

POSTER ABSTRACTS

Top Five Posters and Posters of Distinction

Top Five Posters

P-1

ASMBS MEMBER SURVEY ON ENDOSCOPIC TRAINING AND ENDOSCOPY EXPERIENCES

Bipan Chand¹, MD, FASMBS; Aurora Pryor², MD; Marc Bessler³, MD, FASMBS; Gregory Dakin⁴, MD, FASMBS; Ramsey M. Dallal⁵, MD, FASMBS; George Eid⁶, MD, FASMBS; Donald Hess⁷, MD; Dean Mikami⁸, MD; Kenric Murayama⁹, MD; Alan Saber¹⁰, MD, FASMBS; Kevin Wasco¹¹, MD, FASMBS; Erik Wilson¹², MD, FASMBS; Natan Zundel¹³, MD, FASMBS

- 1. Department of Surgery, Bariatrics & Metabolic Institute / M61, Cleveland, OH, USA*
- 2. Department of Surgery, Stony Brook University Medical Center, Stony Brook, NY, USA*
- 3. Department of Surgery, New York Presbyterian Hospital, New York, NY, USA*
- 4. Weill College of Medicine of Cornell Univ., New York, NY, USA*
- 5. Albert Einstein Healthcare Network, Elkins Park, PA, USA*
- 6. University of Pittsburgh, Pittsburgh, PA, USA*
- 7. Boston University, Boston, MA, USA*
- 8. Ohio State University, Columbus, OH, USA*
- 9. Penn Presbyterian Medical Center, Philadelphia, PA, USA*
- 10. University Hospitals - Case Medical Center, Cleveland, OH, USA*
- 11. Surgical Associates of Neenah, Neenah, WI, USA*
- 12. University of Texas Medical School, Houston, TX, USA*
- 13. Florida International University College of Medicine, Miami Beach, FL, USA*

Background: Endoscopy plays a critical role in the management of bariatric patients. Exposure to endoscopy during training is variable. To assess the degree of experience during training and desire / need for additional training, a survey was sent to all active ASMBS members.

Methods: The survey attempted to gauge training and comfort level in performing diagnostic / therapeutic endoscopic procedures and interest in additional training. All active ASMBS members received emails during a one month survey period explaining the purpose and link to the survey. Survey consisted of 19 multiple choice and yes/no type questions. Results were analyzed using t-test.

Results: 291 of 1670 members responded to the survey. Years from training were <1 (3.4%), 1-5 (23.4%), 6-10 (23.4%), 11-15 (18.9%) and > 15 years (30.9%). 78 % of individuals completed a fellowship. 25% performed < 25 diagnostic procedures and 55 % performed < 5 therapeutic procedures during their cumulative training. 49 % of responders felt “very comfortable” performing endoscopic management of bariatric complications. 78 % of members were interested in additional training, with most seeking advanced endoscopy exposure in comparison to basic endoscopy (p<0.01). 53 % and 56% believed that endoscopic procedures would play a role as primary and revisional endoluminal bariatric therapies (EBT) respectively.

Conclusion: Exposure to endoscopy continues to remain low amongst surgical trainees. However, most bariatric surgeons continue to perform endoscopy and manage complications. The majority of survey responders anticipate an increased role of primary and revisional EBTS, and many are willing to seek additional training at post-graduate courses.

P-3

FIFTY SAME DAY LAPAROSCOPIC SLEEVE GASTRECTOMIES IN LOW BMI (30-35) PATIENTS IN AN AMBLATORY SURGERY CENTER WITH THREE-YEAR FOLLOW-UP

Peter S. Billing¹, MD; Matthew Crouthamel¹, MD; Stephanie Oling¹, BS; Robert Landerholm¹, MD

- 1. Puget Sound Surgical Center, Edmonds, WA, USA*

Background: Laparoscopic Sleeve Gastrectomy is an effective weight loss procedure, with demonstrated advantages of safety and efficacy over other procedures. Studies have demonstrated that bariatric surgery can be performed safely in low BMI (30-35) patients in an ambulatory setting. This is the first reported series of ambulatory sleeve gastrectomy in low BMI patients.

Methods: Fifty consecutive low BMI sleeve gastrectomy patients at a free-standing ambulatory surgery center were studied retrospectively. All patients were discharged the same day and seen the following day. The patients were followed at regular intervals for three years. Operative times, anesthesia times, complications, length of stay in the ASC, and weight loss were studied.

Results: Average age was 50 (range 30-73) with an average starting BMI of 31. Average BMI at 3, 6, 12, 24 and 36 months was 28, 26, 24, 23, and 25 respectively. Average operative time was 55 min (25-94) and average anesthesia time was 98 min (53-180). All patients left the facility the same day. There were no transfers, no leaks, no deaths and no reoperations. There were two major complications. One patient was admitted to the hospital the following day for bronchitis. It resolved with medical therapy. Another patient developed a stricture at the incisura that required repeated dilatation and nutritional support. It resolved after six weeks.

Conclusion: Laparoscopic sleeve gastrectomy is an effective procedure for sustained weight-loss in the low BMI patient. We believe same day sleeve gastrectomy is safe in the ambulatory setting and can be considered in selective low BMI patients.

P-4

EXPLORATION OF THE ESOPHAGEAL HIATUS: DOES CRURAL REPAIR REDUCE PROXIMAL POUCH DISTENSION?

John B. Dixon¹, MD, PhD; Christopher S. Cobourn², MD

1. Vascular & Hypertension - Obesity Research, Baker IDI Heart & Diabetes Institute, Melbourne, Victoria, AUSTRALIA

2. Liverpool, Merseyside, UNITED KINGDOM

Surgical Weight Loss Centre, Mississauga, Ontario, CANADA

Background: Repair of a hiatal hernia at the time of adjustable gastric band (LAGB) placement is advisable, but the practice of more active esophageal hiatus exploration and repair has been promoted with an expectation of reducing proximal gastric pouch distension (PPD). The objective of this study was to explore the relationship between crural exploration and repair (CR) and PPD.

Methods: Details of 3000 consecutive individuals who underwent primary LAGB procedures at a single centre between Feb 2005 and May 2011 were examined. Several analyses were performed with PPD cases carefully matched to historical (time-of-placement), and historical, age and gender controls.

Results: Throughout the series, PPD rates decreased and CR increased. Revision for PPD was performed in 132 (4.4%) individuals. PPD cases were more likely to have had a CR during primary surgery, Odds Ratio = 1.5 (95% CI 1.2-2.2, p=0.001), and 2.3 (95%, CI 1.4-3.8, p<0.001) when compared with historical, and historic-, age- and gender-matched controls respectively. Findings were confirmed using adjusted binary logistic regression controlling for age, gender, BMI and time-of placement. This increased risk was most evident early in the series when incident PPD cases were greater. However at no stage did CR reduce the risk of either symmetrical or asymmetrical PPD.

Conclusion: This analysis does not support the theory that increased exploration and repair of the esophageal hiatus reduces PPD incidence. There may be a role for CR at the time of surgery for specific clinical indications. CR increases the complexity and possibly the risk of the procedure.

Characteristics of cases who had revision surgery for PPD & two cohorts of matched controls

	PPD Cases	Historical Matched Controls*	p-value	Historical/Gender/Age Matched Controls**	p-value
N	132	132		132	
BMI	41.1± 6.1	42.2 ± 6.6	0.18	43.2 ± 8.7	0.03
Age	39.8±9.7	43.0 ± 10.9	0.006	39.9 ± 9.2	0.93
Sex (% males)	5.3%	14.4%	0.013	5.3%	1.0
Crural repair	53.0%	33.3%	0.001	31.8%	<0.001

*Matching was performed randomly with patients selected to include those operated at the same time period by the same surgeon with the same type of band. ** Matching performed to match for age and gender in addition to time, surgeon and band type.

The first 1600 patients in sequential quartiles, all followed for the first 36 months post-band placement

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Total	p-value
Patients	400	400	400	400	1600	
Dates (month-year)	2/2005-11/2006	11/2006-7/2007	7/2007-3/2008	3/2008-8/2008		
Revision for PPD n(%)	38 (9.5)	16 (4.0)	17 (4.3)	3 (0.75)	74 (4.6)	<0.001
Asymmetrical n(%)	22 (5.5)	10 (2.5)	10 (2.5)	3 (0.75)	45	0.001
Symmetrical n(%)	16 (4.0)	6 (1.5)	7 (1.8)	0	29	<0.001
Crural repair n(%)	50 (12.5)	153 (38.3)	134 (33.5)	232 (58)	569 (6.0)	<0.001
PPD in CR group n(%)	8 (16)	12 (75)*	12 (71)*	2 (67)	34 (46)	0.06

*Quartiles 2 and 3 showed those who had a crural repair were more likely to have a reoperation for PPD (p>0.01 for both).

P-5

IDENTIFYING DIFFERENCES IN BRAIN ACTIVATION ASSOCIATED WITH WEIGHT GAIN AND WEIGHT LOSS FOLLOWING GASTRIC-BYPASS SURGERY

Rachel L. Goldman¹, PhD; Jeffrey Borckardt², PhD; Patrick O'Neil², MD; Alok Madan², MD; Debra Petitpain³, MS, RD; Joshua May²; Rahul Loungani²; Katherine Morgan³, MD; T. Karl Byrne³, MD; Mark George², MD

1. Bellevue Center for Obesity and Weight Management, NYU School of Medicine/ Bellevue Hospital Center, New York, NY, USA

2. Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, Charleston, SC, USA

3. Department of Surgery, Medical University of South Carolina, Charleston, SC, USA

Background: Despite the overall success of gastric bypass surgery, some patients do not lose the expected amount of weight, and/or regain. The reasons for failure after surgery are unclear. Little is known about changes that occur in the brain as a consequence of obesity. This exploratory study examined functional neuroanatomical characteristics associated with success or failure following gastric-bypass surgery.

Methods: A total of 40 post-surgical patients underwent fMRI scanning procedures to examine differences in functional brain activation patterns in response to food cues. Twenty-seven participants remained on an appropriate post-surgical weight-loss trajectory (M =71.90% excess weight loss, SD =15.86), while 13 did not (M=41.59% excess weight loss, SD =7.73). Participants viewed a set of 12 food-images and 12 neutral images, randomly ordered, while undergoing fMRI. Participants were told to allow themselves to crave during one scan and asked to resist cravings during another.

Results: Fixed-effects models (corrected for multiple comparisons) suggest that, while craving, patients who successfully lost weight after surgery had increased activation in the left prefrontal cortex, insular cortex, putamen, anterior cingulate, posterior cingulate and the supramarginal gyrus compared to surgical failures. Additionally, they had greater left prefrontal cortical activation when asked to resist their cravings compared to those that did not lose a desirable amount of weight, whereas surgical failures had increased activation in the posterior cingulate and precuneus compared to successes.

Conclusion: This suggests that success after gastric-bypass may not just be a function of the gut but is an interaction of gut and brain craving and control circuits.

P-66

DOES INSURANCE STATUS AFFECT GASTRIC BYPASS OUTCOMES?

Mona Houcheime¹; Nayna Lodhia¹; John Morton¹, MD, FASMBS

1. Surgery, Stanford University, Stanford, CA, USA

Background: Bariatric surgery has gained widespread acceptance as an effective intervention for obesity. However, little is known regarding the comparative effectiveness of gastric bypass surgery upon clinical outcomes by insurance status.

Methods: Clinical data from a prospective registry of 659 gastric bypass patients at an academic center of excellence were reviewed. Insurance groups were divided into private, Medicare, and Medicaid. Preoperative demographics, perioperative outcomes and one year results were reviewed including BMI change, improvement of biochemical cardiac risk factors, and remission of comorbidities.

