

ABSTRACTS

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These abstracts were selected for presentation in the scientific sessions of the 21st Annual Meeting of the American Society for Bariatric Surgery.

Allied Health Science General Session

Monday, June 14, 8:00 a.m. - 5:00 p.m.
Course Director: Tracy Owens, RN, BSN



AH 1. SUGGESTED MODEL: A MULTI-PHASIC BARIATRIC SUPPORT GROUP PROGRAM

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Background: The professionally-led support group has been our Program's model since its inception in 1998. Our support group protocol has evolved over the past five years concomitant with improved understanding of patients' needs. We provide a multi-phasic support group program, i.e., a required single session pre-op Patient Education Group for pre-op patients and family members; monthly Visitor's Night to encourage pre-op patients and families to observe a support group; bi-weekly New Post-Op Adjustment Group for patients up to 12 weeks post-op; bi-weekly Bariatric Surgery Support Group for patients three months or longer post-op; and periodic, topic-focused, time-limited Long Term Recovery Group for patients more than one year post-op. All support groups are professionally-led by either a licensed clinical social worker or a registered nurse.

Methods: Patient participation in support groups is closely monitored. Statistics are maintained on an ongoing basis relative to post-op visits to surgeon and dietician, post-op emergency room visits and/or re-hospitalizations, weight loss, and reported lifestyle changes.

Conclusion: Data will be presented that demonstrates that regular attendance at multi-phasic support group meetings improves post-op recovery based upon specific indicators. For example, patients who "get on track" right after surgery by attending the Adjustment Group have greater compliance to Program-sanctioned diet, exercise, and behavior modification guidelines. This trend extends beyond the immediate post-op period for patients who ongoingly attend support groups. Additionally, professional group leaders have the skills to identify psychologically-based adjustment difficulties and intervene early on before non-compliance becomes entrenched.

AH 2. POST-SURGERY GROUP THERAPY FOR GASTRIC BYPASS PATIENTS

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Background: The prevalence of both compulsive eating patterns (bingeing and "grazing") and psycho-social distress and/or psychiatric co-morbidity in patients seeking bariatric surgery has been documented. While surgery is often seen as the solution, research has shown that these problems can persist post-operatively and may eventually adversely affect outcome. This paper will describe a post-operative treatment group process designed specifically for gastric bypass patients.

Methods: A semi-structured cognitive-behavioral group therapy program adapted from a treatment program for compulsive eaters was designed for patients who had been identified (by questionnaire and clinical interview) as having compulsive eating problems prior to surgery. Therapy addresses eating patterns as well as the emotional adjustments following surgery.

Results: Fifteen 12-week therapy groups have been conducted to date. The groups are small and designed to help patients understand the stages of post-operative adjustment and the tasks, both eating related and

psychological, associated with each stage. Feedback from participants has been very positive with patients reporting the need for a therapy group in addition to the traditional support group.

Conclusion: Since both disturbed eating patterns and psychological difficulties are seen following surgery, it is imperative that treatment programs be developed to address these issues. The group process is a highly effective intervention but must be designed for the special needs of these patients. Measures of success need to take psycho-social factors into account as well as eating behaviors and weight loss. Outcome studies are needed to compare those receiving treatment vs. those who do not.

AH 3. AN EFFECTIVE ALGORITHM FOR POST-OPERATIVE LAP-BAND ADJUSTMENT PERFORMED IN THE OFFICE

Giovanni Dugay, NP, Gaspar Rosario, RN, Christine J. Ren, MD

New York University School of Medicine, New York, NY USA

Background: Laparoscopic adjustable gastric banding (LAGB) is becoming an increasingly popular treatment for morbid obesity. In our practice, we have found many variables that can impede weight loss.

Method: We reviewed our experience with the Lap-Band adjustments after the first 216 cases from July 2001 to September 2002, utilizing an adjustment algorithm. All adjustments were performed in the office using palpation by either nurse or surgeon.

Results: From July 2001 to September 2002, 216 patients underwent LAGB using the Lap-Band System (Inamed, Santa Barbara, CA). The size of the Lap-Band was 9.75cm or 10 cm. There were 186 patients available at one year and 14% were lost to follow up. There were 56 males and 130 females with a mean age 40.4 years (range 17-68). At one year, patients achieved an average percent of excess weight loss (%EWL) of 44.5 +/-1.4 SEM ranging from 0% to 118%. Average number of visits for the first year is 5. We provide an algorithm for our office-based Lap-Band adjustments according to the patient's degree of appetite, weight loss, and eating behavior. We find that addressing these variables result in effective 1 ~ 2lbs/ week or 6 ~ 10 lbs/month. Algorithm attached.

Conclusion: Effective weight loss can be achieved after LAGB utilizing an algorithm for post-operative adjustments.

AH 4. AN EFFECTIVE ALGORITHM FOR IDENTIFICATION OF GASTRIC PROLAPSE AFTER LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING (LAGB)

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Background: Gastric prolapse has been identified as a potential post laparoscopic adjustable gastric banding (LAGB) complication. We examined the presentation, profile, and consequences of a cohort of 22 patients who experienced gastric prolapse. We developed an algorithm to identify gastric prolapse.

Methods: Chart review of all patients who were diagnosed with gastric prolapse.

Results: From July 2001 to November 2003, 508 patients underwent LAGB using the Lap-Band System (Inamed, Santa Barbara, CA). Twenty-two patients developed gastric prolapse for an incidence of 4.3%. There were 1 male

and 21 females with mean age of 38 years (23-57). Mean preoperative weight was 258 lbs (163-341), and average BMI 43 kg/m² (35-59). Presenting symptoms included nocturnal re ux (73%), vomiting (68%), dysphagia (9%). All gastric prolapse was diagnosed by esophagram. Average time to gastric prolapse was 10 months (4.5-18). Mean weight at prolapse was 191 lbs (110-276) and BMI 29.96 (19-43). Mean weight loss observed was 59 lbs (30-133). All patients underwent successful laparoscopic revision electively between 1 - 300 days after diagnosis.

Conclusion: Early identification and treatment of gastric prolapse can be achieved by utilizing the algorithm for Lap-Band complications. Gastric prolapse after LAGB is more frequent in women and most commonly presents with nocturnal re ux and vomiting. Revision can be successfully performed laparoscopically with minimal complications and should be done early to avoid weight regain.

AH5. AN ANALYSIS OF BARIATRIC SURGERY PATIENTS WHO EXPERIENCE POST-OPERATIVE RESPIRATORY INSUFFICIENCY AND RECOMMENDATIONS FOR PRE- AND POST-OP MANAGEMENT

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Background: At this hospital 937 Roux-En-Y Gastric Bypass Surgeries were performed last year. Nurses became concerned with the number of unplanned transfers to critical care in the immediate 24-48 hours after surgery due to respiratory events/ compromise. It was speculated that the amount of narcotics used to manage pain was causing respiratory insufficiency. A literature search revealed evidence that the number and duration of apneic episodes and level of hypoxia/ hypercapnia is worsened by anesthesia and narcotic analgesia in the patient with obstructive sleep apnea (OSA). It was concluded that the presence of OSA made these morbidly obese bariatric patients vulnerable to respiratory compromise and not the narcotics alone.

Methods: A retrospective descriptive analysis of patients undergoing Roux-en-Y Gastric Bypass who experienced respiratory insufficiency within the first 48 hours after surgery was undertaken. Data collection included patient comorbidities and clinical findings from the perioperative and postoperative phases of care.

Results: Fifty percent of the bariatric patients who had respiratory complications in the first 24-48 hour post-operatively had OSA based on clinical presentation. The percentage of morbid obese patients with clinical symptoms of OSA who had pre-operative polysomnography was extremely low. Postoperative treatment of patients with either presumptive or confirmed OSA with C-Pap or BiPap was less than 20%.

Conclusions: A multidisciplinary team saw an opportunity to improve the preoperative selection of patients for polysomnography and the post-operative management of this "at-risk" population. Knowing the severity of OSA is essential in planning the appropriate level of care, and recommendations for post-operative management and monitoring.

AH 6. NUTRITION PRACTICES AND PROTOCOLS FOR BARIATRIC SURGERY PATIENTS: A SURVEY OF REGISTERED DIETITIANS.

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Background: Currently no national standards of practice exist for medical nutrition therapy related to patients who have had Bariatric Surgery. A survey was conducted to determine nutrition protocols in use with Bariatric patients in the United States.

Methods: The survey was distributed to over 70 Registered Dietitians (R.D.) across the U.S. Topics included pre-operative diet, vitamin supplementation, and education; Post-operative follow-up visits with an R.D., diet progression, nutrient recommendations, vitamin and mineral supplementation, aids, solutions for post-operative problems/complaints, laboratory analysis, and nutrition recommendations for adolescent and pregnant patients. Results were compiled into a Microsoft Excel spreadsheet for analysis.

Results: Most work with patients having had either Roux-en-Y gastric bypass (RYGB), or lap band (LB). Protein recommendations range from 45-100 grams per day for RYGB, and 50-80 grams per day for LB. Most recommend a multivitamin, calcium, and B12 for RYGB, and multivitamins and additional calcium for LB. All recommend 48-64 ounces fluid per day, discontinuing drinking 30 minutes before meals and resuming 30-60 minutes afterwards. Most RD's make the same nutrition recommendation for adolescents as they do for adults. For pregnant patients, most recommend an additional prenatal vitamin and monitor their progress very closely.

Conclusion: The results from this survey reinforce that there is a wide range of nutrition recommendations being made with bariatric surgery patients. The need for further research and national guidelines is very much needed in order to provide patients with the highest level of care.

AH 7. A GUIDED SPECIFIC EXERCISE PROGRAM WILL INCREASE PATIENTS %EWL AND LEAN MUSCLE MASS

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Background: Laparoscopic Roux-en-Y gastric bypass patients will have rapid weight loss after surgery, but do they retain lean muscle mass and will %EWL be greater in the first 6 months if they follow a specific exercise program. Can we increase the retention of lean muscle mass and %EWL after surgery by having a specific exercise program?

Method: We looked at 90 Roux-en-Y gastric bypass patients divided into groups of 30 (exercise regiment, self reporting exercise, and non-exercise). An exercise program that encompassed cardiovascular, resistance, and flexibility training was used for the specific exercise program. At the end of each month we had a follow up, and used a Tanita BIA scale to measure excess weight loss and lean muscle mass composition. We did a follow-up with all 3 groups each month for a total of 6 months.

Results: We saw a significant difference in %EWL and retention of lean muscle mass in the patients who were on a specific exercise program vs. self-reporting vs. no exercise at all.

Conclusion: A guided, specific exercise program is an important part of a multi-disciplinary approach. It will

increase the success of the patient in retaining lean muscle mass and %EWL as well as promote a healthy lifestyle.

AH 8. REPORTED INCIDENCE OF VARIOUS POST OPERATIVE EXPERIENCES ASSOCIATED WITH THE LRYGB, LAGB AND LBG/DS.

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Background: The decision making process is very difficult for patients interested in undergoing Bariatric Surgery. A quantitative analysis of post operative experiences can help provide patients with valuable information that may impact their final decision regarding which surgery is the best option.

Method: Between August 2002 and August 2003, patients were asked to fill out a questionnaire reflecting their post op experiences. Patients were at least 9 months post-op and categorized as Lap-Band (LAGB), Laparoscopic Gastric Bypass (LRYGB), or Laparoscopic Biliopancreatic Diversion with Duodenal Switch (BPD/DS).

Results: The average time per week patients reported nausea and vomiting was 1.4 and 2.6 for LAGB, 0.9 and 0.2 for LRYGB. 87% and 94% reported they experienced less hunger after surgery compared with preoperatively for the LAGB and LRYGB respectively. LAGB and LRYGB patients were on average eating 65% and 64% respectively less when compared with preoperatively. 19% and 18% reported the desire to binge in the LAGB and LRYGB respectively and 23% and 9% reported they sometimes had the desire to binge. 50% and 76% reported they experienced hair loss after the LAGB and LRYGB respectively, while 44% for LAGB and 74% for RYBG reported it was not permanent. 69% of the LRYGB reported one or more of the symptoms associated with dumping after ingesting high sugar foods/beverages, 28% did not and 3% did not know. Frequency of bowel movements per day were 1.1 for LAGB, 1.5 for LRYGB and 4.3 for BPD/DS and 5%, 21% and 100% reported malodorous stools respectively. 65% and 29% of the LAGB and 82% and 15% of the LRYGB were very satisfied or satisfied with the results of their procedure. 91%, 100% and 96.9% for LAGB, BPD/DS and LRYGB would do the surgery again if need be. 71.4% and 100% of LAGB and LRYGB experienced greater than 20 % body weight loss. Most common complaints after the LAGB were "slow weight loss" and "intolerance to certain foods." Most common complaints for the LRYGB were "excess skin" and "hair loss." For the BPD and BPD/DS, "malodorous bowel movements and gas" were the most common complaint.

Conclusion: Even though 71.4% of LAGB patients lost 20% or more of their preoperative weight, most would do the procedure again. Both LAGB and LRYGB experienced similar decreases in food intake however the LRYGB experienced a greater percentage of body weight loss. The results from this survey can be utilized by both professionals and patients because it helps explain the type and frequency of common post operative experiences.

AH 9. ABERRANT EATING BEHAVIOR AND MORBID OBESITY: EFFECTS OF WEIGHT LOSS SURGERY

*Cynthia K. Buffington, PhD, Nadege B. Francois, BS, Teri Kai Holtzclaw, PhD, Robert T. Marema, MD
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Background. Eating aberrations are not uncommon

among the morbidly obese (MO). The present study sought to identify eating problems and their severity in a large MO population before and after gastric bypass surgery.

Methods. The population included 365 MO pre- and post-surgical patients and their non-obese controls. Questionnaires used for assessment of eating behavior were Brownell's Eating Readiness Questionnaire, Heller and Heller's Carbohydrate Addiction, Ardelt-Gattinger, Moorhead and Weger Eating Habits, and the Consumatory Behavior Assessment (CBA) questionnaire.

Results. Eating aberrations were significantly ($p < 0.0001$) more prevalent among the MO, as compared to their non-obese controls, and included a high degree of food addiction (MO scores were ~5-fold higher than controls), impaired control over eating (MO scores ~10-fold greater), carbohydrate addiction (scores >2-fold higher), binge eating (incidence ~3-fold greater), emotional eating (scores 60% higher), and a loss of eating cues (scores 35% lower). In addition, the MO vs. controls had significantly ($p < 0.01$) greater feelings of hunger, tended to choose foods lower in nutrients and fiber, snacked more frequently ($p < 0.01$) and had greater food cravings (fat, carbohydrate and sugar). Problem eating was significantly ($p < 0.01$) correlated to degree of obesity and calories consumed and very strongly associated with reduced quality of life and other psychosocial measures. Massive weight loss with surgery produced highly significant ($p < 0.0001$) improvement in eating behavior, with post-surgical values for nearly all eating variables comparable to those of the non-obese controls.

Conclusions. Morbid obesity is accompanied by a number of eating abnormalities, which are essentially resolved by gastric bypass surgery.

AH 10. STATUS OF STATE MANDATED INSURANCE COVERAGE FOR BARIATRIC SURGERY

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Background: The purpose of this study was to determine which states have laws mandating coverage of bariatric surgery.

Methods: The Department of Insurance for all 50 states and the District of Columbia in the United States were surveyed regarding whether or not they had proposed or passed a law mandating insurance coverage of bariatric surgery.

Results: Responses were obtained from all states except for New Mexico. Two states (Ohio and South Carolina) have proposed state mandated bariatric surgery coverage laws while four states (Georgia, Indiana, Maryland, and Virginia) have such laws in effect. Michigan has a law that requires all HMOs to pay for medically necessary treatments or procedures in general such that if bariatric surgery can be shown to be medical necessary then it should be covered. Georgia and Maryland could provide no data regarding the effects of this state law. Indiana had no specific data but has not experienced any significant change in insurance premiums since passage of the law. Virginia had no data specifically on bariatric surgery insurance claims, premiums, etc. But in general, depending on the type of insurance (individual, family, group, HMO, etc.), Virginia experienced a 0.01% to 0.08% increase in total insurance claims and a 0.18% to 1.53% increase in premiums (not accounting for inflation) for the year after the law took effect compared to the year before.

Conclusions: A small number of states already have laws mandating coverage for bariatric surgery and have not experienced significant increases in overall claims or premiums.

AH 11. THE NEED FOR INSTRUCTION IN FOOD PREPARATION

Chef David Fouts, Abbe Breiter, MS, RD, Debbie Daley, RD, Robert T. Marema, MD

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Background. Bariatric patients following gastric bypass (GBP) have difficulty eating specific types of food, particularly red meat, white poultry, and pork. Low protein intake is not uncommon postoperatively, and an aversion to meat is associated with long-term nutrient deficiencies, including deficits in iron and B-complex vitamins. Therefore, there is a need for the GBP patient to have instruction in how to prepare protein foods, particularly meat, in ways that will increase their consumption.

Methods. A professional chef and patient with personal experience in post-GBP eating behavior was employed to educate and prepare meal demos for postoperative patients. Food preparation classes included information pertaining to the preparation of tasty pureed protein dishes, how to add to and maintain moisture in beef, poultry, and fish, the effect of cooking temperature and style on the ease with which meat is ingested, types of spices and combinations of such that add flavor to protein and other foods, and how to prepare easily consumable protein/vegetable combination dishes.

Results. Classes in postoperative food preparation have been well-received and so enthusiastically attended that additional classes have had to be made available. Class participants admit to taking more responsibility in meal planning and eating a greater number of home-prepared meals. Ingestion of meat, particularly beef, poultry, and pork, and other high protein foods among participants has increased significantly.

Conclusion. Instruction and education in food preparation for the specific needs of the GBP patient helps to improve protein intake, particularly from meat sources.

AH 12. PSYCHOLOGICAL DISTRESS AND NEED FOR CARBOHYDRATES

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Background: In previous studies, we found that the majority of individuals with morbid obesity eat in response to emotional distress. Carbohydrates, particularly those high in simple sugar, represent the food most frequently selected during periods of distress. In the present study, we examined the incidence of carbohydrate addiction (CA) and the association between degree of CA and psychological distress in pre- and postoperative morbidly obese (MO) patients and their non-obese controls.

Methods: The study population included 364 participants. CA was determined by Heller and Heller's Carbohydrate Addiction Questionnaire and other aberrant eating behaviors were assessed using Ardel-Gattinger, Moorehead and Weger Eating Habits Scale and Brownell's Eating Readiness Questionnaire. Levels of psychological distress were determined from scores on the Beck Depression Inventory (BDI-II).

Results: The MO score significantly higher for CA than non-obese controls (23.9+0.8 vs. 11.89+2). More than

half of MO patients suffer from CA (56%), as compared to only 13% of the non-obese controls. Degree of CA is strongly ($p<0.0001$) and positively correlated to: 1) levels of psychological distress (BDI-II, $r=0.51$), 2) other eating abnormalities (emotional eating, $r=0.60$, food addiction and lack of eating control, $r=0.65$, binge eating, $r=0.40$), and 3) BMI ($r=0.32$). Factorial analyses demonstrated that psychological distress, rather than body size, is the primary mechanism underlying CA and its associated abnormal eating patterns.

Conclusion: These findings suggest a common physiological mechanism underlying the desire for carbohydrate, emotional eating, binge eating and addictive eating behavior in response to psychological distress.

AH 13. THE 'HOPE' FACTOR: EFFECT ON DEPRESSION

Melodie K. Moorehead, PhD, Robert T. Marema, MD, Cynthia K. Buffington, PhD

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Background: The incidence of depression among the morbidly obese (MO) pre-surgical population has been reported to range from as low as 30% to as high as nearly 90%.

Purpose: We hypothesized that the time period pre-operatively when psychosocial tests are administered significantly affects outcome and that the renewed 'hope' for weight loss through Bariatric intervention would reduce levels of psychological distress, i.e. depression.

Methods: The study population included a group of MO individuals ($n=58$, 49 females, 9 males) whose levels of depression, measured by the Beck Depression Inventory (BDI)-II, were examined at our public information class on surgical treatment of obesity (Period A) and, again, approximately 5 months later after their decision to have surgery and during the pre-testing process (Period B).

Results: At Period A, BDI-II scores averaged 17.42+1.46, with 18% of the population having severe depression, 27% moderate depression, 29% mild depression and 27% with depression unlikely. Approximately 5 months later at Period B, BDI-II scores had significantly declined, i.e. 14.13+1.46 ($p=0.0087$), with only 9% of patients having severe depression, 31% moderate depression, 18% mild depression, and 42% no depression. Interestingly, these dramatic improvements in levels of depression from Period A to B occurred in spite of a significant increase in body weight, i.e. 300+10 (136+4 kg) vs. 315+11 lb (143+5 kg), $p<0.01$, for Periods A and B, respectively.

Conclusions: Depression among the MO is high and improved significantly by the 'hope' of surgical-induced weight reduction. This 'hope' factor must be considered when assessing pre-operative psychosocial measures.

AH 14. LAPAROSCOPIC GASTRIC BYPASS BEYOND THE SIXTH DECADE

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Background: The benefits of gastric bypass should hold up in morbidly obese patients in their sixth decade and beyond. We wanted to examine our results in this subgroup of patients to shed some light on the issue of the appropriateness of offering gastric bypass to our senior patients.

Method: A retrospective review of a prospectively collected database on all laparoscopic gastric bypass patients was analyzed for preoperative weight and BMI, perioperative mortality and morbidity. Patients over sixty years of age were compared to the overall group.

Results: A total 550 patients underwent laparoscopic gastric bypass. All were completed laparoscopically. The overall group mortality was 0.2% (1 pulmonary embolism). There were a total of 16 complications (1 leak, 7 bowel obstructions, 4 anastomotic strictures, 1 intra-abdominal bleeding, 1 rhabdomyolysis, 1 DVT, 1 foot drop) for a total 3% morbidity.

In the subgroup of patients over 60 years of age there were 23 patients (18 female, 5 male). The mean age was 64.4 years (60-75 years). Mean preop weight was 292 lbs (206-446 lbs); preop BMI was 49 (40-62). Mean weight loss was 67 pounds (21-158 lbs) at an average follow-up of 6 months (3-18 months).

Our only death (pulmonary embolism) was in this subgroup, for a mortality of 4.3%. There was one post op complication (rhabdomyolysis) for 4.3 % morbidity. There were no other perioperative complications in this subgroup of patients.

Conclusion: Although the mortality and morbidity in our group of patients over 60 years of age is higher than the overall group, it is not prohibitively high. Considering the benefits of gastric bypass in morbidly obese patients, we will continue to offer the procedure to selected seniors with acceptable pre-op risk factors.

AH 15. PATIENTS WE DID NOT OPERATE ON; OTHERS WE WISH WE HADN'T

Scott Glass, MS, MA, LLP, Shanna Bell, MA, LLPC, Randal Baker, MD, James Foote, MD, Paul Kemmeter, MD, Dawn White, MD, Richard VanDyken, MD, Theresa Osborne, MD Michigan Medical, P.C. - Center For Health Excellence, Grand Rapids, MI USA

Background: Bariatric surgical candidates undergo significant workup to screen for medical and behavioral issues that may affect surgery and its outcomes. Our behavioral team screens for psychological diagnoses and maladaptive behavioral patterns which may adversely affect outcomes. Despite this intensive effort, some behavioral issues elude our present screening systems often resulting in problems for patients and staff.

Methods: We analyzed our experience with 1,356 patients seen for potential bariatric surgery. Patients who passed our initial screening and were assessed for surgery but did not subsequently have surgery were evaluated. Questionnaires were sent to the staff to inquire about patients they thought in retrospect should not have had surgery. After their responses were analyzed, the charts of those patients were reviewed to see if any premonitory "red ags" could be identified retrospectively.

Results: From June 2000 though November 2003 1,000 actually had surgery, while 356 never had surgery. Reasons for not ultimately undergoing surgery are numerous. Prominent reasons include: denial by insurance, did not meet NIH criteria, patients changed their minds, and other.

The staff identified 32 patients that they felt in retrospect should not have had surgery. Behavioral concerns clearly outnumber the medical concerns identified by staff. Upon review of the charts, most patients did not have premonitory red ags identified preoperatively. Many of these patients completely eluded our screening mechanisms.

Conclusion: Non-compliance is the most common

behavioral pitfall missed preoperatively. Present screening mechanisms for patients need further refinement to help identify potential problems prior to approval for surgery.

AH 16. MANDATORY NICOTINE SCREEN EFFECTIVE IN ELIMINATING SMOKING IN BARIATRIC SURGERY PATIENTS

Shanna Bell, MA, LLPC, Scott Glass, MS, MA, LLP, Randal Baker, MD, James Foote, MD, Paul Kemmeter, MD, Dawn White, MD, Richard VanDyken, MD, Theresa Osborne, MD Michigan Medical P.C.

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Background: Smoking cessation prior to bariatric surgery not only decreases perioperative risks but also postoperative ulcer formation in the neo-pouch. Although many programs advise that patients stop smoking prior to bariatric surgery, most patients continue to smoke. We have increased our effort to encourage patients to stop smoking in order to decrease perioperative risks.

Methods: There were 1000 bariatric surgeries performed. We studied 388 randomly selected patients who underwent Roux-en-Y gastric bypass from June, 2000 to November of 2003 through our multidisciplinary, comprehensive program. In the first cohort of patients, we strongly advised cessation of smoking prior to surgery but no other action was taken. In the second cohort of patients, we told all smokers they must stop smoking and pass a urine nicotine screen prior to surgery. The medical records of these patients were reviewed and post-operative phone calls were made by the staff in order to follow up on post-operative smoking status.

Results: We found two benefits to support continued mandatory nicotine screening.

First, all screened smokers stopped smoking prior to surgery while 6 of 43 (14%) from the non-screened group continued to smoke even through the perioperative period. Second, 7 of 12 (58%) screened smokers remained smoke free post operatively thereby reducing long-term health risks compared with 7 of 43 (16%) non-screened smokers.

Conclusion: Mandatory testing prior to bariatric surgery reduces perioperative and long-term health risks.

AH 17. WHY USE THE MMPI-2 IN THE HEALTH AND BEHAVIOR ASSESSMENT OF BARIATRIC SURGERY CANDIDATES?

Lana I. Boutacoff, PhD, Paul Arbisi, PhD, Joyce Thompson, RN, Peter Kelly, MD, and William Rupp, MD Private Practice in St. Paul, MN (Boutacoff) V.A. Medical Center, Minneapolis, MN (Arbisi) St. Paul Surgeons, Ltd, St. Paul, MN (Thompson, Kelly, Rupp)

Background: The Minnesota Multiphasic Personality Inventory, second edition (MMPI-2) seems to be getting a bad rap – at least as a psychological test used in the preoperative psychological assessment of surgery candidates. The empirical literature documents clearly that test-based psychological assessments are not only useful, but also economically justified when conducted by a well trained and qualified psychologist. The rationale for using psychological tests is anchored in: (a) The objectivity and consistency of the test results, and (b) the tendency by some bariatric surgery candidates to distort self-report data that may skew information obtained during the clinical interview, which may ultimately affect postoperative care and surgical outcome. This presentation will attempt also to explain why

previous MMPI-2 research has been unproductive in: (a) advancing our understanding of surgery patients, and (b) identifying psychosocial factors that may affect treatment outcome.

Method: Subjects are 600 patients who completed the MMPI-2 as part of a structured preoperative psychological assessment protocol. One- and two-year outcome data are available for a subset of these patients. For comparison purposes, 100 patients completed also the Beck Depression Inventory, second edition (BDI-II).

Results: The MMPI-2 profile (over the BDI-II) provides a more comprehensive picture of the bariatric surgery candidate and identifies psychosocial factors that may affect postoperative care, treatment compliance, and surgical outcome.

Conclusions: When interpreted properly by an experienced psychologist, the MMPI-2 profile provides valuable data that may support and/or challenge the information provided by the patient during the clinical interview which, in turn, may affect treatment outcome.

extensive outcomes research is needed in order to provide practitioners with clear guidelines regarding candidates' appropriateness for bariatric surgery.

AH18. PSYCHOSOCIAL EVALUATION CRITERIA FOR BARIATRIC SURGERY CANDIDATES: A SURVEY OF PRESENT PRACTICES

Andrea Bauchowitz, PhD‡, Linda Gonder-Frederick, PhD‡, Mary-Ellen Olbrisch, PhD, Leila Azarbad, MEd‡, Mi-Young Ryee, MEd‡, Monique Woodson‡, Anna Miller, RN‡, Bruce Schirmer, MD‡*

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Background: No standardized guidelines exist on psychosocial evaluation and inclusion criteria for bariatric surgery candidates. This study surveyed bariatric surgery programs and their approach to evaluation and acceptance of surgery candidates.

Methods: Bariatric surgery programs were identified through review of bariatric surgery internet sites. 188 surveys were mailed out with a return rate of 34% (n= 64).

Results: Most programs were affiliated with private hospitals and had been in existence for 1-5 years. Number of surgeries per year varied from 25 to 900. 84.4 % of programs required psychological evaluation regardless of insurance requirements. 82.8% endorsed psychological evaluation as either very valuable or valuable. Most (67.2%) refer patients to mental health professionals within the community. In 81.3% of programs a clinical psychologist conducted evaluations. 45.3% of programs required formal psychological testing as part of the evaluation. 90.6% of programs regularly recommend behavioral changes prior to surgery, including attendance at support groups (90.6%), psychotherapy (60.9%) and increasing knowledge (79.7%). Most frequent exclusion criteria were current illicit drug use (90.6%), active schizophrenia (84.4%) and severe MR (84.4%). Inability to adhere to previous diets was an exclusion criteria for only 17.2% of programs.

Conclusions: Most programs that responded to this survey utilized psychological evaluations conducted by mental health professionals, usually clinical psychologists, and believed them to be valuable. There was generally consensus on exclusion criteria involving psychiatric conditions likely to interfere with good outcome. More

Plenary Session

Tuesday-Thursday, June 15-17, 2004
Program Chair: Eric J. DeMaria, MD



1. PROSPECTIVE RANDOMIZED DOUBLE BLINDED TRIAL OF BANDED VERSUS STANDARD GASTRIC BYPASS FOR WEIGHT LOSS IN PATIENTS WITH MALIGNANT OBESITY—Preliminary Results

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Background: Banded gastric bypass has been reported to result in superior weight loss compared to standard non banded gastric bypass. However, a prospective randomized comparison of gastric bypass and banded gastric bypass has not been reported.

Methods: 70 patients have been enrolled in this prospective randomized double blinded trial to date. Outcomes of 57 patients enrolled in a randomized trial between 6/01 and 4/03 for banded versus non banded gastric bypass surgery were evaluated. The banding technique involved placement of 1.5x5.5 cm polypropylene band around proximal gastric pouch of a standard gastric bypass following the technique of Capella. Chi-square and analysis of variance were performed to determine differences in patient characteristics (gender, age and initial BMI) as well as percent excess weight lost at six and twelve months post op, improvement or resolution of co-morbidities and complications in banded versus non-banded gastric bypass groups.

