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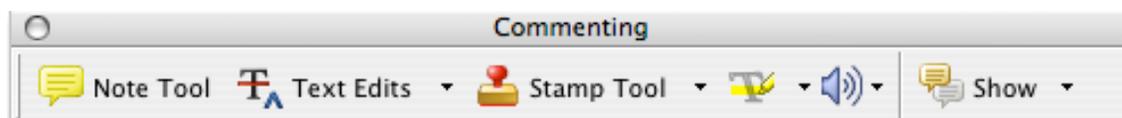
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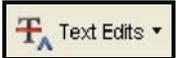
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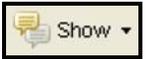
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X	BROKEN LETTER	X Your p ^r oof.
vv#	EVEN SPACE	eg# A good proof.
o	CLOSE UP: NO SPACE	Your pro ^o gf.
tr	TRANSPOSE	tr A ^o proof ^o good
wf	WRONG FONT	wf Your proof.
lc	LOWER CASE	lc Your /proof.
≡ caps	CAPITALS	Your proof. caps <u>Y</u> our proof.
ital	ITALIC	Your proof. ital <u>Your</u> proof.
rom	ROMAN, NON ITALIC	rom Your <u>proof</u> .
bf	BOLD FACE	Your proof. bf <u>Y</u> our proof.
..... stet	LET IT STAND	Your proof. stet Your proof.
out sc.	DELETE, SEE COPY	out sc. She Our proof. ^
spell out	SPELL OUT	spell out Queen (Eliz.)
#	START PARAGRAPH	# read. [Your
no #	NO PARAGRAPH: RUN IN	no # marked. → # Your proof.
L	LOWER	L [Your proof.]

MARK	EXPLANATION	EXAMPLE
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⌊	MOVE LEFT	⌊ Your proof.
⌋	MOVE RIGHT	⌋ Your proof.
	ALIGN TYPE	⌊ Three dogs. Two horses.
==	STRAIGHTEN LINE	= Your <u>p</u> roof.
o	INSERT PERIOD	o Your proof ^
/	INSERT COMMA	/ Your proof ^
:/	INSERT COLON	:/ Your proof ^
;/	INSERT SEMICOLON	;/ Your proof ^
∨	INSERT APOSTROPHE	∨ Your m ^o ans proof. ^
∨∨	INSERT QUOTATION MARKS	∨∨ Marked it proof ^ ^
=/	INSERT HYPHEN	=/ A proofmark. ^
!	INSERT EXCLAMATION MARK	! Prove it ^
?	INSERT QUESTION MARK	? Is it right ^
Ⓢ	QUERY FOR AUTHOR	Ⓢ was Your proof read by ^
[/]	INSERT BRACKETS	[/] The Smith girl ^ ^
(/)	INSERT PARENTHESES	(/) Your proof 1 ^ ^
1/m	INSERT 1-EM DASH	1/m Your proof. ^
□	INDENT 1 EM	□ Your proof
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P-01

1071.1 **A COMPARISON OF THOSE WHO “FAKE GOOD” ON IMPRESSION VALIDITY SCALES OF PRE-SURGICAL BARIATRIC PATIENTS AND THE NORMING GROUP OF A PERSONALITY INVENTORY: IMPLICATIONS FOR PROFESSIONALS WORKING WITH BARIATRIC PATIENTS**

Connie Staplele for items on the PAI PIM scale.

Results: Of those persons from the PIM norming sample, only 3.1% of “normals” were identified as endorsing PIM items (Mory, 1991). In comparison, 37.5% of the pre-surgical patients endorsed the PIM scale items.

Conclusion: 12 times more pre-surgical patients endorsed the PIM scale items than those in the PAI norming sample. Awareness of this information, along with an understanding of the implications for working with this population will better equip both mental health professionals and physicians working with patients preparing for a surgical weight loss procedure.

P-02

1071.2 **ACCURATE FLUOROSCOPIC MEASUREMENT OF ADJUSTABLE LAPAROSCOPIC GASTRIC BAND STOMA DIAMETER**

Robert Hayter, MD; Scott Brandman, MD; David Colley, MD; Radiology, Hospital of Saint Raphael, East Haven, CT

Background: Correlate accurate fluoroscopic measurement of gastric band stoma diameter with patient symptoms for optimal band stoma adjustment.

Methods: Ten patients with adjustable laparoscopic gastric bands were enrolled after informed consent. A 13 mm barium sulfate tablet was swallowed with dilute liquid barium during fluoroscopy. A spot radiograph was obtained when the barium tablet was in the gastric pouch and the dilute liquid barium was passing through the gastric band stoma. The longest radiographic dimension of the 13 mm barium tablet was used as the size reference to calibrate measurement of the gastric band stoma diameter. This study is registered at the National Institutes of Health web site: www.clinicaltrials.gov.

Results: All ten patients tolerated the procedure. After calibrating the measured gastric band stoma diameter to compensate for magnification effects, the gastric band stoma diameter range was (2.5 - 8.2 mm). Three patients with calibrated gastric band stoma diameters of 2.5 mm had a history of vomiting or reflux. Seven patients with calibrated gastric band stoma diameters of 3.4 mm or greater had a history of no weight loss.

Conclusion: Administration of a barium tablet to gastric band patients with dilute liquid barium allows the accurate measurement of the band stoma diameter. The technique is quick, easy to perform, and eliminates magnification error intrinsic to fluoroscopy. Given these results, the optimal calibrated gastric band stoma diameter is 3.0 mm. The accurate fluoroscopic measurement of gastric band stoma diameter can optimize band stoma adjustment and improve patient outcomes.



Gastric band stoma diameter calibration protocol.

P-03

1071.3 **IMPROVEMENT OF ESOPHAGEAL DYSMOTILITY AFTER CONVERSION FROM GASTRIC BANDING TO GASTRIC BYPASS**

Ann M. Rogers, MD; Surgery, Penn State Milton S. Hershey Medical Center, Hershey, PA

Background: Dilatation of the pouch or esophagus may be caused by a tight band or forced eating against the band, sometimes resulting in esophageal dysmotility. This affects up to 50% of banding patients. Band deflation generally improves or resolves the dysmotility within six weeks, but chronic dilatation can cause an achalasia-like syndrome unresponsive to band deflation. One report in the literature describes a patient who converted from band to bypass for severe dysphagia and dysmotility unresponsive to deflation; this patient still had dysmotility on follow-up studies three years after conversion to gastric bypass. There are no series describing the resolution of dysmotility after converting from banding to another bariatric procedure.

Methods: We evaluated all band patients in a single surgeon's series (n=127), of whom seven developed unrelenting esophageal dysmotility, despite band deflation. All converted to gastric bypass and showed resolution of dysmotility on follow-up swallow studies.

Results: Seven of 127 band patients in a two year period (5.5%) developed severe dysphagia and esophageal dysmotility, at an average of 11.2 months after band placement. None improved despite band deflation. All underwent band removal with subsequent conversion to gastric bypass, and all had reversal of dysmotility on follow-up studies.

Conclusion: Unrelenting esophageal dysmotility is one of the known causes of band failure, and may require band removal and conversion to another bariatric procedure. This is more likely in patients with uncontrolled eating who use the esophagus as a food reservoir. However, permanent dysmotility secondary to gastric banding seems unlikely.

P-04

1071.4 **DIAGNOSIS AND MANAGEMENT OF GASTROPANCREATIC NEOPLASMS IN THE BYPASSED GASTRODUODENAL AXIS AFTER RYGB: A CHALLENGE**

James M. Swain, MD; Florencia Que, MD; Reid B. Adams, MD; Michael Farnell, MD; Michael Sarr, MD; General and GI Surgery, Mayo Clinic, Rochester, MN; Surgery, University of Virginia, Charlottesville, VA;

Background: Diagnosis and treatment of gastro-pancreato-duodenal neoplasms after previous Roux-en-Y gastric bypass (RYGB) is limited. Experience should increase in the future due to the number of bariatric procedures being performed. Diagnosis and resection of these neoplasms and restoration of biliopancreatic intestinal continuity pose challenges. This case series presents a two-institutional experience with diagnosis and reconstruction after resection of gastric and pancreatoduodenal neoplasms and discusses technical options for reconstruction.

Methods: Medical records were reviewed retrospectively from 2003-2009 for patients with a previous RYGB who developed a gastric or pancreatoduodenal neoplasm.

Results: Seven patients were identified with 2 remnant gastric cancers [2 adenocarcinoma (ACA) signet ring], 4 pancreatic neoplasms (2 ACA, 2 neuroendocrine), and 1 ampullary cancer. Gastric neoplasms required complete remnant gastrectomy but did not require further gastrointestinal reconstruction. Pancreatic and duodenal neoplasms required pancreatoduodenectomy with 4/5 undergoing remnant gastrectomy as well. Patients after pancreatoduodenectomy required biliary and pancreatic reconstruction with the pancreaticobiliary limb, the Roux limb, or the proximal common channel depending on limb lengths. Operative mortality was nil; morbidity was 28%.

Conclusion: Gastric and pancreatoduodenal neoplasms after prior RYGB, though rare, most likely will increase as the number of bariatric operations increases. A high-index of suspicion and focused diagnostic testing are key in identifying these lesions. Resection is feasible and safe, but may require complex reconstruction.

P-05

1071.5 **DUODENAL SWITCH IS A SAFE AND EFFECTIVE REVISIONAL OPERATION FOR FAILED PRIOR WEIGHT LOSS SURGERY**

David F. Greenbaum, MD; Samuel H. Wasser, MD; Tina Riley; Tinamarie Juengert, RN; June Hubler; Lourdes Medical Center of Burlington County, Willingboro, NJ;

Background: As the number of weight loss operations increase, the number of patients who fail to maintain sufficient weight loss increases, which provides a management challenge to the bariatric surgeon. Conversion to a duodenal switch (DS) was the operation of choice for these patients.

Methods: Between September 2006 and September 2009, 34 revisional operations to DS were performed at one institution by one operating surgeon. Data was prospectively collected and reviewed for excess weight loss, morbidity, and mortality.

Results: Thirty-four patients had their original bariatric operation converted to DS. Initial operations were gastric bypass (GB) in 27 patients, vertical banded gastroplasty (VBG) in 5, and laparoscopic adjustable gastric band (LAGB) in 2. There was an average of 53% excess weight loss (EWL) in 24 patients followed for 6 months, 67% EWL in 18 patients at 1 year, and 73% EWL in 6 patients at 2 years. There were no deaths. The average hospital stay was 6.4 days. There were a total of 9 (26%) leaks, all but one were gastric in origin and occurred in GB conversions. Other major complications included 1 (3%) PE, 1 (3%) small bowel obstruction and 2 stenoses (6%) for a total complication rate of 37%. Only 3 patients required reoperation. No gastric leaks required surgical or radiological intervention.

Conclusion: Revisional surgery to a DS is a complex operation, which carries high potential for major complications. Nonetheless it can be accomplished safely with good long-term results. Omentoplexy, drainage, and feeding jejunostomy should be considered at the time of surgery to treat the high potential for delayed leaks.

P-06

1071.6 BARIATRIC PATIENT POST-OPERATIVE PAIN: A POTENTIALLY PROMISING NEW ROUTE?

Susannah M. Wyles, MSc MRCS; Matthew H. Thompson, MMBS, BSc; Catherine Bradshaw, Ahmed R. Ahmed, MD; Jonathan Cousins; Bariatric Surgery, Imperial College Healthcare, London, United Kingdom; Anaesthetics, Imperial College Healthcare, London, United Kingdom

Background: Good pain control is crucial for the post-operative bariatric patient since early mobilization is a priority yet obtaining Intra-Venous (IV) access is often challenging and drug administration via the Intra-Muscular route in this group of patients is often not achieved due to an excess of sub-cutaneous tissue. The aim of this study was to assess the value of Sub-Lingual (SL) analgesia as a potentially beneficial alternative route of administration.

Methods: Over a 6 month period bariatric patients who underwent a sleeve gastrectomy or gastric bypass were given either 100mg of tramadol hydrochloride IV or 100mg tramadol hydrochloride SL as regular analgesia in the first 24hrs after surgery. They were allocated to the groups at random, irrespective of their previous analgesia usage, co-morbidities or complications. They were asked to score their pain using a visual analogue score both at rest and at movement before and after analgesia. These scores were analyzed using the Student t-test ($p < 0.05$).

Results: Sixteen patients were included in each group. There was a demonstrable reduction in perceived pain both at rest and on movement. This was found to be statistically significant at rest for both routes (IV $p < 0.05$, S/L $p < 0.001$), but not on movement for either group. On comparison of the variance between both modes, there was no statistically significant benefit of one route over the other.

Conclusion: This study shows that the sub-lingual analgesia is as effective as the IV route for the post-operative bariatric patient.

P-07

1071.7 LAPAROSCOPIC RECONVERSION OF ROUX-EN-Y GASTRIC BYPASS TO ORIGINAL ANATOMY: PRELIMINARY OUTCOMES

Giovanni Dapri, MD; Guy-Bernard Cadière, MD, PhD; Jacques Himpens, MD Department of Gastrointestinal Surgery, European School of Laparoscopic Surgery, Brussels, Belgium

Background: Side effects like dumping syndrome and cachexia are possible problems after Roux-en-Y gastric bypass (RYGB). We report the feasibility, safety, and outcomes of laparoscopic reconversion of RYGB to original anatomy (OA) as treatment of these complications.

Methods: Between January 2005 and April 2008, 9 patients with RYGB were converted to OA because of symptomatic dumping syndrome (4), other side effects (4), and cachexia (1). Mean time between RYGB and reconversion was 23 months (7-60). Mean weight and BMI at the time of RYGB was 103.5 kg (73-131), and 40 kg/m² (30-46) respectively; 3 patients suffered of co-morbidities. Mean weight, BMI, %EWL at the time of reconversion was 65.7 kg (48-110), 25.5 kg/m² (16.6-38), and 79.7% (0-122.3) respectively. The procedure involves a true anatomical reconversion by dismantling the gastrojejunostomy and jejunojunos-

tomy, and reanastomosing the gastric pouch to the gastric remnant, and the alimentary loop to the distal end of biliary loop.

Results: Mean operative time was 129.2 minutes (95-180). There were no conversions to open surgery, and no complications. Gastrogastrostomy was performed manually (4), and by linear stapler (5); jejunojunosostomy by linear stapler (9). Mean hospital stay was 7.3 days (4-13). After a mean follow-up of 17.2 months (7-36), 3 patients maintained the same weight as at reconversion, 4 patients presented a mean weight regain of 20.2 kg (7-32), with a mean increased BMI to 28 kg/m² (25-31.5), and 2 patients continued to increase weight loss (13 and 35 kg), with a drop BMI to 27 kg/m² and 25.5 kg/m² respectively. During follow-up, the only complication was appearance of gastroesophageal reflux in 2 out of 9 patients.

Conclusion: Laparoscopic reconversion of RYGB to OA is feasible and safe. Longer follow-up is necessary to evaluate the efficacy in terms of weight loss.

P-08

PREVALENCE AND PREDICTORS OF NON-ALCOHOLIC STEATOHEPATITIS (NASH) IN OBESE PATIENTS UNDERGOING BARIATRIC SURGERY - A DEPARTMENT OF DEFENSE EXPERIENCE

Jeffrey Reha, MD; Sukhyung Lee, MD, Luke J. Hofmann, DO; Jason Johnson, DO; William Beaumont Army Medical Center, El Paso, TX; Ireland Army Community Hospital, Fort Knox, KY

Background: Non-alcoholic steatohepatitis (NASH) is a silent liver disease that can lead to inflammation and subsequent scarring. If left untreated, cirrhosis may ensue. Obese patients are at an increased risk to develop NASH. We report the prevalence and predictors of NASH in patients undergoing morbid obesity surgery.

Methods: A retrospective review was conducted on morbidly obese patients undergoing weight reduction surgery from September 2005 through December 2008. A liver biopsy was performed at the time of surgery. Patients with a history of hepatitis infection or alcohol dependency were excluded. Predictors of NASH amongst clinical and biochemical variables were analyzed using multivariate regression analysis and the prevalence of NASH was determined.

Results: 113 patients were analyzed (84% female, mean age 42.6 ± 11.4 years, mean body mass index 45.1 ± 5.7 kg/m²). Sixty one patients had systemic hypertension (54%) and 35 patients had diabetes (31%). The prevalence of NASH in this study population was 35% (40/113). An Additional 59 patients (52%) had simple steatosis without NASH. Only 14 patients (12%) had normal liver histology. On multivariate analysis, only elevated AST (>41 IU/L) was the independent predictor for NASH (OR 5.85, CI 1.06-32.41). Patient age, BMI, hypertension, diabetes, hypercholesterolemia, and abnormal ALT did not predict NASH.

Conclusion: NASH is a common finding in the morbidly obese population. Abnormal AST was the only predictive factor for NASH.

Characteristics	Non-NASH	NASH	p value
n=113 (%)	73 (65)	40 (35)	
Age (years)	42.3 ± 11.2	43.2 ± 11.8	0.7
BMI (kg/m ²)	45.1 ± 5.8	45.1 ± 5.6	1.0

Characteristics	Non-NASH	NASH	p value
Male (%)	11 (15.1)	7 (17.5)	0.8
Diabetes (%)	20 (27.4)	15 (37.5)	0.3
Hypertension (%)	40 (54.8)	21 (52.5)	0.8

Demographic characteristics

P-09

1071.9 5 YEAR FOLLOW-UP AFTER BILIOPANCREATIC DIVERSION WITH DUODENAL SWITCH

Philippe Topart, MD; Guillaume Becouarn, MD; Patrick Ritz, MD; Societe de Chirurgie Viscerale, Clinique de l'Anjou, Angers, France; UTNC, CHU Rangueil, Toulouse, France

Background: Following bariatric surgery only limited data are available to assess medium and long-term outcomes.

Methods: Fifty one patients with a theoretical 5 years follow-up were reviewed after biliopancreatic diversion (BPD-DS) performed between February 2002 and October 2004. Patients were aged 42.9±11.1 years and their preoperative BMI was 47±6.1 kg/m². Twelve patients presented with a failed bariatric procedure (11 gastric bandings, 1 VBG). Patients were assessed every 3 months during their 1st postoperative year, 6 months during the 2nd year and yearly thereafter.

Results: The first 23 patients had their operation done open. The same procedure was used (150 cc sleeve, 150 cm alimentary limb and 100 cm common channel) for the 28 laparoscopic BPD-DS although 15 patients had a conversion to laparotomy. There were no postoperative deaths despite a complication rate of 43.2% (15.7% leak rate). Of the 51 patients, 7 were not available for follow-up: 2 patients died 9 months after the BPD-DS of myocardial infarction and after a ventral hernia repair, 1 was restored, 1 refused follow-up after a complicated postoperative course and contact was lost with 3 patients (7.8% lost to follow-up). The 5 year BMI is 31±4.5 kg/m² with a mean excess weight loss (EWL) of 71.9±20.6%. Seven patients show an EWL<50% (15.9%), 4 of these unsatisfactory results occurred after revisional BPD-DS. After primary BPD-DS an EWL of 75.8±18.0% was observed.

Conclusion: BPD-DS achieves sustainable significant weight loss over 5 years of follow-up with mediocre outcomes in less than 20% of the cases. Although not statistically significant, revisional surgery leads more frequently to decreased medium-term results after BPD-DS.