Results: Preoperative demographic profiles differed between insurance groups as Medicare patients presented with the most pre-operative comorbidities (4.7) and Medicaid patients presented with the highest average BMI (50.1), highest percentage of patients with an initial BMI > 50 kg/m² (51%), and achieved the largest preoperative %EWL (3.1%). Longer operative times (206.6 min) and readmission rates (19.3%) were also observed in patients with Medicaid. While Medicaid patients had higher CRP preoperatively, at 1 year, the insurance groups all had similar improvements in biochemical cardiac risk factors.

Conclusion: Insurance status is associated with pre-operative demographic variation; however, at one year, standardization of post-gastric bypass outcomes appears across all insurance types. In the Medicaid population, longer operative times and increased re-admission rates may reflect larger BMIs and lack of access to primary care.

	Private (559)	Medicare (43)	Medicaid (57)
Age	45	50	40
% Female	81	82	95
Preop BMI	46	48	50
# Comorb	1.6	4.7	3.9
%, Preop Wgt Loss	1.5	0.8	3.1
%, 1 Year complication	15	14	14.3
%, 1 Year Readmission	9.8	4.7	19.3
% BMI Change	34	32	35

Posters of Distinction

P-7

COMPARISON OF SLEEVE GASTRECTOMY, GASTRIC BYPASS AND ADJUSTABLE GASTRIC BAND IN AGE, GENDER, AND BMI MATCHED SUBJECTS

Herman Skorobogaty¹, MD; Max MacMillan¹; William Fuller¹, MD; Ken Fujioka¹, MD; Mark Takata¹, MD

1. General Surgery, Scripps Green Hospital, La Jolla, CA, USA

Background: Laparoscopic sleeve gastrectomy (LSG) is becoming an increasingly popular choice of weight loss surgery. The aim of this study was to compare the clinical outcomes of LSG, laparoscopic gastric bypass (LGB), and laparoscopic adjustable gastric band (LAGB) in matched groups of patients.

Methods: Fifty two morbidly obese patients who underwent LSG were matched for age, gender, and BMI with 52 LGB patients and 52 LAGB patients. The operations were performed at a single institution between October 2006

and July 2010. Outcomes measured were postoperative complications within 30 days of surgery, excess weight loss (EWL) at 12, 18, and 24 months, and comorbidity resolution.

Results: There were 19 men and 32 women in each group with an average age of 49 years and an average BMI of 44. Cumulative 12, 18 or 24 month follow-up data was available for 80.8% of LSG patients, 82.7% of LGB patients, and 90.4% of LAGB patients. At the end of two years the %EWL was 60.8% for LSG, 68.3% for LGB, and 26.1% for LAGB. Post-test with Tukey (for pair-wise comparisons), finds a significant difference ($p < .0001$) for LSG vs. LAGB and for LGB vs. LAGB. The p-value by ANOVA for comparing the 3 groups all together is $p < .0001$.

Average length of stay after surgery was 2.2 days for LSG, 2.6 days for LGB, and 1.1 days for LAGB. No mortality was encountered in either group. The overall 30-day morbidity was 3.84% for LSG, 1.92% for LGB, and 1.92% for LAGB. Average comorbidity resolution was 1.2 for LSG, 1.97 for LGB, and 0.3 for LAGB.

Conclusion: Laparoscopic sleeve gastrectomy is an effective bariatric operation with the efficacy profile (% of excessive weight loss and comorbidity resolution) approaching that of gastric bypass. It also is a safe operation with morbidity comparable to laparoscopic band placement and laparoscopic gastric bypass.

Table 1. % of Excessive Weight Loss at 12, 18, and 24 month follow-up

%EWL	12 mo	18 mo	24mo
LSG	64.1	55.7	60.8
LGB	78.5	78.3	68.3
LAGB	41.2	38.4	26.1

P-19

RESULTS OF LAPAROSCOPIC ADJUSTABLE GASTRIC BANDED PPLICATION (LAGBP) AT 2 YEARS AFTER SURGERY

Alvin K. Eng¹, MD; Chih-Kun Huang², MD; Asim Shabbir³, MD; Chi_Hsien Lo², MD; Rajat Goel², MBBS; Satish Pattanshetti², MS; Navdeep Chhabra², MBBS, MS

1. General Surgery, Singapore General Hospital, Singapore, SINGAPORE

2. General Surgery, E-Da Hospital, Kaohsiung, TAIWAN

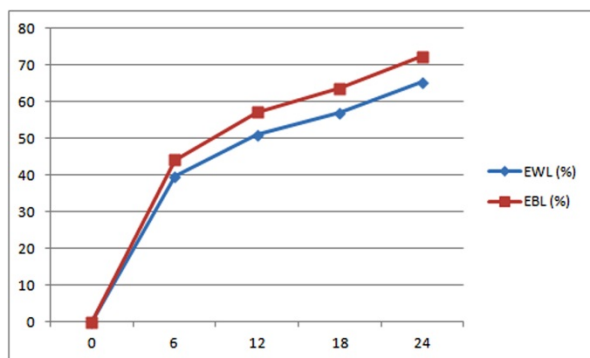
3. General Surgery, National University Hospital, Singapore, SINGAPORE

Background: The LAGBP procedure was first described by our group in 2010. This combination of two reversible procedures can potentially increase the efficacy and durability of weight loss.

Methods: 47 patients were enrolled in our IRB-approved single-institution study from 11/5/2009 to 11/7/2011. Inclusion criteria were BMI ≥ 35 and age ≥ 18 years. Weight loss, comorbidity resolution, complications and frequency of band adjustment were closely monitored and statistical analysis was performed.

Results: The male:female ratio was 14:33 and median age was 28 years (18-52). The mean preoperative BMI was 39.2 (35.0-50.6). The average operation time was 90.4 minutes and mean length of stay was 1.83 days. After stratifying the patients into groups with 6, 12, 18 and 24 months of follow-up, there were 33, 27, 20 and 5 patients in each group respectively. At 6, 12, 18 and 24 months, the mean number of band adjustments per patient was 1.3, 1.4, 1.6 and 2.6 respectively. The mean excess weight loss in each group was 39.6%, 51.0%, 57.0% and 65.3% respectively. The mean BMI at each stage of follow-up was 32.4, 30.0, 29.3 and 27.7 respectively. The mean excess BMI loss was 44.2%, 57.1%, 63.7% and 72.3% respectively. There was corresponding improvement in comorbidities. Complications included band puncture (1), port hernia (1), gastric obstruction (2) and fundus perforation (2). All complications occurred earlier in the series and were treated laparoscopically. One patient had both band and plication removed returning the stomach to its original state.

Conclusion: These results of LAGBP suggest continued weight loss beyond 18 months despite reduced band adjustments compared to LAGB alone. Further randomised trials will be necessary to fully evaluate the efficacy and safety of LAGBP compared to currently accepted procedures.



P-42

CHARACTERISTICS OF PATIENTS WHO FAIL TO LOSE WEIGHT WITH LAPAROSCOPIC ADJUSTABLE GASTRIC BAND SURGERY

Daniel Lavy¹, MD; Pavlos Papasavas¹, MD; Darren S. Tishler¹, MD
1. Surgery, Hartford Hospital, Hartford, CT, USA

Background: There is variability in the outcomes of LABG. We describe our LABG population who failed to lose significant excess weight postoperatively.

Methods: We queried our prospectively collected database to identify patients who underwent LABG and had EWL < 25% at 1-year postoperatively. Nutritional and psychological evaluations and office follow-up notes were reviewed to better describe the profile of those patients.

Results: 195/867 (22.5%) LABG patients with 1-year follow-up data achieved EWL < 25%. The mean age was 46.2 years (range: 19-75), the mean BMI was 48.9 Kg/m² (range: 34-74) and there were 24.4% males. The mean BMI of the entire LABG population was 45.2 Kg/m². Six patients (3%) weighed more at 1 year postop compared to preop. Preoperative psychological evaluation revealed 47% depression, 18% anxiety disorder, and 13% history of sexual abuse. Preoperatively, 86% of patients were ambulatory, 16% were using an assisting device and 4% were wheelchair bound. Postoperatively, 74% of patient reported no routine exercise, 28% reported injury or sickness that prevented them from exercising and 29% experienced physical pain on a regular basis. Postoperative questionnaires revealed that 55% of patients had poor eating habits, 22% reported stress related eating, 17% were consuming large amounts of sweets, 17% were grazing, 10% were overeating, 6% were on steroids and 4% were pregnant. Eight patients (4%) underwent revisional surgery: five to RYGBP and three to sleeve gastrectomy.

Conclusion: The majority of patients with < 25% EWL at 1-year after LABG were ambulatory prior to surgery but failed to exercise postoperatively. A large percentage of patients reported injury, physical pain, depression and poor eating habits.

P-43

NON SUTURING OF THE GASTRIC BAND

Peter H. Kwon¹, MD, FASMBS; Wayne Weiss¹
1. Tri-State Bariatrics, Middletown, NY, USA

Background: The current practice regarding gastric band placement includes gastro-gastric sutures in an effort to mitigate slippage. We have challenged this practice, and have abandoned suture plication 2 years ago. We present slippage rates before and after this change, and suggest that suturing of the band is not necessary, and in fact can be detrimental.

Methods: We performed a retrospective study from 2008 to 2010, looking at the impact of not performing the gastro-gastric suturing, which was instituted in 2009. We analyzed the slip rate from 2003 to 2008, during which time the gastro-gastric sutures were placed, and from 2009-2010, during which time no gastro-gastric sutures were placed.

Results: From 2003 to 2008, we performed 1453 Lap-band placements with gastro-gastric sutures. We observed a 3% rate of slippage. From 2009 to 2010, we performed 634 Lap-band placements without sutures, and observed a 2% slippage rate. When sutures were placed, we had 1 overt perforation of the proximal stomach due to the suture, and 1 subtle perforation requiring band removal. After abandoning the suturing, we had no perforations.

Conclusion: Gastro-gastric suturing does not lower the slip rate. In fact, suturing the band can result in perforations or placing the band too inferiorly, increasing the likelihood of pouch dilatation and or slippage.

P-47

ADJUSTABLE GASTRIC BANDING IMPROVES OBESITY AND WEIGHT-LOSS QUALITY OF LIFE (OWLQOL) MEASURES OVER 3 YEARS: INTERIM RESULTS OF THE APEX STUDY

Jaime Ponce¹, MD, FASMBS; Helmuth Billy², MD; Adam Smith⁵, DO, FASMBS; Tracie Curry³, MD; Christopher Cornell⁴, PhD; Ted Okerson⁴, MD, FACP

1. Dalton Surgical Group, Dalton, GA, USA
2. Ventura Surgical Associates, Ventura, CA, USA
3. Center for Metabolic and Bariatric Surgery, Evandale, OH, USA
4. Medical Affairs, Allergan, Inc, Irvine, CA, USA
5. Fort Worth Lap-Band, Fort Worth, TX, USA

Background: Laparoscopic Adjustable Gastric Banding has been established as an effective and safe treatment to reduce weight in obese patients. This report summarizes the 3-year prospective outcomes based on the Obesity and Weight-Loss Quality of Life (OWLQOL) instrument after surgical placement of the LAP-BAND AP® device.

Methods: The APEX trial is an ongoing 5-year prospective open-label study to assess the progressive weight reduction, change in comorbidities and OWLQOL results after implantation of the LAP-BAND AP® system (NCT00501085). The well-validated OWLQOL was prospectively provided pre-implantation and at 6 month intervals post-operatively. These data represent an interim analysis of the 159 evaluable subjects (159/359) who have exited or completed the 30-month post-operative visit.