Results: As expected there were no differences in patient characteristics and incidence of co-morbidities between the banded and non banded groups. There were no significant differences in 6, 12 months percent weight loss and resolution of co-morbidities. Although the non banded group developed two anastomotic leaks, the overall complications were not significantly different between the groups. There have been no erosions, re-operations or total food intolerance associated with the band. There were no deaths in either group and rate of follow up was over 92%.

| | Banded (n=32) | Non-Banded (n=25) | P value |
|--------------------------------|---------------|-------------------|---------|
| BMI (kg/m ²) | 58.84 | 58.76 | NS |
| Female % | 53.1 | 76.0 | NS |
| Age (yrs) | 39.00 | 43.80 | NS |
| 6 mos %EWL | 42.9 | 42.5 | NS |
| 12 mos %EWL | 60.9 | 58.3 | NS |
| Complications %(n) | 28.1 (9) | 28.0 (7) | NS |
| % of patients achieving 50%EWL | 58 | 40 | NS |

Conclusions: These preliminary results suggest that the addition of a band does not improve weight loss up to one year. The band appears to be well tolerated. Longer follow up is required to evaluate the possibility of further weight loss or prevention of weight regain in the banded group as well as long term band complications.

2. THREE-YEAR OUTCOMES: LAPAROSCOPIC VERSUS OPEN GASTRIC BYPASS

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California-Irvine Medical Center, Irvine, CA, USA

Background: Early follow up from a prospective randomized trial of laparoscopic versus open gastric bypass showed improved morbidity with regard to wound complications in the laparoscopic arm, and equivalent weight loss efficacy. We hypothesized that, with longer follow-up: 1) The incidence of incisional hernia would increase, and 2) Weight loss would be maintained and comparable between groups.

Methods: 155 patients were randomized to either laparoscopic or open gastric bypass. BMI (mean 48 kg/m², range 40-60), age, sex, and comorbidities were similar in each group. Patients were followed yearly for late complications, including incisional hernia, and percent excess body weight loss (%EBWL).

Results: A minimum two-year (mean 3±1year) follow-up was accomplished in 63% of the cohort. Hernias were more common in the open gastric bypass group at both 9.6 months and three years postoperatively. Incidences were 7.9% and 10.3%, respectively. The incisional hernia rate for laparoscopic gastric bypass remained at zero. There was no significant difference in %EBWL between groups at either measured time point. Three-year %EBWL was 72.5 (open, range 12-121) and 76.7 (laparoscopic, range 40-110).

Conclusion: Laparoscopic gastric bypass provides comparable weight loss and maintenance to open gastric bypass, while decreasing the long-term occurrence of ventral hernia.

3. THE MANAGEMENT OF OBESITY: A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL (RCT) OF MEDICAL VERSUS SURGICAL THERAPY

Paul O'Brien, MD, John Dixon, MD, Cheryl Laurie, MD, Stewart Skinner, Joe Proietto, John McNeil, Boyd Strauss, Sharon Marks, Linda Schachter, Leon Chapman and Margaret Anderson

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Background: Strong direct evidence for the relative benefits of medical and surgical therapies for obesity is lacking. Data from numerous observational studies suggest greater effectiveness for surgery but no RCTs have yet been done that confirm that benefit. More than 99% of the severely obese are still treated by medical therapy alone.

Methods: We have randomly allocated 79 mild to moderately obese adults (BMI 30-35) to optimal medical therapy – very low calorie diets, pharmacotherapy and exercise (medical) – or to Lap-Band placement (surgical), and we have followed them for 2 years.

Results: The 39 surgical patients had no perioperative complications. During the 2 yr follow-up, 4 patients required revision for prolapse. All procedures were performed laparoscopically and required less than 24hr length of stay. At 2 yr, the surgical group had lost 71.5 +/- 22% of excess weight. The medical group had an initial weight loss of 46% EWL at 6/12 but, by 2 yr, there was only a loss of 21.4 +/- 28%EWL. The difference between the groups for weight loss was highly significant (p < 0.001). Measures of quality of life and body image and all measures of the metabolic syndrome showed significantly greater improvement in the surgical group than the medical group.

Conclusion: This RCT shows that surgical treatment of mild to moderate obesity, using placement of the Lap-Band

system, is safe and is significantly more effective than optimal medical therapy in reducing weight and improving health and quality of life.

4. THE IMPACT OF SURGICALLY INDUCED WEIGHT LOSS ON CARDIOVASCULAR FUNCTION. A PROSPECTIVE ANALYSIS

Andrea Dávila-Cervantes, MD, Pablo Hernández, MD, Florencia Vargas-Vorackova, MD, Rosa Gamino, SW, Juan Pablo Pantoja, MD, Miguel F. Herrera, MD, Ph.D
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Background: Morbid Obesity (MO) is associated to a spectrum of cardiovascular changes ranging from hyperdynamic circulation to overt heart failure. The body mass index (BMI) closely correlates with impaired cardiovascular function. The aim of the study was to evaluate the impact of surgically induced weight loss on cardiovascular function.

Patients and Methods: Thirty patients with MO undergoing bariatric surgery were included in the study. A preoperative echocardiogram was performed to all patients and a subsequent study was performed ≥1 year after surgery.

Results were analyzed using Wilcoxon signed-rank test.

Results: Mean age was 38±10 years; 9 were males and 21 females. Seven patients underwent VBG and 23 RYGBP. Mean BMI before surgery was 56±12 kg/m² and 38±7 kg/m² at a median postoperative follow-up of 41 months (range 14-57). Echocardiographic results are as follows.

| Variable | Before Surgery | After Surgery | P |
|-------------------------------|-------------------|-------------------|-------|
| Ejection Fraction, % | 60 (46-73) | 60 (50-68) | 0.25 |
| Fractional shortening, % | 30.5 (20-45) | 36.5 (25-48) | 0.04 |
| Myocardial mass, g | 201 (143-402) | 183 (96-357) | 0.001 |
| Sistolic pressure of PA, mmHg | 43 (20-84) | 39 (15-80) | 0.02 |
| Diastolic diameter of LV, mm | 47.5 (40-60) | 47 (35-55) | 0.28 |
| Sistolic diameter of LV, mm | 31.5 (24-47) | 30 (21-36) | 0.02 |
| Interventricular septum, mm | 12 (10-20) | 11.5 (8-18) | 0.06 |
| Posterior wall thickness, mm | 11 (10-16) | 10.5 (8-15) | 0.02 |
| Diastolic function | nl=23, abnormal=7 | nl=28, abnormal=2 | 0.03 |

All values are median (range) PA= pulmonary artery LV=left ventricle

Conclusion: Surgically induced weight loss significantly improves cardiovascular function in terms of ventricular diameters, myocardial mass, diastolic function, and pulmonary pressure.

5. WEIGHT LOSS, QUALITY OF LIFE AND EMPLOYMENT STATUS FOLLOWING ROUX-EN-Y GASTRIC BYPASS: A FIVE YEAR ANALYSIS

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Background: Clinically severe obesity can have a tremendous impact on the psychosocial, physical and economic health of those affected by it. Surgery has been shown to be the only effective long term treatment for this disease condition. We hypothesized that if surgery results in significant weight loss and improves quality of life (QoL), those unemployed and disabled as a result of their morbidly obese state should become gainfully employed following Roux-en-Y-gastric bypass (RYGBP).

Methods: We retrospectively reviewed the medical charts of all patients who underwent a RYGBP from April 1998 to December 1999. Demographics such as age, sex, race and employment status were obtained along with preoperative weight, body mass index(BMI), co-morbidities as well as response to Short Form 36 (SF-36) and the Beck Depression Inventory-II (BDI-II). For those gainfully employed, recuperation time (time from operation to return to work) was also analyzed when available. Patients who did not have a five year SF-36 completed were asked to complete one in person or through a telephone interview. The results were subjected to statistical analysis using Student t test or Wilcoxon signed ranked test for nonparametric values when indicated.

Results: Fifty seven patients had undergone primary open RYGBP . Forty one patients were selected for retrospective analysis. 34 % of our patients were gainfully employed with a mean recuperation time of 3.5 +/- 1.2 weeks. Mean age was 32.4 +/- 3.62 years. Mean BMI was 53.4+/- 5.3 kg/m² preoperatively and 31+/-4.1 at 5 years. 27 of 41(66%) were on disability. 25 of 41(61%) attributed disability to morbidly obese state. At 5 years, only 4/25 (16) were gainfully employed and off disability despite significant improvements in health related QoL, and other well being indicators.

Conclusions: 1)RYGBP results in significant reduction in weight and QoL but is not a panacea. 2) Although eligible for employment, 80 % of patients remain unemployed and on disability suggesting that employment status is a complex process not solely related to QoL and weight. 3) Closer scrutiny on the part of insurers may be warranted on post bypass patients.

6. UTILIZATION OF LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS FOR TREATMENT OF MORBID OBESITY

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Background: Laparoscopic Roux-en-Y gastric bypass is currently the most commonly performed bariatric operation for management of morbid obesity in the US. This study examined annual trends in the use of laparoscopic gastric bypass from 1998-2001.

Methods: Clinical data of 101,552 adult patients with morbid obesity who underwent a Roux-en-Y gastric bypass operation were obtained from the Healthcare Cost and Utilization Project. This database contains in-hospital data from an approximate 20% stratified sample of U.S. community hospitals. We used ICD-9 procedural and

diagnosis codes to identify all hospitalizations during which a gastric bypass procedure was performed on adults. The data were reviewed for demographics, number of gastric bypass procedures performed yearly, percentage of laparoscopic cases, hospital charges, and in-hospital mortality. We also applied sampling weights and U.S. Census data to calculate the population-based rates of gastric bypass procedures for each year.

Results:

| | 1998 | 1999 | 2000 | 2001 |
|---------------------------------|--------|--------|--------|--------|
| N | 9,800 | 20,146 | 26,080 | 45,526 |
| Mean Age (years) | 39 | 41 | 41 | 41 |
| Female (%) | 83 | 82 | 79 | 81 |
| Caucasian (%) | 80 | 85 | 79 | 81 |
| Laparoscopic cases (%) | 2.2 | 14.3 | 15.2 | 17.8 |
| Mean length of stay (days) | 4.8 | 4.3 | 3.9 | 3.7 |
| In-hospital mortality (%) | 0.8 | 0.5 | 0.5 | 0.3 |
| Median charge (\$) | 19,598 | 18,424 | 18,646 | 19,096 |
| Annual cases per 100,000 adults | 4.9 | 9.9 | 12.5 | 21.5 |

Conclusion: Between 1998-2001, the population-based rate of gastric bypass surgery has more than quadrupled while the in-hospital mortality rate has decreased. During this period, the percentage of laparoscopic gastric bypass procedures has increased to 17.8% in 2001.

7. COMPARISON OF BMI-MATCHED PATIENTS UNDERGOING LAPAROSCOPIC ISOLATED VERTICAL SLEEVE GASTRECTOMY VERSUS THE LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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Background: Superobese patients or those with significant cardiac/pulmonary disease may be at considerable operative risk for the 'gold standard' Roux-en-Y gastric bypass (RGB). Performing an isolated laparoscopic vertical sleeve gastrectomy (VG) is a lower risk option.

Methods: VG was performed in either superobese patients (BMI >50 kg/m²) or those of high operative risk (significant cardiac/pulmonary disease). Both VG and RGB are performed totally laparoscopically. By stapling along a 32 Fr bougie, a greater curvature gastrectomy is performed to create a 60-80 ml gastric tube. Bovine pericardium Peristrips® or bioabsorbable Seamguards® were used to buttress the staple-line for diabetic patients. For the RGB, the distal anastomosis is fashioned using the double-stapled technique, creating a 75 cm biliopancreatic limb and a 100 cm antecolic Roux limb. The gastrojejunostomy is performed using a double-layered, hand-sewn technique.

Results: Between Feb 2002 and Oct 2003, 20 VG and 140 RGB were performed. Of the 140 RGB, 34 of the RGB patients with BMI of >50 kg/m² were compared to the more obese VG group. There were no readmissions, complications or deaths in the VG group.

| | Age (yrs) | Preop Wt (lbs) | IBW (lbs) | BMI (kg/m ²) | OR time (min) | LOS (days) | Readmits | Reops | Mortality |
|-----|------------|----------------|-----------|--------------------------|---------------|------------|----------|-------|-----------|
| VG | 42.9 ±10.5 | 360 ±84 | 149 ±15 | 58.1 ±12.5 | 96 ±33 | 2.7 ±0.8 | 0 | 0 | 0 |
| RGB | 42.2±9.0 | 339 ±42 | 146 ±10 | 55.9 ±6.2 | 157 ±40* | 3.7 ±1.1* | 7* | 3 | 0 |

| %EWL | 1 Mos | 2 Mos | 3 Mos | 6 Mos | 9 Mos |
|------|-------|-------|-------|-------|-------|
| VG | 17.1% | 27.8% | 40.2% | 49.0% | 61.9% |
| RGB | 16.1% | 24.8% | 38.3% | 50.3% | 64.1% |

| Lbs Lost | 1 Mos | 2 Mos | 3 Mos | 6 Mos | 9 Mos |
|----------|-------|-------|-------|-------|--------|
| VG | 33±9 | 50±13 | 65±20 | 83±50 | 125±35 |
| RGB | 32±10 | 50±14 | 66±15 | 90±12 | 133±23 |

Conclusion: Superobese and high-risk patients are at significant risk for peri- and post-operative complications. The VG can achieve similar weight loss in the short-run with decreased risk and morbidity compared to the RGB.

8. LENGTH OF THE ROUX LIMB IN SUPEROBESE PATIENTS. DOES IT MATTER?

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Background: The length of the Roux limb in a regular laparoscopic Roux-en-Y gastric bypass varies from 75 to 120cm. Super obese patients (BMI over 50kg/m²) might need a longer Roux limb to achieve adequate weight loss and improvement of comorbidities.

Methods: Forty patients with BMI over 50 (51.2 to 57) were divided into 2 groups. The same surgical team performed all the operations. In group 1, the length of the Roux limb of the gastric bypass was 120cm. Group 2 had an extra long Roux limb of 200cm. Most patients were females and had a mean of 2.6 comorbidities (diabetes, hypertension, GERD and sleep apnea).

Results: The excess weight loss at 6 months was 36% (G1) and 44% (G2); at 12 months, 55% (G1) and 71.2% (G2); at 18 months, 70% (G1) and 76.4% (G2); and at 30 months, 73% (G1) and 79% (G2). The cure rates for diabetes were 64% (G1) and 77% (G2); and 55% (G1) and 58% (G2) for hypertension. Both groups had 95% and 100% resolution of sleep apnea and GERD, respectively.

Conclusions: Patients with longer Roux limbs had a faster but not statically greater weight loss. Diabetes cure rate was the only variable with a statically significant improvement in patients with longer Roux limbs.

9. SMALL BOWEL ABSORPTIVE COMMON CHANNEL LENGTH IS NOT ASSOCIATED WITH INCREASED WEIGHT LOSS OR DECREASED SERUM ALBUMIN IN RNYGB

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Background: The roux-en-Y gastric bypass (RNYGB) has been an effective operation for long term weight loss and reduction of obesity related co-morbidities. However, the optimal roux limb length employed has been variable and controversial. Additionally, the mal-absorption surgical literature has shown that total small bowel length varies considerably. The small bowel common channel length has

not been studied in relation to weight loss after RNYGB.

Methods: A retrospective database review was performed on a consecutive series of 200 RNYGB patients from 10/2001 to 2/2002 with documented follow-up data. The common channel absorptive length (CCL) was measured in all patients in identical fashion and a fixed roux limb length of 200 cm was used. CCL over five different ranges, average one year % excess body weight loss (%EBWL), and serum albumin (ALB) at one year were compared.

Results: In our series, the CCL varied considerably from 230-930 cm with a majority distribution in the 400-500 cm range. The 200-300 cm range CCL had a %EBWL of 60.7, the 300-400 cm CCL had a %EBWL of 68.1, the 400-500 cm CCL had a %EBWL of 71.1, the 500-600 cm CCL had a %EBWL of 66.7, and the >600 cm CCL had a %EBWL of 62%. Preoperative BMI and one year ALB levels were not significantly different.

| Preop BMI | CCL range | N | One year average %EBWL | ALB |
|-----------|------------|----|------------------------|------|
| 56.7 | 200-300 cm | 19 | 60.7% | 3.73 |
| 51.4 | 300-400 cm | 47 | 68.1% | 3.82 |
| 49.8 | 400-500 cm | 59 | 71.1% | 3.94 |
| 54.7 | 500-600 cm | 46 | 66.7% | 3.78 |
| 52.2 | 600- cm | 17 | 62% | 4.3 |

Conclusion: We conclude that contrary to prior studies, increasing the roux limb length and thus shortening the small bowel CCL is not associated with increased weight loss or abnormal ALB levels at one year in our series.

10. LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS IN PATIENTS WITH BMI<50: A PROSPECTIVE RANDOMIZED TRIAL COMPARING SHORT AND LONG LIMB LENGTHS

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Background: It has been shown that long limb gastric bypass in the superobese (BMI>50) results in increased weight loss in comparison with conventional gastric bypass. The purpose of this study was to compare the effect of short and long limb lengths in patients with BMI<50.

Methods: 50 patients with BMI<50 (48 females/2 males, mean age=35+9.6 years) were prospectively randomized to either a short limb (biliopancreatic limb=50cm, alimentary limb=100cm) or long limb (biliopancreatic limb=100cm, alimentary limb=150cm) laparoscopic Roux-en-Y gastric bypass. In all patients, a 25mm EEA was used to fashion the gastrojejunostomy and the Roux limb was positioned in an antecolic, antegastric location. Limb lengths were precisely measured in all cases.

Results: There was no difference in demographic data, preoperative BMI, presence of co-morbidities, duration of surgery, complications, or length of hospital stay between the two groups. When comparing the short limb to the long limb patients, the BMI decreased equally in both groups at the following time intervals: preoperative (44.6 vs 45.0), 3 weeks (40.3 vs 41.1), 3 months (35.5 vs 35.2), 6 months (31.2 vs 31.5), and 12 months (27.7 vs 28.6). There were

no major complications or significant nutritional deficiencies in either group.

Conclusions: In patients with BMI<50, there is no benefit to performing a long limb laparoscopic gastric bypass.

11. CLINICAL AND RADIOLOGICAL 5 YEAR FOLLOW UP OF LAPAROSCOPIC ADJUSTABLE GASTRIC BANDS (LAGB) PLACED BY THE PERIGASTRIC TECHNIQUE IN 1998

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Some authors have voiced concerns about the long-term efficacy and safety of LAGB. We reviewed 123 consecutive LAGB placed in 1998 to assess rates of band removal, weight loss and esophageal dilatation.

Bands were left partially in place. Patients were reviewed every 8 weeks for 2 years, then 3 monthly. Patients were invited for a barium swallow at 5 years.

At mean follow-up of 66.5 months (59 - 70), 17 patients were lost - most after 3 years and 106 available for review (87.3%). Seventy-six patients had bands in place and 28 removed at 23 months ± 7 (22%). This compares to removal of 8 of 162 bands inserted by pars flaccida technique in 2000 (4.8%). Slip rate was 9.5%.

At banding, the 76 patients available for 5 year review were aged 45.7 ± 11 (19 - 70). Twenty-nine were superobese (38%). At 66.5 months weight fell from 122 ± 19 (83 - 195) kg to 100 ± 19 (63 - 153) kg, and BMI 43.4 ± 6.3 (33 - 69) kg/m² to 32.6 ± 5.9 (24 - 51) kg/m². EWL was 49.5% ± 21 (0 - 102), with 34 (43%) having > 50% EWL.

Thirty-two patients (41%) agreed to barium swallow. Only one had esophageal dilatation which completely disappeared 3 weeks after band de placement.

LAGB provides effective weight loss at 5 years with no evidence of esophageal dilatation, reflecting the effectiveness of our follow-up schedule. Change to Pars Flaccida technique will eliminate most of the causes for band removal.

12. INITIAL EXPERIENCE WITH LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING AT THE CLEVELAND CLINIC FLORIDA: CRITERIA FOR PLACEMENT AND REASONS FOR FAILURE AFTER 100 CONSECUTIVE PATIENTS.

Colleen Kennedy, MD, Samuel Szomstein, MD, Nathan Zundel, MD, Flavia Soto, MD, Emmanuele Lo Menzo, MD, David Podkameni, MD, Alexander Villares, MD, Guillermo Higa, MD, and Raul J. Rosenthal, MD
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Background: Since FDA approval of the LAP-BAND® laparoscopic adjustable gastric band (LAGB) for the treatment of morbid obesity, varying degrees of success have been described. We reviewed our initial 100 patients who underwent LAGB to determine reasons for failure and indications for band removal.

Methods: 2 surgeons performed 856 procedures for morbid obesity from July 2001 to July 2003. 100 underwent LAGB. 756 underwent the gastric bypass. Patients with a BMI of 35-50, age >18, or in inflammatory bowel disease were considered candidates for LAGB. The average BMI was 40.2. Band adjustments were performed routinely to optimize results. Patients were followed at 10 days, 1, 3, 6 and 12 months. Follow up ranged from 1-18 months (mean: 6 months) with a mean % EWL of 58% at 1 year.

Results: 100% of the procedures were completed

laparoscopically. Early reasons for band removal included gastric perforation (1%), esophageal perforation from calibration tube (1%), acute obstruction (2%), and megaesophagus (4%). Late reasons included weight loss failure (2%), gastric erosion (1%), GERD with Barrett's esophagus (1%), band slippage (1%) and personal choice (1%). Other complications included slippage requiring adjustment (4%), food obstruction (2%) and port site complications (3%).

Conclusion: The LAGB is a safe option for the treatment of morbid obesity. Success depends on careful selection of patients and close follow up. Complications that might result in band removal are rare but result in significant morbidity if not detected early. A high index of suspicion and awareness of these complications is crucial.

13. PATIENT CHARACTERISTICS IMPACTING % EXCESS WEIGHT LOSS (%EWL) FOLLOWING LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING (LAGB).

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Background: Weight loss is more variable after LAGB than gastric bypass. Sub-group analysis of patients may offer insight into this variability.

Methods: We retrospectively collected patient characteristics and follow-up weights for our first 200 LAGB. Linear regression determined average %EWL. Logistic regression identified factors that impacted %EWL.

Result: 200 patients returned for 700 follow-up visits. Median age was 44 years (21 – 72 yrs) and BMI 45 kg/m² (31 – 76 kg/m²). 60 (20%) were men and 140 (80%) women. Average % excess weight loss was $y\% = 0.007\%/day(days\ since\ surgery) + 0.12\%$ (cor. coef. 0.4823; $p < 0.001$). %EWL at 1 year was 37%. Best-fit logistic regression found 7 factors that significantly changed the odds of achieving average %EWL.

| PREDICTS GOOD % EWL | SLOPE | ODDS RATIO | ODDS RATIO LOWER 95% | ODDS RATIO UPPER 95% | P VALUE |
|---------------------|-------|------------|----------------------|----------------------|---------|
| INCREASING AGE | 0.02 | 1.02 | 1.01 | 1.04 | <0.001 |
| DIABETES | 0.63 | 1.87 | 1.13 | 3.10 | <0.02 |
| COPD | 1.50 | 4.50 | 1.21 | 16.72 | <0.02 |
| PREDICTS POOR % EWL | SLOPE | ODDS RATIO | ODDS RATIO LOWER 95% | ODDS RATIO UPPER 95% | P VALUE |
| INCREASING BMI | -0.09 | 0.92 | 0.89 | 0.94 | <0.001 |
| HYPERTENSION | -0.45 | 0.64 | 0.43 | 0.93 | <0.02 |
| ASTHMA | -0.69 | 0.50 | 0.26 | 0.98 | <0.04 |
| FEMALE | -1.24 | 0.29 | 0.19 | 0.43 | <0.001 |

Older patients, diabetic patients and patients with COPD had greater odds of above average %EWL. Female patients, patients with larger BMI's, asthmatic patients and patients with hypertension had increased odds of below average %EWL.

Conclusion: Specific patient characteristics and co-

morbid conditions significantly altered the odds of achieving satisfactory %EWL following LAGB. WORD COUNT: 248 by Word "Word Count Tool".

14. ADJUSTABLE GASTRIC BANDING AS AN OUTPATIENT PROCEDURE; A MULTI-INSTITUTIONAL EXPERIENCE OF 700 SUCCESSFUL PATIENTS.

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Background: The purpose of this multi-institutional study was to determine the efficacy and safety of laparoscopic adjustable gastric banding as an outpatient procedure.

Methods: Between March 2001 and Oct 2003 700 adjustable gastric banding cases were performed as an outpatient procedure. Prospective data for complications, BMI, co-morbidities and indications for outpatient candidates were collected. Special criteria for patient selection were applied. Patients with the following characteristics were excluded from outpatient surgery: BMI greater than 55 in one institution and greater than 70 in the other; cardiac disease and sleep apnea requiring c-pap. All patients underwent postoperative water soluble contrast study or trial of liquids before discharge depending on institution.

Results: There were no conversions to an open procedure. Twenty patients selected for outpatient surgery had stoma obstructions revealed either by water soluble contrast study, or inability to tolerate liquids. All patients with evidence of post operative obstruction were admitted for IV fluids, and stayed for 3-5 days. No patient that was discharged the day of surgery was readmitted in the immediate postoperative period. Length of stay following surgery averaged 4 hours.

Conclusions: We conclude that for carefully selected patients, adjustable gastric banding can be done safely as an outpatient procedure. Our results suggest that laparoscopic gastric banding may provide a much-needed outpatient alternative to inpatient bariatric surgery such as the gastric bypass in the treatment of morbid obesity.

15. IS THE LAGB EFFECTIVE IN PATIENTS WITH BMI ≥ 60?

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Background: A high BMI correlates with more difficult laparoscopic procedures, and it can also affect weight-loss rate, worsening outcomes. This study aimed at evaluating the role of LAGB in patients with BMI≥60 and comparing it to a BMI<60 group.

Methods: 210 patients operated-on with LAGB(6-68 months follow-up), mean age 42(16-61), 70.9%female, weight 138.6kg(93-280), BMI 51(35-89.3).

35 patients had BMI≥60(190.1kg±29.9, BMI 69.8±8.3, 48.5%female) and 175 BMI<60 (127.2kg±23.2, BMI 46.7±6.4, 75.8% female). Similar age distribution.

Outcome variables: surgical time, conversion, morbidity and mortality. %EWL, WL, BMI, %SR (success rate:EWL≥50%) were evaluated at 3-years' follow-up(97%).

Results: Surgical time was 82vs118min(BMI<60≥.) SD($p < 0.001$). Conversion occurred only at the beginning of the learning curve, 4(1.9%) cases with BMI≥60.

Morbidity with major and minor complications had no differences in any series and no mortality occurred in relation to LAGB.

| Follow-up 3y | %EWL | WL (kg) | BMI | %SR |
|----------------|-----------|-------------|----------------------------------|------|
| BMI<60 (n:91) | 60.9±22.3 | 40.8±16.4 | 32.7 | 67.8 |
| BMI ≥60 (n:30) | 60.2±16 | 73±19.8 | 41.5 | 65.4 |
| | NSD | SD(p<0.001) | SD(p<0.001) respective variation | NSD |

Conclusion: LAGB proved to be suitable, safe and effective for patients with BMI ≥60.

Although the surgical time is higher, with more technical difficulties in the BMI ≥60 group (51.5% male), no differences were found in intra or postoperative complications when comparing both groups.

Similar %EWL and %SR at 3 years. BMI ≥60 group takes longer to reach the same %EWL rate.

LAGB is the simplest procedure among other present techniques (GBP and BPD), that show more morbidity and mortality, especially in patients with high BMI (≥60). Long-term, close and assiduous follow-up establish reliable results.

16. ADJUSTABLE GASTRIC BANDING AS A REVISIONAL BARIATRIC PROCEDURE AFTER FAILED GASTRIC BYPASS.

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BACKGROUND: Inadequate weight loss after proximal gastric bypass presents a clinical challenge to bariatric surgeons. Pouch size, stoma size and limb length are the variables that can be surgically altered. Aside from conversion to distal bypass, which may have significant negative nutritional sequel, revisional surgery for this group of patients has not often been reported. The addition of Adjustable Silicone Gastric Banding (ASGB) to Gastric Bypass (GBP) may be a useful revision strategy as it has potential safety benefits over other revisional approaches.

Methods: We report on 7 patients who presented with inadequate weight loss or significant weight regain after proximal gastric bypass. All patients underwent revision with the placement of an Adjustable Silicone Gastric Band around the proximal gastric pouch. Bands were adjusted at 6 weeks post operatively and beyond as needed. Complications and weight loss at the most recent follow up visit were evaluated.

Results: Mean age and Body Mass Index (BMI) at the time of revision was 36.7 (30-49) years and 45.7 ± 3.32 (kg/m²) respectively. No patients were lost to follow up, which ranged from 8 weeks to 20 months (mean follow up=7.6 months) and they lost 15%-45% (mean %EWL=28.2%) of their excess weight respectively. The only complication was the development of a seroma overlying the area of port adjustment in one patient. There have been no erosions or band slippages associated with the band.

Conclusion: These results indicate that the addition of the ASGB causes significant weight loss in patients with poor weight loss outcome after gastric bypass. The fact that no anastomosis or change in absorption is required may make

this an attractive revisional strategy. Further evaluation in a larger population is warranted.

17. RESOLUTION OF OR IMPROVEMENT IN DIABETES AND HYPERTENSION AFTER WEIGHT LOSS WITH THE LAP-BAND SYSTEM

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Background: Severe obesity is associated with multiple comorbidities, including diabetes and hypertension.

Methods. Of a total of 641 patients who underwent LAP-BAND System surgery at this center, 177, 86, and 45 had at least 1, 1.5, and 2 years follow-up, respectively. These patients were studied preoperatively and at follow-up after surgery to examine the effect of LAP-BAND-induced weight loss on diabetes and/or hypertension.

Results. Of 177 patients who underwent LAP-BAND System surgery and had at least 1 year of follow-up, 26 (14.8%) were taking medication for diabetes and 74 (41.8%) were taking antihypertensive medication prior to their surgery. Of those with diabetes, 20 (76.9%) also had hypertension.

| | Pre-operative | 1 Year Follow-up | 1.5 Years Follow-up | 2 Years Follow-up |
|---------------------------------|-----------------|------------------|---------------------|-------------------|
| Diabetic Patients | | | | |
| N | 26 | 26 | 14 | 7 |
| %EWL | | 43.5% | 47.3% | 52.5% |
| HbA1c | 7.57 (5.7-10.1) | 5.95 (5-8) | 5.52 (5-6.9) | 5.73 (5-6.2) |
| Diabetes resolved | | 61.5% | 71.4% | 85.7% |
| Hypertensive Patients | | | | |
| N | 74 | 74 | 41 | 22 |
| %EWL | | 47.5% | 52.7% | 55.6% |
| Hypertension resolved | | 55.4% | 75.6% | 77.2% |
| Hypertension improved | | 33.8% | 19.5% | 18.1% |
| Hypertension remained unchanged | | 9.5% | 4.8% | 4.5% |

Patients in whom diabetes was improved but not resolved had lower %EWL than did those whose diabetes went into remission. Complications in the diabetic group included 2 port infections and 1 stoma obstruction. Complications in the hypertensive group included 1 hemorrhage from a trocar site, 2 slippages, 2 port infections, and 1 case that required conversion to an open procedure.

