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Young IFSO Session

YI-01 The influence of different vitamin D supplementation regimes on vitamin D, calcium and parathyroid hormone after bariatric surgery
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Background: Vitamin D plays a key role in calcium balance and formation of bone structure. Low vitamin D are associated with decrease in calcium absorption but are not always accompanied by reduction in serum calcium. However, it is unclear what the most optimal calcium and vitamin D supplementation regime is and its effects on nutrient deficiencies after bariatric surgery. We evaluated the effects of 2 different vitamin D supplementation regimes on serum calcium, vitamin D and PTH in bariatric patients.

Methods: In this retrospective matched study, we included 100 patients who have had bariatric surgery between June 2015 and January 2016 and were divided into 2 groups. Group A (n=50) used a supplementation regime of 1000 mg calcium and 800 IU vitamin D and group B (n=50) used an additional 1 ml liquid cholecalciferol (50000IU) monthly. Blood analysis of calcium, vitamin D and parathyroid hormone were done at baseline and 6 months postoperatively.

Results: Both groups showed a significant increase in vitamin D (p<0.001 for each group). A significant difference in delta vitamin D was seen between group A and B (p<0.01), in favour of group B. No significant difference was seen in calcium between both groups. A significant decrease in parathyroid hormone was seen in both groups. Delta parathyroid hormone showed no significant differences between groups.

Conclusion: A standard daily vitamin D supplementation regime (800IU) with 1 ml additional cholecalciferol (50000IU) per month results in higher vitamin D levels and less vitamin D deficiencies.

YI-02 Non-invasive serum liver fibrosis markers in morbidly obese patients
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Introduction: Non-alcoholic fatty liver disease (NAFLD) affects up to 93% of patients undergoing bariatric-metabolic surgery. Significant liver fibrosis and cirrhosis can be found in 30% and 5%, respectively, contributing to substantial peri-operative morbidity and mortality. Therefore, the aim of this study was to identify the value of non-invasive surrogate markers for the diagnosis of liver fibrosis in candidates for bariatric-metabolic surgery.

Methods: In total, 177 patients undergoing bariatric-metabolic surgery between July 2014 and November 2018, who gave a preoperative blood sample and underwent intraoperative liver biopsy, were included. The diagnostic accuracy of AST to platelet ratio index (APRI),
Fibrosis-4 (FIB-4), NAFLD fibrosis score (NFS), Forns index and Vitro score regarding the non-invasive detection of significant (≥F2) and advanced fibrosis (≥F3) was analyzed. Liver histology was used as a reference standard. In addition, the effect of PNPLA3 rs738409 C>G on inflammation assessed by the NAFLD Activity Score (NAS) and fibrosis development was studied.

Results: 114 (64.4%) patients were female, median age was 42.1 (Q1;Q3 33.5;50.7), median BMI was 44.2 (Q1;Q3 41.0; 48.5). NAFLD was present in 88.7%, non-alcoholic steatohepatitis in 58.2%, significant fibrosis in 20.9% and advanced fibrosis/cirrhosis in 7.3% of the patients. The AUC for the detection of ≥F2 was 0.612, 0.659, 0.640, 0.636, 0.640 and for ≥F3 0.634, 0.694, 0.695, 0.756, 0.755 for APRI, FIB-4, NFS, Forns index and Vitro score, respectively. 50% (n=49/98) of the patients carried the G-allele either heterozygously (42%) or homozygously (8%). The G-allele was associated with NASH (p=0.018), increasing NAFLD activity score (p=0.004), but not fibrosis (p=0.269).

Conclusion: Forns and Vitro score showed promising accuracy for the detection of advanced fibrosis in this patient collective with obesity. 50% of patients carried the G-allele which was associated with inflammation, but not fibrosis. Our results need to be further verified in a bariatric-metabolic patient cohort with a higher percentage of advanced fibrosis in order to account for spectrum bias.

YI-03 Surgical Management of Diabetes type 2 in patients with Body Mass Index between 30 and 35 - challenge for surgeons and endocrinologists
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Our 12 years' experience with Metabolic Surgery revealed that Diabetes type 2 remission frequently occurred very fast, long before substantial weight loss was achieved. We present an experience of four years with surgical management of patients with Diabetes type 2 and Body Mass Index under 35.0. Hospital Protocol and inclusion criteria were based on:  
- preoperative waist circumference and Body Mass Index at time for referral for Metabolic surgery - average duration of diabetes / between 1 and 5 years / - average HbA1c level between 7.5% and 9.0%, on combination of insulin and oral medication - high blood insulin levels at time of surgery - present co-morbidity of hypertension, sleep apnoea or arthritis  
The preferred option for surgery was Laparoscopic Gastric bypass in 15 patients and laparoscopic ileal transposition in one patient. The Gastric bypass was modified with a larger gastric pouch of 50 ml and gastro-jejunal anastomosis was performed with 45 mm blue linear cartridge. The efferent and afferent limbs were 100 cm. All patients signed a consent form, including answers to 42 specific questions about the intervention. The age of the patients varied from 41 to 55 years old, including 11 women and 5 men. All patients had to stop smoking and to stop non steroid painkillers at least 1 month before surgery. Diagnostic Upper Endoscopy and Helicobacter pylori test were routine part of their preoperative assessment.  
The Follow up of the patients was from 1 to 3 years after surgery. No significant postoperative or late complications were registered as anastomotic leak, bleeding or even death. The weight loss varied from 8 to 27 kg, however no extreme loss was documented in
all cases. Total remission of Diabetes type 2 was documented in 14 patients within one year after surgery. Two patients are still on 1 tablet of Methormin in the morning.

Our initial experience revealed that metabolic surgery is safe and reliable in selected patients with BMI between 31 and 34, where strict Hospital protocol is implemented.

References

3] Bariatric/Metabolic surgery to treat Type 2 Diabetes in patients with BMI<35.0 kg/m²

Oral Communications: Video Session

V-01 Retrogastric approach in sleeve gastrectomy with three ports
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Sleeve gastrectomy (SG) is a procedure with an increasing application in bariatric surgery nowadays. We propose for selected cases the retrogastric approach to perform a laparoscopic sleeve gastrectomy (LSG).

Technique: The patient was brought to the operating room and placed on the operating table in supine position. After induction of anesthesia and successful endotracheal intubation, the abdominal wall was prepped and draped in the French fashion. The abdominal cavity was accessed through 11mm supraumbilical incision for 30° scope. Accessory trocars were placed under view in the right and left upper quadrant abdomens (12mm both EndoStapler. Small opening from the greater curvature is made to get smaller sac. Once within retrogastric space, the surgeons left hand replaces the fourth standard trocar and liver was cranially retracted, decreasing the risk of liver injury. The short gastric vessels were exposed and taken down with Sonicision all the way up to the left crus of diaphragm. A 36-French bougie tube was passed into the pyloric channel. Later on gastric transection is performed, considering: on one hand a stenosis from incisura angularis must be avoided. When stapling from the left, the device will be parallel to the lesser curvature. On the other hand, we should transect the entire gastric fundus. This technique can be helpful when the liver size lead to poor vision of the hiatus, patients with a lower BMI or gynecological fat distribution.

Conclusion: The posterior approach of the His’ angle through the retrogastric space can improve the visualization and dissection of short gastric vessels and facilitates the adequate gastric mobilization around the left crus, which allows the safe and efficient performing of the sleeve gastrectomy.
The 2 risk factors of leakage are the stenosis in incisura angularis and the stapling near the esophagus in His’ angle.

**V-02 Technique of NISSEN SLEEVE**
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The technique of NISSEN SLEEVE has been described in 2013 by our team in order to decrease the morbidity of SLEEVE GASTRECTOMY. Until this date more than 300 cases has been performed. This video explains the technical key points in order to perform a safe procedure.

**V-03 Transhiatal sleeve gastrectomy migration and GERD: laparoscopic hiatal hernia repair with reinforcement and conversion to R-en-Y gastric bypass**
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**Background:** Transhiatal sleeve migration, with consecutive gastroesophageal reflux disease (GERD) is a complication that leads to revisional surgery. Methods: A fifty-five years old, morbid obese female patient with BMI 45 kg/m², hypertensive with OSAS and hypercholesterolemia, was operated by laparoscopic sleeve gastrectomy in 2010. She reached nadir in 2012 with BMI 28.7, with resolution of her comorbidities. From 2016 she complained from symptomatic GERD not responding to medical treatment, with evidence of migration on radiological contrast study (Gastrografin®), and CT scan of the hiatal area.

**Results:** we present the video of conversion to laparoscopic R-en-Y gastric bypass LRYGB, associated with reinforced cruroplasty with bio-absorbable mesh, with marked improvement of GERD symptoms after reoperation. Conclusion: laparoscopic conversion from LSG to RYGB is feasible and useful for LSG complications.

**V-04 Revisional surgery technical key aspects of gastric bypass for candy cane syndrome**
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BOOK OF ABSTRACTS  |  IFSO-EC SYMPOSIUM 2019
Gastric bypass (GBP) is a standardized technique for obesity that performs a small pouch, anastomosed from a small blind bowel loop. Inadequate weight loss, weight regain, pain and polyphagia can be reasons for revisional surgery.

Clinical case: We present a 57-year-old patient with surgical history of GBP 2 years ago, who required revision for abdominal pain in which adhesiolysis was performed at the pouch level. Later on the patient presented a BMI of 31 Kg/m² and upper GI results related with Candy-cane syndrome (long blind loop at gastro-enteric anastomosis). There was no hiatal hernia. The third complete laparoscopic revision of the BPG was proposed.

The objective is to illustrate the technical steps of a third revisional GBP including complete dissection of the gastric pouch and all structures, blind loop identification, dissection with intraoperative assessment of its volume with resection, and hemorrhagic control from a collateral splenic artery. The video shows the critical steps of this complex surgery.

V-05 Modified One-Anastomosis Gastric Bypass as an Option for Weight Recidivism Following Laparoscopic Greater Curvature Plication
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A 52-year old female patient presented to our clinic three years after having undergone laparoscopic greater curvature plication (LGCP) in another center, requiring revision surgery due to weight recidivism. The first operation was reportedly complicated by leak and intrabdominal abscess, which was drained percutaneously. The patient's BMI at presentation was 46 and she was free of comorbidities. After completing routine preoperative assessment, the patient underwent revisional bariatric operation. Regardless of persevering attempts to develop the retrogastric plane and un-plicate the greater curvature, we were unable to do so owing to extensive adhesions as a result of previous local infection. In face of these adversities, we decided intraoperatively to perform a one-anastomosis gastric bypass (OAGB) instead of total gastrectomy. We developed a small bowel loop of 200 cm distal to the ligament of Treitz and performed an anterior gastrojejunostomy. Postoperative course was uneventful and the patient was discharged on POD 4. She resumed oral liquids on POD 3 and solid food on POD 12. One year postoperatively the patient has lost 36.5 Kg (51.0% EWL, 72.6% EBIL) and has no gastrointestinal complaints. In conclusion, this case underlines the peculiarities that bariatric re-operation may harbor. The surgeon must be prepared to change the initial reoperation planning and resourceful as far as technical aspects are concerned, especially in case that the index operation has been complicated.

V-06 Candy cane twist explaining Koning syndrome after Roux-en-Y gastric bypass
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A post-operative long term complication after gastric by-pass could be the appearance of abdominal pain associated with vomiting, dysphagia and nausea. In the case where all the
causes of abdominal pain were excluded by radiological and endoscopic examinations, an explorative laparoscopy could be performed.  

A 43 years old female patient was submitted to a gastric bypass for morbid obesity with a body mass index (BMI) of 36.0 (100 kg; 168 cm) at the beginning. At the follow-up at 5 years the patient BMI was 22.3 with a weight loss of 40 kg. In the last month the patient refers a weight loss of 8 kg with the presence of abdominal pain, dyspepsia and dysphagia. The computer tomography (CT) with oral contrast shows the presence of a blind afferent Roux limb at the gastrojejunostomy. The patient was submitted to a diagnostic laparoscopy that shows the presence of a twisted candy cane that was identified and resected. The postoperative course was uneventful and the patient was discharged at second postoperative day.

An explorative laparoscopy in the case of abdominal pain, nausea, vomiting at a long term follow-up after gastric bypass could be performed. If it’s present, the surgical resection of the “candy cane” seems to be the best treatment for this long term complication after bypass surgery for morbid obesity.

References


V-07 Severe malabsorption after "short" SADI requiring re-du surgery

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In case of weight regain or insufficient weight loss a few years after laparoscopic sleeve gastrectomy, a second surgical procedure could be performed to achieve the expected results. We have different surgical options after a sleeve gastrectomy that can vary from a Roux-en-Y gastric bypass to a single anastomosis duodenoileal bypass (SADI). These operations are characterised by some medical complications such as diarrhoea with malabsorption and vitamin lack.

A 30 years old male obese patient with a body mass index (BMI) 45 (weight 130 kg; 171 cm) was submitted to a sleeve gastrectomy with a weight loss of 50 kg in the next years. Six years later the patient had a weight regain with a weight of 116 kg and BMI 40. We performed a SADI. The patient has a good weight result with a loss of 40 kg. One year later he present at the follow-up visit with a weight of 55 kg and a BMI 18.8 with a severe denutrition, chronic diarrhoea and anal fissure. The patient was treated with a parenteral nutrition and then an explorative laparoscopy was performed. The length of the common intestinal tract was 150 cm. considering the clinical condition and the denutrition, we decide to resect the duodenojejunal anastomosis ant to perform a new duodenojejunal anastomosis with the common digestive tract with a length of 250 cm. The postoperative course was uneventful. At 6 months of follow-up the patient had a weight regain of 12 kg with a BMI of 23 and with an improved nutritional status.
The re-do surgery in case of “short” SADI with the elongation of the common digestive tract is a feasible and save procedure in expert hands with good nutritional outcome and important improving of the quality of life.

References


V-08 Algorithms in obesity surgery: malnutrition and twisted sleeve in female patient (case report)
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Introduction and case presentation: Laparoscopic sleeve gastrectomy and cholecystectomy was performed in 50 y old woman: BMI 43 kg/m2, with concomitant ulcerative colitis, hiatal hernia, cholecystolithiasis and arterial hypertension, treated with azathioprine, infliximab, enalapril. Postoperative course was positive of vomiting and weight loss for 50 kg in eight months postoperatively, reached BMI 25. Two years later abdominoplasty fleur de lise and femoral lifting was performed. Medical history was positive for vomiting, hipersalivation, cough, reflux episodes, perioral excoriation, only resupine mostly liquid feeding and weight loss. Abdominal and thoracic CT scan was negative, and upper GI endoscopy was suspicious for remnant pathology, but nondefinitive in non-bariatric unit. Repeted upper GI endoscopy confirmed distal oesophageal dilatation, twisted pouch in the middle position, big fundal remnant and hiatal hernia. Preoperative nutritional screening: BMI 20,5 kg/m2, hypovitaminosis B12, light hipoalbuminemia, reduced BMR (980 kcal), PA 7.7 and followed with preoperative complete paranteral nutrition. Roux- end-Y by pass with short limbs 50+30 cm with lision of adhesions was performed for and complete remission of clinical pathology was obtained. Postoperative oral enema confirmed normal enema flow, reduced number of pathologic distal pathological oesophageal contractions; combined oral and paranteral feeding followed for 7 days.

Conclusion: Algorithms in bariatric surgery are mandatory to prevent life treathening postoperative complications, among pouch twistening and malnutrition. Long-term postoperative follow up importantly reduce morbidity and is a primary approach for early diagnosis of pathology. Diagnostic procedures are necessary to be performed in highly experienced tertiary centers with multidisciplinary and intensive treatment capacities.

V-09 Perioperative outcomes with totally robotic sleeve gastrectomy using 60mm automatic
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Background: The use of the robotic platform in bariatric surgery is becoming more popular in the United States. Robotics may be a valuable asset for these complex and technically challenging operations. Our objective is to report our initial experience with totally robotic sleeve gastrectomy using the 60mm robotic stapler.
**Methods:** We reviewed all totally robotic sleeve gastrectomy (TRSG) cases between October 15 and December 31, 2018. Perioperative and postoperative outcomes were analyzed by a single surgical group at John T. Mather/Northwell Hospital.