Results: Significant improvements in all questions of the OWLQOL were observed within 6 months after implantation and continued to progressively improve over 3 years. Mean absolute change in score from baseline was -2.2 (range -0.9 (Q16 fear of weight regain) to -3 (Q7 ability to do what I want)). Total score improved from 70.4 at baseline to 33.3 at 3 years, for a mean total percent improvement of 53% from baseline (range 24% (Q16) to 65% (Q7)). These improvements correlated with the mean 52% excess weight loss (%EWL) and with progressive remission /improvement of many comorbidities of obesity by 2 years: type 2 diabetes (96%), hypertension (91%), hyperlipidemia (77%), GERD (91%), sleep apnea (86%), arthritis (75%) and depression (93%) (3-yr comorbidity data currently not available at time of abstract submission).

Conclusion: Weight loss facilitated by LAP-BAND AP® placement offers meaningful improvement in all 17 OWLQOL measures, and correlates with significant %EWL and comorbidity changes. Durability of these improvements will be followed and reported over 5 years.

P-60

SUSTAINED WEIGHT LOSS 11 YEARS AFTER GASTRIC BYPASS

David Edholm¹, MD; Felicity Svensson¹, MD; Ingmar Näslund², MD; F. Anders Karlsson⁴, PhD; Eva Rask³, MD; Magnus Sundbom¹, MD

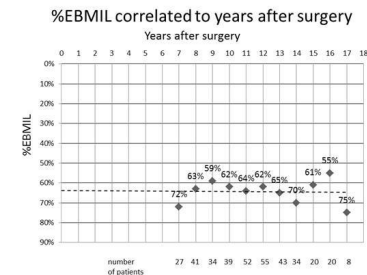
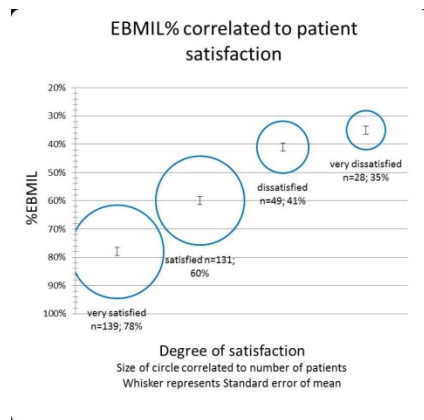
1. Department of surgical sciences, Uppsala, SWEDEN
2. Department of surgery, Örebro, SWEDEN
3. Department of medicine, Örebro, SWEDEN
4. Department of Medical Sciences, Uppsala, SWEDEN

Background: Gastric bypass surgery (RYGB) as treatment for morbid obesity results in substantial weight loss. However, most present long term studies include few patients at the last time-point. The aim of this study was to explore long-term results in a cohort of patients, 7 to 17 years after gastric bypass.

Methods: All patients who had undergone RYGB between 1993 and 2003 at Uppsala and Örebro University Hospitals received a questionnaire regarding their postoperative status. Blood samples were obtained and medical charts studied.

Results: Three hundred and eighty four out of 539 patients responded (71.2% response rate, 317 women, mean age 37.9, Body mass index (BMI) 44.5 kg/m² at surgery). At a mean follow-up of 11.4 years (range 7-17), BMI was reduced to 32.5 kg/m² corresponding to excess BMI loss of 63.3%. Similar weight loss was observed regardless of the length of follow-up. Perorally treated diabetes resolved in 72% and improvements in sleep apnea and hyperlipidemia were observed. Revisional bariatric surgery had been performed in 2.1% and abdominoplasty in 40.2%. Gastrointestinal symptoms were considered tolerable. The overall result was satisfactory to 79% of the patients and 92% would recommend RYGB to a friend. Attendance to annual checkups was 40.1%. B12-supplements were taken by 72% and multivitamins by 24%.

Conclusion: At 11 years, the substantial weight loss was maintained and revisional surgery was rare. Surprisingly few patients were compliant with the recommendation of lifelong supplements and yearly checkups.



P-75

OUTCOMES OF LAPAROSCOPIC GASTRIC BYPASS AMONG THE SUPER AND MORBIDLY OBESE

Mohamed I. Dahman¹, MD; Damien J. LaPar², MD, MSc; Peter T. Hallowell², MD; Bruce D. Schirmer², MD

1. General and Laparoscopic Surgery, Mercy Health, Fairfield, OH, USA

2. Minimally Invasive and Bariatric Surgery, University of Virginia, Charlottesville, VA, USA

Background: Over the past 30 years, the percentage of obese (BMI>30 kg/m²) Americans has risen from 14% to over 33%. The super obese population (BMI>50 kg/m²) has similarly increased by 75% in the last decade. However, few large series have reported on outcomes for the superobese.

Methods: A retrospective review was performed of all patients undergoing laparoscopic Roux-en-Y gastric bypass (LRYGBP) operations at a single institution from 1987-2010. Patient were principally stratified by body mass index (BMI) into morbidly obese (MO, BMI≤50 (none less than 35) and superobese (SO, BMI>50) study groups. Observed differences in patient characteristics, outcomes, and weight loss over 5 years were compared between groups.

Results: A total of 840 MO patients with a median BMI of 45 [35-50] were compared to 698 SO patients with a median BMI of 55 [50-85]. SO patients were younger (41 vs. 43 years, $p=0.02$), and more commonly male (17.6% vs. 12.0%, $p=0.02$). Overall mortality (0.7% vs. 0.0%, $p=0.02$) was higher for SO patients compared to MO patients, while the performance of revisional surgery was comparable (1.1% vs. 0.2%, $p=0.05$). However, there was no difference in the observed incidence of incisional ($p>0.99$) or internal hernias ($p=0.98$), anastomotic leaks ($p=0.29$), small bowel obstruction ($p=0.57$), wound infection ($p=0.58$), bleeding ($p=0.81$), pulmonary embolism ($p>0.99$), anastomotic strictures ($p>0.99$), marginal ulcers ($p=0.34$), or other complications (Table). Importantly excess weight loss for SO and MO was 56.9% and 75.0% ($p<0.0001$) at one year and 56.4% and 70.7% ($p<0.0001$) at five years, respectively.

Conclusion: These data suggest that LRYGBP is a safe and effective treatment strategy for superobesity. Compared with the morbidly obese, there are no differences in postoperative morbidity, with acceptable long-term excess weight loss.

Post-operative Complication

	BMI \leq 50 kg/m ² (n=840)	BMI $>$ 50 kg/m ² (n=698)	<i>p</i>
Incisional Hernia	10 (1.2%)	9 (1.3%)	$p>0.99$
Internal Hernia	16 (1.9%)	12 (1.7%)	$p=0.85$
Anastomotic Leak	10 (1.2%)	13 (1.9%)	$p=0.29$
Small Bowel Obstruction	32 (3.8%)	22 (3.2%)	$p=0.57$
Wound Infection	6 (0.7%)	7 (1.0%)	$p=0.58$
Bleeding	10 (1.2%)	7 (1.0%)	$p=0.81$
Pulmonary Embolism	3 (0.4%)	3 (0.4%)	$p>0.99$
Anastomotic Strictures	7 (0.8%)	5 (0.7%)	$p>0.99$
Marginal Ulcers	12 (1.4%)	6 (0.9%)	$p=0.34$
Other Complications	30 (3.6%)	26 (3.7%)	$p=0.89$

P-85

GASTROJEJUNAL ANASTOMOTIC STRICTURES FOLLOWING ROUX-EN-Y GASTRIC BYPASS ARE TECHNIQUE RELATED

Softiane El Djouzi¹, MD; Zeid M. Keilani¹, MD; Amanda L. Walters¹; Timothy Kuwada¹, MD, FASMBS; Keith Gersin¹, MD, FASMBS; Dimitrios Stefanidis¹, MD, FASMBS

1. Carolinas Medical Center, Charlotte, NC, USA

Background: Gastrojejunostomy (GJ) stricture rates after laparoscopic Roux-en-Y gastric bypass (LRYGB) range widely in the literature (0.8%-31%). The objective of this study was to assess the impact of GJ anastomotic technique on stricture rates.

Methods: A retrospective review of prospectively collected data on all patients undergoing LRYGB by three fellowship-trained bariatric surgeons using different GJ techniques at a center of excellence between 2005 and 2010 was performed. Patients with GJ strictures were identified based on the requirement for postoperative endoscopic balloon dilation. GJ stricture rates after the linear stapling (LS), transgastric 25mm circular (TG), and transoral 25mm circular (TO) techniques were compared using Fisher's Exact test. Multivariate analysis was performed to assess factors (patient demographics, BMI, comorbidities, smoking, antacids, operative technique and duration, and EBL) associated with GJ strictures.

Results: 870 patients underwent LRYGB (436 LS, 335 TG, 99 TO). Patient age was 42.5 \pm 9.5 years, preoperative BMI 44.9 \pm 5.3 kg/m², and 87% were women; there were no significant differences among the three groups at baseline. GJ strictures requiring balloon dilation occurred in 44 (5.3%) patients. Median time to diagnosis was 53 days. Stricture rates were 0.9%, 11.4%, and 1% for the LS, TG, and TO techniques, respectively ($p<0.001$). On multivariate analyses only GJ technique and suture reinforcement of the GJ anastomosis were associated with

strictures.

Conclusions: The transgastric circular stapling GJ technique and suture reinforcement of the GJ during LRYGB are associated with high postoperative stricture rates. Bariatric surgeons should be aware that GJ strictures after LRYGB are mainly technique related.

P-86

THE METABOLIC SURGICAL PATIENT: OLDER, MALE AND HIGHER RISK

Ali Ardestani¹, MD, MSc; Ali Tavakkolizadeh¹, MD
1. Brigham and Woman's Hospital, Boston, MA, USA

Background: The current expansion of metabolic surgery and shift in surgical indications will likely bring about a change in patient profile that has not been studied. We hypothesized that the emphasis on metabolic surgery will likely lead to a change in patient demographics.

Methods: Using BOLD database, we categorized patients based on age or type-2 diabetes mellitus (T2DM) status. Chi-Square, student t-test and logistic regression were performed.

Results: We included 115,488 patients operated on during 2007-2010. There was a small increase in number of men having surgery during this period. 79% of patients were female with a mean age of 45.1 years (vs. 47.8 in males, $p<0.001$) and mean BMI of 46.5 (vs. 48.3 in males, $p<0.001$) (Figure 1). Males had higher rate of T2DM comparing to females (Figure 2). The 90-day mortality was 138 (0.12%) with 59 male (0.24%) and 79 (0.09%) female patients ($p<0.001$). Odds ratio for mortality was 2.1 (1.5-2.9, 95% CI) for male sex, 1.9 (1.3-2.8, 95% CI) for T2DM, 1.07 (1.05-1.08, 95% CI) for BMI and 1.06 (1.04-1.07, 95% CI) for age.

Conclusion: A typical metabolic surgery patient will be older, more often male, with a higher BMI. These are all identified risk factors for higher surgical mortality. Such trends are critical in development of resources and anticipation of outcomes as the field of metabolic surgery evolves.

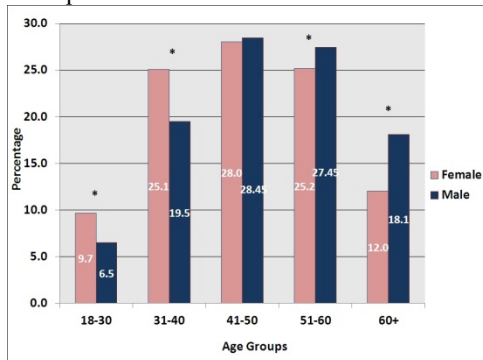


Figure 1 Gender differences in age distribution. *: $p<0.001$

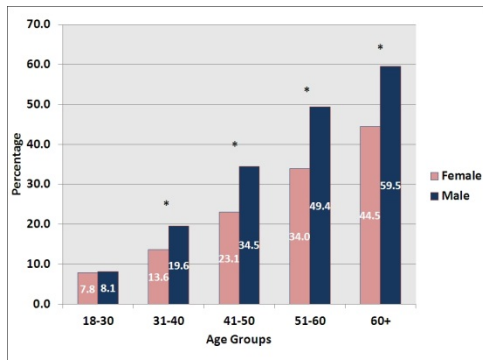


Figure 2 Gender and age differences in T2DM distribution. *: $p<0.001$

THE USE OF IV ACETAMINOPHEN IN A MULTIMODAL PAIN APPROACH IN BARIATRIC SURGERY: DOES IT AFFECT OPIOID REQUIREMENTS?