Table 2

Variables	Experimental(N=12)		Control(N=15)	
	Baseline	8 week	Baseline	8 week
Weight(kg)*	113.3±11.5	97.7±11.7	112.3±12.5	96.6±12.7
BMI(kg/m ²)*	43.8±4.5	37.7±4.7	44.5±4.5	38.2±4.4
LBM(kg)*	51±4.9	43.6±4.4	54.4±6.3	46.1±4.3
RMR(kcal/24 hr)*	1764.3±238.7	1507.7±198.9	1840.4±308.3	1541±142.1

*p>0.05 (experimental vs. control)

P-10

NUTRITIONAL EFFECT OF ORAL SUPPLEMENT ENRICHED IN BETA HYDROXY BETA METHYLBUTYRATE, GLUTAMINE AND ARGININE (HMB/GLU/ARG) ON LEAN BODY MASS (LBM) AND RESTING METABOLIC RATE (RMR) AFTER LAPAROSCOPIC GASTRIC BYPASS (LGB)

1071.10

Ronald H. Clements, MD; Neha Saraf, MPH; Manasi Kakade, MPH; Kishore Yellumhanthi, MD Merritt White, BSN; Joann Hackett, MSN CRNP; Division of G.I Surgery, University of Alabama at Birmingham, Birmingham, AL

Background: Studies suggest, weight regain after LGB is due to a decrease in RMR which is largely determined by loss in LBM following LGB. An oral supplement enriched in HMB/GLU/ARG has shown to restore LBM in cancer and critically ill trauma patients. If this effect can help preserve LBM and RMR in post-LGB patients, better weight maintenance may be achieved.

Methods: Patients scheduled for LGB were randomized to experimental and control arms. The experimental group was required to consume 24g of mixture dissolved in water, twice daily and record consumption. The controls did not receive the supplement. Weight, LBM determined by double emission x-ray absorptometry and RMR measured by indirect calorimetry were assessed at baseline, 2 and 8 week intervals.

Results: 27 patients with mean age 46±8.5 years (78% whites and 96% females) were enrolled. Changes in all patients (Table 1) and differences between groups (Table 2) are shown below.

Conclusion: Weight, BMI, LBM and RMR decreased significantly in all after LGB, and these changes were unaffected by the use of HMB/GLU/ARG supplement. Preservation of LBM as a result of the supplement requires further investigation. Its consumption (78cal/serving) did not adversely affect weight loss in the experimental group.

Table 1

Variables	Baseline	8 week
Weight(kg)	112.7±11.8	96.8±12*
BMI(kg/m ²)	43.2±4.1	37.1±4.3*
LBM(kg)	52.8±7.2	45.4±4.5*
RMR(kcal/24 hr)	1806.6±277.1	1526.3±166.5*

*p<0.0001

T1
T2

P-11

1071.11 LINEAR STAPLER TECHNIQUE FOR LAPAROSCOPIC SLEEVE GASTROPLASTY (MAGENSTRASSE-MILL)

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Background: The Magenstrasse-Mill procedure is a restrictive sleeve gastroplasty which has been shown to have good results with low morbidity and mortality. Unfortunately the need to use a circular stapler to create the initial buttonhole in the antrum made a laparoscopic approach cumbersome. A linear powered stapler utilizing a unique staple load allows creation of the buttonhole with a simple laparoscopic approach, facilitating the creation of a sleeve gastroplasty. Avoidance of a gastrectomy makes this an attractive restrictive procedure.

Methods: A powered linear stapler (Power Medical Interventions) that places staples and cuts from distal to proximal and utilizing a cartridge that only cuts and staples distally was used to create an antral buttonhole which was used to complete a sleeve gastroplasty (M-M procedure). A retrospective review was undertaken of patients undergoing this approach. We analyzed surgical time, hospital stay, complications, and short term outcomes.

Results: There were 7 women and 1 man for a total of 8 patients. Procedure time averaged 77 minutes (65-105). Hospital stay averaged 3.7 days (2-12). Complication rate was 13% (1 patient with postop bleeding treated conservatively with transfusion. The 30 day readmission rate was 13% (1 patient with nausea and vomiting, resolved with conservative treatment). There were no leaks or mortality. At an average follow-up of 4 months (1-8 months) weight loss averages 55 pounds (30-114 lbs).

Conclusion: A linear powered stapler which fires from distal to proximal and uses a special staple cartridge allows creation of an antral buttonhole via an easy laparoscopic approach. This allows creation of a sleeve gastroplasty (M-M procedure) in a simple expeditious manner, creating a restrictive procedure which avoids a gastrectomy and thus has many theoretical advantages.

P-12

1071.12 PRELIMINARY RESULTS FROM A BSCOE FREESTANDING SURGERY CENTER

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Background: The Surgical Review Corporation (SRC) recently began to accredit outpatient surgery centers as Centers of Excellence. Of the 382 BSCOE's, currently only two have been accredited as Freestanding Out Patient Surgery Centers. We report our preliminary data of procedures performed at one of these centers.

Methods: 89 primary bariatric procedures were performed between February 1, 2008 and October 23, 2009. All patients met SRC outpatient guidelines. Only the procedures performed at the outpatient center are reported.

Results: Demographics of our patients were as follows: 79% female; average age 44 years; average starting weight 264 pounds; average starting BMI 44 kg/m². There were 22 self-paying patients (25%) and 67 privately insured patients (75%). (Neither

Medicare nor Medicaid currently approve outpatient bariatric procedures.) Average operative time was 47 minutes and average length of stay was 3 hours. There were no deaths. There were no DVT's or PE's. There were 3 readmissions. (There was one intra-operative complication of a suture laceration on the proximal stomach which was recognized and repaired and two admissions for nausea and vomiting. All three resolved without further intervention). Weight loss was as follows: 3 months 19% EWL, (n=85 SD=10); 6 months 24% EWL, (n=68 SD=13); 9 months 29% EWL, (n=48 SD=17); 12 months 50% EWL, (n=39 SD=21); 18 months 53% EWL, (n=14 SD=28).

Conclusion: Results of patients undergoing surgery at a BSCOE Freestanding Outpatient Surgery Center demonstrate acceptable weight loss and a low risk of complications and re-admissions.

P-13

FOUR YEAR RESULTS OF PUBLIC FUNDED BARIATRIC SURGERY PATIENTS IN THE US

1071.13

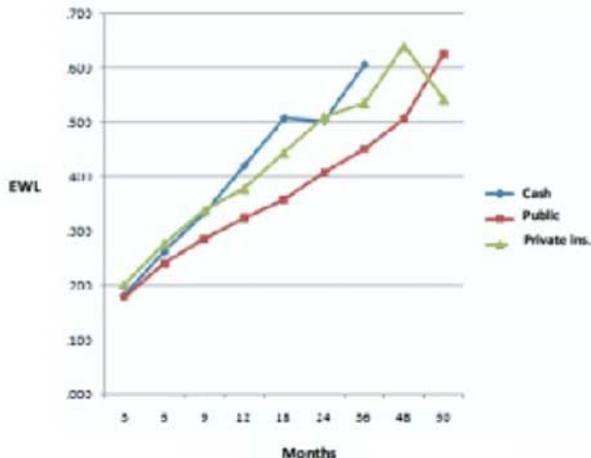
James B. Ray, MD; Shahla Ray, PhD; Center for Advanced Laparoscopic and Bariatric Surgery, Bloomington, IN; Applied Health Science, Indiana University, Bloomington, IN;

Background: Despite the fact that public patients have coverage for bariatric surgery, access remains limited. There are reports that public patients have poorer outcomes. We report our findings of both public and private patients.

Methods: A total of 393 patients underwent LAGB between Mar 30, 2004 and October 23, 2009. Patients were divided into three groups: Public (Pub), Cash (C) and Private Insurance (Pvt). Demographics, follow-up, and results are reported.

Results: There were 60 Public patients (16 Medicare, 46 Medicaid, 2 other public funding), 41 Cash patients and 282 Private Insurance patients. All groups were similar in regards to age (Pub:47y; C 48 y; Pvt 46 y p=.409) and gender (Pub 79% F; C 75% F; Pvt:77% F. (p=.949)). Public Patients had a higher initial BMI compared to both other groups. (Pub: 54 kg/m² vs. C 47 kg/m² vs. Pvt 46 kg/m²; p<.001). Overall follow up was lower in the Public Group. (Pub. 78% vs. C 100% vs. Pvt 91%; p=.001). Excess weight loss was statistically similar in all groups (12 mo.: Pub 33% vs. C 42% vs. Pvt. 38%; 24 mo.: Pub 41% vs. C 50% vs. Pvt. 51%; 36 mo.:Pub. 45% vs. C 61% vs. Pvt. 54%; 48 mo.: Pub. 51% vs. C N/A vs. Pvt. 64%) Weight loss failure (<25% EWL) at 24, 36 and 48 months were higher among Public patients, but not significantly different (24 mo.: Pub 26% vs. C 8% vs. Pvt. 15%, p=.210; 36 mo: Pub. 20% vs. C 11% vs. Pvt 15%, p=.740; 48 mo. Pub. 12% vs. C N/A vs. Pvt 3%, p=.390). Explantation rates were also higher in Public patients (Pub. 9%; Cash 0%; Pvt Ins 0.6% (p<.001)). Mortality in all groups was 0%.

Conclusion: Publically funded patients lost a similar amount of weight compared to private and cash patients, despite a higher starting BMI. However, they had a lower rate of follow up and a higher explantation rate.



P-14

1071.14 EARLY EFFECTS OF LAPAROSCOPIC GASTRIC BANDING (LGB) AND OF BILIOPANCREATIC DIVERSION (BPD) ON INSULIN SENSITIVITY, AND ON GLUCOSE AND INSULIN RESPONSE AFTER OGTT

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Background: Bariatric surgery improves glucose metabolism. Our aim was to assess the early direct role of surgery, i.e. in the absence of weight loss, on insulin sensitivity (HOMA-IR and OGIS), on 2-hr glucose and insulin response (area under the curve, AUC BG, AUC Ins) to OGTT, on glucose tolerance.

Methods: 11 subjects underwent OGTT (75 g) before and 5 days after LGB (no change of initial BMI, $46.7 \pm 2.21 \text{ kg/m}^2$), and 10 subjects underwent OGTT before and 7 days after BPD (BMI decreased from 54.5 ± 3.75 to $52.1 \pm 4.03 \text{ kg/m}^2$). As controls we considered OGTT repeated in 2 groups of subjects (BMI 43.0 ± 0.41 (n = 13), and $48.2 \pm 0.49 \text{ kg/m}^2$ (n = 14), respectively) with stable weight ($\pm 1.5 \text{ kg}$); a further group was of 11 subjects with a spontaneous weight loss similar to BPD (BMI from 55.5 ± 1.27 to $52.2 \pm 1.35 \text{ kg/m}^2$).

Results: Fasting BG and OGIS decreased in BPD subjects, and in subjects with spontaneous weight loss, not in LGB subjects or in weight-stable controls; HOMA-IR, and AUC BG, AUC Insulin only decreased in BPD subjects. Glucose tolerance was not affected in a different way in the various groups of subjects.

Conclusion: These data indicate an early effect of BPD different from LGB on insulin sensitivity, on glucose and on insulin response to OGTT, mostly independent of weight loss.

P-15

FOOD INTAKE ASSESSMENT AFTER LAPAROSCOPIC ROUX-EN-Y-GASTRIC BYPASS

1071.15

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Background: Pair-feeding experiments in animals suggest that the rapid improvement of glucose homeostasis after Roux-en-Y-Gastric Bypass (RYGB) may be a direct consequence of changes in gastrointestinal anatomy. Confirmation of these findings in humans would require well-designed clinical studies with exquisitely matched cases and controls in terms of food/caloric intake. Accurate measurements of the early postoperative caloric/food intake in patient who undergo RYGB might represent a useful tool for researchers in the design of such studies.

Methods: From November 2008 to March 2009 patients who underwent laparoscopic RYGB were studied during hospitalization when all feedings were observed. The amount of fluid/food intake was recorded using weigh back procedures.

Results: A total of twenty obese adults (8 M, 12 F; age 46.0 ± 9.4 years; BMI of $45.13 \pm 9 \text{ kg/m}^2$), were enrolled in this observational study. The average caloric intake was 15.8 ± 24.4 and $180.51 \pm 93.1 \text{ kcal/day}$, for the first and the second days respectively (12 patients) and $225.5 \pm 125.6 \text{ kcal/day}$ on the third postoperative day, before discharge (8 patients). There were no differences in total caloric intake between genders (p= 0.27) and diabetic and non-diabetic patients (p= 0.34).

Conclusion: RYGB patients have very low caloric intake in the immediate postoperative period (2-3 days). This observation permits the projection of possible intakes for patients directly after surgery to allow for studies of diabetes resolution.

P-16

DOES THE SIZE OF LAP-BAND IMPACT LONG-TERM OUTCOMES?

1071.16

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Background: The band design has undergone significant changes to improve weight loss and reduce complications. To evaluate the effect of these changes, we studied the impact of different band sizes on long-term outcomes.

Methods: We reviewed our bariatric database to assess outcomes in patients who had undergone gastric banding, with at least 24-months follow-up. Due to the minimum follow-up requirement, only 2 band types were included: Lap-Band standard (LB-S) and Lap-Band VG (LB-VG).

Results: 433 patients met our inclusion criteria. 320 (74%) received LB-S and 113 (26%) LB-VG. The LB-S resulted in greater Excess Weight Loss (EWL) at 1 and 2-years (48% vs. 40%, LB-S vs. LP-VG, at 2 years respectively; $P < 0.05$), however this difference was not seen after 3 years. Of the patients with a LB-S, 76 (23.8%) required 93 re-operation to deal with a band complication, compared to 13 (11.6%) patients in the LB-VG group, requiring 16

T1 re-operations (p<0.05; Table 1). Multivariate analysis confirmed band type and follow-up period as independent risk factors for re-operation (p<0.05).

Conclusion: The smaller LB-S may cause more restriction which contributes to a more rapid weight loss; however, this size difference increases the risk of complications and re-operations, specifically for band slippage. Since the 3 year weight loss is similar between the bands, we believe the current trend of using larger bands is likely to result in improved outcomes compared to historical controls.

Table 1

Indications for re-operation			
	LB-S (N=320)	LB-VG (N=113)	P value
Erosion n(%)	3 (0.9%)	1 (0.9%)	NS
Slippage n(%)	36 (11.3%)	4 (3.6%)	P<0.05
Port Complications n(%)	9 (2.8%)	4 (3.5%)	NS
Weight loss failure n(%)	18(5.6%)	2(1.8%)	NS
Others n(%)	10(3.1%)	2 (1.8%)	NS

P-17

1071.17 REVISIONAL LAPAROSCOPIC GASTRIC BYPASS

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Background: As the population of bariatric patients increases, more patients are presenting for revisional procedures due to inadequate weight loss or complications of the original procedure. Our goal was to determine the feasibility and safety of laparoscopic revisional gastric bypass in our practice.

Methods: A retrospective study of all laparoscopic revisional gastric bypass patients from April 2005 to October 2009 was performed and included 63 patients operated .

Results: There were 59 female and 4 male patients with an average age of 49.1, mean weight of 255.4 lbs and mean BMI of 42.6 kg/m². The primary operation for the revisional candidates was open gastric bypass (OGBP) in 24 cases, vertical gastroplasty(VBG) in 16, adjustable gastric band(AGB) in 15, laparoscopic gastric bypass(LGB) in 7 and one mini-gastric bypass (MGB). The indication for surgery was inadequate weight control in 55 patients and complication of the primary procedure in 8 patients. All cases were completed laparoscopically except for one patient with significant small bowel adhesions. In addition to revisional gastric bypass, 45 patients had partial gastrectomy and 27 patients underwent hiatal hernia repair. The mean operative time was 140 minutes and LOS 3.9 days. There were 5 (7.8%) post operative leaks and one (1.6%) death. As compared to patients undergoing primary LGB by the author during the same time period, there was a statistically higher leak rate (p=.0002) but the difference in mortality rates was not statistically significant (p=.054).

Conclusion: Although revisional gastric bypass can present a significant challenge and has a higher rate of complications than primary gastric bypass; in experienced hands, these procedures are safe and can be completed laparoscopically with minimal mortality.

P-18

QUALITY OF LIFE, FOOD TOLERANCE AND WEIGHT LOSS AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY

1071.18

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Background: Most published data on laparoscopic sleeve gastrectomy (LSG) report on weight loss and resolution of comorbidities. This study examines the quality of life (QoL) and food tolerance following LSG.

Methods: Between January 2003 and July 2008, 131 patients underwent LSG at our bariatric center. A retrospective review of a prospectively collected database was performed. Demographics, complications and percent excess weight loss (%EWL) were determined. QoL was measured with the SF-36 and BAROS questionnaires which were sent to all patients. Eighty-three questionnaires returned. The food tolerance score (FTS) developed by Suter was determined and compared to non-obese subjects.

Results: Eighty-three patients (73.5% women) were evaluated. Mean initial BMI was 39.3 kg/m². No major complications occurred. At a median follow-up of 49 months (range 17-80) mean %EWL was 72.3% (+/-29.3). Mean BAROS score was 6.5 (+/-2.1) and a 'good' to 'excellent' score was noted in 75 patients (90.4%). Results of SF-36 questionnaires are shown in the Figure 1. Mean FTS was 23.8 on 27 after LSG and 24.9 on 27 in the non-obese control group which is significantly lower [p = 0.012, unpaired t-test,(Figure 2)]. Only 4.8% of patients described their satisfaction regarding what they can eat as poor to very poor after LSG and 95.2% described it as acceptable to excellent.

Conclusion: LSG is a safe and effective bariatric procedure. Assessment of QoL domains showed that LSG results in good to excellent health-related QoL. Food tolerance is lower in patients after LSG compared to non-obese/non-operated patients but 95.2% described food tolerance as acceptable to excellent.

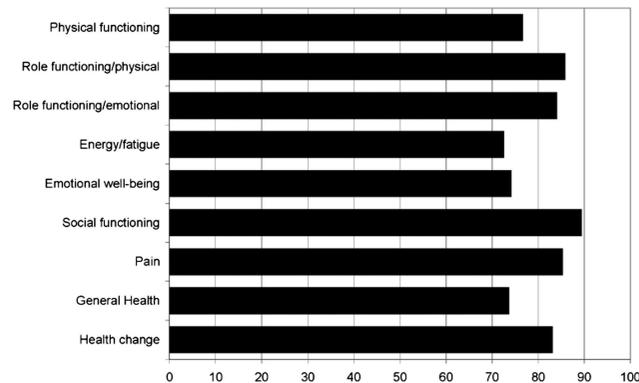


Figure 1. SF-36: results after LSG

F1

F2

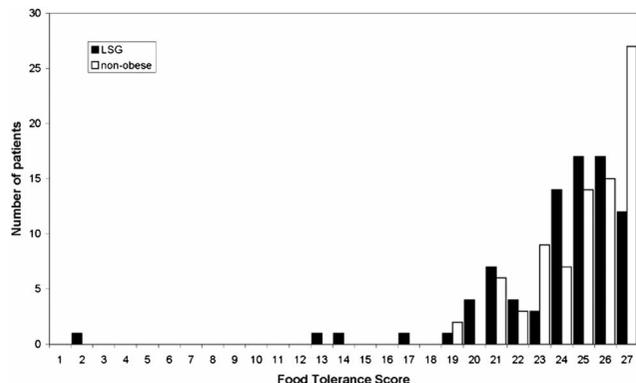


Figure 2. Comparison of food tolerance score in 83 patients after LSG and 83 non-obese/non-operated subjects. Groups matched for age and gender.

P-19

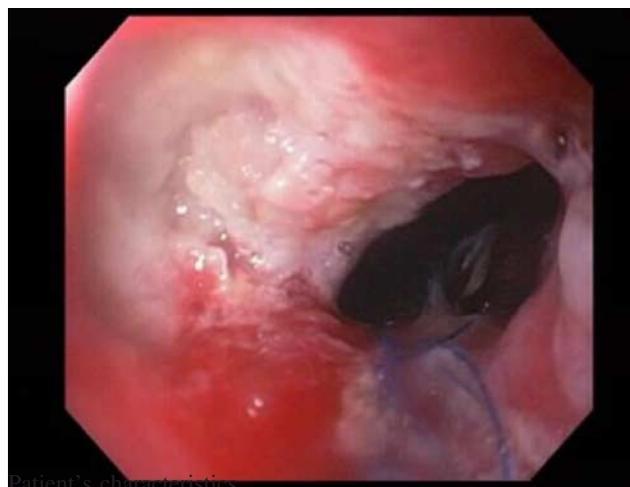
1071.19 ENDOSCOPIC MANAGEMENT OF MARGINAL ULCERS WITH ASSOCIATED FOREIGN BODIES AFTER ROUX-Y GASTRIC BYPASS

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 Christopher C. Thompson, MD, MSc; Gastroenterology/Medicine, Brigham and Women's hospital and Harvard medical school, Boston, MA; Surgery, Brigham and Women's hospital and Harvard Medical School, Boston, MA

Background: Marginal ulcers (MU) occur with unequal frequency after gastric bypass. Diverse risk factors for MU have been identified, including use of non-absorbable suture. Endoscopic removal of foreign material in patients with MU may have clinical utility. **Methods:** We retrospectively reviewed patients referred for MU suspicion between October 2007 and October 2009. Risk factors, endoscopic and medical therapy, and outcomes were analyzed for all patients with MU and visible suture at the MU site.