**Results:** TRSG was performed on 77 patients during this time period. The mean age and preoperative body mass index were 41.4 +/- 12.1 and 45.6 +/- 6.7, respectively. Thirty-four patients (44.1%) had a hiatal hernia repair at the time of their sleeve gastrectomy. One patient was status post lap band (2 stages) to sleeve gastrectomy conversion. The mean operative time, estimated blood loss and hospital length of stay was 89.1 +/- 24 mins, 5.8 +/- 4.2 ml, 2.4 +/- 1.0 days, respectively. There were no conversions, intraoperative complications, ICU admissions, postoperative blood transfusions, leaks or mortalities during this period. Two patients had umbilical wound infections that were treated in the emergency room. One patient had an extended length of stay and required a percutaneous drain for an intra-abdominal fluid collection, but no gastrointestinal leak after multiple tests.

**Conclusions:** TRSG is a feasible and safe option in bariatric surgery at our institution. The intraoperative and postoperative complication rates compare favorably to the published data from the laparoscopic approach. A larger sample size and long term prospective analysis is necessary for definite conclusions regarding this technique.

The video only shows the highlights of using a 60mm robotic stapler but we can send a longer version in which there is also a hiatal hernia repair using the robot.

**References**


**Acknowledgement:** We would like to acknowledge Mr. Matthew Cocco and his team for their assistance in the data collection.
Oral Communication: Miscellaneous

O-02 In Pursuit of Excellence: A Literature Review of Rating Bariatric Surgeon Performance and Extrapolated Outcomes
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Safety and quality in surgery is often compared to pilot safety standards; however, the standards professed by surgeons are vastly divergent from those regularly utilised by the aviation industry. Both a knowledge-based assessment as well as proficiency with specific aircraft types is regularly conducted and mandatory. In contrast, whilst all surgeons profess a commitment to quality of performance, the young and prolific area of bariatric surgery lends itself to both lapses in oversight as well as a unique opportunity for standardised benchmarking and objective, structured assessment.

Our literature review has a dual purpose:

- A review of surgical rating instruments in current use by medical practitioners and educational academics, particularly focused upon bariatric surgical procedures
- Defining the evidence base of transferability to the operating room - multiple outcome measures can potentially result from a positive (or negative) rating of a surgeon’s performance, including presumed competence in theatre

The video rating system allows an independent, experienced operator (usually a bariatric surgeon) to rate the video for a sleeve gastrectomy being performed in-vivo. The application of this is to allow peer-to-peer surgical coaching relationships (1), in addition to potential for relating surgical skill and late outcomes of bariatric surgery (2). Equally the evaluations given may be used favourably towards rating surgical proctors (3).

For such instruments to be used as a means of determining credentialing of surgeons requires a strong evidentiary base. Given the potential use of objective rating instruments to be used in credentialing or revalidation of practitioners, it is incumbent upon clinicians familiar with these operations to ensure sound methodology is utilised in developing such tools and to be aware of the literature pertaining to this.

References


O-03 Applying Enhanced Recovery after Bariatric Surgery (ERABS) protocol for morbidly obese patients with End-Stage Renal Failure
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Background: In 2015 the ERABS protocol was implemented and also morbidly obese patients with End Stage Renal Disease (ESRD) were enrolled in it. The objective of this study was to evaluate the potential benefits and safety of the ERABS protocol in ESRD morbidly obese patients compared with non-ESRD morbid obese patients undergoing bariatric surgery.

Methods: A retrospective review of a prospectively collected database was conducted for ESRD patients who underwent BS according to the ERABS protocol. The primary endpoint was the length of hospital stay in days, i.e., the day the patient was admitted until discharge. Secondary endpoints were the number of re-admissions, re-operations, length of renal replacement therapy and complications during admission and within 30 days.

Results: From 2015 onwards 1199 patients non–ESRD patients were operated and 21 with ESRD. In terms of other comorbidities both groups presented typical components of metabolic syndrome. In the ESRD group 8 (38%) Roux-en-Y Gastric Bypass (RYGBP), 12 (57%) One Anastomosis Gastric Bypass (OAGB) and 1 (4.8%) Sleeve Gastrectomy (SG) was performed. In the ESRD group there were two serious complications in one patient (rated as Clavien-Dindo IIIb and IVb) at the first postoperative day after OAGB. Overall complication rate was comparable and not significantly different.

Conclusion: Our study confirms that the use of the ERABS protocol in these morbidly obese patients with ESRD allows maintaining the quality as well as efficiency of surgery, while ensuring the highest safety standards.

O-04 Postoperative hemorrhage after OAGB/OAGB vs. RYGB
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Background: Mini-gastric bypass/One anastomosis bypass (OAGB/OAGB) is a rapidly gaining in popularity. Therefore, it is of paramount importance to compare early and late results with the Roux-en-Y gastric bypass (RYGB) which is still considered as the gold standard of obesity surgery. The focus of this study is on postoperative hemorrhage severe enough to require blood transfusions or re-operation.

Methods: Retrospective analysis of medical charts of all patients undergoing a gastric bypass between October 2014 and December 2017. OAGB/OAGB was a new procedure in our department but RYGB had been standard in 2014.

Results: A total of 716 patients were analyzed. The demographic data of the patients with OAGB/OAGB (n=338) were comparable to those of patients with RYGB (n=378) including age (41.9 (18-67) vs. 43 (21-76) years) and BMI (mean 51.2 vs. 47 kg/m²). The rate of co-morbidity was 87.5%: type II DM 70.8 %, arterial hypertension 8.3 %, ASS-therapy 4.1% , liver cirrhosis 4.15% HLO-positivity 37,5%. Severe hemorrhage occurred in 24 patients (3,35%), 22 of which required re-laparoscopy. The bleeding site was the gastric staple line in 13 cases, 1 –omentum major, in 8 cases unknown. The rate after OAGB/OAGB (2,37%) was comparable with that after RYGB (4,33 %). No patient died.
Conclusions: Post-operative hemorrhage after gastric bypass surgery occurs at the gastric staple line. Despite the fact that the staple line in OAGB/OAGB is longer than that of the RYGB, hemorrhage is not more frequent. OAGB/OAGB is safe regarding bleeding even during the learning period.

O-05 The potential role of high resolution manometry in preoperative diagnosis of candidates to sleeve gastrectomy: double blind prospective evaluation
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Background: Hiatal hernia (HH) is common in obese patients undergoing bariatric surgery. Preoperative traditional techniques such as upper gastrointestinal endoscopy (UGIE) or barium swallow/esophagram do not always correlate with intraoperative findings. High resolution manometry (HRM) has shown a higher sensitivity and specificity than traditional techniques in non-obese patients in the HH diagnosis, whereas there is a lack of data in the morbidly obese population. We aimed to prospectively assess the diagnostic accuracy of HRM in HH detection, in comparison with barium swallow and UGIE, assuming intraoperative diagnosis as a standard of reference.

Methods: Forty one consecutive morbidly obese patients prospectively recruited from a tertiary-care referral hospital devoted to bariatric and metabolic surgery underwent a preoperative evaluation including standardized GERD questionnaires, barium swallow, UGIE and HRM. The surgical procedures were performed by a single surgeon who was blinded to the results of other investigations.

Results: HH was intraoperatively diagnosed in 11/41 patients (26.8%). In 10/11 patients, the preoperative HRM showed an esophagogastric junction suggestive of HH. When compared to intraoperative evaluation, the sensitivity of the HRM was 90.9% and the specificity 63.3%, with a positive predictive value of 47.6% and a negative predictive value of 95.0%. HRM showed a higher sensitivity and specificity compared to barium swallow and UGIE.

Conclusions: HRM has a high accuracy of HH detection in morbidly obese patients assuming an intraoperative diagnosis as reference standard. It could therefore be a very useful tool in the preoperative work-up of obese patients undergoing bariatric surgery.

References
O-06 Designing and clinically testing (bariatric) procedure specific multivitamin supplements: an overview
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Background Deficiencies for micronutrients are common in obese patients. After Sleeve Gastrectomy (SG), Roux-en-Y gastric bypass (RYGB) and One Anastomosis Gastric Bypass (OAGB) these deficiencies increase and are the most diagnosed complication after bariatric surgery. Despite this negative effect, still many healthcare professionals do not inform their patients correctly on the necessity of lifelong preventive multivitamins. Especially vitamin B12, vitamin D, folate and ferritin deficiencies are seen frequent.

Objective To examine the effectiveness of the specialized multivitamin supplement WLS Optimum™, Forte™ and Maximum, on deficiencies and mean serum concentrations in large cohorts and RCT’s of SG, RYGB and BPD(-DS) patients.

Design All studies which studies Optimum™, Forte™ and Maximum were included. Three prospective cohort studies, four RCTs with a follow-up of up to three years and one cost effectiveness were elaluated.

Results A total of 2537 patients were included in the studies of which 470 in de RCTs and 2067 in the prospective cohorts. For WLS Forte™ significantly, less de novo deficiencies were found for ferritin (1% vs 4%, p=0.029), vitamin B12 (9% vs 23%, p<0.001) and vitamin D (0% vs 4%, p<0.001) in users compared to non-users. Three years after the surgery these findings remained mainly stable.

SG patients show less deficiencies for folic acid (9% vs 24%, p<0.01), ferritin (9 vs 15%, p<0.01) and a lower serum level drop with WLS Optimum™, but it required further optimization for iron and vitamin B12. Additionally, the results of the improved version of WLS Optimum™ (2.0) which contains higher ferritin (200% RDA) and B12 (4000% RDA) (WLSO II) show higher delta ferritin (57) and B12 (32).

Conclusions The use of multivitamin supplements resulted in fewer deficiencies of vitamin B12, vitamin D, folic acid and ferritin and higher mean serum concentrations in RYGB patients. The study also clearly showed the necessity for using multivitamins after SG lifelong because of high percentages of the same deficiencies on the long term.

Oral Communications: Longterm Outcome

O-07 Is the rand-36 the best health-related quality of life questionnaire in bariatric surgery?
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**Background:** In bariatric surgery the RAND-36 (or SF-36) is the most frequently used health-related quality of life (HRQoL) questionnaire. However, it has never been validated in the bariatric population, which is a major limitation to its use in clinical trials and value based healthcare.

**Objectives:** To undertake a psychometric validation of the RAND-36 in a bariatric population.

**Methods:** Patients (n=2137) completed two HRQoL instruments, the RAND-36 (a generic questionnaire) and the IWQOL-lite (an obesity-specific questionnaire) preoperative, 15 and 24 months after RYGB surgery. Psychometric analyses included validity, reliability and responsiveness of the RAND-36. The Consensus-based Standards for the selection of health Measurement INstruments (COSMIN) checklist was used for design requirements and preferred statistical methods.

**Results:** Internal consistency, i.e. reliability, was good (Cronbach’s Alpha 0.86-0.89). Preoperative, the RAND-36 was better at discriminating between patients with or without comorbidities than discriminating between BMI<50 and BMI>50 (discriminative validity). Correlations with IWQOL-lite subscales measuring the same construct were high (≥0.50) and correlations with IWQOL-lite subscales measuring an unrelated construct was lower (convergent and divergent validity). For responsiveness, changes on the RAND-36 subscales were moderately correlated (<0.50) with changes on the IWQOL-lite subscales measuring the same construct. The change scores of the RAND-36 could not discriminate between subgroups (gender, age, BMI and comorbidities).

**Conclusion:** The RAND-36 showed good reliability and validity prebariatric surgery. The RAND-36 did not show adequate responsiveness, when assessing postoperative change. Thus, the RAND-36 may not be the most appropriate instrument to assess HRQoL in the postbariatric population.

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**O-08 Does preoperative target weight loss predict significant postoperative weight loss after laparoscopic Roux-En-Y (bypass)**

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**Background:** Achieving target preoperative weight loss is being encouraged as a precondition for surgery by some bariatric centers. Opinions are varied as to the significant impact of attaining this target with regards to postoperative weight loss outcome for different surgical options. The aim of this study is to determine what impact target preoperative weight loss has on postoperative weight loss for patients who underwent laparoscopic Roux-en-Y gastric bypass (RNYGB).

**Materials & Methods:** A longitudinal retrospective cohort study was carried out on patients who had RNYGB (n=104) from the authors' institution from 2008 to 2017. Patients were grouped in two cohorts based on meeting the 5% target preoperative weight loss or not. The correlation between preoperative weight loss/percentage Body Mass Index (% BMI) change and postoperative weight loss / % BMI change were studied at 1 and 2 to 3 years.

**Results:** Overall, 80.8% of these patients achieved the target weight and 19.2% did not.
At 1 year, patients who didn’t meet target (n= 14) had % PWL 26.4 ± 5.4 % versus 21.7 ± 8.6% (*p value <0.001*) for those who met 5% target PWL (n=71).

At 2 – 3 years, patients who didn’t meet target (n=8) had % PWL 17.3 ± 8.7%, versus 17.9 ± 9.6 %, (*p value <0.07*).

Percentage weight loss at 1 and 2 to 3 years showed no statistical difference between both cohorts of patients

**Conclusion:** Preoperative target weight loss should not serve as an exclusion factor for patients who are eligible for RNYGB as it does not have a positive correlation on the outcome of postoperative weight loss.

**O-09 Our Experience with Laparoscopic Greater Curvature Plication - Ten Years in a High Volume Bariatric Center**

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**Background:** Laparoscopic greater curvature plication (LGCP) is an appealing alternative to laparoscopic sleeve gastrectomy (LSG), due to lower costs and preservation of gastric integrity, especially for lower index BMIs (1).

**Objectives:** Long-term outcomes with LGCP are rare (1-3). We present our experience with LGCP over a ten-year period.

**Methods:** We retrospectively analyzed 174 patients (male 14: female 160) who underwent LGCP during 1/1/2009-31/12/2018. Follow-up occurred at 1 and 2 years post-operatively and in 1/2019, and we calculated BMI, excess BMI loss (%EBMIL) and total weight loss (%TWL).

**Results:** Loss to follow-up was documented in 23 patients at 1 year (13.2%) and in 62 more after 2 years (drop-off rate: 48.9%). Mean age was 37.5±8.7 years (range: 16-62). Mean baseline BMI was 39.7±4.6 (range: 29-59; BMI≥42: 45 patients). Bariatric outcomes are as follows– Mean BMI: 1 year 27.4±4.2; 2 years 29.2±6.0; 2018 31.6±6.9. Mean %EBMIL: 1 year 87.9±24.1; 2 years 76.4±36.4; 2018 58.4±39.7. Mean %TWL– 1 year 31.4±7.8; 2 years 26.8±11.4; 2018 19.9±13.3. ANOVA showed significant weight, BMI, %EBMIL and %TWL reduction initially (*p<0.00001*) and a slow but significant weight regain until 2018 (*p<0.00001* for all parameters). On comorbidities, 4 patients had T2DM (2.3%; resolution 25%, improvement 50%, escalation 25%), 8 had hypertension (4.6%; resolution 25%, improvement 75%) and 7 had OSA (4%; resolution 57.1%). Mean BAROS score was 7.3±2.5. We documented 3 re-operations (3.6%; 2 LSG, 1 re-LGCP) and 2 early leaks (1.1%) that were treated conservatively.

**Conclusions:** LGCP proved to be a safe (1.1% complication rate) and effective (EBMIL 58.4%, TWL 19.9%) bariatric option over a 10-year timeframe, with an excellent quality of life index. The vast majority of patients were women and patients who benefited the most were those who had a BMI up to 40.

**References**
O-10 Postoperative and chronic complications after single-anastomosis duodeno-ileal bypass with sleeve gastrectomy: SADI-S. A single institution experience
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Introduction: Obesity surgical treatment has included classical malabsorptive procedures like biliopancreatic diversion with duodenal switch (BPD-DS). Although a variant of the BPD-DS, called the single-anastomosis duodeno-ileal bypass with sleeve gastrectomy (SADI-S) has been recently been accepted by IFSO. SADI-S is consider a simplier variant of BPD-DS decreasing the number of anastomosis and surgical time. s. The aim of that paper is to present our single institution results regarding complications and their management.

Patients and method: A database analyse of our institution was performed including all cases of patients who underwent SADI-S. It includes a single duodenoileal anastomosis performed 250 or 300 cm from the ileocecal valve. Postoperative complications and long-term complications were reviewed for this study.

