procedures (SP) results in type I with restriction without malabsorption: Vertical banded gastroplasty. Type II without restriction with malabsorption: Jejunoileal bypass. Type II with restriction and malabsorption: Roux -en- Y gastric bypass. Type III with restriction without malabsorption: Adjustable gastric banding. Type IV with restriction without malabsorption: Sleeve gastrectomy, ileal interposition with sleeve gastrectomy, ileal interposition with diverted sleeve gastrectomy. Type IV with restriction and malabsorption: Roux -en- Y gastric bypass, biliopancreatic diversion, biliopancreatic diversion with duodenal switch, digestive adaptation with intestinal reserve.
Conclusions: This is the first classification for the bariatric and metabolic surgeries that integrates the enteroendocrine response and the gastrointestinal anatomical changes. Correlation between the enterohoromonal secretory activity and the anatomodigestive changes could help to understand the enteroendocrine system and their relevance on the development or remission of dismetabolic morbid conditions.

P.320 The European Obesity Academy - A Multidisciplinary Educational Concept

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Introduction: High quality research in bariatric treatment is a multidisciplinary network process involving basic as well as clinical researchers.
To create a future scientific network in the field of obesity the Karolinska Institute has taken the initiative to start EOA - a multi-disciplinary educational programme.

Methods: 25 young internists/bariatric surgeons from nine European countries (Belgium, Denmark, Finland, Germany, Lithuania, Netherlands, Norway, Spain, Sweden) were recruited to this two year programme consisting of education regarding obesity and its treatment, scientific methodology and leadership training.
The programme consists of six meetings in the different participating countries and includes working with a scientific project in between meetings. Every project group is led by at least two senior mentors with clinical and scientific experience.
Results: EOA started in April 2008 and has had five meetings including the metabolic syndrome, diabetes, bariatric surgical techniques, results of treatment, statistics, power calculation, research ethics, how to randomize, realism in planning a project, group dynamics and conflict management…
Five project groups have addressed the following;

- Effects of gastric bypass on bone mineralization.
- What is considered a failure in bariatric treatment?
- Limb lengths in surgery for the superobese.
- Criterias for patient selection.
- Effects of preoperative low calorie diet on the surgical procedure

The main objective of the European Obesity Academy is to improve networking in Europe to treate the problem of obesity. We are convinced that future leaders need a better understanding of the different disciplines and a solid understanding of scientific problems and challenges in this area. We need clinical expertise, scientific methods and training in leadership to be able advance this field of medicine. This project represents a new way of disseminating knowledge and of creating lasting networks in both clinical and scientific work between internists and surgeons in obesity research and treatment

P.321 Changing Landscape of Bariatric Surgery in Australia

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Laparoscopic Gastric Banding has been the most common bariatric operation in Australia for the past 10 years. However, during review of medicare items numbers, its been found that Stapling procedures such has laparoscopic sleeve gastrectomy and gastric bypass is currently on the rise. We analysis the reason behind it and investigate if the trend will continue on. Also postulate the reason behind it and what future impact it will have on our health budgets. This may help countries such as Aisan-Pacific region which will be in need of starting Bariatric Surgery service to tailor the best operation base on cultural and technical aspect of different type of surgery that is currently available.

P.322 The Economic Impact of Patients Referred for LAGB Who Never Reach Surgery - an UK Perspective

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Background: In the UK less than 40% of commissioning bodies (primary care trusts) adhere fully to NICE guidelines for funding bariatric surgery, largely due to financial constraints. Since induction of our comprehensive bariatric programme in 2004, 417 patients have undergone LAGB in our unit.
Methods: A prospectively maintained bariatric database was used to identify all patients who were referred to our service but have not undergone surgery (n=135). We determined healthcare usage, non-attendances (DNA) and cancellations by patient. Unit costs were determined via consultation with commissioning bodies.
Results: Of the 135 patients who did not undergo surgery, 29 patients were warranted assessment by the team but were deemed unsuitable for surgery following assessment by the multidisciplinary bariatric team. 48 patients withdrew from the programme, whilst 38 patients were discharged due to non-attendances. 10 patients either did not receive funding or underwent surgery elsewhere. 9 patients did not reach the operating table due to a variety of reasons, including 5 deaths.
For the 101 patients that were not deemed unsuitable and had not died during the assessment period, 155 appointments were utilised unnecessarily at a cost to the health service of £31,525. 130 appointments were either not attended or cancelled at a potential cost of £26,433.
Conclusion: Approximately 25% of the referrals for bariatric assessment have ultimately not reached the point of surgery. 285 appointments have potentially been lost or wrongly allocated at a healthcare cost of almost £60,000. More stringent pre-referral assessment should lead to the more efficient use of a service already under significant financial constraints.