Conclusion. Dramatic improvement in—and often resolution of—diabetes and/or hypertension have been observed as a result of LAP-BAND-induced weight loss.

18. HISTOLOGICAL FINDINGS IN THE PERIPROSTHETIC CAPSULE AT THE SITE OF GASTRIC BANDING

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Background: In our hospital, a patient presented with

acute dysphagia and regurgitation, three years after gastric banding (GB). Radiographic evaluation showed esophageal dilatation and nearly no gastrografin passage. Emptying of the band gave no improvement. We decided to cleave the fibrous sheet and reposition the band. A radiographic control showed normal transit.

It is proven that silicone is not inert. Fibrosis is known to appear around implants, such as silicone breast implants (SBI). Other complications that may occur are chronic inflammation, contracture, migration of silicone particles and connective tissue diseases. We studied the effects of the gastric band on the gastric tissue, and compared them with known effects of SBI.

Methods: Between November 2001 and November 2003, nineteen patients with laparoscopic adjustable GB underwent reoperation with removal of the band, during which a biopsy of the periprosthetic capsule was taken. These samples were examined histologically.

Results: Nine patients had foreign body granuloma, ten had silicone particles in the periprosthetic capsule, eighteen had signs of chronic inflammation and all of the patients had fibrosis.

Conclusion: These results show that the tissue effects of GB are comparable with those of SBI. The silicone particles of the gastric band can get in the capsule by shedding or by manipulation. The role of these particles in the histological and clinical changes is not yet fully understood. Therefore further research is needed to establish the exact physiopathological mechanisms of tissue alterations around silicone implants.

19. NUTRITIONAL DEFICIENCY IN LAPAROSCOPIC GASTRIC BANDING

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Introduction: Vitamin and mineral deficiency are often seen after laparoscopic gastric bypass operations. However, vitamin and mineral deficiency are not thought to occur after laparoscopic gastric band operations because the absorptive capacity of the small bowel is not manipulated. We sought to review our institutional experience to see if patients developed deficiencies after laparoscopic gastric banding.

Methods: Between July 2001 and March 2003, eighty Gastric banding procedures were performed at our institution by a single surgeon, using Bioenterics Lap-Band. Median follow-up was between 8-15 months. Patients received post-operative multi-vitamins but no additional iron supplements. All patients were adjusted an average of 0-1.5ml of saline. Follow-up labs were drawn looking at transferrin, folate, vitamin B12, and iron.

Results: Vitamin B12 deficiency was seen in 7 % of our patients. Folate deficiency was seen in 14 % of our patients. Transferrin deficiency was seen in 27% of patients. Iron deficiency was seen in 72% of band patients. In addition, 53% were anemic with low hemoglobin levels.

Conclusion: Gastric banding causes vitamin deficiencies, most notably iron deficiency. Therefore, patients receiving gastric bands should be placed on routine vitamin supplements and iron supplements. In addition, routine blood work should be done to monitor levels of vitamins and minerals.

20. LAPAROSCOPIC MANAGEMENT OF BAND EROSIONS: IS IT A SIMPLE PROCEDURE?

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Background: Migration of the band through the stomach wall is a well known late complication that requires band removal. This study is to describe our laparoscopic approach to remove eroded band in a simplified way.

Methods: Band erosions were diagnosed endoscopically in 25 cases and cases were divided into two categories according to whether the lock of band is inside the stomach or not. The type of band used was Lap-Band in 5 cases & Swedish bands in 20 cases. Laparoscopic approach was used in all cases through the old scars when possible. Dissection of the adhesions was done using the harmonic scalpel. The endoilluminator was used to delineate the anatomy obscured by adhesions. The band is removed after following the tube in cases where the lock was outside the stomach (14 cases). For cases where the lock was inside the stomach (6 cases), a separate gastrotomy was done to get the lock out of the stomach to unlock the band. The defect found after band removal is closed with simple non absorbable sutures to be covered by an omental patch secured over the first repaired layer. A drain is placed & an upper GI contrast study is done on the following day.

Results: All cases were done via laparoscopy. Average hospital stay was 2.2 days. Upper GI contrast study did not show any leaks. There is no postoperative leaks and no mortalities in this series.

Conclusions: Laparoscopic band removal in cases of erosions could be a simple procedure in experienced hands. Determination the place of the lock endoscopic

21. LAP-BAND REVISION: 233 / 3813 PRIMARY PROCEDURES BY THE ITALIAN GROUP FOR LAP-BAND (GILB)

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Background: LAP-BAND is the first-line bariatric surgery in many countries. The surgical procedure to revise failed primary LAP-BAND, however, has been controversial.

Methods: Primary LAP-BAND System® patients operated between January '96 and June '03 at one of the 27 centers in the LAP-BAND Collaborative Study were analyzed. 231/3813 (6%) patients subsequently underwent revision; 35M/196F; mean age: 40.4 ± 11.3 (range: 19-69); mean BMI: 35.1 ± 7.4 kg/m² (range: 18.3-58.6); EW: 39 ± 18.7 kg (range: -15-100); %EW: 72.4 ± 39.8 (range: -23-143). Tube/port re-operations (121/3813; 3.1%) were excluded. Data collected were: revision indication, type of revision procedure, major complications and 30-day mortality (data expressed as mean ± SD).

Results: Mortality: 1/233 (0.43%); Major complications: 6/233 (2.5%). 137 (58.7%) band removals for: migration (n=62), pouch dilation/slippage (n=56), psychological intolerance (n=14), system infection (n=3). Band repositioning for pouch dilation/slippage (n=43, 18.4%) was performed without complications. Three of 37 (2.1%) with acute

pouch dilatations, initially treated conservatively, received a delayed exploration, band removal and gastrectomy. One patient died; 2 experienced difficult recoveries.

For unsatisfactory weight loss, patients were revised to other procedures (n=49, 21%): 1/9 patients (11.1%) who had standard Roux-en-Y (GBP) and 2/14 (14.2%) who had Bilio-Pancreatic Diversion (BPD) with band preservation developed anastomotic leaks, treated conservatively. Other patients with functional GBP (n=15), BPD (n=7), and Bilio-Intestinal Bypass (n=4) had uneventful recoveries.

Conclusions: Pouch dilation/slippage remains among the most frequent indications for revision. LAP-BAND repositioning is safe. A variety of bypass type of procedure are currently been explored for unsatisfactory weight loss.

22. ROUTINE PREOPERATIVE ESOPHAGEAL MANOMETRY DOES NOT PREDICT OUTCOME OF LAPAROSCOPIC ADJUSTABLE SILICONE GASTRIC BANDING

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Introduction: Laparoscopic adjustable gastric banding (LAGB) for morbid obesity has been reported to provide long-term weight loss with a low risk of operative complications. Esophageal dilation and dysmotility have been feared complications of LAGB. This study evaluates the clinical benefit of preoperative esophageal manometry in predicting patient outcome after LAGB.

Methods: A review of prospectively collected data on 62 morbidly obese patients who underwent preoperative esophageal manometry prior to LAGB from 02/01 to 02/03 was performed. Aberrant motility, abnormal LES pressures and other nonspecific abnormalities characterized by preoperative manometry defined esophageal dysmotility in these patients. Differences in preoperative GERD symptoms, resolution of GERD postoperatively and band intolerance characterized by moderate to severe emesis at least one time during follow up were evaluated. ANOVA and chi-square tests were performed to determine the significance of outcomes.

Results: Of the group studied, 13 patients had evidence of esophageal dysmotility determined by preoperative manometry. There were no significant differences in band related complications, weight loss or GERD resolution between LAGB patients with normal manometry compared to those patients with abnormal manometry during follow up.

| | Abn Manometry | Norm Manometry | P-Value |
|-----------------|---------------|----------------|---------|
| Preop GERD | 23.07% | 41.67% | 0.2199 |
| Postop GERD res | 23.07% | 34.69% | 0.4257 |
| Band intol | 20.41% | 16.67% | 0.7701 |
| 6 mos.%EWL | 25% | 26.23% | 0.9254 |

*P<0.05 was considered significant

Conclusion: Preoperative esophageal manometry is not predictive of outcome after LASGB. Given the cost and patient discomfort, this preoperative procedure is not be indicated.

23. OUTPATIENT LAPAROSCOPIC GASTRIC BYPASS: ANALYSIS OF 1,000 CONSECUTIVE CASES

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Background: Laparoscopic Roux-en Y Gastric Bypass (lap – RYGB) is a technically challenging procedure that has been reported to decrease peri-operative morbidity and hospital length of stay (LOS) as compared to open RYGB. The feasibility of performing lap-RYGB on an outpatient basis has not been previously reported.

Methods: A single institution prospective database of patients undergoing 23-hour, outpatient lap – RYGB over a 2-year period was reviewed. Procedures were performed by one of four faculty general surgeons practicing in a community based general surgery residency training program. Study endpoints included hospital discharge within 23 hours, 30-day hospital re-admission rate, early (<30 day) and/or late complication rates and 30-day peri-operative mortality. Variables assessed included patient demographics, operative time, surgeon, Roux limb pathway (antecolic vs. retrocolic), intra-operative steroid administration, and the post-operative use of Precedex™.

Results: One thousand consecutive patients admitted for 23 hour, outpatient lap – RYGB were identified, and 78.9% (n=789) were discharged within 23 hours of admission (median f/u = 9 months). Of these 789, 1.9% (n=15) were re-admitted within 30 days. Reasons for re-admission included internal hernia (n=7), gastro-jejunal anastomotic ulcer (n=4) nonspecific nausea/dehydration (n=3) and jejuno-jejunostomy anastomotic hematoma (n=1). The overall early and late complication rates were 1.2% (n=12) and 4.9% (n=49), respectively. The most common cause of early complications was a gastro-jejunal anastomotic stricture (0.8%), while the most common cause of late complication was an internal hernia (4.6%, n=46). The 30-day mortality rate was 0.2% (n=2), which included one patient with heart failure (age 56 years) and one patient with partial small bowel obstruction (weight >400lbs). Neither patient was discharged prior to death. Univariate analysis demonstrated patient age <56 years, BMI <60, weight < 400lbs, intra-operative steroid bolus and post-operative use of Precedex as predictive of successful outpatient admission (p<0.05). Successful 23 hour, outpatient lap-RYGB within this subgroup was 93% (n= 714).

Conclusion: These data suggest that 23 hour, outpatient lap – RYGB can be successfully performed with acceptable peri-operative complication, hospital readmission, and mortality rates. Careful patient selection, use of intra-operative steroid bolus and post-operative Precedex were predictive of successful 23-hour, outpatient lap - RYGB.

24. IS ROUTINE CHOLECYSTECTOMY DURING BILIOPANCREATIC DIVERSION WITH DUODENAL SWITCH REALLY NECESSARY?

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Background: Routine cholecystectomy has been recommended for patients undergoing biliopancreatic diversion, based on the high prevalence of gallstones in the obese patient, and presumed development of gallstones post-operatively. We have considered elective cholecystectomy only if gallbladder disease was

present. The aim of this study was to assess the need for cholecystectomy in the post-operative period.

Methods: In this retrospective study, 219 patients who underwent a biliopancreatic diversion with duodenal switch (BPD/DS), between January 1999 and January 2003, were analyzed. We performed a 150cm. alimentary limb and a 100cm. common channel. Patients received Ursodiol 300 mg. P.O. bid for 6 months. The following data were recorded: demographics, medical history, medication, weight loss, diagnostic work up, operative and pathology data.

Results: We operated on 219 patients: 59 (27%) males and 160 (73%) females with a mean age of 41.7 years, and a mean BMI 55.7 Kg/m². We have achieved a mean follow up of 30 months (range 12 to 48).

A total of 43/158 patients (27.2%) underwent a cholecystectomy at any time; 23 (14.6%) pre-operatively, 9 (5.7%) simultaneously and 11 (7%) post-operatively. Simultaneous cholecystectomy was performed when a history of colic episodes with gallbladder disease (revealed by pre-operative ultrasound) were present. In the post-operative cholecystectomies pathology reports revealed cholecystitis in only 4 patients.

Conclusion: The incidence of post-operative cholecystectomy in BPD/DS patients is low, and cholecystitis is rare. Routine cholecystectomy in BPD/DS patients is no longer recommended.

25. LIVER DAMAGE IN SEVERELY OBESE PATIENTS: A CLINICAL-BIOCHEMICAL-MORPHOLOGIC STUDY ON 1000 LIVER BIOPSIES

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Background: Preoperative clinical data and intraoperative liver biopsy of 1000 obese patients submitted to BPD were analyzed, and correlations investigated.

Methods: 1000 obese patients with no history of alcohol consumption or viral hepatitis were selected out of a total of 1673 patients submitted to BPD between September 1988 and November 2002. Clinical data included: age, body weight (BW), body mass index (BMI), waist-to-hip ratio (W/H), arterial blood pressure, serum glucose (SG), triglycerides (try), cholesterol (chol), albumin/ α -globulin ratio, total (tb), conjugated (cb) and unconjugated bilirubin (ub), α -GT (GGT), ALP (alkaline phosphatase), AST, ALT, prothrombin time (PT). The degree of steatosis (S), in ammation (INF) and fibrosis (FIB) on intraoperative wedge liver biopsy was determined and scored. Liver damage (LD) was defined by the presence of bridging FIB.

Results: Mean BMI was 48 kg/m². 695 patients had S >10%, and 79 had LD. Regression analysis showed association between S and AST (p<0.0001), ALT (p<0.0001), AST/ALT (p<0.0001), BW (p<0.0001), W/H (p<0.0001), SG (p<0.0001), tri (p<0.0001), BMI (p<0.0001), GGT (p=0.001), age (p=0.0022), ib (p=0.0076). INF was significantly (Student's t; p <0.05) greater in older patients. Patients with LD had significantly higher values of SG (p<0.0001), AST (p=0.0005), GGT (p=0.0005), chol (p=0.0279) and were significantly older (p<0.0001). LD was associated (chi-square test) with diabetes (p<0.0001), W/H >1 (p=0.0238), hypertension (p=0.02), A/G > 1 (p=0.014).

Conclusion: Liver damage seems to be associated with the metabolic syndrome. No reliable biochemical data could identify patients with severe chronic liver damage with

sufficient sensitivity.

26. GASTROJEJUNAL ANASTOMOTIC STRICTURE AFTER LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (LRYGBP)

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Background: Many variations of the Roux-en-Y gastric bypass have been described. One of the controversial aspects remains the technique for the gastrojejunostomy (hand-sewn, vs. circular vs. linear stapler) and the resulting incidence of strictures.

Methods: 602 consecutive patients underwent laparoscopic Roux-en-Y gastric bypass between 7/2001 and 7/2003. All patients received a 30 cc pouch with an antecolic antegastric Roux limb of 100, 150 cm and 200 cm depending on their BMI's. The diagnosis of stricture was made by endoscopy and/or radiographic methods in patients with excessive vomiting.

Results: 40 patients (6.6%) developed stomal strictures. Coexisting marginal ulcer was found in 4 patients. Mean age was 41 years (range 20-61). Mean BMI was 50.1 (41-62). Main symptoms that led to the diagnosis were: vomiting (n=40) and abdominal pain (n=4). The mean number of dilatations per patients was 2 (range 1-4). Time elapsed from surgery to dilatation was 20 to 154 days (mean 52.7). The size of the anastomotic strictures ranged from 2 to 9 mm (mean 5.2). All dilatations were performed with TTS (through-the-scope) balloons to a final diameter of 10 to 16.5 mm. One perforation occurred (2.5%), requiring laparoscopic operative intervention.

Conclusions: Gastrojejunal anastomotic stricture is a potential complication of Roux-en-Y gastric bypass. Endoscopic balloon dilatation appears to be a safe and effective treatment option. The different anastomotic techniques (linear-stapled, circular-stapled and hand-sewn anastomosis) and the different route of reconstruction of the Roux limb might play a role in the incidence of stricture formation.

27. ENDOSCOPIC INJECTION OF FIBRIN SEALANT IN THE REPAIR OF GASTROJEJUNOSTOMY LEAK FOLLOWING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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Background: Gastrojejunostomy leak (GL) is a serious potentially life-threatening complication of the laparoscopic Roux-En-Y gastric bypass procedure (LGBP). Because definitive repair of acute leaks is rarely successful, patients often require prolonged closed catheter drainage and parenteral hyperalimentation. Our experience with endoscopic injection of fibrin sealant (EIFS) at the site of GL in 5 patients has resulted in virtually immediate closure.

Methods: A review of the patients who developed a GL after a LGBP was performed. Operative versus endoscopic treatment was evaluated for the difference in length of treatment and clinical outcome.

Results: A total of 354 patients underwent a primary

LRYGB between January 2002 and June 2003. GL occurred in 8 patients (2.25%). Three patients were treated with exploratory laparotomy and drainage due to clinical instability. The length of treatment from identification of the GL to closure in the operative group was 41, 6 and 102 days. There was one death and multiple complications among the operative group. Five patients were treated conservatively and subsequently underwent EIFS into the GL. The EIFS group had 4 patients close the GL within 2 days after injection. One EIFS patient required 11 days before complete closure. There were no complications or recurrences in the EIFS group.

Conclusions: Endoscopic injection of fibrin sealant successfully closed 5 gastrojejunostomy leaks following laparoscopic Roux-En-Y gastric bypass. This technique should be used primarily in stable patients with gastrojejunostomy leak.

28. ACUTE RENAL FAILURE (ARF) AFTER LAPAROSCOPIC ROUX EN Y GASTRIC BYPASS (LGBP)

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Background: Acute renal failure (ARF) is a serious complication that contributes to patient morbidity and may result in death. To date, there is no data regarding the predictive risk of ARF, and its effect on the outcome of patients who undergo gastric bypass (LGBP).

Method: The medical records of 1800 patients who underwent GBP from July 1997 to July 2003 at a single institution were analyzed. Data collected included demographics, comorbid factors, operative details and postoperative outcomes. ARF was defined as a rise in creatinine \geq 1.5mg/dl or a rise of $>$ 0.3mg/dl above baseline. Multivariate analysis was performed and results were compared to 500 age-sex-comorbidity matched control patients who underwent similar operations.

Results: The mean age was 50 \pm 8 years with M/F ratio of 23/19. Forty-two patients (2.3%) developed ARF after surgery. Dialysis was required in 6 patients, 2 of whom became dialysis dependent. ARF completely resolved in the remaining patients.

Risk factors for ARF

| Factors | Incidence of ARF | P | Odd ratio |
|------------------|------------------|---------|-----------|
| Age \geq 50 | 17.6% | <0.0001 | 4.0 |
| <50 | 4.3% | | |
| Sex M | 9.5% | <0.0001 | 4.4 |
| F | 4.4% | | |
| BMI \geq 50 | 12.9% | <0.0001 | 3.6 |
| <50 | 3.5% | | |
| Previous (+) CRF | 59.1% | <0.0001 | 10.7 |
| (-) | 5.5% | | |
| Diabetes (+) | 16.8% | <0.0001 | 3.5 |
| (-) | 4.8% | | |
| HTN (+) | 12.2% | <0.0001 | 13.5 |
| (-) | 0.9% | | |
| CHF (+) | 38.5% | 0.002 | 5.6 |
| (-) | 6.9% | | |
| OR Time $>$ 210 | 13.4% | <0.0001 | 5.0 |
| $<$ 210 | 2.9% | | |

Conclusion: Primary ARF after LGBP is an uncommon complication with an incidence of 2.3%. Patients with BMI $>$ 50, previous chronic renal failure, and long operating times are at the highest risk of postoperative renal failure.

29. THE ROLE OF PREOPERATIVE UPPER GI ENDOSCOPY IN GASTRIC BYPASS SURGERY

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Background: Gastric Bypass surgical techniques isolate the distal stomach and duodenum from endoscopic examination postoperatively. The role of preoperative endoscopic examination is not clear. The purpose of this study is to examine the endoscopic findings in consecutive patients under going gastric bypass surgery.

Method: From February 2002 until October 2003 data was collected prospectively from 100 consecutive patients under going preoperative endoscopy followed by gastric bypass surgery. Demographic data and gross and histologic endoscopic data was collected.

Results: All one-hundred (N=100) patients underwent endoscopy. 15 patients had no abnormal gross or histological finding. 27 patients had a hiatal hernia. 4 patients had previous undiagnosed Barrett's esophagus. 3 patients had benign gastric polyps. 3 patients had asymptomatic ulcer disease treated medically prior to surgery, and 10 patients tested positive for H. pylori and were treated medically preoperatively.

Conclusion: Routine use of preoperative upper GI endoscopy reveals significant pathology in asymptomatic patients with few normal studies. The pathological findings altered patient treatment in several cases. Therefore routine use of preoperative upper GI endoscopy should be adopted by bariatric surgeons. 177

30. PREOPERATIVE GASTROINTESTINAL EVALUATION FOR GASTRIC BYPASS SURGERY: IS IT WORTH IT?

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Background: This study was designed to analyze the frequency and outcomes of preoperative gastrointestinal (GI) evaluation in Roux-en-Y gastric bypass (RYGB) patients and to see if treatment of any abnormalities decreases postoperative GI complications.

Methods: Retrospective review of the 144 patients undergoing RYGB over the first 13 months of a bariatric surgery program. One surgeon routinely performed esophagogastroduodenoscopy (EGD) preoperatively while the other surgeon was selective.

Results: History or presence of GI symptoms was found in 60% of the patients. Fifty patients (35%) had no preoperative upper GI evaluation. Ten patients had upper GI x-ray (40% were abnormal) and 94 patients had EGD (84% were abnormal). Patients who had a history of GI symptoms had a higher incidence of abnormal EGD (64% vs. 41%, $p<$ 0.01). Abnormalities on EGD included gastritis, duodenitis, glandular polyps, hiatal hernia, esophagitis, gastric ulcer, duodenal ulcer, and benign masses. Ninety-six patients were tested for Helicobacter pylori by one or more methods (serology, CLO test, or histology) with 11% of the patients testing positive. Thirty-one patients (22%)

developed postoperative GI complications (GI bleeding (5%), anastomotic stricture (15%), jejunal ulcer (3%), gastric ulcer (0.7%), or anastomotic leak (2%)). Occurrence of postoperative GI complications did not correlate to whether the patient had a preoperative EGD performed, the preoperative EGD was abnormal, or GI symptoms present preoperatively.

Conclusions: Preoperative upper GI evaluation in RYGB patients is frequently abnormal; however, preoperative diagnosis and treatment of these abnormalities does not seem to decrease postoperative GI complications.

31. MULTIMODAL PREEMPTIVE ANALGESIA IN MORBIDLY OBESE PATIENTS UNDERGOING "OPEN" GASTRIC BYPASS SURGERY PRODUCES A PROLONGED REDUCTION IN POSTOPERATIVE NARCOTIC USAGE

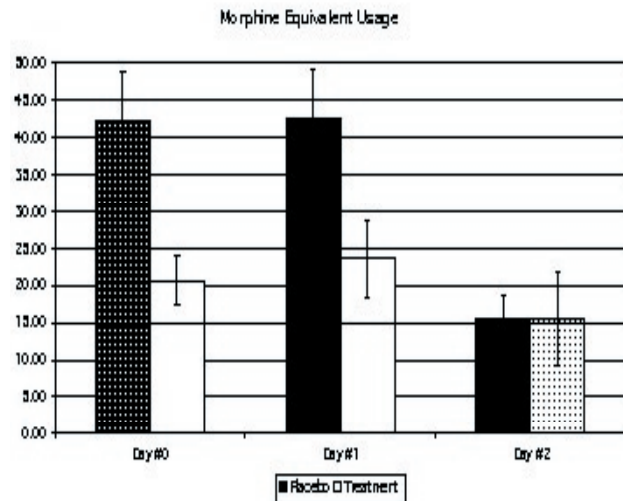
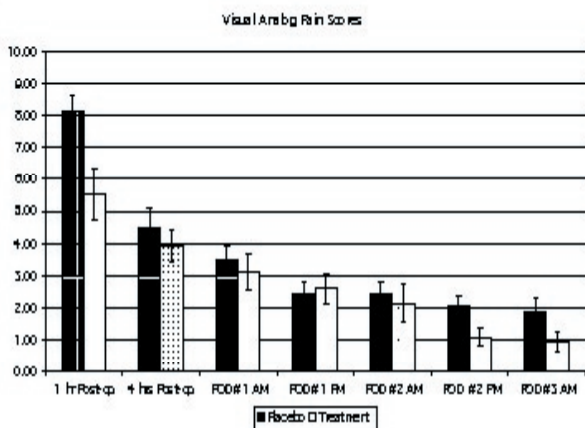
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Background: Postoperative pain management of morbidly obese patients is challenging. Patients must be made comfortable enough to ambulate early, while avoiding over treatment with narcotics resulting in a sedated, immobile patient, not breathing deeply, at increased risk of respiratory complications. This study was designed to test if multimodal preemptive analgesia in "open" gastric bypass surgery could keep patients as comfortable as matched control patients, while requiring less narcotics.

Methods: Twenty patients were enrolled in this prospectively randomized, doubly blinded trial. Treatment patients received 30mg Ketorolac Tromethamine (Toradol) IV preoperatively, 0.25% Marcaine with epinephrine infiltrated into the planned incision line, and a rectus sheath block with 0.25% Marcaine prior to closing fascia. Control patients received equivalent injections with 0.9% saline. The hospital pharmacy performed the randomization and withheld the code until after the last study patient left the hospital.

Results: Groups had equivalent Age, Body Mass Index (BMI), Incision length, and Operative times. The average length of hospital stay was equivalent (2.9 days). Self reported pain was less in treated patients at the first data point (1 hour post-op) (p=0.01). Narcotic usage remained less in the treatment group for the first 2 hospital days (51% less and 44.5% less for the 1st and 2nd days respectively). Total narcotic usage was reduced by 40% for the hospital stay (p=0.02).



Conclusion: Patients receiving multimodal preemptive analgesia used significantly less narcotic pain medication when compared to the control group. This effect lasted beyond the duration of action of the local anesthetic agent.

32. A COMPARISON OF THE ABSORPTION OF CALCIUM CITRATE AND CALCIUM CARBONATE FOLLOWING ROUX-EN-Y GASTRIC BYPASS

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Background: Calcium absorption is impaired following Roux-en-Y gastric bypass (RYGB), however the bioavailability of different calcium preparations in gastric bypass patients is unknown. The goal of this study is to compare the absorption of calcium carbonate and calcium citrate in gastric bypass patients.

Methods: 18 RYGB patients were enrolled in a randomized, single-blinded, crossover trial comparing the absorption of calcium carbonate and calcium citrate. Following a 10 day stabilization period on a low calcium/sodium diet, patients were administered 500 mg of either calcium citrate or calcium carbonate. Serum and urine calcium levels were measured for peak calcium change and cumulative calcium increment from baseline (change in AUC). Serum PTH was also measured for percent change in serum PTH from baseline, the peak decrement, and cumulative decrement in serum PTH (change in area over the curve). Statistical analysis of the two-phase crossover trial was performed using a repeated measures analysis of variance models.

Results: Calcium citrate produced a greater mean increase in serum calcium from baseline than calcium carbonate (p<0.01), and a greater cumulative calcium increment from baseline than calcium carbonate in both serum (p=0.02) and urinary (p<0.001) calcium. The percent decrease in serum PTH from baseline was significantly greater after calcium citrate when compared to calcium carbonate, (p<0.01). Calcium citrate stimulated a lower nadir decrement of PTH (p<0.01), and the cumulative decrement in serum PTH was significantly greater for calcium citrate (p<0.001).

Conclusion: Calcium citrate has significantly greater bioavailability than calcium carbonate following RYGB.

33. PREOPERATIVE VS. POSTOPERATIVE ADMINISTRATION OF LOW MOLECULAR WEIGHT HEPARIN FOR LAPAROSCOPIC GASTRIC BYPASS

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Background: Obese patients undergoing laparoscopic Roux-en Y Gastric Bypass (lap-RYGB) are at risk for developing DVT and/or PE. The use of low molecular weight heparin (LMWH) with lap-RYGB has been routinely recommended, however the timing of administration remains poorly defined.

Methods: A retrospective review of all patients treated with lap-RYGB at a single institution was performed to determine the difference between preoperative and postoperative administration of LMWH (enoxaparin 30-mg SQ). Preoperative LMWH was administered 1-hr to 5 minutes prior to the skin incision, while post operative LMWH was administered 2-hours following the procedure. All patients were continued on LMWH while hospitalized. Study endpoints included intraoperative volume of blood loss, anastomotic bleeding, PRBC transfusion rate, DVT and/or PE rate as well as hospital length of stay (LOS).

Results: One thousand three hundred patients were identified who had lap-RYGB and who received preoperative (n=746, Group 1) or post-operative (n=554, Group 2) LMWH for DVT prophylaxis. Median intra-operative blood loss was 78-cc in Group 1 vs. 20-cc in Group 2 (p<0.05), while the post-operative anastomotic bleeding rate was 1.5% vs. 0.2% (p<0.5). PRBC transfusion rate was 0.6% in Group 1 vs. 0.1% in group 2 (p<0.05). The DVT/PE rate in Group 1 was 0.7%/0.1% vs 0.6%/0.1% in Group 2 (p=ns).

Conclusion: These data suggest that preoperative administration of LMWH is associated with increased operative blood loss, postoperative anastomotic bleeding and PRBC transfusion rate without decreasing the incidence of symptomatic DVT and/or PE.

34. ALTERED COUMADIN REQUIREMENTS POSTOPERATIVELY IN PATIENTS WITH GASTRIC BYPASS

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Background: Pulmonary embolism is a major cause of mortality in morbidly obese patients and is considered by some as a relative or absolute contraindication for GBP.

Methods: Of 471 consecutive patients treated by open GBP for morbid obesity, 24 (5.1%) required long-term postoperative anticoagulation, because of a past history of thrombophlebitis (10), pulmonary embolism (9), atrial fibrillation/cardiomyopathy (4) or strong familial history of PE (1). Twelve patients (50%) were on coumadin immediately before the GBP. Postoperative prophylaxis to prevent thrombosis in these patients was accomplished with standard intermittent calf compression, early ambulation and subcutaneous heparin. Coumadin 10 mg PO was started on the day of operation and 5 mg or less was given on POD #1. Subsequent dosing was adjusted according to the INR.

Results: There was one episode of thrombophlebitis (9 mo postop), and no episodes of pulmonary embolism or deaths. Two patients experienced GI bleeding associated with a prolonged INR. The response to coumadin was extremely variable. Frequent monitoring of the INR was

necessary. All patients previously on coumadin required less than preoperative doses (avg. 56%!), and the others required smaller than expected amounts.

Conclusions: Gastric bypass in patients with a past history of thromboembolic disease or requiring coumadin for other reasons appears to be safe but patients require frequent monitoring of their INR as the responses to coumadin are erratic, and usually greater than would be expected. The reasons for this exaggerated response are not clear but could include dietary factors, liver disease and drug interactions.

35. LONG TERM FOLLOW-UP AND THE ROLE OF SURGERY IN CHILDREN WITH MORBID OBESITY

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Introduction: Diet and behavior modification alone rarely produce a significant and maintained weight loss in children. Although there are extensive studies examining the role of surgery for morbid obesity in adults, the literature is sparse when examining these procedures in children. A retrospective review of our pediatric patients who had undergone a surgical procedure for morbid obesity over a 30-year period was performed.