Results: Forty-five patients underwent a SADI-S procedure between 2010 and 2018. Thirty-two patients were women (71%) and age mean was 46 year (28-62 years). Preoperative Body Mass Index (BMI) mean was 40,8 Kg/m². Primary SADI-S (5 cases), SADI-S second step after SG (40 cases). Among them, 4 SADI-S were performed by robotic system. The mean operative time was 123 min (55–160). The median follow-up time was 37 months and mean BMI in the last follow up was 33,2 Kg/m². Main complications included: three cases of duodenoileal anastomosis leaks and 1 case of bleeding on which an embolization by endoscopy approach was performed. The anastomotic leaks cases were reoperated with resuture of the anastomatic defect (n=2) and conversion to Roux en Y gastric bypass (n=1). Nine (9) patients (4%) developed hypoalbuminemia (malabsorption) during follow up and required a revisional procedure with proximal anastomosis (duodeno-jejunal anastomosis). They were discharged without further complications and the mortality rate was 0%. Weight regain appeared in all patients with proximalization of the cases.

Conclusion: SADI-S is a potential good malabsorptive procedure that has been recently included by IFSO in the accepted procedures. Postoperative and long-term complications must be treated according to the situation of each patient.

References
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O-11 Impact of Biliopancreatic limb length (70 cm vs 120cm) on long-term weight loss, remission of comorbidities and supplementation needs after Roux-en-Y gastric bypass
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Background: The best Alimentary and Biliopancreatic limb (BPL) lengths in the Roux-en-Y gastric bypass (RYGB) still remain unclear. The aim of this study was to compare the effect of a BPL of 70 cm vs 120 cm, with a constant AL of 150cm on long-term weight loss, remission of comorbidities and supplementation needs after RYGB.

Patients and Methods: A prospective randomized study of morbidly obese patients undergoing RYGB was performed. Patients were randomized into 2 groups: those patients undergoing RYGB with a BPL of 70cm (BPL 70cm) and those ones undergoing RYGB with a BPL of 120 cm (BPL 120cm). BMI, excess BMI loss (EBMIL), remission of comorbidities and specific vitamin and mineral supplementation needs at 1, 2 and 5 years were analyzed.

Results: 253 patients were included in each group. There were no significant differences in BMI, EBMIL and the remission of Diabetes mellitus, Hypertension and Dyslipidemia between groups at 1, 2 and 5 years after surgery. Patients from group BPL 120cm required greater specific supplementation of vitamin B12, folic acid and vitamin A during all the follow-up.

Conclusion: A RYGB with 120cm BPL does not achieve greater weight loss or remission of comorbidities than a RYGB with 70cm BPL, but is associated with greater deficiencies of vitamin B12, vitamin A and folic acid.

O-12 Comorbidity resolution one year after bariatric surgery using the new ASMBS outcome reporting standards
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Background: One of the most important consequences of bariatric surgery is the improvement (or resolution) of obesity related comorbidities. The American Society for
Metabolic and Bariatric Surgery (ASMBS) recently published a guideline on how comorbidity outcomes should be defined and reported.

**Objective:** To study the effect of bariatric surgery on comorbidities using the ASMBS guideline.

**Methods:** Patients who underwent a primary bariatric procedure between November 2016 and May 2017 were included. Comorbid conditions, body weight and waist circumference (WC) were assessed before and 12 months after surgery.

**Results:** 385 Patients (73.6%) underwent RYGB and 138 patients (26.4%) SG. The SG group had higher baseline BMI (46.2 vs 42.5 kg/m², p<0.001) and WC (135 vs 129 cm, p < 0.001), 12-months TWL was lower in SG (28.1 vs. 32.2%, p<0.001).

Before surgery, 22.9% (n=120) had diabetes, 37.7% (n=197) hypertension, 25.4% (n=133) dyslipidemia, 19.5% (n=102) OSAS and 24.5% (n=128) gastroesophageal reflux disease (GERD). At 12-month follow-up, complete diabetes remission (HbA1c<6%, off medication) was reached in 71.2% of patients, partial remission (HbA1c6-6.4%, off medication) in 7.2% and improvement (reduction in HbA1c & medication) in 18.9%. Complete remission of hypertension was noted in 8.2% (normotensive, off medication), partial remission in 29.9% (prehypertensive, off medication) and improvement in 56.5% (decreased blood pressure & medication). The remission rate for dyslipidemia was 55.3% (normal lipid panel, off medication) and improvement rate 16.3% (decreased lipid values & medication). OSAS was improved in 81.2% (no complaints, off CPAP). For GERD 78.1% experienced complete resolution (no complaints, off medication). RYGB was associated with higher chance of remission in diabetes, dyslipidemia and GERD when compared to SG (p<0.05 in all).

**Conclusion:** This study shows positive remission rates of diabetes, hypertension, dyslipidemia and GERD using the new ASMB S outcome reporting standards in a primary bariatric population. Weight loss, diabetes, dyslipidemia, and GERD remission were higher in RYGB compared to SG.

**Oral Communications: Sleeve**

**O-13 Development of an international expert consensus curriculum for laparoscopic sleeve gastrectomy utilising Delphi methodology: preliminary results**  
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There has been an exponential increase in the volume of bariatric surgery being performed worldwide. Regionally over 80% of all bariatric procedures are laparoscopic sleeve gastrectomies. Despite this, to-date there has not been an agreed curriculum of objective requirements outlined for general surgeons or trainees upskilling in the subspecialty. We present the initial results of an international consensus curriculum utilising Delphi panel methodology pertaining to the performance of laparoscopic sleeve gastrectomy procedures.

An advisory group of surgeons and educational academics was convened to inform the curricular elements of cognitive content, technical skills and non-technical items. From this a
culturally diverse, internationally representative cohort of expert bariatric surgeons were invited to participate. Each rated the items on a Likert scale for inclusion within the final curriculum. Panel consensus was pre-defined as a Cronbach-alpha of >0.7. Utilising Delphi panel methodology an expert consensus of the most important components of the operation were derived and summarised into a surgical curriculum. Consensus was reached for each of the cognitive, technical and non-technical domains.

We present the initial results of this consensus curriculum for sleeve gastrectomy training. This is an important step towards a defined objective standard for training and assessment purposes, applicable on a global scale.

**Acknowledgement:** We acknowledge the assistance of the following: Dr Raul Rosenthal, Dr Kelvin Higa, Dr Michel Gagner, Professor Teodor Grantcharov, Professor Ric Satava

**O-14 Laparoscopic sleeve gastrectomy follow-up: use of connected devices in the postoperative period**

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**Background:** During the last decade, laparoscopic sleeve gastrectomy (LSG) has become the most performed bariatric procedure worldwide.

**Objectives:** The aim of this study was to evaluate the feasibility of the use of connected devices in monitoring patients operated by laparoscopic sleeve gastrectomy (LSG) and discharged 24 hours after surgery under the ERAS protocol.

**Setting:** Private Hospital, France.

**Methods:** This is a prospective pilot study designed to assess the risk and benefit of using connected devices in the postoperative follow-up of patients operated by LSG. Patients operated on with LSG were discharged 24 hours after surgery, and vital signs such as blood pressure, heart rate, SpO2 and temperature were monitored via connected devices with data sent to an internet platform to make them immediately viewable by the surgeon.

**Results:** The study population consisted of 72 females and 18 males. The mean BMI was 43.4 kg/m² and the mean age was 39.6 years. Two patients were re-operated on for bleeding and consequently were excluded from the study. At postoperative day 8, one patient presented with tachycardia, fever, and mild abdominal discomfort. After the alert was received from the internet platform, the patient was immediately contacted, admitted to the ward, and promptly re-operated on. At one year after the surgery, the mean %EWL and TWL were 68.1 ±18.1% and 36 ±9.8 kg, respectively. For the patients not available for follow-up at the one year control, weight loss data were extrapolated from the internet platform. Globally 92% of patients felt safe when they returned home, and 92% of patients would recommend this way of managing the postoperative period.

**Conclusion:** In conclusion, this study shows that the early postoperative follow-up to an intervention such as LSG can be done at the patient's home under the monitoring of connected devices without a risk of increase in the rate of complications and re-hospitalization. The role of the connected devices in the long-term postoperative follow-up seems promising.
References


Obesity Surgical Center

Satisfaction Questionnaire

Dear patient
You received an innovative type of medical care during your postoperative period. In order to evaluate and improve our practice, we would be grateful if you could take a few minutes to answer this survey.

Your Hospitalization
1. You have been informed about the development of your care before the intervention. Would you say that the information was:

2. In general, would you say that the management of the pain was:

3. In general, would you say that the management of nausea was:

4. What did you think about the mobilization from the day of the surgery?
5. How do you rate (assess) the information received concerning the exit instructions?

Your Return Home
1. What is your judgment on the first day at home?
2. How do you assess the organization set up for your return home (connected tools, visit of the nurse, platform)?
3. Did you feel safe once you came back home?
4. Would you say that your first 2 nights at home were:
5. The possibility of contacting the medical staff via the internet platform has given you more tranquility:

About the Postoperative Follow-up
1. Would you say that the care you received was:
2. How do you feel about being involved in your recovery?
3. Would you recommend this postoperative management to one of your relatives?
4. Have you found the use of connected devices difficult?
5. Do you think this way of following patients after surgery is valid?
O-15 Does preoperative target weight loss predict significant postoperative weight loss after laparoscopic sleeve gastrectomy
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**Background:** Some bariatric practices have adopted target preoperative weight loss (PWL) before offering surgery. There are varied opinions on the correlation between preoperative and postoperative weight loss for different surgical options. This study investigated the impact of target PWL on postoperative weight loss for patients who underwent laparoscopic sleeve gastrectomy (LSG).

**Materials & Methods:** A longitudinal retrospective cohort study was carried out on patients who had documented preoperative weight before LSG (n=155) from the authors' institution from 2008 to 2017. Patients were grouped in two cohorts based on meeting the 5% target PWL or not. The endpoint included percent postoperative weight loss (% PWL) and body mass index (% BMI) at 1 and 2 to 3 years.

**Results:** Overall, 78.7% of patients (n=122) achieved the % PWL while 21.3% (n=33) did not. At 1 year, patients who didn't meet target had % PWL 22.3 ± 8.1% versus 19.4 ± 11.8% for those who met 5% target PWL (n=92) (p value <0.001).

At 2 – 3 years, patients who didn’t meet target (n=21) had % PWL 14.7 ± 10.7% versus 16.3 ± 14.4% in those who met the 5% WL target (p value < 0.001).

**Discussion:** Percentage of BMI loss at 1 and 2-3 years showed no statistical difference between both cohorts. Percentage change in BMI from initial appointment to surgery did not correlate with significant change in % postoperative BMI at 1 year and 2-3 years.

**Conclusion:** Meeting target preoperative weight loss does not significantly impact on postoperative weight loss / BMI change after LSG. Therefore, it should not serve as exclusion criteria for eligible patients.

O-16 Correlation of the resected gastric volume with sleeve gastrectomy patients’ demographic data and weight loss results at 6 and 12 months
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**Introduction:** Literature correlated the resected gastric volume post sleeve gastrectomy (LSG) with the patients’ demographics, however this was based on limited number of patients and no correlations with the length and width of the specimen (1-3).

**Objective:** Correlate the resected stomach measurements with the patients’ age, gender, height, weight and BMI. Correlate the resected stomach measurements with weight loss at 6 and 12 months.

**Methods:** Retrospective review of LSG patients in Hamad general hospital between January 2014 to September 2017.
Results: Resected gastric specimens of 1189 patients have been studied. Patients’ mean age was 30.4 ±11.1 years and BMI were 44.5 ± 6.9 kg/m². Females were 62%. The mean length and width of the resected gastric specimens were 19±4.1 and 3.6± 0.9 cm, respectively. Mean volume was 284.6 ± 184.7 cm³ (95%CI: 274 – 295.1). Analysis showed patients’ height and male gender (R² = 0.06) positively correlated with the width of resected stomach (P<0.05). The age, male gender and height had positive correlation with the resected gastric volume. The length of the resected specimen had positive correlation with the patients’ age, height and BMI (P<0.05). At 12 months, patients’ BMI was 30.2 ±5.5 kg/m² and 78% follow up rate. The length and width of the resected specimen didn’t correlate with weight loss at 6 months. However, the EWL% at 12 months had positive and negative correlations with width and length of the resected specimen, respectively. The resected gastric volume didn’t affect weight loss results at 6 and 12 months.

Conclusion: Patients’ height and male gender correlated with wider gastric specimens. Patients’ age, height and BMI positively correlated with the length of the resected specimen while age, male gender and height of the patients correlated positively with the volume. The wider and shorter the resected specimen, the higher the resultant EWL% at 12 months. The resected gastric volume didn’t impact weight loss results at 6 and 12 months.

References


Acknowledgement: Great thanks to our data analyst, Mr. Arnel Alviz for his help in data collection.

O-17 Laparoscopic sleeve gastrectomy (SG) is gaining acceptance among bariatric surgeons as a viable option for treating morbidly obese patients
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Background: We describe the results of a single center's experience with SG, revealing a low complication rate.

Objectives: The aim of the study was to analyze the short-term results of laparoscopic SG using exclusively black staples with staple-line reinforcement. SETTINGS: University hospital, tertiary referral center for bariatric surgery.

Methods: SG was performed in 434 consecutive patients from December 2014 to March 2017. A technique is described where all operations were performed with attention to avoiding strictures at the incisura angularis and not stapling near the esophagus at the angle of His. All the interventions were performed using black cartridges and staple-line reinforcement using bioabsorbable Seamguard. A prospective chart review was conducted to determine the occurrence of early complications.
Results: Follow-up data were collected for all patients at 90 days postoperatively. A total complication rate of 4.4% was observed. No leaks occurred in any of the patients. One case of bleeding occurred that necessitated a surgical exploration, which found the origin of the bleeding to be a diaphragmatic vessel. The 90-day mortality rate was 0%.

Conclusion: SG can be performed with a low complication rate. Selection of the appropriate staple height and reinforcement of the staple line could play a major role in optimizing the results of SG.

Novel techniques: are they filling the gap between conservative treatment with metabolic surgery?

O-19 Results of Laparoscopic Sleeve Gastrectomy in patients with preoperative BMI less than 35 kg/m2
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Introduction: Although there is a clear tendency to extend indications for bariatric/metabolic surgery last years there is not enough data about long-term results of operations in patients with preoperative BMI less than 35, especially in those whose BMI never exceed this level. However there are more pts who refer for surgery with BMI < 35 including pts with DM2 and eating disorders like Bulimia Nervosa. The indications for surgery in this group of pts is controversial if not doubtful. We aimed to assess results of Sleeve Gastrectomy (SG) in pts whose preoperative BMI was < 35.

Material and Methods: Since June 2006 to July 2018 88 pts (female/male ratio 82/6) aged 23-58 with preoperative BMI <35 underwent Laparoscopic SG. Revisional cases were excluded from this statistics. 5 pts had DM2, in 4 pts signs of Bulimia Nervosa (purging behavior) were presented. In 16 pts preop BMI was <30, in 72- in between 30-34,9 kg/m2 (average body mass - 89,1 kg; BMI-31,75 ± 2,9 kg/m2). Similar technique of SG with manual sero-serous covering stutures was used in all pts. We evaluated weight loss parameters, complications and side-effects. Follow-up rate is 84,1%.

Results: Maximal EWL achieved was 100% at 1 year, and 80-81% at 5-7 years of observation. Early complication – 1/88 – 1,1% (perigastric abscess; lap. Drainage). Mortality-0. Late problems: Reflux-esophagitis- 10,2%, known cases of Cholelithiasis-2,2%, EWL <50% after 3 years – 4/53 (7,5%). Two late revisions to improve results: added SADI-1, Cardioplast plant placement – 1. Patients with Bulimia Nervosa and with DM2 were also satisfied with results.

Conclusions: Pts with preoperative BMI < 35 undergoing SG demonstrated excellent short- and long-term weight loss, low complication rate, positive psychological changes. Such pts can be considered as candidates for SG after several unsuccessful attempts of conservative treatment and appropriate psychiatric examination.
Oral Communications: Gastric Bypass

O-20 Diabetic control outcomes amongst patients who had bariatric surgery
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Objective: To determine the remission of Type II diabetes mellitus (T2DM) amongst patients who had laparoscopic Roux-en-Y gastric bypass (RYGB) and laparoscopic sleeve gastrectomy (LSG).

Methods: A retrospective analysis of prospective data of 82 T2DM patients who had above bariatric surgeries at the University Hospital, Ayr from 2009 to 2016. Outcomes were assessed two years post-surgery.