Results: A total of 42 patients with a confirmed MU were reviewed, and 14 had visible suture material. On average, these patients were 44 years old, 18 month out from surgery [1-62 month], 80% were women, and excess body weight loss was 74%. Non-absorbable suture was used for all operations. All 14 patients were re-endoscoped at least once for evaluation of ulcer healing (on average, 3 months later). Six (43%) patients healed with medical treatment alone (secondary suture removal was performed in 3 cases). In 5 (36%) patients, sutures were removed immediately with subsequent ulcer resolution. The remaining 3 patients (28%) were initially managed with medication, with persistent ulceration seen on repeat endoscopy. Sutures were then removed with near complete healing at the 3rd endoscopy. Of the 3 non-healing ulcers, all patients were non-smokers. One was HP positive and had used NSAIDs intermittently. There were no complications.

Conclusion: Some MU with foreign bodies may not heal efficiently without removal of foreign material. Endoscopic removal of suture appears safe and technically feasible, and should be considered in MU patients with delayed healing.



	# of patients	Smoke	HP positive	Average time from surgery	NSAIDs
Immediate removal	5 (36%)	4/5 (43%)	0/5	19.9 months	None
Non removal	6 (43%)	1/6 (16%)	0/6	21.8 months	None
Removal for non-healing	3 (28%)	1/3 (33%)	1/3 (33%)	7 months	1 (intermittently)

P-20

1071.20 PROSPECTIVE CLINICAL TRIAL COMPARING LAPAROSCOPIC SLEEVE GASTRECTOMY TO LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING FOR THE TREATMENT OF MORBID OBESITY

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 Nancy Puzifferrri, MD; Surgery, Washington University, St Louis, MO; Surgery, Dallas VAMC, Dallas, TX

Background: Laparoscopic Sleeve Gastrectomy (LSG) has emerged as an alternative bariatric restrictive procedure to the standard Laparoscopic Adjustable Gastric Banding (LAGB). We analyzed and compared the perioperative and weight loss outcomes of these two procedures for the treatment of morbid obesity (NCT00434655).

Methods: An equivalence clinical trial was conducted. Forty morbidly obese veterans that underwent LAGB and LSG were fol-

lowed prospectively. Outcome measures included: operating room (OR) time, estimated blood loss (EBL), length of hospital stay (LOS), morbidity, mortality, readmission, reoperation, Total weight loss (TWL), % of initial body weight loss (%BWL) and % of excess weight loss (%EWL) at a mean follow-up of 14-months. **Results:** Demographics and preoperative weight and Body Mass Index (BMI) were comparable between surgery groups. LSG was associated with prolonged OR time (116±31 vs. 94±28 min), higher EBL (34±28 vs. 17±19 ml) and LOS (2±.9 vs. 1±.4 days) when compared to LAGB. Minor morbidity (20 vs. 10%) and readmissions (5% each) were similar between groups while there were no major complications, reoperations or mortality. Total weight and BMI decreased significantly after surgery (LSG: 302±52 to 235±50 lbs and 45±5 to 35±5 kg/m² vs. LAGB: 280±36 to 227±29 lbs and 43±5 to 35±5 kg/m²). Weight loss was not equivalent between procedures (TWL=67±24 vs. 52±28

lbs; %BWL=22±8 vs. 18±9% and %EWL=52±20 vs. 47±23% respectively).

Conclusion: The perioperative and weight loss outcomes between laparoscopic sleeve gastrectomy and laparoscopic adjustable gastric banding are not equivalent at 14 months; however, both procedures are safe and effective treatments for morbid obesity.

P-21

ENDOSCOPIC GASTROJEJUNAL ANASTOMOSIS REVISION: COMPARISON OF TECHNIQUES USING A NOVEL EX-VIVO MODEL THAT QUANTIFIES MECHANICAL COMPLIANCE AND RESISTANCE TO DILATION

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Background: Endoscopic stoma revision has been developed in an effort to treat weight regain after gastric bypass. Assessment of immediate technical success has been subjective and durability is unclear. We have applied a novel ex-vivo testing method, which objectively measures mechanical compliance and resistance, to various methods of outlet revision, including a new flexible endostitch suturing device (FESD) using running self-locking suture over an endoscopic boogie.

Methods: A dilated stoma model (n=35) was created in ex-vivo pig stomachs using a 33mm circular stapler. Controls (n=6) were created using a 12mm stapler. Reduction of anastomotic diameter from 33 to 12mm was performed using endoscopic T-tag suturing, manual interrupted and running sutures, and the FESD with 1 or 2 revolutions. Compliance was measured using impedance planimetry and resistance to dilation measured with standard peak load comparison.

Results: Compliance: Stapled controls yielded an average stiffness of 1.01 kPa/mm. T-tags (0.46 kPa/mm) were more compliant (p=.006). FESD 1 (1.15 kPa/mm) (p=.88), interrupted sutures (1.25 kPa/mm) (p=.47) and running sutures (1.35 kPa/mm) (p=.19) were equivalent to controls and FESD 2 (1.81 kPa/mm) yielded highest stiffness (p=.006). Resistance: Stapled controls yielded an average resistance of 62N. T-tags (19N) (p=.0006), and interrupted sutures (32N) (p=.009) yielded less resistance. Running sutures (89N) (p=.009), and FESD 2 (95N) (p=.069) yielded highest resistance.

Conclusion: Our model provided consistent measurement of anastomotic compliance and resistance. Running sutures and the FESD

with 1.5 or 2 revolutions were found to be the most robust methods of anastomotic revision according to these criteria.

P-22

TRENDS IN JUNIOR MEDICAL STUDENTS KNOWLEDGE AND ATTITUDES TOWARDS OBESITY AND BARIATRIC SURGERY FOLLOWED OVER 2 YEARS.

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Background: Obesity and bariatric surgery(BAS) are not well-understood issues for medical students. We compared newly-arrived first year (Y1) medical students to their preceding class (Y2) in a survey to assess knowledge-base and attitudes on this topic, and to observe any changes after one year.

Methods:98 incoming Y1 and 90 Y2 were given a 41-question survey (OBSKS-I) containing multiple-choice, written, true/false questions evaluating their knowledge on obesity, treatments, their attitudes towards these patients. The survey was completed during a 45-min class period. The same survey was deployed one academic year later (OBSKS-II) to the same two classes, as Y1 now entered their second year and Y2 enrolled into clinical clerkships. Results were analyzed using Student's t-test.

Results: 97% Y2 and 82% Y1 completed OBSKS-I and 90.2% Y2, 79% Y1 completed OBSKS-II (Table). Consistently Y2 class had better understanding of definition classes of obesity, and was more likely to recommend BAS (93%Y2 vs. 82%Y1, p=0.06 in OBSKS-I and 91% vs. 85%, p=0.07 in OBSKS-II). Both classes felt overwhelmingly that obese patients are difficult patients (>95% for both OBSKS-I and OBSKS-II). Both groups had low approvals for BAS as the best long-term option for morbidly-obese but the rate of approval improved over course of one year for each class (34% vs. 54%, p=0.05 for Y2, and 26% vs. 47%, p=0.06 Y1). Both groups fared poorly on complications of BAS during OBSKS-I, but Y2 showed an improvement of 18% vs. 2%, from Y1 (p=0.06).

Conclusion: Medical student have a limited knowledge-base regarding BAS and obesity. An improvement trend is seen as they progress to their clinical years. Only half the class is aware of the effectiveness of BAS as a long-term option for morbid obesity. Most feel these are hard patients to take care of.

Knowledge and Attitudes of Medical Students Toward Obesity and Bariatric Surgery

	Y2 OBSKS-I	Y1 OBSKS-I	p-value	Y2 OBSKS-II	Y1 OBSKS-II	p-value
Survey compliance	97%	82%		90%	79%	
considers self obese	37%	42%	0.09	42%	39%	0.10
attempted diets in the past	37%	46%	0.08	42%	39%	0.10
Felt that diet and exercise are effective tools for long-term weight control	29%	14%	0.07	26%	27%	0.15
incorrectly defined morbid obesity	50%	70%	0.05	32.8%	58%	0.04
felt that obese patients are difficult to take care of	98.9%	96.3%	0.19	97.6%	98.0%	0.20

1071.22

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	Y2 OBSKS-I	Y1 OBSKS-I	p-value	Y2 OBSKS-II	Y1 OBSKS-II	p-value
felt that lack of weight loss should not preclude patients from receiving medical treatment	91%	81%	0.07	93%	95%	0.11
likely to recommend bariatric surgery for patients meeting appropriate criteria	93%	82%	0.06	91%	85%	0.08
felt that bariatric surgery is the best long-term option for morbid-obesity	34%	26%	0.07	54%	47%	0.08
correct knowledge of the complications of bariatric surgery	51.1%	60.0%	0.08	69.5%	62.2%	0.09

P-23

1071.23 GASTROGASTROSTOMY VS. CONVERSION TO GASTRIC BYPASS FOR VBG BAND STENOSIS

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Background: Vertical Banded Gastroplasty (VBG) was once a commonly performed bariatric surgical procedure. This operation has fallen out of favor due to the availability of a less invasive restrictive procedure (adjustable gastric band) and band related complications. Significant and symptomatic pouch outlet stenosis at the level of the gastric band can occur many years after surgery. Options for revision include conversion to a Roux-en-Y gastric bypass (RYGB) or VBG reversal via a gastrogastrostomy (GG).

Methods: Patients with a history of VBG and symptomatic pouch outlet stenosis who underwent revisional surgery were evaluated.

	OR time	LOS	Complications
RYGB	221	5.2+/-7.7	46%
GG	149	2.4+/-2.9	33%
p-value	0.01	0.01	0.67

p-value*= value for comparison of pre-op vs. post-op BMI by procedure

P-24

1071.24 PERIOPERATIVE INSULIN INFUSION IN BARIATRIC SURGERY PATIENTS WITH HYPERGLYCEMIA; IS THERE ANY BENEFIT?

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Background: Diabetic patients are at a greater risk for postoperative complications as compared with non-diabetic patients, including infections. Better diabetic control in surgical patients has been shown to reduce mortality and complications. Our study compared outcomes, complications, mortality and length of stay (LOS) in bariatric surgical patients on continuous insulin infusion [CII] (diabetics & non-diabetics with elevated fasting blood

Symptoms included vomiting, dysphagia, and undesired weight loss associated with malnutrition. This was a retrospective review of prospectively maintained data.

Results: Twenty-two patients qualified. Procedures included RYGB in 13 and GG in 9 patients. Most patients were offered a choice between reversal and conversion, although in several cases insurance companies declined to provide benefits for conversion. Patients were similar in age (57 years RYGB vs. 52 years GG; p=0.15) and sex (85% female RYGB vs. 44%; p=0.07). In GG patients, 100% of complications were wound infections. Complications in RYGB included 4 wound infections, 1 intra-abdominal abscess, and 1 dehiscence.

Conclusion: VBG reversal via GG can be carried out in less time and with a shorter hospital stay. This should be balanced against the fact that weight gain following GG can be profound. In our opinion, RYGB is the preferred procedure for VBG patients requiring revisional surgery.

	Pre-op BMI kg/m ²	Post-op BMI kg/m ²	p-value*
	43.8+/-9.4	34.3+/-8.6 (n=11)	0.03
	31.9+/-4.8	48.6+/-12.3 (n=5)	0.03
	0.02	0.06	

sugar [FBS]) and those not requiring CII based on preoperative protocols.

Methods: In a two-year period 411 patients (90 diabetics & 321 non-diabetics) who underwent bariatric surgery were monitored preoperatively for history of diabetes and FBS levels. Of the 411, 190 were administered a CII during the perioperative period, this included 76 diabetics (65 NIDDM & 11 IDDM) with FBS >120, and 114 non-diabetics with a FBS above 140.

Results: The glycemic control for the patients with CII was 87-194 and for the patients not requiring CII was 93-187. The number of post-operative complications of 190 patients on CII was 21 (11%), and the total number of complications of the 221 patients without CII was 13 (5.8%). The difference in complications between the two groups was not statistically different. LOS was similar in both groups. Both groups on CII (diabetic & non-diabetics) had similar infection rates (6.6% & 7%), overall complication rates (14% & 8%) and mortalities (one in each group).

Conclusion: This study demonstrates the safety of CII perioperatively with no blood sugar < 87. It seems that the use of CII “reduced” postoperative complications in hyperglycemics similar to those not needing CII. In addition, the 2 groups requiring CII (diabetics & non-diabetics with elevated FBS) did not have a statistically significant difference in LOS or complications. Comparison with a diabetic not on CII would be beneficial.

P-25

A NATIONAL SURVEY OF SURGEONS’ EXPERIENCE WITH THE NEW ADJUSTABLE GASTRIC BANDS

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Background: The newer gastric bands, available since 2007, are wider than previous models and offer 360 degree balloon circumference coverage. The Realize™ band consists of a low pressure tube-shaped balloon (thickness 5.5mm) and anchoring hook low-

profile port system purported to improve port stability and tubing protection. The other band has a cushioned “Omniform” thicker balloon (11mm thickness), which maintains its shape and uniform contact with the stomach after inflation (Lap-Band™ AP), theoretically preventing crease fold failure or band leakage.

Methods: A mailer sent to 1800 full ASMBS members surveyed their experience with gastric bands (number and type of bands, complications of band placement).

Results: 200 physicians responded and 180 perform LAGBs. 79 responders are designated Centers of Excellence through ASMBS and 21 through ACS.

Conclusion: Laparoscopic adjustable gastric banding has very low morbidity. Total complication rates were similar with both new bands. AP Lap-Bands™ had statistically significantly lower rates of erosion, perforation, infection, band leak, and band replacement. Realize™ bands had a significantly lower rate of band slip. This study is limited by self-reported data that cannot be verified; however, it may show actual clinical trends and a follow-up survey will be mailed in 1-2 years.

Results

	Total Bands	All Complications	Slips*	Erosions*	Perforations*	Obstructions	Infections*	Leaks*	Port/Tubing Problems
AP	52831 (91%)	1556 (3%)	534 (1%)	95 (0.18%)	20 (0.04%)	113 (0.21%)	49 (0.09%)	26 (0.05%)	673 (1.3%)
Realize	5412 (9%)	167 (3%)	23 (0.42%)	30 (0.55%)	9 (0.17%)	12 (0.22%)	10 (0.18%)	9 (0.17%)	61 (1.1%)

*p < 0.05

P-26

FREQUENCY AND CLINICAL CORRELATES OF VITAMIN A DEFICIENCY AFTER GASTRIC BYPASS SURGERY

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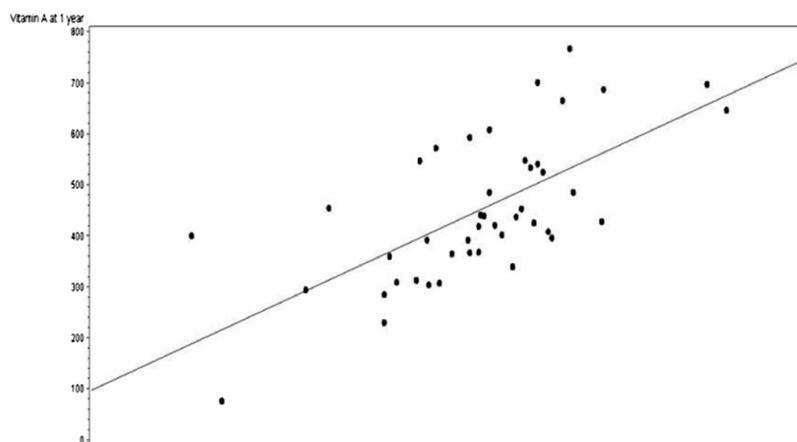
Background: There are limited data on vitamin A deficiency in the gastric bypass population. We noted a relationship between post-operative nutritional protein levels and serum vitamin A concentration.

Methods: We analyzed gastric bypass patients (N=69, 74% female) at ≥year following surgery. The relationship between vitamin A concentration and serum markers of protein concentration at 6-weeks and 1-year post-operative were assessed using bivariate statistics.

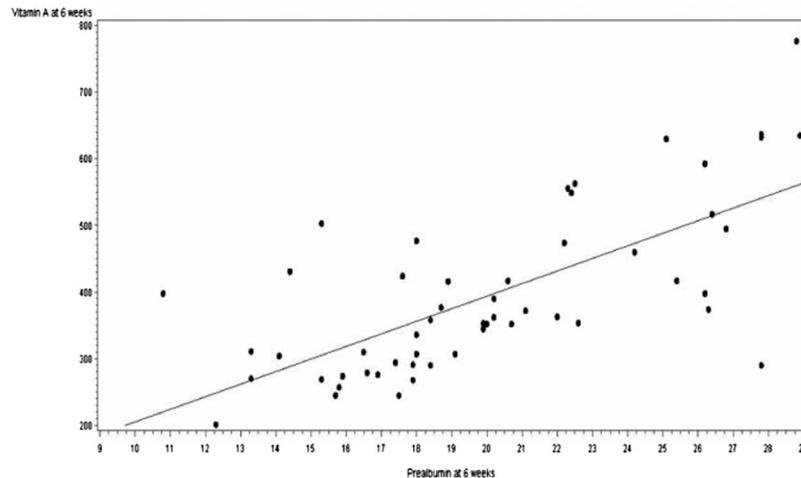
Results: The average weight loss at 6-weeks and 1-year following surgery was 20.1 ± 9.1 kg and 44.1 ± 17.1 kg, respectively. At 6 weeks and 1 year, 34.6% and 17.8% of patients were vitamin A deficient, (< 325 mcg/L). Similarly, 33.9% and 18.5% had low pre-albumin levels (< 18 mg/dL), at 6 weeks and 1 year. Vitamin A directly correlated with prealbumin levels at 6 weeks (r=0.67, p<0.001), and 1-year (r=0.67 p<0.0001). There was no correlation between Roux length measurement and vitamin A serum concentrations, R = 0.008 and 0.008, at 6-weeks and 1-year (p-values 0.96 both). Likewise, there was no correlation between the Roux length and pre-albumin at either time point R = -0.08, p = 0.55; and R = -0.001; p = 0.99.

Conclusion: Vitamin A deficiency is common after gastric bypass and is directly associated with low prealbumin levels. This fat-soluble vitamin should be measured routinely in postoperative patients and deficiency should be strongly suspected in those with evidence of protein calorie malnutrition.

1 Year



6 Weeks



P-27

1071.27 **IDENTIFYING BARIATRIC SURGERY CANDIDATES WHO ARE AT RISK FOR POST-SURGICAL PSYCHOSOCIAL COMPLICATIONS**

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Background: Bariatric surgery candidates are required to receive a pre surgical psychological evaluation to determine if they can manage post-surgical psychosocial and dietary stressors. In spite of this, there is no standard psychological evaluation that would systematically identify all of the known and hypothesized post surgical problems. In response to this, a psychological test, the PsyBari, was created to standardize the pre surgical psychological evaluation and assess a wide range of potential post surgical complications.

