

PLENARY SESSION ABSTRACTS

PL-101

OUTCOMES OF VERTICAL BANDED GASTROPLASTY TO ROUX-Y GASTRIC BYPASS CONVERSIONS 2003-2008

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Background: VBG was a popular weight-loss surgery in 1980s-1990s. However, it has serious complications. Conversion to RYG Bypass is one alternative for dealing with VBG symptoms.

Methods: Retrospective review of 85 consecutive patients who had VBG to RYGB conversion performed 2003-2008. All anastomoses were stapled; remnant gastrectomy was routinely performed.

Results: 71 procedures were open; 14 laparoscopies, 7 conversions. There were 87.1% women, age 48.4±9.9 yrs, weight 263.6±70.4 lbs, BMI 43.6±10.8 kg/m². Comorbidities: Hypertension 55.4%; DM 25.9%; Obstructive sleep apnea 28.2%; Asthma 16.5%; COPD 1.2%; CHF 1.2%. Over 2 surgeries prior 50.6%. Indications for surgery: Weight regain 85.9%; GERD 54.1%; Gastric outlet obstruction 43.5%; Abdominal pain 11.8%; Cachexia 1.2%. Post-operative characteristics: Mean follow up: 20 ± 13 months. Follow up at 12 months: 65 patients (76.5%). Follow up at 24+ months: 43 (50.6%). 1 death due to brain cancer. Weight loss (lbs) and BMI were 42.8 and 37.5 at 3 months; 59.7 and 34.3 at 6 months; 73.5 and 33 at 12 months; 73.3 and 32.4 at 24+ months, respectively. Resolution of GERD in 100% (46); gastric outlet obstruction 89% (33); 100% pain resolution; 1 cachectic patient's weight stabilized at 128 lbs at 2 years. Complications: Anastomotic leak 5.9%; MI 1.2%; Small bowel obstruction 7.1%; Intra-abdominal abscess 3.5%; A fibrillation 3.5%; DVT 2.4%; GI bleeding 2.4%; C difficile colitis 1.2%; Candidal esophagitis 1.2%; Wound infection 9.4%; Anastomotic stricture requiring dilation 3.5%.

Conclusion: We demonstrated an acceptable complication rate, near complete resolution of symptoms and 49.5% excess body weight loss after VBG to RYGBypass conversion.

Post-revisional weight loss

	Pre op	3 months post op	6 months post op	12 months post op	24+ months post op
Weight (lbs)	263.6	227.2	205.7	196.4	183.2
BMI (kg/m ²)	43.6	37.5	34.3	33.0	32.4

Complications

	% (n)
Myocardial infarction	1.2% (1)
Anastomotic leak	5.9% (5)
Bowel obstruction	7.1% (6)
Intra-abdominal abscess	3.5% (3)
Post-op atrial fibrillation	3.5% (3)
DVT	2.4% (2)
GI bleeding	2.4% (2)
C diff infection	1.2% (1)
Wound infection	9.4% (8)
Anastomotic stricture	3.5% (3)
Negative ex laps for pain	2.4% (2)
Stitch granuloma	10.6% (9)

PL-102

LAPAROSCOPIC GASTRIC BYPASS VERSES LAPAROSCOPIC VERTICAL GASTRECTOMY FOR MORBID OBESITY: 5 YEAR RESULTS IN A MILITARY INSTITUTION

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Background: Laparoscopic Vertical Gastrectomy (LVG) is gaining acceptance in the bariatric

community as a definitive weight loss procedure, however the data remains limited. Weight loss after LVG versus Laparoscopic Gastric Bypass (LGB) was evaluated using anthropometric measurements up to five years post-operatively.

Methods: Our prospectively collected bariatric database was retrospectively reviewed from 2005 to 2011. The anthropometric factors including the body weight, waist circumference, and hip circumference were measured during standard yearly follow-up appointments from 1 to 5 years. Continuous variables were analyzed by the t test or Mann-Whitney test as appropriate and categorical variables by Fisher's exact test.

Results: There were a total of 486 patients (238 LGB and 248 LVG). The excessive weight loss (EWL) for LGB versus LVG was 72.3% versus 63.7% at 1 year ($p = 0.002$), 70.2% versus 65.6% at 2 years ($p = 0.113$), and 57.1% versus 54.5% at 5 years ($p = 0.252$), respectively. Similarly, the body mass index (BMI) decrease showed statistically significant difference at 1 year but not on subsequent follow-ups. Body adiposity index (BAI) decrease was 28.4 for LGB versus 26.8 for LVG at 1 year ($p = 0.679$) and 21.8 versus 29.8 at 2 years, respectively. Weight loss in terms of %EWL, BMI and BAI decrease did not show any significance between LGB and LVG 2 years after surgery.

Conclusion: Our study provides evidence that LVG yields similar long-term weight loss as LGB, and therefore, is a viable option as a primary bariatric procedure.

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LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING VERSES ROUX-EN-Y GASTRIC BYPASS: 10 YEAR RESULTS OF A PROSPECTIVE RANDOMIZED TRIAL

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Background: Prospective randomized comparison of Laparoscopic Adjustable Gastric Banding (LAGB) versus Laparoscopic Roux-en-Y Gastric Bypass (LRYGBP) is lacking.

Methods: Lap-Band® via pars-flaccida and standard LRYGBP were performed. From January 2000 to November 2000, 51 patients (aged >19 <50) were randomly allocated into: Group A (LB; N=27;

5M/22F; mean age: 33.3, range: 21-52; mean weight: 120, range: 92-150 Kg; mean BMI: 43.4, range: 40.1-49.2; %EW: 83.8, range: 36.9-128.8), Group B (LGBP; n=24; 4M/20F; mean age: 34.7, range 20-50; mean weight: 120, range: 95-147 Kg; mean BMI: 43.8, range 40-48.9; %EW: 83.3, range: 34.6-126.53). Operative time, re-operation with hospital stay, Kg, BMI, and %EWL, were collected. Failure was considered BMI >35. Data were analyzed by Student t-test ($p > 0.05$ is considered significant).

Results: Mean operative time was 60 (Group A) and 220 (Group B) minutes ($p > 0.001$). Mortality was absent. 5 LAGB and 3 LRYGBP patients were lost. Re-operation rate ($p = ns$) was 8/22 (36%) and 3/21 (14%), with hospital stay ranging 2-3 days and 1 week-6 months in group A and B respectively. After 10 years mean weight was: 101±22 and 83±18 Kg, BMI was 36±7 and 30±5, mean %EWL was 46±27 and 69±29, with failure rate 7/14 (50%) and 4/21 (19%) in Group A and B respectively ($p < 0.001$). Patients with BMI <30 were 3/14 (21%) and 10/21 (48%) in the same groups ($p < 0.001$).

Conclusion: LRYGBP compared to LAGB produces better weight loss and reduced number of failures, despite significantly longer operative time and life threatening complications.

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NATIONAL COMPARISONS OF BARIATRIC SURGERY SAFETY AND EFFICACY: FINDINGS FROM THE BOLD DATABASE 2007-2010

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Background: The Centers for Medicare and Medicaid Services (CMS) recently re-opened the bariatric surgery national care determination to receive evidence regarding inclusion of the sleeve gastrectomy as a covered benefit. Comparative evidence regarding bariatric surgery is needed to provide support for this care determination.

Methods: From 2007-2010, data were obtained from BOLD for the three major bariatric surgeries: laparoscopic gastric bypass (LRYGBP), gastric banding (LGB) and sleeve gastrectomy (SG), (N=268,898). Outcomes reported included

preoperative demographics and postoperative outcomes such as 1 year BMI reduction and 30-Day complication, readmission and mortality rates.

Results: Comparison of preoperative demographics demonstrated similarity between the three groups including: % Female (LRNYGB, 79; LGB, 78; SG, 74), Age (LRNYGB, 45; LGB, 46; SG, 45), and % Hypertension (LRNYGB, 58; LGB, 55; SG, 54). The three groups did differ in other demographics including: % Private Insurance (LRNYGB, 70; LGB, 68; SG, 57), % Diabetes (LRNYGB, 37; LGB, 28; SG, 30), ASA Class >4 (LRNYGB, 5.3; LGB, 3.3; SG, 3.9). Post-operative outcomes are summarized in the below table.

Conclusion: With the largest series to date, the comparative safety and efficacy of the sleeve gastrectomy is between the two CMS-sanctioned bariatric procedures of gastric bypass and band as demonstrated in this prospective, clinical registry.

	Gastric Bypass (136,036)	Gastric Band (116,898)	Sleeve Gastrectomy (15,964)
LOS (Days)	2.3	0.7	1.9
%, 30 day Serious Complications	1.25	0.25	0.96
%, 30 Day Reoperation	2.73	0.65	1.7
%, 30 Day Readmission	4.62	1.38	3.61
%, 30 Day Mortality	0.14	0.03	0.08
BMI, Preop	47.7	45.1	47.5
BMI, 12 mos	31.2	37.5	34.1

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PERI-OPERATIVE COMPLICATIONS IN BARIATRIC SURGERY PATIENTS UNDERGOING PROPHYLACTIC INFERIOR VENA CAVA (IVC) FILTER INSERTION

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Background: The United States Food and Drug Administration recently issued a warning about adverse events in patients receiving IVC filters. A prior study by our group demonstrated a lack of benefit of IVC filter insertion for the prevention of pulmonary embolism among bariatric surgery patients. However, our study lacked statistical power to prove harms associated with this practice.