Main outcomes & Measures: Primary outcome measures were partial and complete T2DM remission. Secondary measures included modifications in diabetic medications and weight change.

Results: The average age of patients in this study was 49.6±8.1 years with 59.8% female and 40.2% male. Preoperative BMI averaged at 47.6±7.6 kg/m^2. Expectedly, the majority (n= 43, 52.4%) had gastric bypass while 47.6% (n=39) had sleeve gastrectomy. Average preoperative HbA1c was 6.7±1.8. Partial or complete remission was achieved by 73.5% (n=50) of our cases; 60% (n=30) had RYGB and 40% (n=20) had LSG. The average age of patients who achieved remission was 48.8±7.6 years with duration (years) of diabetes at 5.4±4.5 and average preoperative BMI of 47.0±7.6 Kg/m^2.

A total of 18 (26.5%) patients amongst whom 13 had LSG (72.2%) and 5 RYGB (27.8 %) showed no significant improvement still requiring pharmacological management 2 years post-surgery. The average age (years), duration of diabetes (years) and BMI(kg/m^2) in this group were 52.6±6.4, 11.3±5.5 and 46.8±8.7 respectively. Fourteen (14) of all the patients in the study were not on pharmacological management.

Conclusion: Bariatric surgery is an effective therapy for T2DM with better remission rates amongst RYGB compared to LSG. Preoperative BMI does not have any impact on diabetes remission while increased age and longer duration of diabetes are associated with poorer outcomes. To enhance better and timely remission rates, early bariatric surgery should be considered in obese T2DM patients.

O-21 Can absorbable suture be effectively and safely used to close the mesenteric defect?
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Background: To observe if absorbable suture can effectively and safely be used to close the mesenteric defect after Roux-en-Y reconstruction.

Methods: Rats were randomly assigned to 5 experimental groups according to different suture materials used in closing the mesenteric defects (Peterson’s pace) after Roux-en-Y gastric bypass. The roux-limb mesenteric defect (Peterson’s space, Figure.1) in group B, C
D and E were closed using 4-0 non-absorbable suture (Prolene silk suture, Ethicon Polypropylene), biological glue (Compone Beijing), 4-0 non-absorbable suture (Ethicon, Polyester suture) and 4-0 absorbable suture (Covidien Polysorb) respectively. Peterson’s space of the group A was left unclosed as control group. All rats were followed up for 8 weeks postoperatively and underwent laparotomy to observe the degree of adhesion and closure of the mesenteric defect.

Results: No significant difference was found in the decrease in food intake and body weight among all groups. No internal hernia (IH) occurred in any group. The mesenteric defects of Group A remained completely visible without any closure or adhesion. Multiple gaps were found between Prolene suture and the mesentery along the suture line in Group B. The mesenteric defects of Group C were complete closed with multiple adhesions of the small intestine and the greater omentum. The mesenteric defects had closed completely in both Group D and Group E (Figure 2). Average adhesion score of Group A and Group B was 0 and 0.33±0.52 respectively. Average adhesion score was higher in group C (3.83±0.41) than the other groups (p<0.05). Group D and E had similar average adhesion score, 3.17±0.41 and 3.00±0.00 respectively.

Conclusion: Absorbable suture can be effectively and safely used to close mesenteric defect.
O-22 Management of anastomotic ulcers after One Anastomosis Gastric Bypass
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Introduction: However Roux-en-Y Gastric Bypass (RYGB) is still considered a gold standard in the management of morbid obesity, One Anastomosis Gastric Bypass (OAGB) represents a save, efficient and sustainable option. Anastomotic ulcer (AU) is one of the most common complications after gastric bypass. The incidence rates of AU after RYGB varies between 0.6 and 16%. However the incidence of AU after OAGB is still unknown.

The aim of the study was to evaluate the incidence of AU after OAGB and to describe its presenting features in a large patient series from a tertiary care bariatric center.

Methods: Our study was conducted between 2006 and 2016 at the George Pompidou European Hospital. Demographic and clinical data were all prospectively collected during the preoperative evaluations.

Results: 992 obese patients underwent a OAGB. Twenty-five patients (2.5%) developed an AU during the follow-up period. Median follow-up was 58 month [6; 116]. Median age was 44.3 years [23; 64]. Median BMI was 45.7 kg/m² [36.2; 55.5].

Patients with AU were statistically more frequent diabetics than those without AU (p=0.005).

The most common presenting symptoms of anastomotic ulcers were epigastric pain (63%), hematemesis (28%), anemia (12%).

Helicobacter pylori was found in 20% of patients with AU (20%).

28% of patients with AU were smokers.

The median period between surgery and presentation with AU was at 26,9 month.

A conservative management was possible in 17 patients (68%), with proton pump inhibitors. A surgical management was necessary in 4 patients (16%). Three patients presented with perforated AU and needed an emergency surgery; a laparotomy was performed and the treatment consisted in an intubation by a T-tube of the anastomotic perforation. A reoperation with conversion of the OAGB in a RYGB was necessary in 3 patients (12%). One patient was managed by upper endoscopy.

Conclusion: Our incidence rate of AU after OAGB was 2,5%. Helicobacter pylori was found in 20% of patients with AU (20%). 28% of patients with AU were smokers.

References

O-23 Surgical Therapy of Weight Regain Following Roux-en-Y Gastric Bypass

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Background: Roux-en-Y Gastric Bypass (RYGB) is a well-established surgical method for treating morbid obesity, however, weight regain (WR) or insufficient weight loss after initially good results may be considered an issue after this procedure. A consensus has not been found as to how to treat WR after RYGB. Studies on the different methods to do so are mostly based on small patient numbers.

Objectives: The aim of this study was to compare the different surgical methods treating WR after RYGB that are used at the Vienna Medical University (MUW) in a larger number of patients, in terms of further weight loss, complications, and re-operations.

Setting: University hospital setting, Austria

Methods: This study includes all patients with RYGB who were re-operated due to WR at the MUW by December 2016 (n=84). The follow-up rate of this study was 93% with a minimal follow-up period of one year and a median follow-up of 43 months after the WR procedure. Four different approaches to treating WR after RYGB were taken: (1) pouch resizing, (2) pouch banding, (3) pouch resizing combined with pouch banding, and (4) shortening of the common limb (i.e. distalization).

Results: The mean maximum Excess Weight Loss (%EWL) referring to the WR procedure in the four groups was as follows: group 1: 82.6% ±33.5, group 2: 62.8% ±39.5, group 3: 84.4% ±56.6, and group 4: 90.0% ±41.0. Re-operations in the different groups: group 1 had two balloon dilatations (20%), group 2 (n=13) and group 3 (n=29) had five (38% and 17%) band removals each, and group 4 had nine reversal procedures due to malnutrition (30%).

Conclusions: There are non-significant differences in terms of additional weight loss between the different methods. However, differences lay in the areas of adverse symptoms and further re-operations. While there is no risk of malnutrition with pouch resizing, there is with distalization/common limb shortening. Pouch banding (+/- resizing) poses a higher risk of dysphagia.

O-24 Robotic assisted Roux-en-Y gastric bypass: technology and learning evolution

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Introduction: This is a descriptive study looking at the short-term outcomes and technical differences between laparoscopic Roux-en-Y gastric bypass (LRNY) and robotic-assisted Roux-en-Y gastric bypass (RARNY).

Methods: Our database was reviewed for all our Robotic-assisted Roux-en-Y gastric bypass procedures performed over the last 7 years. Operative times, length of stay, and all complications listed for the 90 days postoperatively were recorded and statistically analyzed.

Result: A total of 201 RARNY were performed. The average BMI was 43 Kg/m² (30-52), the average age was 45 years (20-62), and 129 women. Of the comorbidities, 87 patients (46%) had DMT2, 84 (40%) HTA and 68 (44%) OSAS. A RARNY was performed according to a usual technique with all the staplers disposed in the working trocar. There were a total of 21 major and minor complications (16%), including surgical site infection (1.6%), intra (0.8%) and extraluminal (1.6%) hemorrhage, reservoir and anastomosis leakage (8.1%), iatrogenic perforation (0.8%) and incisional hernia (2.4%). The small significant data of the complication rate were leakage of the gastric reservoir in its upper part (n = 7): and of the gastrojejunostomy (n=4). The median length of stay was 2 days (range: 2-90).

Discussion: In our experience, the RARNY requires standardization and knowledge of technology. The creation of the gastric reservoir in its apical part has been a problem due to the distance of the trocar to the apical part and a long endpoint stapler is mandatory to avoid traction of the tissue on the endograft and poor preparation of the reservoir. Possibly this justifies the high rate of leakage in that area, including 5 surgeons learning curve.

Conclusion: Robotic surgery and other technologies can benefit cases of high complexity and calibration of the anastomosis although further studies in this regard are required. The learning curve of the technology must have an agreement with an absolute standardization, not necessarily exportable of the laparoscopic technique. Technology, like all of them, needs to be known and updated.

O-25 Robotic bariatric surgery: what future?
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Introduction: We started our robotic bariatric program on January 2014. The success encountered, the increasing activity generated encouraged going further. We looked upon as an alternative to laparoscopy and even as a replacement technique. It palliated the weakness of laparoscopy, providing an accurate three-dimensional view, allowing complex maneuvers while maintaining full control of the theater. We report our experience at the Orleans Hospital during Roux-in-Y gastric bypass, to demonstrate its safety and feasibility on routine basis.

Materials and Methods: Our single-center study retrospectively identified obese patients who underwent robot-assisted gastric bypass procedures since the beginning of our experience in 2014. We established a path to get started with. And defined the conditions for a successful program. We diagnosed the difficulties occurring in comparison with the onset of laparoscopy. We standardized a full robotic technique, making it safe, reproducible as a routine procedure. We defined its advantages. We exposed the impulse it gave us and its wide impact on our overall patient care, (Patients walking to the O.R., interaction with the surgical
team…) We developed opioid free anesthetic protocols and a post-operative Fast Rehabilitation program allowing reduction in hospital stay.

**Results:** 400 procedures were identified. The number of annual robotic cases grew with time. Young patients were demanding for this new technology. High BMI patient were more likely operated robotically. Operative time decreased in line with increasing skills, allowing performing routinely four robotic by-pass procedures on a day by the same surgeon.

The conversion rate to laparotomy was 1%. Morbidity was generally low, (hemorrhages 2.5%; anastomotic fistulas 0.5%). Statistically, results seem to favor robotic assistance. No mortality was observed.

**Conclusion:** Robotic gastric bypass is safe, feasible, reproducible and, within the reach. Its results are comparable to laparoscopy. Surgery is facilitated in higher BMI patients. It is cost-effective under certain conditions. We believe it to be the future. Randomized, prospective studies are necessary to support our results.

**Key words:** Gastric bypass surgery; laparoscopy; obesity; robot-assisted surgery.

**References**


Predictors of outcome for sleeve and bypass: SLEEVEPASS & SM-BOSS data merged

O-26 Quality of life after sleeve gastrectomy equal to gastric bypass
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Background:Sleeve gastrectomy (SG) is the most popular type of bariatric surgery. Complication-rate, weight loss and effect on comorbidities have been frequently studied and show promising results compared to Roux-en-Y gastric bypass (RYGB). Health related quality of life (HRQoL) is also one of the key outcomes after bariatric surgery, but has been sparsely studied after SG.

Objective: To study the change in HRQoL after SG using an obesity specific and a generic HRQoL questionnaire and compare this with RYGB.
Methods: Patients were included when they had undergone a primary SG or RYGB in 2012 or 2013. HRQoL and weight were assessed at baseline (before surgery) and 15 and 24 months after surgery. HRQoL was evaluated using the RAND-36 (generic) and Impact of Weight on Quality of Life – Lite, IWQOL-Lite (obesity-specific). Physical and mental health scores (PHS, MHS) were calculated for RAND-36 and total score for IWQOL-lite. A mixed model analysis was conducted to study the change in HRQoL and compare SG with RYGB.

Results: A total of 369 SG patients and 2,137 RYGB patients were included. Baseline BMI was 47.7 kg/m² in SG patients, and 44.6 kg/m² in RYGB patients (p<0.001). Percentage Total Weight Loss (%TWL) at 15-month follow-up was 30.6% in SG compared to 31.1% in RYGB (p=0.333); at 24 months this was 30.2% versus 31.3% (p=0.121). PHS, MHS and total IWQOL-lite scores significantly improved from baseline to 15-month and 24-month follow-up in all patients (p<0.001 in all). Surgery type did not significantly influence improvement in PHS (β 0.48, p=0.563), MHS (β 0.58, p=0.497) and total IWQOL-Lite scores (β 0.58, p=0.617).

Conclusion: HRQoL significantly improves after SG and RYGB. The extent to which HRQoL improves does not differ between SG and RYGB when measured with the RAND-36 or IWQOL-lite. This might be partly caused by the fact that these questionnaires do not assess specific bariatric HRQoL and/or complaints, like gastroesophageal reflux, dumping and bowel movements.

O-27 Evolution of liver steatosis quantified by mr imaging and MR spectroscopy, in morbidly obese patients undergoing sleeve gastrectomy and Roux-En-Y gastric bypass
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Background: Currently, the standard procedure used to evaluate hepatic steatosis is the liver biopsy. This is an invasive practice that presents inherent risks. Increasing evidence suggests that magnetic resonance imaging (MRI) and MR spectroscopy (MRS) may represent an accurate method to determine the hepatic lipid content. The aim of this study was to evaluate the effect of sleeve gastrectomy and Roux-en-Y gastric bypass on liver steatosis, quantified by MRI and MRS.

Patients and Methods: A case-match study of patients undergoing sleeve gastrectomy (SG) and Roux-en-Y gastric bypass (RYGB) was performed. All patients underwent a MRI and a MRS study 2 weeks before the intervention and 6 months after the surgery. Anthropometric and radiological parameters were analyzed.

Results: 42 females were included, 21 in each group, with a mean age of 47.6 ± 10.6 years and mean preop BMI 47.6 ± 6.7 Kg/m2. There were no significant differences between groups. Six months after surgery, mean BMI was 32.2 ± 5.1 Kg/m2 with a mean excess BMI loss of 68.2 ± 18.6%, in SG and 31.7 ± 4.9 Kg/m2 with a mean excess BMI loss of 69.3 ± 17.7% in RYGB (NS).

Mean preoperative percentage of lipid content was 14.2 ± 15.4% and 6 months after surgery, it decreased to 4.3 ± 3.2% (p = 0.007) in SG. In RYGB, mean preoperative percentage of lipid content was 13.3 ± 10.4% and 6 months after surgery, it decreased to 3.5 ± 2.6% (p = 0.011).
Intergroup analysis showed a mean reduction of percentage of lipid content of 9.9 ± 6.3% in SG and 9.8 ± 5.9% in RYGB.

**Conclusion:** Six months after surgery, a significant reduction of liver steatosis is observed after SG and RYGB, as demonstrated by reduction in the percentage of intrahepatocitary lipids, determined by MRS and MRI. Significant differences in the reduction of liver steatosis could not be observed between techniques.

**O-29 Mid-term results of revisional bariatric surgery post sleeve gastrectomy: resleeve vs. bypass**

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**Introduction:** Bariatric surgery has been shown to produce the most predictable weight loss results, with laparoscopic sleeve gastrectomy (LSG) being the most performed procedure as of 2014. However, inadequate weight-loss may present the need for a revisional procedure. The aim of this study is to compare the efficacy of laparoscopic re-sleeve gastrectomy (LRSG), laparoscopic Roux-en-Y gastric bypass (LRYGB) and gastric mini-bypass surgery (OAGBP) in attaining successful weight loss following initial LSG.

**Methods:** A retrospective analysis was performed on all patients who underwent LSG at Amiri and Royale Hayat Hospital, Kuwait from 2008-2017. A list was obtained of those who underwent revisional bariatric surgery after initial LSG, and their demographics were analyzed.

**Results:** A total of 107 patients underwent revisional bariatric surgery, of which 38.3% underwent LRYGB, 34.6% underwent LRSG, and 27.1% underwent OAGBP. 85% of the patients were female. The mean weight and BMI prior to LSG for the LRSG, LRYGB and OAGBP patients were 137.1Kg and 49.9Kg/m², 135.2Kg and 50.5Kg/m², and 127.5Kg and 49.0Kg/m² respectively. The mean BMI showed a drop from 42.03 to 31.7(p=0.000) 1-year post revisional surgery for the LRSG group, 42.7 to 34.7 (p=0.000) for the LRYGB group, and from 42.4 to 32.2 in the OAGBP group, correlating to an excess weight loss (EWL) of 62.1%, 47.18% and 58.9% respectively. At 2 years post-revisional, LRSG patients showed an increase in BMI to 32.85 (EWL=57.11%), while those that underwent LRYGB continued to show a decrease to 30.83 (EWL=67.16%)

**Conclusion:** Revisional bariatric surgery is a safe and effective method for the management of failed primary LSG. Revisional bariatric surgery has also shown to help with the management of comorbidities associated with obesity.