Methods: Using the PsyBari, a 115 item paper and pencil psychological test, patients can be rapidly assessed for high risk markers. The test screens for those at risk for; substance and alcohol abuse, increased depression and/or anxiety, interpersonal conflicts (e.g., divorce), eating disorders, contraindicative eating behaviors, unrealistic expectations, and weight regain. The test also screens for patients with low motivation and/or surgical anxiety who are likely to drop out prematurely and not receive the benefits of bariatric surgery.

Results: 600 patients completed the PsyBari. Initial results have confirmed that psychosocial risk status is dependent on gender, race, and age. Younger patients are at risk for depression and possibly suicide, African-American patients are most likely to drop out before completing bariatric surgery and males are more likely to experience irritability/anger symptoms and difficulties losing weight.

Conclusion: Using psychological testing, it is possible to identify patterns of psychosocial risks in bariatric surgery candidates. These risks can be addressed before and after surgical intervention to decrease post-surgical psychosocial complications.

P-28

1071.28 **EFFECT OF GASTRIC BYPASS SURGERY ON PLASMA CERAMIDES, INFLAMMATION, AND CARDIOVASCULAR RISK FACTORS IN SEVERELY OBESE PATIENTS**

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Background: Bariatric surgery is associated with the immediate reversal of type 2 diabetes and hyperlipidemia. Herein, we examined the effect of Roux-en-Y gastric bypass surgery on weight loss, insulin sensitivity, plasma ceramides, pro-inflammatory markers, and cardiovascular risk factors at 3 and 6 months after surgery.

Methods: Thirteen patients (10 female; age 48.5 ± 2.7 yrs; BMI, 47.4 ± 1.5 kg/m²) were included in the study. Plasma ceramides (C14:0, C16:0, C18:0, C18:1, C20:0, C24:0, and C24:1) were quantified using electrospray ionization tandem mass spectrometry after separation with HPLC.

Results: At 6 months post-op, body weight was reduced by 25%, and fasting total cholesterol, triglycerides, LDL, free fatty acids, the inflammatory markers – leptin, and C-reactive protein (CRP), and insulin resistance estimated from HOMA-IR, were significantly reduced compared to pre-surgery values. These changes were paralleled by a reduction in total plasma ceramides (9.3 ± 0.5 nmol/ml at baseline vs. 7.6 ± 0.4 at 3 months, and 7.3 ± 0.3 at 6 months, $p < 0.05$). At 3 months post-op, the reduction in total ceramides correlated with the decrease in TNF- α ($p = 0.02$), and the change in C16:0 ceramide subspecies was also significantly correlated with TNF- α ($p < 0.05$). At 6 months post-op, the change in total ceramide correlated with the improvement in insulin sensitivity ($p < 0.05$). In addition, the decrease in C16:0 correlated with the decrease in CRP ($p < 0.05$), TNF- α ($p < 0.05$), and leptin ($p = 0.08$).

Conclusion: Our data show that weight loss, reduced inflammation, and CVD risk after gastric bypass surgery may be mediated by changes in ceramide lipids.

P-29

1071.29 COMPARISON OF DIAGNOSTIC ACCURACY OF UPRIGHT AND RECUMBENT ESOPHOGRAM IN PREDICTING HIATAL HERNIA

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Background: Hiatal Hernia (HH) repair at the time of bariatric surgery has been shown to improve overall outcomes and reduce reoperation rate. We report on the diagnostic accuracy of two preoperative barium esophogram techniques (upright vs. recumbent) in predicting presence of HH intraoperatively.

Methods: Between 1/08-10/08, upright barium esophogram (n=70) and between 10/08-8/09, recumbent barium esophogram (n=72) were performed preoperatively. Hiatal hernias were assessed intraoperatively by laxity of the phrenoesophageal ligament, and if present, were repaired posteriorly. All data were collected prospectively, including esophogram findings and presence of HH.

Results: For patients undergoing upright esophogram, 16 (23%) studies were interpreted as positive for HH, while 54 (77%) were interpreted as negative. In the operating room, HH was found in 29 (41%), and not found in 41 (59%) cases. Based on this, the sensitivity and specificity of upright esophogram are 52% and 98%, respectively. For patients undergoing recumbent esophogram, 34 (47%) studies were interpreted as positive for HH, while 38 (53%) were interpreted as negative. In the operating room, HH was found in 46 (64%), and not found in 26 (36%) cases. Based on this, the sensitivity and specificity of recumbent esophogram are 74% and 96%, respectively.

Conclusion: A preoperative esophogram using recumbent technique may be a better diagnostic modality for hiatal hernia.

		Intraoperative HH		Total
		+	-	
Upright Esophogram	+	15	1	16
	-	14	40	54
Total		29	41	70

Sensitivity=52%, Specificity=98%

		Intraoperative HH		Total
		+	-	
Recumbent Esophogram	+	34	8	42
	-	12	18	30
Total		46	26	72

Sensitivity=74%, Specificity=96%

P-30

RAPID EXCESS WEIGHT LOSS FOLLOWING GASTRIC BYPASS LEADS TO INCREASED RISK OF INTERNAL HERNIA

1071.30

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Background: Internal hernia(IH) is one of the more acute and potentially devastating complications after Laparoscopic Gastric Bypass (LGB). Currently, there is no way to predict which patients will develop IH. We propose that patients who experience periods of rapid excess weight loss (EWL) following LGB are more likely to develop IH.

Methods: A retrospective review of our prospective database was performed between 2002-2009. Demographics, initial BMI, weight loss curves, and morbidity, specifically internal hernia, were reviewed. We statistically defined rapid EWL as greater than the 90th percentile for weight loss. Standard statistical analysis was performed. Logistic regression was used to obtain an adjusted odds ratio for rapid weight loss and hernia development.

Results: We reviewed 934 LGB procedures. Average initial BMI was 49.1kg/m²(range 34-91). EWL at 1,3,6,9, and 12 months postoperatively was 20,40,60,75,and 85%. Rapid EWL was noted in 33.2% (310/934) of patients. Overall, 58 (6.2%) patients developed IH. Of these, 27 (46.5%) had periods of rapid EWL (OR 1.83, 95% CI=1.07,3.02). Bivariate analysis identified that initial BMI (49.3v46.6 kg/m²) and rapid EWL increased the likelihood of internal hernia (p=0.026). Multivariate regression identified only rapid EWL as a predictive factor. IH locations were: jejunojejunosotomy (24), Petersen's defect (23), adhesions(9), and colonic mesentery(1).

Conclusion: Outcomes from missed IH can be catastrophic. In our large, single center series, we have found patients who experience periods of rapid EWL are at nearly twice the risk for development of internal hernia as the remainder of the gastric bypass population. We assert that surgeons should have a heightened vigilance for internal hernia, particularly in these patients who have had rapid EWL.

P-31

ESOPHAGEAL CLOSURE AND JEJUNOSTOMY AS AN AGGRESSIVE MANAGEMENT OF LEAKS AFTER BARIATRIC SURGERY FOR MORBID OBESITY.

1071.31

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Background: To describe a new operative management of upper gastro-intestinal leaks in patients requiring ICU admission after bariatric surgery for morbid obesity.

Methods: As a university hospital with high volume bariatric surgery, patients with hemodynamic instability and severe sepsis after bariatric surgery are often referred to our center. In 4 patients where local conditions and severe sepsis didn't allow repair of the defect or redo of the anastomosis, we used a more aggressive treatment which included resecting the gastric pouch, closing the abdominal esophagus with a linear stapler and using the alimentary limb as a jejunostomy. The demographic and outcome data were studied.

Results: The mean body mass index was 49kg/m² (range 36-64), and 2 (50%) of the 4 patients were women. The enteric leak was diagnosed and reoperation was performed 10 days after initial surgery (range 7-14). The severity score on admission (SAPS II) was 39 (range 29-57). Only 1 patient required a second reoperation. ICU length of stay was 27 days (range 14-49). Hospital length of stay was 66 days (range 50-90). There were no deaths in this series. Four to 6 months after, all 4 patients were reoperated by laparotomy, a transoral circular (25mm) esophago-jejunostomy was performed using the alimentary limb.

Conclusion: Enteric leak is a significant complication after bariatric surgery. Furthermore, we thought that it is probably the main cause of death in the postoperative course. We thought that patients with late diagnosis, severe sepsis and hemodynamic instability should undergo aggressive open surgery. This new aggressive surgical procedure allowed us to have a 0% death rate in this small series of challenging patients.

P-32

1071.32 THE EFFECTS OF PREOPERATIVE WEIGHT LOSS ON OUTCOMES FOLLOWING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: RESULTS FROM THE MICHIGAN BARIATRIC SURGERY COLLABORATIVE

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Kevin Krause, MD; Jeffrey A. Genaw, MD;
David Chengelis, MD; David Share, MD;
Amanda O'Reilly, BSN; Zhaohui Fan, MD, MPH;
Nancy Birkmeyer, PhD; Jonathan Finks, MD; Surgery, University of Michigan, Ann Arbor, MI; Surgery, Henry Ford Hospital, Detroit, MI; Surgery, Beaumont Hospitals, Royal Oak, MI; Blue Cross Blue Shield of Michigan, Southfield, MI

Background: Preoperative weight loss is advocated by some surgeons to reduce perioperative complications and improve long-term outcomes after bariatric surgery, but evidence to support this approach is lacking. We examined the effect of preoperative weight loss/gain on outcomes following laparoscopic Roux-en-Y gastric bypass (LRYGB) using data from a prospective statewide clinical registry.

Methods: We analyzed data from the Michigan Bariatric Surgery Collaborative, which collects information on clinical characteristics and outcomes from over 95% of patients undergoing bariatric surgery in Michigan. Patients were stratified into 3 preoperative weight loss groups based upon the change in body weight: I. Gained ($\geq 3\%$); II. No change (gained/lost $<3\%$); III. Lost ($\geq 3\%$). Our primary outcome was the percent of excess weight loss (%EWL) at 1 year after surgery. Secondary outcomes included 30-day mortality and morbidity, operative time, reduction in medication use, quality of life, and patient satisfaction at 1 year. Outcomes were compared using logistic regression models and were adjusted for patient characteristics.

Results: Between June, 2006 and August, 2009, 8,320 patients underwent LRYGB and 1,331 completed 1 year follow-up. The respective %EWL for the three groups was 64%, 67% and 68% ($p < .0001$) and mean operative times were 107, 113, and 121 minutes ($< .0001$). There were no significant differences in rates of mortality and morbidity, reduction in medication use, quality of life scores or patient satisfaction.

Conclusion: Preoperative weight loss was associated with slightly more weight loss at 1 year, but otherwise did not predict successful outcomes after LRYGB.

P-33

WHY ARE POST-BARIATRIC PATIENTS IN SUBSTANCE ABUSE TREATMENT? PATIENTS' PERCEPTIONS OF ETIOLOGY AND FUTURE RECOMMENDATIONS

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Background: Recent evidence suggests that post-bariatric surgery patients are overrepresented in substance abuse treatment programs (Saules et al., under review); little is known, however, about why this phenomenon is occurring.

Methods: Substance abuse treatment patients with bariatric surgery histories were recruited to participate in a study examining the onset of substance abuse relative to the timing of their bariatric surgery. Participants completed a questionnaire packet and a semi-structured interview. Data collection is ongoing. To date, the sample primarily consists of White women (83%) with a mean age (\pm SD) of 45.6 (\pm 10.3), mean BMI (\pm SD) of 32.5 (\pm 7.3) kg/m², and mean post-surgical weight loss (\pm SD) of 119.7 (\pm 67.5) pounds. Qualitative interview data (N=12) were used to evaluate participants' perceptions of the etiology of their substance abuse problems and their recommendations for those working with bariatric patients and treatment providers.

Results: Four themes emerged regarding substance abuse etiology, namely unresolved psychological problems (i.e., pre-existing but unresolved problems and identity shifts associated with dramatic weight loss), addiction substitution, faster substance metabolism with more intense effects, and increased availability of pain medications. Three themes for future recommendations emerged including counseling pre- and post-surgery, increasing education/knowledge regarding associated risks of substance abuse post-surgery, and "honesty" on behalf of both patients and staff during the pre-surgical evaluation. Representative quotes will be presented for each theme.

Conclusion: Implications include increased psychological treatment pre- and post-surgery, with a particular focus on navigating identity shifts, and increased education related to substance abuse risks.

P-34

INFLUENCE OF ACTIVITY LEVELS VERSUS ENERGY INTAKE ON PERCENT EXCESS WEIGHT LOSS (%EWL) AFTER RYGB

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Background: Maximizing outcomes from the RYGB, most surgeons utilize the same interventions which are routinely used and deemed to be successful in the non-surgical obese population. Non-surgical success is greatest with dietary control with activity

used to maintain weight loss. The purpose of this study was to define variables that improve success in %EWL in this post-surgical population.

Methods: The AAFQ, the AFFQ, and the SF-36 Health and Quality of Life survey were sent to all of the RYGB patients who had surgery one to five years prior to the study and performed through the same bariatric surgery center (returned n=265 or 33%). Analysis was performed on all of the pertinent data collected through individual ANOVA testing to determine relationships between selected behaviors and outcomes.

Results: There was no significant relationship between energy intake and post-surgical % excess weight loss (%EWL). Significant differences were found in %EWL between patients participating in more energy expended in activity/day ($p < 0.05$), more hours of activity/day ($p < 0.02$), and those participating in more MET Level 3 activities/day ($p < 0.03$).

Conclusion: Outcomes s/p RYGB, when measured in %EWL, is improved when the patient expends more energy in activity/day, is more active in hours of activity/day or is more active with higher MET Level 3 activities and is not significantly improved with change in energy intake.

P-35

1071.35

CORRELATION BETWEEN HIATUS HERNIA, GASTROESOPHAGEAL REFLUX DISEASE AND BODY MASS INDEX IN AN OBESE POPULATION

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Background: Several studies showed a positive relation between body mass index (BMI) and gastroesophageal reflux disease (GERD), although some controversies still exist. Hiatus hernia (HH) is also known to increase the prevalence of GERD. We aim to describe if increases in BMI are related to the prevalence of GERD and HH.

Methods: We reviewed medical records of 502 obese patients ($BMI \geq 35 \text{ kg/m}^2$), which were submitted to upper gastrointestinal endoscopy before gastric bypass procedure in the period of January/2004 to December/2008 regarding to age, sex, BMI, comorbidities and endoscopic findings (e.g. gastritis, esophagitis, hiatus hernia, presence of *H. pylori* at biopsy). Patients were divided in three groups: patients with BMI of 35-39.9 kg/m^2 in GA; patients with BMI of 40-49.9 kg/m^2 in GB and patients with $BMI \geq 50 \text{ kg/m}^2$ in GC. Statistical tests used were Pearson product-moment correlation coefficient, ANOVA and Fisher.

Results: 422 (84%) patients were female. Mean age was 37 years (17-67). *H. pylori* infection prevalence was 43%. 186 patients (37%) were in GA, 284 (56.5%) in GB and 32 (6.5%) in GC. Global prevalence of GERD was 34.6%, greater in GC (37.5%). Global prevalence of HH was 15.9%, greater in GA (17.7%). There was no significant correlation between increases in BMI and the prevalence of GERD ($p=0.46$) or HH ($p=0.93$). There was a positive correlation between GERD and HH ($r=0.54$; $r^2=0.29$, $p<0.0001$) and between age and GERD ($r=0.10$; $r^2=0.012$; $p=0.014$). There was no correlation between *H. pylori* infection and GERD ($r=-0.07$; $p=0.14$).

Conclusion: Changes in BMI were not shown to alter the prevalence of GERD or HH. GERD is much more common among patients with HH than among those without HH. *H. pylori* infection and GERD were not found to be related.

P-36

1071.36

COMPARISON OF METABOLIC PROFILE AND EXCESS WEIGHT LOSS IN HYPOTHYROID AND EUTHYROID OBESE PATIENTS SUBMITTED TO ROUX-EN-Y GASTRIC BYPASS

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Background: Thyroid dysfunction is associated with obesity but little is known about the long-term changes in thyroid function caused by weight loss. The purpose of this study is to compare the metabolic profile and percentage excess weight loss (%EWL) in hypothyroid and euthyroid patients submitted to bariatric surgery.

Methods: 505 patients were divided into two groups: hypothyroid (H) and euthyroid (E). They were compared regarding Body Mass Index (BMI), %EWL and metabolic profile [metabolic syndrome (MS), HOMA IR, free T4, TSH].

Results: 423 were women (83.7%); 54 subjects (10.7%) had hypothyroidism (H), of which 51(94.4%) were females. The percentage of females and males affected by hypothyroidism was 12.1% vs. 3.7%, respectively [$p=0.04$]. Mean BMI of H was $41.5 \pm 5.1 \text{ kg/m}^2$, and E $42.2 \pm 4.7 \text{ kg/m}^2$ [$p=0.22$]. Mean age of H was 39.9 ± 10 years and E 36.8 ± 10.3 years [$p=0.03$]. Metabolic syndrome was present in 294(58.21%) of total patients, corresponding to 57% of H and 59% of E [$p=0.92$]. Mean HOMA IR in H was 6.4 ± 7.8 (1.49-53.35) and E 4.61 ± 3.3 (0.09-27.72) [$p=0.16$]. After 1 year %EWL was, in H, $61.4 \pm 10.2\%$ and E, $71.3 \pm 15.1\%$ [$p=0.0001$]. After 2 years, %EWL was in H $68.9 \pm 13.7\%$ and E $71.2 \pm 16.4\%$ [$p=0.18$]. In H, preoperative TSH was 2.99 ± 3.03 (0.05-8.79) and, one year after surgery, 3.23 ± 1.94 (0.01-7.04) [$p=0.81$]. In E, preoperative TSH was 2.86 ± 1.59 (0.98-9.40) and, one year after, 2.06 ± 1.23 (0.45-7.5) [$p<0.0001$]. Mean free T4 in E before surgery was 1.01 ± 0.26 (0.7-1.8) and, one year after, 1.09 ± 0.15 (0.7-1.4) [$p=0.07$].

Conclusion: Women showed a higher percentage of hypothyroidism. There was no difference between groups regarding BMI, HOMA IR, percentage of affected by MS and %EWL after two years of follow-up. Thyroid function may vary in euthyroid obese patients after weight loss, which however, is clinically insignificant.

P-37

1071.37

MARKERS OF BONE METABOLISM FOLLOWING ROUX-EN-Y GASTRIC BYPASS

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Background: Recent studies related a great amount of patients with hypocalcaemia after bariatric surgery, despite multivitamin supplementation. Our aim is to describe calcium metabolism markers in a population of patients submitted to bariatric surgery after 1 and 2 years.

Methods: We reviewed medical records of 78 patients 1 year after surgery (G1) and 33 patients 2 years after (G2) to evaluate markers of calcium metabolism. We have analyzed parathormone (PTH), alkaline phosphatase (ALP), serum calcium and percentage excess weight loss (%EWL). Paired T test, Wilcoxon matched pairs test and Pearson correlation analysis were used for statistical analysis.

Results: 68 women (87.7%) and 10 men (12.3%) were in G1, their pre-operative BMI was 42.4 ± 4.9 kg/m² and age 37 ± 10 years. 31 (93.9%) women and 2 (6.1%) men were in G2, their pre-operative BMI was 40.4 ± 4.9 kg/m² and age 41 ± 12 years. In G1, plasma PTH before surgery and 1 year after were 46.1 ± 18.1 and 43.0 ± 16.5 , respectively ($p=0.16$). Pre-operative and post-operative ALP were 97.2 ± 47.8 and 86.2 ± 40.1 ($p=0.16$) and pre-operative and post-operative calcium were 9.0 ± 0.4 and 9.1 ± 0.5 ($p=0.16$). In G2, serum calcium before and 2 years after surgery were 9.1 ± 0.6 and 9 ± 0.4 ($p=0.15$). ALP levels decreased 2 years after surgery 125 ± 49.5 and 75.2 ± 20.1 ($p < 0.0001$) and PTH levels increased 9.7 ± 16.6 and 48.2 ± 20.9 ($p=0.02$). There was no correlation between %EWL and ALP ($p=0.7$), PTH ($p=0.67$) or calcium ($p=0.2$).