Methods: We analyzed data from the prospective, statewide clinical registry of the Michigan Bariatric Surgery Collaborative. Our study population now includes 29,326 bariatric surgery patients from 32 hospitals whose procedures were performed between 2006 and 2011. We used logistic regression to assess relationships between IVC filter insertion and complications within 30 days of surgery while controlling for patient risk factors, bariatric procedure type, and propensity score.

Results: A total of 1,018 (3.5%) patients underwent pre-operative IVC filter placement, most of whom (62%) had no history of VTE. Patients receiving IVC filters had higher adjusted rates of VTE (0.43% vs. 0.21%; OR=2.1, 95% CI=1.1-3.9, p=0.019), serious complications (2.8% vs. 2.0%; OR=1.39, 95%CI=1.0-1.9, p=0.038), and death (0.20% vs. 0.05%; OR=4.2, 95% CI=1.35-13.0, p=0.013). Of the 7 patients with IVC filters that died, 4 had pulmonary embolism and 2 had IVC thrombosis/occlusion. Other serious IVC filter specific complications included IVC filter migration in two patients.

Conclusion: : In bariatric surgery, the risks of IVC filter insertion exceed the benefits and their use should be discouraged.

UTILIZATION OF LAPAROSCOPY IN GENERAL SURGICAL OPERATIONS AT ACADEMIC CENTERS

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Background: Laparoscopy is commonly being utilized in many different types of general surgical procedures. The aim of this study was to examine the utilization of laparoscopy and its outcomes in 7 commonly performed general surgical operations.

Methods: Clinical data of patients who underwent one of the 7 general surgical operations between 2006 and 2009 were obtained from the University HealthSystem Consortium (UHC) database. The UHC database contains data from all major teaching hospitals in the US. The 7 general surgical operations included open and laparoscopic antireflux surgery; colectomy for colon cancer or diverticulitis; bariatric surgery; ventral hernia repair; appendectomy for acute appendicitis; rectal resection or abdominal perineal resection for rectal cancer, and cholecystectomy for acute or chronic cholecystitis. The main outcome measures included the number of procedures and utilization and outcomes of laparoscopic cases.

Results: Results listed in table 1.

Conclusion: Within the context of academic centers, bariatric surgery is the most common general surgical operation and has the highest utilization of laparoscopy. The morbidity and mortality of laparoscopic bariatric surgery is now comparable to that of laparoscopic cholecystectomy and antireflux surgery.

Outcomes of laparoscopic procedures in general surgical operations between 2006 and 2009

Operations	N	Utilization of laparoscopy	LOS* (days)	Complications*	Mortality*
Bariatric surgery	54,885	90.0%	2.3±2.8	6.3%	0.06%
Cholecystectomy	54,782	81.4%	3.3±3.8	8.3%	0.18%
Antireflux surgery	8,339	79.3%	2.9±4.3	10.7%	0.02%
Appendectomy	51,077	71.5%	1.6±1.3	3.5%	0.02%
Colectomy	21,761	18.9%	5.6±4.6	21.5%	0.54%
Ventral hernia repair	25,885	8.1%	3.2±3.4	14.0%	0.24%
Rectal resection	2,392	7.4%	6.9±5.1	25.0%	0.57%

*Outcome of laparoscopic operations;
 LOS: length of stay

PREOPERATIVE HYPERINSULINEMIA DIMINISHES EXCESS WEIGHT LOSS FOLLOWING ROUX-EN-Y GASTRIC BYPASS IN NON-DIABETIC PATIENTS

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Background: Derangement of glucose metabolism has been implicated to affect weight loss following Roux-en-Y gastric bypass (RYGB) by predisposing to reactive hypoglycemia and maladaptive eating behavior. We hypothesize that this phenomenon may represent a persistence of preoperative hyperinsulinemia in non-diabetic patients who undergo RYGB.

Methods: Demographic, anthropomorphic, and comorbidity data were prospectively collected on 258 non-diabetic obese patients who underwent RYGB. Biochemical measurements were obtained to evaluate glucose metabolism.

Results: The majority of the 258 patients were hyperinsulinemic (n=137, 53.1%). Hyperinsulinemic patients were more frequently male (22.6% vs 7.9%, p<0.005) and had higher excess weight (57.6±19.8 kg vs 51.4±17.5 kg, p<0.01). However, mean age (44.4±9.8 vs 44.7±11.6 years) and preoperative BMI (46.6±33.3 kg/m² vs 45.6±6.8 kg/m²) were not different. Plasma insulin level correlated with fasting glucose (r=0.748, p<0.0001) and hemoglobin A1c (r=0.655, p<0.0001) in hyperinsulinemic patients but not in normoinsulinemic patients. Plasma insulin level correlated with less %EWL at 12 months (r=-0.290, p<0.005) in hyperinsulinemic patients but was not significant in normoinsulinemic patients.

Conclusion: Preoperative hyperinsulinemia was correlative with elevated fasting plasma glucose and hemoglobin A1c in the absence of diabetes and, more importantly, diminished medium-term (12 months) excess weight loss. Our data suggest that preoperative abnormalities in glucose metabolism impact weight loss results following RYGB. These findings warrant additional investigations into the utility of serum insulin level as a predictor of weight loss in bariatric surgery and into possible therapies to augment weight loss in hyperinsulinemic non-diabetic patients.

IMPROVED RENAL FUNCTION 12 MONTHS AFTER BARIATRIC SURGERY

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Background: Obesity is one of the risk factors for the development of chronic kidney disease. Accumulating reports suggested that weight reduction by bariatric surgery may improve renal parameters. This study investigate the glomerulay filtration rate (GFR) change in severe obese patients one year after bariatric surgery.

Methods: The GFR in 233 severe obese patients who had undergone obesity surgery at our department and had been followed up for over 12 months were retrospectively monitored. The groups were stratified by the baseline GFR as follows: Hyperfiltration (GFR > 125 ml/min), normal (GFR 125-99), chronic kidney disease (CKD) stage 2 (GFR 89-60), CKD stage 3 (59-30). The outcome of GFR 12 months after bariatric surgery was analyzed.

Results: Of the 233 patients, 61 (26.2%) had hyperfiltration, 127(54.5%) was normal, 39 (16.7%) had CKD stage 2 and 6 (2.6%) had CKD stage 3. The mean GFR was 146.4ml/min in hyperfiltration group, 105.7ml/min in normal group, 81.0 ml/min in CKD stage 2 and 49.3ml/min in CKD stage 3, respectively. Examination of the GFR value one year after weight loss surgery demonstrated that mean GFR decreased to 133.0ml/min in hyperfiltration group, increased to 114.2ml/min in normal group, increased to 98.6ml/min in CKD stage 2 and increased to 66.8ml/min in CKD stage 3 patients.

Conclusion: Renal function abnormality was commonly seen in severe obese patients. Weight loss associated with bariatric surgery could potentially have a positively effect on renal function at one year after surgery.

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PREDICTING THE SUCCESS OF METABOLIC SURGERY: THE DIABETES SURGERY SCORE

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Background: Surgery is the most effective treatment for morbid obesity and lead to dramatic improvement in type T2DM. Gastro-intestinal metabolic surgery had been proposed as a treatment option for type 2 diabetes (T2DM) treatment. However, a grading system to categorize and predict outcome of metabolic surgery is lack.

Methods: We first evaluated 63 patients and found that four factors predicted the success of T2DM treatment after bariatric surgery in this cohort: the body mass index (BMI), the level of C-peptide, duration of T2DM and the age. We used these variables to construct the Diabetes Surgery Score, a multidimensional 10-point scale in which higher scores indicated a higher success rate of T2DM remission. We then validated the index in a prospective collected cohort of 176 patients, with remission of T2DM at one year after surgery as the outcome variables.

Results: There were 48 T2DM remissions among the 63 patients and 115 remissions (65.3%) in the validation cohort. Patients with their T2DM remission after surgery had a higher Diabetes Surgery Score than those without (8 + 4 vs. 4 + 4, p< 0.05). Patients with higher Diabetes Surgery Score were also at higher rate of success in T2DM remission (from 33% in score 0 to 100% in score 10); the ration for success per one-point increase in the Diabetes Surgery Score was 6.7%.

Conclusion: The Diabetes Surgery Score, a simple multidimensional grading system can predict the success of T2DM treatment by bariatric surgery among patients with inadequately controlled T2DM.

PL-110

PREDICTORS FOR REMISSION OF TYPE 2 DIABETES MELLITUS FOLLOWING ROUX-Y GASTRIC BYPASS

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Background: Roux en Y gastric bypass (RYGB) leads to remission in type 2 diabetes mellitus (T2DM) in a majority of patients. The mechanisms involved include early, weight loss-independent effects (incretins) and later weight loss-dependent effects (increase in insulin sensitivity). The factors that predict reversibility of T2DM have not been extensively investigated, an issue made more imperative with the initiatives to apply RYGB to non-obese diabetic populations. We studied factors predictive of remission of T2DM following RYGB in a severely obese population.

Methods: We studied 131 consecutive severely obese individuals with T2DM undergoing RYGB. T2DM remission was defined as adequate glycemic control without diabetic medication. Demographic factors, metabolic factors (HOMA-IR, HOMA-B, disposition index, Hgb-A1c), type of diabetic medication used, and postoperative weight loss at both 6 weeks and 1 year postoperatively were included. Log rank analysis was used to identify independent predictors of T2DM remission. We developed a COX model after covariate selection procedure.

Results: This population had an age of 48+9 and BMI range from 33-75 kg/m². The preoperative Hgb-A1c was consistent with adequate glycemic control (7.0+0.8%), and decreased significantly postoperatively (6+1%; p=0.0001). Preoperative disposition index (parameter est. = 0.56, 0.019) and preoperative usage of insulin (parameter estimate = -1.71, p = 0.0002) were identified as independent predictors for remission of T2DM.