**Controversies in bariatric surgery**

**O-30 Conversion of adjustable gastric banding to adjustable banded Roux-en-Y gastric bypass: should we leave the band in place?**

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Objective: Laparoscopic adjustable gastric banding (LAGB) is rapidly becoming a deprecated bariatric procedure due to disappointing weight loss results and a high rate of band intolerance. Conversion to Roux-en-Y gastric bypass is a common revisional procedure after failed LAGB. The aim of this study was to evaluate the feasibility, safety and risk profile of conversion to adjustable banded Roux-en-Y gastric bypass (ABRYGB), leaving the band in place.

Methods: A retrospective patient file review of all consecutive laparoscopic conversions of LAGB to ABRYGB 2008-2017. Pre/perioperative data, weight change and long/short-term complications were retrieved.

Results: Study population 98 patients. Mean BMI before revision was 40.22. Most revisional procedures were performed for band intolerance and/or weight regain or weight loss failure (excess weight loss never reaching 50%). All procedures were performed laparoscopically, with no conversions. Mean operation time was 139 minutes (49-300). “Greve-plication” (gastric fundus and antrum sutured below the band) was the most often used plication type (77/98). Mean length of stay was 2.35 days (1-14). During follow-up, 15 bands had to be removed due to one of the following reasons: infection, anastomotic leakage, anastomotic peptic perforation, adhesions around the anastomosis, internal hernia around the tubing, adhesions to the tubing, tubing failure and erosion of the band. Three of those bands were replaced with a non-adjustable silastic (Minimizer) ring. In total, issues with tubing were found in 20 revisional procedures after conversion to ABRYGB. Seven revisional procedures had to be performed for symptomatic internal hernias not related to the tubing and incidental internal hernias were found in another 7 revisional procedures.

Conclusion: Although conversion of LAGB to ABRYGB is technically feasible, initially well-tolerated and has good results concerning weight loss, the number of additional revisional procedures during follow-up is rather high, suggesting that a non-adjustable band should be preferred.
Materials and Methods: Six patients with at least a 15% weight regain in the presence of an enlarged gastrojejunostomy > 30 mm were enrolled. The preoperative work up involves a routine blood test, an upper GI x-ray with contrast and an upper endoscopy. The device can be mounted on a regular, single channel gastroscope, with a soft overtube. Under general anesthesia with oro-tracheal intubation, all cases were successfully completed endoscopically.

Results: A total of 6 consecutive patients (all women) were included. The mean patient age was 49 years (range 24-67). The average interval between gastric bypass and BARS procedure was 8 years (range 4-13). Patients’ mean weight regain was 18.7 kg (range 1-40), with a mean BMI of 38.8 kg/m² (range 36.4-42.6) at the time of BARS. Our very preliminary results show a mean weight loss of 6 kg (range 4-9) and a mean loss of 1.8 points of BMI at a 3-months follow-up.

Conclusion: BARS could be a promising mini-invasive system in case of weight regain due to enlargement of the anastomosis. Longer follow up will be necessary to evaluate the efficacy of the procedure.

O-32 One Anastomosis Gastric Bypass – an attractive candidate for revisionary surgery following a failed primary bariatric procedure
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Israel

Bariatric revision surgeries have a meaningful corrective potential in cases of complications or weight-regain, however, they are considered to hold substantial risks. The One Anastomosis Gastric Bypass (OAGB) is a considerably-improved surgical option for revision. We report the results of a retrospective analysis of OAGB as a revisionary procedure in 329 patients who primarily underwent Laparoscopic Adjustable Gastric Banding (n=216), Sleeve Gastrectomy (n=77), Silastic Ring Vertical Gastroplasty (n=19) or were in need of surgical intervention following two previous failed procedures (n=17). Patient data were obtained at the day of OAGB surgery (baseline) and at 5 follow-up (FU) time-points between ≤ 6 months and ≥ 36 months postoperative. Body mass index (BMI) and complications were specifically targeted for analysis.

At Baseline, the groups were similar in age (44.19 years ±11.12) and gender distribution (70.5% females). Most of the patients presented with one background disease or less. The most prevalent background diseases were hyperlipidemia (21.3%), hypertension (19.8%), fatty liver (18.5%) and type 2 diabetes mellitus (10.3%). Owing to the similarities between the groups, results are reported for the pooled study population.

The BMI significantly decreased at all FU time-points as compared to baseline. The average BMI reduction was 5.63 kg/m² at the first FU (≤6 months) and reached 12.34 kg/m² at the fifth FU (≥36 months). A significant correlation between the BMI at baseline and the BMI decrease measured during the FU period was found for all evaluations, indicating that patients who initially started with higher BMI, tended to benefit more from the revisionary procedure. The average length of hospitalization following the OAGB was unremarkable (2.66 days ±1.05). Only 3% of patients reported complications following the OAGB surgery. These included drip (1.5%), bleeding (0.9%), internal hernia (0.3%) and hematoma (0.3%). Complications were more prevalent among patients with baseline BMI≤35 kg/m² (5.7%) than among patients with BMI>35 (2.5%).

Taken together, these results suggest that OAGB is an effective and safe option for patients in need of revisionary surgery.
The role of metabolic surgery in nonalcoholic fatty liver disease treatment
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Nonalcoholic fatty liver disease (NAFLD) represents the most common liver disease and it is expected to become the leading cause of end stage liver disease and need for transplantation in the near future. Bariatric operations have beneficial effects on NAFLD, inducing histological resolution of liver damage through weight loss dependent and weight loss independent mechanisms. The purpose of this review is to provide an update on the ongoing research regarding the role of metabolic surgery in NAFLD management.

There are no high quality randomized controlled trials available so far regarding the efficacy of metabolic surgery on NAFLD and the existing studies are characterized by significant heterogeneity. Most importantly not all studies have incorporated paired biopsies in their protocols. Data from these studies suggest that bariatric operations are safe, even in patients with compensated cirrhosis, effective in NAFLD resolution and last but not least cost-effective. Interestingly, beneficial effects are to be expected even when advanced fibrosis is present. Moreover genotype stratification regarding PNPLA3 polymorphism could assist the selection of NAFLD patients who will benefit most from surgery.

Data regarding the choice of procedure are conflicting, although gastric bypass seems to be slightly superior to sleeve gastrectomy. Adjustable gastric banding being a purely restrictive operation cannot be regarded as metabolic procedure and should not represent a choice in NAFLD management.

In conclusion, no specific guidelines have been established to date regarding metabolic surgery for NAFLD. Yet there is growing evidence that NAFLD will eventually become a formal indication for metabolic surgery, much like diabetes. The ongoing NASHSURG trial which will be completed in 2023 is expected to shed light on this question. Until then, the decision for surgical treatment in these patients should be taken in a case by case basis.

Oral Communications: Novel endoscopic techniques

Intragastric balloons – underestimated method of preoperative preparation for high-risk bariatric patients
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Objection: There is a significant proportion of high-risk bariatric patients who need preoperative preparation (severe sleep apnea with hypoventillation, cardiac insufficiency, extremely high weight with abdominal type of obesity, high anaesthesiological risk by Mallampati etc). Preoperative weight loss is mandatory for some of them but frequently is not achievable by lifestyle modification. Intragastric balloons can be a solution but, unfortunately, is not routinely used in world bariatric practice. Experience of preoperative balloon treatment for high–risk bariatric patients since the year 2001 is presented.

Material and methods: In 125 high-risk patients (age 42.5±10.7 years; male/female – 75:50; initial weight – 188.3±29.8 kg; initial BMI 62.7±8.7 kg/m2) intragastric balloons were placed
in order to prepare them for main operation. 92 of them had consequent surgery mainly without preliminary balloon removal (various modifications of BPD – 77, Sleeve’s – 13, other-2). Both liquid and air-filled balloons were used.

**Results:** Preoperative weight loss after balloon treatment was 16,0 +11,6 kg (14,2±9,6 % EWL; BMI units- 6,2 kg/m2 ). Complications of balloon treatment were occurred in 7,2 % (ulcers-3, balloon deflations -5, intolerance -1, acute renal failure-1). Preterm removal was done in 2 cases. Among consequently operated 92 patients 30-day mortality was zero, complication rate in total group was 5,4% (BPD/DS- 9,6% in 52 pts, SADI-0% in 22 pts; Sleeve -0% in 13 pts). In many cases gastric siapling in the antral part of the stomach was challenging (misstapling), additional manual sutures were necessary

**Conclusions:** Currently preoperative preparation is a main indication for balloon treatment. In 70% of our patients treatment by intragastric balloons was effective to reduce operative and anaestesiological risk. Balloon treatment can be more widely used to prepare of high-risk patients for main surgery. Operations with balloon in place are technically more challenging but can be done with acceptable complication rate.

**O-36** Pre Diabetes Management in obese patients using 635nm of Laser light to modify/correct the anticipated outcomes
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Low Level Lasers have been used in weight management and body contouring for a many years, but as a modality, is often overlooked and misunderstood. Drawing on clinical evidence gathered over many years, it is possible to see how 635nm laser can be used for the good of the patient and benefit or change their quality of life. A review and follow up of one hundred and forty patient in a randomised double blind study investigating the efficacy of 635nm lasers in the management of pre diabetes patients, shows that 635nm of light can in 90% of patients reverse the anticipated clinical outcomes. The study presented here includes obese patients with pre diabetes, aged between 40 and 65 year old. 50% of the patients received dietary advice and true laser and 50% received LED and dietary advice.

This study represents a breakthrough in the treatment of pre diabetes patients, using a modality usually used in the cosmetic industry.

We have demonstrated in this study that laser can be an effective adjunct to conventional treatments in the obese pre diabetes patient. 10% of the sham study patients as opposed to 90% of patients in the true laser group reduced their weight considerably over 10 weeks and 20 laser treatments and were no longer a diabetes risk (monitoring was advised).

**Secondary EBTs after gastric leaks (sleeve)**

**O-38** Multimodalities for management of leak after sleeve gastrectomy; outcomes of 73 cases, treatment algorithm and predictors of early leak resolution
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Introduction: Gastric leak post Laparoscopic sleeve gastrectomy (LSG) is a serious complication, reported in 1.5-3% of cases. Some management algorithms of post LSG leak exist; however no clear guidelines are available to predict the time to leak resolution.

Objectives:

1. To share the outcomes of our management algorithm of post LSG leak: rates of resolution, complications, admission to intensive care unit, conversion to other techniques and mortality.
2. To determine if some factors can predict resolution: 1-Patient related factors: “demographics, time to presentation, inflammatory and nutritional markers and presence of comorbidities”.2-Surgical technique related factors: “Primary or revisional sleeve, presence of distal stricture, number and size of fistulous openings”.3-Management related factors: “Number of visits to emergency before diagnosing leak; Type of drainage, type of endoscopic intervention, performance of endoscopic septotomy and type of feeding”.

Methods: Retrospective analysis of prospectively collected data of patients diagnosed with post LSG leak in Hamad General Hospital/Qatar.

Results: Seventy-three patients were diagnosed with Leak, admitted during 19 ± 16 days post-surgery (95% CI: 15.3–22.8). Sixty patients (82.2%) leaked after primary LSG while thirteen (17.8%) after revisional. About 95.4% of patients had fistulous opening at the gastro-oesophageal junction. Laparoscopic exploration was done in twenty patients (27.4%) and feeding jejunostomy in nine patients (12.3%). Patients healed over 8.8 ± 0.72 weeks (95% CI; 7.4–10.2) with re-leak in 14.9%. No patient died. Fifty-four patients had endo-gastric stenting, 23.5% had stent migration, one patient developed oesophago-pleural fistula and one gastro-aortic fistula. Patients on jejunal feeding had shorter resolution time (HR=2.7, P=0.018), while patients on TPN and post endoscopic dilatation had 66% and 50% increase in the resolution time; (HR= 0.34, P=0.026) and (HR=0.5, P=0.047), respectively.

Conclusion: Management of Post-LSG leak is a combination of clinical, radiological and endoscopic modalities. Patients on enteral feeding had shorter resolution time while patients with sleeve stricture had longer time to resolution.

References


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Controversies in bypass surgery

O-39 Distal gastric bypass – 2 m bilipancreatic limb construction with varying lengths of common channel
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Background: Long-term durability after RYGB is challenging in the super-obese population. While lengthening of Biliopancreatic limb (BPL) is associated with higher rates of weight loss, shortening of Common limb (CL) is related to higher risk of malabsorption. In this study we aimed at investigating varying CL-lengths in the DRYGB with 2m BPL.

Methods: Three groups of patients (N_{total}=187) with different limb lengths were included in this retrospective cohort-analysis: Group 1 (n=69; RL 150 cm, BPL 60 cm), group 2 (n=88; RL 270 cm, BPL 200 cm, CL 150 cm), group 3 (n=30; RL 220, BPL 200 cm, CL 200 cm). Parameters for weight loss, regain and failure were analysed along with malabsorption issues.

Results: Preoperative BMI was higher in group 2 (58.5, p<0.001) and 3 (57.4) vs group 1 (54.6, p=0.011). No other clinically significant differences between the groups were noted. At 10-year follow-up EWL was 55.9% in group 1 (95% CI, 50.2 to 61.6), 70.4.8% in group 2 (95% CI, 63.8 to 77.1) and 64.0% group 3 (95% CI, 56.9 to 71.1). EWL failure was higher in group 1 vs 2 (group 1: 30% vs group 2: 8.3%, p<0.001). No difference in short-term nor long-term complications was seen except for higher occurrence of internal hernia in DRYGB groups (11.4%, 6.7%). Malnutrition occurred more frequently in group 2 and 3.

Conclusion: DRYGB lead to better and more sustainable weight loss results, however with a higher frequency of internal hernia and vitamin/mineral deficiencies. CL should not be shortened more than 200 cm. Weight loss is related to length of total alimentary small bowel tract.
O-40 Validation of the ratio Common limb/Total bowel length between 0.40 and 0.45 as the best success predictor for One-Anastomosis Gastric Bypass
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Introduction: Currently, ideal jejunal and ileal lengths in bariatric/metabolic procedures to be left in alimentary continuity still remain unclear. The aim of this study was to validate a previously calculated ideal range (0.40-0.45) for the ratio Common limb/Total bowel length (CL/TBL), as success predictor for One-Anastomosis Gastric Bypass (OAGB).

Patients and methods: A retrospective review of a prospectively collected database of morbidly obese patients undergoing OAGB was performed. 126 patients met the inclusion criteria of CL/TBL between 0.40-0.45. Anthropometric variables, remission of comorbidities and specific supplementation needs were recorded at 1, 2 and 5 years after surgery.

Results: 126 patients were included, 101 females and 26 males, with a preoperative BMI of 41.3±8.2 kg/m². Mean postoperative BMI was 26.3kg/m², 25.3kg/m² and 25.8kg/m² at 1, 2 and 5 years, respectively, with an Excess BMI loss of 92%, 98.2% and 95.1%. Type 2 diabetes mellitus remission rate was 94.8% at 1 and 2 years, and 92.1% at 5 years. Hypertension remission rate was 85.7%, 84.5% and 82.1% at 1, 2 and 5 years, respectively. Complete remission of dyslipidemia was obtained in all the patients at the 3 time points. A vitamin and mineral complex was uniformly prescribed to all the patients (2 tablets/day). Specific supplementation of oligoelements was prescribed according to the laboratory results. Vitamin D supplements were required by 26.2%, 27.4% and 23.8% of the patients, at 1, 2 and 5 years, respectively. Iron supplementation was required by 16.7%, 17.9%, 20.2% at 1, 2 and 5 years, respectively. Folic acid and vitamin B12 requirements did not reach 10% of the patients at any time point. There were no protein deficiencies in any case.

Conclusion: A CL/TBL ratio between 0.40-0.45 achieves excellent long-term results in weight loss and remission of comorbidities, with mild vitamin and mineral deficiencies, and without protein malnutrition.