Conclusion: 1 year after surgery there were no changes in markers of calcium metabolism. Nevertheless, 2 years after surgery, there was an increase in PTH and decrease in ALP levels, which may be a sign of calcium metabolism changes in late post-operative of bariatric surgery. These alterations are not related to %EWL.

P-38

RELATIONSHIP BETWEEN OBSTRUCTIVE SLEEP APNEA SYNDROME AND METABOLIC LIVER CHANGES

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Background: Obstructive sleep apnea syndrome(OSAS) has a prevalence of 2-4% in the general population. This disease can be an independent risk factor for elevated liver enzymes, insulin resistance and development of nonalcoholic steatohepatitis

Methods: From January, 2004 to July, 2009 reports of polysomnography, laboratory tests and abdominal ultrasound of 356 obese patients submitted to Roux-en-Y gastric bypass were collected. Statistical tests used were chi-square, Kruskal Wallis and Spearman correlation.

Results: From 356 obese patients, 293(82.3%) were women. Mean age was 38.0 ± 11.0 years old (16-67). Mean Body Mass Index (BMI) was 42.0 ± 5 kg/m²(35-75). Mean Apnea Hypopnea Index (AHI) was 15.1 ± 20.0 (0-130). AHI ≤ 10 (G1) in 210(59%) patients, > 10 and ≤ 50 (G2) in 120(34%), > 50 (G3) in 26(7.0%). Average age of G1, G2 and G3 were respectively 36, 39 and 43 years old [$p=0.003$]. Mean BMI: 41, 43 and 45 kg/m², respectively [$p=0.0005$]. Mean triglyceridemia: 145 ± 63 ,

172 ± 118 and 167 ± 68 mg/dl [$p=0.06$]. ALT average: 30 ± 23 , 35 ± 20 and 41.5 ± 33 UI/L [$p=0.0015$]. The number of patients with ALT > 35 : 52(26%), 42(36%) and 10(38.4%) [$p > 0.05$]. Correlation between ALT and AHI RR=0.18, $p=0.0005$. AST average: 24 ± 13 , 26 ± 11 and 27 ± 14 UI/L [$p=0.0085$]. Patients with AST > 35 : 24(12%), 18(15%) and 6(23%) [$p > 0.05$]. Correlation AST and AHI RR=0.16, $p=0.002$. Patients with hypertension: 112(53%), 86(71%) and 21(81%) [$p=0.001$]. Patients with type 2 diabetes: 29(14%), 21(17.5%) and 6(23%) [$p > 0.05$]. Mean HOMA-IR: 4.1 ± 3.1 , 4.9 ± 3.2 and 5.9 ± 5.1 [$p=0.0054$]. Average percentage of total sleep time with SaO₂ $< 90\%$ (CT-90): $10.3 \pm 21\%$, $33.2 \pm 32\%$ and $63.1 \pm 34\%$ [$p=0.0001$].

Conclusion: G3 had a higher mean age, BMI, ALT, AST, HOMA-IR, CT-90 and higher prevalence of hypertension. There was a statistically significant positive correlation between AST and ALT with AHI. High levels of AST and ALT, number of patients with type 2 diabetes were similar among the 3 groups.

P-39

THE FINANCIAL IMPLICATIONS OF COVERAGE FOR LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING (LAGB)

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Background: Employers and insurers are increasingly concerned about the cost implications of providing coverage for bariatric procedures. To date, no study has specifically addressed costs and potential cost savings resulting from coverage for LAGB.

Methods: U.S. health care claims data of over 11,000 LAGB patients and a propensity score matched control group were used to quantify costs and potential cost savings resulting from LAGB for the eligible sample and for a subsample of those with diabetes. The control group consisted of individuals with a morbid obesity diagnosis code and/or a BMI over 35 kg/m² as reported in Health Risk Assessment (HRA) data.

Results: The mean cost of LAGB placement was approximately \$20,000 after including pre-surgery, surgery, and post-surgery costs (in the first 90 days post-procedure). After LAGB placement, there was an immediate drop in health expenditures relative to pre-surgery expenditures for total, outpatient, and pharmaceutical payments. In the post-surgery period, these decreases were maintained for the LAGB sample but payments for the comparison sample continued to rise. As a result, the net cost of coverage for LAGB was reduced to zero approximately 4 years after placement. For those with diabetes, LAGB paid for itself in just over 2 years.

Conclusion: These results do not support the widely held belief that providing coverage for LAGB will increase plan costs. We show the LAGB procedure paid for itself within a relatively short time period, especially for those with diabetes.

P-40

1071.40 GENDER COMPARISON OF WEIGHT AND BODY COMPOSITION CHANGES FOLLOWING ROUX-EN-Y GASTRIC BYPASS

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Background: The percentage of obese Americans now exceeds the percentage of overweight Americans. Roux-en-Y gastric bypass (RYGB) is an effective surgical treatment for morbid obesity, yet studies reporting changes in body composition following RYGB are scarce. This study describes and contrasts serial weight and body composition changes among male and female patients following RYGB

Methods: This IRB-approved, single-hospital, retrospective descriptive study examines outcome data using information from medical records. Data includes weight and body composition evaluated using bioimpedance. Data is recorded pre-operatively and changes are recorded post-operatively at months 3, 6, and 12 for 6 men and 26 women.

Results: Results show that body weight is reduced by 40% for both genders, but men lost more absolute weight than did women. Composition of total weight loss is favorable, with fat loss accounting for just above 75% for both genders. Fat and lean loss were statistically significant for both genders ($p < .001$). Little gender difference for percent excess weight loss existed until women's exceeded men's at 12 months. Body mass index was similar for both groups at all points. Percent body fat decreased at similar rates, changing to average levels for both genders at 12-months.

Conclusion: RYGB erased the male gender advantage observed with medical weight loss. Absolute weight loss and composition changes compliment results of other studies. Preserving lean tissue enhances quality of life, as lean tissue mass favorably influences daily energy requirement. To maximize patient outcome, study results may suggest desirable 12-month body composition goals and serial %EWL goals.

P-41

1071.41 LOW RESTING METABOLIC RATE IS ASSOCIATED WITH LOW CARDIORESPIRATORY FITNESS, LOW VITAMIN D AND HYPERURICEMIA IN BARIATRIC SURGERY PATIENTS

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Background: Relationships between low cardiorespiratory fitness, incidence of metabolic syndrome, and low resting metabolic rate (RMR) have been reported. Insulin resistance, which is the core pathology of the metabolic syndrome, is also associated with

vitamin D deficiency and hyperuricemia. We examined the relationship of RMR with cardiorespiratory fitness, components of the metabolic syndrome, and serum vitamin D and uric acid levels in preoperative bariatric surgery patients.

Methods: Consecutive adults (N=68; 79% female) underwent fasting laboratory studies, measurement of RMR via indirect calorimetry and assessment of cardiorespiratory fitness via online measurement of oxygen consumption.

Results: Mean age and body mass index (BMI) were 47.2 ± 12.0 years and 47.0 ± 9.0 kg/m², respectively. Over one-third, 34%, had a RMR below that predicted by the Harris-Benedict equation. There was no difference in age, BMI, lipoprotein levels, glucose, blood pressure or waist circumference measurements for lower vs. higher than predicted RMR groups. Comparison of the lowest vs. the highest RMR quartiles revealed lower 25-hydroxy-vitamin D levels (26.0 ± 12.8 vs. 42.6 ± 21.3 ng/mL, $p=0.05$), higher uric acid levels (6.4 ± 1.7 vs. 4.4 ± 0.5 mg/dL, $p=0.02$), and lower peak oxygen consumption with exercise (14.6 ± 4.6 vs. 18.0 ± 4.3 mL/kg/min, $p=0.05$), respectively.

Conclusion: Low RMR in this cohort of morbidly obese adults was associated with low cardiorespiratory fitness, low vitamin D and hyperuricemia. In contrast to previous research, low RMR was not associated with components of the metabolic syndrome. However, this may relate to pharmacologic modification of these risk factors.

P-42

1071.42 INTRODUCTION OF THE LAPAROSCOPIC DUODENAL SWITCH WITH RIGHT GASTRIC ARTERY LIGATION IN AN EXPERIENCED BARIATRIC TEAM

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Background: Laparoscopic duodenal switch (LDS) is considered one of the most complex bariatric procedures. This is not a worldwide common practice, but excellent results have been reported in weight control, resolution of comorbidities and diet tolerance. This study presents the first 50 LDS cases of our highly experienced team with 1,150 bariatric procedures performed (500 laparoscopic).

Methods: Prospective analysis of the first 50 patients who underwent LDS at our institution. We analyzed the weight and comorbidity outcomes, and the morbidity and mortality of the technique. All the procedures were laparoscopic. Ligation of the right gastric artery was always performed after the sleeve gastrectomy was completed.

Results: All the patients underwent surgery between 2006 and 2009. Mean BMI was 51 kg/m² (range 41 -59). Mean age was 39 y.o. (range 22 - 60). Most of the patients were women. We had major morbidity in 5 patients (12%): 2 hemoperitoneum, 2 anastomotic leaks and 1 duodenal stump leak. Mode of hospital stay was 4 days (4 to 174). Mortality was zero. Mean BMI at 12 months was 30.7 kg/m² (24.5-39.8) and %EWL was 67.8% (12.8-94.9). All comorbidities improved after surgery. All patients with Type 2

Diabetes improved their clinical and biochemical parameters. No food intolerance was reported.

Conclusion: Laparoscopic duodenal switch with right gastric artery ligation has been proven to be a very complex procedure that offers excellent results in terms of weight loss and resolution of comorbidities. Despite the procedures being carried out by an experienced team, the learning curve was associated with a high morbidity index.

P-43

1071.43 IS ROUTINE ABDOMINAL DRAINAGE NECESSARY AFTER LAPAROSCOPIC GASTRIC BYPASS FOR MORBID OBESITY?

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Background: Routine abdominal drainage was recommended for the detection of surgical complications such as anastomotic leaks or gastrointestinal hemorrhage after laparoscopic gastric bypass for morbid obesity. However, the true value of routine drainage is unknown. The aim of this study was to determine whether routine drainage after laparoscopic gastric bypass is necessary

Methods: Between May 14, 2008 and August 22, 2008, we compared 90 consecutive patients who underwent laparoscopic gastric bypass (D group) with abdominal drainage and 90 consecutive cases without drainage (N group) from August 27, 2008 to February 16, 2009. All the patients underwent surgery by the same, well-experienced surgical team of a single institute. The clinical information and peri-operative data between the two groups were compared. All the clinical data were recorded prospectively in a clinical database.

Results: Both groups had similar basic clinical characters before operation. There was no difference in the postoperative complications between the groups. Both groups had one major leak (1/90, 1.1%). Both required re-laparoscopy drainage and jejunostomy placement and recovered uneventfully. Minor complications occurred in six patients of the D group (6/90, 6.6%), and eight in the N group (8/90, 8.8%) without significance (Chi-square test, $P > 0.05$). There was no significant difference in post-operative analgesic use (63.1 vs. 60.1 mg; $p=0.79$), and hospital stay (5.2 vs. 4.7 days, $P=0.14$). However, the N group had the advantage of quicker flatulous passage (1.6 vs. 1.4 days, $P=0.006$) compared to the D group.

Conclusion: Routine abdominal drainage is not necessary after a well-performed laparoscopic gastric bypass for morbidly obese patients. Drainage omission contributes to a quicker recovery without added surgical complication.

P-44

COMPARATIVE EARLY OUTCOMES AFTER LAPAROSCOPIC GASTRIC BYPASS AND BILIOPANCREATIC DIVERSION WITH DUODENAL SWITCH

1071.44

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Background: Biliopancreatic diversion with duodenal switch (BPD-DS) is usually associated with higher morbidity and mortality compared to gastric bypass (RYGB). We assessed the complication rate after our own experience with RYGB and BPD-DS. **Methods:** Since February 2007, 493 patients have been operated on for morbid obesity either with RYGB (405 patients) or BPD-DS (88 patients) according to their BMI. Surgeries were performed at a single institution by 2 surgeons with more than 5 years and 100 cases experience in RYGB and BPD-DS, respectively. 30 day morbidity and mortality rates were reviewed with major complications linked to DVT, bleeding requiring blood transfusion, re-operation or prolonged hospital stay.

Results: Patients' age: 41.2 ± 10.6 in RYGB group and 40.2 ± 11.3 in BPD-DS group. Preoperative BMI was 43.8 ± 5.2 and 52.6 ± 6.2 kg/m^2 , respectively ($p < 0.01$). All procedures but 1 BPD-DS were approached laparoscopically. Revisions after a failed restrictive procedure (mostly gastric banding) accounted for 11.1% of the RYGB and 29.5% of the BPD-DS (5 as scheduled 2nd stage BPD-DS after sleeve gastrectomy). Conversion to open was necessary in 1 RYGB and 4 BPD-DS. The overall complication rate was significantly higher after BPD-DS (25%) compared to RYGB (7.4%) ($p < 0.00001$), with 1 fatal outcome in the RYGB group (0.24% death rate). Major complications were found in 16 RYGB (3.9%) and 12 BPD-DS (13.6%) patients. After revision, the overall complication rate increased in BPD-DS (33%)

Conclusion: BPD-DS confirms its status as a complex procedure compared to RYGB. Although no BPD-DS died, their more frequent complications could be explained in part by patients being more obese and a higher revision rate.

P-45

LONG-TERM RESULTS WITH THE DUODENAL SWITCH (DS)

1071.45

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Background: Long term results (>10 years) with the Duodenal Switch (DS) remains controversial. This report summarizes results after ten years of patients who had the DS, most of whom had been lost to follow-up.

Methods: Follow-up was attempted on all 210 patients who had the DS from 1993 through 1999 in a community practice. Information was obtained on 96 (46%). Initial weight loss, weight loss maintenance, co-morbidity resolution, new onset anemia, osteoporosis, and quality of life (QOL) data was collected.

Results: Ten of the 96 had expired, none due to morbidity from the DS. Of the 86 surviving patients (67 F/ 19 M; ages 18-66) average pre DS BMI was 52 kg/m^2 and average current post DS BMI is 31 kg/m^2 (EWL 77%). Co-morbidity percentage resolution/im-

provement included: Type II diabetes mellitus 95% / 5%, hypertension 82%/15%, hypercholesterolemia 100%/-, sleep apnea 87% / 7 %, asthma 67%/33%, GERD 87%/7%, depression 73% 20%, degenerative joint disease 52%/33%, stress urinary incontinence 50%/25 % . Post DS anemia was reported by 40%, two requiring parenteral iron and three blood transfusions. Osteopenia/osteoporosis was diagnosed in 34%. Self-reported QOL on a ten point scale rose from 3.1 to 8.9.

Conclusion: DS patients benefit from durable weight loss, sustained resolution of most obesity related co-morbidities, and a marked enhancement in QOL. Anemia and osteoporosis aren't prohibitive. Despite lack of consistent bariatric team follow-up, these patients are happy, healthy and competently managed by their primary care providers.

P-46

1071.46 IS BINGE EATING DISORDER ASSOCIATED WITH THE DEGREE OF WEIGHT LOSS FOLLOWING BARIATRIC SURGERY?

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Background: Bariatric surgery has emerged as an effective treatment for obesity, but up to 20% of patients fail to achieve adequate long-term weight loss. The influence of binge eating disorder (BED) on degree of weight loss is unknown.

Methods: Medline search was completed from 1988 to 2009 using MeSH terms (i.e. "bariatric surgery", "binge eating"). Twenty studies were identified that assessed the association of BED on weight loss. Studies were summarized for whether they found a positive (i.e. BED correlated with greater weight loss), negative, or no association with weight loss. High quality studies (sufficient follow-up, use of validated questionnaire, report of weight data) were selected for meta-analysis using % excess weight loss (EWL) as the outcome.

Results: Total sample size was 2,661, mean age was 41, and mean baseline body mass index was 50.1 kg/m². Two studies reported a positive correlation, 4 reported a negative correlation, and 14 reported no correlation with degree of postoperative weight loss. However, only 4 studies were high quality. Meta-analysis of these indicated a positive association of binge eating on % EWL at 12-18 months postoperative (mean effect 5.88 % EWL, p=.004).

Conclusion: BED may be associated with greater weight loss after bariatric surgery when considering only high quality studies. Long-term follow-up of at least 12 months may be needed to see this correlation. Of note, many lower quality studies suggested no relationship of BED with weight loss. More matched cohort design studies are needed as there is potential opportunity to create interventions to optimize outcomes for these patients.

P-47

IS SLEEVE GASTRECTOMY AS EFFECTIVE AS GASTRIC BY-PASS IN THE REMISSION OF TYPE 2 DIABETES IN MORBIDLY OBESE PATIENTS?

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Background: Benefits of gastric bypass (GB) over the control of type 2 diabetes mellitus (T2DM) in morbid obese patients are well known even though the mechanism implicated have not been yet elucidated. However little is known about remission of T2DM after a sleeve gastrectomy (SG) procedure. The aim of our study was to compare the outcomes of T2DM after those procedures.

Methods: Retrospective analysis of diabetic morbidly obese patients that underwent GB or SG. Only patients with a minimum 2 years follow up were included. Variables analyzed were: weight, fasting glycemia and glycated hemoglobin.

Results: 90 patients were included (60 GBP/30 SG). BMI was 46.7 kg/m² for the GBP group and 53.9 kg/m² for SG. Fasting glycemia was 10.63 mmol/L and 8.05 mmol/L respectively, and glycated hemoglobin was 8.1% and 7.3% in the SG group. There was no significant difference on weight loss after 2 years between the two techniques. Similarly, there were no significant differences either in T2DM control after 1 year (91.8% vs. 82.3%) or 2 years (91.8% vs. 88.9%). No significant differences were found in time of diabetes duration in both groups nor in the percentage of patients treated with insulin and oral hypoglycemic drugs before and 2 years after intervention. Excess of weight and BMI lost correlated negatively with fasting glycemia and HbA1c after one year of surgery.

Conclusion: Both BPG and SG have shown excellent results in weight control and T2DM control after a 2 year follow-up. We did not find any significant differences on weight loss or T2DM resolution between the two techniques. Our results highlight that the main mechanism implicated in DM2 remission after bariatric surgery is weight loss. The role of other factors such as incretins that we have not studied cannot be ruled out and should be further analyzed.

P-48

NATURAL ORIFICE SURGERY: ENDOLUMINAL POUCH REDUCTION FOLLOWING FAILED VERTICAL BANDED GASTROPLASTY

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Background: Failure of restriction and weight regain has become synonymous with vertical banded gastroplasty (VBG). Revisional surgery post VBG can be technically challenging and is associated

1071.47

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with higher morbidity and mortality rates as compared to primary bariatric surgery.

This study prospectively evaluates the role of an endoluminal plication device - StomaphyX™ in the management of patients experiencing weight regain following VBG.

Methods: Six patients who experienced weight regain post VBG were identified through the revisional bariatric surgical clinic. Pre-operative endoscopy and upper gastrointestinal series identified pouch stretch and/or gastro-gastric fistulae. All patients underwent revisional endoluminal gastric pouch reduction utilizing the StomaphyX endoluminal plicating system between February, 2009 and July, 2009.

Results: Five of six patients had a pouch stretch identified on preoperative workup and one had a gastrogastic fistula. The average time since the primary procedure was 7.1 yrs. The mean weight prior to VBG was 123.3 Kg with an average BMI of 44.27 ± 6 kg/m². The mean lowest BMI attained by patients was 31.9 ± 5.6 kg/m². The mean weight prior to endoluminal plication was 110.6 ± 11.6 kg with an average BMI of 39.9 kg/m². Mean operative time was 79.5 ± 22.3 minutes. No serious complications occurred. All patients complained of a headache postoperatively and one had a sore throat. Average length of stay was 1.17 days. Mean percent excess weight loss 3 months after the StomaphyX procedure was $21.9 \pm 11.4\%$ with an average loss of weight of 8.1 kg.