Conclusion: Disposition index, a measure of residual beta cell function, and usage of insulin independently predict reversibility of T2DM after RYGB. Postoperative weight loss is not a predictor for remission of T2DM. These factors can be useful when applying RYGB to non-obese populations with the intention of addressing T2DM.

PL-111

ELEVATED HEMOGLOBIN A1C IN DIABETIC PATIENTS DOES NOT IMPART INCREASED COMPLICATION RATES IN ROUX-EN-Y GASTRIC BYPASS

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Background: It is proposed by some insurers that elevated hemoglobin A1C values exceeding 7 g/dL in diabetic patients imparts an increased rate of complications from Roux-en-Y gastric bypass (RYGB). Insurance companies have used this standard as a method to deny or delay access to care.

Methods: Retrospectively examine the rate of complications in diabetic patients undergoing RYGB based on preoperative hemoglobin A1C. All patients were on oral medications or insulin. We focused specifically on complications related to wound healing such as anastomotic leak, stomal stenosis, and wound infection.

Results: 342 diabetic patients underwent laparoscopic RYGB over three years (2008-2011). 170 patients had elevated hemoglobin A1C values exceeding 7 g/dL pre-operatively (average Hgb A1C 9.0 g/dL), of which there were four superficial surgical site infections, one stomal stenosis, but no anastomotic leaks. Of the remaining 172 patients (average Hgb A1C 6.0 g/dL), there were two superficial surgical site infections, two stomal stenoses, and again no anastomotic leaks. There was no difference in complication rates between the two groups (2.9 vs. 2.3%, p=0.50).

Conclusion: An elevated hemoglobin A1C exceeding 7 g/dL in diabetic patients does not convey increased complication rates in RYGB, and should not be used as a criteria to deny patients access to bariatric surgery.

PL-112

PREDICTORS OF LONG TERM SUCCESS AFTER LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS IN AFRICAN-AMERICAN WOMEN

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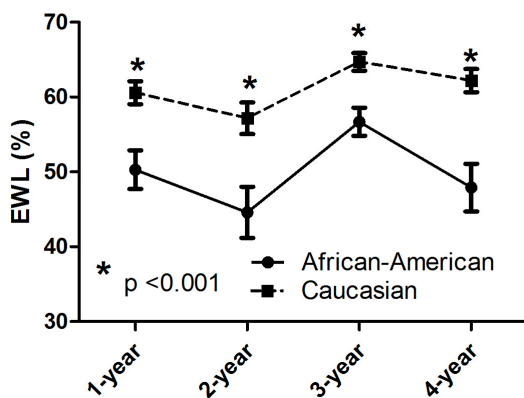
Background: Laparoscopic Roux-en-Y gastric bypass (LRYGBP) has been demonstrated to provide sustained weight loss. However, short-term studies have suggested that African-Americans (AA) are not as successful as Caucasians (CA) after bariatric surgery. Our study was designed to test the hypothesis that at longer term follow-up AAs are just as successful as CA after LRYGBP.

Methods: A nested case-control study was designed to examine the effect of race as covariate in the long-term success of women undergoing LRYGBP. We matched three control subjects per case subject, and the final numbers for analyses were 78 case subjects (AA) and 204 control subjects (CA). Odds ratios

(ORs) and 95% confidence intervals (CIs) were calculated using conditional logistic regression analysis.

Results: The two cohorts (N=282) were well matched from age (AA 40.3±9.1 vs. 41.1±8.9 CA years), preoperative BMI (AA 50.6±7.5 vs 50.2±7.1 CA), prevalence of Type 2 Diabetes (AA 20.5% vs 21.1% CA), hypertension (AA 69.1% vs 52% CA), and sleep apnea (AA 35.9% vs 34.8 CA). As shown in the Figure, in the AA group the long term curve for percent of excess weight was significant ($p < 0.001$) lower than the CA group at any time-point. In our model, diagnosis of type 2 diabetes in the AA group (adjusted odds ratio [OR] = 6.1E8, significantly ($p = 0.002$) predicted adequate ($>$ mean minus 1 standard deviation) excess weight loss at 4 years, after controlling for relevant confounders. Other covariates did not significantly impact the model.

Conclusion: Race significantly impacted the long-term excess weight loss at 4 years for patients undergoing Roux-en-Y gastric bypass surgery at our institution. Future research should be directed at determining potential genetic reasons for these differences, including genes associated with type 2 diabetes.



Long-Term Follow-Up in the Two Cohorts

PL-113

GASTRIC BYPASS IMPROVES HYPERCHOLESTEROLEMIA BY MECHANISMS INDEPENDENT OF WEIGHT LOSS

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Background: The mechanism by which gastric bypass affects hypercholesterolemia is unclear. Although studies have shown a correlation between weight loss and improvement in lipid profiles, it remains unknown whether weight loss itself is primarily responsible for the resolution of hypercholesterolemia. We compare weight-matched laparoscopic Roux-en-Y gastric bypass (LRYGB) patients and laparoscopic adjustable gastric banding (LAGB) patients to determine if hypercholesterolemia is improved by factors other than weight loss.

Methods: A total of 22 patients were included. 11 patients undergoing LRYGB were compared to a demographically similar cohort of 11 patients undergoing LAGB. All patients had a diagnosis of hypercholesterolemia (total cholesterol > 200 or triglycerides > 150) and were not treated with lipid-lowering medications. The groups were matched for weight loss. Data collected included total cholesterol, triglycerides, HDL, and LDL, preoperatively and at 12 months postoperatively. ANCOVA was performed for analysis with preoperative levels of each outcome as the covariate.

Results: LRYGB and LAGB groups did not differ in age, gender, BMI, or preoperative total cholesterol, HDL, LDL or triglycerides (all $p > 0.15$). Postoperatively, there was no difference between groups in %EWL ($p = 0.99$). Despite similar weight loss, LRYGB patients showed significantly greater decreases in LDL ($p = 0.029$) and total cholesterol ($p = 0.042$) compared to LAGB patients.

Conclusion: When matched for weight loss, LRYGB results in superior improvement in hypercholesterolemia compared to LAGB. This suggests that LRYGB affects lipid metabolism by a mechanism independent of weight loss, such as hormonal alterations or fat malabsorption.

Preoperative and Postoperative Lipid Profiles

	LRYGB (n=11)	LAGB (n=11)	P
Preop total chol (mg/dl)	213.4	232.0	0.508
Preop HDL (mg/dl)	48.2	61.0	0.352
Preop LDL (mg/dl)	134.0	140.3	0.973
Preop trigl (mg/dl)	155.6	153.3	0.632
Change in total chol at 12 months (mg/dl)	-41.2	-11.7	0.042
Change in HDL at 12 months (mg/dl)	9.8	-1.2	0.755
Change in LDL at 12 months (mg/dl)	-39.8	3.3	0.029
Change in trigl at 12 months (mg/dl)	-56	-66.2	0.809
%EWL at 12 months	57.9	57.5	0.997

PL-114

LONG TERM IMPROVEMENT IN BIOCHEMICAL CARDIAC RISK FACTORS FOLLOWING GASTRIC BYPASS

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Background: Coronary artery disease (CAD) is the leading cause of death in the United States, with obesity as a leading preventable risk factor for CAD. Bariatric surgery has been shown to reduce short-term cardiac risk however long term benefit has not been reported.

Methods: At a single academic institution, biochemical cardiac risk factors in gastric bypass patients were measured preoperatively and up to 7 years postoperatively (N=88). Statins were discontinued after surgery. These risk factors included total cholesterol, high-density lipoprotein (HDL) cholesterol, low-density lipoprotein cholesterol (LDL), triglyceride/HDL cholesterol ratio, triglycerides, lipoprotein A, high-sensitivity C-reactive protein, and homocysteine.

Results: Mean preoperative demographics included: age, 43 years; 84% female; BMI, 47; 33% diabetic; 50% hypertensive; 23% statin therapy; 72 % follow up rate and 2% had known CAD. Significant improvement occurred in the biochemical cardiac factors from preoperatively to 7 years. By 7 years postoperative the average BMI was reduced to 34 and

average weight was 205 lbs, from an average of 286 preoperative. The beneficial changes were as follows (pre/postop): total cholesterol, 184/174; HDL 44/62; LDL, 113/92; triglyceride/HDL cholesterol ratio, 4.0/1.8; triglycerides, 155/86; lipoprotein A, 29/19; high-sensitivity C-reactive protein, 10/ 2.3; and homocysteine, 10/ 8.9.

Conclusion: This study demonstrates that gastric bypass significantly improves all biochemical markers of CAD risk, particularly C-reactive protein, which had a 77% reduction by 7 years postoperative. As a result, gastric bypass decreases cardiac risk by both weight loss and advantageous alterations of biochemical cardiac risk factors in this comprehensive and long term study.

PL-115

FAST TRACK LAPAROSCOPIC GASTRIC BYPASS PROCEDURES. A SINGLE INSTITUTION EXPERIENCE WITH 3651 CONSECUTIVE PROCEDURES

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Background: All patients admitted to the public and private hospitals are registered in the Danish National Patient Register. At the Private Hospital Molholm 4773 bariatric procedures have been performed since 1st of January 2006 to 1 October 2011. Fast track surgery with one day stay was introduced in 1 July 2007 with the purpose of making a cost-effective, low risk procedure. All patients were registered prospectively in our database and in the National Patient Register. The aim of this study was to report morbidity, mortality and patient contentment of a consecutive series of laparoscopic gastric bypass procedures.