O-41 Limb length in RYGBP in super-obese patients
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Background: In super-obese patients rates of weight loss failure and weight regain are high after RYGB. In order to improve results, lengthening of the biliopancreatic limb is vital. In this study, efficacy and safety of two types of RYGB with 2m BP-limb was assessed in improving weight loss and in resolution of comorbidities compared to standard RYGB in a long-term follow-up.

Methods: This is a retrospective cohort analysis on 671 superobese patients operated in a ten-year period. Patients were classified into three groups: 1) 155 patients; roux-limb 150 cm, BP-limb 60 cm. 2) 230 patients; roux-limb 60 cm, BP-limb 200 cm. 3) 286 patients; roux-limb 150 cm, BP-limb 200 cm. EWL, TWL, BMI, failure, weight regain, comorbidity resolution, nutritional status, and complications were assessed.
Results: Mean small bowel alimentary tract was 540 cm in group 1 and 420 cm in group 2 and 3. EWL, BMI-change and TWL was higher in the 2m BP-limb groups vs group 1. No differences in complication rates were found, except higher frequency of marginal ulcers in patients with a shorter roux limb. EWL-failure was higher in group 1 (10.3%) vs the other groups (4.3%; 5.2%). Group 3 had significant less weight regain (26.6%). Remission of comorbidities was higher in the 2m BP-limb groups at expense of nutritional and vitamin deficiencies (3.9%; 5.9%). No difference in hypo-albuminemia was noted.

Conclusion: Lengthening of the BP-limb gives significantly better weight loss results, lower rate of EWL-failure and lesser weight regain along with better resolution of obesity-associated comorbidities

Oral Communication: Research & Miscellaneous

O-42 Effects of Different Metabolic States and Surgical Models on Glucose Metabolism and Secretion of Ileal L-Cell Peptides: Results from the HIPER-1 Study

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Objective: To compare the impact of 4 surgical procedures (One Anastomosis Gastric Bypass [OAGB], sleeve gastrectomy [SG], ileal transposition [IT], and transit bipartition [TB]) versus medical management on gut peptide secretion, beta cell function, and resolution of hyperglycemia in patients with type 2 diabetes.

Research design and methods: A mixed-meal tolerance test (MMTT) was administered 6-24 months after each surgical procedure (One Anastomosis Gastric Bypass [OAGB], sleeve gastrectomy [SG], ileal transposition [IT], and transit bipartition [TB], n=30 in each group) and the result was compared to matched lean (n=30) and obese (n=30) T2DM patients undergoing medical management

Results: OAGB and IT patients had a greater increase in plasma glucose concentration following MMTT than SG and TB patients. OAGB patients exhibited the greatest increase in the incremental area under the curve of plasma glucose concentration above baseline (ΔG0-120) (p<0.0001). Insulin sensitivity was comparable across surgical groups, and statistically greater in surgical patients than in obese nonsurgical patients (p<0.0001). Beta cell responsiveness to glucose was greater in SG and TB than in OAGB and IT patients (p<0.001) despite a smaller increase in ΔGLP-10-120 relative to IT. Postoperative beta cell function was the strongest predictor of hyperglycemia resolution.

Conclusions: The present study demonstrated that the level of beta cell function after bariatric surgery is the strongest predictor of hyperglycemia resolution. The study also demonstrates a disconnection between postprandial GLP-1 levels and beta cell function among the studied surgical procedures.
O-43 Impact of a history of dramatic weight loss linked to bariatric surgery on ovarian response and live birth rates, a case-control study
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Research question: Do women consulting for infertility and with a history of bariatric surgery have the same IVF prognosis as women of similar age and BMI?

Design: This retrospective case-control study was performed from the analysis of 10,287 IVF/ICSI cycles between January 1st, 2012 and December 31st, 2016 in 3 IVF centers. We identified 83 patients with a history of bariatric surgery (Sleeve gastrectomy: 72.3%; Gastric Banding: 15.7%; Gastric Bypass: 12%) who underwent their first IVF cycle. The 83 cases were matched for BMI and age to 166 controls. The main outcome measure was the cumulative live birth rate; secondary outcomes were average number of mature oocytes and embryos obtained in the first IVF cycle, and neonatal outcomes.

Results: No difference in cumulative live birth rates was found between cases and controls (20.5% vs. 25.9%, p=0.432), nor in average number of mature oocytes (6.9 ± 4.9 vs 7.4 ± 4.9, p=0.189) and embryos obtained (4.4 ± 4.2 vs. 4.9 ± 3.8, p=0.239). Multivariate conditional logistic regression analysis showed no significant difference in live birth between both groups after adjustment for confounding factors. Equally in both groups, a 1-unit lower BMI increased chances of live birth by 8.4%.

A significantly smaller weight for gestational age was observed in newborns of cases versus controls (2849g ± 687 vs 3170g ± 863; p=0.002).

Conclusions: Infertile women with a history of bariatric surgery can be reassured as to effects of surgery-induced dramatic weight loss on IVF prognosis. Though this is the largest study concerning IVF results in these patients, the sample size remains limited.

O-45 Perioperative Fondaparinux does not increase the incidence of early postoperative thromboembolic complications and bleeding in Bariatric surgery - a retrospective study of 1565 consecutives patients
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Perioperative Fondaparinux is still not validated in his utilisation after Bariatric surgery, even if it is validate in thromboembolic complications (TEC) prevention after oncologic surgery. Most fear of this drug is regarding the postoperative bleeding risks. This retrospective analysis comprises 1565 consecutives bariatric procedures, excluding re-dp surgery and patient having a pre-existing anticoagulation therapy, between 2012 and 2017 in our Bariatric Surgery Unit in Poissy, France. TEC and bleeding events were scored ≤10 days post-surgery.
Primary analyses were for associations of antithrombotic therapy with incidence of TEC and bleeding. Secondary analyses were for associations of other potential risk factors. Mean age was 44 ± 14 years, 65% were female and 69% had a Sleeve Gastrectomy, 28% Roux-Y Gastric Bypass and 3% Gastric Banding. 9 patients (0.6%) had a TEC. Bleeding occurred in 18 patients (1.2%). Cardiovascular disease [OR 2.01 (1.18-3.42)], Hypertension [OR 2.23 (1.28-3.89)], female sex [OR 1.69 (1.00-2.85)], were associated with an increased bleeding risk. Fondaparinux results appear to be safe for the possible prevention of TEC without increasing the risk for bleeding after bariatric surgery.

O-46 Patient-reported outcomes measure in bariatric surgery – the Body-Q
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**Background:** Patient-reported outcome is one of the essentials in value based healthcare. This certainly applies to the bariatric surgery, however, there is a lack of specific patient-reported outcomes measurement (PROM) tools. The BODY-Q is a new PROM, the first to assess patients throughout the entire weight loss journey. Specific parts apply to (post-)bariatric surgery and to body contouring surgery. Although good psychometric quality in both types of surgery has been assessed for this new PROM, it has never been used in a large population undergoing bariatric surgery. A long-term project focusing on both changes after bariatric surgery and body contouring surgery will reveal the clinical relevance and necessary data on impact on health related quality of life.

**Objectives:** To assess the effect of bariatric surgery (and subsequent body contouring surgery) on appearance and health related quality of life (HR-QOL) up to 5 years after bariatric surgery using the BODY-Q questionnaire.

**Methods:** This is a multicenter, prospective, longitudinal study in the Netherlands and Denmark. Patients were asked to fill out the BODY-Q before bariatric surgery, 4 months after bariatric surgery and then yearly up to 5 years after surgery. In case of subsequent body contouring surgery, there will be an additional follow-up of 24 months. A total of 738 patients will be included.

**Results:** For almost all appearance and HR-QOL scales, the mean score (range 0 (worst) – 100 (best)) was significantly higher pre-bariatric surgery compared to 4 months post-bariatric surgery. The mean score of excess skin was significantly lower pre-bariatric surgery compared to 4 months post-bariatric surgery.

**Conclusion:** The BODY-Q is the first PROM in bariatric and possible postbariatric contouring surgery. The results of this multinational prospective study will provide substantial data on well-beings’ impact and could be useful for Value Based Health practice in the bariatric population.
O-47 Five-year weight loss and physical activity trajectories following bariatric surgery
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Background: Weight loss trajectories after bariatric surgery are variable among patients with severe obesity. Strikingly, little research takes this individual variability into account. Further, physical activity (PA) has been linked to weight loss. However, few studies have studied this link longitudinally.

Objective: To gain insight into individual variability in weight loss, and PA over time, we aimed to identify and describe latent classes of weight loss, and PA, until 5 years after bariatric surgery. In addition, we aimed to investigate if these trajectories are interrelated.

Methods: Percentage total weight loss (%TWL) was calculated 3, 6, 9, 12, 15, 24, 36, 48, and 60 months after surgery. PA was assessed at 0, 9, 15, 24, 36, 48, and 60 months. Latent class growth analysis (LCGA) was used to identify latent classes of weight loss, and PA. Multinomial logistic regression was used to investigate whether weight loss and PA trajectories were interrelated.

Results: A total of 3009 patients were included. Analyses revealed 5 distinct weight loss trajectories, with most patients in an average & fairly stable weight loss trajectory (43.5%), an above average weight loss & partial regain trajectory (35.4%), a poor weight loss result (10.4%), a rapid weight loss & long-term weight regain trajectory (7.4%), or continued weight loss trajectory (3.3%). For PA, 3 trajectories were identified wherein most patients showed a trajectory in which they increased their PA on the short term and slightly decreased over the longer term (96.9%), some patients showed an initial drop in PA, followed by recovery in the long-term (2.6%), and a few showed great increase and relapse (0.5%). Patients who followed a 'poor weight loss result' trajectory were never in the PA trajectory that showed great increase and relapse in PA.

Conclusions: Five weight loss trajectories were identified after bariatric surgery. Patients with initial greater change in physical activity were less likely to follow an unfavorable weight loss trajectory, indicating the importance of promoting behavioral factors after bariatric surgery.
Poster Session

P-01 Long-term follow-up in children and adolescents undergoing One-Anastomosis Gastric Bypass (OAGB) at an European IFSO excellence center
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Background: The children and adolescent population with obesity has increased world-wide, both in developing areas and in developed countries. Consequently, the prevalence of morbid obesity among this population has also increased, leading to an exponential growth of bariatric approaches in this population. Many surgeons fear eventual nutritional sequelae after malabsorptive approaches and prefer restrictive or mixed procedures.

Patients and Methods: A retrospective review of all the morbidly obese patients between 13 and 19 years, undergoing a one-anastomosis gastric bypass (OAGB) as bariatric procedure between 2004 and 2012, was performed.

Results: A total of 39 patients were included, 8 males (20.5%) and 31 females (79.5%), with a mean age of 17.8±2 years (range 12-19 years). Mean preoperative weight was 114.3±20.4 kg and mean BMI 42.2±5.9 kg/m2.

Preoperative comorbidities include type 2 diabetes mellitus (T2DM) in 7.9% of the patients, hypertension in 10.3% and dyslipidemia in 23.1%.

5 years after surgery, mean BMI was 25.9±5.3 kg/m2 and total weight loss 32.1±15.7%. Remission rate of T2DM, hypertension and dyslipidemia were 100%. All the patients received multivitamin supplementation. Anemia secondary to iron deficiency occurred in 1 female, requiring intravenous iron supplementation during 1 year and later on oral supplementation.

Conclusions: OAGB is an excellent option for long-term weight loss and remission of comorbidities in childhood and adolescence. No cases of malnutrition were observed.

P-02 Laparoscopic greater curvature plication (LGCP) after seven years
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Introduction: The most frequently performed procedures in metabolic surgery are gastric bypass and sleeve gastrectomy. Gastric plication (LGCP) is also popular in the Czech Republic. The aim of our work is to evaluate the 7-year results.

Methodology: Data analysis in a group of 281 patients (45 men, 236 females), operated on from 1.1.2011 to 31.12.2017. The average age of men was 46 years, women 44 years, average weight before surgery was 137 kg for men and 113 kg for women. Mean BMI for men was 43.1 kg / m², for women 40.9 kg / m². The most common co-morbidity was hypertension in 52% of patients.
Results: In the group 53 complications (18.86%) were found. The most frequent was the release of the plication or its dilatation, which led to reoperation (16.7%). Acute reoperation was performed four times (twice perforation of the stomach (0.71%), twice the abdominal bleeding (0.71%)). One reoperation was performed in 22.41% of patients, two reoperations in 6.4% and three reoperations in 1.78% patients. The second and third reoperations were indicated for insufficient weight reduction. The weight reduction in men was 27.7 kg in two years (20.21% of the total weight) and 13.2 kg (9.6% of the total weight) three years after surgery. In women, the effect in two years was comparable to men: 22.4 kg (19.8% of total weight). In three years, it was nearly double compared to men: 19.4 kg (17.1% of total weight). Long-term follow-up results are greatly limited by a small number of patients, also due to the loss of follow-up after three years.

Conclusion: Even on the basis of our results, it can be stated that the LGCP is sufficiently effective in terms of weight reduction over the two-year horizon. However, the percentage of insufficiently effective operations requiring reoperation is quite high. A more rigorous assessment of the importance of LGCP will require a direct comparison with the most frequently performed procedures.

P-03 Biliary reflux gastritis after One Anastomosis Gastric Bypass: The effect of Bilirubin level
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Background: One Anastomosis Gastric Bypass is gaining popularity worldwide as an effective bariatric surgery which has fewer complications than RYGB. There is raising concerns about biliary reflux and its effect on gastric mucosa .in this study we tried to find the link between the presence of bile in the stomach and the incidence of gastritis after OAGB.

Methods: This prospective study was conducted in Ain Shams university hospitals from January 2017 to May 2018 including 40 patients .All patients underwent OAGB with a 12-month follow-up,UGI endoscopy was performed 9 months after OAGB for all patients, where multiple biopsies and gastric aspirate were obtained for bilirubin level.

Results: Mean age at operation was 32 years (18–60) and preoperative BMI 44.31 kg/m2. The mean operative time was 95 (± 18 min), Mean %EWL was 81.2% at 12 months. Complete resolution occurred of hypertension in 8 patients (80%) and of Diabetes type 2 in 11 patients (84.2%). Level of bilirubin in gastric aspirate was elevated in 8 patients (20%) all of them had different levels pouch gastritis confirmed by histopathological examination.

P-04 Laparoscopic Roux-en-Y gastric bypass with small pouch, short alimentary limb and 150 cm biliopancreatic limb: technique and preliminary results
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**Introduction:** Gastric bypass is a well proven treatment option for morbid obesity leading to resolution of the related co-morbidities. In order to improve the outcomes and decrease the complications, bariatric surgeons have proposed several variations in the technique. Here, we present a technique of laparoscopic Roux en Y gastric bypass (LRYGB) with small pouch, short alimentary limb and 150 cm biliopancreatic limb and report our preliminary results.

**Patients and methods:** Between January 2017 and November 2018 20 patients underwent LRYGB after completing the multidisciplinary preoperative protocol for bariatric surgery in Alexandrovnska University Hospital, Sofia. The operation started with horizontal stomach transaction with linear stapler up to 4-5 cm from the gastroesophageal junction. The gastric pouch was then constructed by further vertical firings along a gastric tube in the direction of the angle of His, resulting in approximately 25 ml volume. A tension free, 2,5 cm, antecolic, retrogastric, semi-mechanical side-to-side gastro-entero anastomosis was performed with small bowel loop 150 cm from the Treitz ligament using 3,5 mm linear stapler and after verifying the common limb to be at least 300 cm. A linear stapled side-to-side entero-entero anastomosis was then created with a 60 cm alimentary limb. The bowel between the anastomosis was transected. All mesentery defects were closed with continuous nonabsorbable sutures and air leak test was performed.

**Results:** The mean BMI at the time of operation was of 48,2 ± 5,9 kg/m². Neither a conversion to open surgery nor a relaparoscopy was necessary. The mean operative time was 236,5 ± 90,6 min and the mean hospital stay was 3,8 ± 0,95 days. Six months after surgery the mortality rate was 0% without late complications, the %EWL was 61% and all obesity-related co-morbidities showed improvement.

**Conclusion:** The operation can be performed safely and with potential benefits on weight loss and co-morbidities resolution without adding additional complications. However, adjusting the technique to the patient’s individual characteristics might be the best treatment option.