Results: Between 1971 and 2001, 15 procedures were performed on 14 adolescents. Average age was 16 years (range 14-17) and the male to female ratio was 3:4. Seven vertical banded gastroplasty (VBG) (1 redo), 5 Roux-en-Y gastric bypasses (RYGB), and 3 jejunal-ileal bypasses (JIB) were performed. The JIB procedure was used between 1971-1977 and the remaining two procedures were used exclusively thereafter.

Follow-up was available in 9 patients (64%). Four were lost to follow-up and one patient died of unrelated causes 4 years after his procedure. Average follow-up time was 5.9 years (range: 1-21 years). Average BMI at operation was 58.5+13.7 and at follow-up it was 32.1+9.7kg/m², (45% reduction). Telephone follow-up was available in 9 patients. They rated their overall outcome from the procedures (excellent, very good, good, or poor). All patients reported an excellent outcome and all had maintained their desired weight.

Conclusion: In our small group of pediatric patients, a procedure for morbid obesity had an extremely favorable outcome and delineates a role for these procedures in morbidly obese children. We recommend a prospective study to evaluate the efficacy of these procedures in this patient population.

36. PEDIATRIC OBESITY RESULTS IN INCREASES IN SHORT TERM RESOURCE UTILIZATION

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Purpose: To determine the short-term impact of obesity and related comorbidities on annual health care costs.

Methods: Using the hospital-based weight management program registry, changes in obesity-associated inpatient/outpatient resource utilization for FY 1999 vs. FY 2002 was ascertained. Of 1,900 patients with a BMI>95th percentile, 830 had inpatient/outpatient encounters during the study

time period. Resource utilization data was generated using ICD9 codes for obesity, asthma, diabetes mellitus, cholelithiasis, sleep apnea, obesity-related orthopedic and mental health conditions.

Results: 23 patients had one or more inpatient encounters in FY 1999 vs. 40 patients in FY 2002. 183 patients had one or more outpatient encounters in FY 1999 vs. 492 patients in FY 2002. Between FY 1999 and FY 2002, inpatient days, admissions, inpatient charges, and outpatient charges increased by 35%, 50%, 100%, and 350%, respectively. The prevalence of asthma, mental health disorders, sleep apnea, orthopedic conditions, diabetes, and gallbladder disease was 12%, 11%, 10%, 6%, 3% and 1% respectively. The median charge/patient/year (FY 2002) among the 830 patients was \$757 vs. \$372 for all patients receiving care at this institution. The annual financial impact for this institution's employee dependents with obesity and comorbid conditions was modeled. The impact of potential days lost from work was included. The financial impact was estimated to be \$695,000/year for 3664 covered dependents.

Conclusion: Pediatric obesity results in substantial increases in resource utilization. This increased utilization has a substantial short-term financial impact to employers. Programs to manage clinically severe obesity should document the impact of interventions on the short and long term resource utilization as this is essential to demonstrate the return on investment of enhanced coverage of these interventions from an employer and payer perspective.

37. PREGNANCY AFTER LAPAROSCOPIC ADJUSTABLE GASTRIC BAND FOR MORBID OBESITY

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Wesley Hospital, Brisbane, Auchen ower

Laparoscopic adjustable gastric banding (LAGB) is increasingly recommended to women of reproductive age. For continued use LAGB needs to be proven to be safe and well tolerated during pregnancy. Maternal obesity is a well recognised risk factor in the etiology of gestational diabetes, maternal hypertension and is more likely to result in instrumental delivery or caesarean section. LAGB weight control may reduce the incidence of these complications.

The study was an observational study of the LAGB in pregnancy and a comparative study comparing outcomes of LAGB pregnancies with previous non-LAGB pregnancies. Women who had successful LAGB pregnancies were identified from a computerised database. A telephone questionnaire was used to collect the additional outcome data needed and was administered by an independent medical practitioner.

Forty-nine LAGB and 31 previous non-LAGB pregnancies were included. Two LAGB's had to be removed during pregnancy (4%). Mean maternal weight gain was significantly reduced in the LAGB group - 3.7 kg versus 15.6 kg ($p<0.0001$) with no effect on foetal weight - 3.31 versus 3.53 kg, or neonatal complications - 4% and 3%. The incidence of gestational diabetes 8 and 27% ($p=0.048$) and hypertension 8 and 22.5% ($p=0.06$) was significantly reduced in the LAGB group. The overall complication rate during pregnancy for LAGB was 20.4% and 52% for non-LAGB ($p=0.0037$).

The LAGB is safe and well tolerated during pregnancy with a lower incidence of gestational diabetes and maternal hypertension in these women. LAGB can be safely

recommended to morbidly obese women of child bearing age.

38.SUPERIOR MESENTERIC ARTERY SYNDROME IN GASTRIC BYPASS PATIENTS.

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Background: Superior mesenteric artery syndrome (SMAS) is a rare clinical condition. It is characterized by the compression of the third portion of the duodenum by the SMA. SMAS has not been reported in patients with a history of Gastric Bypass Surgery (GBP).

Methods: Between 1998-2002, 938 patients underwent GBP in our hospital. We reviewed the medical records of patients who were diagnosed with SMAS and had a history of GBP; including their presentations, clinical course, diagnostic modalities and treatments. The Wilcoxon Sequence test was used to measure statistical significance.

Results: Six patients with a history of GBP developed the syndrome. All were females, between 35-51 years old. Comparing their percentage of excess body weight loss (%XBWL) over the first postoperative year to a group of females who underwent GBP but did not develop the syndrome, showed SMAS patients to have an exaggerated %XBWL of 87.5 ± 14.8 , compared to 61.9 ± 7.8 in controls ($p<0.05$). This exaggerated weight loss was probably due to a complicated postoperative course the SMAS patients experienced. CT of the abdomen was diagnostic in all patients. It showed a dilated gastric remnant, and duodenum proximally and a compressed third portion, with an Aorto-Mesenteric distance of 5.8 mm, compared to 16.4 mm in normal controls ($P<0.05$).

Conclusions: The 5-year prevalence of SMAS in GBP is 0.63%, a much higher prevalence than the general population. It should be suspected in GBP who had a complicated post-operative course and experienced an above average weight loss.

CT scan is very helpful in making the diagnosis, especially with an Aorto-Mesenteric distance between 5-8mm.

39. INITIAL EXPERIENCE WITH BARIATRIC SURGERY IN HIV - INFECTED PATIENTS

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Background: Many surgeons consider HIV infection to be an absolute contraindication to bariatric surgery. However, the advent of Highly Active Anti-Retroviral Treatment (HAART) has dramatically reduced the progression of HIV/AIDS. HIV infected individuals are subject to lipodystrophy related to their medications placing them at increased risk for CAD. While living longer with nearly undetectable viral loads, these individuals develop obesity and obesity-related co-morbidity as do the rest of the population.

Methods: Retrospective study of 6 patients (0.71%) from prospectively maintained database of 840 patients having bariatric surgery from June 1999-September 2003.

Results: Six HIV infected patients (4 women, 2 men; mean age - 43 yrs (28-56); mean preoperative weight - 312 lbs (242-383); mean preoperative BMI - 50 kg/m² (42-63) had RYGB. Mean duration of HIV was 9 yrs; 33% were on HAART at the time of surgery, which was discontinued

perioperatively for 2–3 days. Average CD4 count was 619 cells/mm³ (range 361-1096). Preoperative co-morbidities included: Type 2 diabetes-3, HTN-2, dyslipidemia-3, CHF-1, sleep apnea-4, asthma-2, GERD-3, arthritis-5, depression-3. Average LOS was 4.2 days (range 3-5). There were no deaths or postoperative infectious complications. Mean percent excess body weight loss at 3 and 6 mos was 34% and 44%, respectively. Mean percent initial body weight lost at 3 and 6 mos was 19% and 29%, respectively.

Conclusion: RYGB can be safely performed in HIV – infected individuals. Initial results appear to be comparable to non-infected controls. Well-controlled HIV infection should not be an absolute contra-indication to bariatric surgery.

40. IS THE DISTANCE PATIENTS TRAVEL TO A BARIATRIC CENTER A FACTOR IN FOLLOW-UP VISIT COMPLIANCE?

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Background: In the post bariatric surgery patient, follow-up care is critical. Centers performing bariatric surgery should strive for 100% patient compliance with follow-up visits. At our multi-specialty group medical center serving a tri-state region, we analyzed our data to determine if patient compliance was affected by travel distance.

Methods: The study population consisted of the initial 150 patients (127 female, 23 male) who underwent laparoscopic Roux-en-Y gastric bypass from 2001 to 2003. Patients' compliance with follow-up appointments at 3 weeks, 3 months, 6 months, 9 months and 1 year was prospectively collected. Using patient zip codes, travel distance was retrospectively calculated from place of residence to our clinic. Lack of compliance was defined as failure to keep an appointment within 3 weeks of the scheduled appointment date. Linear trends of statistical significance were identified using the Mantel Haenszel test. Statistical significance was defined as a p-value<0.05.

Results:

| Distance | Percent Compliance | | | | | | | | | |
|---------------|--------------------|-----|-------|-----|-------|-----|-------|-----|--------|----|
| | 3 wks | N | 3 mos | N | 6 mos | N | 9 mos | N | 12 mos | N |
| < 50 miles | 100% | 115 | 93.0% | 115 | 84.3% | 102 | 76.5% | 81 | 85.5% | 62 |
| 50 – 99 miles | 100% | 21 | 90.5% | 21 | 79.0% | 19 | 58.8% | 17 | 70.0% | 10 |
| > 100 miles | 100% | 14 | 85.7% | 14 | 58.3% | 12 | 40.0% | 10 | 77.8% | 9 |
| # of patients | | 150 | | 150 | | 133 | | 108 | | 81 |
| p-value | 1.000 | | 0.328 | | 0.038 | | 0.009 | | 0.346 | |

Conclusion: Distance from clinic does not significantly affect the initial follow-up appointment or the 1-year follow-up. Travel distance, however, does adversely affect compliance with the appointments in the interval between 3 months and 1 year. Bariatric centers must continue to strive

for 100% postoperative compliance in the post-bariatric surgery patients. Attrition continues to remain a concern in many bariatric practices. Further study is needed to evaluate other factors that result in poor follow-up compliance.

41. REVIEW OF TECHNIQUE FOR COMBINED CLOSED INCISIONAL HERNIA REPAIR AND PANNICULECTOMY STATUS POST OPEN GASTRIC BYPASS SURGERY

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Background: Following open bariatric surgery up to 90% of patients develop an incisional hernia. Previously morbidly obese patients provide a unique challenge to hernia repair given the large nature of their fascial defects and the concomitant problem of extreme amounts of abdominal wall laxity. We reviewed a technique for surgical repair of incisional hernias combined with panniculectomy.

Method: A retrospective review of 50 consecutive patients from 2000 to 2003 status post open bariatric surgery who underwent closed (without opening the hernia sac) incisional hernia repair with overlay mesh and combined panniculectomy.

Results: Hernia repair and panniculectomy were performed 18 months after open bariatric surgery with an average weight loss of 129 lbs. Mean follow-up was 18months. Patients underwent prefascial hernia repair with plication of the fascial edges followed by overlay mesh (soft prolene mesh Ethicon) with midline anchoring of the mesh. Panniculectomy averaged resection of 3001 gms of excess tissue. Average hospital stay was 4 days. Minor wound problems (stitch abscess, seroma) occurred in 20 patients. Seromas were treated with serial aspiration in the office. There were no intra-abdominal complications or recurrences of the hernias.

Conclusion: The closed hernia repair with prefascial plication with overlay mesh is an effective and safe alternative to traditional incisional hernia repair. It proves adequate hernia repair without recurrence and eliminates intra-abdominal complications. It is our belief that combining the hernia repair and panniculectomy minimizes the risk of recurrence of the hernia by alleviating the stress on the repair by the excess abdominal wall tissue.

42. WHAT ARE THE PROPER PARAMETERS FOR THE “DUODENAL SWITCH”? A SERIES OF 1300 PATIENTS, WITH TEN YEAR RESULTS OF 93% OF FIRST 120 PATIENTS.

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Background: Dr. Scopinaro's biliopancreatic bypass has been modified by adding a vertical gastrectomy and Dr. DeMeester's duodenal switch procedure. The use of this procedure is growing rapidly.

Methods: We have performed 1350 cases of this procedure since it was developed in 1988. The small bowel was measured on the anti-mesenteric boarder in all cases. Small bowel length varied from 400 cm to 1100 cm. In some bariatric practices many times the measurements used are not related to the patients total measurements of the small bowel and stomach volume. This may lead to weight loss failures or protein malnutrition, etc. The importance of proper measurements of small bowel and stomach volume

will be demonstrated.

Results: We have a cohort of 120 patients, all ten years post op., with 93% follow-up with an average excess weight loss of 76% at the ten year point. We have a 3% revision rate of the distal Roux-en-Y and a 0.61% reversals rate. Examples of incorrect bowel lengths, improper duodenal-ileo anastomosis, and questionable stomach sizes will be presented. Methods of revisions and reversals will be demonstrated.

Conclusion: It is important to use the measurement of the total bowel length to calculate common channel and alimentary limb lengths.

43. THE DUODENAL SWITCH AS A REVISIONAL PROCEDURE FOR MORBID OBESITY

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Background: The duodenal switch procedure with greater curvature gastrectomy (DS) is a hybrid procedure for morbid obesity that combines moderate restriction with moderate malabsorption. The purpose of our study was to examine the effectiveness of the DS in correcting complications and inadequate weight loss resulting from prior obesity surgery.

Methods: Retrospective chart review and interviews with 28 patients who underwent a revisional DS (DSR) following a primary bariatric procedure that resulted in complications or weight loss failure. Factors examined include outcome of primary procedure; the ability of the DSR to reduce or eliminate surgical morbidities related to the primary procedure; and BMI reduction/percentage of excess weight lost (%EWL), measured at routine intervals following the DSR. Results compared to 10-year outcomes from non-revisional DS.

Results: Of the 11 patients with primary surgery complications, 58% experienced complete resolution of symptoms following DSR, while most reported significant relief. Patients undergoing the DSR to correct inadequate weight loss experienced 85% EWL by 24 months with a BMI of 28 m/kg². Patients with prior complications either maintained or increased weight loss, decreasing from a BMI of 33 m/kg² preoperatively to a BMI of 24 m/kg² at 24 months.

Conclusion: DSR is a feasible remedy for the reversal of complications from other surgical obesity procedures and provides immediate and sustained weight reduction for those unable to lose weight after other procedures.

44. PSYCHOSEXUAL PROFILE OF MORBIDLY OBESE PATIENTS AFTER BARIATRIC OPERATION

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Background: Sexual drive and satisfaction are an important component of quality of life. In a prospective study, patients submitted to RYGBP were interviewed after 3-30 months, aiming to assess their general sexual profile before operation, as well as changes induced by the anti-obesity procedure.

Methods: Patients (n= 43) were submitted to a detailed questionnaire by an experienced psychologist. Age was 40 ± 12 years (86% females) and preoperative BMI was 53 ± 9 (currently 33 ± 7 kg/m²). Relationships were started before

obesity in 54%, whereas the remaining contacts occurred afterwards. A regular partner was reported by 60% of the group, 90% had occasional sexual intercourse, and 80% informed intercourse in the last 30 days, and these findings did not significantly change after intervention. The sexually active 80% were here analysed.

Results: Following operation sexual drive was described as increased in 46% and not increased in 49% (5% did not answer). Additional partners were denied by 80% (9% increased number of partners, 7% diminished, 3% did not answer) Orgasm was usually achieved in 90%, but only 63% described themselves as happy with sexual frequency and general sexual life (27% were unhappy, and 10% preferred not to answer).

Conclusions: 1) Sexual drive was positively influenced by operation in about half of the patients, but new partners were not often reported; 2) No significant change occurred in the proportion of alone and emotionally engaged subjects; 3) Despite the ability to achieve orgasm during intercourse, only 63% considered their sexual life happy.

45. THE EFFECT OF ROUX-EN-Y GASTRIC BYPASS ON PRESCRIPTION DRUG COSTS

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Background: This study examines the effect of weight loss resulting from laparoscopic gastric bypass (LGB) surgery on prescription drug costs in patients over the age of 54.

Methods: Seventy-eight patients aged 55 to 75 (average age 60.1) were identified in a data base of 1020 morbidly obese patients undergoing LGB between March, 2001 and March 2003. All prescription drugs and dosages were recorded pre- and post-LGB at six months, one year and yearly thereafter. Drug history was obtained from the patient and verified by records from referring physician's offices. The cost of a thirty-day supply of each drug was obtained from two retail sources and averaged.

Results: The average pre-LGB cost of prescription drugs was \$393.00 per month per patient. The average cost at six months post-LGB was \$106.00 per month (down 73%). At two years post-LGB the cost was essentially unchanged at \$107.54 per month (down 72.6%).

Conclusions: Weight loss resulting from LGB surgery significantly reduces co-morbid conditions resulting in a major reduction of medication needs in patients over the age of 54. The projected cost savings realized in the 78 patients in this study amounts to approximately \$267,190.56 annually.

46. COMPARISON OF RETROCOLIC VS. ANTECOLIC ROUX-EN Y LIMBS IN GASTRIC BYPASS.

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Background: Although strong opinions exist regarding the Roux limb pathway for laparoscopic Roux-en Y Gastric Bypass (lap-RYGB), little data exists comparing a retrocolic to an antecolic approach.

Methods: A matched cohort analysis of 200 lap-RYGB patients was performed in a single institution over an 8-

month period. One hundred retrocolic (Group 1) and 100 antecolic (Group 2) were compared. Study endpoints of the study include operative time, hospital length of stay (LOS), and peri-operative complication rates.

Results: Patient demographics (sex, age, BMI and medical comorbidities) were similar in each group. Mean operative time and LOS was 110 minutes (range 58-246) and 1.47 days for Group 1 vs. 104 minutes (range 55-180) and 1.5 days for the Group 2 (p=ns). The overall complication rate in Group 1 was 20% vs. 15% in Group 2 (p=ns). The most common complications in Group 1 were internal hernias (n=12), while gastrojejunal anastomotic strictures were seen most frequently in Group 2 (n=9). No deaths occurred in either group.

Conclusion: These data suggest that the Roux limb pathway does not influence operative time or hospital length of stay. However, a retrocolic pathway is associated with a higher internal hernia risk, while an antecolic pathway is associated with an increased anastomotic stricture rate.

47. EARLY RESULTS OF ROBOTICS-ASSISTED ROUX-EN-Y GASTRIC BYPASS VS LAPAROSCOPIC METHOD

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Background: In 2001, the DaVinci Robotics System was incorporated into the laparoscopic Roux-en-Y gastric bypass procedure for creation of the gastrojejunostomy. We compared our early results with the laparoscopic method.

Methods: Seventy-eight morbidly obese patients underwent robotics-assisted RYGB between August 2001 and March 2003. A similar group of patients who underwent laparoscopic RYGB were selected for outcome comparison in terms of weight loss and complications.

Results: The robotics group was comprised of 68 female and 10 male patients with average age of 41.8 years. The average age was 41.8 in the laparoscopic group which included 62 female and 16 male patients. Average BMI was 46 and 51 in the robotics and laparoscopic groups, respectively. Average weight was 317 in the robotics and 322 in the laparoscopic group. There were no robotics-related complications. One patient in each group underwent exploration for bowel obstruction. Follow-up data show average weight loss of 19% and 30% at 3 and 6 months postoperatively in the robotics group. The laparoscopic group average was 16% and 28%.

Conclusion: Although technically possible and ergonomically efficient, the robotics-assisted gastrojejunostomy did not significantly improve complication rates or outcome measured in weight loss in the early postoperative period. Long-term follow-up is needed.

48. IMPACT OF SELF-REPORTED PHYSICAL ACTIVITY PARTICIPATION ON PROPORTION OF EXCESS WEIGHT LOSS AND BMI AMONG GASTRIC BYPASS SURGERY PATIENTS

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Background: Habitual physical activity is an important

component of successful weight loss programs for morbidly obese individuals. This study examined self-reported physical activity (PA) participation in relation to excess weight loss and BMI reduction among gastric bypass surgery patients (GBS). Participation in PA was hypothesized to contribute to a greater percentage of excess weight loss (% EWL) and a greater reduction in BMI at 2-years post-surgery.

Methods: PA participation (walking, aerobic exercise) was measured via self-report among 1,585 GBS patients at a university hospital between 1988 and 2001. GBS patients were assigned to groups [PA(n=1479)/no PA(n=106)] and further stratified by pre-op BMI [35-49kg/m2 (n=897) and 50-70kg/m2 (n = 688)].

Results: Findings showed that GBS patients who reported PA participation were younger [p<.0001, PA(40.1±9.9) vs. No PA(44.2±11.2)], had greater % EWL [p = .0081, PA(68.2±17.4%) vs. No PA(63.9±19.5%)] and a more pronounced decrease in BMI [p = .0011, PA(18.3±5.7kg/m2) vs. No PA(16.6±5.4kg/m2)]. When stratified by pre-operative BMI, however, only physically active patients with a BMI of 50-70kg/m2 showed an increase in % EWL [p=.0444, PA(63.2±16.5) vs. No PA (57.9±17.3)], whereas both BMI groups showed significant reductions in BMI at 2-years [BMI of 35-49kg/m2 p=.0184, PA(16.0±4.0kg/m2) vs. No PA (14.4±4.0kg/m2)] and [BMI of 50-70kg/m2 p=.0221, PA(21.50±6.0kg/m2) vs. No PA (19.7±5.5kg/m2)], respectively.

Conclusion: PA had a favorable effect on % EWL and BMI among GBS patients at 2-years post-surgery. These results promote the inclusion of habitual PA in a comprehensive GBS post-operative weight management program.

49. LAPAROSCOPIC GASTRIC BANDING VERSUS LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS FOR SUPER-OBESE (BMI>50) : A RETROSPECTIVE STUDY

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Objective: The aim of this study is to compare the effectiveness on weight loss between laparoscopic adjustable gastric banding (LAGB) and laparoscopic Roux-en-Y gastric bypass (LRYGB) in super-obese (BMI>50kg/m2) patients.

Methods: We performed a retrospective study involving all super-obese patients who underwent LAGB (172/670, 26%) or LRYGB (85/149, 57%).

Results: Morbidity was significantly higher in the LRYGB group (14.1%) than in the LAGB group (2.9%) (p<0.001). There were one death in both group (0.6% vs 1.2% (NS)).

| Follow-up | | 6 months | 12 months | 18 months | 24 months |
|-----------|---------------|----------|-----------|-----------|-----------|
| LAGB | patients | 148 | 107 | 61 | 28 |
| | BMI | 42±6 | 42±8 | 42±7 | 42±8 |
| | % weight loss | 40±16 | 42±22 | 47±22 | 39±23 |
| LRYGB | patients | 65 | 42 | 25 | 16 |
| | BMI | 43±6 | 39±6 | 35±7 | 37±6 |
| | % weight loss | 48±11 | 61±13 | 68±16 | 70±17 |

Conclusions: Effectiveness of LAGB on weight loss is poor in super-obese patients. LRYGB should be the bariatric procedure of choice for those patients.

50. BARIATRIC SURGERY TRAINING IN THE UNITED STATES

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Background: The extent of training in bariatric surgery in the U.S. heretofore was unknown.

Methods: We sent a 1-page questionnaire to the 251 accredited surgery training institutions in the US; the response rate was 100%.

Results: Of these 251, 185 (73.7%) perform BS. All 185 (100%) teach BS in their residency training program. More specific data is available from 87 of these institutions. They perform a mean of 149.9 (range, 10-750) cases of BS annually, of which a mean of 83.8 (range, 0-565) are done open and 66.1 (range, 0-450) laparoscopically. At 54 of these 87, open BS ≥ laparoscopic; at 29, laparoscopic ≥ open; at 4, they were equal. The number (percent) of institutions performing specific procedures are: open gastric banding 1, (1.2%); laparoscopic adjustable gastric banding (LAGB), 10 (11.5%); vertical banded gastroplasty (VBG): open, 18 (20.7%), laparoscopic, 7 (8.1%); Roux gastric bypass (RGB): open, 74 (85.1%), laparoscopic, 53 (60.9%); long-limb Roux gastric bypass (LLGB): open, 36 (41.4%), laparoscopic, 22 (25.3%); and biliopancreatic diversion/duodenal switch (BPD/DS): open, 11 (12.5%), laparoscopic, 3 (3.5%). A total of 48 institutions stated they offered minimally invasive fellowships. Of these, 43 offered BS training, totaling 3,600 cases annually, with the following distribution: 10.8% LAGB, 0.1% VBG, 70.1% RGB, 17.5% LLRGB, and 1.4% BPD/DS.

Conclusion: We conclude that BS has become mainstreamed into accredited training (teaching) institutions.

51. METABOLIC EFFECTS OF BILIOPANCREATIC DIVERSION: AN ANIMAL MODEL

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A rat model was developed to study metabolic and behavioral effects of biliopancreatic diversion (BPD-duodenal switch).

Methods: Body weight and food intake was measured daily after BPD, sham- surgery (with anastomoses) and in a control group of adult male Wistar rats (50 days). Energy expenditure (by indirect calorimetry), body composition (by dual-energy X-ray absorptiometry (DEXA)), and weight, protein and energy content of the feces were measured weekly. At sacrifice, the brain of control and BPD operated rats were removed and sectioned to measure the optical density of neuropeptide Y and agouti-related peptide mRNA in the thalamus (ARC) (by In situ hybridization). White and brown adipose tissues were dissected and weighed.

Results: Changes in the regulation of energy balance were observed in the BPD-operated rats. Post-op weight loss occurred in both operated groups but was maintained after BPD. Overall food intake was less in the BPD-operated rats compared to the control rats. The metabolizable energy

intake and the energy expenditure were less in the BPD rats compared to both the control and sham groups. The BPD-operated rats consistently showed higher fecal density as well as higher protein fecal energy. The DEXA body composition and adipose tissue weights showed that BPD rats failed to gain adipose tissue. The BPD operated rats had a higher optical density for both NPY and AgRP than the control group*.

Conclusion: BPD induces a negative energy balance by both restrictive and malabsorptive mechanisms which resulted in the loss of adipose tissue, despite overexpression of NPY and AgRP.

| Data = mean ± SE | Control n | Sham n = 5 | BPD n = 8 |
|-----------------------------|-------------|-----------------|-----------------|
| Weight gain g | 174 ± 58 | 114 ± 16§ | 56.6 ± 31** |
| Metabolizable energy intake | 20158 ± 523 | 18721 ± 607 | 16493 ± 1017 ** |
| Energy expenditure kJ | 13849 ± 127 | 13317 ± 278§§§§ | 11403 ± 233**** |
| Protein fecal energy kJ | 219 ± 7 | 212 ± 9 § | 321 ± 52 * |
| White+brownfatg | 11.9 ± 0.8 | 8.9 ± 1.6 §§ | 5.2 ± 0.4** |

Students: BPD vs sham § p<0.05, § p p<0, BPD vs control *p **p 01, ****p. 0,0001

52. METABOLIC CHANGES AFTER A GASTRIC BYPASS RAT MODEL IN DIET INDUCED OBESITY

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Background: Obese subjects are hyperphagic and eat large meals. Food intake (FI) is product of meal size (MZ) and meal number (MN) [FI=MZ×MN]. Since morbidity of obesity improves after Roux-en-Y Gastric Bypass (RYGB) we hypothesize that RYGB in diet induced obese rats reduces body weight by decreasing MZ and MN and thus FI, improving metabolic indices of obesity and decreasing morbidity.

Method: Obesity was induced in 24 pups Sprague Dawley using high-energy diet (HED) for 7 weeks. Three groups of rats (n=8/gp) were studied: RYGB, Sham Operated pair-fed (PF) and Sham Operated ad libitum HED (Control). Postoperatively, daily body weight (BW), FI, MZ and MN were measured via rat eatometer. Euthanasia was performed POD#10 (the equivalent of 1 year human life) and plasma analyzed for glucose, free fat acids (FFA), triglycerides (TG), insulin and corticosterone and fat body composition evaluated. Data were analyzed using ANOVA.

Results: BW before operation was 495±7g. After 10 days, the BW loss in RYGB was 17% (85±12g) and in PF was 13% (64±5g) vs. Control (p<0.05). After RYGB, a 57% decrease of FI predominantly by decrease in MZ (1.6±0.1 vs. 0.9±0.2) occurred. MN also decreased (12.5±0.7 vs. 10.8±0.8). A decrease in subcutaneous and retroperitoneal fat and a significant decrease in serum glucose, TG, insulin and corticosterone occurred.

Conclusion: RYGB in obese rats reduced BW, via a decrease in MZ and MN and thus FI. Obesity related comorbidities including hyperglycemia and insulin resistance improved after RYGB.

53. QUALITATIVE ASSESSMENT OF GHRELIN PRODUCTION IN THE STOMACH AND ITS RELATIONSHIP TO ROUX-EN-Y GASTRIC BYPASS

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Background: Patients who undergo Roux-en-Y gastric bypass (RYGB) usually lose approximately 65% of their excess body weight and typically experience a sustained, generalized loss of appetite. RYGB has been described to decrease circulating plasma ghrelin levels, a change that seems to correlate with appetite suppression. This change is in sharp contrast to dieting, where ghrelin production is actually increased. This will be the first study to evaluate by immunohistochemistry the presence of ghrelin producing cells within the gastric pouch.

Methods: roximal stomach tissue samples were obtained during the performance of the stapled gastrojejunostomy in 25 patients undergoing RYGB and compared to 25 normal gastric biopsies from age/sex-matched controls of regional normal BMI. Specimens were embedded in paraffin and 4 micron sections were stained with H&E and immunohistochemically stained for ghrelin and gastrin. Total numbers of positive cells were counted per high power field and statistical analysis was performed.

Results: There was a significantly larger number of ghrelin producing cells in the fundus of the morbidly obese patients as compared to the age-matched normal controls. The majority of the ghrelin producing cells were in the fundus of the stomach as compared to the cardia.

Conclusions: Severe obesity appears to be associated with a higher than normal expression of ghrelin in the fundus of the stomach. This region contains more ghrelin-producing cells than does the cardia, the only part of the stomach that remains exposed to food after RYGB. Post-operative appetite suppression and the decrease in plasma ghrelin levels after surgery may be due to the isolation of the majority of ghrelin-producing cells from contact with enteral nutrients.

54. PRE AND POST PRANDIAL GHRELIN LEVELS DO NOT CORRELATE WITH SATIETY OR FAILURE TO ACHIEVE A SUCCESSFUL OUTCOME AFTER RY GASTRIC BYPASS.

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Objective: We tested the hypothesis that patients who do not achieve satisfactory weight loss fail to reduce ghrelin production after RY gastric bypass.

Materials and methods: We studied 42 morbidly obese patients 3 years after RY gastric bypass (7 men, 35 women) with mean start BMI=51 and 8 healthy controls (2 men, 6 women) with mean BMI=25. Subjects consumed a light breakfast at 7:00 am the first blood sample was drawn at 10:00 am. The second blood sample was drawn at 2:00 pm (following their usual lunch at 12:00 pm). Satiety was assessed using a Visual Analog Scale (VAS, 0=not hungry, 100=extremely hungry). Patients were stratified as success (current BMI < 35) or failures (current BMI >=35).