Methods: Prospective series of laparoscopic bypass procedures during the period 1st July 2007 to 1st January 2011. Patients were follow-up 4 and 12 months postoperatively and hereafter yearly by questionnaire. All patients were checked on September 2011 in the Danish National Patients Register for readmissions and re-operations.

Results: A total of 3651 laparoscopic gastric bypass operations were performed. Median age was 39 years, female/male ratio 81/19. Median operative time was 54 minutes. The median time of discharge after operation was 22 hours. In-hospital complication rate was 2.6% of which 1.3% required re-operation. Patient assessments at time of discharge

showed that 89% patients were very satisfied, 10% satisfied, and 1% unsatisfied. The re-admission rate within 30 days was 4.5% of which 1.9% required re-operation. The mortality rate within 30 days was 0.05%.

Conclusion: Fast track laparoscopic gastric bypass is a cost-effective procedure, with low morbidity and mortality and high patient satisfaction.

PL-116

EFFECTS OF BARIATRIC SURGERY ON DIABETIC NEPHROPATHY AFTER 5 YEARS OF FOLLOW-UP

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Background: Studies have demonstrated that the benefits of bariatric surgery extend beyond durable weight loss and include significant improvement in glycemic control. We hypothesized that improving diabetes control may have positive effects on end-organ complications of this disease such as diabetic nephropathy.

Methods: We identified all diabetic patients who underwent bariatric surgery at our institution and had completed 5-year follow-up. Patient's current diabetes status (remission, improvement, or no change) was determined by biochemical analyses and review of medications. The presence of diabetic nephropathy, pre- and post-operatively, was determined by urinary albumin-creatinine ratio (uACR).

Results: 52 diabetic patients underwent bariatric surgery and had 5-year follow-up data available, including serial uACR measurements (25% male, age 51.2±0.1 yrs). Preoperative BMI was 49.0±8.7 kg/m², mean duration of diabetes 102.6 months (range 3-468) and baseline HbA1C was 7.9±1.3%. Diabetic nephropathy, as indicated by micro (30-299mg/g) or macro (>300mg/g) albuminuria, was present in 35% preoperatively. Of these, it resolved in 55% at a mean follow-up of 66 months (range 60-92). Among those with no evidence of diabetic nephropathy prior to bariatric surgery, only 25% proceeded to develop albuminuria 5 years later. The 5-year remission and improvement rates for diabetes were 22% and 55%, respectively. Mean reductions in fasting glucose and HbA1c were 32.0 mg/dL and 1.2%, respectively.

Conclusion: Bariatric surgery can induce a significant and sustainable improvement in diabetes, and improve or even prevent microvascular complications such as nephropathy. Considering that diabetes is often a progressive disease, these results are remarkable and warrant further investigation.

PL-117

LAPAROSCOPIC SLEEVE GASTRECTOMY IS SAFE AND EFFICACIOUS FOR PRE-TRANSPLANT CANDIDATES

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Background: Morbid obesity is a relative contraindication for organ transplant given a higher postoperative morbidity and mortality. The safety and efficacy of laparoscopic sleeve gastrectomy (LSG) for pre-transplant patients have not been described.

Methods: A retrospective review was performed on morbidly obese patients being considered for transplant who underwent LSG between 2006 to 2011. Collected data included patient demographics, operative details, 30-day complications, percentage of excess weight loss, postoperative laboratory data, and status of transplant candidacy.

Results: 26 pre-transplant patients, of which 17 were females, underwent LSG. The mean age was 57 years old. Six patients had end stage renal disease (ESRD) and 20 patients had hepatic dysfunction. The preoperative mean body mass index (BMI) was 48.3 kg/m² (range 38-60.4 kg/m²). There were 6 postoperative complications: 2 superficial wound infections, 1 staple line leak, 1 with postoperative bleed requiring blood transfusion, 1 with transient encephalopathy, 1 temporary renal insufficiency, but no mortalities. The mean percentage of excess weight loss at 1, 3, and 12 months were 17% (n=24), 26% (n=22), and 50% (n=16) respectively. One patient's renal function stabilized and was taken off the transplant list. 2 patients subsequently underwent a combined liver and kidney transplant while 2 others received liver transplants all within 9 months post-LSG. Serum albumin levels at 6 months after surgery were similar. None of the subsequent transplant recipients had abnormal nutritional parameters post-transplant.

Conclusion: This is the largest case series involving pre-transplant candidates and LSG. LSG is safe,

technically feasible, and improves candidacy for transplantation.

PL-118

BETTER WEIGHT LOSS AND LESS REOPERATION RATE FOLLOWING LAPAROSCOPIC BANDING IN SELECTED OBESE PATIENTS: A PROSPECTIVE STUDY

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Background: Laparoscopic Adjustable gastric banding (LAGB) is a widely recognized technique with low morbidity. Conversely a high number of late complications and failure have been published. We have previously reported five predictive factors of success after LAGB (1): age under 40, BMI lower than 50 kg/m2 at time of surgery, advanced laparoscopic bariatric team, patients prone to change their eating behaviors and to practice physical activity. We report the results on a cohort of 389 selected patients.

Methods: Between 2005 and 2011, 429 patients underwent LAGB, according to the selected criteria. Forty patients dropped out follow-up. Preoperative mean age was 39.7 years (+/- 19.75); mean weight was 114.61 Kg (+/- 14.72); mean BMI was 41.60 Kg/m2 (+/- 3.67); mean follow-up was 29.24 months, respectively at one (N=291), three (N= 107) and five years (N=32). Safety and efficacy were compared to our historical series of 1227 LAGB.

Results: No death was reported. Overall rate of complications was 9% (n=35): 11 slippages, 4 food intolerances, 4 oesophageal dilatations, 2 intragastric migrations, 14 port problems. Reoperation rate was 3,3% (n=13). Eight LAGB were removed (2%). Mean weight was 88.80 at three and 83.84 kg at five years and corresponding mean BMI was 32.33 and 30.84 kg/m2. When we compare our results to our historical series (see table) we observed a decreased rate of reoperation (3,3% vs 10%, p<0,001) and a significative reduction of morbidity (9% vs 26%, p<0,001). The criteria selected could also influence the BMI observed at 5 years (30,84 vs 33,9).

Conclusion: Patients selected on the basis of predictive criteria have a significantly lower risk of surgical complications and failure, as well as a higher loss of weight compared to the unselected patients.

The choice of LAGB should consider those selective criteria.

(1): Ann Surg 2007;246:1034-39.

	Historical series	selected patients	
N	1227	389	
Removed bands	128 (10 %)	8 (2 %)	p < 0,001
Abdominal reoperations	262 (21 %)	17 (4,3 %)	p < 0,001
Complications	236 (19,2 %)	35 (9 %)	p < 0,001
BMI at five years (kg/m2)	33,9	30,84	

PL-119

SURVEY RESULTS OF BARIATRIC SURGEONS' MEDICAL MALPRACTICE EXPERIENCE

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Background: Medicolegal aspects of bariatric surgery are very difficult to analyze scientifically as there is no central, searchable database of closed case claims and little incentive for malpractice insurers to divulge data. Examining medicolegal data may provide insight into the financial burden on physicians. Detailed data may also be used to improve patient safety and determine common causes of negligence.

Methods: All members of the American Society of Metabolic and Bariatric Surgeons practicing in the United States were asked to complete a survey detailing their medicolegal experience.

Results: Of 1672 eligible members that receive the survey, 329 responded (19.7%). Mean years in practice were 15.3±0.51 (S.E.). Mean annual cost of malpractice insurance was \$59200±3700 (N=197). The average surgeon experienced 1.5±0.2 lawsuits. 144/300 48% of surgeons had never had a bariatric-related lawsuit filed against them. Of the 464 lawsuits reported from 156 surgeons, 126 were settled out of

court (27%), 249 were dropped (54%) and 54 (18%) went to trial. 72% of cases that went to trial were found to be in favor of plaintiff. Mean amount paid by surgeon for all lawsuits was \$622000±8600. 65% of surgeons in practice greater than 10 years experienced a lawsuit while 35% of those less than 10 years did so. The probability of a surgeon experiencing a lawsuit was independently associated with the years in practice (p<0.0005) and number of total cases the surgeon has performed (p=0.001). The annual cost of malpractice insurance was independently predicted by only the amount paid in previous claims (p=0.006).

Conclusion: The probability of a medical malpractice lawsuit depends on the number of procedures performed and the number of years the surgeon was in practice.

PL-120

OUTCOMES OF LAPAROSCOPIC CHOLECYSTECTOMY FOR PRE-EXISTING CHOLELITHIASIS BEFORE, DURING OR AFTER LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS. A RANDOMIZED PROSPECTIVE TRIAL.

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Background: The management of pre-existing cholelithiasis (PEC) in morbidly obese patients (MOP) undergoing laparoscopic Roux-en-Y gastric bypass (LRYGB) remains controversial. This study aims to assess the outcomes of laparoscopic cholecystectomy (LC) before (A), during (B) or after LRYGB (C).

Methods: MOP who were considered for LRYGB between September 2003 and October 2011 and had PEC were included in the study. All patients underwent an abdominal ultrasound preoperatively. Qualified MOP were randomly assigned to receive a LC before, during or after LRYGB. Postoperative cholecystectomy was performed electively at 6-12 months postoperatively or sooner for acute symptoms. P < .05 was significant.

Results: 132 MOP were randomly assigned to undergo LC before (n=39, 29.5%), during (n=31, 23.5%), or after LRYGB (n= 62, 47%).

Conclusion: LC prior to LRYGB is safe despite increased BMI and can be performed with a lower hospital stay. Significant unexpected pathologic and intraoperative findings are often present among MOP

undergoing LC even if PEC is clinically asymptomatic.