Anthony M. Gonzalez¹, MD, FASMBS; Jorge Rabaza¹, MD, FASMBS; Rupa Seetharamaiah¹, MD; Ignacio Danta¹, BS, RPFT, CRC; Carmen Rodriguez¹, RN, MSHA; Maria Fuego¹, RN

1. Bariatric Surgery, South Miami Hospital, Miami, FL, USA

Background: The use of opioids in the bariatric surgery patient increases the risk for sedation, ileus, nausea, vomiting and sleep apnea. Pain management should be in a multimodal manner with the use of a first line NSAID or acetaminophen. Multiple studies in other surgical fields have demonstrated that the use of IV acetaminophen will substantially decrease the consumption of opioids in the post-operative period.

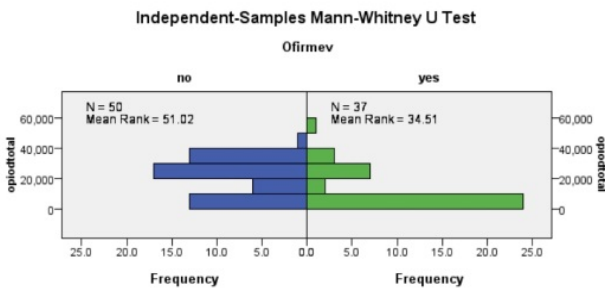
Methods: This study reviewed 91 patients who had bariatric surgery. Procedures included gastric bypass, sleeve gastrectomy and adjustable gastric banding. The two groups studied were those that received IV acetaminophen and those that did not. The IV acetaminophen was given 1000mg doses preoperatively and postoperatively for the first 24 hours post-surgery. The variable, which was measured, is the consumption of all opioids by these 2 patient groups on an individual basis during the first 24 hours. The groups were compared for age, gender, BMI, and procedure type.

Results: There were 51 patients in the group that did not receive IV acetaminophen and 40 patients in the IV acetaminophen group. The BMI, age, gender and type of procedures in each group were found similar using Chi square and One-way ANOVA analysis. When compared using the Mann Whitney U non-parametric test, the opioid use in the two groups were statistically different. The group that received the IV acetaminophen demonstrated a lower mean ranking for opioid usage (figure 1). The mean 24 hour total IV acetaminophen dose per patient was 2850 mg.

Conclusion: This pilot retrospective review has demonstrated that patients who received IV acetaminophen perioperatively during the first 24 hours of surgery will consume less opioids. Future studies are needed to determine the percentage reduction of opioid use in bariatric surgery and how it affects patient satisfaction.

Comparison of groups

	IV acetaminophen given	No IV acetaminophen
Age (mean)	44.1	46.5
BMI (mean)	44.7	43.8
Gender (% Female)	67%	57%



INFLAMMATORY BOWEL DISEASE AND BARIATRIC SURGERY: OUR EXPERIENCE AFTER 2800 CASES

Daniel J. Gagné¹, MD, FASMBS; Jacquelyn Palmer¹, MD; Jorge E. Urbandt¹, MD, FASMBS

1. West Penn Allegheny Health System, Pittsburgh, PA, USA

Background: Inflammatory bowel disease (IBD), including Crohn's disease and ulcerative colitis, has been considered a relative contraindication for bariatric surgery. We describe our experience with bariatric surgery in patients with a history of IBD.

Methods: We performed a retrospective review of prospectively collected data from all patients diagnosed with IBD. Data on weight loss, co-morbidities, and complications were collected.

Results: From July 1999 to October 2011, 2823 patients underwent bariatric surgery. Seventeen (0.6%) had prior diagnosis of IBD: 10 with Crohn's disease and 7 with ulcerative colitis. There were 13 females and 4 males; median age was 54 years (31-63). Five patients had previous surgery for IBD, including total colectomy with ileostomy, abdominal perineal resection in 1, total colectomy and small bowel resections in 1. Bariatric procedures included laparoscopic Roux-en-Y gastric bypass (LRYGB) in 11, laparoscopic adjustable band (4), and laparoscopic sleeve gastrectomy (1). One surgery was aborted due to intraoperative finding of small bowel bypass. Median follow-up was 33 months (1-109). Excess weight loss was 67% in LRYGB patients and 26% in band patients. Remission or improvement occurred in all 7 patients (100%) with type 2 diabetes. Improvement or resolution in hypertension, obstructive sleep apnea, and hyperlipidemia occurred in most patients. Complications included GI bleed (1), abdominal phlegmon (1), and abscess with stomal hernia and port removal (1); all 3 had Crohn's.

Conclusion: Inflammatory bowel disease can complicate bariatric surgery but should not be a contraindication to bariatric surgery. Weight loss and improvement in obesity-related health problems are similar to patients without IBD.

P-96

BARIATRIC SURGERY IN PATIENTS WITH A HISTORY OF VENOUS THROMBOEMBOLISM

*Daniel J. Gagné¹, MD, FASMBS; Eric Boyle¹, MD; Jorge E. Urbandt¹, MD, FASMBS
1. West Penn Allegheny Health System, Pittsburgh, PA, USA*

Background: Obesity is a major risk factor for venous thromboembolism (VTE). VTE is a major cause of morbidity and mortality in bariatric surgery patients. We describe our experience with bariatric surgery in patients with a prior history of VTE.

Methods: We performed a retrospective review of prospectively collected data from all patients with a previous diagnosis of deep venous thrombosis (DVT) or pulmonary embolism (PE) prior to bariatric surgery. Perioperative prophylaxis in these patients consisted of sequential compression devices, unfractionated subcutaneous (SQ) heparin 5000 units three times daily after surgery, and daily SQ low-molecular weight heparin after discharge for 3 to 4 weeks. Data on VTE-related complications after surgery were collected.

Results: From July 1999 to October 2011, 2823 patients underwent laparoscopic bariatric surgery. Of these 2823 patients, 64 (2.3%) had a history of VTE prior to bariatric surgery. Three of the 64 patients (4.7%) with a history DVT or PE presented late (72, 99, and 192 days) with recurrent DVT. All 3 had undergone laparoscopic revision of vertical banded gastroplasty to Roux-en-Y gastric bypass. One patient was on warfarin at the time. Fourteen of the 2759 (0.5%) in the remaining cohort of patients with no previous VTE history developed post-op VTE. One death due to pulmonary embolism occurred 5.4 years post-op in a patient with antiphospholipid antibody syndrome on active anticoagulation.

Conclusion: Bariatric surgery is feasible in patients with a history of VTE. Patients with a history of VTE are at an increased risk for VTE even after the initial postoperative period.

P-99

THE AFFERENT LOOP SYNDROME OF THE ROUX EN-Y GASTRIC BYPASS: HYPERAMYLASEMIA AS A SENSITIVE MARKER FOR SMALL BOWEL OBSTRUCTION

*David Spector¹, MD; Zvi Perry³, MD; Sajani Shah¹, MD; Julie Kim¹, MD, FASMBS; Scott Shikora², MD, FASMBS
1. Surgery, Tufts Medical Center, Boston, MA, USA
2. Surgery, Brigham and Women's Hospital, Boston, MA, USA
3. Surgery, Soroka Hospital, Beer Sheva, ISRAEL*

Background: Surgeons are treating an escalating number of patients with small bowel obstruction (SBO) that are after Roux-en-Y gastric bypass (RYGB); it is often caused by internal hernias, and should be treated surgically. Post-gastrectomy afferent loop syndrome has been described with an elevated serum amylase or lipase (EA/L). SBO in patients after RYGB can be misdiagnosed as pancreatitis because of similar pancreatic enzyme elevation; its non-operative management may be disastrous. The objective was to determine in patients after RYGB the association between SBO and EA/L.

Methods: Of 4014 patients after retrocolic RYGB, 99 cases of SBO treated surgically were prospectively collected and retrospectively analyzed. Of these 99 events, 58 had a measurement of amylase or lipase at the time of operation for obstruction, and these patients comprised the study group.

Results: An EA/L was found in 48%(28/58) of all patients. EA/L rates were higher in acute SBO compared to those presenting chronically (64%, 21/33 vs. 28%, 7/25; $p=0.007$) and in patients with obstruction involving the biliopancreatic limb (BPL) compared to those that did not involve the BPL (65%, 22/34 vs. 21%, 5/24; $p<0.001$). In the group with acute SBO, EA/L rates were higher in patients with obstruction involving the BPL compared to those that did not involve the BPL (94%, 17/18 vs. 27%, 4/15; $p<0.001$).

Conclusion: In RYGB patients, there's an association between SBO and EA/L. Acute obstruction of the BPL can be difficult to diagnose, and in these patients the sensitivity of EA/L is very high. Symptomatic RYGB patients should be assessed for EA/L. It's important to be aware that EA/L does not necessarily equal pancreatitis and its non-operative treatment.

P-104

BARIATRIC SURGERY IN PATIENTS WITH LIVER CIRRHOSIS

Hideharu Shimizu¹, MD; Viet Phuong¹, MD; Munique Maia¹, MD; Matthew Kroh¹, MD; Tomasz Rogula¹, MD, PhD; Bipan Chand¹, MD, FASMBS; Philip R. Schauer¹, MD, FASMBS; Stacy A. Brethauer¹, MD
1. Bariatric and Metabolic Institute, Cleveland Clinic, Ohio, Cleveland, OH, USA

Background: Data regarding the management of bariatric patients with cirrhosis is scarce and there is no strong evidence that supports a specific approach for this group of patients.

Methods: We conducted a retrospective study of patients with known cirrhosis and those with histologically proven cirrhosis (unknown until surgery) who underwent bariatric surgery at our institution. Complication rates and weight loss outcomes were reviewed.

Results: From 04/04-09/11, 24 patients met inclusion criteria. 11 (46%) had known cirrhosis and 13 (54.2%) had cirrhosis discovered at surgery. There were 8 females and 16 males with mean preoperative age of 52 (range 37-69), mean weight 135 kg (range 98-197), and mean BMI 48 (range 32-70). Child-Pugh scores were A (N=23) and B (N=1). Patients had a high incidence of diabetes (83%), dyslipidemia (54%) and hypertension (75%). Procedures performed were laparoscopic Roux-en-Y gastric bypass (LRYGB) (N=13), laparoscopic sleeve gastrectomy (LSG) (N=9), and other restrictive procedures (N=2). The planned procedure was changed from LRYGB to LSG in 3 unknown cirrhotic patients. One patient underwent LSG successfully after transjugular intrahepatic portosystemic shunt. No patients had liver decompensation after surgery. Mean length of hospital stay was 4.3 (2-14) days. Major and minor complications developed in 3 patients after LRYGB and 4 patients after LSG with no perioperative deaths. The 16 patients who had 1 year follow up after surgery achieve 69% EWL.

Conclusion: LRYGB and LSG can be performed safely in carefully selected cirrhotic patients. In our experience, patients with known early cirrhosis and cirrhosis diagnosed intra-operatively achieve excellent weight loss without prohibitive complication rates.