**P-05 Simultaneous large paraesophageal hernia repair and laparoscopic Roux-en-Y gastric bypass: a single institution’s experience**
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**Introduction:** The safety and feasibility of bariatric surgery combined with large (type III or IV) paraesophageal hernia (PEH) repair remains relatively understudied. In addition, the added value of mesh reinforcements when performing large PEH repair is still debated, with some bariatric surgeons arguing that a laparoscopic Roux-en-Y gastric bypass (LRYGB) itself is a sufficient procedure in treating symptomatic PEH. This study reviews a single institution’s experience with simultaneous (redo) LRYGB and large PEH repair without the use of a mesh.

**Methods:** We retrospectively reviewed all patients who underwent simultaneous LRYGB and large PEH repair between 2014 and 2017 at our institution. We reviewed patients’ BMI, comorbidities, preoperative imaging studies, 30-day postoperative complications, weight loss, the presence of gastro-esophageal reflux disease (GERD), the impact of postoperative GERD symptoms on patients’ health-related quality of life, and mortality.

**Results:** Thirteen cases were identified. Ten patients underwent LRYGB; 3 patients underwent redo surgery in which a gastric band was removed and LRYGB was performed.
Median preoperative BMI was 40.4 kg/m². The large PEH was identified preoperatively in 8 patients. All patients underwent primary crural repair. All combined procedures were completed laparoscopically. One patient was treated for postoperative pneumonia. No other 30-day postoperative complications were encountered. During the median follow-up period of 10 months, anti-reflux medication usage was discontinued in 6 out of 10 symptomatic patients. No patients underwent additional surgery for obstruction of the gastric pouch or for symptomatic recurrence of PEH. No patients were dissatisfied about the degree to which they experienced postoperative GERD symptoms. No mortality was observed.

**Conclusion:** Morbidly obese patients with a large PEH can be treated safely and effectively by means of combined bariatric and hernia surgery, even in cases in which PEH is not identified preoperatively. In patients with a symptomatic large PEH, the combined procedure results in substantial symptom relief. Our study highlights that simultaneous large PEH repair without mesh reinforcement and (redo) LRYGB is safe and feasible.

**References:**

P-06 Outcomes of diverted one anastomosis gastric bypass (dOAGB): 4-years’ experience in primary and revisional cases

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Background: One of the most important complications of the OAGB is enterobilioacid reflux (EBAR). We report the concept of the diverted one anastomosis gastric bypass (dOAGB) which consists in a complete OAGB plus a Roux en Y diversion to avoid this reflux.

Methods: a total of 300 dOAGB cases in a four-year period were analyzed. Anthropometry, technical feasibility, morbidity, weight loss and comorbidities outcomes were analyzed.

Results: the % total weight loss (%TWL) was 30.5% at 4 years of follow up (32.3% in primary and 28.3% in revisional). Six intra-operative (2%) and 28 post-operative complications (9.3%) were seen. Out of this 28 complications 11 (3.6%) were late complications. Reoperations were performed in 15 patients (5.0%). Clinically relevant EBAR was present in 3 cases only (1%) 4 years after the operation.

Conclusions: the dOAGB combines the main advantages of the OAGB (light restriction and moderate malabsorption) with the anti-reflux effect from the Roux en Y diversion and a very low rate of EBAR.
P-07 Time to glycemic control -- an observational study of 3 different operations
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Background: Medical treatment fails to provide adequate control for many obese patients with type 2 diabetes mellitus (T2DM). A comparative observational study of bariatric procedures was performed to investigate the time at which patients achieve glycemic control within the first 30 postoperative days following sleeve gastrectomy (SG), one anastomosis gastric bypass (OAGB), and diverted sleeve gastrectomy with ileal transposition (DSIT).

Methods: Included patients had a body mass index (BMI) ≥30 kg/m²; T2DM for ≥3 years, HbA1C >7% for ≥3 months, and no significant weight change (>3%) within the prior 3 months. Surgical procedures performed were SG (n=49), OAGB (n=93), and DSIT (n=109). The primary endpoint was the day within the first postoperative month on which mean fasting capillary glucose levels reached <126 mg/dL. Multivariate logistic regression analysis was used to identify predictors of glycemic control.

Results: The cohort included 251 patients with a mean BMI of 36.04±5.76 kg/m²; age, 52.84±8.52 years; T2DM duration, 13.09±7.54 years; HbA1C, 8.82±1.58%. On the morning of surgery, mean fasting plasma glucose was 177.63±51.3 mg/dL; on day 30, 131.35±28.7 mg/dL (p<0.05). Mean fasting plasma glucose of <126 mg/dL was reached in the DSIT group (124.36±20.21 mg/dL) on day 29, and in the OAGB group (123.61±22.51 mg/dL), on day 30. The SG group did not achieve the target mean capillary glucose level within postoperative 30 days.

Conclusion: During the first postoperative month, glycemic control (<126 mg/dL) was achieved following DSIT and OAGB, but not SG. Preoperative BMI and postprandial C-peptide levels were independent predictors of early glycemic control following DSIT.

P-08 Significant reduction of type II diabetes after diverted one anastomosis gastric bypass: a single center experience with 258 consecutive patients
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Background: Diverted One Anastomosis Gastric Bypass (DOGB) is a surgical variation of the Roux-en-Y Gastric Bypass (RYGB) starting with a classical One Anastomosis Gastric Bypass with a long and narrow gastric pouch and continuing with the dissection of the afferent limb thus creating a Roux-en-Y situation with a 150-200cm biliopancreatic limb (BPL) in combination with a shorter (60-70cm) alimentary limb (AL). Current studies mainly focus on the length of the AL, nevertheless the BPL seems to play an even more important role in case of metabolic changes after the operation.
**Methods** A prospectively fed database including all patients undergoing DOGB between 2011 and 2018 was retrospectively analysed. The following parameters were assessed: Percentage of excess weight loss (%EWL), comorbidities at the time of operation/at follow-up; diabetes remission was defined by no current antidiabetic medication, HbA1c <6.5 % and fasting blood glucose <100mg/dl, improvement was defined by a reduction of antidiabetic medication.

**Results** 258 consecutive patients were evaluated (female/male: n=196/62). 69 patients (26.5%) had a diagnosed DMII (NIDDM n=44, IDDM n=13, no medication n=12) at the time of operation. In general, DOGB led to an median %EWL of 75.6 ± 27.7% with no significant difference between 150cm and 200cm BPL (p=0.91). Median body mass index (BMI) decreased from 44.1 ± 8.1 kg/m² to 29.4 ± 7.8kg/m² (p<0.01). In total 85.7% (n=60) went into remission; of the remaining diabetic patients 55.6% (n=5) showed improvement (p<0.01).

**Conclusion** Herein we could demonstrate a significant reduction in type II diabetes after DOGB in a well-defined patient cohort. Similar to the classical RYGB, this modified technique with a 150-200cm BPL length is capable to decrease patients’ morbidity after bariatric surgery. In the future, randomized controlled trials will be necessary to clarify the effect of BPL lengths on patients’ metabolism.

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**P-09 Diabetes remission following gastric sleeve - short-term perspectives from a multidisciplinary team approach**

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**Introduction**: Morbidly obese patients presenting with prediabetes or overt type 2 diabetes (T2DM) exhibit diabetes remission or notable glycemic improvement after bariatric procedures. The remission’s degree and durability pivots on several factors, medical team’s experience and patient’s compliance seeming important.

We present particular cases in our practice, in which glycemic control or diabetes remission was obtained, following sleeve gastrectomy.

**Material and methods**: Three consecutive cases were selected following gastric sleeve, with data presented at 1, 3 and 6 month after surgery.

Patient 1: 30 year old man, BMI= 41,47 Kg/m², prediabetes, FPG=117,4 mg/dl, HbA1c = 5,4%

Patient 2: 53 year old woman, BMI= 47,97 kg/m², OAD treated T2DM, FGP = 150mg/dl, HbA1c= 6,4%

Patient 3: 49 year old woman, BMI = 51,5 kg/m², insulin treated T2DM, FPG = 180mg/dl, HbA1c= 7,9%

Definitions for remission: complete: FPG < 100 mg/dl, HbA1c < 5.7%, treatment cessation partial : FPG=100-125mg/dl, HbA1c 5,7- 6,5%, treatment cessation optimal glycemic control: HbA1c<7%, treatment persistence in the postoperative period Body composition parameters were evaluated using the Omron HBF-510W Body Composition Monitor.
Results:
Patient 1: 6 months after surgery FPG <100 mg/dl, HbA1c = 5.2% - total remission
Patient 2: 6 months after surgery FPG < 100 mg/dl, HbA1c= 5.4%- total remission
Patient 3: 6 months after surgery FPG=123mg/dl, HbA1c = 6.9%- glycemic goal achieved,
68% insulin dose reduction

Significant weight reduction and improved body composition were obtained. Patient 1: percentage total body weight loss (%WL) was 30.9%, with 67% visceral adipose tissue (VAT) loss and 52.5% subcutaneous adipose tissue (SAT) loss. For patient 2, %WL was 26.6%, VAT loss 46.6%, and 39.3% SAT loss. Patient 3 achieved 20.1 %WL, 22.7% VAT loss and 23.4% SAT loss.

Conclusion: Obtaining diabetes remission or optimal glycemic control after sleeve gastrectomy is well established nowadays. These three cases confirm that structured approach within specialized teams is necessary for achieving expected results in centers gaining experience.

References

P-10 The influence of Helicobacter pylori infection on gastro-intestinal symptoms and complications in bariatric surgery patients: a systematic review and meta-analysis
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Introduction: A numerous amount of papers have discussed the importance of preoperative detection and eradication of Helicobacter pylori (HP) in bariatric patients. This systematic review specifically focuses on the influence of HP infection on clinical symptoms, complications and abnormal endoscopic findings in post-bariatric patients.

Materials and methods: A systematic search on the influence of HP infection on postoperative complications in bariatric surgery was conducted. The methodological quality of the included studies was rated using the Newcastle Ottawa Rating scale. The agreement between the reviewers was assessed with Cohen’s kappa. The included studies were assessed into 2 groups: studies with and without eradication therapy preoperatively.

Results: A total of twenty-one studies were included with a methodological quality ranging from poor to good. The agreement between the reviewers, assessed with the Cohen’s kappa, was 0.67. Overall tendency in the included studies was that HP infection was associated with an increased risk for developing marginal ulcers and postoperative complications. A meta-
analysis on the incidence of marginal ulcers and overall postoperative complications was conducted and showed respectively an Odds Ratio (OR) of 0.508 [0.031 - 8.346] and 2.863 [0.262 – 31.268].

**Conclusion:** HP is frequently found in patients prior to and after bariatric and metabolic surgery. We assessed whether according to current literature HP increases the risk for developing postoperative complications after surgery. This meta-analysis shows that a methodologically good study should be performed to clarify the role of HP in bariatric patients and the question whether HP should be eradicated before surgery.

**P-11 Short-term changes in cardiovascular hemodynamics in response to bariatric surgery and weight loss using the Nexfin® non-invasive continuous monitoring device: A pilot study**

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**Objective:** Compared to healthy individuals, obese have significantly higher systolic and diastolic blood pressure; mean arterial pressure, heart rate and cardiac output. Aim of this study was to evaluate cardiovascular hemodynamic changes before and 3 months after bariatric surgery.

**Materials and methods:** Patients scheduled for bariatric surgery between the 29th of September 2016 and 24th of March 2016 were included and compared with 24 healthy individuals. Hemodynamic measurements were performed preoperatively and 3 months after surgery, using the Nexfin® non-invasive continuous hemodynamic monitoring device (Edwards Lifesciences / BMEYE B.V., Amsterdam, the Netherlands).

**Results:** Eighty subjects were included in this study, respectively 56 obese patients scheduled for bariatric surgery and 24 healthy individuals. Baseline hemodynamic measurements showed significant differences in cardiac output (6.5 ± 1.6 versus 5.7 ± 1.6 l/min, p=0.046), mean arterial pressure (107 ± 19 versus 89 ± 11 mmHg, p=0.001), systolic (134 ± 24 versus 116 ± 18 mmHg, p=0.001) and diastolic blood pressure (89 ± 17 versus 74 ± 10 mmHg, p=0.001) and heart rate (87 ± 12 versus 76 ± 14 bpm, p=0.02) between obese and healthy subjects. Three months after surgery, significant changes occurred in mean arterial pressure (89 ± 17 mmHg, p=0.001), systolic (117 ± 24 mmHg, p=0.001) and diastolic blood pressure (71 ± 15 mmHg, p=0.001), stroke volume (82.2 ± 22.4 ml, p=0.03) and heart rate (79 ± 17 bpm, p=0.02)

**Conclusion:** Three months after bariatric surgery significant improvements occur in hemodynamic variables except cardiac output and cardiac index, in the patient group.

**P-12 The slimming method stimulating 6 auricle acupuncture points statistics analysis**

1550 patients

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The slimming method stimulating 6 auricle acupuncture points have a long history in Japan. In this study, we evaluated retrospective analysis of statistical study and correlation as to whether this method is an effective tool for slimming, and also conducted rebound follow-up survey half a year after completion of the procedure. Measurement was performed using dual frequency body composition meter. The treatment was performed for 1550 healthy females for 3 months. Body weight (63.6 kg ± 10.2 → 57.3 kg ± 9.0) Body fat mass (23.8 kg ± 7.1 → 18.6 kg ± 6.4) body muscle mass (37.5 kg ± 4.1 → 36.5 kg ± 3.9). The basal metabolic rate per kg of body weight (19.2 kcal ± 1.8 → 20.2 kcal ± 1) showed a significant decrease. Between body fat percentage and visceral fat level with respect to the amount of BMI at the start had high correlation. In addition, we measured the blood glucose level over time at intervals of 15 minutes using a continuous blood glucose level measuring device. The difference in the daytime blood glucose pattern during the intervention and non-intervention was measured for 24 hours. In the intervention group, it was confirmed that the blood glucose average value was dominantly lowered by T test. Weight loss effects were observed in "non-obese people and healthy adult subjects by" auricle acupuncture stimulation by particles ". In addition, it was considered that the setting point of the satiety center including leptin sensitivity was reset by stimulation of the auricular acupuncture as well as improving the constitution by the change of the dietary life for 3 months because rebound was not confirmed.

P-13 Gastrobroncial Fistula after Sleeve Gastrectomy: 3 different approaches
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Introduction: Gastrobroncial Fistula after bariatric surgery is a rare late complication, whose treatment is very challenging and usually demands an operative and endoscopic approach.
Due to a proximate staple line leak which is not sufficiently treated, a chronic subphrenic collection can be formed, resulting in some causes in the breakthrough of the diaphragm barrier and evoking in alterations of the respiratory tract.

**Material and Methods:** We present three female patients, who underwent a sleeve gastrectomy in external hospitals and were transferred to us in order to treat a proximal staple line leak. Demographics, previous surgeries, clinical presentation, time of the diagnosis of the fistula, treatment methods and outcome were presented.

**Results:** All of the patients were female the average age was 32,33 years and the average bmi at the time of the gb fistula was 27. In all patients a laparoscopic sleeve gastrectomy was performed due to morbid obesity with a resulting proximal staple line leak. One patient had undergone a previously mason operation with unsatisfactory results concerning the weight loss. In only one patient a diagnostic laparoscopy to drain the abdominal cavity after the diagnosis of the leak was performed. The average time of the diagnosis of the gb fistula was 14,33 months, although there was a wide range of occurrence from 3 to 36 months. All of the patients showed in the ct scan a fluid selection on the upper abdominal cavity. In the youngest patient the fluid selection was persistent since the diagnosis of the proximal staple line leak for at least 2 years prior to the diagnosis and no further action was undertaken due to lack of symptoms. Productive cough and fever were the two major symptoms. All patients were treated with a combined endoscopic and operative approach— including endo vac therapy, endoscopic balloon dilation and fibrin glue also laparoscopy/laparotomy, abscess drainage (3 patients ) and bypass operation (2 patients), thoracoscopy and thoracotomy with atypical left lower lobectomy. Treatment was successful in one case in 1 month, with a resulting chronic fistula in the other two. No mortalities were reported.

**Conclusions:** Gastrobroncial Fistula is a severe mostly late complication after sleeve gastrectomy. In our series a combination of both endoscopic and operative approach was needed in order to initiate the healing process. The late time of the diagnosis usually results in a prolonged hospitalization.