	A	B	C	p
Age	46.1±11.4	43.3±10.3	40±11.9	.054
% Males	16.1%	6.5%	15.4%	.4
BMI	47.4±7.5	45.7±6.1	31.8±6.5	<.0001
Preoperative symptoms	17.9%	6.5%	21%	.2
Complex presentation(1)	0%	0%	21%	.0003
Unexpected intraoperative findings(2)	28.2%	14.3%	10.2%	.08
Complications	2.6%	6.5%	3.3%	.6
Readmissions	5.1%	14.3%	11.1%	.49
Re-operations	0%	3.2%	6.5%	.25
Hospital stay	0.3±0.9	0.8±0.83 (3)	1.4±2.6	<.0001
Pathology				
- normal	5.1%	0%	1.6%	
- acute cholecystitis	25.6%	26.8%	19.4%	.8
- chronic cholecystitis	69.3%	73.2%	79%	

(1)Acute cholecystitis, pancreatitis, choledocholithiasis;

(2)Acute cholecystitis, hydrops, cystic duct obstruction;

(3)Difference from mean stay of LRYGB

PL-121

THE EFFECT OF SELECTIVE GUT STIMULATION ON GLUCOSE METABOLISM AFTER GASTRIC BYPASS IN THE ZUCKER DIABETIC FATTY RAT MODEL

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Background: Potential mechanisms underlying the antidiabetic effects of Roux-en-Y gastric bypass (RYGB) include altered nutrient exposure in the gut. The aim of this study was to evaluate the effects of selective gut stimulation on glucose metabolism in an obese diabetic rat model.

Methods: Sixteen male Zucker Diabetic Fatty rats were randomized to two groups: RYGB with gastrostomy tube (GT) insertion into the excluded stomach, and control with GT insertion into the stomach. An insulin tolerance test (ITT), oral glucose tolerance test (OGTT) and mixed meal test (MMT) were performed before and 14-28 days after surgery. Glucose tolerance test via GT (GTT-GT) and MMT via GT (MMT-GT) were added postoperatively.

Results: GT insertion in RYGB and control groups was successfully completed in all subjects. No GT-related complications occurred. Before surgery, there were no significant differences between the two groups in body weight or fasting glycemia. Postoperatively, RYGB group showed significant decreases in body weight, food intake, ITT and OGTT compared to preoperative values ($p < 0.01$). GTT-GT showed significant deterioration of glucose tolerance ($p = 0.04$). Postoperatively, in contrast, the control group showed no significant changes in ITT, OGTT and GTT-GT after the sham procedure. The MMT showed that the RYGB group increased fasting PYY and postprandial GLP-1 postoperatively compared to the control group. MMT-GT showed no significant changes in PYY and GLP-1 compared to the preoperative values.

Conclusion: When foregut exposure to nutrients is reversed after RYGB, improvements in glucose metabolism and gut peptide responses to a mixed meal are abrogated. These data support the view that exclusion of foregut exposure to nutrient flow is an essential part of the mechanism that produces the remission of type 2 diabetes after RYGB surgery.

PL-122

NUTRITIONAL IMPACT OF SLEEVE GASTRECTOMY COMPARED TO DUODENAL SWITCH

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Background: Sleeve Gastrectomy (SG) is now offered as a stand-alone procedure for the treatment of morbid obesity. However, the long-term nutritional risks of SG are still unclear.

Methods: All patients who had a laparoscopic SG in our Institution were included in this study ($n = 226$). Patients who received a BPD-DS during the same period were used as a control group ($n = 344$). Data

were obtained from our prospectively maintained electronic database and are reported as a mean \pm SD comparing SG to BPD-DS patients.

Results: The mean age of the patients was 43 ± 11 years (48 ± 11 vs 40 ± 10 years, $p < 0.05$). Initial BMI was $48 \pm 7 \text{ kg/m}^2$ (48 ± 10 vs $48 \pm 6 \text{ kg/m}^2$, NS). There was one peri-operative death from pulmonary embolism after a BPD-DS. Hospital stay was 5 ± 2 versus 6 ± 7 days ($p < 0.05$). 30-days complications occurred in 7.5% vs 11.3% patients (NS). Excess weight loss was 45% vs 62% at 6 months; 50% vs 80% at 12m, 55% versus 86% at 18m and 51% versus 84% at 24m ($p < 0.05$). Before surgery, albumin deficiency (< 35) was present in 0.4% patients; calcium deficiency (< 2.15) in 3%; vitamin D (< 70) in 55%; Vitamin B12 (< 145) in 4%; Vitamin A (< 1.4) in 9%; serum iron (< 10) in 19% and Ferritin (< 12) in 1%. At a mean 15 months after surgery, albumin deficiency was present in 4% versus 9% ($p < 0.05$); calcium in 3% versus 14% ($p < 0.05$); Vitamin D in 17.3% versus 16% (NS); Vitamin B12 in 4% versus 2% (NS); Vitamin A in 13% versus 30% ($p < 0.05$); serum iron in 15% versus 19% ($p < 0.05$), Ferritin in 4% versus 3% patients (NS).

Conclusion: Nutritional deficiencies are present in the majority of morbidly obese patients, before surgery. SG provides a significant weight loss that comes with a non-negligible risk of nutritional deficiencies. Long-term follow-up after bariatric surgery is mandatory.

PL-123

GENDER DIFFERENCE IN BODY COMPOSITION CHANGES FOLLOWING A BILIOPANCREATIC DIVERSION WITH DUODENAL SWITCH SURGERY

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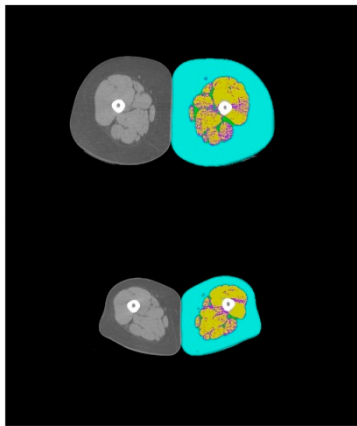
Background: Bariatric surgery-induced weight loss has profound impact on muscle and adipose tissue changes and modulation. The purpose of the study was to assess the impact of gender on weight loss after a biliopancreatic diversion with duodenal switch (BPD-DS) procedure regarding adiposity and skeletal muscle changes.

Methods: Anthropometric measurements and mid-thigh computed tomography (CT) were performed at

baseline and at 6 months in severely obese subjects who underwent BPD-DS.

Results: At baseline, men (n=12) and women (n=30) were similar for age, total, deep and subcutaneous adipose tissue but there were significant differences regarding weight (117.8±15.8 vs. 155.5±19.7kg; women vs. men respectively), body mass index (BMI) (46.2±5.4 vs. 51.2±4.6kg/m²), as well as with mid-thigh CT composition: total muscle (129.5±20.5 vs. 193.4±23.5cm²), fat infiltrated muscle (37.4±8.1 vs. 53.8±7.8cm²) and non-fat infiltrated muscle (79.4±16.6 vs. 114.7±16.1cm²); all p<0.001. At 6 months, adjusted for baseline weight, men had a greater decrement in weight (-25.5±4.8 vs. -29.9±6.5%), BMI (-25.5±4.8 vs. -29.9±6.6%), subcutaneous (-31.0±8.4 vs. -45.0±8.6%) and deep (-31.0±12.7 vs. -49.6±11.6%) adipose tissue; all p≤0.05. Both, men and women showed a similar decrement (%) in total muscle, fat and non-fat infiltrated muscle after the BPD-DS.

Conclusion: In conclusion, in regard to gender, BPD-DS surgery had a greater impact on a favorable modulation of weight, BMI and even more favourable adipose tissue in men compared to women whereas men show a decrement in their muscle mass similarly to women.



PL-124

HYPEROXALURIA AND NEPHROPATHY IN OBESE RATS FOLLOWING RYGB

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Background: Hyperoxaluria following Roux-en-Y gastric bypass (RYGB) is a well-known yet poorly understood complication. We characterize the long-term renal effects of RYGB in a diet-induced obese (DIO) animal model compared to sham pair-fed (PF) and obese (SO) controls.

Methods: Three-week old male Sprague-Dawley rats, given 60% high fat diet for 20 weeks, underwent PF, SO, or RYGB utilizing a stapled stomach pouch and hand-sewn 30 cm biliopancreatic and 10 cm Roux limbs. After 3 weeks of recovery, animals were assigned to low oxalate/40% fat (Low OX) or 1.5% potassium oxalate/40% fat (High OX) diets for 10 or 20 weeks. Daily weights and food intake were recorded. Urine studies for oxalate were collected at baseline and every 5 weeks. At study endpoint, renal histology was assessed using a quantitative glomerular and tubular scoring system by an experienced veterinary pathologist.

Results: RYGB rodents had significant reductions in body weight at 10 weeks (n=8; 136 ± 7 gm, p<0.001) and 20 weeks (n=5; 174 ± 14 gm, p<0.001) compared to PF and SO controls (n=18). Urine oxalate was slightly higher than baseline in Low OX RYGB animals (mean 9.2 ± 3 µmol/day; p=0.07) and unchanged in PF and SO animals on both Low and High OX diets (mean 4.6 ± 1.74 µmol/day; p=0.36). High OX RYGB rats had significantly elevated urinary oxalate at 10 weeks (13 ± 9 µmol/day; p=0.05), 15 weeks (48 ± 21 µmol/day; p<0.001), and 20 weeks (51 ± 16 µmol/day; p<0.001). Additionally, 10 and 20 week RYGB animal histology received higher glomerular and tubular lesion scores compared to controls (p<0.01).