Results (mean (sd)) :

| | Current BMI | I feel hungry# | Amount of food I can eat# | I feel full# | Ghrelin (picograms/ml) |
|------------------|-------------|----------------|---------------------------|--------------|------------------------|
| 10:00 am Control | 25 (3) | 50 (10) | 52 (10) | 27 (7) | 616 (100)* |
| Success | 29 (4)& | 41 (8) | 36 (6) | 29 (8) | 311 (32) @ |
| Failure | 41 (6) | 34 (5) | 36 (4) | 40 (6) | 241 (27) |
| 2:00 pm Control | - | 20 (9) | 18 (8) | 70 (11) | 430 (45)* |
| Success | - | 12 (6) | 11 (7) | 67 (10) | 266 (45) @ |
| Failure | - | 20 (6) | 17 (6) | 66 (8) | 278 (26) |

* p<0.05 vs. success, failure; @ NS vs. failure ; & p<0.05 vs. failure #p<0.05 vs. 10:00 am vs. 2:00 pm all groups; 2:00 pm control vs. success vs. failure = NS

Ghrelin levels pre or post meals were not different between patients who had a successful weight loss (pre op BMI=47, current BMI=29, 34% drop BMI, 70% EWL) or those who failed (pre op BMI=54, current BMI=41, 24% drop BMI, 48% EWL). There was no correlation between any of the VAS scales and ghrelin level. There was a strong inverse correlation between pre prandial (10:00 am) ghrelin levels and the preop or current BMI of the study group as a whole or stratified by outcome.

Conclusion: Failure to lose weight after RY gastric bypass does not correlate with pre or post prandial ghrelin production. Ghrelin levels are inversely proportional to BMI before meals and do not correlate with satiety. These data do not support a role for ghrelin in the differential weight loss after RY gastric bypass.

55. OUTCOME OF HAND-ASSISTED LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: RESULTS OF THE FIRST 400 CASES

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Background: Hand-assisted laparoscopic gastric bypass (HALS) has been introduced as a technique to enhance the safety of laparoscopic surgery. To date, no study has reported on the peri-operative morbidity and long-term complications in a larger series.

Methods: We analyzed the postoperative course of 400 consecutive hand-assisted laparoscopic gastric bypass patients performed by the same surgeon in a single institution. We collected all data pertinent to complications, morbidity and mortality. Results are expressed as a mean +/- standard deviation.

Results: There were no deaths in this group of 400 patients. The mean BMI was 48.3 +/- 7.9 kg/m2 .The mean age was 43 +/- 14. The mean hospital stay was 4.1 +/- 1.6 days.

4.3% of patients had a surgical complication requiring intervention: this included Conversion to open RYGB for bleed, anastomotic leak, small bowel obstruction, incarcerated hernia. The wound infection rate was 1.4%. The rate of pulmonary embolism was 2.6%. 2.3% of patients had a GI bleeding. 3.6% had an anastomotic stircutre. 1.5% had an anastomotic leak. The rate of ventral hernia was 1.3%. Miscellaneous complications were recorded in 0.8% of patients (transient renal failure, C diff colitis, rhabdomyolysis).

Conclusion: This is the first report reviewing a large series of HALS. The low surgical morbidity and mortality associated with this procedure substantiate its role as a viable alternative to open gastric bypass for the treatment of morbid obesity.

56. OUTCOMES AFTER OPEN ROUX EN Y GASTRIC BYPASS (RYGB) IN 100 CONSECUTIVE MALE PATIENTS

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Background: Previous authors* have used probability analysis to predict a higher complication rate in male patients following RYGB.

Methods: We analyzed gender, age, body mass index (BMI), and frequency of diabetes (DM), coronary heart disease (CHD), deep venous thrombosis (DVT), pulmonary disease (PUL), and hypertension (HTN) (Table 1) and complications (Table 2) in our first 100 consecutive male patients and the females operated during that same period.

Results: The duration was 40 months. During this same period RYGB was performed on 664 females.

Table 1.

| Gender | Age | BMI | DM | CHD** | DVT** | PUL** | HTN** |
|----------------|---------|---------|-----|-------|-------|-------|-------|
| Male 13 % | 42 ± 10 | 57 ± 11 | 32% | 6% | 8% | 56% | 56% |
| Female 87 % | 42 ± 9 | 52 ± 9 | 21% | 0.1% | 0.1% | 28% | 38% |

**p < 0.01

Table 2.

| Gender | Deaths | Leak | Pulmonary | Wound | Cardiac | Pulmonary Embolus | DVT | Hernia |
|--------|--------|------|-----------|-------|---------|-------------------|-----|--------|
| Male | 0 | 6.0% | 3% | 2% | 2% | 2% | 1% | 4% |
| Female | 3 | 4.2% | 2% | 2% | 0.4% | 0.4% | 1% | 3% |

Pre existing CHD, DVT, PUL, and HTN were more common in males than females. There were no significant differences in outcomes. Overall mortality was 0.4 %.

Conclusions: These findings refute the high probability of complications in males. However, males were treated more aggressively (routine drains, simultaneous vena cava filters) because of their associated higher rate of co morbid conditions. The benefits of weight loss in males are identical for females and can be done with acceptable mortality.

*Livingston EH and Ko CY. J of Surg Res.105, 48-52, 2002.

57. INFLUENTIAL FACTORS FOR MORTALITY RATES AFTER OBESITY SURGERY

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International Bariatric Surgery Registry, Department of Surgery, The University of Iowa College of Medicine, and * Department of Biostatistics, The University of Iowa College of Public Health; Iowa City, Iowa, U.S.A.

Objective: To determine predictors of mortality rate following surgical treatment of obesity using the National Death Index (NDI).

Background: Mortality remains an important index of safety and effectiveness for surgical treatment of obesity.

Methods: This NDI search included 18,976 patient records from 1986 through 2001. The results of the NDI search were merged with the IBSR database. We performed multiple logistic regression analysis for the 30-day mortality, including operation type, operative BMI, age, gender, and year of operation as covariates. The GEE approach was used to account for the possible correlations

among patients operated by the same physician / center. The Cox proportional-hazards models assessed the effect of operation type on patients' overall mortality, adjusting for operative BMI, age, gender, and year of operation differences.

Results: 30-day mortality rate was 0.24% (46 / 18,976). Complex operations accounted for 72% (33 / 46) of these deaths but were not significantly different from simple operations (OR=1.44; 95 CI: 0.67, 3.08), after adjusting for BMI, age, gender and year of operation. Nor was there a significant difference in overall mortality rate between simple and complex operations (OR=1.13; 95 CI: 0.81, 1.57). Operative BMI, age, and gender are significantly associated with 30-day mortality rate and overall mortality rate.

Conclusion: Operative BMI, age, and gender predict operative and long-term mortality, but operation type does not. It is misleading to compare mortality rates without adjusting for patient characteristics.

58. TECHNICAL IMPROVEMENTS OVER TIME THAT DECREASE THE INCIDENCE OF INTERNAL HERNIA FORMATION IN LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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Background: Internal hernia formation after Laparoscopic Roux-en-y Gastric Bypass (LGBP) in the treatment of morbid obesity remains a concern despite the advances in laparoscopic surgery.

The purpose of this study was to analyze and examine our changes in technique over time and its effect on the formation of internal hernias.

Method: Review of data on 657 pt's over a 5 year period from 1998- 2003. Pt's were classified into 3 groups based upon date of surgery and the evolution of technique: retrocolic (3/98-12/00), retrocolic with mesenteric closure (12/00-12/02), and antecolic LGBP (12/02-8/03). Statistics using Fisher's exact test was employed.

Results: 6 out of the first 107 patients (5.61%) undergoing Retrocolic LGBP, without closure of the mesenteric defect, sustained a internal hernia. Of the next 509 patients undergoing Retrocolic LGBP with mesenteric closure, only 2 pt's had an internal hernia (0.39%) p< 0.0006. Since conversion to an antecolic procedure, 1 out of 79 pt's sustained an internal hernia.

The evolution of technique, in addition to the learning curve related to knowing how to perform a mesenteric defect closure, greatly decreased the incidence of internal hernias. However, more data must be accumulated on the antecolic procedure to determine its influence of internal hernia formation.

59. TREATMENT OF OBESITY WITH THE TRANSCEND® IMPLANTABLE GASTRIC STIMULATOR: EXPERIENCE IN 55 INDIVIDUALS

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Background: Gastric stimulation has been shown to be a safe and effective therapy for morbid obesity in a pilot study that started in 1995. Based on these early results, a new series of implants in 55 individuals was established to

further evaluate this new therapy.

Methods: Between May 1998 and April 2003, 55 subjects (35F, 20M), mean age 41.1 (14-67) received Implantable Gastric Stimulator (IGS®) therapy. Mean BMI was 46.6kg/m² (33.7-68.6), mean weight 132.7kg (95.0-210.0) and mean excess weight 68.6kg (32.6-144.0). The gastric pacemaker and lead were implanted with a minimally invasive laparoscopic procedure, except in three cases where laparotomy was required. The electrodes were placed just distal to the pes-ancrinus on the lesser curve. The IGS was activated 30 days after the implant. Specific behavior modification instructions were minimal. Clinical controls were obtained monthly for the first year, and then every 2 months thereafter.

Results: The mean ± standard error % excess weight loss (EWL) was, as follows:

| | Mo. 1 | Mo. 6 | Mo. 12 | Mo. 18 | Mo. 24 | Mo. 30 | Mo. 36 | Mo. 42 | Mo. 48 |
|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Number of Subjects | 55 | 54 | 48 | 28 | 19 | 18 | 13 | 10 | 10 |
| % EWL | 5.69 ±0.62 | 17.6 ± 1.3 | 22.5 ± 1.7 | 23.9 ± 3.1 | 26.9 ± 5.0 | 30.4 ± 5.6 | 26.1 ± 7.2 | 24.2 ± 4.7 | 23.1 ± 4.9 |

There were no deaths or other major complications. Three individuals had cholecystectomy together with the IGS implant. In one subject the IGS twisted and had a pocket review at local anesthesia. There were eleven subjects with intra-operative gastric penetrations, as noted on operative gastroscopy. Prior to modifying the implant technique, six patients had lead dislodgements and all had a new procedure for lead replacement. Technical changes to avoid lead dislodgement were successful.

Conclusions: This study has shown that long-term gastric stimulation is a reproducible procedure and is a safe and effective therapy for obesity.

60. THE INTRODUCTION OF A PRE-OPERATIVE SCREENING ALGORITHM MAY DRAMATICALLY IMPROVE WEIGHT LOSS WITH IMPLANTABLE GASTRIC STIMULATOR (IGS) THERAPY

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Background: Electrical gastric stimulation is being evaluated worldwide for the treatment of severe obesity. Results from 450 study patients demonstrated that there was tremendous variability in response. A screening algorithm was developed from pre-operative data to assess whether it could determine which patients were likely to respond. A non-randomized trial (DIGEST) is underway in the U.S. The screening algorithm was retrospectively applied to this trial. This abstract reports the results.

Methods: The preoperative data collected from all 30 patients was entered into the algorithm which then designated patients as responders (selected) and non-responders (non-selected). The 12-month weight loss results from these patients was then compared for those grouped as selected and non-selected.

Results: 30 patients (26 women and 4 men), mean age 39 years (27-50), mean BMI 42 m/kg² (34-55), were enrolled. There were no major complications or deaths. Mean excess weight loss was 14.3%. 78% of subjects lost weight. 52% lost greater than 10% of excess, and 30% lost greater than 20% of excess. When the screening algorithm was applied, 10 of the 30 patients were predicted to respond

(selected). Their weight loss was 30.1% of excess while the weight loss was only 2.2% of excess for the 20 patients deemed non-responders (non-selected).

Conclusion: As with other bariatric procedures, not all subjects respond to IGS therapy. An objective method to screen patients pre-operatively may improve the efficacy. The introduction of a screening algorithm to the DIGEST trial seemed to accurately identify the responders and non-responders.

61. BRAZILIAN MULTICENTRIC STUDY OF THE INTRAGASTRIC BALLOON

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Background: Intra gastric balloon has been used in obese patients as a restrictive gastric procedure inducing early satiety and weight loss. This prospective study assesses both the safety and effectiveness of the intra gastric balloon (BIB®) in the treatment of obese patients.

Method: From November 2000 to October 2003, after the Brazilian Ministry of Health's approval of BIB protocol, 450 overweight and obese patients were treated with the intra gastric balloon. 315 of them completed a 6-month follow-up: 132 male (BMI= 42.8±10.7 Kg/m²) and 183 female patients (BMI= 35.5±7.8 Kg/m²) (mean BMI= 38.5±9.8 Kg/m²). All patients were encouraged to take part in a multidisciplinary program involving clinical, psychiatric, physical training, and dietary approaches.

Results: After a 6-month follow-up subjects showed significant reductions in percent excess weight loss (%EWL= 44.8±30.5%) and percent of total weight loss (%TWL= 12.5±6.7%). The main side effects were nausea/vomiting (132 cases, 42%), and epigastric pain (66 cases, 21%), requiring prosthesis removal in 13 patients (4%). Minor complications were re ux esophagitis (38 cases, 12%) and symptomatic gastric stasis (31 cases, 10%) which were clinically controlled. Balloon impaction occurred in 2 cases (0.6%) and in one patient (0.3%) there was spontaneous de ation of the balloon leading to a small-bowel subocclusion which was solved by laparoscopy.

Conclusion: The intra gastric balloon (BIB®) is effective to temporarily control obesity, inducing a %EWL of approximately 45%. It is not associated with mortality and shows minimal risk of major complications. Results regarding subsequent follow-up (after BIB removal) are necessary to a better assessment of its effectiveness. published results.

Poster Session

Tuesday-Thursday, June 15-17, 2004
Program Chair: Eric J. DeMaria, MD



P1. POST-OPERATIVE OBSTRUCTION AFTER LAPAROSCOPIC GASTRIC BANDING: MANAGEMENT AND OUTCOMES

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Introduction: Adjustable gastric banding is increasing in popularity as a weight loss operation in America. One frequently seen complication is immediate post-operative obstruction. Management at our institution includes nil by mouth, intravenous fluids, anti-inflammatory medications, and observation.

Data: Fifteen of our initial 530 patients who underwent laparoscopic gastric banding developed gastric obstruction at the level of the band. There were six women and nine men and the average age at the time of surgery was 47 years. The mean pre-operative body weight was 331 pounds (range 251-388 pounds), body mass index 50.1 kg/m² (38.6 – 59 kg/m²), and excess weight 167 pounds (133 – 218 pounds). Thirteen patients had resolution of their obstruction without intervention. Two patients had their band removed; one due to fear of perforation the other to intolerance of the situation. The average length of stay for patients who kept their band was six days (range 5-8 days). Of the patients who kept the band, their average excess body weight loss at 6 months was 36.2% (n=7) and at one year 63.0% (n=3). The average number of adjustments to the band was 2.3 and the current reservoir volume 1.3 cc.

Conclusions: Male sex is a risk factor for post-operative obstruction after gastric banding. This clinical problem will usually resolve with conservative treatment. Reasons for band removal include patient intolerance and a worry for ischemia or perforation. Weight loss in patients who keep their band in this situation is better than previously published results.

P2. NATURAL HISTORY OF CHOLELITHIASIS AFTER LAPAROSCOPIC SWEDISH ADJUSTABLE GASTRIC BANDING (SGAB): A PLEA FOR CONSERVATIVE MANAGEMENT

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Background: Gallstone formation is significantly increased by excess weight and rapid weight loss however the management of asymptomatic gallstones during bariatric surgery remains controversial. The aim of this study was to report the natural history of cholelithiasis in severely obese patients treated by laparoscopic Swedish adjustable gastric banding (SAGB).

Methods: 118 consecutive patients (134±23 kg, 49±6 kg/m²) receiving a laparoscopic SAGB were included in this prospective cohort study. Evaluation prior to and at one year after surgery included clinical examination, abdominal sonography, and biological assessment (TGO, TGP, bilirubin, total and HDL cholesterol, triglycerides, fasting and post prandial glycemia and insulinemia). No simultaneous cholecystectomy was performed. The observed figures were compared with data previously reported for the general population in the Framingham and Ann Arbor studies.

Results: (mean±SD) 116 (98%) patients completed the one year evaluation. Gallbladder was initially pathological

in 33 patients (28 %) (previous cholecystectomy in 21 or asymptomatic gallstones in 12), a prevalence 4 times superior to the expected figure when adjusted for age. The only factors associated with gallbladder disease prior to surgery were age (p<0.05) and body weight (p<0.05). At one year, excess weight loss reached 34±19% (112±21 kg, 41±6 kg/m²). TGO, TGP, HDL cholesterol, triglycerides, and fasting and post prandial glycemia and insulinemia were significantly decreased (p<0.001). Out of 83 patients without gallstones before surgery, 15 (18 %) patients developed gallstone(s), an incidence more than 10 times superior to the expected incidence in obese patients. None of the measured criteria was significantly associated with gallstone formation after surgery. Among patients with gallstones prior to surgery, 2 (17%) developed symptoms and underwent an uneventful laparoscopic cholecystectomy, an incidence not significantly different from the expected incidence in the general population.

Conclusion: Weight loss after laparoscopic SAGB was associated with a high incidence of gallstone formation, which in most cases remained asymptomatic. Our results support a conservative policy for the management of asymptomatic gallstones in severely obese patients undergoing SAGB.

P3. LAPAROSCOPIC GASTRIC BANDING FOR MORBID OBESSE ADOLESCENTS

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During 1997 to 2003 we performed 2300 laparoscopic gastric banding for morbid obesity patients. Although their mean age was 38±7 years old, yet 3% (77) of the patients were under eighteen years. Their mean age was 16.1 (age range 9 to 18) years, and their BMI 43±3.1 (range from 39 to 68). Sixteen (20%) patients were under fourteen years old (9-14 years). Seven (9%), 17 (22%), 18 (23%) and 19 (25%) patients were 15, 16, 17 and 18 years old, respectively. The young group had no background disease. All had the laparoscopic adjustable gastric banding without conversion to open surgery. We used the pars acida technique performing only blunt dissection and no gastro-gastric fixation sutures. Duration of surgery was 30±7 minutes and postoperative hospitalization 23±12 hours. Two patients had slippage of the band and had laparoscopic reposition. There was no infected band no erosion and no mortality. Fourteen, 36, 6 and 21 patients are five, four three and two years after surgery. Their mean BMI is 29±3.4. Our conclusion is that laparoscopic adjustable gastric banding is a safe effective operation for morbidly obese adolescents.

P4. TRANSABDOMINAL INSERTION OF ANVIL DECREASES WOUND INFECTION IN GASTRIC BYPASS PERFORMED WITH A CIRCULAR STAPLER ANASTOMOSIS

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Background: To compare the incidence of wound infections after gastric bypass using the circular stapler between the transoral (TO) and transabdominal (TA) insertion of the anvil.

Methods: Retrospective review of all gastric bypass procedures (GBP) in a 30 month period. Cases were done

using circular stapler EEA-21. Demographic data, including BMI, perioperative complications and outcome were recorded. Attention was given to wound infections. P value <0.05 was considered significant.

Results: First group of patients had GBP with TO insertion of anvil during first 14 months. This group included 131 patients, 74 open and 57 laparoscopic. Patients had higher BMI in open cases (54 vs. 46). One perioperative death occurred in the laparoscopic group. Wound infection was 43.2% in open (32 of 74) with 93% minor. Infection in laparoscopic group was 5.2% (3 of 57), all minor. The second group was done using TA approach with 199 patients included, 104 laparoscopic and 95 open. There was a similar difference in BMI. No perioperative death was found. Wound infections were 8.4% in open (8/94) and 3.8% in the laparoscopic group (4/104) with two major infections in the open group. The incidence of infection was significant higher in TO group (p<0.0001). The major difference was in the open group. No difference in antibiotics or any other operative technique was noted.

Conclusions: The incidence of wound infection after GBP was significantly decreased using the TA approach. We recommend this approach when using circular staplers especially in the open procedures.

P5. THE USE OF U-CLIP ANASTOMOTIC DEVICE IN LAPBAND

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Objective: To describe the use of U-clips in the laparoscopic banding insertion procedure.

Methods: All cases of laparoscopic banding insertion where U-clips were used for the gastro-gastric suture covering the band were analyzed. Time used applying sutures where compared with previous intracorporeal suturing using other methods.

Results: Our last 20 cases of lapband insertion had the U-clip as suture for the coverage of the band. All cases were done using the pars- accida approach. No slippage was noted in this group or the 45 previous lapband. When compared with intracorporeal or extracorporeal suture used in the first 45 cases, the time was reduced by two thirds applying each suture. The average placement of a U-clip was about 20 seconds. No complications were found in any patient. No slippage has been found in the short follow up period.

Conclusions: U-clips are safe and faster to apply during lapband insertion. They are an effective and expeditious way to perform interrupted sutures laparoscopic in the GI tract.

P6. COMMON MISCONCEPTIONS ABOUT BARIATRIC SURGERY: UTILIZATION OF THE GASTRIC BYPASS KNOWLEDGE QUIZ FOR ASSESSMENT OF PATIENT KNOWLEDGE

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Background: Knowledge relates to outcome in several

surgical procedures (Horne et al. 1994). However, no studies have investigated knowledge in bariatric surgery patients. This study utilizes the University of Virginia Gastric Bypass Knowledge Quiz (GBKQ) to identify trends in patients' knowledge about bariatric surgery. The GBKQ is a tool in the assessment of readiness for surgery and assists with tailoring education during the evaluation process to the individual patient's needs.

Methods: GBKQ Scores were collected on 104 patients presenting for presurgical psychosocial evaluation. Subscores were developed for nutritional, medical and behavioral knowledge items. Frequency analysis and t-tests were used for data analyses.

Results: The average total score was 70.3% correct (range = 34.4 to 87.5%). Division into nutritional, medical and behavioral clusters revealed a significant difference between these three item-groups (p=.000). Patients were least accurate about questions pertaining to possible complications after surgery, with 55% expecting depression to be a complication. Of note was patients' difficulty understanding how surgery assists with weight loss, with 22% unable to identify restriction and malabsorption as the primary mechanisms. Over 40% of patients lacked insight into the need to continue with diet and exercise post-operatively.

Conclusions: Knowledge about surgery is inadequate for a significant number of patients. A surprisingly high number did not understand the mechanisms leading to weight loss or the importance of postoperative diet and exercise. The GBKQ serves as a tool in the assessment of readiness for bariatric surgery and assists with tailoring education to meet individual patient's needs.

P7. EARLY U.S. OUTCOMES OF GASTRIC BYPASS VERSUS LAPAROSCOPIC ADJUSTABLE SILCONE GASTRIC BANDING FOR MORBID OBESITY

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Introduction: Gastric Bypass (GBP) is considered the gold standard operation for long-term weight control in the U.S. The laparoscopic adjustable silicone gastric banding (LASGB) procedure is the preferred operative method for morbid obesity worldwide. There is limited data available comparing the two procedures in the US. This study compares early outcomes of weight loss, co-morbidity resolution and complications in patients who underwent GBP versus LASGB and evaluates pre-operative sweet eating as a predictor of poor weight loss within procedure groups.

Methods: A review of prospectively collected data was performed on 394 patients undergoing primary gastric bypass (GB; n=318) and laparoscopic adjustable silicone gastric banding (LASGB; n=76) procedures between 2/2001 and 4/2003. Chi-square and ANOVA were performed to determine differences in patient characteristics (gender, age and initial BMI). A matched 1:1 case control study (matched for initial BMI and gender) was performed to control for potential confounders when evaluating differences in percent excess weight lost (%EWL) at three, six and twelve months post op, improvement or resolution of co-morbidities and complications across procedure types. %EWL was also

compared between pre operative sweet eaters and non sweet eaters within each type of procedure group.

Results: There were significant differences in age, gender and initial BMI between the two non-matched procedure groups. There was a significant difference in percent excess weight lost between the matched GBP versus the LASGB groups at six and twelve months post op. Despite superior weight loss after GBP, there were no significant differences in co-morbidities or resolution/improvement of co-morbidities, compared to the LASGB group. Although, GBP patients experienced more complications compared to LASGB patients (16% vs. 7.8%; P<0.07) but this did not reach statistical significance. Further more, %EWL was not significantly different at 6 and 12 months between sweet eaters and non sweet eaters among each type of procedure group.

| | GB | LAGSB | P value |
|--------------|-------|-------|---------|
| BMI | 46.7 | 46.6 | NS |
| Female (%) | 84 | 84 | NS |
| Age (years) | 39 | 41 | NS |
| 6 mos EWL** | 50.38 | 25.32 | <0.001* |
| 12 mos EWL** | 65.48 | 37.04 | <0.001* |

*P<0.05 was considered significant

Conclusion: After surgery, GBP patients lose more weight one year after surgery, but experience a trend towards higher complication rate, than LASGB patients. There is no significant difference in co-morbidity resolution between groups at this time. Pre-operative sweet eating status did not affect weight loss outcome within each procedure group. As LASGB patients are reported to lose weight over two to three years. Further follow up is needed to determine the relative efficacy of these procedures.

P8. DEVELOPING A SAFE AND EFFECTIVE BARIATRIC SURGERY PRACTICE IN THE COMMUNITY HOSPITAL SETTING

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Background: Bariatric Surgery has had a dramatic increase in the number of surgeons and institutions performing a variety of surgical procedures. The purpose of this study is to outline our experience and results with gastric bypass and demonstrate the factors we believe contribute to the development of a safe and effective bariatric program.

Methods: From November 2001 to April 2003, 158 patients underwent gastric bypass surgery for morbid obesity. Retrospective data of all patients was reviewed, and a detailed analysis of pre and postoperative co-morbidities, weight loss and complications was evaluated.

Results: With 91% follow-up, we found an excess weight loss of 57% at 6 months, 70% at 12 months, and 79% at 18 months. Over 90% of significant co-morbidities were improved. No deaths occurred. Post-operative complications included 1 DVT, 1 Esophageal injury, 1 Re-exploration for bleeding, 1 Internal Hernia, 4 Bowel obstructions, 2 Anastomotic stenosis.

Conclusion: A bariatric surgeon in the community hospital setting can safely perform gastric bypass. The authors feel that these results are achievable through the following: 1. Extensive and repetitive surgeon education and training

with proctorship 2. A dedicated team of nurses, nutritionists, psychologist, and support physicians who are committed to a hospital sponsored program 3. Education classes and support meetings 4. Proper patient selection and assessment of high-risk patients 5. Meticulous attention to perioperative surgical technique 6. Membership in the ASBS and on going continuing education in bariatric surgery by the surgeon and team 7. Ongoing quality assessment of results and complications.

P9. FACTORS WHICH COULD INFLUENCE THE DEVELOPMENT OF LEAKS AFTER GASTRIC BYPASS

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Background: Leaks after gastric bypass for morbid obesity have been reported in an average of two to five percent of the surgeries performed. Higher rates have been reported in some centers.

Methods: We modified our surgical technique by four key points:

Anterior to colon and stomach instead of retro approach;
Use of a circular-25 stapler instead of the 21;
Avoidance of the use of the C-PAP machine during the first six week postoperative period;
Aggressive diagnosis and decompression of partial or complete Roux-Limb obstructions.

Results: With the implementation of these changes in our technique, the incidence of leaks in patients in our program has been reduced from 1.85% to one leak in 1,000 bypass surgeries (0.1%).

The heavy omentum and the "guillotine" effect of the heavy mesocolon could produce an increase of the intraluminal pressure with the retro approach, potentially causing damage at the suture line. Higher pressures were found in our laboratory animals when the retro approach was used.

A partial or complete Roux-Limb obstruction and C-PAP use could produce elevations in the intraluminal pressures as well.

The circular-25 stapler produces thicker donuts, which may provide increased protection in the integrity of the gastro-jejunostomy.

Conclusion: The avoidance of an increase in the intraluminal pressure, and the construction of a more secure anastomosis, have perhaps positively influenced our surgical results by decreasing the incidence of post-operative leaks. The clinical correlation appears to favor this concept.

P10. REINFORCING GASTRIC STAPLE-LINES WITH A BIODEGRADABLE MEMBRANE FROM PORCINE INTESTINAL SUBMUCOSA DURING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: PRELIMINARY RESULTS

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Background: Acute staple-line leak after divided Roux-en-Y Gastric Bypass (RGYGB) occur in 1-6% of cases. The true incidence is not known as many do not distinguish between staple line failure and anastomotic leak. Other complication of less consequence is staple line bleeding, that can require

transfusion or reoperation. In most cases, it's a situation that can slow operative time, requiring any measure to stop bleeding.

We've been using a biomembrane derived from porcine small intestinal submucosa (SIS) to decrease staple-line failure and bleeding.

Methods: Initially, we employed in 25 cases the SIS membrane on a blue 45 mm Endogia cartridge (US Surgical Instruments)for gastric pouch creation and recorded operative complications ,visual staple line bleeding, blood loss, postoperative drainage output and staple-line leaks. Data was compared to 25 non SIS cases performed during the same period.

Results: There were no operative complications and the average operative time in both groups was similar (mean of 48 minutes). SIS patients had no visual bleeding and operative blood loss was 25 ml, while the NON SIS group had 2 cases of staple line bleeding (requiring cauterization and longer operative time). Operative blood loss was 75 ml. Drain output was significantly lower in the SIS group.No staple line leaks were found in both groups.

Conclusion: SIS membrane, was easy and safe to use. Although no staple line leaks happened in both groups, handling the gastric reservoir is much easier with SIS reinforcement. Staple line bleeding is non existent and intraoperative bleeding is less after SIS application while postoperative drain output is considerably lower in the SIS buttressed group. The use of SIS reinforcement is quicker than oversewing the staple line and less costly than using fibrin glue , while more practical than covering it with omentum or jejunal limb coverage.

P11. THE EFFECT OF LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS ON QUALITY OF LIFE IN MORBIDLY OBESE PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Background: Patients with type 2 diabetes mellitus (T2DM) frequently have very quality of life prior to laparoscopic gastric bypass surgery (LGBP). In order to quantify pre- and post-operative quality of life changes in patients with T2DM, we prospectively analyzed our pre and post operative patient population and compared them with medically treated patients with T2DM.

Methods: We evaluated pre- and post-operative data on demographics, history of diabetes, and metabolic parameters, in all patients with impaired fasting glucose (IFG) and type T2DM undergoing LGBP from July 1997 to May 2002.

Results: During this 4-year period, 1160 patients underwent LGBP and 240 (21%) had IFG or T2DM. Follow up was possible in 191 of 240 patients (80%). There were 144 females (75%) with a mean pre-operative age of 48 years (range 26-67). The mean preoperative weight and BMI were 308 lbs and 50.1 kg/m² with a mean postoperative weight and BMI of 211 lbs and 34 Kg/m² for a mean weight loss of 97 lbs and mean excess weight loss of 60%. After surgery no patients experienced worsening of their diabetes. All patients filled out SF36 surveys postoperatively, these results were compared to two controls groups. Group I was comprised of morbidly obese patients with T2DM who were treated medically. Group II were US norms used to validate SF36 survey. Patients who

underwent gastric bypass surgery were significantly less impaired, in all areas measured by the SF36 survey, than Group I (p<0.001). There were no significant differences in any area between postoperative LGBP and Group II by one year postoperatively. Severity of T2DM did not significantly affect the ability of surgery to normalize the SF36 scores.