P-108

SHORT-TERM OUTCOMES OF LAPAROSCOPIC SLEEVE GASTRECTOMY IN THE BARIATRIC POPULATION AGED >65 AT BARIATRIC SURGERY CENTERS OF EXCELLENCE (BSCOE'S): A BOLD DATA ANALYSIS

Robin Blackstone³, MD, FASMBS; Deborah Winegar², MD; Bintu Sherif², John Morton¹, MD, FASMBS
1. Surgery, Stanford University, Stanford, CA, USA
2. SRC, Raleigh, NC, USA

3. Scottsdale Bariatric Center, Scottsdale, AZ, USA

Background: Laparoscopic sleeve gastrectomy (LSG) is becoming increasingly used as an alternative primary operation for weight loss in high-risk patients. We examined the short-term outcomes of LSG in patients aged > 65 at BSCOES.

Methods: BOLD was used to identify 14,476 patients who underwent bariatric surgery between Jun 2007 and Dec 2010 and were aged > 65. Descriptive statistics were summarized for patient demographics, preoperative characteristics and 30-day safety outcomes.

Results: Compared to younger LSG patients, those aged >65 were more often male (39.9% vs 25.4%), had a higher prevalence of diabetes (47.2% vs 22.2%), hypertension (73.8% vs 43.7%), and CHF (6.0% vs 1.7%) and a history of VTE (4.8% vs 2.5%). Patients aged > 65 undergoing LRYGB had a similar risk profile as older LSG patients. The 30-day mortality rate for older LSG patients was higher than that of younger LSG patients (0.39% vs 0.07%) as was the rate of serious complications (1.54% vs 0.95%), however both rates were lower than that seen in older LRYGB patients (0.50% and 2.84%, respectively).

Conclusion: Comparatively, LSG patients aged > 65 experienced higher short-term morbidity and mortality than gastric band patients although less than older LRYGB patients. The LSG offers a potentially safer alternative to LRYGB in patients aged > 65

	LRNYGB (6170)	Gastric Band (7787)	Sleeve Gastrectomy (519)
%, 30 Day Mortality	0.5	0.9	0.39
%, 30 Day Serious Complications	2.84	0.71	1.45
%, 30 Day Readmissions	5.36	2.16	2.31
%, 30 Day Reoperations	2.8	1	1.35

P-109

IMPROVEMENT IN HIGH SENSITIVITY C-REACTIVE PROTEIN FOLLOWING BARIATRIC SURGERY

Robert L. Powell¹, MD; John James¹, MD; Breana Mitchell¹, MS; Kevin Rothchild¹, MD; Jonathan A. Schoen¹, MD
1. University of Colorado Hospital, Aurora, CO, USA

Background: Obesity is a state of chronic low-grade inflammation and this is likely the association with cardiovascular disease. High sensitivity C-reactive protein (hs-CRP) is a sensitive marker for systemic inflammation. An elevated level of hs-CRP has also been recognized as a strong predictor of future cardiovascular events. Previous studies have shown a decrease in hs-CRP after surgical weight loss procedures; however, this data is limited by underpowered databases with relatively short-term follow-up. Some of these studies also utilized outdated operations, such as vertical-banded gastroplasty.

Methods: In this study, we report hs-CRP levels following weight loss surgeries at a single institution. In a retrospective review of a prospectively collected database, we evaluated 511 consecutive patients over a six year period after laparoscopic Roux-en-Y gastric bypass (412), laparoscopic adjustable gastric band (85) and sleeve gastrectomy (14). The normal range for hs-CRP is 0.000-0.500 mg/dL.

Results: The median pre-operative hs-CRP level was 0.950 mg/dL. Median post-operative hs-CRP levels were measured at 6 months (0.561), 12 months (0.307), 18 months (.129), 24 months (.209), 36 months (.367), 48 months (.187), and 60 months (.164). There was no statistical difference demonstrated in hs-CRP levels based on the specific weight loss surgery.

Conclusion: Based on these results it can be inferred that effective surgical weight loss is associated with a sustained, decreased level of systemic inflammation and an overall improvement in cardiovascular health.

P-119

IMPROVEMENT IN GERD SYMPTOMS FOLLOWING VARIOUS BARIATRIC PROCEDURES: REVIEW OF THE BARIATRIC OUTCOMES LONGITUDINAL DATABASE

Pradeep Pallati¹, MBBS; Abhijit Shaligram¹; Avishai Meyer¹, MD; Anton Simorov¹; Valerie K. Shostrom²; Corrigan McBride¹, MD, FASMB; Dmitry Oleynikov¹, MD; Matthew R. Goede¹, MD

1. *Surgery, University of Nebraska Medical Center, Omaha, NE, USA*

2. *Biostatistics, University of Nebraska Medical Center, Omaha, NE, USA*

Background: The prevalence of gastroesophageal reflux (GERD) in the morbidly obese population is as high as 45%, and various bariatric procedures are known to result in improvement of GERD symptoms.

Methods: The Bariatric Outcomes Longitudinal Database is a prospective database of patients who undergo bariatric surgery by a participant in the ASMBS Bariatric Surgery Center of Excellence program. GERD is graded on a 6-point scale (0 –No history of GERD to 5- prior surgery for GERD). Patients with GERD severe enough to require medications (Grades 2, 3 & 4) from June 2007 to December 2009 are identified; the resolution of GERD is noted based on 6-month follow-up.

Results: Of total 116,136 patients, 36,938 patients had evidence of GERD preoperatively, and 26,749 patients were available for greater than 6-month follow-up. Mean age was 48 ± 11.1 years with 82.7% female population. Mean BMI was 46 ± 7.9 kg/m². Mean pre-op GERD score for patients with Roux-en-Y gastric bypass was 2.80 ± 0.56 and post-op score was 1.33 ± 1.41 ($p < .0001$). Similarly, adjustable gastric banding (2.77 ± 0.57 to 1.62 ± 1.39 , $p < .0001$) and sleeve gastrectomy (2.83 ± 0.58 to 1.85 ± 1.42 , $p < .0001$) had significant improvement in GERD score.

However, GERD score improvement is most in Roux-en-Y gastric bypass patients (56.5%; 8,645/15,307) followed by adjustable gastric banding (46.5%; 5,011/10,766) and sleeve gastrectomy patients (41.7%; 282/676).

Conclusion: All common bariatric procedures improve GERD. Roux-en-Y gastric bypass is superior to adjustable gastric banding and sleeve gastrectomy in improving GERD. Contrary to popular belief, sleeve gastrectomy does improve GERD in significant number of patients.

P-124

MULTIMODAL ANALGESIA (TNT – TYLENOL AND TORADOL) REDUCES NARCOTIC CONSUMPTION AND DESATURATIONS IN PATIENTS UNDERGOING LAPAROSCOPIC GASTRIC BYPASS SURGERY: AN OBSERVATIONAL STUDY WITH HISTORIC CONTROL

Patrick Ziemann-Gimmel¹, MD; Priscilla Hensel², MS; John Koppman³, MD; Robert Marema³, MD, FASMB; Salam Abdo⁴, MD

1. *Coastal Anesthesiology Consultants, St. Augustine, FL, USA*

2. *Anesthesiology, University of Illinois, Chicago, IL, USA*

3. *US Bariatrics, St. Augustine, FL, USA*

4. *Life Institute, St. Augustine, FL, USA*

Background: The incidence of morbid obesity is increasing and has led to an increase in bariatric procedures (Ahmad et al., 2008). Morbidly obese patients commonly suffer from OSA. Patients with OSA are vulnerable to the respiratory depressant effect of narcotics (Frey et al. 2003). The purpose of this study was to determine if a multimodal analgesic regimen reduces postoperative narcotic requirements in patients after laparoscopic gastric bypass. This is an observational study comparing postoperative narcotic requirements in patients treated with PCA (PCA group) versus patients treated with a multimodal approach TNT group (Tylenol and Toradol).

Methods: The data was collected from 7/2010-02/2011 in the PCA group (n=89) and from 3/2011-9/2011 (ongoing) in the TNT group (n=69). All patients scheduled for laparoscopic gastric bypass surgery were enrolled and managed according to our routine clinical protocol. The clinical protocol remained unchanged during the study period.

Patients with known OSA were encouraged to use their CPAP perioperatively. All patients received oxygen via nasal cannula and were monitored with continuous pulse oximetry and EKG. Narcotic consumption was recorded during the first 24 hours starting in PACU.

Results: PCA and TNT group were comparable based on clinical characteristics. The PCA group used 6.19mg hydromorphone in the first 24 hours. The TNT group received a total of 2.60mg hydromorphone. We found that patients receiving a multimodal analgesic regimen (TNT) consumed 58.0% less narcotic medication than patients treated with a PCA. During the first postoperative night patients in the TNT group showed a reduction of desaturations of 30.16%.

Conclusion: This study demonstrates that a multimodal analgesic regimen can reduce postoperative narcotic consumption. This reduction may have led to a reduction in desaturations.

P-133

PREOPERATIVE TIPS USED SUCCESSFULLY IN PATIENTS WITH PORTAL HYPERTENSION UNDERGOING BARIATRIC SURGERY

James V. Siatras¹, DO; Kate Ziegler¹, MD; Daniel Mwanza¹, DO; Don J. Selzer¹, MD; Samer G. Mattar¹, MD, FASMBS

1. General Surgery, Indiana University School of Medicine, Indianapolis, IN, USA

Background: Portal hypertension in morbidly obese patients has traditionally been an absolute contraindication to bariatric surgery, rendering them with no life-saving options. The main concern in these patients has been the high risk of intra-operative exsanguination from dilated venous collaterals and/or death from lack of hepatic functional reserve. Because transjugular intrahepatic portosystemic shunt (TIPS) has successfully reduced portal pressure in end-stage liver disease, we incorporated this modality in our morbidly obese preoperative patients with portal hypertension. This is an account of our experience with this method.

Methods: A retrospective chart analysis of all patients who had undergone laparoscopic Roux-en-Y gastric bypass (LRYGBP) or laparoscopic sleeve gastrectomy (LSG) following TIPS procedure was done. Data collected and analyzed included demographic information, pre and post TIPS portal pressure, % excess weight loss (%EWL), BMI loss, operative details, complications, and transplant candidacy and outcome.

Results: Four patients (all males) with portal hypertension underwent bariatric surgery following TIPS for esophageal or gastric varices. One patient underwent LRYGBP, and three underwent LSG. Mean follow-up was 14 months (range 8-18), %EWL for LRYGBP was 47%, and mean %EWL for LSG was 47.6%. Two patients went on to successful liver transplant. One patient died from septic shock 20 months after bariatric surgery, and one patient continues to be successfully managed at one year follow-up.

Conclusion: Our study provides evidence that RYGB and LSG can be safely performed following TIPS procedure in patients with portal hypertension. The dramatic decrease in BMI and improvement of comorbidities allowed for successful liver transplantation in two of these patients.

P-143

THE LIVERPOOL PROTOCOL FOR PERIOPERATIVE CESSATION OF DIABETIC MEDICATION IN PATIENTS UNDERGOING BARIATRIC SURGERY IS SAFE AND EFFECTIVE

Duncan Stewart¹; Conor Magee¹, MD, FRCS; Haris Khwaja¹, MD, PhD; Andrew Mitchell¹; David D. Kerrigan¹, MD

1. Gravitas, Liverpool, UNITED KINGDOM

Background: Foregut excluding bariatric surgery has a profound effect on type-2 diabetes (T2DM) with many patients achieving euglycaemia before discharge and without weight loss. There are no consensus guidelines to manage diabetic medication reduction and cessation. Is a protocol for to rapidly stop diabetic medication after bariatric surgery safe and effective?