Conclusion: RYGB rodents on high oxalate diet long-term had a 10 fold increase in urinary oxalate compared to controls. Irrespective of urinary oxalate levels, RYGB in this DIO rodent model is associated with sustained weight loss and progressive glomerular and tubular nephropathy.

PL-125

NOVEL BARIATRIC SURGERY: LAPAROSCOPIC ADJUSTABLE GASTRIC BANDED PPLICATION, A COMPARITIVE STUDY WITH LAPAROSCOPIC SLEEVE GASTRECTOMY

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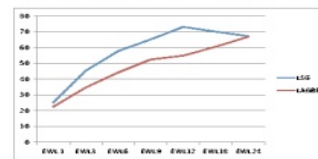
Background: Currently laparoscopic sleeve gastrectomy (LSG) is an accepted stand-alone definitive bariatric procedure, but is irreversible. Laparoscopic adjustable gastric banded plication (LAGBP) is an innovative technique combining adjustability of laparoscopic adjustable gastric banding (LAGB) and plication of stomach. We conducted a matched comparative study of LAGBP and LSG.

Methods: We retrospectively analyzed prospectively collected data of 60 patients, 30 each for LSG (Group 1) and LAGBP (Group 2) from May 2009 to October 2010. Demographics (age, sex, co-morbidities, BMI), operative data and complications, % excess weight loss (%EWL) and resolution of co-morbidities were analyzed.

Results: Mean age (years) was 32.77±8.17 and 30.37±8.22 (p= 0.286) and mean BMI (Kg/m²) was 37.44±3.52 and 37.3±3.8 (p value 0.832) for group 1 and 2 respectively. Mean operative time (minutes) and length of stay (LOS) (days) were 62.45±30.1, 86.01±21.88 (p value 0.001) and 1.63±0.72, 1.47±0.73 (p 0.289) for group 1 and 2 respectively. Similar complication rate (6.67%, n=2) and resolution of co-morbidities (100%) were noted in both groups. Mean %EWL for patients was 57.78±10.97, 73.14±13.05, 67.22±15.03; and 44.24±12.75, 54.94±18.42, 66.93±17.13 for group 1 and 2 at 6, 12 and 24 months respectively. In LAGBP mean band adjustment rate was 1.50±1.51 at 2 years.

Conclusion: Both groups showed excellent results in terms of resolution of co-morbidities and weight loss at 2 years. Additional potential of adjustability for more sustained %EWL in the long run was observed in LAGBP.

Figure 1: Graphical representation of %EWL in 2 groups over time



PL-126

CLINICAL OUTCOMES OF LAPAROSCOPIC GREATER CURVATURE PLICATION: ONE YEAR OUTCOMES FROM AN INTERNATIONAL MULTI-CENTER CLINICAL TRIAL

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Background: Laparoscopic greater curvature plication (LGCP) of the stomach, an emerging bariatric procedure, aims to achieve weight loss and a desirable metabolic effect without any implantable device. We report on the 1-year weight loss and safety outcomes from an international, prospective, multi-center, three year follow-up study to assess outcomes following LGCP.

Methods: Patients eligible for bariatric surgery by NIH criteria were recruited for the study. The greater curvature was mobilized up to the left crus and, at a minimum, one continuous row of sutures was placed to imbricate the greater curvature from the fundus to the antrum. An endoscope was used to confirm a patent lumen during and after the procedure. The outcome parameters for the interim analysis were percentage excess weight loss (%EWL) and incidence of complications. This study was registered on www.clinicaltrials.gov.

Results: 1-year data is currently available for analysis from 32 of 44 subjects. No patients have been lost to follow-up. The mean pre-op BMI was 42.6 ± 4.1 kg/m². The mean overall %EWL was $40.0\% \pm 24.2\%$ (range -4.4 to 95.1). The site-specific %EWL was $45.1 \pm 18.6\%$, $39.3 \pm 31.1\%$ and $32.3 \pm 28.0\%$. The most common post-operative complications were nausea (25), abdominal pain (17) and vomiting (7). One gastric leak occurred and was effectively treated with re-operation.

Conclusion: LGCP appears to be a relatively safe and effective emerging bariatric procedure for morbidly obese patients. Weight loss outcomes may vary according to differences in technique. Longer-term outcome data are needed to assess its potential as a primary bariatric procedure.

PL-127

LAPAROSCOPIC REVERSAL OF LAP-BAND TO SLEEVE GASTRECTOMY

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Background: When complications or failure of weight loss occurs after Lap-Band, Sleeve gastrectomy (SG) may be an attractive reversal option.

Methods: We evaluated all patients who underwent a reversal of LB to SG from January 2004 to October 2011. Demographics, co-morbidities, 30-day complications, reason for reversal, time from LB placement to reversal, and weight loss were evaluated.

Results: During the study period 489 patients underwent LB placement. Thirty four patients had reversal of LB to SG; these patients were divided into two groups. Group I (n=20) patients underwent reversal due to complication (slip, erosion, or infection). Group II (n=14) patients had the reversal for dissatisfaction with weight loss. All patients had simultaneous reversal at time of removal of LB except two. Complications occurred in group I with one leak, and one narrowing treated conservatively. In group II, two patients had nausea and dehydration requiring readmission. All patients lost weight after the reversal.

Conclusion: SG is an attractive option for reversal of LB either after complication or failure of weight loss.

	Number	Initial BMI	BMI at time	BMI lost before	Time before reversal	BMI after SG	BMI lost after	Total BMI lost
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			of SG	SG	(months)		SG	
Slip	15	47.3	35.8	11.5	36.5	33.2	2.6	14.1
Erosion	3	52.0	37.7	14.3	22.7	33.0	4.7	19.0
Infection	2	50.0	41.0	9.0	13.5	30.0	11.0	20.0
Group I	20	48.3	36.6	11.7	32.1	32.9	3.8	15.9
Group II	14	49.2	45.6*	3.6*	43.3*	38.4*	8.0*	11.9

Results: *Group I vs. Group II, p <0.05.
SG: Sleeve Gastrectomy

PL-128

GASTROJEJUNAL LEAK AFTER LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: OUR EXPERIENCE AFTER 4500 CASES

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Background: Gastrointestinal leakage after gastric bypass is a known complication with reported incident rates between 1 and 5% in large case series of open and laparoscopic Roux-en-Y gastric bypass (LRYGB). If not quickly diagnosed and treated, significant morbidity and mortality in patients with severe obesity may result. The most frequent leak is from gastrojejunal anastomoses (GJA). To describe our experience for the diagnosis and treatment of GJA leak in patients undergoing LRYGB by morbid obesity is the aim of this study.

Methods: A retrospective chart review of a prospectively collected database was conducted to analyze the outcomes of patients who underwent LRYGB between March 2003 and April 2011. Our series included 4500 patients. Criteria utilized were incidence, sex, most frequent symptom, diagnostic and therapeutic methods and morbi-mortality rates.

Results: 59 (1.3%) of 4500 patients presented GJA leak of whom 34 were females, average age, 46 (19-67) years; average BMI was 48 kg/m² (35-66). Leakage was verified between day 2 and 9 post-surgical for 5 patients who presented previous bariatric surgeries. 47% were handled conservatively. 53% underwent laparoscopic re-exploration (washing abdominal cavity, 5 drains placed and for 30 days a

nasojejunal feeding tube was utilized). Overall mortality, one patient.

Conclusion: The GJA leak after LRYGB is usually an early complication. When signs and symptoms develop, prompt diagnosis and treatment of a leak is mandatory for the prevention of major complications. Routine placement of drains allow for conservative management, which is safe and effective in patients which shows no sepsis signs, thus avoiding re-exploration.

PL-129

WEIGHT LOSS OUTCOME FOLLOWING SURGICAL REVISION OF ROUX-EN-Y GASTRIC BYPASS

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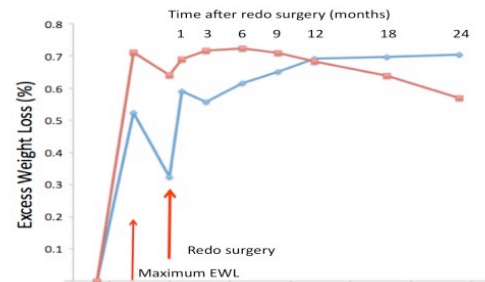
Background: Weight regain can be observed in up to 50% of the patients who had a gastric bypass (RYGB). Among other methods, reoperation can add further restriction by resizing the gastric pouch.

Methods: 24 consecutive patients who had a revisional Roux-en-Y gastric bypass for insufficient weight loss/weight regain were reviewed 24 months after surgery with weight loss data available for all of them.

Results: The initial RYGB was performed 15.7 ± 5.7 months before for a BMI of 47.0 ± 8.7 kg/m². 8 patients had a BMI > 50 and 13 had a previous hiatal surgery (11 gastric bandings). All the RYGBs were performed laparoscopically with a 30 cc vertical gastric pouch and a combined bowel limb length of 217.8 ± 36.6 cm. The maximum percentage of excess weight loss was 63.5 ± 22.4 (%EWL) reached 15.3 ± 5.3 months later. %EWL was 44.5 ± 27.4 at reoperation and 15 of the 24 patients had a %EWL < 50 at that time. Significant gastric pouch enlargement (≥ 100 cc) was evidenced preoperatively on a barium swallow. All the revisions were done laparoscopically with resection and reconstruction of the gastrojejunal anastomosis after creating a smaller pouch. Limbs lengths were unchanged. 2 patients were reoperated on for bleeding and abdominal abscess (8.7%) and no patient died. 2 years after revision the %EWL is 67.1 ± 18.3 . Revision greatly improved the weight loss outcome as patients went back to the nadir of weight loss and remained stable over time. Among the 15 patients who had a

%EWL < 50 at revision, only 2 did not improve 2 years after revision.