Conclusion: LGBP results in resolution (83%) or improvement (17%) of T2DM. Patients with T2DM can expect significant improvements in quality of life after undergoing gastric bypass surgery regardless of the severity of T2DM.

P12. REDUCING NAUSEA AND HOSPITAL LENGTH OF STAY FOR LAPAROSCOPIC GASTRIC BYPASS USING AN INTRAOPERATIVE STEROID BOLUS

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Background: Laparoscopic Roux-en Y Gastric Bypass (lap – RYGB) is becoming increasingly popular for the treatment of severe obesity. The intraoperative administration of steroids has been demonstrated to reduce postoperative nausea in intra-abdominal surgery, however steroid use in lap-RYGB has not been previously reported.

Methods: A retrospective analysis of patients undergoing lap – RYGB at a single institution was reviewed to determine the clinical effect of intra-operative steroid administration. Decadron was administered as a 4-mg or 8-mg i.v. bolus immediately following induction of anesthesia. Study endpoints included the incidence and duration of post-operative nausea and/or vomiting (as noted by patient and measured by use of anti-emetic medication), hospital length of stay (LOS) and peri-operative complications.

Results: Six hundred seventeen patients were identified, including those treated without Decadron (n=374, Group 1), with 4-mg of Decadron (n=50, Group 2) or 8-mg of Decadron (n=193, Group 3). Patient demographics of each group were similar in each group. The incidence of post-operative nausea requiring 11% in Group 1, compared to 6% in Group 2 and 5% in Group 3 (p<0.05), respectively. LOS was 1.94 days, vs. 1.58 days, vs. 1.39 days (p<0.05). The 30-day peri-operative complication in each group was 2.3% vs. 2.7% vs. 2.4% (p=ns). No difference was noted in infectious complications.

Conclusion: These data suggest that intraoperative steroid administration during lap-RYGB can significantly decreased the incidence of post-operative nausea and reduce hospital LOS without increasing peri-operative complications.

P13. QUANTIFYING SUPPORT GROUP IMPORTANCE; A PATIENT'S PERSPECTIVE

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Background: Success following bariatric surgery correlates with numerous interdependent variables. While surgical expertise may be the most important, recognition of the complementary components contributing to the entire programmatic approach are undeniable. One component, the support group (SG), has a role which, to date, has not been quantified. We hypothesized that support groups are indispensable to the success of bariatric programs and

undertook this study to evaluate the patient perspective of this resource.

Methods: This study surveyed all bariatric patients during office visits, hospitalization following gastric bypass and during SG meetings over a two-week period. Surveys were anonymous. Support groups were quantified into 4 categories—very, somewhat, a little, not important. Compliance with the survey was over 99%.

Results: A total of 103 patients completed surveys.

| | SG very important (%) | SG somewhat important (%) | SG a little important (%) | SG not important (%) | No comment (%) |
|---------------------------|-----------------------|---------------------------|---------------------------|----------------------|----------------|
| Postop Patients n=75 | 53 (70.7%) | 18 (24%) | 0 | 1 (1.3%) | 3 (4%) |
| Months since bypass--mean | 6.3 | 8.8 | | 0 | 12.3 |
| Preop Patients n=28 | 24 (85.7%) | 2 (7.1%) | 1 (3.6%) | 0 | 1 (3.6%) |

Average time from bypass for all patients was 7.1 months. 16 patients were 1 year or more in the very or somewhat important groups (mean 17.6 months postop). Most frequent comments defining importance were confirmation of normalcy of symptoms with eventual resolution. Most common criticism was distance traveled to the meeting and infrequency (1/month).

Conclusions: Support groups are especially important preoperatively, maintain their importance after surgery and should be an integral component of any program. Surveys provide an opportunity for feedback and improvement.

P14. ROUTINE USE OF ESOPHAGOGASTRODUODENOSCOPY IN THE PRE-OPERATIVE EVALUATION OF BARIATRIC SURGERY PATIENTS IS NOT NECESSARY

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Background: The routine examination of the upper GI tract by endoscopy has been suggested after bariatric surgery because of the high incidence of abnormal findings and the inability to diagnose distal gastrointestinal pathology at a later date.

Design: A retrospective chart review was performed in 300 consecutive patients that underwent esophagogastroduodenoscopy prior to laparoscopic bariatric surgery.

Results: Three hundred consecutive laparoscopic bariatric procedures were performed from 11/00 to 10/03. Average age was 46 (19-72) with a BMI of 47 (35-97). 190 patients underwent a gastric bypass, 109 underwent a LapBand® and one a duodenal switch. Fourteen percent of patients complained of significant gastroesophageal reflux disease pre-operatively. Endoscopy demonstrated that 28% had mild gastritis, 20% had a hiatal hernia, 10% had esophagitis, 2.5% had a duodenal ulcer, 1% had a gastric ulcer, 1% had Barrett's esophagus, one patient had a 0.5cm carcinoid and H. pylori was found in 3% of patients and was treated pre-operatively. Eight percent of patients were newly started in proton pump inhibitors prior to their operation due to endoscopic findings. Four percent of patients had a cruroplasty and reduction of hiatal hernia performed at the time of their bariatric procedure. All of these large hiatal hernias were easily visualized at the time

of operation.

Conclusions: Although pre-operative abnormalities were found in a significant number of patients, the clinical significance is unclear. Operative plan was not changed in any patient. Pre-operative endoscopy is only rarely beneficial and is not cost effective.

P15. ROUTINE PRE-OPERATIVE ECHOCARDIOGRAPHY IS UNNECESSARY BEFORE MINIMALLY INVASIVE BARIATRIC SURGERY

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Background: The value of routine pre-operative cardiac evaluation in patients undergoing minimally invasive bariatric surgery is controversial.

Design: Three hundred consecutive laparoscopic bariatric procedures were performed from 11/00 to 10/03, all had echocardiography. We retrospectively examined the incidence of clinically significant abnormalities.

Results: Of 300 consecutive patients, 190 patients underwent a gastric bypass, 109 underwent a LapBand® and one a duodenal switch. Mean age was 46 (19-72) with a BMI of 48 (35-97). Sixteen percent of patients had diabetes, 31% had hypertension, 3% had a previous revascularization procedure and one patient was one the heart transplant list secondary to severe cardiomyopathy (EF 11%). Pre-operative echocardiography demonstrated left ventricular hypertrophy (14%), diastolic dysfunction (2%), significant valvular disease (1.5%), and depressed ejection fraction (1.5%). Seven percent of patients underwent a stress echocardiogram, all of which demonstrated no ischemic changes; eight percent underwent chemical stress testing with "borderline" reversible findings found in 30%. Four patients underwent heart catheterizations without significant findings. No patient required conversion to open. Only one patient had significant changes to their anesthetic routine due to severe cardiac disease. This patient was the only to be admitted directly to the intensive care unit post-operative. Perioperative mortality was zero. There were zero percent post-operative cardiac events including myocardial infarction, pulmonary edema or post-operative ventilator need. One leak occurred (0.5%).

Conclusions: Routine use of echocardiography may demonstrate minor abnormalities in 20% of patients. These findings are not clinically significant in altering the outcomes of minimally invasive bariatric surgery.

P16. A US INSTITUTIONAL EXPERIENCE WITH 300 LAP-BANDS FOR THE TREATMENT OF MORBID OBESITY IN A LAPAROSCOPIC CENTER

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Background: While laparoscopic adjustable banding has a large worldwide experience, United States data has been limited to only a few patient series.

Methods: A retrospective review of 300 Lap-Band insertions were performed by a single surgeon in a Laparoscopic Center using the pars accida technique. The patients' progress, %EWL and complications during our 18 month study period was tracked in an Excel database. Patient data were collected utilizing office visits, mail and

telephone surveys. Lap-Band adjustments were performed utilizing ultrasound or uroscopic guidance.

Results: All 300 patients underwent surgery safely with no mortality. The patient's average age was 43 years old (range 21-65); average weight was 130kg (range 93-230 kg); average BMI was 46 (range 38-66). One patient required an open surgical approach. After our initial 25 cases, all ports utilized the "mesh platform" technique. There were three acute and one late gastric prolapses. There were four cases of port site infection that required laparoscopic port site revision. Three lap-bands required removal. We had no DVTs or perioperative myocardial infarctions. Our average length of stay was one day.

Conclusion: The Lap-Band can be placed safely with minimal morbidity and no mortality by an experienced laparoscopic surgical team. Patient benefits include significant weight reduction with minimal morbidity and no mortality and a short length of stay. These factors make the Lap-Band our surgical option of choice for the treatment of morbid obesity.

P17. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING INDUCES SATIETY: A RANDOMIZED CROSSOVER STUDY

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Background: Bariatric procedures have traditionally been considered either restrictive or malabsorptive. We investigate the hypothesis that the laparoscopic adjustable gastric band (LAGB) is effective through an additional mechanism of satiety induction.

Aim: To assess satiety induced by LAGB with and without optimal adjustment.

Method: Weight stable subjects at least 18 months post-LAGB were tested. Each participant attended two breakfast tests; one with optimal LAGB adjustment and one with no added uid present (empty band). Band adjustments were blinded to the subject and direct investigators, occurring two days prior to testing. Standardized breakfasts were served at 0900hrs after 14hrs fasting. Hunger/Satiety Visual Analogue Scales were completed hourly from 0700hr to 1100hr and immediately after feeding. Severely obese controls were also tested.

Results: 16 LAGB subjects (mean age = 44.5) with a mean preoperative BMI of 44.2 and test BMI of 31.9 (%EWL = 59.1%) had paired meals. Twelve controls had a mean age of 40.3 and BMI 45.1. All groups became increasingly hungry preprandially and experienced maximal satiety immediately after the meal. Optimal LAGB adjustment was associated with significantly greater satiety at all 6 time points when compared with the empty band, both before and after the test meal (paired t-test, p<0.01 for all). The obese controls experienced an intermediate effect.

Conclusion: LAGB reduces preprandial hunger and increases postprandial satiety. These data indicate an important primary effect of the LAGB on satiety and suggests that LAGB exerts a constant effect on central appetite regulation, presumably through neural/humeral signals arising from the stomach.

P18. THE VALUE OF RISK STRATIFICATION IN EVALUATING OUTCOME OF WEIGHT REDUCTION SURGERY FOR MORBID OBESITY

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Background: Assessment of patient risk based on co-morbidities may be an important factor in determining the outcome of weight reduction surgery for morbid obesity. Stratifying for patient risk may be helpful in comparing different surgical approaches.

Methods: We collected the outcome data of 656 consecutive patients who underwent weight reduction surgery at a single institution over a 3-year period. Surgical procedures included open gastric bypass, open and hand assisted VBG and hand assisted gastric bypass. Risk of mortality (ROM) was calculated based on a multi-step algorithm incorporating patient data such as age and weight, underlying medical conditions as well as co-morbidities. Patients were grouped in minor, moderate, major and extreme ROM.

Results: Irrespective of the surgical procedure performed, patient outcome was dependent on underlying ROM. We observed 2 deaths in 656 patients. Patients classified as major and extreme ROM had a statistically significant longer length of stay (p<0.05). The 2 deaths were observed in the 10 patients with an extreme ROM.

| Risk Group | Number | % | LOS | Mortality |
|---------------|--------|---------|------|-----------|
| Minor Risk | 596 | 90.85% | 4.1 | 0.00% |
| Moderate Risk | 32 | 4.88% | 6.7 | 0.00% |
| Major Risk | 16 | 2.44% | 11.1 | 0.00% |
| Extreme Risk | 10 | 1.52% | 22.2 | 20.00% |
| All | 656 | 100.00% | 4.7 | 0.30% |

Conclusion: Determining the underlying risk based on age, weight and co-morbidities may be the single most important factor in determining outcome of weight reduction surgery and may become an essential tool in comparing different surgical approaches.

Endoscopy with dilation is a safe and effective approach to manage this complication.

P19. SUPERIOR MESENTERIC ARTERY SYNDROME FOLLOWING LAPAROSCOPIC ROUX-Y-GASTRIC BYPASS

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Background: Superior mesenteric artery syndrome (SMAS) presents with vomiting and abdominal pain due to intermittent obstruction of the third portion of the duodenum by the SMA. In adults, SMAS can occur following rapid weight loss due to severe burns, trauma etc. Patients undergoing bariatric surgery typically loose weight rapidly and may be at increased risk for developing SMAS. We present two cases of presumed SMAS following laparoscopic Roux-en-Y gastric bypass (LRYGBP).

Methods: Two patients presented with intermittent abdominal pain and nausea several months following LRYGBP. Both patients experienced symptoms at night while sleeping in the supine position. Leaning forward relieved symptoms in both patients. Their excess body weight loss when their symptoms commenced was 40%

and 99%. The first patient underwent an extensive workup over several months that included imaging, endoscopies and exploratory laparoscopies. Exploratory laparoscopy in both patients eventually revealed dilated gastric remnant and duodenum up to the level of the SMA and laparoscopic duodeno-jejunostomy was performed.

Results: Both patients had immediate intraoperative decompression and uncomplicated postoperative course. They remain symptom-free after a follow-up of thirteen and seven months respectively.

Conclusions: The diagnosis of SMAS should be considered in post-LRYGBP patients who exhibit rapid weight loss and present with atypical, recurrent obstructive symptoms. The altered anatomy following LRYGBP makes the diagnosis of SMAS elusive. Endoscopy and contrast swallow studies are not helpful in establishing the diagnosis. Laparoscopic duodeno-jejunostomy offers immediate and lasting resolution and should be considered the procedure of choice for the treatment of this complication.

P20. A BEHAVIORAL MEASURE OF QUALITY OF LIFE: CHANGES IN Pedometer Readings Before and After Bariatric Surgery

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Background : Improved quality of life after bariatric surgery is a crucial variable, and a number of different measures currently exist for its assessment. To date, virtually all measures have been subjective, relying on self-report, rather than behavior. Recording of pedometer readings is a behavioral measure of general activity level, a potentially important indicator of daily exercise and physical function.

Methods: Sixty-seven patients were provided with pedometers before bariatric surgery (laparoscopic gastric bypass = 49; Lap-Band™ = 18). Pedometers recorded steps, rather than miles, to simplify use. Patients were instructed to record daily pedometer readings for 2 weeks prior to surgery and 20 weeks after surgery. Data were returned weekly via email and fax.

Results: Fifty-six patients returned sufficient data for analysis (LGB = 46; Lap Band™ = 10). Data are reported in steps per day. Mean baseline pre-surgery readings were: 1771 (LGB), 1806 (Lap Band™) and 1791 (combined). Mean post-surgery readings were: 3201 (LGB), 3312 (Lap Band™) and 3227 (combined). Combined data reflect an increase of 80.2% (LGB = 80.8%; Lap Band™ = 83.4%). Pre- to post-surgery changes were statistically significant (p<.05) for each group as well as the combined group.

Conclusion: Use of pedometers to measure activity and physical function in bariatric surgery patients provides a convenient, inexpensive and objective means to supplement more subjective outcome measures. In fact, it might serve as a proxy for other quality-of-life measures. Compliance with recording daily readings may also reflect on patient motivation and responsibility for changes following surgery.

P21. LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS IS SAFE AND EFFECTIVE IN MASSIVELY SUPEROBES PATIENTS

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Objective: Laparoscopic Roux-en-Y gastric bypass (LRYGBP) has been shown to be safe and effective. However, there is little data on the outcomes of massively superobese patients, with a body mass index (BMI) ≥ 60. The goal of this study was to determine the safety and efficacy of LRYGBP in these patients.

Methods: A total of 191 consecutive patients undergoing LRYGBP by a single surgeon at a university hospital were included in a prospective database. The patients were divided into two groups: the first with a BMI < 60 (n=148) and the second with a BMI ≥ 60 (n=43). The two groups were retrospectively compared in terms of the perioperative complications, as well as the excess body weight lost postoperatively.

Results: Both groups were similar with respect to their age and preoperative comorbidities. The major and minor perioperative complication rates were comparable as well, with 8(6%) and 4(3%) respectively in the first group, and 3(6%) and 1(2%) respectively in the second group. Average excess body weight lost was calculated for each group at various postoperative intervals, and the data analyzed using Student's t-test.

| Postoperative Interval | BMI < 60 | | BMI ≥ 60 | | p |
|------------------------|----------|-------|----------|-------|-------|
| | n | %EBWL | N | %EBWL | |
| 3 months | 106 | 33.9% | 36 | 25.5% | <.001 |
| 6 months | 60 | 50.5% | 26 | 40.3% | <.001 |
| 12 months | 31 | 63.6% | 10 | 50.7% | <.001 |

Conclusions: LRYGBP is a safe operation in massively superobese patients with complication rates comparable to patients with a BMI < 60. The operation is effective in these patients as well. A satisfactory excess body weight loss was achieved, averaging over 50% at one year. However, this is less than the weight loss seen in patients with a BMI less than 60.

P22. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING (LAGB) IN A STABLE POPULATION WITH REGULAR FOLLOW-UP

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Wesley Hospital, Brisbane, Australia

Regular, long term follow-up is essential for successful LAGB.

We travel 1000 miles to Cairns every 2 months to review old and new patients from this stable population of 110,000 in Northern Australia.

Since 1996, there have been 194 LAGB's aged 44.8 yrs, 39 super-obese. Only 5 patients have been lost, a 97% follow-up. There have been 10 slips, 1 erosion and 4 port replacements (7.8%). Seven bands have been removed and converted to BPD (3.5%).

At mean of 24.8 mths (3 - 84) follow up, weight has gone from 127 ± 27 kg (79 - 230 kg) to 94 ± 20 kg and BMI 45 ± 8.4 kg/m2 (30 - 96) to 33.3 ± 6 kg/m2. %EWL is listed below.

| Months | No. | Range | Mean EWL | % > 50 | % EWL |
|--------|-----|----------|-----------|--------|-------|
| 06 | 169 | 6 - 86 | 33.5 ± 13 | | 11 |
| 12 | 143 | 10 - 133 | 49.5 ± 19 | | 45 |
| 18 | 110 | 22 - 180 | 56.9 ± 22 | | 64 |
| 24 | 76 | 25 - 110 | 57.6 ± 17 | | 70 |
| 36 | 47 | 21 - 93 | 57.1 ± 15 | | 79 |
| 48 | 17 | 30 - 81 | 54.8 ± 13 | | 65 |
| 60 | 10 | 33 - 87 | 53.5 ± 14 | | 70 |
| 72 | 7 | 44 - 94 | 63.4 ± 16 | | 86 |

Virtually all comorbidity has resolved including 23 of 25 diabetics off all medication, including 3 on insulin and 12 of 14 sleep apnoeics off CPAP.

This data, with 97% follow up at 5 years demonstrates that LAGB can be as effective as any bariatric procedure providing there is regular follow-up. (250)

P23. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING IN TEENAGERS - RESULTS AT THREE YEARS

George A. Fielding, MD, Jennifer Duncombe Wesley Hospital, Brisbane, Australia

Morbid obesity in teenagers is becoming a national health emergency in developed countries. A decision was made to offer lap-bands to teenagers in 1998.

LAGB are inserted by the pars accida technique and left empty. Patients seen every 6 weeks for 2 years then every 3 months for adjustments as necessary.

We have performed lap-bands in 26 teenagers - 21 females and 5 males, age 12 - 19 years (17.1) with 33.8 ± 19 months follow-up. Sixteen have at least 3 year follow up. Weight at surgery was 125 ± 19 kg (83 - 220) and BMI 42.4 ± 8.2 kg/m² (31 - 71). Data has been kept prospectively in Lap base.

There was no operative morbidity. There was 1 slipped band at 11 months (repositioned) and 1 leaking port at 5 months (replaced). One child has been lost to follow-up. Compliance was excellent. At 24 months there were 12.2 visits / child (7 - 22). Weight loss data is in the table below. At 3 yrs, %EWL was 70% and fifteen of 18 children had at least 50% EWL. At 3 years, thirteen of 18 teenagers are not obese - BMI < 30 kg/m².

| Months | No. | Wt (kg) | BMI (kg/m ²) | % EWL |
|--------|-----|---------|--------------------------|-------|
| 06 | 24 | 110 | 36 | 30 |
| 12 | 21 | 96 | 32 | 50.4 |
| 18 | 18 | 93 | 30.6 | 62.6 |
| 24 | 18 | 91 | 29.6 | 69.3 |
| 36 | 16 | 92 | 29.2 | 70 |
| 48 | 5 | 88 | 29 | 63 |
| 60 | 3 | 72 | 27.3 | 65 |

Lapband is a safe and effective therapy for morbidly obese adolescents.

P24. THIS GOES WITH THAT - COMBINING LAPBAND AND DUODENAL SWITCH IN BARIATRIC REVISION PROCEDURES

George A. Fielding, MD, Jennifer E. Duncombe, Guy H. Slater Wesley Hospital, Brisbane, Australia

Revision of failed lapband has previously been by band removal and some form of bypass. Revision of biliopancreatic diversion (BPD) has usually been by common channel revision. Combination of adjustable restriction and malabsorption without gastric resection is proposed as a safe revision combination.

Group 1

Laparoscopic duodenal switch (DS) has been added to lapband left insitu, using a 50 cm common channel and 200 cm alimentary limb.

Group 2

Lapband has been placed in failed BPD, including patients with previous band removal followed by BPD which has subsequently failed.

Group 1

Six patients had DS 61 months (26 - 83) after BPD - 104 KG (79 - 180), BMI 35 kg/m² (30 - 48). All had dysphagia. The band was left loose. Operating time was 55 mins (42 - 85); hospital stay 4.2 days (2 - 5).

Group 2

Four women had rebanding after band out/BPD. BMI 31 kg/m², weight 97 kgs (78 - 121). Three women had band after primary BPD 27 months later (25 - 29) at BMI 41 (40 - 42); operating time 47 mins (32 - 51); hospital stay 2.2 days (1 - 3).

Post-operatively no patient was hungry and no patient had dysphagia. BMI fell to 30 kg/m² (27 - 36) at 3 months and to 27 (25 - 29) at 6 months, in the combined group of 13 patients.

Combination of adjustable restriction and malabsorption is a safe revision. (235)

P25. HEPATITIS C INFECTION IS NOT A CONTRA-INDICATION FOR SURGICAL TREATMENT OF OBESITY

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Thirty three morbidly obese patients (2%) with positive hepatitis C status successfully underwent gastric bypass operation for weight loss over a four year period. Data is maintained prospectively at the Center for Surgical Treatment of Obesity on patients treated at the Center. The percentage of men in this group (30%) is almost threefold that in our patient population (11%). The percentage of patients in this group on Federal and state insurance(45%) is double that in our patient population (21%). The incidence of diabetes type 2 in this group is 42%, 30% (10/33) on medications with 12 % (4/33) on insulin. Two patients were also positive for HIV. Two patients were positive for both hepatitis C and A. Three patients were positive for both hepatitis C and B and five patients were positive for hepatic A, B and C. Hepatitis C antigen titer was determined in each patient before the operations. None had active hepatitis infection. The liver function tests were normal in all the patients. The protein and albumin levels were normal. Wedge liver biopsy in all patients with hepatitis C showed grade 0-2 disease activity and stage 0-2 chronic hepatitis in most of the patients. All patients had evidence of non alcoholic steato hepatitis. Anti infectious precaution were taken in the handling of these patients. There was no mortality in this group and the perioperative morbidity (7%) was similar to that of the other patients in our patient population. All patients with type 2 diabetes showed control within two weeks of the operation and none of them require any medications. There have not been any late sequelae due to the hepatitis C status. The weight loss curve is identical to patients without hepatitis C positive titer. Long-term monitoring is on going. Morbidly obese patients with hepatitis C positive status stand to benefit from gastric bypass operations for weight loss.

P26. UNANTICIPATED FINDINGS AT BARIATRIC SURGERY

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NJ

Background: Obesity is associated with an increased prevalence of various intra-abdominal malignancies (uterine, ovarian, colon, renal). There is little consensus as to the screening of the morbidly obese for these malignancies, and there are no guidelines in terms of screening these subjects prior to bariatric surgery or to performing a survey examination during the abdominal bariatric surgery.

Methods: A prospective analysis of 400 patients undergoing gastric bypass surgery was performed to identify the incidence of unanticipated intra-abdominal pathology.

Results: All patients underwent abdominal exploration via an upper abdominal incision prior to performing a gastric bypass. 32 of the 400 patients (8%) were found to have abnormalities requiring intervention. Most abnormalities were remedied prior to the gastric bypass, but some required aborting the bypass, or performing a frozen section and/or operative consultation prior to proceeding.

Conclusions: Thorough evaluation of the entire abdomen is warranted at the onset of laparoscopy or laparotomy prior to performing the weight loss procedure.

P27. INCIDENCE OF RHABDOMYOLYSIS IN PATIENTS UNDERGOING BARIATRIC SURGERY

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Background: Rhabdomyolysis has been reported as a complication of prolonged operative procedures on morbidly obese patients. It has been observed that procedures lasting longer than 4 hours increase the risk of RML due to pressure necrosis of the lumbar- gluteal muscles. The circulating myoglobin can cause acute renal failure.

Methods: 100 patients undergoing RYGB were followed by daily serum CPK measurements postoperatively. Male to female ratio was 18:72, average age 40.3 years average BMI 46.6 kg/m², operating room time was 1 hour 38 minutes, procedure time was 1 hour 13 minutes. All patients underwent open proximal RYGB via a 3-4 inch upper midline incision by the same surgeon between July and October 2003.

Results: 56% had postoperative CPK less than 1000. Average BMI 46, age 41.8, time in OR 1 hour 38 minutes. 25% had postoperative CPK between 1000 and 2000. Average BMI 47.6, age 38.3, time in OR 1 hour 11 minutes. 19% had CPK over 2000.

Average BMI 49.2, age 38.4, time in OR 1 hour 39 minutes. Two patients out of the last group developed acute renal insufficiency characterized by oliguria elevated serum creatinine and BUN. Their ages were 40, 45; BMIs 83.3, 69.9 and OR time 2 hours 7 minutes, 2 hours 15 minutes. Both patients kidney function recovered fully with IV hydration, alkalization of the urine with sodium bicarbonate and diuresis.

Conclusion: Subclinical RML may be more frequent than anticipated even in shorter operative procedures in bariatric patients. Routine postoperative monitoring of the serum CPK levels in patients with higher BMI may give early warning and the opportunity to prevent acute renal failure due to RML.

P28. A SATISFACTORY METHOD FOR PERFORMING THE GASTROJEJUNOSTOMY IN LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (LRNY) FOR MORBID

OBESITY

William P. Homan, MD, DPhil, Philip Weber, MD, Carl Weber, MD

Leaking and stricture of the gastrojejunostomy remain problematic following LRNY. There is no unanimity of opinion concerning the best technique for this anastomosis.

Since starting to use a purse string stitch and circular stapler, we have performed 75 consecutive LRNY's over 15 months without a leak or stricture.

The stomach pouch is constructed larger than desired using a laparoscopic linear stapler. The pouch is opened and the anvil of a 25mm circular stapler is inserted. The spindle is brought through the stomach wall where desired. The pouch is closed with linear staplers.

A purse string suture of 2-0 polyester or polypropylene is placed in the wall of the stomach pouch to affix the stomach to the spindle. This prevents enlargement of the opening made by the spindle during the anastomosis and diminishes the likelihood of leaks. The anastomosis is completed in the usual manner. No leak test is performed as the "rings" have been complete in every case; no drains are used.

Since including the purse string stitch we have had no leaks or strictures in 75 consecutive cases from 6/2002 – 9/2003. Demographics are as follows: age: 17-60 years (average 38); 64 females, 11 males; BMI's 35-60 (average 44). Weight loss: 37% at 3 months, 58 % at 6 months, 73% at 9 months (% excess body weight lost).

The use of a circular stapler with a purse string stitch is a satisfactory method of performing the gastrojejunostomy in LRNY, and results in a low leak and stricture rate.

P29. DEVELOPMENT OF ADOLESCENT BARIATRIC SURGICAL PROGRAMS

Thomas Inge, MD, PhD, Louise Lawson, PhD, and Victor Garcia, MD

Background: As the number of adolescents with clinically severe obesity has grown, so too have the number of adolescents seeking bariatric interventions for obesity.

Methods: The membership of the ASBS was surveyed by email to ascertain plans for development of adolescent bariatric surgery (ABS) programs. In August of 2003, electronic mail was used to transmit a 14 question survey to each member of the ASBS. Results were tabulated and expressed as a percentage of the total respondents.

Results: Of the 92 respondents, most (84%) performed >50 adult bariatric procedures per year. Over half (53%) had performed ABS. Nearly half (45%) had performed <10 ABS cases within the last year and 70% were planning ABS in the upcoming year. Forty-two percent reported that they have already or were in the process of developing an adolescent bariatric treatment program with pediatric specialists in their community. The vast majority (84%) of respondents was willing to participate in a multi-center collection of outcomes data, and 65% reported having dedicated personnel for clinical data collection.

Conclusions: There is a growing interest among ASBS membership in developing ABS programs. Despite the perceived need for such services, evidence is lacking in adolescent age group to guide decisions of patient selection, choice of operation, and postoperative management. We must rigorously evaluate the effectiveness and outcomes of this intervention in adolescents. It is critical to adopt a thorough approach to collection of high quality, prospective outcomes data to advance patient care for the adolescent with clinically severe obesity.

P30. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING FOR THE TREATMENT OF ADOLESCENT MORBID OBESITY IN THE U.S.: PRELIMINARY EXPERIENCE

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Background: Morbid obesity (MO) has reached epidemic proportions and has become a major public health problem in developed nations. In the MO adolescent, early intervention can minimize obesity-related comorbidities, improve quality of life and prevent obesity-related diseases. The traditional surgical approach to MO in adolescents includes laparoscopic or open gastric bypass. Although these procedures have led to weight loss and improvement of comorbidities, justifiable concerns remain over the high incidence of post operative complications, and long term irreversible sequelae to the gastrointestinal tract. Based on the excellent results from large international adult series, and our own institutional experience, we offered eligible adolescents laparoscopic adjustable gastric banding (LAGB) as an alternative to gastric bypass.

Methods: After medical, psychological and nutritional screening, three patients (age 17 to 18) with a body mass index (BMI) above 40, and a history of failed medical management, were selected for LAGB.

Results: Operative time ranged 40-90 minutes, and all patients were discharged the day of surgery. There were no early or late complications. Two patients with follow up of at least 2 months lost 62% and 38% of their extra weight at 30 months and 2 months respectively.

Conclusions: In this preliminary series the use of LAGB in the management of MO adolescent, the lack of operative morbidity, reduced operative time/hospital stay and encouraging initial weight loss mirror the adult experience and illustrate that LAGB can be a safe and effective alternative to gastric bypass. These encouraging results support further evaluation of LAGB as a surgical option in a comprehensive adolescent weight loss program.

P31. AN ALTERNATIVE INCISION FOR OPEN ROUX-EN-Y GASTRIC BYPASS; IS THE CASE FOR LAPAROSCOPIC GASTRIC BYPASS OVERSTATED?