Methods: Prospective study of a protocol aimed at rapid medication cessation. Protocol was agreed by an expert group of surgeons, anaesthetists and endocrinologists. Patients undertook strict home monitoring of glucose with 24-hour access to the bariatric team if hyperglycaemia was encountered. Patients were seen at 10 days post-op and medication reviewed. Patients were then reviewed at 3 monthly intervals.

Results: 46 patients followed the protocol (26 female). Median age, BMI and duration of diabetes were 53 years, 47kgm-2 and 6 years respectively. 32% of patients were taking insulin pre-operatively. 39% were on metformin monotherapy. Mean HbA1c pre-operatively was 7.8%. 84% of patients were euglycaemic and off medication at discharge. Mean fasting blood glucose in the week following discharge was 7.4mmol/L, but five patients (11%) restarted treatment at ten days due to glucose >10mmol. Despite this, paired HbA1c reduced by 1.5% at 9 months following surgery (p<0.001). Two adverse events were encountered: one patient who developed severe acute pancreatitis with hyperglycaemia/acidosis and one patient who was non-compliant with the protocol and required hospital admission.

Conclusion: The Liverpool diabetic protocol is safe, effective in guiding discontinuation of diabetic medication. Euglycaemia following surgery may be transient and is not true remission and the monitoring protocol allows the reintroduction of medication.

P-145

CLINICAL TRIAL OF GASTRIC BYPASS OR ADJUSTABLE GASTRIC BAND VS. INTENSIVE MEDICAL AND WEIGHT MANAGEMENT IN OBESE PATIENTS WITH TYPE 2 DIABETES: RECRUITMENT STRATEGY AND FEASIBILITY OF RANDOMIZATION

David B. Lauitz¹, MD; Marlene Wewalka², MD; Donald Simonson¹, MD, MPH; Florencia Halperin¹, MD; Ann Goebel-Fabbri²; Katherine Corso¹; Kerri Clancy¹, RN, CCRP, CBN; Allison Goldfine², MD

1. Surgery, Brigham and Women's Hospital, Boston, MA, USA

2. Medicine, Joslin Diabetes Center, Boston, MA, USA

Background: The acquisition of randomized trial data remains the next critical step in evaluating the feasibility of metabolic surgery in patients with type 2 diabetes (T2DM).

Methods: We initiated an NIH and industry co-sponsored prospective randomized clinical trial comparing the effectiveness of either laparoscopic Roux-en-Y gastric bypass (LRYGB) or laparoscopic adjustable gastric band (LAGB) vs. an intensive medical diabetes and weight management (IMWM) program in subjects with T2DM and BMI of 30-42 kg/m² [clinicaltrials.gov NCT01073020]. We report our ability to recruit for a trial with such diverse interventions.

Results: To date, 885 potential subjects have undergone phone screening, of which 162 subsequently attended a clinical trial orientation session. Of those, 96 subjects underwent full medical screening (age = 50±7 yrs, 62.5% female, 63.5% Caucasian, BMI = 36.1±3.7 kg/m², diabetes duration = 10±6.2 yrs, 52% insulin users, HbA1c = 8.3±1.4%), and 55 were subsequently randomized. The most common reasons for screen failure were exclusionary BMI, age, HbA1c, or medical conditions; and subject treatment preference. Eligible subjects were allowed to choose the surgical procedure that they would prefer and then randomized to that procedure or IMWM. All subjects had a preference for procedure type. Forty-one have been randomized to LRYGB vs. IMWM, filling this stratum; while 14 have been randomized to LAGB vs. IMWM.

Conclusion: 1) a randomized trial of bariatric surgery vs. lifestyle intervention is feasible in the U.S. population, 2) patient procedure preference is common, and 3) innovative trial designs are needed to accommodate patient preference for surgical procedure.

P-146

SLEEVE GASTRECTOMY WITH ENTERAL BYPASS (SGEBP) FOR THE TREATMENT OF TYPE 2 DIABETES IN PATIENTS WITH BMI <35. A PROSPECTIVE COHORT STUDY

Munir Alamo¹, MD; Matias Sepulveda², MD; Jose Gellona³, MD; Mauricio Herrera⁴

1. Surgery, Hospital Dipreca, Santiago, CHILE

2. Diego Portales University, Santiago, CHILE

3. Andres Bello University, Santiago, CHILE

4. Surgery, Hospital Base, Osorno, CHILE

Background: The objective is to evaluate the Sleeve Gastrectomy with Enteral Bypass (SGEBP) as a surgical technique for the treatment of Type 2 Diabetes (T2D) in patients with BMI <35.

Methods: Prospective cohort study. Patients with body mass index <35 kg/m² and T2D underwent a SGEBP between February 2004 and August 2010 at DIPRECA Hospital, in Santiago, and Hospital Base, Osorno, Chile. SGEBP consists in creating a gastric tube preserving pylorus and then performing a jejunum-ileal anastomosis 300 cm distal to the Treitz angle. Weight loss, complete and partial resolution of T2D is reported. The statistical analysis was made with the Stata Software

Results: 49 patients matched the inclusion criteria with a mean age of 49 (36-62) years and 53% female. Preoperative BMI was 31.6 kg/m² (25-34.9). Surgical time was 123±14 min. In 94.7% of cases, laparoscopic approach was utilized. Postoperative stay was 2 days. The follow up was 12 months. The median excess weight loss

% at 1, 3, 6, 12 and 18 months was 31.9%, 56.9%, 76.1%, 81.5% and 76.1% respectively. Complete resolution (CR) of T2D was achieved in 81.6% (40/49) and partial resolution (PR) in the other nine (18.4%). We observed that 40 of 41 patients on oral hypoglycemic agents (97.6%) achieved CR, whereas 100% of insulin dependant patients were off insulin but still on some kind of medical treatment. One patient presented a postoperative gastrointestinal bleeding, and no mortality.

Conclusion: SGEBP is safe and effective technique in terms of resolution of T2D in patients with BMI <35

P-163

REVISIONAL BARIATRIC SURGERY – IS IT WORTH THE WEIGHT?

Lucian Panait¹, MD; Elise Liu¹, BS; Kurt Roberts¹, MD; Andrew J. Duffy¹, MD; Robert L. Bell¹, MD

1. Surgery, Yale School of Medicine, New Haven, CT, USA

Background: Revisional bariatric surgery is performed for two disparate indications, either weight recidivism (behavioral component) or development of postoperative complications (anatomic component). We sought to compare the postoperative outcomes of these two categories of patients, and evaluate results of revisional operations in contrast with patients who undergo laparoscopic Roux-Y gastric bypass (LRYGB) as a primary weight-loss operation.

Methods: Data regarding patients who underwent LRYGB and revisional bariatric surgery by a single surgeon at our institution between 2002-2010 were entered into a longitudinal database. Excess weight loss at 1 year (EWL) and compliance with the 1 year follow-up appointment were compared between the LRYGB patients and the revisional patients. Additionally, compliance and EWL were compared between the anatomical and behavioral revisional sub-groups.

Results: 715 patients who underwent LRYGB and 60 patients who underwent revisional bariatric surgery were eligible for inclusion. The average BMI in the 2 groups was 50.4 and 41.7 kg/m², respectively. Compliance with the 1 year postoperative visit was 78% for the LRYGB patients and 50% for the revisional patients (p<0.05). Compliance in the anatomic revisional group was 41% and in the behavioral group 65% (p-NS). The average EWL in the LRYGB group and in the revisional behavioral group was 64.7% and 53.1%, respectively (p<0.05).

Conclusion: Although patients who undergo revisional bariatric surgery are generally a non-compliant population, no significant compliance patterns are encountered between the groups with a behavior or anatomic component. Following revisional surgery, patients with behavioral component still achieve successful weight loss, but compare less favorably with patients who undergo LRYGB as primary weight loss procedure.

P-167

MEDIUM TERM RESULTS OF LAPAROSCOPIC SLEEVE GASTRECTOMY AFTER REMOVAL OF ADJUSTABLE GASTRIC BANDING IN A 50 PATIENT COHORT.

Pierre Fournier¹, MD; Arapis Konstantinos¹, MD; Lara Ribeiro-Parenti¹, MD; Denis Chosidow¹, MD; Jean-Pierre Marmuse¹, MD

1. Bichat-Claude Bernard University Hospital, Paris, FRANCE

Background: Laparoscopic adjustable gastric banding (LAGB) is a safe and efficient procedure, but the long term failure percentage is around 20%.

The aim of this study is to confirm the feasibility and medium term safety of conversion from LAGB to sleeve gastrectomy when LAGB fails or causes complications.

Methods: A retrospective study was made from a prospective monocentric database. Mean follow-up was 25 months.

Results: Between May 2004 and December 2010, our team performed 50 laparoscopic conversions from LAGB to sleeve gastrectomy. 41 (82%) patients were women, 9 (18%) were men. The mean age was 44.1 years ± 3.3 [20-68]. The mortality rate was 0%. The morbidity rate was 4%. There were no fistula. One retrogastric hematoma required a conversion to gastric by-pass. One wound infection on the 5th postoperative day was treated medically. The mean initial body mass index (BMI) was 48.12 ± 4.28 kg/m² (32.9-80.3). The mean BMI were 41.8 ± 4.7 kg/m² after 1 year, 45.09 ± 5.9 kg/m² after 2 years, and 49.98 ± after 3 years of follow-up. The percentage of excess weight loss

(%EWL) was 50.62%, 47.72 %, and 43.6% after 1, 2 and 3 years. A better one year follow-up result was obtained for patients with an initial BMI < 50% (p<0.0001).

Conclusion: The conversion from LAGB to sleeve gastrectomy when LAGB fails or causes complications was safe, there were no fistula.

P-177

ILEAL INTERPOSITION X ILEAL TRANSPLANTATION. THE NEURAL SIGNALIZATION MAKE DIFFERENT ?

Cid A. Pitombo¹, MD, MS, PhD; Cicero A. Pitombo², PhD; Nadia V. Almosny² PhD

1. Obesity and Metabolic Surgery, Achilles Institute, Rio de Janeiro, RJ, BRAZIL

2. Veterinary Medical School, Federal Fluminense University, Niterói, Rio de Janeiro, BRAZIL

Background: Ileal interposition (IT) is a surgical model that isolates the effects of increasing delivery of unabsorbed nutrients to the lower gastrointestinal tract. In this study we investigated effects of IT surgery on glucose tolerance and diabetes onset in dogs, model of type 2 diabetes, with two different surgical approach: IT and Ileal transplantation (ITr).

Methods: The IT procedure was performed in 6 animals and ITr in other six. All animals had the diagnosis of T2DM and evidence of stable treatment with oral hypoglycemic agents and or insulin for at least 12 months. Insulin therapy was used by 44% of the animals. All animals underwent oral glucose tolerance testing (OGTT) and GLP1, PYY . A subset was followed until diabetes onset and underwent oral fat tolerance testing (OFTT).

Results: IT surgery, 95.7% of the patients achieved adequate glycemic control (HbA1c < 7%) without antidiabetic medication compared with ITr surgery without a difference in body weight. During OGTT, IT-operated animals exhibited lower plasma glucose excursions (P < .05), improved early insulin secretion (P < .01), and 3-fold larger plasma glucagon-like peptide-1(7–36) excursions (P < .001), compared with ITr-operated animals. Total plasma peptide YY (PYY) and GLP-1 excursions during OFTT were 4-fold larger in IT-operated animals (P < .01).

Conclusion: IT was an effective operation in controlling T2DM in dogs may be related to increased nutrient-stimulated secretion of GLP-17–36 and PYY and improvements of insulin sensitivity, β -cell function, and lipid metabolism. ITr, probably despite the cut-off the neuronal signalization, remain the secretion of GLP-1 and the same level and the insulin sensitivity. A longer follow-up period is needed.