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**P-14 Quality of life in patients evaluated for laparoscopic sleeve gastrectomy**

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**Introduction:** Improving quality of life (QoL) in patients with obesity is one of the main purposes of treatment. Bariatric surgery is currently the most efficient treatment of obesity and its medical complications and can also lead to significant improvement in QoL postsurgery.

**Methods:** We assessed QoL in patients evaluated for laparoscopic sleeve gastrectomy in our center during one year using a validated tool, The Bariatric Quality of Life (BQL) Index.

**Results:** We included 81 patients (70.4% women), with average age 40.8±11.4 years and average BMI 45.9±6.7 kg/m2. The first part of the questionnaire proved that among the most common symptoms and conditions associated with obesity were: heartburn (27.2%), flatulence (63%), joint pain (44.4%); 13.6% of patients had diabetes, 40.7% had hypertension and 38.3% had sleep apnea and/or asthma; 37% took chronic medication. The second part of
the questionnaire showed conflicting answers: 93.8% of patients strongly disliked their weight, but 58% declared an OK to very good actual QoL and only 16% felt excluded from social life; however, 71.6% declared they felt pressure because of their weight and 46.9% felt depressed sometimes; 26% felt satisfied with their life, but 61.7% felt self-confident. There were no significant differences in the scores of men and women or in relation to BMI, but age negatively correlated with QoL.

**Discussion and conclusion:** Assessing QoL using validated tools is a mandatory step in the preoperative evaluation of patients with obesity and could bring to light the complexity of feelings associated with this disease. We need to continue using the same tools in the postoperative follow-up, particularly at more than one year after surgery, in order to confirm the improvement in QoL and to identify possible predictors for success of surgery.

**References:**

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**P-15 Intussusception of the biliopancreatic limb into the jejunojejunostomy 12 years after laparoscopic Roux-en-Y-Bypass (RYGBP)**
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**Introduction:** Intussusception is the invagination of a proximal part of intestine into the adjacent distal part. There are frequently reports in children, but it’s a rare presentation in adults. With more frequent use of computed tomography in the evaluation of patients with abdominal pain, the condition can be diagnosed more reliably. Intussusception in adults accounts for only 5% of all cases of intussusception. It’s among 1% to 5% of all causes of intestinal obstructions in adults.

**Discussion:** Small bowel obstruction following RYGBP has many potential etiologies. These include adhesions, internal hernias, external hernias, anastomotic strictures and intussusception. Although much less frequently seen, intussusception of the small bowel should also be included in the differential diagnosis of small bowel obstruction. Antegrade intussusceptions are less frequently than retrograde and the jejunojejunostomy is nearly every time involved. Symptoms can range from acute onset to subacute and intermittent. Abdominal pain and an abdominal mass are combined with nausea and vomiting, rare with occasionally hematemesis. Abdominal ultrasound, used routinely in the diagnosis of intussusception in children, lacks sufficient sensitivity in adults as well. CT scan is the first line diagnostic tool for the diagnosis of intussusception. The surgical management includes reduction of the intussusception, resection of the intussusception or and reconstruction of the jejunojejunostomy and depends if the bowel is ischemic or otherwise damaged. Surgical exploration should be performed as soon as possible to prevent bowel ischemia and the need for resection.
Conclusions: Intussusception has to be included in the differential diagnosis of small bowel obstruction following RYGBP. Antegrade intussusception is less frequently in comparison the retrograde way and involves nearly every time the jejunojejunostomy. CT scanning is the first line diagnostic tool for the diagnosis of intussusception. In our case hypothetically the coughing fit caused, in consequence of high intraabdominal pressure the intussusception.

References:

P-16 Colorectal cancer in Obese Patients - Is There a Role for Bariatric Surgery?
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Background: Obesity is seen in 20% of patients with all types of cancer, complicating it's diagnosis and treatment by way of challenges in screening, surgical options, chemotherapy dosing, and post-treatment care.

The role of bariatric surgery in managing obese patients with cancer is not well defined. Rapid weight loss may benefit outcomes, but must not delay oncological treatment. In colorectal cancers (CRC), it is possible to target weight loss whilst patients complete neoadjuvant chemoradiation if services can be coordinated.

We present our experience of managing obese patients with colorectal cancer at a UK centre providing colorectal cancer and bariatric surgery services.

Method: This is a retrospective case series from a high-volume single-centre delivering National Health Service in the UK.

The data was compiled from searches of Colorectal and Bariatric multi-disciplinary team (MDT) meeting outcomes from January 2016- October 2018.

Results: 5 patients with colorectal malignancy were referred to bariatric surgery: 2 rectal, 2 sigmoid, 1 caecal cancer.
P-17 Robotic sleeve gastrectomy vs laparoscopic sleeve gastrectomy: our preliminary experience
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Objective: Sleeve gastrectomy has gained popularity in recent years due to its safety, feasibility and good results. Laparoscopic sleeve gastrectomy has become the procedure of choice for the treatment of morbid obesity. Robotic sleeve gastrectomy is an alternative surgical option, but its utilization has been low. The aim of this study is to evaluate the contemporary outcomes of robotic sleeve gastrectomy (RSG) versus laparoscopic sleeve gastrectomy (LSG).

Methods: From January to December 2018, 26 patients with morbid obesity were admitted to the Department of Medical and Surgical Science, University of Foggia and we have compared patients undergoing robotic bariatric surgery with the group submitted to conventional laparoscopic surgery.

Results: We analyzed 26 patients underwent sleeve gastrectomy with a mean age of 42,58 years of which 19 were female; 11 treated with robotic approach and 15 with laparoscopic approach. The initial mean body mass index (BMI) was 45,73 kg/m2 and weight 130,50 kg. The mean operative time was 132,27 min for RSG (including docking time) and 114,67 min for LSG (p=0,2). The median length of stay was 5,5 days, and it is the same for both groups of patients (p=0,89). Mortality and conversions were nil. We reported only 1 case of re-do surgery in a patient underwent to RSG after failure of gastric banding. We observed only 4 cases of post-operative complications: 1 leak treated with surgical approach and 2 bleeding and a port-site infection underwent to medical treatment. Follow-up at 1 month from the recovery in 20 patients has showed an EWL (excess weight loss) 19,72%: 16,11% for robotic group and 23,32% for laparoscopic one (p=0,16); follow up at 6 months in 9 patients detected an EWL 47,46%: 51,52% for robotic group and 47,63% for laparoscopic one (p=0,81).

Conclusions: RSG proved to be a safe and efficient procedure, with satisfactory results comparable to LSG. Longer and larger studies are needed for a better comparative evaluation.

P-18 Is robotic surgery cost effective?
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The economical aspect of robotic surgery is considered as a major obstacle to its development. The experience of the Orleans Hospital tends to prove the contrary. To be successful, such program must involve multidisciplinary surgical use, motivated teams, and visionary management.

It allows innovation, keeping high standards surgical performances, making our facility attractive to young surgeons, and defying external concurrence. The notoriety acquired induces patient trust and enhance surgical activity.
Two million euros were needed in a five-years loan investment added to a special donation from the “Ligue contre le cancer”. This included the Robot price, the optical system, trocars, and accessories. We invested also in a sterilization system “STERRAD” (an extra 140000 euros). Consumables with 10 life of use consisted on graspers (Cadiere, bipolar…), needle holders, scissors, hook…. Single instrument costs from 2000 to 2800 euros.

The maintenance costs 170000 euros per year.

Teams were trained and protocols elaborated. The cost of one-hour team work was evaluated, including surgeon, anesthesiologist and scrub-nurses’.

The robot occupied a dedicated Operating room. The real cost use was calculated. Time cost in the operation room was calculated.

The first procedure was on October 2013.

Three axes of study were defined: Financial aspect, loan’s amortization, consumables cost, and human resources cost. The income generated by each specific type of surgery was integrated in the balance.

Results: Specific types of surgery are rentable and should be privileged. Higher is the number of procedures realized, lesser is the one-procedure cost. This implements a multidisciplinary use to reach the critical number of 200 rentable surgeries done per year.

Tables will be presented. Comparison with laparoscopy is included.

The robotic use proved to enhance over all hospital attractiveness, activities, and notoriety, contributing to counterbalance the expenses. Robotic surgery is cost-effective under strict special conditions. Robotic programme must be included in a wide hospital multidisciplinary surgical approach.

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P-19 Application of vitamin E acetate on staple lines and anastomoses of Roux-en-Y gastric bypass: Impact on postoperative pain and acute phase reactants
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Background: Postoperative pain after laparoscopic surgery has 3 components: parietal, visceral and associated with pneumoperitoneum. Visceral pain accounts for around 30% of the total pain and is less amenable to be controlled by multimodal analgesia.

Topical application of vitamin E ointment has demonstrated anti-inflammatory effect in the local inflammatory response against surgical aggression. Vitamin E has been also associated with a reduction in postoperative pain of skin wounds.

The aim of this study was to evaluate the effect of the topical application of vitamin E acetate on staple lines and anastomoses of Roux-en-Y gastric bypass, as part of a multimodal analgesia scheme within an Enhanced Recovery After Surgery (ERAS) program.

Methods: A prospective randomized clinical trial was performed. Patients were divided into 2 groups: patients receiving topical application of Vitamin E on staple lines and anastomosis (G1) and patients not receiving it (G2). TAP block was included as part of the multimodal analgesia scheme in both groups. Postoperative pain, as measured by VAS 24h after surgery, morphine rescue needs, acute phase reactants 24h after surgery and hospital stay were evaluated.

Results: 140 patients were included, 70 in each group. Postoperative was 10mm in G1 and 21.8mm in G2 (p<0.001). Morphine needs within the first 24h was 2.9% in G1 and 13.2% in G2 (p=0.026). C reactive protein levels were significantly lower in G1 (8.7mg/dl vs 11.9; p=0.016). Mean hospital stay was 2.1 days in G1 and 2.9 in G2 (p=0.019).

Conclusion: Topical application of vitamin E reduces postoperative pain and acute phase reactants, allowing an earlier discharge.

P-20 Optimization of tactics of perioperative rehabilitation of patients with morbid obesity and severe obstructive sleep apnea syndrome
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One of the most common comorbidities in patients with obesity is obstructive sleep apnea syndrome (OSA). Patients with OSA require careful preoperative preparation, including the use of non-invasive ventilation. There are a large number of studies devoted to the perioperative management of patients with obesity and OSA, but none of the sources give specific dates for preoperative preparation.

Materials and methods: From January 2012 to December 2015, 55 obese patients were diagnosed with severe OSA. All patients underwent intragastric balloon installation, initiation of CPAP therapy, selection of drug therapy, after which further preoperative preparation was performed on an outpatient basis. After weight loss and OSA compensation, the patients were operated on. Since January 2016, the preparation for the operation of these patients is carried out in a surgical in-patient facility. After preoperative examination, CPAP therapy is selected, medical correction of comorbidities is selected. After reduction of the apnea / hypopnea index (AHI) by 50% or more, according to the monitor pulse oximetry, patients are operated on using opioid-free anesthesia and a standardized surgical technique. In the postoperative period CPAP therapy continues, and the fast-track protocol is also applied. In total, 35 patients were treated in accordance with the perioperative management method described above.
Results: From January 2012 to December 2015, the duration of preoperative preparation of patients with morbid obesity and severe OSA was 27.3 weeks (p=0.005). In this group of patients was recorded 1 death in a patient with extremely severe OSAS after installing an intragastric balloon. Conducting preoperative inpatient preparation has reduced its duration to 4.9 days (p=0.005). Mortality and complications were absent.

Conclusions: Due to the small number of patients, there is no reason to talk about the significance of the difference in the results, but initial data suggest the effectiveness of short-term preoperative preparation in patients with morbid obesity combined with severe OSA. The full analysis requires the accumulation of experience and a greater number of treated patients.

P-21 Obesity and fertility – preoperative interventions and what to do?
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Introduction: Surgical interventions for primary infertility in morbid obesity are becoming an important trend in childbearing woman. Preoperative interventions, among dietary counseling, PA and lifestyle change importantly interfere with conceptive ability and conception rates. To avoid complications and to reduce poor obstetrical outcomes all measurements should be implemented in daily bariatric practice.

Case presentation: 38-y old women, 1 child, 5 miscarriages and menstrual abnormalities were admitted for surgery after a half year preparation with 16 kg weight loss, normal laboratory results, after *H. pylori* eradication. After regular preparation for surgery she underwent one-anastomosis GBP with biliary limb of 180 cm. No intraoperative complications, and standard ERABS protocol was used: paracetamol and methamisol based analgesia, day 1 after surgery upper abdominal X-ray to exclude anastomotic leak and postponed to regular postoperative liquid diet supported with a 2 day course of i.v. combined aminoacid and physiological solution and polivitamin formula. Day 7 after surgery made her regular gynecological visit that confirmed 7w lasting pregnancy. Calculation of over related genetic risks was at the range to support pregnancy also highly expected in the couple. All supportive measurements were implemented to pregnancy; normal fetal growth, normal maternal weight gain, mineral and vitamin levels, supplementation, normal morphometry were present. After a few hours of uncomfortable sensation an intrauterine death of female child occured in gestational age of 30 w.

Conclusion: Morbidly obese childbearing women should be advised about the importance of pre-pregnancy weight reduction, proper low glycemic index oral formula and PA for the purpose to reduce all over complications of obesity and related poor obstetrical outcomes. Improvement of obesity related risk factors due to moderate EWL% importantly change conception ability and consequently all over measurements should be implemented: gynecological, intensive dietary and PA counseling prior surgery is mandatory to avoid all over complications and poor outcome of pregnancy.

P-22 SASI bypass as a revision operation combined with hiatalplasty in the treatment of gastric reflux and weight regain or in adequate weight loss after sleeve
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Introduction: Single anastomosis sleeve ileal bypass (SASI) procedure appears as a new metabolic and bariatric surgery based on Santoro's operation, in which a sleeve gastrectomy is followed by a side-to-side gastroileal anastomosis. The study aims to evaluate the short-term outcomes of laparoscopic single anastomosis sleeve ileal bypass and hiatoplasty as a revision operation for patients who already had sleeve gastrectomy for long time and now complain of reflux and weight regain or the weight loss was inadequate.

Methods: Forty two patients had sleeve gastrectomy between (2012-2016), their current mean body mass index (BMI) was 35.85. They underwent SASI as a revision operation in addition to hiatoplasty. The postoperative follow-up period was 1 to 6 months. At each visit data regarding their BMI, obesity-related comorbidities and nutritional status were collected.

Result: The gastro esophageal reflux disappeared immediately post operatively and 6 to 8 months after surgery, the average BMI reduced to 31.75.

Conclusion: Laparoscopic SASI bypass as revision operation combined with Hiatoplasty has been shown to be an effective operation in the treatment of patient after Sleeve Gastrectomy with reflux and/or weight regain or an inadequate weight loss.

P-23 Establishing Construct Validity of a Novel Proficiency Model for Laparoscopic Sleeve Gastrectomy: A Quality Assessment
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There is a paucity of evidence pertaining to the methodology of determining how a surgeon is deemed “competent”, particularly in the nascent sub-specialty of Bariatric Surgery. Unvalidated, surrogate markers such as time-based or volume determinants instead are in common use to differentiate the expert from the novice as there is no current validated test in use. A unique opportunity exists from a surgical educational perspective to inform both the learning curve and subsequent performance assessment of the most commonly performed of bariatric surgical procedures, the laparoscopic sleeve gastrectomy.

We present two components of a simulated surgical model of laparoscopic sleeve gastrectomy to establish construct validity:

- Development of a novel simulated stomach: The simulated sleeve model was developed by a surgical model creator with design specifics including ability to allow differentiated calibres of oesophageal bougies for passage at the time of operation, simulated gastric content, stomach wall allowing for manipulation and linear cutting stapler as well as resectable omentum utilizing multiple energy devices in common use. This was placed within a laparoscopic skills trainer with built-in optical transmission.
- Evaluation of construct validity: By applying a standardized assessment tool to video-recorded model gastrectomies we aimed to ascertain whether the tool could be used to determine “novice” vs “expert” surgeons. Ten novice and eleven expert videos were prospectively collected. Videos were rated utilizing a procedure-specific evaluation
tool for laparoscopic sleeve gastrectomy. This was used to determine statistically significant differences between the expert and novice scores.

We endeavor to show the procedure-specific rating scale for laparoscopic sleeve gastrectomy is a valid, reproducible instrument for assessment of this procedure. This can be used to determine competency prior to practice in the operating theatre.