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Background: Laparoscopic has become the preferred approach to Roux-en-Y gastric bypass (RYGBP). If a midline incision is synonymous with the open approach, it is clear that wound morbidity is almost eliminated by the laparoscopic approach. This is an extensive study with open RYGBP (ORYGBP) utilizing a left subcostal incision (LSI), with impressive results.

Methods: This is an experience of a single bariatric surgeon from 1980 through October 2003, which includes gastroplasties (GP) and primary RYGBP procedures using the LSI. Wound and other morbidity are compared to published laparoscopic RYGBP data (LRYGBP).

Results: During this 23 year study there were 634 primary GP's, and 2,555 open RYGBP procedures, totaling 3,189 cases. Wound morbidity was approximately 2% overall, with an incisional hernia rate of 0.2%. This compared quite favorably to the bariatric literature with an incidence

of midline incisional hernias of 7.6% (38 times greater). The LSI hernia data was even better than the LRYGBP data of approximately 1%. Overall, the re-operation rate for all reasons was 1.3% (34/2,555) in 1° ORYGBP.

Equipment cost analysis demonstrated that LRYGBP costs approximately \$3,500 more than ORYGBP. In our bariatric surgery center, mean OR time in LRYGBP was 218 minutes vs. 100 minutes in ORYGBP, and at \$1,250 per hour, this amounts to about \$2,000 more, or a \$5,500 difference. Length of stay is similar. The literature also confirms a higher incidence of small bowel obstruction with LRYGBP compared to open.

Conclusion: If we take the incision out of the equation and consider the higher cost, higher wound morbidity, higher leak rate, higher incidence of small bowel obstruction, and similar weight loss, then open RYGBP-LSI is at least a reasonable alternative to LRYGBP, if not a better approach, particularly for the new or occasional bariatric surgeon and for revisional bariatric surgery.

P32. EFFECT OF CONCOMITANT CHOLECYSTECTOMY ON THE RESULTS OF LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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Background: Cholecystectomy (CCY) is performed selectively at our medical center in conjunction with laparoscopic Roux gasinc bypass (LGBP) for patients with ultrasound- demonstrated cholelithiasis. The purpose of this study was to examine the effect of CCY on the outcome of LGBP.

Methods: Of 679 LGBP patients. 132 had had p CCY and were excluded from this analysis. The remaining patients were compared for duration of operation, length of stay (LOS), mortality and complications (leak, infection, thromboembolism, incisional hernia. internal hemia and obsmaction). Statistical methods used included Fisher's exact test and Student's t test. Values are means SEM.

Results: Patients having CCY had similar ages (41.7 vs 41.4 years), preoperative BMIs (49.7 vs 48.8 kg/m and comorbidities as those having LGBP alone.

| | Op time (min) | LOS (davs) | Overall Complications (%) |
|-------------------|---------------|------------|---------------------------|
| CCY= LGBP (n63) | 201±6 | 3.5±0.4 | 7.9 |
| LGBP alone (n484) | 185 ±3 | 3.8±0.3 | 9.7 |

The CCY patients had similar mortality rates (0 vs 0.6%) and leak rates (3.2 vs 3.7%) as those having LGBP alone. One CCY patient had a transient bile leak which was controlled by a drain placed at the time of surgery.

Conclusions: Concomitant cholecystectomy does not add to the ris of laparoscopic gastric bypass. The additional procedure, also performed laparoscopically, added only an average of 16 minutes to the duration of operation.

P33. A COMPARISON OF LAPAROSCOPIC GASTRIC BYPASS IN AN ESTABLISHED UNIVERSITY SETTING AND A NEW VA PROGRAM

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Background: Laparoscopic Roux-Y-gastric bypass (LRYGB) can be introduced at a Veteran Affairs hospital (VAH) setting with results comparable to a university hospital (UH) with an established bariatric surgery practice.

Methods: Retrospective review of 114 patients (24 VAH, 90 UH) who underwent laparoscopic gastric bypass at a VA medical facility (VAH) and a university medical center (UH) over a thirteen month period.

Results: Main Outcome Measures were indications, demographics, pre-operative body mass index, pre-operative co-morbidities, operative time, anesthesia time, conversion rate, re-operation rate and mortality.

Over a 13 month period, a total of 114 patients underwent laparoscopic Roux-Y gastric bypass. Results are summarized below:

| | VAH | UH | p-value |
|-------------------------|-----|-------|------------|
| Age | 50 | 41.7 | <.0001 |
| % female | 25 | 90 | <.0001 |
| Pre-operative BMI | 46 | 44.9 | .6510 (NS) |
| # co-morbidities | 5.1 | 5.0 | .3426 (NS) |
| % diabetes | 71% | 20% | <.0001 |
| % sleep apnea | 75% | 41.1% | .0032 |
| % hypertension | 75% | 48.9% | <.0255 |
| Anesthesia time (min) | 355 | 223 | <.0001 |
| Surgery time (min) | 273 | 177 | <.0001 |
| % Re-operation <30 days | 8 | 3.3 | <.0001 |
| Length of stay (days) | 4.6 | 2.8 | .0018 |
| Mortality | 0 | 0 | (NS) |

Conclusions: In contrast to the UH setting, patients presenting for bariatric surgery at a VAH were mostly men, older, and had more significant co-morbidities. LRYGB was introduced at the VAH by the same surgical team operating at the UH with acceptable morbidity and mortality. Operative and anesthesia times were significantly longer at the VAH reflecting both patient-related and institution-related variables.

P34. OBSTRUCTIVE SLEEP APNEA, NOCTURNAL HYPOXEMIA, AND QUALITY OF LIFE IN PATIENTS SEEKING GASTR BYPASS SURGERY

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Background: Obesity is associated with impaired health-related and obesity-specific quality of life (QOL). These impairments are even more pronounced among gastric bypass patients. While many gastric bypass patients also suffer from obstructive sleep apnea (OSA) and nocturnal hypoxemia (NH), it is unknown whether the presence of OSA or NH further impacts their QOL.

Methods: 232 gastric bypass patients (mean age mean

BMI 84.9^oi women) underwent polysomnographic screening. Respiratory Disturbance Index (RDI) (apneas/hypopneas per hour) and Time Below 90% Oxygen Saturation (%<9OSpO2) were assessed. Participants completed the Impact of Weight on Quality of Life-Lite (IWQOL-Lite). SF-36, and Epworth Sleepiness Scale (ESS).

Results: The prevalence of moderate-to-severe OSA (RDI.a16) was 46.6%. 62% of patients had NH (iO%<9OSpO2). Participants with moderate-to-severe OSA and NH scored in the moderate range on the ESS (mean=11). Correlations between QOL and RDI, %<9OSpO2, and ESS were below .20, with the exception of ESS and vitality (r = -.27; p<.05). QOL measures indicated impairment in all areas relative to normative samples, with the greatest impairment occurring in vitality and work. However, there were no differences on either of the QOL measures between those with and without moderate-to-severe OSA and NH.

Conclusions: Persons seeking gastric bypass surgery have a high prevalence of moderate-to-severe OSA and NH. Measures of health-related and obesity-specific QOL indicate impairment in all areas relative to normative samples, with the greatest impairments occurring in vitality and work. However, the presence of OSA or NH does not further impact QOL among persons seeking gastric bypass surgery.

P35. LAPAROSCOPIC GASTRIC BYPASS OUTCOMES FROM A NEW COMMUNITY-BASED TEACHING PROGRAM

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Background: Laparoscopic gastric bypass (LGB) remains one of the most difficult advanced laparoscopic procedures currently performed. Fellowships in advanced laparoscopy with emphasis in LGB are available for obtaining experience in performing LGB. The following is the first report of a single surgeon's experience with LGB outcomes in a community based teaching program following completion of an advanced laparoscopic surgical fellowship.

Methods: All patients underwent a retrocolic, retrogastric laparoscopic bypass utilizing the linear stapled technique for the gastrojejunostomy and a stapled side-to-side jejunojejunostomy. Outcomes prospectively measured and entered into a prospective database included patient demographics, length of stay, length of operation, complications, and percentage excess weight loss.

Results:

| N | F/M | Mean BMI | Mean OR time (min) | Mean LOS (days) | % Excess wt loss at 1 yr (n = 79) | % Internal hernia | % Leak rate | % Transfusion Postop | % DVT/ PE | % Conversion To Open | % Mortality |
|-----|--------|----------|--------------------|-----------------|-----------------------------------|-------------------|-------------|----------------------|-----------|----------------------|-------------|
| 175 | 147/28 | 49.2 | 123 | 2.2 | 73.1 | 0.6 | 0.6 | 4.6 | 0 | 0 | 0 |

Conclusions: Fellowships in advanced laparoscopy with emphasis in LGB provide an optimal training environment for acquisition of skills necessary to safely and effectively perform LGB. Upon completion, results comparable to current benchmarks can be achieved in a community setting without an initial period of higher complications (the learning curve).

P36. PRIMUM NON NOCERE : PARS FLACCIDA LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING: THE FIRST LINE SURGERY FOR MORBID OBESITY TREATMENT

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Background: A 10% weight loss improves obesity's comorbid conditions. At 8 years laparoscopic silicone adjustable gastric banding (LAP-BAND) provides a mean 50% excess weight loss (EWL).¹

Methods: Patient selection was done according to ASBS criteria. Between April '97 and November '99, 103 LAP-BANDS were placed using the perigastric technique, then until October 2003, 249 through "pars accida." Mean age: 39, mean BMI: 44(34.9-66.1), sex ratio: 27 males, 325 females.

Results: There was no mortality. Except for one abdominal sepsis that resolved after band removal, there were no blood transfusions, cardiac or pulmonary major complications related to the LAP-BAND or reoperations. Comorbidities in first 109 patients:

| Comorbid Disorder | Resolved | Improved | Unchanged |
|---------------------|----------|----------|-----------|
| Glycemic | 69.2% | 26.9% | 3.8% |
| Triglyceride | 74.4% | 16.3% | 9.3% |
| Cholesterol | 25.9% | 18.5% | 37.0% |
| Gout | 85.7% | 4.8% | 9.5% |
| GERD | 84.5% | 6.2% | 10.3% |
| Dyspnea | 63.8% | 22.5% | 6.3% |
| Stress Incontinence | 48.2% | 37.0% | 14.8% |

Total series at 2 years - perigastric vs. pars accida:

| | Perigastric | Pars Flaccida |
|--------------------------|--------------|---------------|
| EWL | 58.2% | 58.1% |
| QOL (Moorehead & Ardelt) | 1.75 | 1.70 |
| Reoperation Rate | 42/103 (41%) | 21/249 (8%) |

Conclusion: Weight loss induced by LAP-BAND is sufficient to induce metabolic and mechanical changes that improve QOL. Furthermore, LAP-BAND is completely minimally invasive and does not compromise future surgical options.

(1)R.WEINER & al. Outcome after laparoscopic adjustable gastric banding-8 years experience *Obes Surg* 2003; 13: 427-434.

P37. INCIDENCE AND TREATMENT OF GASTROJEJUNAL LEAKS FOLLOWING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS SURGERY

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Background: Laparoscopic Roux-en-Y gastric bypass surgery is one of the most technically challenging of any laparoscopic procedure both in terms of the actual operation and the management of the complications. This study examines the incidence and treatment of gastrojejunal leaks following laparoscopic Roux-en-Y gastric bypass surgery.

Methods: A retrospective chart review of 1,150

consecutive laparoscopic Roux-en-Y procedures was employed to define the incidence of gastrojejunal leak. This same method was used to compare three options of treatment for such leaks: no repair; repair within 24 hours of the original procedure; and repair 24 hours or more after the original procedure. Parameters studied regarding recovery with each treatment option were: total number of hospital days per patient in each group; average readmissions to the hospital; and average number of complications per patient in each group.

Results: The incidence of leak in the study group was 2.08%. The total number of hospital days per patient in each group was less in the group of patients repaired within 24 hours of the original procedure. There were also fewer readmissions per patient in the group repaired within 24 hours of the original procedure. The average number of complications was less in the group without repair.

Conclusion: Our original approach of either not repairing gastrojejunal leaks or repairing them on a selective basis has been supplanted by opting for repair of these leaks within 24 hours of the original operation. We think this is the best option for quicker and safer patient recovery.

P38. THE EFFECT OF AGE AND SEX ON BAROS SCORES FOLLOWING LAPAROSCOPIC GASTRIC BYPASS

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Background: The Bariatric Analysis and Reporting System (BAROS) uses a point scale to evaluate weight loss, improvement in medical conditions and quality of life (QOL) in the postoperative bariatric patient. The BAROS tool assesses QOL changes by incorporating the Moorehead-Ardelt QOL questionnaire. The relationship between patient age, sex and outcome including improvement in QOL following gastric bypass surgery is unclear. We examined the effect of age and sex on BAROS scores.

Methods: 150 patients status post laparoscopic gastric bypass completed the Moorehead-Ardelt QOL questionnaire beginning at their initial 3-week postoperative visit and on subsequent visits at 3 months, 6 months, 9 months and 1 year. BAROS scores were calculated and recorded in a prospective database. Outcomes were stratified by patient age and sex. T-test and ANOVA were used for statistical analysis.

Results: There was no statistical difference between age groups or gender with respect to the raw BAROS scores. The change in BAROS scores from baseline (3 weeks) between men and women was not significant at 3 months but was statistically significant at 6 months (p = 0.010) and 9 months (p = 0.021), with a trend noted at 12 months (p = 0.086). Age stratification showed no difference in the BAROS change from baseline.

TABLE 1 Mean BAROS

| Age | 3 wk (N) | 3 mo (N) | 6 mo (N) | 9 mo (N) | 12) |
|--------|-------------------|-------------------|-------------------|-------------------|-------------------|
| ≤ < 29 | 1.5 ± 1.2 (17) | 3.3 ± 1.5 (15) | 4.9 ± 2.0 (13) | 6.4 ± 1.6 (10) | 7.2 ± 1.5 (9) |
| 30-39 | 2.0 ± 1.0 (48) | 4.2 ± 1.2 (46) | 5.6 ± 1.5 (28) | 6.7 ± 1.4 (20) | 7.0 ± 1.3 (22) |
| 40-49 | 2.1 ± 0.9 (47) | 4.1 ± 1.3 (45) | 5.5 ± 1.5 (40) | 6.5 ± 1.6 (30) | 6.9 ± 1.6 (19) |
| ≥ > 50 | 1.9 ± 1.2 (34) | 3.8 ± 1.2 (32) | 5.3 ± 1.1 (27) | 6.4 ± 1.1 (15) | 7.1 ± 1.2 (17) |

TABLE 2

| Sex | 3 wk (N) | 3 mo (N) | 6 mo (N) | 9 mo (N) | 12 mo (N) |
|-----|--------------------|--------------------|-------------------|-------------------|-------------------|
| M | 2.2 ± 0.8 (23) | 4.32 ± 1.1 (23) | 5.1 ± 1.2 (20) | 6.0 ± 1.3 (15) | 6.8 ± 1.1 (11) |
| F | 1.9 ± 1.1 (123) | 3.9 ± 1.3 (115) | 5.5 ± 1.5 (88) | 6.6 ± 1.5 (60) | 7.1 ± 1.4 (56) |

TABLE 3 Change in BAROS from 3 weeks

| Sex | 3 mo (N) | 6 mo (N) | 9 mo (N) | 12 mo (N) |
|---------|--------------------|----------------|----------------|----------------|
| M | 2.0 ± 1.1 (23) | 2.8 ± 1.1 (20) | 3.7 ± 1.2 (15) | 4.3 ± 1.2 (11) |
| F | 2.0 ± 1.2 (112) | 3.7 ± 1.4 (86) | 4.7 ± 1.5 (58) | 5.2 ± 1.5 (54) |
| P-value | 0.970 | 0.010 | 0.021 | 0.086 |

Conclusion: Age is not an independent variable in the BAROS scoring system. At intermediate follow-up, there is a difference in the change in BAROS scores between men and women, which continues as a trend at 1 year. Additional follow-up and research will be conducted.

P39. ENDOSCOPIC MANAGEMENT OF GASTRO-JEJUNAL ANASTOMOTIC STRUCTURES AFTER LAPAROSCOPIC – ASSISTED GASTRIC BYPASS

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Background: Gastric bypass has been shown to be an effective procedure for the treatment of morbid obesity. Complications of this surgery are often related to the gastrojejunal anastomosis. We present the management of strictures using endoscopic balloon dilatation.

Methods: A retrospective review was performed on all patients who underwent laparoscopic-assisted gastric bypass between January, 2002 and September, 2003. All patients with symptoms suggestive of a gastroenteric stricture were studied with upper gastrointestinal endoscopy. Balloon dilatation was performed on patients with documented strictures.

Results: 393 patients underwent laparoscopic assisted roux-Y gastric bypass in the study period. 21 women and 3 men had a total of 28 upper endoscopies with 14 balloon dilatations. On initial exam, 11 patients had strictures, 9 patients had normal appearing anastomoses with easy passage of the endoscope, 3 patients had jejunal ulcers, and one patient had both an ulcer and a stricture. 2 patients who had recurrent symptoms of nausea and emesis after documented strictures were noted to have jejunal ulcers on later exams. Average time to presentation for strictures was 7.2 weeks (range 4-13.5 weeks). Initial balloon dilatation relieved symptoms in 10/12 patients, while 2 patients underwent repeat dilatation within 4 weeks, with no evidence of further strictures. There were no complications associated with dilatation in any of the patients. Conclusions: Strictureing of the gastrojejunal anastomosis occurred in 3.1% of patients undergoing laparoscopic-assisted roux-Y gastric bypass. Most strictures presented within 1-3 months of surgery. Endoscopic balloon dilatation is a safe and effective method of treating strictures.

P40. IMPROVEMENT IN HYPERSENSITIVITIES

AFTER WEIGHT LOSS SURGERY

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Background: Obesity has a high rate of immune disorders. Weight loss has been associated with improvement in immune regulated hypersensitivities.

Methods: Sixty consecutive patients who underwent gastric bypass and the adjustable gastric banding were surveyed with mailed questionnaires or phone calls before and after surgery at one hospital. Fourteen out of sixty patients (23.3%) were identified preoperatively as having allergies, psoriasis, sinusitis or asthma requiring medication. All patients had pre-operative BMI greater than 40 kg/m2. Results: Ten of thirteen (76.9%) patients contacted had significant improvement or complete resolution of allergies, asthma or psoriasis with reduction or cessation of medications after weight loss surgery. 100% of asthmatic patients reported complete or nearly complete resolution while 50% of patients with pre-operative asthma stopped their inhalers and oral medications within two weeks after gastric bypass surgery. Weight loss at the time of resolution was between 28-68 pounds at two to three weeks after surgery. Patients requiring oral and/or inhalational allergy medications ceased their medication before significant weight loss was achieved in the post-operative follow up period. Psoriasis was only mildly improved while 50% of patients with seasonal allergies had been cured completely or greatly improved within four months of gastric bypass surgery.

Conclusion: Weight loss surgery improved immune regulated hypersensitivities allowing patients to stop all or most medications needed to suppress allergies. Weight loss surgery is beneficial for patients with immune regulated hypersensitivity disorders such as asthma, sinusitis or seasonal rhinitis. Surprisingly, hypersensitivities improve before significant weight loss is achieved.

P41. PERCUTANEOUS ENDOSCOPIC GASTRO-GASTROSTOMY CORRECTS GASTRIC OUTLET OBSTRUCTION FOLLOWING VERTICAL-BANDED GASTROPLASTY

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Background: This retrospective case series demonstrates the success of a new, minimally invasive technique to eliminate obstructive symptoms following vertical-banded gastroplasty.

Methods: 20 patients were referred for revisional gastric surgery for obstructive symptoms or failure, following vertical-banded gastroplasty performed as treatment for morbid obesity. Most patients had some combination of preoperative dysphagia, GERD, vomiting, and food impactions. The two interventions included (1) Percutaneous endoscopically-guided stapled gastrogastrostomy using a transgastric approach (PEGG). (2) Conversion to Roux-en-Y gastric bypass (RYGBP). Outcome measures included symptoms, lengths of surgery and hospital stay, complications, weight gain.

Results: Average number of months since reversal was 19 (range 1-51). 12 patients underwent PEGG. Average operation was 50.6 minutes (range 25-140). Median length of stay was 0.75 nights (range 0 – 7), with 6 managed as outpatients. 11 of 12 (92%) had complete or near complete symptom relief. One patient developed a port site hernia.

Average weight increased by 8.4% of pre-op weight.

8 patients underwent laparoscopic conversion to RYGBP. Average operation was 301 minutes (range 225 – 390). Median length of stay was 3 nights (range 2 – 7). All had complete or near complete symptom relief. One patient developed atelectasis, another a port site infection. Average weight decreased by 23.5% of pre-op weight.

Conclusions: Obstructive sequelae of vertical-banded gastroplasty can be safely and effectively corrected with a percutaneous endoscopic gastrogastrostomy. Symptom relief is comparable to, and operative time and hospital stay shorter than, conversion to RYGBP; however, gastroplasty reversal enable weight gain by eliminating the weight control properties of the gastroplasty.

P42. LIMB LENGTH MODIFICATION AS A REVISIONAL BARIATRIC SURGERY P ROC EDURE

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Background: Patients who fail their primary bariatric surgery can be considered for limb length modification(LLM).

Methods: A review of the prospectively collected database identified patients who had LLM for failure. Failure of BS is defined as Body Mass Index(BMI)>40 kg/m and/or an Excess Body Weight Loss(EBWL)<50%. Charts were reviewed for the anatomic feature of LLM, results of the modification and need for further revisions by 1 year.

Results: Thirty-five patients had LLM with 1 year follow-up; 34 for failure, one was for alkaline bile re ux. They are 4 males and 31 females with mean age of 45 years. Mean BMI was 56.5 kg/m at the time of the primary operation and 44.6 kg/m at revision. Mean EBWL at revision was 31.8%. 6/35 had their Roux limbs lengthened(RLL) from 60cm to iSOcm(2 also common channels shortened(CCS) to 150 cm). 2 patients whose BMI < 40 at the time of revision had ongoing weight loss. 4 continued to be failures. The remaining 30 LLM had CCS. 17 (56.6%) had "success" with LLM(EBWL >50% and BMI <40), 2 (6.6%) had limited success (EBWL >50% or BMI <40) and 11(36.7%) completely failed. Four(13%) had their common channels re—lengthened for malnutrition.

Conclusions: LLM is successful in achieving further weight loss in the majority of patient. Converting 60 cm to 150 cm RL only provided weight loss in patients already BMI <40 kg/m². There is a risk of malnutrition with ELM.

P43. LAPAROSCOPIC IMPLANTED ADJUSTABLE GASTRIC BANDING (AGB) IN THE TREATMENT OF VERTICAL BANDED GASTROPLASTY (VBG) COMPLICATIONS - A PROSPECTIVE STUDY

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Background: VBG was the standard procedure in restrictive bariatric surgery over decades. The aim of this study was to assess the effect of laparoscopic treatment of complications linked to VBG with a focus on AGB.

Methods: In a prospective study the outcome of patients with a laparoscopic reoperation after VBG were analyzed. All reoperations from September 1999 onward were planed laparoscopically. Patients with an initial weight loss over

50% EWL and a B.A.R.O.S. score over 1 point were considered for an AGB and included into the study.

Results: Between September 1999 and October 2003 we operated 84 patients after failed open VBG. All reoperations were planed laparoscopically. Twenty four of the 84 patients (28%) had multiple laparotomies. Indications for reoperations were: Thirty two Patients (38%) with outlet stenoses and recurrent vomiting and 52 patients with staple line disruption (62 %). The mean BMI prior treatment was 46,9 +1- 6,1 kg/m The mean BMI decreased statistically significant until the complication occurred 32 +/- 5,1 kg/m We noted 3 perioperative non fatal complications (3,5%, 1 pulmonary embolism, 1 esophagogastric perforation with intraoperative repair, 1 pneumonia) and no mortality, respectively. We had no conversion to open surgery. In one patient a banding procedure was not feasible and abandoned. The mean duration of operation time was 75 +1- 14 minutes and the hospital stay was 4,2 +/- 1,3 / range 2-10 days. The mean follow-up was 21 +1- 14,5 months with a current follow up rate of 98%. The mean BMI at follow-up was

30,6 +/- 5,1 (63% EWL from initial weight).

Conclusion: The treatment of complications after VBG with a laparoscopic adjustable gastric banding is safe and effective. Failed VBG with an initial good to excellent BAROS result should be considered again for a restrictive procedure, namely the adjustable gastric banding procedure.

P44. LAPAROSCOPIC CONVERSION OF LAPAROSCOPIC GASTRIC BANDING TO ROUX-EN-Y GASTRIC BYPASS : A SERIES OF 36 PATIENTS

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Objective: Our purpose is to evaluate the feasibility and outcomes of laparoscopic conversion of laparoscopic adjustable gastric banding (LAGB) to Roux-en-Y gastric bypass (RYGB).

Methods: From November 2000 to July 2003, we retrospectively analysed all patients who underwent laparoscopic conversion of LAGB to RYGB. The procedure included adhesiolysis, resection of previous band, creation of an isolated gastric pouch, 100cm Roux-limb, side-side jejuno-jejunostomy, and end-side gastro-jejunostomy.

Results: thirty-six patients (31 female, 44 mean age) with a median BMI of 45±12 (31-67) underwent attempted laparoscopic conversion of LAGB to RYGB. The indication for conversion was dilated gastric pouch in 24, weight regain in 10 and intra-gastric migration of the band in 2. One of 36 cases (2.8%) had to be converted to laparotomy because of severe adhesions.

The median operative time was 240 min (210-280). Mean length of hospital stay was 7.2days.

Complications included one pulmonary embolism, one pulmonary infection, two gastro-intestinal bleeding, two wound infections and one anastomotic stricture. There was no mortality. Median excess body weight loss was 58.3±18 % (40-97). 60% of patients achieved a BMI of less than 33 with a mean follow-up of 18 months.

Conclusions: Laparoscopic conversion of LAGB to RYGB is a technically challenging procedure that can be safely integrated into a bariatric treatment program with good results. Short term weight loss is very good.

P45. FOOD ADDICTION IN INDIVIDUALS WITH MORBID

OBESITY

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Neuroimaging studies have found neuropeptide responses to food in the obese that are similar in many regards to other forms of addictive behavior. We have developed a tool for measurement of food addiction using DSM-IV criteria for substance abuse and found previously that the morbidly obese (MO), but not their leaner cohorts, score high for food addiction. In the present study, we utilized this test to measure levels of food addiction among the MO and to identify possible characteristics of individuals with such addictive behavior. The study population included 167 MO presurgical patients (BMI=50) and 75 non-obese controls (BMI=25). Food addiction and eating control were assessed using the Ardel-Gattinger, Moorehead, Weger Eating Habits Scale and psychosocial status was depicted from scores on our quality of life and self-esteem questionnaires. The data show that 53% of the MO population scored positive for food addiction, as compared to only 4% of the non-obese controls. MO patients with the highest food addiction scores were those that tended to deal with life stressors by regressive, rather than transference, stress coping behavior. Addiction scores were highest ($p < 0.02$) for individuals with childhood onset obesity and those who had suffered abuse as children. For all patients, food addiction scores were significantly ($p < 0.0$) correlated to low self-esteem ($r = 0.42$) and reduced life quality ($r = 0.55$). Food addiction for the MO is common and is associated with early abuse and obesity onset, reduced psychosocial status, and an inability to appropriately deal with life stressors.

P46. SAFE ACCESS IN BARIATRIC LAPAROSCOPIC SURGERY

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Background: Safe access to the peritoneal cavity is an issue with any laparoscopic surgery and equally so with Laparoscopic Gastric Bypass (LGB). Several approaches have been developed to safely access the peritoneal cavity. These range from cut downs, blind insertion of a Veress needle for insufflations followed by trocar insertion, and the use of direct visualization through the trocar prior to insufflation. In addition, post operative complications from the trocar sites are also an issue. Hernias and wound infections are the most common. Techniques including closing the fascia and the use of nonbladed trocars have been tried to affect the complication rate.

Methods: Retrospective analyses of 158 consecutive LGB surgeries were reviewed. All cases were performed by the two authors at same institution. Access was performed using the Ethicon Endopath bladeless trocar under direct vision (video). The remaining trocars used were the bladeless trocars inserted under direct vision. All complications were reviewed including bleeding, intra-abdominal viscera injury, need for conversion to open procedure, and inability to access the peritoneal cavity. Long term complications were also evaluated including hernia formation and keloid formation.

Results: All LGB cases were reviewed. There were no complications using the Endopath Trocar and the direct visualization access technique in any of the LGBS performed.

Conclusion: Use of the Endopath bladeless trocar in the LGB surgery is safe and associated with no complications in our series.

P47. PRELIMINARY REPORT ON USING THE THROMBELASTOGRAPH® TO IDENTIFY PATIENTS UNDERGOING GASTRIC BYPASS WHO NEED ANTI-THROMBOTIC THERAPY

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Background: Current surgical practice considers all morbidly obese patients high risk for thrombotic complications. Patients undergoing gastric bypass receive anti-thrombotic therapy and some experience bleeding complications. The Thrombelastograph® (TEG®)—a point-of-care coagulation monitor measuring whole blood clotting from initial fibrin strand through dissolution of the clot—is used to titrate Lovenox™ doses during cardiac surgery in our OR. The TEG® permits precise patient dosing.

Methods: Our cardiovascular surgical unit monitors their patients intraoperatively with the TEG®. When technicians and equipment were available, patients undergoing a gastric bypass procedure had a preoperative TEG®. If the patient demonstrated a hypercoagulable state, they were treated with pathology specific therapy and a TEG® was obtained post-operatively. The coagulopathy was managed by titrating the therapy using serial TEG® results.

Results: Between July 9, 2003 and October 15, 2003, 119 gastric bypass procedures were performed (96 laparoscopic and 23 open). Of the 119 patients, 51 (43%) had a preoperative TEG®. Twenty-seven patients (53%) were hypercoagulable and 24 had a normal coagulation profile (47%). The 27 patients received either Lovenox™ or Toradol™ depending on their coagulopathy. Nine patients remained hypercoagulable after initial treatment and required serial TEG® determinations.

Conclusions: This limited retrospective review suggests that not all morbidly obese patients undergoing gastric bypass procedures are hypercoagulable at the time of surgery. The TEG® identifies hypercoagulable patients and permits therapy tailored to their coagulation defect. By identifying patients with a normal coagulation profile, complications related to unnecessary anticoagulant prophylaxis are avoided. A prospective study is underway.

P48. GHRELIN AND LEPTIN LEVELS IN RESTRICTIVE SURGERY, A 2 YEAR FOLLOW-UP STUDY

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Background: Ghrelin is a recently discovered gastric hormone, which has an orexigenic effect. Administering ghrelin to rodents leads to an increase in food intake. Morbid obese individuals have lower ghrelin levels compared to lean persons. After gastric bypass these levels remain low, whereas in restrictive surgery the behavior of ghrelin postoperatively is not known. It is hypothesized that the difference in success percentage of gastric bypass and restrictive bariatric interventions is due to a different behavior of ghrelin after bariatric surgery. In order to

elucidate this hypothesis we studied the behavior of two satiety hormones, ghrelin and leptin, pre-, 1 and 2 years postoperatively after restrictive surgery.