P-197

SLEEVE GASTRECTOMY COMPARES FAVORABLY TO GASTRIC BYPASS IN WEIGHT LOSS AND DIABETES RESOLUTION IN A COMMUNITY PRACTICE

Drake E. Bellanger¹, MD; Brooke E. Bayham², BS; Frank L. Greenway², MD; Andrew Hargroder¹, MD

1. Bariatric Surgery, St. Elizabeth Hospital, Gonzales, LA, USA

2. Clinical Research, Pennington Biomedical Research Center, Baton Rouge, LA, USA

Background: Laparoscopic Sleeve Gastrectomy (LSG) is becoming a viable option as a primary treatment for morbid obesity, and some reports have suggested an immediate and hormonal effect in improving diabetes mellitus. Our practice has seen such an effect clinically, and wanted to compare results of the LSG with our Laparoscopic Gastric Bypass (LGBP) procedure.

Methods: The charts of 1601 patients (835 LGBP, 766 LSG) between 2002 and 2010 were reviewed, of these, data was collected on 123 LGBP and 139 LSG patients with diabetes. Follow-up data was available for 52 of LGBP and 70 of LSG patients greater than 2 months post operatively. Diabetes resolution was determined by cessation of diabetes treatment medications. Weight loss was measured by percent change in Excess BMI (%EBMIL).

Results: In the immediate post-operative period (<2 months), diabetes resolved in 77.2% of LGBP and 77.0% of LSG patients (p=NS). Diabetes medication cessation was maintained in 79% of LGBP and 83% of LSG patients at 2 months. Weight loss, measured by %EBMIL, was 41.5, 64, 87.6, and 78.1 for the LGBP and 41.7, 48.4, 78.5, and 79 for the LSG patients at 3, 6, 12, and 24 months respectively.

Conclusion: In our practice, the LSG compared favorably with the LGBP in both weight loss and diabetes resolution in the short-term. Greater, and more accurate follow-up data in needed.

COMBINED LIVER TRANSPLANT PLUS SLEEVE GASTRECTOMY FOR PATIENTS WITH REFRACTORY OBESITY AND END-STAGE LIVER DISEASE

James M. Swain¹, MD, FASMBS; Kymberly Watt³, MD; Julie Heimbach², MD

1. Surgery, Mayo Clinic, Rochester, MN, USA

2. Transplantation, Mayo Clinic, Rochester, MN, USA

3. Medicine, Mayo Clinic, Rochester, MN, USA

Background: Obesity affects nearly 1/3 of the US population, is prevalent in patients with end-stage liver disease, and has deleterious effects post liver transplant (LT). Non-alcoholic steatohepatitis (NASH) is the fastest increasing segment of patients requiring LT. The aim of the present study is to determine the effectiveness of a combined LT plus sleeve gastrectomy (SG) for obese patients with end-stage liver disease who were unsuccessful with pre-transplant weight loss.

Methods: All patients who were listed for transplant after January 1, 2006 at our center with a BMI >35 were enrolled in an aggressive pre-transplant obesity protocol. 5 patients unsuccessful with medical weight loss (defined as achieving pretransplant BMI<35) and who had a MELD high enough to attain access to transplantation underwent a combined LT plus SG. After successful LT and patient stability was assured, the SG was performed.

Results: All 5 patients are alive with normal allograft function at a mean of 10 months from transplant (range 4-20 months). All 5 patients have lost significant weight (see table 1), with acceptable operative times and post-operative stays. All are maintained on our standard immunosuppression with acceptable trough levels. To date, one patient has developed an episode of steroid resistant rejection, successfully treated with Thymoglobulin.

Conclusion: Combined LT and SG provides effective weight loss, with excellent patient and graft survival in the short-term. Longer-term follow-up is essential to determine overall safety and efficacy of this combined approach.

Patient	Diagnosis	MELD at LT	BMI at LT	OR time (hr:min)	LOS (days)	BMI 4 mo post	Current BMI	Complication
57 M	NASH	26	45	4:12	16	28	24	Late HAT, normal allograft
55 F	HHT	25	48	4:18	8	40	35	Steroid resistant rejection
53 F	NASH	27	39	4:16	8	28	28	none
54 F	NASH	40	51	5:04	8	32	32	none
48 M	AIA deficiency	40	52	4:55	13	30	30	none

LAPAROSCOPIC VERTICAL SLEEVE GASTRECTOMY VS LAPAROSCOPIC ROUX-EN-Y-GASTRIC BYPASS: SINGLE CENTER EXPERIENCE WITH 1 YEAR FOLLOW-UP

Maher El Chaar¹, MD, FASMBS; Leonardo Claros¹, MD, FASMBS; Maureen Miletics¹, RN, BSN, MS; Jill Stoltzfus¹, MD

1. St Luke's Hospital and Health Network, Allentown, PA, USA

Background: Laparoscopic Sleeve Gastrectomy (LSG) is a new bariatric procedure that is gaining wide acceptance. However, Laparoscopic Roux-en-Y-Gastric Bypass (LRYGB) remains the gold standard and the most commonly performed procedure in the United States. There are few studies comparing LSG and LRYGB. The aim of this study is to compare the safety and outcome of LSG versus LRYGB in a center of excellence (COE).

Methods: All patients who underwent primary non-revisional laparoscopic bariatric surgery from September 2009 to June 2011 were analyzed. Patients who underwent gastric banding were excluded. 307 patients underwent either a LSG or LRYGB and were included in our study. LSG were performed using a 36 French bougie. LRYGB were performed with a 25mm circular stapler. Demographics included age, gender, race and preoperative BMI. Primary outcomes were Length of Stay (LOS), 30-day mortality, complication, reoperation and readmission rates and also % Excess Weight loss (%EWL) at 3,6 and 12 months. Secondary outcomes were operative time and blood loss.

Results: Among the 307 patients, 203 (66%) underwent LRYGB and 104 (34%) underwent LSG. Our results are

shown in tables 1 and 2. We had no mortality in our series. LOS was 30.9 and 31.6 hrs for LSG and LRYGB respectively ($P>0.05$). LSG patients had a lower 30-day complication, reoperation and readmission rates compared to LRYGB but the difference was not statistically significant. LSG had a significantly lower %EWL at 6 and 12 months. In addition, LSG patients had a shorter operative time (84.4 min vs 106.6 min, $P<0.05$).

Conclusion: LSG seems to have a better safety profile in the short term compared to LRYGB. However, at 1 year, LRYGB patients achieve a significantly higher EWL compared to LSG patients. Randomized clinical trials are needed to better elucidate our findings.

Demographics

	Age	Gender	Race	BMI
LRYGB (n=203)	44.45	Females 81% Males 19%	White 79.3% Non-White 20.7%	47.2
LSG (n=104)	47.03	Females 78.8% Males 21.2%	White 85.6% Non-White 14.4%	44.3
P-Value	0.05	0.61	0.001	<0.0001

BMI: Body Mass Index. $p<0.05$ denotes statistical significance

Primary Outcome Measures

	LOS (hours)	30-day complication rate	30-day mortality rate	30-day readmission rate	30-day reoperation rate	% EWL 3 months	% EWL 6 months	% EWL 12 months
LRYGB (n=203)	31.68	7/203 (3.4%)	0/203	9/203 (4.4%)	3/203 (1.5%)	44%	64%	73%
LSG (n=104)	30.92	0/104	0/104	3/104 (2.9%)	0/104	43%	49%	55%
P-value	0.81	0.06	N/A	0.51	0.21	0.26	<0.0001	<0.0001

LOS: Length of Stay. EWL: Excess Weight Loss. $p<0.05$ denotes statistical significance.

P-214

LAPAROSCOPIC SLEEVE GASTRECTOMY AS A PRIMARY OPERATION FOR MORBID OBESITY: EXPERIENCE WITH 300 PATIENTS

Paolo Gentileschi¹, MD

1. University of Rome Tor Vergata, Rome, ITALY

Background: Laparoscopic sleeve gastrectomy (LSG) represents a valid option for morbidly obese patients, either as a primary or as a staged procedure. The aim of this paper is to report my six-years experience with LSG as a standalone operation for morbid obesity.

Methods: From April 2005 to September 2011, 300 patients were submitted to LSG for morbid obesity. Each patient record was registered and prospectively collected. In October 2011, a retrospective analysis was conducted.

Results: Patients were 188 females and 112 males with a mean age of 44.8 years (range, from 16 to 65 years). Mean pre-operative BMI was 49.2 kg/m² (range, from 40 to 78 kg/m²). Mean follow-up was 36.2 months (range, from 1 to 72 months). Mean post-operative BMI was 30.4 kg/m² (range, from 25 to 37 kg/m²). Mean %excess weight loss (%EWL) was 64.4%. Mean post-operative hospital stay was 3.5 days (range, from 2 to 62 days) in the first 84 cases and 3.2 days (range, from 2 to 28 days) in the last 216 cases. We observed 9 major post-operative complications (3%): two gastric stump leaks (0.6%), 5 major bleedings (1.6%) and 2 (0.6%) bowel obstruction. One case of mortality was registered (0.3%). Apart from 12 patients who have a short follow-up, to date only 4 patients are still in the range of morbid obesity (BMI>35 kg/m²).

Conclusion: Laparoscopic sleeve gastrectomy is a formidable operation in terms of weight loss in the short-term period. Mean %EWL in this series was 64.4% at 36.2 months follow-up.

PULMONARY EMBOLISM AFTER BARIATRIC SURGERY: ANALYSIS OF RESULTS OF A CLINICAL PATHWAY IN 1,584 PATIENTS

Collin E. Brathwaite¹, MD, FASMBS; Keneth Hall¹, MD; Alexander Barkan¹, MD; Elizabeth Schledorn¹, RN, MSN, CNOR, CBN; Barbara M. Brathwaite¹, MSN, RN; Karen Norowski¹, RN, CBN

1. Surgery, Winthrop University Hospital, Mineola, NY, USA

Background: Pulmonary embolism (PE) is a leading cause of death after bariatric surgery. Apart from the general use of prophylactic measures, no universally accepted protocol exists for the peri-operative management of these patients. The purpose of this study was to assess the results of application of a clinical pathway in an ASMBS designated Center of Excellence.

Methods: We reviewed our prospectively collected database for a 7-year period ending June, 2011. By the pathway, all patients receive subcutaneous heparin prior to anesthesia induction, and post-operatively, along with pneumatic compression devices on bilateral lower extremities intra-operatively and when not ambulating post-operatively. Patients are aggressively ambulated within 3-4 hours of extubation and every 3-4 hours while in the hospital. Patients with Body Mass Index (BMI) greater than 50 Kg/m² are discharged on enoxaparin, 40 mg subcutaneously twice daily for 2 weeks. Those with BMI >60 are additionally treated with an inferior vena cava filter. All patients, including revisions were studied. Thromboembolic complications at 90 days post-op were noted.

Results: 1,584 patients were treated in this period, with a mean age of 45 years (range 16-78). Mean BMI was 46 Kg/m², (range 18-86). Most patients, 76%, (n=1,201) were female. Major surgical categories included laparoscopic Roux-en-Y gastric bypass (769); robotically assisted gastric bypass (102); laparoscopic gastric banding (625) as well as various revisional procedures. There were no deaths. Only two patients (0.1%) were found to have PE.

Conclusion: This clinical pathway appears to be associated with a very low risk of PE. Validation studies are warranted.