Conclusion: This aggressive surgical approach appears to be able to restore weight loss although the role of the associated dietary support and physical exercise remains to be clarified.



PL-130

PREDICTORS OF WEIGHT LOSS FAILURE AFTER GASTRIC BYPASS SURGERY

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Background: Weight loss outcomes vary widely after gastric bypass surgery. Predictors of poor long-term outcome may assist in better patient selection and pre-operative education.

Methods: 1096 gastric bypass patients with at least one-year follow-up were reviewed. We compared, using multivariable logistic regression, weight loss outcomes between patients in the 75th percentile of weight loss with those in the lower 25th percentile.

Results: The mean excess weight loss at an average of 665 days after RYGB for all patients was 70%. Of all patients with more than one year follow-up, 18% were African American, 18% were male, mean age was 45.3 years, mean initial BMI was 47.6 and mean initial HbA1c was 6.47 mg/dL. The calculated threshold EWL for the upper 75th percentile (Success) and lower 25th percentile (failure) was 82.4% (n=218) and 57.4% (n=232) respectively. EWL in African Americans was 63.2% and in Caucasians 71.9% and in females compared to males, 71% vs. 63%, respectively. The calculated threshold EWL for the upper 75th percentile (Success) and lower 25th percentile (failure) was 82.4% (n=218) and 57.4% (n=232) respectively. Independent predictors of weight loss failure using logistic

regression included African American Race (Odds Ratio 2.8, $p=0.001$), older patient age (O.R. 0.967 $p=0.001$), male gender (O.R. 0.302 $p<0.0005$) and higher initial BMI (O.R. 0.861 $p<0.0005$). Surgeon, initial HbA1c and insurance type were not independent predictors of weight loss failure. These predictor variables continued to be associated with poor weight loss outcomes when the threshold for failure was dropped to the 5% centile ($N=42$, EWL=39.4%).

Conclusion: African Americans, men and older patients were greater risk for weight loss failure after gastric bypass surgery.

P-131

INCREASING THE BILIOPANCREATIC LIMB LENGTH AS A STRATEGY FOR FAILED ROUX-EN-Y GASTRIC BYPASS

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Background: Failed Roux-en-Y gastric bypass (RYGB) is uncommon. The optimal surgical strategy is controversial. Increasing the length of the biliopancreatic limb will develop more malabsorption. The aim of this study was to describe our series of failed RYGB cases converted to Biliopancreatic Diversion.

Methods: Retrospective review of our prospectively collected electronic database for all patients who had a failed RYGB. All patients were evaluated by a multidisciplinary team. Surgical options were discussed with the patient and an Informed Consent was signed. Patients were treated by increasing the biliopancreatic limb, leaving a 140 cm common channel below the entero-enterostomy without any modification of the gastrojejunostomy or gastric pouch.

Results: Nineteen patients underwent BPD revisional with this surgical modification of primary gastric bypass. All cases were performed with a laparotomy. Revisional procedure was indicated for unsuccessful weight loss in all cases. Median time from primary to revisional surgery was 3.9 (range 1.3 – 6.2) years. Mean preoperative BMI was 45.4 ± 6.9 kg/m². Most patients (78.9%) had obesity-related comorbidities. There were no major early complications. On follow-up there were two (10.5%) patients with an internal hernia. Mean excess weight loss (EWL) was 41.9% in patients followed for a median of 1.5 years after revisional surgery. An accumulated EWL of 72.4%

was observed since the first surgery.

Conclusion: In our series increasing the biliopancreatic limb was a safe and successful strategy for unsuccessful weight loss after RYGB.

PL-132

EFFECTS OF EARLY DISCHARGE ON MORBIDITY, MORTALITY, ED VISITS AND READMISSIONS FOLLOWING LAPAROSCOPIC GASTRIC BYPASS: RESULTS FROM THE MICHIGAN BARIATRIC SURGERY COLLABORATIVE

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Background: Recent evidence suggests that early discharge may increase the risk for adverse events following laparoscopic gastric bypass (LGB).

Methods: We analyzed data from the statewide, prospective clinical registry of the Michigan Bariatric Surgery Collaborative, which now includes 29,326 bariatric surgery patients from 32 hospitals. For this study, we examined patients undergoing LGB between January, 2006 and July, 2011. We excluded patients who had a serious inpatient complication and those with a length of stay (LOS) greater than 3 days. Discharge status was categorized as early (LOS 1 day) or standard (LOS 2-3 days). Logistic regression analysis was used to determine the effect of early discharge on rates of post-discharge serious complications, deaths, ED visits and readmissions, adjusting for patient risk factors and hospital volume.

Results: During the study period, 15,410 patients underwent LGB. Discharge was early for 2,457 (16%) and standard for 11,735 (76%), with 1,218 (7.9%) staying longer than 3 days. Early discharge was associated with a higher adjusted rate of ED visits than standard discharge (9.0% vs. 7.4%, OR 1.22, CI 1.04-1.44). However, early discharge did not affect adjusted rates of serious complications (1.3%

vs. 1.2%, OR 1.05, CI 0.71-1.54); or readmissions (4.6% vs. 3.9%, OR 1.18, CI 0.95-1.47). None of the 8 post-discharge deaths occurred in patients with early discharge.

Conclusion: When compared to standard LOS, early discharge resulted in a higher rate of ED visits but did not impact rates of serious complications, mortality or readmissions. Early discharge after LGB may be safe in selected patients.

PL-133

PROCEDURE RELATED MORBIDITY COMPARING ROUX-EN-Y GASTRIC BYPASS, SLEEVE GASTRECTOMY AND LAPAROSCOPIC ADJUSTABLE GASTRIC BAND: A RETROSPECTIVE LONG TERM FOLLOW UP

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Background: Laparoscopic Sleeve Gastrectomy, Roux-en-Y Gastric Bypass, and Laparoscopic Adjustable Gastric Band are the three most common procedures performed in the United States. We reviewed our experience since the introduction of the LSG and compared the procedure related morbidity to the RYGB and the LAGB.

Methods: We retrospectively analyzed a prospectively collected database in morbidly obese patients that underwent bariatric surgery between 2005 and 2011. We identified and compared complications, hospital stay, readmissions and reoperations in patients that underwent LAGB, RYGB, and LSG.

Results: A total of 2433 bariatric procedures were performed in this period of time. Of those procedures 1492 were RYGB, 602 LSG, and 339 LAGB. Postoperatively the length of stay was 3.75, 3.4, and 1.47 days for RYGB, LSG, and LAGB respectively. The leakage rate was 0.4% for the RYGB, 0.3% for the LSG and not applicable for LAGB. The number of readmissions was minimal in all 3 groups. RYGB 1.7 times, LSG 1.3 times, and 1.5 times for LAGB. The percentage of procedures requiring reoperations due to complications or failures was 7.7% in the RYGB group, 1.5% in the LSG, and 15.3% for the LAGB.

Conclusion: LSG appears to have the lowest procedure related morbidity when compared to RYGB and LAGB.

PL-134

FAVORABLE EARLY COMPLICATIONS OF ROBOTIC ASSISTED GASTRIC BYPASS FROM THREE HIGH VOLUME CENTERS: 1695 CONSECUTIVE CASES

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Background: Robotic assisted Roux-en-Y gastric bypass (RARYGB) has been increasingly utilized for performing gastric bypass safely and effectively. We present the early outcomes and complications of 1695 consecutive cases of RARYGB from 3 high volume centers.

Methods: Between February 2003 and September 2011, 1695 RARYGB cases were performed from 3 centers in Texas (578 cases), Maine (708 cases), and Florida (409 cases). Procedures were prospectively recorded in bariatric databases and evaluated for complications and outcomes within the first 30 days of surgery.

Results: Thirty day mortality was zero. Five cases of leak or abscess were diagnosed (0.3%). There were 81 readmissions (4.8%) and 46 reoperations (2.7%) for 17 bowel obstructions, 5 infections, 18 bleeds, and 6 negative laparoscopic explorations. Average length of stay was 2.2 days. In the first 30 days, 19 patients (1.1%) received transfusions and 4 patients (0.2%) had early strictures diagnosed.

Conclusion: This report of the largest series of robotic assisted bypasses from 3 high volume centers reveals very low complication rates in the first 30 days. It reveals a zero 30 day mortality, an exceptional low leak rate, and provides strong evidence that RARYGB has extremely safe and reproducible outcomes.

PL-135

INITIAL EXPERIENCE WITH 454 CASES OF GASTRIC PPLICATION SYRGERY

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Background: Total vertical gastric plication (TVGP) is a new surgical technique that falls into the restrictive procedure category. TVGP surgery involves shape modification of the stomach to achieve restriction by folding the greater curvature of the stomach inward with suture materials thus reducing gastric capacity.

Methods: A total of 454 gastric plication surgeries by the same surgical team in a single bariatric center have been performed from July 2010 to October 2011. The surgical technique involves a 2 layered complete plication of the greater gastric curvature including anterior and posterior gastric surface. The technique has been modified at our facility as experience increased.

Results: Of the 454 patients (Mean BMI 40.3 kg/m²), 429 Initial surgery and 25 revisions from LAGB surgery. Of the 429 patient group the mean surgery time was 42 Minutes ranging from 26 to 145 minutes. Mortality rate is 0%. Early surgical complications occurred in 12 patients(2.6%) and delayed surgery complications in 8 patients (1.7%). 86% 6 month to 1 year follow-up (mean 8 1/2 months) on 157 patients, the % EWL is 51. 3% of patients were re-operated because of loss of restriction. No complications from reoperations. 1 conversion to sleeve gastrectomy. Persistent heartburn of varying degrees is the most common postoperative symptom after TVGP (11%).