Conclusion: Endoluminal plication may offer a safe and effective alternative to revisional surgery in patients who gain weight after vertical banded gastroplasty. It is uncertain whether this weight loss is maintained in the long-term.

P-49

COMPARISON OF HEMOSTATIC PROPERTIES BETWEEN COLLAGEN AND SYNTHETIC BUTTRESS MATERIALS USED IN STAPLE LINE REINFORCEMENT IN A SWINE SPLENIC HEMORRHAGE MODEL

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Background: The use of staplers in gastrointestinal surgery is widespread, especially in bariatric surgery. Staple line reinforcement with a buttress reduces bleeding and associated complications through a combination of factors. The intrinsic hemostatic properties of buttress materials have not been examined.

This study examined the intrinsic hemostatic properties of two different types of material used in buttressing in an accepted hemostasis model.

Methods: An acellular collagen buttress (Veritas®) and, a synthetic polymer buttress (Duet™), were compared to two commonly used hemostatic agents, Syvek® and Surgicel® with gauze as control.

In a swine capsular stripping hemostasis model a 1x1cm section of spleen capsule was removed and used as a source of bleeding, with one patch of material tested per bleeding site. A total of 51 wounds were created in 5 pigs (each patch n=10, control n=11). Hemostatic efficacy was assessed by quantitat-

ing the number of applications and total time needed for bleeding to stop.

Results: The mean time needed for hemostasis with Syvek® and Veritas® patches was significantly less than gauze, Duet™ and Surgicel® (4.0, 4.5 vs. 9.0, 9.2 and 10.3 minutes respectively; $p < 0.05$). The Syvek® and Veritas® patches required significantly fewer applications than gauze, Duet™ and Surgicel® (1.7, 2.2 vs. 4.1, 4.6 and 4.9 respectively; $p < 0.01$).

Conclusion: The intrinsic hemostatic properties of different buttressing materials vary widely. In this study, a collagen buttress was significantly better at promoting hemostasis than the synthetic buttress material. This could be another factor to consider when choosing a buttress for staple line reinforcement.

P-50

EARLY OUTCOMES COMPARISON OF THE ADVANCE PLATFORM (AP) LAP-BAND SYSTEM VERSUS THE REALIZE-C GASTRIC BAND SYSTEM

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Background: Two newly engineered forms of pre-existing gastric bands have recently been released in the U.S. There are no comparative data examining complications or outcomes. This study aims to retrospectively compare results between Advance Platform Standard (APS) Lap-Bands and Realize-C (RC) gastric bands.

Methods: Outcomes of all gastric band surgeries performed by a single surgeon between Sept 2008 and Feb 2009 were reviewed. All patients meeting NIH criteria and not enrolled in other trials were included. Pre-operative demographics, post-operative complications and weight loss were recorded.

Results: 347 gastric band surgeries were performed. 112 APS and 116 RC bands were eligible for inclusion. There were no significant demographic differences. Follow-up was 100%. Mean pre-operative BMI was 47 kg/m² RC and 48 kg/m² APS (NS). Operative time and LOS was similar. 1 slip occurred in the RC group and 1 erosion in the APS group (both > 6 months from surgery). There were no deaths, port or other complications. Mean %EWL at 4, 6 and 8 months was 26% vs. 28% (NS), 30% vs. 39% ($P < 0.05$) and 33% vs. 49% ($P < 0.02$) (RC vs. APS). Qualitative restriction plateaued for RC patients by 6 months but continued for APS patients using similar adjustment protocols.

Conclusion: Operative placement, complications and patient acceptability were similar for both groups. Weight loss outcomes became statistically greater for APS bands at 6 months and the difference increased at 8 months. Qualitative restriction was greater for APS over RC bands toward maximum fill volumes consistent with statistical differences in weight loss outcomes. Outcome variations appear to reflect engineering differences in band balloons according to Laplace's Law principles.

P-51

1071.51 ASTHMA IMPROVEMENT AFTER ROUX-EN-Y GASTRIC BYPASS SURGERY

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Background: An estimated 300 million people worldwide have asthma, and 6.7% of Americans have asthma. Although debated, some research suggests obesity is a risk factor for asthma and increases the severity of symptoms, and some research suggests that weight reduction among obese asthmatics can improve asthma symptoms. This project seeks to identify if changes in asthma occur after weight loss from laparoscopic Roux-En-Y gastric bypass (LRYGB) surgery.

Methods: A retrospective review of a LRYGB cohort was conducted. Asthma was defined as physician-diagnosed asthma at presentation for LRYGB with ongoing management of the disease. Post-operative changes in asthma were recorded at 4, 8, and 12 weeks, 6 months, and 1, 2, 3, 4 and 5 years. Through mailed questionnaires, patients reported their current asthma status as compared to their asthma status at pre-LRYGB. Patients self-reported if their asthma resolved, improved, remained unchanged, or had become worse.

Results: The mean pre-operative BMI of the 392 patients was 46.4 kg/m². The prevalence of asthma was 12.7% (n=50). For all post-operative time points, respondents most frequently reported that their asthma had improved. Many reported their asthma was resolved, and none reported their asthma was worse.

Conclusion: Asthma symptoms seem to improve after LRYGB surgery. More research is necessary to understand the biological mechanisms of asthma. Understanding the relationship between LAGB

	Age	BMI mg/kg ²	6 month %EWL	12 month %EWL	24 month %EWL
Group 1 <5% pre-op %EWL (n=27)	45.3	44.0	23.4 (n=21)	35.2 (n=17)	29.2 (n=4)
Group 2 5-10% pre-op %EWL (n=40)	45.6	45.3	21.4 (n=31)	28.4 (n=16)	29.7 (n=6)
Group 3 >10% pre-op %EWL (n=19)	46.6	43.1	23.7 (n=14)	31.7 (n=15)	27.9 (n=6)
Tukey's HSD p-value	p=0.92	p=0.34	p=0.83	p=0.48	p=0.36
LRYGB	Age	BMI kg/m ²	6 months %EWL	12 months %EWL	24 months %EWL
Group 1 <5% pre-op %EWL (n=64)	41.3	46.8	44.5 (n=50)	61.1 (n=33)	59.4 (n=11)
Group2 5-10% pre-op %EWL (n=100)	43.1	46.6	51.6 (n=73)	66.0 (n=49)	70.1 (n=14)
Group 3 >10% pre-op %EWL (n=65)	44.0	44.9	54.6 (n=53)	69.1 (n=43)	55.3 (n=16)
Tukey's HSD p-value	p=0.3	p=0.2	p=0.001*	p=0.3	p=0.4

asthma and weight loss will facilitate asthma prevention strategies and therapeutic strategies, especially for obese asthmatics.

P-52

DOES WEIGHT LOSS DURING A PRE-OPERATIVE LIQUID DIET PREDICT POSTOPERATIVE SUCCESS?

1071.52

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Background: Preoperative weight loss may be reflective of motivation and compliance and thus may be predictive of a higher degree of postoperative weight loss. The goal of our study was to assess the relationship between acute preoperative weight loss on a 2 week liquid diet and postoperative weight loss.

Methods: After IRB approval, data was collected prospectively on consecutive patients undergoing non-revisional laparoscopic gastric bypass (LRYGB) or adjustable gastric banding (LAGB) between August 2006 and 2009 by a single surgeon (TSK). All patients were placed on a standardized 1300 Kcal high protein low carbohydrate liquid diet. Data for LRYGB and LAGB patients was analyzed separately. Patients were categorized into three different groups based on 2 week preoperative %EWL. The primary outcome was %EWL at 6, 12 and 24 months. Tukey's test (HSD) was used in conjunction with ANOVA for statistical analysis.

Results: Our study group consisted of 315 patients (229 LRYGB and 86 LAGB). The average weight loss on the 2 week liquid diet was 9.12 lbs and 7.7 %EWL. LRYGB patients who had >10% EWL on the liquid diet had a significantly higher weight loss 6 months after surgery (p=.001). However, there was no difference in postoperative weight loss in any of the other groups. Results are tabulated below:

Conclusion: Our patients were able to achieve substantial weight loss after a 2 week liquid diet. However, in general, high %EWL on the liquid diet does not predict an improvement in postoperative weight loss.

P-53

1071.53 ANTI DIABETIC EFFECT OF LAPAROSCOPIC SLEEVE GASTRECTOMY WITH DUODENAL JEJUNAL BYPASS

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Background: Laparoscopic Sleeve Gastrectomy (LSG) is thought to be one of good options as a single procedure for Asians. Confining a group to BMI less than 50 kg/m², %EWL of LSG is almost same as LRYGB in Japanese series. But with regards to their effect on Type 2 Diabetes Mellitus (T2DM), the remission rate after LRYGB was better than that of LSG for Japanese.

We evaluated our initial series of LSG with duodenojejunal bypass (LSG/DJB) regarding their anti-diabetic effects.

Methods: Twenty-six patients underwent an LSG/DJB from April 2007. The mean preoperative weight and BMI were 111.2+/-19.1 kg and 42.5+/-6.9 kg/m², respectively. They consisted of 3 cases of BMI < 35 kg/m² and 10 cases of between 35 to 40 kg/m², 13 cases > BMI 40 kg/m². There were 15 patients with T2DM and 8 with Impaired Glucose Tolerance (IGT).

Results: The weight loss and excess BMI loss at the 3, 6, 9, 12, and 18-months follow-up were 18±4.5, 25±7.5, 27±6.2, 31±8.2, 37±5.0kg and 47±29, 63±23, 66±23, 78±24, 96±10%, respectively. The remission rate of T2DM were 93%. HOMA-IR at Pre, 3,6,9,12,and 18months were 7.0±7.7, 3.9±3.3, 2.6±2.2, 1.6±0.9, 1.7±0.8 respectively. There was a significant difference beginning at 3 months; on the other hand, our results of LSG indicated that a significant reduction of HOMA-IR after LSG occurred at 6 months after surgery. Postoperative 75g OGTT reveals that LSG/DJB can improve both HOMA-IR and Insulogenic Index (Early phase Insulin secretion). Even in the patients with pre-op C-peptide level < 3, they could have a good remission of T2DM after LSG/DJB.

Conclusion: LSG/DJB can achieve a good rate of T2DM remission with improvement of early phase insulin secretion.

P-54

1071.54 SLEEVE GASTRECTOMY WITH ENTERAL BYPASS (SGBE): RESULTS IN A PROSPECTIVE 5 YEAR FOLLOW-UP CASE SERIES

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Background: To report results in terms of weight loss, BMI, morbidity and improvement of comorbidities with SGBE, a restrictive and malabsorptive surgical technique for morbid obesity treatment.

Methods: Prospective case series. Patients with body mass index (BMI) > 40 kg/m² or > 35 kg/m² with comorbidity underwent a SGBE between February 2004 and August 2009 via a laparoscopy or laparotomy at DIPRECA Hospital, in Santiago, Chile. SGBE consists in creating a gastric tube preserving the pylorus and then performing a bypass of the proximal small bowel by

performing an anastomosis 30 cm distal to the ligament of Treitz angle, leaving 300 cm of non-absorbing bowel.

Results: There were 182 patients, with a mean age of 42.1±12.1 years and 70.3% female (128 cases). Preoperative weight and BMI were 106±17 kg and 39.1±5.5 kg/m² respectively. Surgical time was 135±28 min. In 67.3% of cases, a laparoscopic approach was utilized. Hospital stay was 3.8±5.2 days. 3.3% and 13.7% of patients required early or late reoperations, respectively. 12, 24, 36, 48 and 60-month BMI and %EWL were 27±4, 27±3, 28±2, 28±8, 23±9 kg/m² and 69.6, 69.5, 64.7, 64.5, 69.4% respectively. Improvement of comorbidities was observed in 89.5% of cases. General morbidity was 21.4% (1.6% of medical etiology, 16.5% of surgical etiology and 3.3 of both groups). 12% of morbidity cases appeared as late complications. Overall mortality was 1.6%.

Conclusion: SGBE is an effective technique in terms of weight loss and BMI reduction and improvement of comorbidities. Morbidity persists as a problem, especially in long-term follow-up.

P-55

1071.55 CASE REPORT: A GIANT 130-CM JEJUNOJEJUNAL INTUSSUSCEPTION AFTER ROUX-EN-Y GASTRIC BYPASS

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Background: Intussusception after Roux-en-Y gastric bypass (RYGB) is a rare complication. Here we describe an unusual presentation of a giant 130-cm jejunojejunal intussusception leading to small bowel obstruction.

Methods: A 55-year-old female with a past medical history of an open RYGB 7 years ago presented to the hospital with 11 hours of worsening intermittent abdominal pain. At presentation, she appeared non-toxic with stable vital signs. Her abdominal exam was remarkable for a firm and focally distended abdomen with a large palpable mass without peritoneal irritation. A CT abdomen and pelvis showed a distended remnant stomach with midgut volvulus versus internal hernia (Figures A and B).

Results: Emergent laparotomy was performed. A dilated football-sized jejunal loop encompassing a biliopancreatic limb (BPL), alimentary limb (AL) and common channel (CC) in an antegrade orientation was encountered. A 130-cm intussusceptum was found along with a dilated jejunojejunal anastomosis that was resected. Side-to-side anastomoses were performed for the BPL to AL in addition to a BLP to CC in a peristaltic direction.

Conclusion: We surmise that for the extent and size of the intussusception, a prolonged and progressive hypermotility state may have contributed to the development of this patient's bowel obstruction including a large sized jejunojejunal anastomosis. We conclude that RYGB patients should undergo initial reduction, if possible, followed by selective resection with anastomosis. With this approach, we salvaged 87% of her small bowel. Nevertheless, studies are needed to evaluate the anatomical and physiologic evolution of this entity in RYGB.

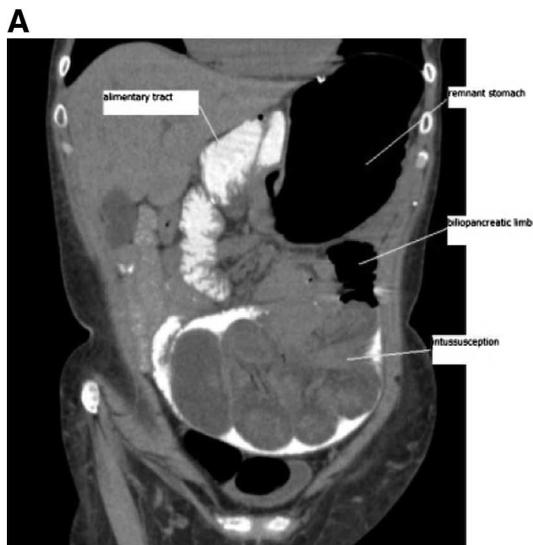


Figure A. Coronal CT with remnant stomach, biliopancreatic limb, alimentary tract, and intussusception identified.

Figure B. Axial CT with intussusception.

outcome system score (BAROS) was excellent, very good or good for 93% of the patients at 1 year and for 90% of the patients at 2 years. Class I obesity patients experienced 105 % eBMIL at 6 months (n=105), 114% at 1 year (n=70) and 104% at 2 years (n=12).

Conclusion: Weight loss and QoL is very satisfying after LSG in patients with at least class I and II obesity. Longer follow-up is needed before LSG is fully established as a bariatric procedure.

P-57

GASTRIC IMBRICATION FOR MORBID OBESITY: EARLY RESULT OF NEW TECHNIQUE

1071.57

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Background: Simple, reversible and economic bariatric surgical procedure with minimal complications should improve the acceptability among large number of people.

Methods: Entire greater curvature of the stomach from the pylorus to the angle of His is mobilized using the harmonic scalpel. An endoscope is positioned into the duodenum along lesser curve of stomach instead of bougie as a guide to size the gastric pouch. The greater curvature of the stomach is imbricated using a 2-0 end-stitch Surgidec suture in two layers – inner layer by interrupted and outer layer by continuous suture. Thus stomach takes anatomical shape similar to sleeve gastrectomy without resection of stomach.

Results: Seven patients underwent gastric imbrication between March to October 2009. Most of them were female (male: Female:: 1:6). Mean BMI was 37.29 kg/m². Mean operating time was 132 min (range 90-180 min). A conventional laparoscopic approach was used in all but one patient in whom a single incision laparoscopic surgical approach (SILS) was used. The mean hospital stay was 2 days (range 2-3 days). There were no conversions, morbidity or mortality. One patient had colicky epigastric pain, which required a spasmodic for 1 week. The cause of pain was unknown despite evaluation; two layered continuous suturing may be a possible cause. There were 4 patients eligible for 3 month follow-up with a mean weight loss of 26% .

Conclusion: Gastric imbrication is a technically simple and safe procedure to achieve satisfactory weight reduction.

Future direction: Looking at feasibility and acceptability of this procedure in a prospective, randomized single blinded trial of Gastric Imbrication versus Sleeve Gastrectomy for Weight Loss. (Protocol No.: AIGS – GOSGWT – 0001) has been planned to validate result of our early experience.

P-58

LSG IN SO (BMI>50 KG/M²):? STAND ALONE PROCEDURE: OUTCOME AT 4 YEARS

1071.58

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Background: LSG (Laparoscopic Sleeve Gastrectomy) is an effective bariatric procedure. After standardization of the technique & bougie size, it is proving itself as a standalone procedure. This study aims at the effectiveness and safety of LSG in super obese (SO) patients at the end of 4 yrs.

P-56

SHOULD PATIENTS WITH BMI 30-35 KG/M² UNDERGO LAPAROSCOPIC SLEEVE GASTRECTOMY?

1071.56

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Background: Laparoscopic sleeve gastrectomy (LSG) could be an attractive alternative to laparoscopic gastric bypass or adjustable gastric banding in class I obesity. We have used LSG for patients with BMI > 30 kg/m² and report on the first 200 patients.

Methods: Patients were operated using a 32 Fr gastric tube to monitor sleeve diameter. Resection was started 4-6 centimeters above the pylorus. Patients were followed prospectively.

Results: Mean age and BMI was 42.9 years (range 19-68), and 35.6 (range 30-45) kg/m². Major complications occurred in 7 patients (2 leakage, 2 bleeding, 1 aspiration pneumonia, 1 intra-abdominal abscess, 1 nutritional problem). All patients were followed for 6 months, 135 patients for 1 year and 30 patients for 2 years. Average % eBMIL was 91% at 6 months, 102% at 12 months and 93% at 24 months. Bariatric analysis and reporting

Methods: We performed 500 bariatric operations between 2004 to 2008. This is a retrospective study of prospectively collected data regarding the super-obese post LSG patients at the end of 4 years with regards to weight, BMI and co-morbidities. N=36. BMI distribution: 17 (50 to 60 kg/m²), 17(60 to 80 kg/m²) and 2 above 80 kg/m².

Results: The average length of hospital stay was 3.4 days. No intra-operative complications were encountered. Postop Gastrograffin swallow for all showed no signs of leak or obstruction. All patients had a regular follow-up. The mean % EWL was 72.6% at the end of one year and 58 % at the end of 4 years. All patients had more than 3 associated comorbidities and all showed improvement. Diabetes/Glucose Intolerance resolution/improvement in 30 /30, obstructive sleep apnea reversal in 12 /12, improvement in joint pains in 18/22.

Conclusion: The results for SO patients undergoing LSG are encouraging even at 4 years postop. In experienced hands, the postop course was uneventful. It is an effective and safe weight loss procedure in SO Indians and may not demand EARLY second major weight loss operation.

P-59

1071.59 PRE-OPERATIVE CANCER SCREENING AND GYNECOLOGIC EVALUATION IN FEMALE BARIATRIC SURGERY PATIENTS

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Background: The strong association between obesity and endometrial, breast, and colon cancers has been well established; further, obese women may be less likely to undergo routine cancer screenings. The study objective was to determine the pre-operative practices of bariatric surgeons with regard to gynecology and cancer screening.

Methods: A 28-question survey was mailed to 1,503 U.S. bariatric surgeons. This assessed self-reported perceptions, gynecologic oncology knowledge, and pre-operative evaluation of female patients with a focus on gynecologic issues and cancer screening.