P.323 Beneficial Results of Sleeve-Gastrectomy in a 12-Year Old Girl with Massive Hyperphagia after Surgery for Craniopharyngeoma

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Objectives: We report on a 12-year old girl who suffered from extreme weight gain after surgery of a craniopharyngeoma 5 years ago (height and weight before surgery: 128 cm and 36 kg, respectively). Postoperatively she developed extreme hyperphagia without a sense of satiety consuming large portions virtually every hour, day and night. Weight increased 30 kg every year inspite of several attempts of conservative treatment. On meal restriction she reacted with severe aggression leading to repeated admissions in psychiatric departments.
Methods: Initially we started off-label therapy with the GLP-1 analogue liraglutide (initially 0,6 mg once daily, later 1,2 mg once daily) followed by selective proximal vagotomy one month later which resulted in a transient weight stabilization (152 cm, 132 kg) and a reduction of the daily meal frequence to 5 meals per day. Two months later the girl developed disabling arthralgia in both knees and could no longer walk. The weight increased again and a laparoscopic sleeve-gastrectomy was performed at a BMI of 55 kg/m² (137 kg, 155 cm). Postoperatively hunger decreased within a few days. After a weight reduction of 7 kg the girl was able to walk again. Liraglutide was continued in a dose of 1,2 mg once daily.
Results: Six months after surgery body weight had further decreased to 117 kg, she was able to walk two kilometers and restarted visiting school for 2 hours every day. Her aggressive episodes decreased substantially. Substitution of hypopituitarism remained unchanged.
Conclusion: Sleeve-gastrectomy may be a useful therapeutic option in young patients with hyperphagia after craniopharyngeoma in whom other treatments fail. However weight loss in patients with hypothalamic-induced obesity may be less effective than in other obese patients.

P.324 Weightreduction with Gastric Balloons - Weightloss, Tolerance and Long Term Results

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Introduction: Obesity is an upcoming problem in the affluent society. The Intragastric Balloon (IGB) is an endoscopic method to reduce weight within a short period. It is less invasive and cheaper than bariatric surgery, but can only be left in the stomach for six months. But is it really effective? Is it really safe?
We report our results of 55 patients in Klinikum Großhadern.
Methods: We implanted 24 water filled and 31 air filled balloons by gastroscopy. The length of therapy was six months. The patients were interviewed three times during therapy and also six and twelve months after explantation. In addition to the weight-reduction we analysed life-quality, change of lifestyle and complications.
Results: Weightloss after 6 months of therapy was 11 kg (−12 kg up to +41 kg). They could reduce their BMI by 4 kg/m² (−4 kg/m² up to +13 kg/m²). 17 patients lost more than 15 kg during therapy (30.9%), 8 patients lost less than 5 kg (14.5%). The excessive weight loss (EWL) was 20 % within six months of treatment - the major part of weightloss occurred within the first three months.
IGB was more effective in patients with a higher initial weight (BMI over 40 kg/m²), who lost 14 kg (−12 kg up to +41 kg). Patients with an initial BMI under 40 kg/m² lost 10 kg (−6 kg up to +35 kg). Water filled balloons seem to effect a better weight reduction

(13 kg) than air filled ones (11 kg). Patients, who started physical activity (14 kg) or changed their eating habits (15 kg) could benefit more than others (7.5 kg; 4 kg).
During the first four weeks of therapy 89% (n=49) of the patients complained about side effects like nausea and stomach pain. In 4 cases (7.2%) severe complications occurred (erosive gastritis C, perforation with peritonitis, pylorus obstruction, ulcer with acute abdomen). In three cases we had material problems and balloons lost volume within 180 days.
17 patients underwent bariatric surgery or a second balloon treatment afterwards and continued losing weight.
Long-term results are not satisfying: At the time of balloon removal the median weight of our observed group was 115 kg (71 kg-237 kg), 12 months after treatment the median weight was 109 kg (72 kg-165 kg) kg. During the first 6 months after therapy most of our patients still lost weight, from month 6 to 12 after removal most of them gained weight again.
In 26 cases the current health insurance covered the cost of the treatment, even if 39 of our patients initially had more than two comorbidities.
Conclusions: IGB treatment is an effective method to reduce weight in a short period of time. Especially in super obese objects it can be an effective method to reduce weight before bariatric surgery. Long-term results without following bariatric surgery are not satisfying, because the loss of weight highly depends on the readiness and commitment of the patients to change their life habits during therapy. The often described safety of this treatment wasn't found in our group.