Conclusion: Although long term data on gastric plication surgery is still not available, our initial experience with this procedure surgery has offered positive results. Additional studies and long term follow-up are needed to further define the clinical applications of this procedure.

PL-136

SLIPPAGE AFTER LAPAROSCOPIC GASTRIC BANDING

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Background: Laparoscopic gastric banding is an efficient gastric restrictive operation as a treatment for morbid obesity. Although known as relatively safe, the slippage of the band can be hazardous. At this situation there is incarceration of the fundus with gastric obstruction, compelling early operation. We describe our clinical approach.

Methods: Between 1999 to 2011 we performed 11,100 laparoscopic gastric bandings 32% of whom were performed at public hospital. The mean age is 39±7 (age range 9 to 77) years, and 70% are women. Their mean preoperative BMI was 43±21 All

operations were performed without the gastro gastric sutures. There was no mortality.

Results: During the last twelve years 300 (2.7%) of them had laparoscopic reposition of band and another 0.5% (53pts.) had removal of the band because of slippage. Four patients were men all the other were women whose mean age 33±8 years old, characterized by tightened band and recurrent vomiting . Slippage occurred between 10 months to 3 years after surgery (mean 20±7 months) manifested by acute epigastric pain which radiates to back and recurrent vomiting. All patients were operated in 24 to 48 hours since their symptoms began. Their mean BMI reduction was 13±5. There was no mortality and mean hospital stay after surgery 12 hours. Long term follow-up shows less than 0.3% recurrency.

Conclusion: Slippage is a rare complication after banding occurring in young women whose band is relatively tightened. This acute surgical emergency can be treated safely by reposition with rare recurrency.

PL-137

SAFETY AND EFFICACY OF A NOVEL PARAGASTRIC IMPLANT FOR TREATMENT OF MORBID OBESITY

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Background: The adjustable, reversible, Vibrynt PREVAIL™ Delivery System and Implant is a space occupying extragastric implant that inhibits stomach expansion for the treatment of morbid obesity. The Implant is placed using minimally invasive techniques, requiring no transection of the stomach or abdominal organs.

Methods: To evaluate feasibility and safety in a proof-of-concept study (POC), and safety and effectiveness in a pivotal study (PS). The multicenter, single-arm POC included subjects 18-60 years with body mass indices (BMI) 35-55 kg/m². Feasibility was based on placement success; safety was based on severe adverse event rates (AEs). The multicenter,

single-arm (PS) included subjects 18-65 years with BMIs between 40-50 kg/m², or 35-40 kg/m² with obesity-related conditions. Primary efficacy was based on percent excess weight loss (%EWL) at six-months postoperative; safety was based on AE rates. Subjects in both studies were followed for up to 36 months. (Reference ACTRN12609000139279).

Results: Six and 69 subjects (intent-to-treat), respectively, were evaluated in POC and PS. Across studies, device/procedure improvements consistently yielded meaningful improvements in safety and efficacy. The mean %EWL in the PS study was 28.3% ± 14.45% at 6 months; the success rate of first implantation attempt was 94.2%. The only severe device-related AEs in more than one PS subject included abdominal pain, abdominal pain upper, and medical device removal.

Conclusion: The results showed that the Implant is effective in reducing morbid obesity with a high rate of first implantation attempt success. The use of the adjustable, reversible Implant in adult subjects appears safe and well tolerated.

PL-138

METABOLIC IMPROVEMENT IN TYPE 2 DIABETES IN SUBJECTS WITHOUT SEVERE OBESITY WITH THE ENDOSCOPIC DUODENAL-JEJUNAL BYPASS LINER

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Background: The duodenal-jejunal bypass liner (DJBL, GI Dynamics, Inc., Lexington, MA) is an endoscopic implant that mimics the intestinal bypass component of the Roux-en-Y gastric bypass. It has been shown to result in substantial improvements in glucose homeostasis in subjects with severe obesity and type 2 diabetes (T2D). This report describes the first use of the DJBL in subjects with T2D without severe obesity.

Methods: Twenty-three subjects with T2D being treated with oral agents alone, baseline BMI between 23-36 kg/m² were enrolled ((NCT00986349)). Twenty of the 23 subjects were successfully implanted while 3 could not due to unfavorable anatomy. There were 4 early endoscopic removals due to device movement (2), abdominal pain (1) and

PI request (1). Follow-up included monthly determinations of HbA1c, fasting plasma glucose (FPG), lipids and %TBW.

Results: At baseline, HbA1c, FPG, LDL, triglycerides and BMI were 8.7±0.20%, 197.5±16.8 mg/dl, 137.8±13.1 mg/dl, 226.1±35.5 mg/dl, 30.2±0.83 kg/m² respectively (Mean±SE). The DJBL remained in place for one year in 13/17 subjects (76.4%) with 3 subjects ongoing. At 1 year, decreases in HbA1c, FPG, LDL, triglycerides were 1.3±0.37%, 44.1±20.7 mg/dl, 25.6±7.0 mg/dl, 42.5±17.3 mg/dl and %TBWL was 8.4±1.7% per protocol analysis. Three and 12 months post-implant, 63.2% (12/19) and 61.5% (8/13) of subjects exhibited HbA1c < 7.0%, respectively.

Conclusion: The DJBL leads to substantial improvement in glucose homeostasis and metabolic parameters in overweight and mildly obese subjects with uncontrolled T2D. The magnitude of the observed improvements in T2D is similar to those previously reported in severely obese subjects.

PL-139

GASTRIC POUCH REDUCTION USING STOMAPHYX™ IN POST ROUX-EN-Y GASTRIC BYPASS PATIENTS DOES NOT RESULT IN SUSTAINED WEIGHT LOSS: A RETROSPECTIVE ANALYSIS

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Background: Gastric bypass is the gold standard procedure in bariatric surgery. Excess body weight loss (EBWL) of 56.7% to 66.5% has been reported with gastric bypass. However 20.4% to 34.9% of these patients may fail to achieve or maintain the weight loss on long term follow up and may require additional procedures. Dilatation of the gastric pouch and stoma has been reported as a cause for this weight regain. Stomaphyx™ is a device that has been promoted for endoluminal reduction of the stoma and pouch size in such patients.

Methods: Retrospective chart review was performed on 59 post gastric bypass patients who underwent revision of gastric pouch using Stomaphyx™ between October 2007 to August 2008. Post procedure weight at 1 week, 1 month and 6 months were obtained from the records. Current weights of the patients were recorded at the time of the study.

Follow up period from the Stomaphyx™ procedure to the date of study were recorded for all the patients.

Results: Out of 59 patients, 58 were females and 1 male. Average weight loss and EBWL was 5.58 lbs & 7.36% (n=41) at 1 week, 8.22lbs & 11.53% (n=31) at 1 month and 8.28lbs & 10.88% (n=10) at 6 months respectively. At the time of review the average follow up was 41 months, average weight loss was 3.8lbs and EBWL was 4.21% (n=53). 12 patients had follow up upper gastrointestinal endoscopy at an average of 18 months post procedure. All the 12 patients showed no reduction in pouch or stoma size.

Conclusion: Stomaphyx™ results in weight loss that is not sustained on long term follow up at 41 months. Gastric pouch and stoma tend to regain their preprocedure size by 18 months after the procedure. Stomaphyx™ cannot be recommended as a weight loss strategy in post gastric bypass patients.

PL-140

FEASIBILITY AND SAFETY OF A 1-DAY LENGTH OF STAY AFTER PRIMARY AND REVISIONAL LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS IN 538 CONSECUTIVE PATIENTS

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Background: Recent evidence suggests that 1-day length of stay (LOS) after laparoscopic Roux-en-Y gastric bypass (LRYGB) is potentially dangerous and is associated with a two-fold increased mortality. This study aims to assess the feasibility and safety of 1-day LOS after primary and revisional LRYGB.

Methods: Morbidly obese patients who met the NIH criteria and underwent retrocolic/retrogastric LRYGB with a 150-350 cm Roux limb and laparoscopic revisions of previous gastric bypass, vertical banded gastroplasty and adjustable gastric band to LRYGB between December 2007 and October 2011 were included. Conversions to open were excluded. P < .05 was significant.

Results: 538 consecutive patients (81.6% females) with a mean age of 41.7±11.4 years and BMI of 46.4±8.0 Kg/m² were included. Revisional LRYGB was performed in 31/538 (5.8%) of patients. Conversion rate among primary and revisional LRYGB was zero and 3.2% (1/31) respectively. Median and mean LOS were 1.0 and 1.47±0.76 days respectively with 338/537 (62.9%) achieving a 1-day LOS. 30-day major morbidity, re-operation and re-

admission rates were 1.67%, 1.3% and 3.9% respectively. Mortality was zero.

Conclusion: 1-day LOS is feasible and safe in most patients undergoing LRYGB regardless of age, gender, BMI, or insurance type.

	1-day LOS	> 1 day LOS	p
% Age > 55 years	11.2%	12.6%	.67
% Males	18.9%	17.6%	.73
BMI	46.5±7.9	46.3±8.1	.70
BMI >50 kg/m ²	28.5%	25.9%	.54
Operative time	216±44	247±72	<.0001
% Medicare/Medicaid	42.9%	42.9%	1.0
30-day Major Complications	.88%	3.0%	.08
30-day Re-operations	.59%	2.5%	.10
30-day Re-admissions	2.96%	5.5%	.16
30-day ER visits	3.8%	4.5%	.82