Results: 274 surgeons responded for an 18% response rate. Eleven incomplete surveys were excluded leaving 263 for analysis. Mean surgeon age was 46.7 years; surgeons were 13.9 years post-residency on average and were predominantly male (89%). Eighty percent of surgeons reported obtaining gynecologic histories, but 56% and 49% of surgeons, respectively, do not require Pap tests or mammograms prior to bariatric surgery and only about 25% have referred a patient for endometrial sampling. While 97% of surgeons perceived screening was important for the patient, only 56% felt it was important for the surgeon. Female surgeons were significantly more likely to obtain a menstrual and cancer related family history (p<0.05) than their male counterparts. Lastly, surgeons correctly identified the following risk factors for endometrial cancer at a variable rate: postmenopausal bleeding (99%), obesity (97%), irregular/heavy periods (68%), and HNPCC (20%).

Conclusion: Given the massive increases in morbid obesity and bariatric surgery in women, bariatric surgeons could play a vital role in cancer risk education and screening by increasing the

incorporation of preoperative mammograms, Pap tests, and endometrial sampling that could potentially result in improved cancer outcomes.

P-60

ENDOSCOPIC SCLEROTHERAPY FOR STOMAL DILATION

1071.60

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Background: Dilatation of the gastrojejunal anastomosis is the leading mechanical cause of weight regain following Roux-en-Y gastric bypass (RYGB). This leads to rapid emptying of the solid meals, increased meal capacity, and increased dumping symptoms. The purpose of this study was to determine the safety and effectiveness of sclerotherapy as an outlet narrowing procedure in patients with previous RYGB.

Methods: 37 consecutive patients who had undergone initial RYGB gastric bypass underwent circumferential injection of 5% sodium morrhuate at the gastrojejunal anastomosis. A prospective database was maintained.

Results: Rapid gastric emptying was demonstrated in all patients with a mean 65% emptying of solid barium meal at 30 minutes. An eating behavior analysis was scored for all patients. Diet modification was implemented for all patients through a standardized measurement. Endoscopic findings revealed mean stomal bi-directional measurements of 4.35 cm² (2.1 x 2.1 cm). Sclerotherapy was accomplished with a mean 10.5 ml sodium morrhuate. Post-sclerotherapy stomal measurements of 1.5 cm² (1.2 x 1.2 cm) were obtained. Post-sclerotherapy mean weight loss at 1 month was 5.5 lb, with 33/37 (89%) losing weight. Mean weight loss at 6 months was 8.3 lb, with 22/30 (73%) losing weight. There were no complications of bleeding, stricture, or emergency room visits. In 6 cases, the sclerotherapy was repeated to achieve the final results. Unsuccessful outcomes were associated with poor eating behavior scores involving ingestion of liquids with meals, soft meals, and high calorie snacks based on the practice-specific tool.

Conclusion: Sclerotherapy represents a reasonable option for patients with documented rapid gastric emptying based on solid barium meal radiography. Moderate sustained weight loss can be achieved in patients who comply with optimal eating behavior.

P-61

PREOPERATIVE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY (MMPI-2) SCORES CAN BE USED TO PREDICT THE RATE OF WEIGHT LOSS AFTER BARIATRIC SURGERY

1071.61

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Background: The Minnesota Multiphasic Personality Inventory (MMPI-2) evaluates possible pathological personality traits. The relationship between the MMPI-2 scores for patients seeking weight loss surgery and their subsequent rate of weight loss after surgery is examined.

Methods: Fifteen patients completed the MMPI-2 during their pre-operative evaluation. Subsequently, excessive weight loss over time (%EWL/t) was recorded and correlated with MMPI-2 scale elevations.

Results: Positive correlations were found between MMPI-2 scales L, K, and 6 and %EWL/t, suggesting that a person's self presentation and image and guarded view of the world influence %EWL/t. Hypervigilance about health and behavior choices correlated with faster weight loss. On average, MMPI-2 scale T scores were not clinically elevated ($T > 65$), with L, K, and 1 averaging $T < 55$. No significant relationship was found between %EWL/t and somatization, depression, degree of psychological insight, anxiety, anti-social world views, energy levels, or social comfort.

Conclusion: MMPI-2 scales suggesting a negatively skewed self view and presentation, combined with high personal vigilance, are correlated with better results following weight loss surgery. This proposes that certain personality styles are likely to have better results, possibly due to seeking more frequent follow-up because of hypervigilance and self perception of failure risk. These data highlight the need for future investigation regarding personality factors which could influence follow-up rates and ultimate outcome.

P-62

1071.62 **ROUX-EN-Y GASTRIC BYPASS (RYGB) IMPROVES BARRETT'S ESOPHAGUS**

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Background: Most esophageal adenocarcinomas appear to arise from Barrett's esophagus. Gastroesophageal reflux has been proven to cause esophageal mucosal injury and may predispose to Barrett's esophagus. RYGB reduces gastroesophageal reflux in a majority of patients. Therefore, RYGB should improve Barrett's esophagus.

Methods: We reviewed records of all patients who had RYGB at a single institution from September 1, 1999 to October 31, 2009 for a preoperative diagnosis of Barrett's esophagus. We contacted those patients and utilizing a phone questionnaire, assessed whether they had postoperative endoscopy with improvement or resolution of Barrett's, symptom improvement and ongoing use of proton pump inhibitor (PPI) postoperatively.

Results: 26 of 5916 patients who had RYGB had a preoperative diagnosis of Barrett's esophagus. Four patients have been lost to follow-up. Of the 22 remaining patients, four are within a year of surgery and are currently asymptomatic on PPI but have not had follow-up endoscopy. Four of the remaining 18 patients have not had follow-up endoscopy. Three of these four patients are asymptomatic on PPI. The fourth patient has occasional breakthrough symptoms. Of the 14 patients who have had endoscopy, 12 have either decreased Barrett's or no evidence of Barrett's. Only two patients have had endoscopic progression of disease.

Conclusion: RYGB appears to improve or resolve Barrett's esophagus in the majority of patients.

P-63

DOES THE "RULE OF NINES" APPLY TO BARIATRIC SUBJECTS?

1071.63

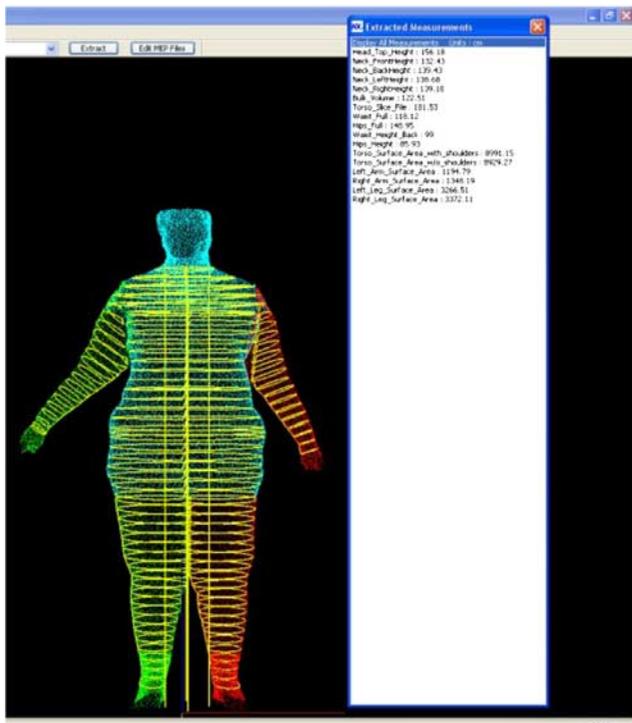
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Background: The Rule of Nines is a method of estimating the extent of body surface area that has been burned in an adult, dividing the body into sections or multiples of 9 percent. This assumes a "normal" adult shape. The shape of the bariatric subject is exaggerated. Is the Rule of Nines applicable to the bariatric subject?

Methods: 200 bariatric subjects of various shapes and sizes were scanned using a 3D whole body scanning device. The scanner captured an accurate, measurable 3D body model. Software was programmed to determine the surface area of the arms, torso and legs. Height, weight, BMI, gender and body shape were tabulated. A statistical analysis was performed.

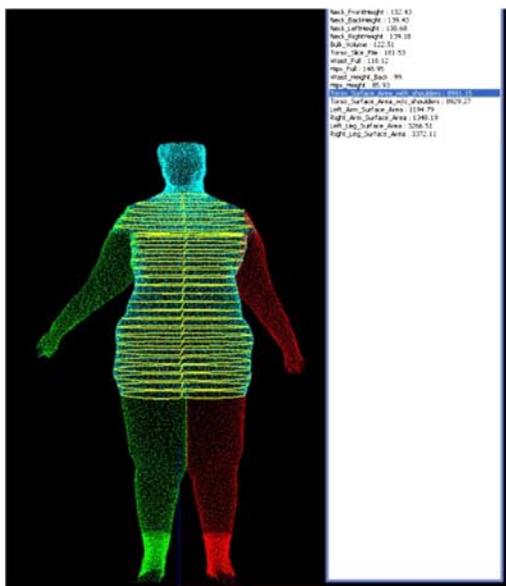
Results: The Rule of Nines was a poor approximation and not applicable to the bariatric subject. Average Torso Surface Area was 47% compared to 36% for the "normal" shape. Arms Surface Area was 7% compared to 9%. Legs Surface Area was 15% compared to 18%. Android shapes had an Average Torso Surface Area of 49%. Gynoid shapes had an Average Torso Surface Area of 43%. Analysis was further divided by gender.

Conclusion: It appears that a "Rule of Sevens" is a more appropriate method for estimating the extent of body surface for the bariatric subject, a significant 27% difference from the Rule of Nines. BMI, height and weight appear to have little influence on this relationship. This "Rule of Sevens" can be a useful method to assist in the management of severely burned bariatric adults.



**Total Surface Area Components
Torso, Arms and Legs**

Total Surface Area Components
Torso, Arms and Legs



Example of Torso Surface Area Calculation

Example of Torso Surface Area Calculation

P-64

NATIONAL VARIATIONS IN OUTPATIENT LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING PLACEMENT

1071.64

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Background: Compared to other surgical weight loss options, laparoscopic adjustable gastric banding (LAGB) can be performed on an outpatient basis. The purpose of this study was to evaluate demographic variations of LAGB on a national level.

Methods: Patients undergoing LAGB for obesity were identified from the 2006 National Survey of Ambulatory Surgery (NSAS). The NSAS is a stratified sample of ambulatory procedural facilities in the United States. Both Medicare patients and patients under 18 years of age were excluded.

Results: A population of 21,676 patients undergoing LAGB in 2006 was identified from a sample of 175 encounters in the NSAS. The majority of LAGB were performed in a hospital setting as compared to freestanding surgery centers (63% versus 37%, standard error (SE) ± 11.3%). A large majority of patients undergoing LAGB were women, with 96% of the patients being female (SE ± 1.9%). Overall, 79% of the patients were discharged home the same day of their operation (SE ± 18.9%). In this sample, 63% of LAGB patients had private insurance and 28% were self pay patients (SE ± 5.5% and 8.8% respectively). The total charges for LAGB were higher when the operation was performed at a hospital versus a free standing surgery center (\$36,788 vs. \$27,283). Additionally, the total charges were less for self-pay patients than insured patients (\$26,795 vs. \$33,764).

Conclusion: The majority of LAGB in the NSAS database are being performed on women and in hospital settings. Total charges are lower for LAGB done on self-pay patients and those performed at free standing surgery centers. Further exploration of these variations is warranted to optimize delivery of LAGB to morbidly obese patients in a outpatient setting.

P-65

GENDER AND AGE DIFFERENCES IN COMPLICATIONS, COSTS, AND LENGTH OF STAY ASSOCIATED WITH LAPAROSCOPIC ADJUSTABLE GASTRIC BANDS

1071.65

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Background: Laparoscopic adjustable gastric band (LAGB) is the second most common procedure performed for the treatment of morbid obesity. Although generally a safe procedure, it is not without significant complications. We identified a subgroup of patients who are at significantly higher risk of complications when undergoing a LAGB.

Methods: The University HealthSystem Consortium (UHC) is an alliance of more than 100 academic medical centers and nearly 200

affiliate hospitals. The CDB/RM from UHC was queried for LAGB. The patients were subdivided into groups based on gender, age, race, and severity of illness scores. The costs, length of stay, complication, and mortality rates of these groups were analyzed.

Results: LAGB is a very safe procedure performed for weight loss with a complication rate of 3.2% and mortality rate of 0.02% in 8,598 patients. Men had a significantly higher cost (\$10,065 vs. \$9,250; $p < 0.001$) and morbidity (3.8% vs. 2.9%; $p = 0.05$) than women who underwent a LAGB. Men also demonstrated a trend toward longer lengths of stay (1.3 vs. 1.2 days; $p = 0.07$) compared to women. Furthermore, patients less than 35 years of age had fewer complications (2.3% vs. 3.8%; $p < 0.05$) and a shorter length of stay (1.2 vs. 1.3 days; $p < 0.001$) than patients greater than 55 years of age.

Conclusion: LAGB can safely be performed in patients for morbid obesity in nearly all patients. However, elderly men can expect to have a higher complication rate, length of stay, and costs associated with LAGB.

P-66

ANTIDEPRESSANT MEDICATION USE AFTER BARIATRIC SURGERY

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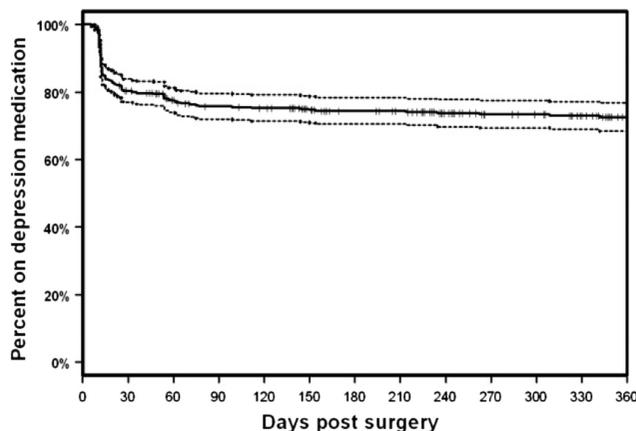
Background: Non-suicidal depression rates are higher among the morbidly obese patients compared to the general population. Antidepressants are among the most common prescribed medications in this population.

The primary objective of this study was to determine whether improvement in depression after surgical treatment of morbid obesity coincides with decreases in antidepressant medication use.

Methods: An electronic chart review of 1,143 patients who underwent Bariatric Surgery (BS) and had at least 1 follow-up visit post surgery. The preoperative and postoperative active medication lists were reviewed for the use of antidepressants. Time until removal of medications was estimated using a Kaplan-Meier analysis.

Results: Antidepressant use prior to BS was identified in 530 study patients. Of these 530, there were 139 (26%) that had all depression medications removed from their active medication list after surgery. At 30 days post surgery, 80% of the 530 patients were still on at least one antidepressant medication (95% CI=[77%, 84%]). Continued medication use decreased slightly at 90 days post surgery (76%, 95% CI=[72%, 80%]), and at 180 days (74%, 95% CI=[71%, 78%]), and at 360 days post surgery (73%, 95% CI=[69%, 77%]).

Conclusion: Previous studies have suggested a significant improvement in depression symptoms and low self acceptance after BS. However, in our cohort of 530 BS the use of medication for depression remained >70% after 12 months of surgery for unclear reasons. Further studies to correlate antidepressant use with depression and quality of life surveys are ongoing.



P-67

BARIATRIC SURGERY IS NOT ASSOCIATED WITH LONG-TERM CHANGES IN FOOD PREFERENCES

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Background: Previous research has documented significant changes in diet following bariatric surgery. However, no study to date has examined whether liking for specific foods also changes. Thus, the purpose of this study was to determine whether patients report a change in food preferences from pre- to post-surgery.

Methods: Twenty-eight surgical patients (18 Lap-Band, 10 Roux-en-Y; 86% female; age=47.9y) completed the Food Preferences Questionnaire© 1-month prior to and 3- and 6-months following bariatric surgery. This questionnaire assesses “liking” of 73 food items (e.g., fudge brownie) using a 9-point scale ranging from “dislike extremely” to “like extremely”. Food items are categorized into 6 food types based on nutrient composition (high fat/high-sugar; high fat/high carb; high fat/high protein; low fat/high sugar; low fat/high carb; low fat/high protein). Data were analyzed using Multivariate Analyses of Variance.

Results: From pre- to 3-months post-surgery, patients reported a significant reduction in liking high fat/high protein foods (e.g., prime rib) ($p = .03$) and a significant reduction in liking low fat/high carbohydrate foods (e.g., pita bread) ($p = .03$). However, these changes were short-lived; at 6-months post-surgery, patients’ food preference ratings were not significantly different from baseline (all p 's > .09). Also, change in liking did not differ by surgery type (Roux-en-y vs. Lap-Band) at either time point (all p 's > .15).

Conclusion: Bariatric surgery and associated changes in dietary intake do not have a long-term effect on food preferences. In fact, at just 6-months post-surgery, patients’ preferences returned to pre-surgery levels. Thus, while surgery is associated with significant changes in diet, food preferences may be more difficult to change.

P-68

1071.68

AEROBIC EXERCISE IMPROVES WEIGHT LOSS AFTER LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING

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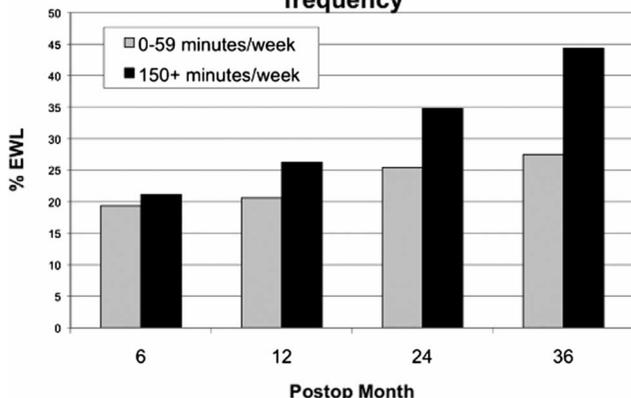
Background: Laparoscopic adjustable gastric banding (LAGB) is one of the most common surgical treatments of obesity. It is well established that exercise improves weight loss, but no studies have specifically addressed its impact after LAGB. We hypothesize that regular exercise improves weight loss after LAGB.

Methods: A review of a prospectively collected database identified 124 patients who underwent successful LAGB over a 3-year period at a single institution. BMI as well as frequency, duration, and type of exercise were collected at 6, 12, 24, and 36 months after LAGB. Excess weight loss (EWL) was calculated using Broca formula.

Results: Of the 124 LAGB patients, 120 were included for analysis. Two were excluded due to lack of exercise data, and two expired within one year of LAGB. Aerobic exercise (AE) was reported in minutes per week. AE had no significant impact on weight loss at 6 months. At 12, 24, and 36 months following LAGB, patients who reported 150 or more minutes per week (N=29) of exercise had an EWL of 26.2%, 34.8%, and 44.3%, respectively, while those reporting 0-59 minutes per week (N=48) of AE had an EWL of 20.6%, 25.4%, and 27.4% (p=0.04, 0.02, and 0.04, respectively). BMI and age was similar in both groups. Furthermore, at one year after LAGB, patients who reported any AE had an EWL of 26.8% as compared to 20.3% in those who did not report any AE (p= 0.03).

Conclusion: Our results support the hypothesis that AE has a significant impact upon weight loss after LAGB. The CDC-recommended 150 minutes per week of AE significantly improves weight loss, and it appears that any amount of AE has a positive effect. These results suggest that exercise capability should be considered in the preoperative assessment for LAGB to improve outcome.

EWL after LAGB according to aerobic exercise frequency



Excess weight loss following LAGB in patients reporting 0-59 minutes of exercise per week (in grey), and 150 minutes per week (in black).