VIDEOS

V.001 Conversion of Bilio-Intestinal By-pass to Sleeve Gastrectomy

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V.002 Revision of Failed Gastric Banding to Banded Sleeve Gastrectomy or Banded Roux-En-Y Gastric Bypass: A Feasibility Study

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V.003 Laparoscopic Sleeve Gastrectomy (LSG) as a Second Stage Operation for a Previous LSG in a Super Obese Patient: A Feasible Effective and Safe Option

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V.004 Gastric Pouch Imbrication after Gastric Bypass, Pouch Enlargement and Weight Regain: A New, Simple and Safe Proposal for Surgical Revision in an Each Time More Common Situation

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V.005 Weight Regain after Lap Gastric Bypass Operation - Enhancement of Loss of Restriction with Adjustable Gastric Band - Is it Feasible ?

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V.006 Laparoscopic Gastric Band Removal Followed by Gastric Plication: A Vessel Preserving Technique

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V.007 The Late Development of Food Intolerance and Pain after Laparoscopic Sleeve Gastrectomy (LSG): a Video Presentation of Two Late Complications of LSG

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V.008 Roux-En-Y Gastric Bypass in a Morbid Obese Patient with Hiatal Hernia

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V.009 Laparoscopic Repair of Petersen's Mesenteric Defect after Gastric Bypass

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V.010 Yeyunoyeyunal Gastrointestinal Bleeding after Bypass

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V.011 Laparoscopic Management of Intestinal Volvulus after Roux-En-Y Gastric Bypass

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V.012 Emergency Bariatric Surgery - Laparoscopic Management of Intratoracic Gastrointestinal Leak Following Roux En Y Gastric Bypass with Intrathoracic Gastric Volvulus

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V.013 Laparoscopic Conversion of Failed Vertical Banded Gastroplasty to Roux-En-Y Gastric Bypass

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V.014 Later Conversion of LAGB to LRYGB after Band Erosion: When and Why

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V.015 Laparoscopic Reversal of Roux En Y Gastric Bypass

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V.016 Lap Repair of a Hiatus Hernia after a Previous *DS*

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V.017 Video-Repair of Hiatus Hernia in Bariatric Surgery - To Do or Not?

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V.018 Conversion of Nissen Fundoplication to Laparoscopic Gastric Bypass in a Morbidly Obese Patient

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V.019 Nissen Fundoplication and Gastric Plication in Surgery Gerd & Morbid Obesity; Surgical Technique

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V.020 Conversion of Laparoscopic Banded Gastric Bypass to Conventional Laparoscopic Gastric Bypass Because of Chronic Gastric Pouch Fistula

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V.021 Laparoscopic Conversion of a Proximal to a Distal Bypass (LRYGB) - A Safe Procedure in Bariatric Surgery

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V.022 Laparoscopic Roux-En-Y Gastro-Jejunostomy for Stenosis after Sleeve Gastrectomy with Duodenal Switch

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V.023 Management of Gastro-Gastric Fistula after Gastric Bypass

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V.024 Cases of Reoperative Bariatric Restrictive Surgery

PRESENTER: P. Maida[1]
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V.025 Single Incision Laparoscopic Roux-En-Y Gastric Bypass

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V.026 Single Incision Laparoscopic (Sils) Bariatric Surgery- Feasibility

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V.027 Sils Port Laparoscopic Roux-En-Y Gastric Bypass for Low Bmi Diabetes Mellitus: Safety & Feasibility

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V.028 Modified Omega Loop Technique for Gastro-Ileal Anastamosis of Duodenal Switch for Morbidly Obese Patients - Easy Technique

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V.029 Laparoscopic Adjustable Gastric Band with a Plicated Sleeve Gastroplasty

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V.030 Laparoscopic Ileal Interposition with Diverted Sleeve Gastrectomy: Technique

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V.031 Laparoscopic Ileal Interposition: Our Technique

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V.032 Endoscopic Revision of an Ultra-Small Gastric Pouch to Control Hyper-Insulinemia and Reactive Hypoglycemia with a Gigantically Dilated Gastrojejunostomy Utilizing the 4 Channel Ransport from USGI Medical

PRESENTER: D. Balder[1]

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V.033 Guide to the Performance of the Mini-Gastric Bypass

PRESENTER: R. Rutledge[1]

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V.034 Unique Technique of Liver Retraction in Situs : Single Incision Trans-Umbilical Surgery

PRESENTER: S.S. Shah[1]
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V.035 Laparoscopic Sleeve Gastrectomy via Single Umbilical Access: Description of Personal Technique

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V.036 Single Incision Laparoscopic Bariatric Surgery - How to do it Without Specific Instruments? A Personnal Experience of 300 Cases

PRESENTER: J.R. Cady[1]

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V.037 Laparoscopic Roux-En-Y Gastric Bypass How We do it

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V.038 Laparoscopic Roux-En-Y Gastric Bypass in Situs Inversus Totalis

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V.039 Laparoscopic Roux-En-Y Gastric Bypass

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V.040 Laparoscopic Gastric Bypass with Remnant Gastrectomy in a Super-Super Obese Patient with Gastric Metaplasia: a Surgical Hazard?