EFFICACY OF DRAIN FLUID AMYLASE LEVEL TO DETECT STAPLE LINE/ ANASTOMOTIC LEAK AFTER SLEEVE GASTRECTOMY OR ROUX-EN-Y GASTRIC BYPASS

Pradeep Pallati¹, MBBS; Avishai Meyer¹, MD; Abhijit Shaligram¹; Matthew Goede¹, MD; Dmitry Oleynikov¹, MD; Corrigan McBride¹ MD, FASMBS;

1. University of Nebraska Medical Center, Omaha, NE, USA

Background: Leaks from the staple line/gastrojejunal anastomosis after bariatric procedures are associated with significantly increased morbidity and mortality. Though upper gastrointestinal contrast (UGI) x-rays detect these leaks, they are inconsistent and not cost-effective. Drain fluid amylase levels are shown to be a sensitive and specific marker for identifying early leaks.

Methods: Fluid amylase levels from a drain, placed adjacent to staple line/gastrojejunal anastomosis of gastric bypass or sleeve gastrectomy, were measured routinely after primary or revisional bariatric procedures since June 2006. Reoperation, CT scan or UGI x-ray confirmed leaks.

Results: Of 188 identified patients, sleeve gastrectomy was performed in 41 and revisional procedures in 29 patients. Eight patients had postoperative leaks (4.3%); 2.5% in primary cases and 13.8% in revisional cases. Drain amylase was >300 IU/L in all but one patient. A drain amylase of >300 IU/L empirically defines staple line leaks with sensitivity of 85.7% and specificity of 96.1%. The negative predictive value of drain amylase level <300 IU/L in excluding leak was 99.4%, while the positive predictive value of drain amylase >300 was 46.2%. None of these leaks were identified by UGI studies. Six patients were managed operatively. There was no peri-operative mortality. Seven patients without anastomotic leaks had drain amylase levels >300 IU/L. One patient had negative laparotomy; the rest had benign clinical presentation with decreasing trend of drain amylase level.

Conclusion: Drains placed during gastric bypass or sleeve gastrectomy can be used to check fluid amylase level with high sensitivity and specificity for staple line/gastrojejunal anastomosis leak.

NATIONAL TRENDS IN UTILIZATION AND OUTCOMES OF BARIATRIC SURGERY IN THE ERA OF MINIMALLY INVASIVE SURGERY

Avishai Meyer¹, MD; Abhijit Shaligram¹; Pradeep Pallati¹, MBBS; Anton Simorov¹; Vishal Kothari¹, MD; Corrigan McBride¹, MD, FASMBS; *Dmitry Oleynikov¹, MD*

1. University of Nebraska Medical Center, Omaha, NE, USA

Background: The application of minimally invasive surgery techniques in the morbidly obese population has dramatically increased over the past decade. This study examines the changing trends in utilization and outcomes of bariatric surgery in the U.S. during this period.

Methods: Data from the Nationwide Inpatient Sample was evaluated. International Classification of Disease (ICD-9-CM) codes were used to identify all bariatric procedures performed in adults (18 and older) from 2000 to 2009. Population-based rates of surgery for each year were calculated by applying U.S. Census data. Outcomes including average age of patient, length of stay (LOS), specific operation performed, operative region, and mortality were analyzed.

Results: From 2000 to 2009, the national annual rate of bariatric surgery increased from 14 to 53 per 100,000 adults ($p < 0.0001$). There is an increasing trend in the average age of patients undergoing bariatric surgery. In-hospital mortality declined significantly from 2.08% in 2000 to 0.60% in 2004 ($p=0.0001$). LOS has declined from 6.8 days in 2000 to 2.7 days in 2009. Mortality has remained stable over the past five years.

Conclusion: The annual rate of bariatric surgery in the U.S. increased over three fold between 2000 and 2009. Additionally, the average age of patients undergoing bariatric procedures has steadily increased. A significant decline in mortality, noted from 2000 to 2004, remained stable for the next five years. LOS continued to decline between 2000 and 2009. These trends appear to be driven by improvements in safety and applicability of minimally invasive techniques in bariatric surgery.

HANDSEWN TECHNIQUE REDUCES DUODENOILEAL STENOSIS AFTER LAPAROSCOPIC BILIOPANCREATIC DIVERSION WITH DUODENAL SWITCH (LBPD-DS)

Stefane Lebel¹, MD; *Fady Moustarah¹, MD, MPH*; Laurent Biertho¹, MD; Frederic-Simon Hould¹, MD; Simon Marceau¹, MD; Odette Lescelleur¹, MD; Simon Biron¹, MD

*1. Chirurgie General, IUCPQ (Hopital Laval)
Universite Laval, Quebec, Quebec, CANADA*

Background: We hypothesized that creating a handsewn duodenoileal anastomosis during a LBPD-DS would result in a reduced rate of postoperative stenosis compared with our circular stapler technique.

Methods: Patients who underwent a complete LBPD-DS were divided into two groups based on the type of duodenoileal anastomosis: 21mm circular stapler (CS) vs. handsewn (HS). Technique video is available. Patient data was collected and analyzed. Continuous variables are reported as means±s.d. Chi-square was used for categorical variables and the relative risk (RR) was used as a measure of association.

Results: Between Nov 2006 and Sep 2011, 349 patients (285 F: 64M) underwent a complete LBPD-DS. The CS group included 254 patients (84% F) with a mean age of 40.0±11.6 yrs and mean BMI of 47.5±6.7 Kg/m² at the time of surgery. The handsewn technique was adopted in Dec 2010, and the HS group in this study constituted 95 patients (76% F) with a mean preoperative age and BMI of 40.9±9.6 yrs and 48.2±6.1 Kg/m² respectively. Gastroscopy was used to evaluate postoperative symptomatic patients, and the incidence of duodenoileal stenosis was noted to be 13.4% (34 patients) in the CS group and 1.1% (1 patient) in the HS group. 79% of stenosis was seen in the first three months after surgery. The observed reduction in stenosis rate is both clinically and statistically significant ($\chi^2= 10.3$; p -value: 0.001). The RR of stenosis in the HS group is 0.079, 95% CI [0.011; 0.566]. The risk of stenosis attributable to our stapled technique is estimated at 12.3%, which translates into a number needed to treat of only 8.1.

Conclusion: Stenosis of the duodenoileal anastomosis after LBPD-DS is a recognized complication. Through

careful observation of outcomes and surgical innovation, we significantly reduced our observed rate of duodenoileal stenosis during our study period.

P-249

DESCRIPTIVE STUDY FOR LEAK AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY

Napoleón Salgado¹, MD; José Salinas¹, MD; Ricardo Funke¹, MD; Fernando Crovari¹, MD; Fernando Pimentel¹, MD; Alex Escalona¹, MD; Alejandro Raddatz¹, MD; Allan Sharp¹, MD; Gustavo Pérez¹, MD; Camilo Boza¹, MD
1. Digestive Surgery, Catholic University of Chile, Santiago, Región Metropolitana, CHILE

Background: Leaks after laparoscopic sleeve gastrectomy (LSG) have a reported frequency of 0.8 to 3%. Technical and ischemic factors have been proposed for early and late presentation, respectively. The aim of this study is to analyze our experience in frequency, diagnosis and treatment of leaks after LSG.

Methods: A total of 1800 LSG cases were performed between August 2005 to September 2011. We analyzed demographic and anthropometric variables of all patients who presented with leakage after LSG. We described the clinical presentation, evolution, management and outcomes in these patients.

Results: Seven (0.4%) patients had a postoperative leak after LSG. There were six women; median age was 38 years old and two patients had a previous banding. Median diagnosis time was on postoperative day 13 (range 1-51). In all cases, a CT scan was used for diagnosis. All leaks were located close to the gastroesophageal junction. Initial treatment was early laparoscopic exploration, peritoneal toilet and drain placement with six patients. A covered expandable endoprosthesis was placed in five patients. In the remaining patient a combination of percutaneous collection drainage and endoprosthesis was performed. Two patients required endoscopic repositioning or relocation of the prosthesis, and one had an episode of intestinal obstruction due to migration of the prosthesis into the small intestine, which required surgical exploration for resolution. All the fistulas closed at a period of time from 10 to 180 days.

Conclusion: In our series the rate of leakage was very low. Minimally invasive management was the best option in these patients avoiding major surgery and morbidity.

P-251

INTERNAL HERNIA AND MESENTERIC DEFECTS AFTER RYGB. A DESCRIPTIVE STUDY.

Nicolás Quezada¹, MD; José Salinas¹, MD; Julio Cerda¹, MD; Ricardo Funke¹, MD; Fernando Pimentel¹, MD; Camilo Boza¹, MD
1. Digestive Surgery, Catholic University of Chile, Santiago, Región Metropolitana, CHILE

Background: Internal hernia (IH) is a common cause of bowel obstruction (BO) after Roux-en-Y gastric bypass (RYGB). There are scarce reports of the prevalence of open mesenteric defects without an established internal hernia on RYGB patients. The aim of our study was to describe the causes of BO following RYGB and to report the prevalence of mesenteric defects and IH in these patients.

Methods: Retrospective review of our prospectively collected electronic database. We included all patients presenting to the hospital for a BO after RYGB. A descriptive analysis in terms of causes of BO and prevalence of IH with computed tomography (CT) scan was performed.

Results: There were 102 patients, 80% female with a mean preoperative age of 39 years. Median time of presentation was 464 (range 7-2681) days. The most common cause of BO was IH (65%), the jejujo-jejunal mesenteric defect was the most frequent (77.2%). Others causes of BO were adhesions (9%), idiopathic (8%), stenotic jejunum-jejunal anastomosis (2%), fibrozoar (2%). All idiopathic cases had an opened mesenteric defect without an IH. Regardless of the cause of the BO, eighty six percent of the patients had an opened mesenteric defect, twenty two percent had two opened mesenteric defects and two patients had three opened mesenteric defects. CT scan for diagnosis of IH had a 50% sensitivity, 60% specificity, 70% positive predictive value and 30% negative predictive value.

Conclusion: IH was the most common cause of BO following RYGB. Considering that (1) the prevalence of opened mesenteric defects is high, regardless of the cause of BO; and (2) The CT scan had a low sensitivity and specificity

for diagnosis of IH, an abdominal exploration should always be considered in patients with a BO following a RYGB.

P-258

CONTINUOUS QUALITY IMPROVEMENT OVER 10 YEARS IN A COMMUNITY BARIATRIC SURGERY PROGRAM

Robin Blackstone¹, MD, FASMBS; Melisa C. Cortes¹, MA; Angelia Haynes¹, CST; Melissa M. Davis¹ MSN, APRN, BC, CNS, RNFA

1. Scottsdale Healthcare Bariatric Center, Scottsdale, AZ, USA

Background: Bariatric surgery procedures can be technically challenging and are often performed in patients with complex metabolic disease. Continuous quality improvement (CQI) has been shown to be an effective method of decreasing adverse events and may be ideal to achieve improved patient safety in surgical treatment of patients with obesity.

Methods: From November 12, 2001 through October 31, 2011 all obese patients undergoing bariatric procedures (n=3553), by a single surgeon were captured in a prospective longitudinal database. Planned CQI were implemented on a specific date and studied in the subsequent cohort to achieve the lowest possible mortality and morbidity. Impact of CQI on patient safety was reported annually. Contribution margin was examined to maximize value of the bariatric service line and facilitate planning.

Results: 74% of cases were primary gastric bypass or revisions and 53% of patients had a Metabolic Acuity Score (MAS) of 3 or 4. CQI included technical and process changes. For example, a change to hand-sewn gastrojejunostomy decreased stricture from 13.79% to 1.3% and saved over \$120,000 in supply cost. 30-day mortality is 0.13%, 30-day readmissions and reoperations are 4.4% and 0.4%. The average contribution margin per year was 54.03% generating \$108,511,498 in revenue for the facility over a 10 year period.

Conclusion: Bariatric surgeons who engage in CQI will improve patient safety and increase the value of the bariatric service line to the facility.