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OUTCOMES OF LAPAROSCOPIC BARIATRIC SURGERY IN THE SUPER SUPER MORBIDLY OBESE PATIENT. DO WE NEED A STEP APPROACH?

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Background: Open bariatric surgery (OBS) has been associated with increased morbidity and mortality in patients with high body mass index (BMI). With the advent of laparoscopic bariatric surgery (LBS) and in an attempt to avoid complications in this patient population, a staged approach modality was proposed. The aim of this study is to assess the outcomes of LBS in the Super-Super morbidly obese patient with a BMI >70 kg/m² that were treated with a single approach.

Methods: After IRB approval and following HIPAA guidelines, we retrospectively reviewed our prospectively collected database for all morbidly obese patients that underwent laparoscopic bariatric surgery and had a BMI greater than 70 kg/m². All patients met the National Institute of Health criteria for Bariatric Surgery. Data collected included preoperative body mass index (BMI), postoperative body mass index (BMI), initial weight, postoperative weight, postoperative complications, conversion rate to open surgery, and mortality. Follow-up mean time was of 19 months. Range (2 to 38 months).

Results: A total of 18 patients had Laparoscopic Bariatric Surgery with a preoperative BMI >70 kg/m². 17 (94.4%) of these patients had Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) and one patient (5.55%) underwent Sleeve Gastrectomy. Complications ensued in 2 cases (11.1%) one had port site infection and the other one G-J stenosis. The mean preoperative BMI was 91.2 (70.5-99) kg/m². Mean postoperative BMI was 38.6 (21-52) kg/m². Mean initial weight was 449.6 lb (250-657). Mean postoperative weight was 359.2 (168-401) No case was converted to an open procedure. There was no mortality in this series.

Conclusion: Based on the results of this series, a one step Laparoscopic Bariatric Surgery approach appears to be a safe and effective treatment option for super-super morbidly obese patients.

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MANAGEMENT OF GASTRIC OUTLET OBSTRUCTION AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY FOR MORBID OBESITY.

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Background: Laparoscopic sleeve gastrectomy (LSG) has become a frequently used method for the surgical treatment of morbid obesity (MO). Complications such as stricture resulting in gastric outlet obstruction (GOO) are rare but require early recognition and treatment.

Methods: After IRB approval, a retrospective review of a prospectively collected database was conducted between 2004 and 2009. Of the 423 LSG performed, we identified patients with postoperative complications and focused on those with obstructions and strictures. A primary sleeve gastrectomy was defined as follows: LSG was the first procedure in the treatment of morbid obesity. A secondary LSG instead was used as a term to identify

those had an LSG performed mostly after failed laparoscopic adjustable gastric band (LAGB).

Results: Two patients developed an obstruction after a primary LSG (0.5%). One patient was converted to a Roux-en-y gastric bypass (RYGB) and the second one underwent a stricturoplasty via a laparoscopic seromyotomy. There were two patients who had secondary LSG after failed LAGB who developed strictures/obstructions (0.5%). Both were converted to a RYGB. In addition we had two patients from outside institutions who presented to our hospital with LSG obstruction. One patient presented with an obstruction after a secondary sleeve gastrectomy after removal of LAGB and underwent a takedown of a wrap, removal of the capsule and the obstruction was relieved. The second patient presented with an obstruction after primary LSG and underwent a conversion to a RYGB.

Conclusion: In our experience, the incidence of strictures and obstruction after LSG is close to 1 %. Treatment options are observation, endoscopic dilatation, seromyotomy, and conversion to RYGB. From our series all cases resulted in surgical re-intervention. Laparoscopy appears to be a feasible and safe approach.

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1071.71 COMPARISON OF LEAK RATES AFTER REVERSALS, REVISIONS AND CONVERSIONS IN REOPERATIVE BARIATRIC SURGERY

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Background: With the increasing number of bariatric procedures performed, more and more patients require reoperations for failure and or complications. Whether it is a reversal, a revision or a conversion a second time bariatric procedure is felt to have higher morbidity and mortality than primary bariatric procedures. We reviewed the experience with leaks after reversals, revisions or conversions, at the Bariatric and Metabolic Institute at the Cleveland Clinic Florida.

Methods: A retrospective review of a prospectively collected database was conducted from 1999 to July 2009. A total of 151 reoperative procedures were performed. Of these 109 (72.2%) where revisional operations for complications of previous bariatric operations, 35 (23.2%) where conversions for failed weight loss procedures, and 7 (4.6%) where reversals; reversal procedures where always performed for complications.

Results: A total of 22 leaks where identified. No leaks were identified in the reversal group; however, there was 1 (0.7%) mortality related to a drug overdose after discharge which was the only death in the series. Seven (20%) leaks where identified in the conversion group, 15 (13.8%) in the revision group.

Conclusion: Reoperative bariatric surgery either for conversions or revisions has a higher risk of leaks when compared to first-time procedures; no leaks where identified in the reversal group.

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PATTERNS OF GHRELIN PRODUCING CELLS DISTRIBUTION AND NUMBER IN A MORBIDLY OBESE POPULATION

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Background: The role of the hormone, ghrelin, in the pathogenesis of morbid obesity is unclear, although it is known to have a multifunctional activity including appetite regulation, intestinal motility, release of growth hormone and cell proliferation. The aim of this study was to investigate and recognize any pattern in ghrelin producing cells distribution and number in a heterogenic morbidly obese population.

Methods: After IRB approval, 36 patients who underwent sleeve gastrectomy for morbid obesity where evaluated to determine the number and distribution of ghrelin cells in the resected stomach. Sections from fundus, body and antrum were obtained and ghrelin cells were identified with an antibody technique. The number of cells was semi- quantitatively determined using an image analyzer instrument. Comparative analysis in terms of the number of cells by age, gender, race, diabetic/non-diabetic, and body mass index (BMI) was performed and significance was accepted as $p < 0.05$.

Results: 36 patients (female 20/male 16) were studied. Age average was 45.6 (18-71) year-old. Race distribution: Caucasians 50% (18), African-American 13.9% (5) and Hispanic-Latin 36.1% (13). Diabetic patients were 13.9% (5) and non-diabetic 86.1% (31). BMI average was 44.9 kg/m^2 (31-70). The comparative analysis showed significant differences only between Caucasians and Hispanic-Latin in the amount of cells, and only in the antrum ($p = 0.005$). No significant differences among other groups were observed.

Conclusion: Based on our results, ghrelin producing cells appear to be more abundant in the antrum of Caucasian morbidly obese patients compared to Hispanic-Latin patients. No significant differences were found in terms of number of cells by age, gender, diabetic/non-diabetic, and body mass index (BMI) in our study.

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UPPER GI SHOULD NOT BE PERFORMED ROUTINELY AFTER LAPAROSCOPIC ADJUSTABLE GASTRIC BAND PLACEMENT

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Background: Routine post-operative contrast swallow studies (UGI) after laparoscopic adjustable gastric banding (LAGB) have no added benefit to patients while adding radiation exposure, and societal cost.

Methods: The study was a retrospective analysis of prospectively collected data from a cohort undergoing LAGB at a teaching hospital. All UGIs were reviewed by an expert radiologist for gastric leak and band malpositioning. The data were analyzed for

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sensitivity, specificity, positive and negative predictive value, and cost-effectiveness.

Results: 604 patients underwent LAGB during 2006-2009. All were admitted for observation and underwent routine postoperative UGI. No leaks were identified in all UGIs. Nine (1.5%) patients had radiologic signs of malpositioning (8 "horizontal placement" and 1 read as "mild slip"). None of these 9 patients underwent immediate re-exploration because of the lack of clinical signs or symptoms of dysphagia. To date, the cohort follow-up recorded 13 (2.2%) re-operations. All the 13 patients undergoing reoperation had normal postoperative UGI. UGI specificity and negative predictive value for leak was 100%. Sensitivity and positive predictive value were undetermined considering the absence of positive tests. There was no statistical correlation between initial UGI sign of malpositioning and occurrence of re-exploration (chi-square 0.201, two-tailed P-value 0.65). Cost-effectiveness analysis showed an average individual radiation exposure between 2 and 6 cGy and a cost of \$273.25 per-test (totaling \$165,043 for 604 patients).

Conclusion: Routine UGI studies after LAGB provide no benefits and lead only to unnecessary radiation exposure, and added cost to an already strained health care system. Routine UGI after LAGB should be abandoned.

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GHRELIN CELLS IN OBESE AND NON-OBESE PATIENTS: A PATHOLOGICAL STUDY ON THE NUMBER AND DISTRIBUTION OF GHRELIN PRODUCING CELLS IN THE STOMACH

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Background: Ghrelin is a 28 amino acid peptide with a multi-functional activity including appetite regulation, motility, release of growth hormone and cell proliferation. The role of ghrelin in the pathogenesis of morbid obesity is unclear. The aim of this study is to investigate the number and distribution of ghrelin producing cells in stomach of morbidly obese patients vs. non-obese controls.

Methods: After IRB approval, ten patients who underwent sleeve gastrectomy for morbid obesity were evaluated to determine the number and distribution of ghrelin cells. Two non-obese patients who received prophylactic total gastrectomy for familial gastric cancer were used as controls. After formalin fixation 3 to 5 sections from fundus, body and antrum were obtained and stained by immunoperoxidase technique with an antighrelin antibody. The distribution of the cells was noted and the number was semi quantitatively determined using an image analyzer instrument.

Results: The mean number of ghrelin producing cells in the stomach of obese and non-obese patients was 159 and 69 respectively ($p=0.002$). In addition, ghrelin cells were significantly more abundant in the gastric fundus compared to the body and antrum ($p=0.005$).

Conclusion: Based on our preliminary results, ghrelin cells appear to be more abundant in morbidly obese patients compared to controls. In addition, there is a predilection for ghrelin cells to localize in the gastric fundus.

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PREDICTORS OF ELEVATED SERUM CREATINE PHOSPHOKINASE AS A MARKER OF RHABDOMYOLYSIS FOLLOWING BARIATRIC SURGERY

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Background: Rhabdomyolysis and subsequent renal failure are a major bariatric surgery complication. Rhabdomyolysis is the breakdown of striated muscle and release of toxic muscle cell constituents into the bloodstream. The most useful rhabdomyolysis measurement is serum creatine phosphokinase (CPK), peaking within 24 hours of muscle damage. The present, prospective study examined factors associated with elevated CPK after bariatric surgery.

Methods: Serum CPK was measured 24 hours post-operatively in 421 bariatric surgery patients at the St. Vincent Carmel Bariatric Center. Baseline (age, race, height, weight, BMI, waist and hip circumference, comorbidities, alcohol/illicit drug use, lipid-lowering medication, and prior abdominal surgeries) and surgery characteristics (surgery type, surgeon, total operating room time, surgical table and pad, and succinylcholine dose) were collected.

Results: Although only 1 patient was diagnosed with rhabdomyolysis, 36 had CPK levels ≥ 1070 IU/L (5X ULN), suggestive of minor rhabdomyolysis. No patients experienced renal dysfunction. Compared to patients with $CPK < 1070$, these patients were significantly heavier (342 vs. 312 lbs), had higher BMIs (54.4 vs. 50.9 kg/m^2) and waist circumferences (57.7 vs. 54.1 in.), and longer operating room times (2 hr 46 min vs. 1 hr 46 min). Groups differed by surgeon and surgery type (higher CPK patients more likely to have open than laparoscopic surgery and duodenal switch than Roux-en-Y or gastric band). Minor rhabdomyolysis was found in nearly 1% of bariatric surgery patients. Surgeons should be cognizant of risk factors, including greater body mass and longer operative time and vigilant to diagnose and treat the condition before renal impairment occurs.

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LAPAROSCOPIC BANDS OVER AGE 65 – REALISTIC EXPECTATIONS

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Background: Previous reports suggest decreased effectiveness of the laparoscopic band in elderly patients. Concerns about tolerance, eating behavior compliance and activity levels raise questions about the long term benefit of the band in patients over 65. The purpose of this report is to evaluate the safety and outcome of lap band in patients over 65.

Methods: A prospective database was used for analysis of safety, operative morbidity, and outcome. All patients undergoing surgery since January 2005 were included.

Results: Analysis of 435 who underwent lap banding revealed 70 patients who were older than 65. In the elderly population, there was a high percentage of sleep apnea (46%), diabetes mellitus (65%), and hypertension (86%). Operative outcomes were favorable based on operative time, length of stay (1.0 days), and 30 day readmission (1.5%). Postoperative complication rates were low in patients over 65 (bleeding 0%; pulmonary 2.9%; cardiac 1.4%; wound 1.4%; and mortality 0%). There were 3 reoperations including 1 band revision for slip, 1 band removal for slip, and 1 band removal for chronic reflux. Resolution of co-morbidities was recorded for all patients. Percent excess body weight loss (EBWL) in band patients was compared at 6 months, 12 months, and at 24 months (27.2%, 33.3%, 32.7%). Follow-up data were available for most patients at 6 months (87%), 12 months (80%), and 24 months (69%).

Conclusion: This experience represents one of the largest series of laparoscopic gastric band in elderly patients. The data shows adequate outcomes, with approximately 33% EBWL at 2 years. Realistic expectations should be understood by physicians and patients.

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1071.77 RISK OF CARDIOVASCULAR MORBIDITY IS CORRELATED WITH INSULIN RESISTANCE, BUT NOT WITH OBESITY IN A BARIATRIC SURGICAL POPULATION

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Background: Bariatric surgery reduces the cardiovascular morbidity associated with obesity, likely due to its impact on insulin resistance. At present, obesity is defined solely by body to mass index (BMI). We have reported wide variation in insulin resistance (IR) within the bariatric surgery population. C-reactive protein (CRP), heart rate variability (HRV), total cholesterol to HDL ratio (Chol:HDL) and urinary albumin to creatinine ratio (ACR) are independent predictors of cardiovascular morbidity. We studied whether IR or measures of obesity were correlated with any of these indicators of cardiovascular morbidity in a population undergoing laparoscopic Roux-en-Y gastric bypass (LRYGB).

Methods: We studied 33 consecutive patients undergoing LRYGB at our institution. Demographic data was recorded. IR was estimated by homeostasis model of assessment (HOMA-IR). HRV index was calculated by 24 hour Holter monitor.

Results: No correlation was found between HOMA-IR and measures of obesity. HOMA-IR was significantly correlated with HRV index ($r = -0.42, p = 0.04$) and with ACR ($r = 0.53, p = 0.04$). Measures of obesity did not correlate with CRP, HRV index, Chol:HDL or ACR.

Conclusion: HOMA-IR is a better predictor of cardiovascular risk in the bariatric surgery population than measures of obesity. We argue that HOMA-IR should be utilized as an inclusion criterion, as well as an outcomes measure for bariatric surgery.

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IMPACT OF A HOSPITAL-BASED MIDLEVEL PROVIDER ON PATIENT OUTCOMES AFTER ROUX-EN-Y GASTRIC BYOPASS IN A HIGH VOLUME CENTER

1071.78

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Background: Restrictions on resident work hours have led to staffing shortages within teaching hospitals. Many hospital systems have integrated hospital-based midlevel providers, including physician assistants (PA) into inpatient care teams. We sought to evaluate the impact of a hospital-based PA on length of stay and postoperative outcomes in bariatric surgery patients at an academic Level 1 center.

Methods: Consecutive patients presenting for gastric bypass (GB) were included in a prospective database. We retrospectively evaluated the postoperative length of stay (LOS), 30-day complication rate, 30-day readmission rate, and direct hospital costs during two distinct time periods; "P1" - Sept 2007 to August 2008 (before PA) and "P2" - Sept 2008 to Aug 2009 (after PA). Complication rates were compared using either Chi-Square analysis or Fisher's Exact Test.

Results: 225 patients underwent GB during P1 and 264 patients during P2. The median hospital stay decreased from 3 days during P1 to 2 days during P2. 30-day complication rates were 14.7% during P1 and 10.61% during P2 ($p=0.18$). 30-day readmission rates were 7.56% during P1 and 1.89% during P2 ($p=.004$). Average direct cost savings attributed to shortened LOS was \$1541 per patient.

Conclusion: The addition of a service-specific, hospital-based PA to our high volume bariatric practice has resulted in a shortened LOS, stable 30-day complication rate, and a significantly reduced 30-day readmission rate. The cost savings associated with a reduction in LOS as well as the associated improvements in bed capacity and patient flow help to justify midlevel salary requirements.

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SHORT TERM OUTCOMES OF LAPAROSCOPIC SLEEVE GASTRECTOMY AS A NEW TREATMENT MODALITY FOR MORBIDLY OBESE ADOLESCENTS

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Background: Laparoscopic Sleeve Gastrectomy (LSG) has become an alternative bariatric operation for the management of morbid obesity. To our knowledge these is the largest literature reporting outcomes of this technique in morbidly obese adolescents. We aim to assess initial outcomes of laparoscopic sleeve gastrectomy as a new treatment modality in this controversial patient population.

Methods: After IRB approval and following HIPAA guidelines we conducted a retrospective review of prospectively collected database of all adolescent patients that underwent Laparoscopic Sleeve Gastrectomy (LSG) at the Bariatric and Metabolic Institute. Data included age, sex, initial body mass index, postoperative

body mass index, initial weight, postoperative weight, excess weight loss (EWL), co-morbid conditions, type of procedure performed and postoperative complications. Follow-up time ranged from 6 to 12 months.

Results: Between September 2003 and July 2008 a total of 2246 patients underwent primary LBS of these 19 (1.12%) patients were adolescents. 9 (47%) of these patients underwent Laparoscopic Sleeve Gastrectomy (LSG). Mean age was 17 (12-18) years. Mean preoperative BMI was 46.78 (40.7-52) kg/m². Mean postoperative BMI was 24.66 (20.2-49) kg/m². Mean preoperative weight was 269.53 (210-291.8) lbs. Mean postoperative weight was 179.4 (154.2-279.8) lbs. Mean postoperative excess weight loss was 54%. Mean weight loss at 6 months and 12 months were 55.13 (7.8-84.6) and 57.2 (45.3-63.2) lbs respectively. There were neither nutritional deficiencies nor mortality in this series.

Conclusion: In this short term follow up report Laparoscopic Sleeve Gastrectomy (LSG) appears to be a safe treatment option for morbidly obese adolescents.

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1071.80 INCREASED FRACTURE RISK AMONG BARIATRIC PATIENTS PRE- AND POSTOPERATIVELY

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Background: Obesity is associated with reduced risk of osteoporosis and weight loss has been shown to decrease bone density.

Surgery for obesity is associated with decreased food intake and with gastric bypass surgery the primary sites of calcium absorption are bypassed. The aim of the present study was to assess the risk of fractures in obese persons prior and after obesity surgery and compare the risk of fractures to the general population.

Methods: 13 273 patients who had anti-obesity in Sweden 1980-2006 were identified in the Swedish in-patient care register. Sampling 10 individuals per surgical patient from the general population created a control group with same sex and date of birth (132 730). Pseudo-surgery dates were assigned to the control group. Fracture incidences were estimated pre- and postoperative in the in-patient care register.

Conclusion: Obese persons are at a higher risk for in-patient care for fractures compared to a sample of the general population. This increased risk is maintained after surgery for obesity. Hip fractures were not significantly elevated either before or after surgery for obesity. It needs to be emphasized that although follow-up was nearly 9 years the surgical group (and controls) were rather young.

Results: Mean age at surgery was 40.0±10.3 years. Median follow-up was 8.7 years. Total fracture risk was increased in the obese (IRR 1.6 (95% CI 1.5-1.8)) preoperatively and postoperatively (HR 1.5 (1.4-1.6)). There was no significant difference between men and women. Subgroup analysis demonstrated increased risk of fracture of the arm and leg both pre- and postoperatively. Fracture of the hip was not significantly elevated either before (IRR 0.9 (95% CI 0.5-1.4) or after (HR (95% CI 0.8-1.5) surgery. Analysis of patients who underwent gastric bypass (4161) demonstrated similar results.

AUTHOR QUERIES

AUTHOR PLEASE ANSWER ALL QUERIES

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