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V.041 Mini_Gastric By_Pass Tips and Tricks (About a Personnal Experience of 1300 Cases) Video Presentation

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V.042 Laparoscopic Roux-En-Y Gastric Bypass; How I do it?

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V.043 Laparoscopic Gastric Bypass: Easy Technical Approach Step by Step

PRESENTER: J.A. Sallet[1]
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V.044 Roux-En-Y Gastric Bypass Revision: Pouch and Anastomosis Triming

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V.045 One Quadrant Hand-Sewn Laparoscopic Gastric Bypass: A Technique Designed to Maximize the Use of a Surgical Robot

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V.046 Surgical Management of Morbid Obesity by Laparoscopic Roux-En-Y Gastric Bypass

PRESENTER: M. Hussein[1]

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V.047 Laparoscopic Gastric Bay-Pass with Fundectomy and Esplorable Stomach (LRYGBP FES) Video of Technique

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V.048 Video Description of Non-Resectional Sleeve Gastroplasty: the "Mini" Sleeve Gastroplasty

PRESENTER: R. Rutledge[1]

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V.049 Roux-En-Y Gastric Bypass with only Functional Exclusion of Gastric Remnant: The Technique Of Roux-En-Y Gastric Bypass on Vertical Banded Gastroplasty Performed Via Open and Laparoscopic Approach

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V.050 Increased Weight Loss Following Modified Laparoscopic Roux-Y Gastric Bypass Including Fundectomy - A Combination of Two Effective Approaches

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V.051 Laparoscopic Repair of Rare Retropsoas Hernia

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V.052 Gastric Banding: A Leading Role in our Bariatric Experience

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V.053 Laparoscopic Band for Morbid Obesity

PRESENTER: M. Hussein[1]

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V.054 Single- Incision Laparoscopic Sleeve Gastrectomy in a Patient with a Previous History of Cholecystectomy

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V.055 Laparoscopic Greater Curvature Plication as a Salvage for Lap Band "Slips"

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V.056 Managing the Difficult Hiatus and Fatty Gastroesophageal Junction During Adjustable Gastric Banding

PRESENTER: N. de la Cruz-Munoz[1]
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V.057 Rupture of Stomach in a Band Slippage Case During Removal of Band

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V.058 Revisional Bariatric Surgery Following Gastric Band - Tips and Tricks

PRESENTER: U.R. Marreddygari[1]
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V.059 Band Migration after Laparoscopic Gastric Banding: Endoscopic Removal

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V.060 Technical Steps of Reoperations after LAGB Failure: 13 YRS Experience in Single Group

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V.061 Complications During Laparoscopic Primary and Revisional Surgery in Four Different Bariatric Procedures and their Laparoscopic Management

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V.062 Lassoing of the Small Bowel Mesentery and Obstructive Symptoms Following "Band on Bypass" (Bob) for Failed Gastric Bypass

PRESENTER: C. Magee[1]
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V.063 Laparoscopic Sleeve Gastrectomy State of the Art Technique

PRESENTER: M. Hussein[1]

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V.064 Ten Years Experience about the New Technique "Laparoscopic Vertical Gastric Plication" in Morbid Obesity Introduced the First Time in the World

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V.065 Gastric Sleeve: Technique and Results

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V.066 Laparoscopic Gastric Plication: Surgical Technic

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V.067 The Mechanisms of Leaks after Sleeve Resections - Technical Aspects

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V.068 How to Avoid Complications During Laparoscopic Sleeve Gastrectomy?

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V.069 Laparoscopic Resection of the Esophago-Gastric Junction and Roux-En-Y Esophagojejunostomy Reconstruction Due to Chronic Proximal Staple Line Disruption Following Sleeve Gastrectomy for Morbid Obesity.

PRESENTER: S. Terushkin[1]
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V.070 Laparoscopic Resleeve Gastrectomy for Pouch Dilatation after Sleeve Gastrectomy

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V.071 Sleeve Gastrectomy as a Preferential Approach for Bariatric Surgery in Patients with Giant Incisional Hernia

PRESENTER: M.A. Santo[1]
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V.072 Late Perforation of the Jejuno-Jejunostomy after Laparoscopic Roux-En-Y Gastric Bypass

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V.073 Postoperative Complications in Laparoscopic Gastric Bypass, our Experience

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