Methods: In a prospective study, 18 morbid obese patients received restrictive surgery (Lapband and VBG). Plasma ghrelin and leptin levels were evaluated preoperatively, 1 year and 2 years postoperatively.

Results: During these 2 years BMI decreased from 51 + 5 to 32 + 3 m/kg². Fasting plasma leptin levels were significantly lower after 1 and 2 years of surgery (p<0.001). Plasma ghrelin levels rise 1 year (p<0.05) and 2 years (p<0.02) postoperatively.

Conclusion: After bariatric surgery the morbid obese individual receives orexigenic signals due to the falling leptin levels. The additional rise in ghrelin levels after restrictive surgery can be the key in understanding the difference seen in success percentage between gastric bypass and restrictive surgery in favor of gastric bypass. These results point out that suppression of ghrelin levels postoperatively could enhance the results of restrictive surgery.

P49. DISSOCIATION OF LEPTIN AND BMI AFTER BARIATRIC SURGERY, A MECHANISM RESPONSIBLE FOR A MORE SERIOUS COURSE OF POSTOPERATIVE SEPTIC COMPLICATIONS

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Background: Leptin is a pleiotropic adipokine which has a regulatory effect on the immune system. Leptin deficiency, due to genetic factors (ob/ob) or starvation (anorexic patients) leads to suppression of the immune system. Septic complications after bariatric surgery tend to be more serious compared to lean individuals. We hypothesize that this difference is due to a rapid fall of leptin in the first days after bariatric surgery.

Methods: In a prospective study, 15 morbid obese patients received restrictive surgery (LapbandTM and VBG). BMI and plasma leptin levels were evaluated preoperatively, 1, 2 and 3 days postoperatively.

Results: The first days postoperatively the BMI did not alter significantly (51.8 kg/m²). Leptin levels however decreased rapidly, medians of preoperative, 1, 2 and 3 days postoperative are 77.8, 85.5N.S., 50.8P=0.06 en 38.0P<0.001 ng/ml respectively.

Conclusion: In the early postoperative period two conditions influence circulating leptin levels, starvation (decrease) and surgical trauma (increase). During the first 48 hours these two conditions maintain leptin levels at preoperative values. After 72 hours the effect of surgery decreases, whereas the effect of starvation remains. This exposes the morbid obese individual to a relative leptin deficit, suppressing the immune system. This makes the individual more vulnerable to a serious course of postoperative septic complications if such complications develop. According to our findings avoiding the decrease in leptin could prevent this suppression of the immune system. In our perspective interventions that could prove helpful are substituting leptin in the early postoperative period or counteract starvation by postoperative feeding.

P50. ADJUSTABLE GASTRIC BANDING WITH NO POUCH

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Methods: 400 morbidly obese patients having a body mass index above 40 kg/m² underwent laparoscopic adjustable gastric banding using the MID band. The standard 4 trocar technique was used in all of our patients & placement of the band was done through the pars Flaccida. The endoilluminator was used to delineate the esophago-gastric junction in all cases. No pouch was done with only one stitch between fundus of the stomach and the adventia in front of the esophagus.

Results: All cases were done via laparoscopy with average surgery time of 35 minutes. The morbidity was minimal due to previous experience using other bands. Injection port complication were in three patients with rotation and coiling of the tube. There were no mortalities in this series. The loss of weight after one year was comparable to our previous experience with other bands & the patients were more satisfied with the small sized injection port. There was slippage in one case in the group where the pouch was done. No erosions in this group. Minimal follow-up was 1.5 year. No significant oesophageal dilation was reported in this study.

Conclusions: Placement of the band at the esophagogastric region with no pouch could be the safest position of the band. The Technique described is simple with no significant complications. Long term follow-up is recommended.

P51. PSYCHOLOGICAL SCREENING IN BARIATRIC SURGERY CANDIDATES

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Background: Psychological factors play an important role in prognosis for bariatric surgery candidates. Most bariatric surgery candidates must undergo psychiatric evaluation prior to surgery. However, there are no uniform guidelines for psychological assessment in this population.

Objective: To compare various psychological screening tools used to identify psychological and psychosocial dysfunction in morbidly obese patients seeking bariatric surgery.

Methods: Starting in June 2003, we prospectively tracked all bariatric surgical candidates undergoing psychological assessments. Patients underwent screening using the Beck Depression Inventory – II to measure the severity of depression, the Millon Behavioral Medicine Diagnostic Test to provide information about how the patient is personally experiencing his/her disease process, and the Brief Symptom Inventory-18, implemented to screen for psychological distress and psychiatric disorders. Each of these tests is designed to capture a different psychological component to the patient's success post-operatively.

Results: Of our patients (n=73), 40.8% had scores indicating a moderate to severe depression using the Beck Depression Inventory-II. The Millon Behavioral Medicine Diagnostic Test revealed high rates of abnormalities: functional deficits (86.3%), illness apprehension (84.9%), and problematic compliance (54.3%). Of patients completing the Brief Symptom Inventory (n=55), 35.8% reported significant somatization and overall, 26.3% of patients scored in a range indicating psychological distress. Concordance among tests was only found with depression.

Conclusion: Use of multiple screening tools identifies several important aspects of psychological dysfunction in the morbidly obese patient seeking bariatric surgery. Identification of these problems can provide the basis for tailored psychological support and medical intervention if needed in the perioperative period.

P52. RETROSPECTIVE REVIEW OF UPPER ENDOSCOPY RESULTS IN BARIATRIC PATIENTS.

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Objective: Disclose the upper endoscopy results during 183 consecutive studies in patients with bariatric surgery.

Method: During 8 months of the present year we have performed 183 upper endoscopy studies by two gastroenterologists, in patients referred from the Center For Surgical Treatment Of Obesity at Tn-City Regional Medical Center, for a GI evaluation. The reason for performing these evaluations varies from routine post operative endoscopic evaluation of the pouch and the outlet , mild dyspeptic symptoms that did not improve with usual recommendations, including medication, to emergency cases due to more distressing symptoms such as gastric outlet problems. A systematic review of all cases scoped at the Gastrointestinal Laboratory at Tn-City Hospital was performed by the authors.

Results: From the total of 183 upper endoscopy procedures performed, the following diagnoses were disclosed: 92 patients (50.2%) did not present significant pathology; 25 (13.6%) presented esophagitis and an additional 3 (2.4%) Barrett's esophagus. A total of 30 (16.3%) presented gastric outlet problems. This condition was either due to obstructive foreign body (13) or strictures at the level of the gastrojeuno anastomosis (17). In 13 cases (7.1%), the silastic ring was eroded and 5 patients presented fistulas, 1 presented esophageal diverticulum and 17 were observed with a significant gastric pouch enlargement. A review of the symptoms and endoscopy profiles were correlated pre and post study in the majority of cases.

Conclusion: The pathology of symptomatic patients that have had a bariatric surgery was studied with the performance of UGI endoscopy. The results illustrate the spectrum of the pathology that the patients present.

P53. THE EFFECT OF WEIGHT LOSS AFTER GASTRIC BYPASS SURGERY ON C-REACTIVE PROTEIN LEVELS

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Background: Recent studies have shown a direct correlation between C-reactive protein (CRP) level and obesity. There has also been increasing evidence that elevated CRP levels are a significant risk factor for impending cardiac events and stroke. We evaluated whether CRP levels are altered by gastric bypass surgery.

Methods: CRP levels were obtained at one week pre-operatively and then 3 months post-operatively. Measurements of weight, height, waist and hip values were measured pre-operatively and at the corresponding 3 months postoperatively. The body mass index (BMI) and CRP levels were compared between pre-op and post-op periods utilizing the student's t-test and p<0.05 was considered significant.

Results: Twelve subjects have been studied to date, with eleven females and one male.

| | BMI (kg/m2) | CRP (mg/dL) |
|----------------|-------------|-------------|
| Pre-operative | 42.73 | 1.23 |
| Post-operative | 34.37 | 0.57 |
| P value | <0.001 | <0.001 |

Normal CRP levels are <0.5mg/dL. Using the student's t-test the correlation factor between the change in BMI with relation to the change in CRP levels pre and post-operatively was not significant. (p<0.5018)

Conclusion: There were significant and corresponding changes in BMI and CRP levels following gastric bypass surgery and these values were independent. However, there was no significant correlation between the amount of weight lost and the decrease in CRP levels. We plan to continue to pursue the underlying physiological mechanisms that occur after gastric bypass surgery.

P54. INTESTINAL MALROTATION IN PATIENTS UNDERGOING ROUX-EN-Y GASTRIC BYPASS

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Background: Intestinal malrotation in adults is usually an incidental finding in asymptomatic patients. At our institution, where Roux-en-Y (RNYGB) gastric bypass is the preferred operation for the treatment of morbid obesity, there have been 10 previously unidentified patients with malrotation diagnosed intraoperatively. With a modification of our routine RNYGB technique, these patients have similar outcomes compared to "normal" patients.

Methods: Between October 1, 1997 and October 31, 2003, 3,085 patients underwent open and laparoscopic RNYGB. There were 10 patients with intestinal malrotation found incidentally at the time of RNYGB. A follow-up examination of all 10 patients was carried out to an average of 8.5 months after operation (range 1 to 24 months).

Results: The average hospital stay was 3 to 4 days. One patient in the immediate postoperative period developed symptoms of bowel obstruction, which was treated with re-operation in the same hospital stay. Data from our patient population show that all ten patients recovered from surgery and have had successful weight loss in concordance with their "normal" cohorts.

Conclusion: In comparison to patients with normal intestinal anatomy, those with malrotation had no difference in hospital stay, postoperative complications or postoperative weight loss success. With a modification of our routine RNYGB at the time of surgery, these patients, with these unexpected findings, can be operated on and expected to have similar outcomes as those without malrotation.

P55. FIVE YEAR OUTCOME AFTER BILIO INTESTINAL (ERICSON) BYPASS

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Background: Ericson's or bilio-intestinal bypass (BIB) is a purely malabsorptive procedure that combines a jejunum ileal

bypass and a cholecysto jejunostomy diverting bile through the excluded intestinal loop. Despite favorable initial reports, comprehensive long term data are lacking. We report hereby the result of a prospective 5 year follow-up study after BIB.

Methods: 25 consecutive patients (134±5 kg, 48±2 kg/m²) undergoing a BIB before 1998 were included. Surgery was performed through a right transverse laparotomy and included a termino lateral anastomosis of the proximal jejunum (35cm) to the distal ileum (15cm), and a cholecysto jejunal anastomosis to the proximal end of the intestinal loop. All patients received oral calcium and multi vitamin daily supplementation, and oral antibiotics one week per month. In addition to standard clinical and biological assessment, routine follow-up evaluation at 1 and 5 years included an abdominal sonography, a HIDA scan, a D-xylose test, and a percutaneous liver biopsy.

Results: (mean±s.e.m.) 5 years after surgery, all patients were alive and 24 (96%) patients underwent complete evaluation. Mean weight, BMI and excess weight loss after 1 and 5 years were 98±3 kg and 95±3 kg, 35±1 kg/m² and 34±1 kg/m², and 52±3 % and 54±3 %, respectively. Five years after surgery, mean number of daily stools was 3.5±0.5. Two patients had to be reoperated, one for an incisional hernia (4%), the other for cholecystojejunostomy stenosis and cholelithiasis (4%). HIDA scan confirmed the patency of the cholecysto jejunostomy and near complete bile diversion in 22/24 patients after 5 years. Oxaluria was significantly increased (0.69±0.10 mMol/24 hours vs 0.30±0.05 mMol/24 hours prior to surgery, p<0.05). Two patients (8%) had renal lithiasis, treated by percutaneous surgery and/or ultrasounds. Intestinal absorption measured with D-Xylose test was significantly diminished at 1 year (0.15±0.01 g/L vs 0.30±0.02 g/L prior to surgery, p<0.001) and partially restored at 5 years (0.19±0.01 g/L, p=0.06). Liver biology (TGO, TGP, alkaline phosphatases, gamma GT, prothrombin time) was not significantly modified 5 years after surgery. Liver steatosis was significantly decreased (21±4 % vs 48±7 % at surgery, p<0.01). Mild hepatic fibrosis (F1 METAVIR) was present in 7 cases vs 4 at surgery (p=0.99).

Conclusion. Bilio intestinal bypass allows the consistent loss of more than 50 percent of excess body weight with an acceptable morbidity. In selected cases, this malabsorptive procedure may represent a useful alternative to restrictive interventions.

P56. IS SMALL BOWEL OBSTRUCTION FOLLOWING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (LRYGB) MORE FREQUENT THAN AFTER THE OPEN OPERATION?

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Background: Although the laparoscopic access has clear advantages over the open technique, one of the drawbacks that have been described in studies of LRYGB is the greater incidence of bowel obstruction.

Methods: We reviewed the data of 669 patients operated from August 1999 to August 2003. A retrogastric retrocolic LRYGB was performed in 120 (17.9%). In these cases, the mesocolon defect was always closed. An antecolic antegastric approach was chosen in 549 (82.1%). The division of the mesentery was extended no more than 2 cm, which was sufficient for a tension-free gastrojejunostomy.

Since this division was limited, we did not close the mesenteric defect. We did not routinely close port sites. Diagnosis of bowel obstruction was based on clinical and radiological findings.

Results: There were 7 (1.04%) small bowel obstructions. All patients were operated. Two occurred due to an internal hernia through the mesocolon defect related with the retrogastric retrocolic technique. In the antecolic group, we had 1 internal hernia through Petersen's space and 2 cases secondary to postoperative adhesions. There was 1 incarcerated non-treated (missed) umbilical hernia and one 10 mm port site hernia. There were no operative complications or deaths.

Conclusions: Even though some large laparoscopic series report a greater incidence of bowel obstruction and mandate the closure of all defects (mesocolon, mesenteric, Petersen's space), its low incidence in our series is comparable to the open literature. We do not advocate the necessity of closure of all surgical created defects in the antecolic antegastric LRYGB.

P58. LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS FOR BMI UNDER 35. A TAILORED APPROACH.

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Background: There is a group of patients with BMI under 35 that are obese (class 1: 30-34.9), have uncontrolled comorbidities, and that have tried to lose weight (lifestyle and pharmacotherapy) with no success. This group does not meet the "traditional" criteria for obesity surgery and no other treatment is offered to them.

Methods: Eleven obese patients were under clinical treatment with no resolution or improvement of their comorbidities. The mean BMI was 32.5, 9 women and 2 men; and the ages ranged from 28 to 48 years old (young patients). All patients had diabetes type 2, hypertension, and lipid disorder. GERD was present in 2 patients and sleep apnea in 1. A laparoscopic Roux-in-y gastric bypass (150cm limb) was performed in these patients.

Results: All patients have more than 12 months of follow-up. The mean weight loss is 77%. Eleven patients had total remission of their comorbidities. One patient still has mild hypertension but with a reduction in the number of anti-hypertensive drugs (3 to 1). There were no surgery-related complications.

Conclusions: Obese patients with BMI under 35 and with severe comorbidities benefit from laparoscopic Roux-in-Y gastric bypass. This treatment option should be offered to this group of patients.

P59. MANAGEMENT OF STENOSIS OF THE GASTROJEJUNAL ANASTOMOSIS AFTER LAPROSCOPIC ROUX-EN-Y GASTRIC BYPASS.

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Background: There is a reasonable risk of stenosis of the gastrojejunal anastomosis in the postoperative period of laparoscopic Roux-en-Y gastric bypass. Inadequate or late treatment may lead to serious complications.

Methods: We reviewed the data of 669 consecutive patients operated from August 1999 to August 2003 in our

Institution. A retrogastric retrocolic laparoscopic Roux-en-Y gastric bypass was performed in the first 120 (17.9%) cases and an antecolic antegastric approach was preferred in the other 549 (82.1%) cases. The gastrojejunostomy was created with a 21 mm circular stapler in the first 18 (2.7%) cases and with a linear stapler in the last 651 (97.3%) cases. Intraoperative endoscopy was routinely used to size and test (leaks) this anastomosis. After operation, symptomatic patients (vomit and solid dysphagia) were evaluated by radiological exam (Barium swallow film) and endoscopy.

Results: There were 26 (3.88%) stenoses of the gastrojejunal anastomosis. They were detected between the 4th and 6th week of PO. Two consecutive stenoses occurred in the first 18 cases (circular stapler). After these 2 cases, we decided for the linear stapler. A mean of 2 endoscopic balloon dilatations were necessary for each patient. There were 3 minor esophageal perforations confirmed by radiological study. They were successfully managed clinically. There were no reoperations and all patients are asymptomatic.

Conclusions: Adequate patient evaluation allows early treatment avoiding complications, such as dehydration and malnutrition. Endoscopic therapy is safe and effective, with a low complication rate.

P59. UPPER GASTROINTESTINAL CONTRAST STUDIES PREDICT OUTCOME AFTER REVISION OF VERTICAL BANDED GASTROPLASTY TO GASTRIC BYPASS

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Background: To identify if preoperative upper gastrointestinal contrast studies (UGI) predict outcome after revision of vertical banded gastroplasty (VBG) to Roux-en-Y gastric bypass (RYGB).

Methods: Between 1989-2003, 43/1033 (4.2%) bariatric procedures performed in a single practice were revisions. Data were prospectively collected in a database. Five (5/43, 11.6%) patients without follow-up were excluded. Indications for revision included insufficient weight loss (IWL) (Group I, n=30) gastroesophageal reflux (GER) (Group II, n=4) and intractable vomiting (IV) (Group III, n=4). UGI was abnormal if there was evidence of staple line disruption, pouch dilatation, stomal stenosis, or GER. Successful outcome was defined as ≥ 40% excess body weight loss (EBWL), or resolution of GER or IV.

Results: Mean age at the time of VBG was 37 years with a mean of 8.8 years elapsed until revision. At a mean follow-up of 23 + 20 months, mean % EBWL was 46% and mean BMI decreased from 47.5 + 10.4 kg/m² to 36.3 + 7.9 kg/m². Group I results are as follows:

| | ≥ 40% EBWL | < 40% EBWL |
|---------------------|---------------|--------------|
| Normal UGI (N=17) | 12/17 (70.6%) | 5/17 (29.4%) |
| Abnormal UGI (N=13) | 12/13 (92.3%) | 1/13 (7.7%) |
| P=0.19 | | |

One (1/4) group II and 4/4 group III patients with abnormal UGI had a successful outcome.

Conclusion: RYGB in VBG patients with IWL is more likely to be successful when the UGI is abnormal. The presence of anatomic abnormalities on UGI may predict success of RYGB in VBG patients with IV. The outcome of VBG patients who undergo revision to RYGB for documented GER is excellent.

P61. OBESITY AND HEALTH CARE USE: ESTIMATES OF UTILIZATION IN MIDDLE AGES FROM THE HEALTH SURVEY FOR ENGLAND, 1998

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Background: While there is evidence that obesity leads to significant increases in use of health care services in many countries, no previous work has evaluated the association between obesity and health care consumption in England.

Objectives: To assess the relationship between obesity and the use of health care services in the British population aged 50-69 in 1998.

Methods: All data was obtained from the 1998 Health Survey for England (HSE). Analysis was limited to the 4,102 individuals aged 50-69 with a valid BMI above 18.5 kg/m². BMI was analyzed in relation to use of 4 types of health care service, and odds ratios for use of each of these services were determined for obese people (BMI > 30 kg/m²) compared to normal weight individuals (18.5 > BMI > 25).

Results: There was an association between obesity status and use of outpatient services (adjusted OR 1.25; 95% CI, 1.03-1.51) and with use of two or more medical prescriptions (adjusted OR 1.86; 95% CI, 1.51-2.29). No significant relationship was found between obesity and physician (GP) visits or with use of inpatient and/or day patient services.

Conclusions: Although obesity was not associated with an increase in use of all four health care measures assessed as it has been in other developed countries, it did appear to impose an additional burden on health care in England. With the rising rates of obesity, there may be greater stresses on the health care system if efforts to reduce obesity are not put into effect.

P62. PREVENTION OF GASTROJEJUNAL LEAK WITH ROUTINE ENDOSCOPY

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Background: Gastrojejunal anastomotic leak can be a disastrous and life-threatening complication of Roux-en-Y Gastric bypass for the treatment of morbid obesity. Techniques to minimize this complication should be employed whenever technically feasible. We advocate intraoperative esophagogastrosopy as a method to identify and treat potential leaks before they become symptomatic.

Methods: Four hundred fifty-five consecutive patients underwent Roux-en-Y gastric bypass with intraoperative esophagogastrosopy from September 2001 until October 2003. During endoscopy a leak test was performed. This was accomplished with a bowel clamp placed distal to the gastrojejunal anastomosis. The anastomosis was submerged in saline and air was insufflated with the endoscope. Any air leak detected was managed with

suture repair. The repair was complete when no further leak was detected on repeat insufflation. Patients were routinely studied on post-operative day one with an upper gastrointestinal contrast study. Post-operative leaks detected by study or clinical exam were managed based on physical findings with drainage or re-exploration and repair.

Results: Gastrojejunal air leak was detected intraoperatively in 37/455 patients. All were repaired without further sequelae. An additional three patients subsequently developed gastrojejunal leaks (0.7%). Two were delayed in presentation after the first post-operative week. One of these was managed with re-operation and the other required percutaneous drainage. Only one patient was diagnosed peri-operatively with gastrojejunal leak and she required re-operation to repair.

Conclusion: The use of routine intraoperative endoscopy to detect gastrojejunal leaks at the time of Roux-en-Y Gastric bypass can minimize post-operative leaks. We feel this technique should be universally employed.

P63. INTRAOPERATIVE EVALUATION OF GASTROJEJUNAL ANASTOMOSIS INTEGRITY BY OXYGEN INSUFFLATION

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Background: We report our experience of intraoperative evaluation of integrity of gastrojejunal anastomosis with oxygen insufflation in comparison with Methylene blue instillation.

Methods: Between December 2001 and October 2003, 177 consecutive morbidly obese patients who underwent open or laparoscopic Roux-en-Y Gastric Bypass (RYGB) were studied prospectively. We assessed the techniques of air insufflation with a bulb syringe (first 25 cases), Methylene blue instillation, and oxygen insufflation with our technique (last 152 cases). On completion of Gastrojejunostomy with Endo GIA, nasogastric tube is inserted and connected to non-rebreather line of the Ventilator. After submersion of anastomosis in normal saline and clamping of efferent jejunal loop 2 L/min of oxygen insufflation is administered and discontinued upon good distention of jejunum above the clamp. Integrity of anastomosis is confirmed visually by absence of air bubble in the puddle of normal saline. For control, 50 ml of Methylene blue infusion is used in all cases.

Results: Our oxygen insufflation technique demonstrated absence of anastomotic leak in all patients, confirmed by subsequent Methylene blue study and postoperative gastrografin testing as well as uneventful postoperative course in these patients.

Conclusion: This study shows, that oxygen insufflation technique through a nasogastric tube connected to non-rebreather line of Ventilator is safe, fast, inexpensive, and reliable method of evaluation of gastrojejunal anastomosis integrity during open or laparoscopic RYGB. This method accomplishes better distension of the gastric pouch and jejunum as compared to the use of a bulb syringe. Therefore, it allows much more effective conformation of airtight anastomosis. It obviates the need for gastroscopy or Methylene blue instillation.

P64. REVERSAL OF SEVERE OBESITY-RELATED

CARDIOMYOPATHY AFTER BARIATRIC SURGERY

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Background: Obesity-related cardiomyopathy is reversible with substantial weight loss. However, as the vast majority of people who enter medically supervised weight loss diets fail at two years, surgical weight loss may be the best treatment option for patients.

Design: A case report with long-term follow-up.

Results: This 34-year-old Hispanic male was initially evaluated for symptoms of NY class III congestive heart failure. Echocardiography demonstrated an estimated ejection fraction of 11 percent. The patient was denied consideration for a heart transplant due to his weight 338lbs (BMI 55). He had profound breathlessness and over a 6-month period of time he required escalating doses of diuretics, ACE inhibitor therapy and dietary restriction. Other co-morbidities included severe obstructive sleep apnea. An uncomplicated laparoscopic gastric bypass was performed and the patient was discharged from the hospital in less than 48 hours. He had no perioperative complications. He lost 119 pounds over the next eighteen months. His LVEF increased from 11% to 30% and the LVED diameter decreased from 7.9cm to 6.6cm. His quality of life dramatically improved and he became newly employed. His medications were decreased to an ACEI only, his diuretics were discontinued and he was weaned completely off of CPAP due to improvements in his obstructive sleep apnea.

Conclusions: Bariatric surgery can reverse life-threatening obesity-related cardiomyopathy and may be the only intervention that can reliably improve cardiac function.

P65. A RETROSPECTIVE STUDY COMPARING STOMAL STENOSIS RATES OF THE GASTROJEJUNOSTOMY IN LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS WITH AND WITHOUT THE USE OF NITINOL SUTURES (U-CLIP)

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Laparoscopic gastric bypass is becoming the most common bariatric procedure performed in the United States. Certain complications, such as stomal stenosis, have been reported at a higher prevalence than open gastric bypass. In an attempt to reduce our stomal stenosis rate, we started performing an interrupted reinforcement of the stapled gastrojejunostomy (GJ) anastomosis using nitinol clip sutures (U-CLIP).

Method - A retrospective review of 364 patients undergoing laparoscopic gastric bypass from January 2003 – September 2003. Two methods of performing a GJ anastomosis were compared in order to determine a difference in stomal stenosis rates. The initial GJ anastomosis were reinforced with interrupted running 2-0 Polysorb sutures (auto Suture) and the later group with interrupted 3.00 mm U-CLIP. (Coalescent Surgical, Inc., Sunnyvale, CA.)

Results – Three hundred and sixty four patients underwent laparoscopic gastric bypass during the study period. There were 213 patients in the initial group and 151 patients in the U-CLIP group. The two groups were comparable with respect to age, sex and BMI. There were 21 stomal stenosis in the non U-CLIP group and 4 in the U-CLIP group with a rate of 9.85% and 2.6 respectively (p=0.0067). The

operative times were not statistically different.

Conclusions – The interrupted U-CLIP suture reinforcement of the circular stapled GJ resulted in a significant reduction in the stomal stenosis rate. The U-CLIP provided an easy and fast method of interrupted suturing laparoscopically that better replicated our open gastric bypass method without increasing the length of the operation.

P66. FACTORS INFLUENCING PATIENT CHOICE FOR BARIATRIC PROCEDURE

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Background: No study has surveyed the factors that influence morbidly obese patients' preference for a particular bariatric procedure.

Method: 470 consecutive patients in two major bariatric surgery centers in the United States (US, 125) and Australia (AU, 345), were prospectively studied to determine referral pattern, eating behavior and reason for their choice in procedure.

Results: The predominant operation was gastric banding (LAGB) in both US (75%) and AU (83%) centers. Gender (70% female), BMI (47 kg/m²) and age (42.5 years) were the same in both cohorts. The majority were characterized as volume eaters - US 78%, AU 56%. In Australia, 50% had referral initiated by primary doctors and 24% by another patient, while in US, 39% by another patient and 24% by the internet. Safety of the procedure (43%) was the highest-rated factor in choosing LAGB. LAGB being "least invasive" was most significant in the US (44%), and "surgical safety" in Australia (45%). In the US, Roux-en Y gastric bypass was preferred due to "lack of a foreign body" (32%) and "inability to cheat" (29%), while in Australia, "dumping" was the most significant reason (50%). Duodenal switch (BPD/DS) was selected in 11% of patients, primarily due to "durability of the weightloss" (51%). Surprisingly, only 1 patient in the US group selected BPD/DS because the pylorus remains intact.

Conclusion: Safety and invasiveness had the greatest impact on patient choice for bariatric surgery in 2 different countries. This information may help clinicians better understand their patients' concerns, and their treatment choices.

P67. COMPARISON OF STRICTURES AND MARGINAL ULCERS IN OPEN VERSUS LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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Background: Marginal ulcers and strictures in open Roux-en-Y gastric bypass have been a well known complication. However, the incidence after laparoscopic Roux-en-Y gastric bypass has not been clearly established. This study reviews our experience in terms of size, frequency, and timing of marginal ulcers and strictures in open versus laparoscopic patients.

Methods: A retrospective review of our endoscopies done postoperatively due to symptoms, from December 1999

to July 2002 was performed. Size, frequency, and timing of presentations of ulcers and strictures were compared. 503 (260 open hand sewn, 243 laparoscopic stapled) gastric bypass cases were performed. 71 total EGDs were performed (35 open cases, 36 laparoscopic cases). Ulcers were qualified by comparison to anastomotic circumference (small-large), strictures were measured by endoscope (2-5mm, 6-8mm).

Results: Both laparoscopic and open groups had 10 ulcers. Laparoscopic procedures had larger ulcers and more strictures compared to open (7 large vs 1 large; p=.0004), (13 laparoscopic vs 7 open p=ns) respectively. Higher grade strictures are seen in laparoscopic cases (10, 2-5mm vs 1, 2-5mm strictures; p=.0004). Average time of presentation of ulcers for open vs laparoscopic was 9.5 months vs. 4.7months. Average time of presentation of strictures for open vs laparoscopic was 6.7months vs. 2.2months.

Conclusion: In our experience, the number of ulcers was similar with each group. Laparoscopic gastric bypass had a higher degree of strictures, larger ulcers, and presented earlier in the postoperative course compared to the open technique. Innate technical differences in the procedures may be the explanation for these findings.

P68. BOWEL OBSTRUCTION FOLLOWING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS WITH THE RETROCOLIC, RETROGASTRIC TECHNIQUE: A PROSPECTIVE ANALYSIS

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Background: Postoperative small bowel obstruction (SBO) complicating laparoscopic Roux-en-Y gastric bypass (LRYGBP) has prompted some surgeons to change from the retrocolic, retrogastric to the antecolic, antegastric technique of routing the roux limb. To date, no prospective data has demonstrated this change to be effective in decreasing the incidence of SBO. The purpose of this study is to examine the incidence and etiologies of SBO following LRYGBP using the retrocolic, retrogastric technique in a prospective fashion.

Methods: From February, 2002 to November, 2003, 107 consecutive LRYGBP were performed by the authors employing the retrocolic, retrogastric technique. Closure of the mesocolic defect, Petersen's defect and an anti-obstruction stitch was routinely done using non-absorbable suture. Each postoperative SBO was analyzed.

Results: Four patients (3.7%) developed SBO. Intraoperative findings demonstrated the following etiologies: one patient had narrowing of the jejunojejunostomy, one patient had constriction at the mesocolic defect, one patient had an internal hernia through the mesocolic defect, and one patient developed a Richter's hernia at the incisional site of a previous gynecologic operation.

Conclusion: In the current series, SBO is due to a technical problem 75% of the time. Only two (1.9%) of the cases were influenced by the retrocolic, retrogastric technique specifically. Until prospective data demonstrates the superiority of one technique, we believe the retrocolic, retrogastric technique to be a safe method. In light of the steep learning curve associated with LRYGBP, we urge a very conservative and critical approach to procedural changes and the conclusions drawn.

P69. UTILIZATION OF THE INTRAGASTRIC BALLOON (BIB) IN PRE-OPERATIVE PREPARATION FOR SUPER OBESE PATIENTS WITH HIGH SURGICAL RISK.

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Background: Superobese patients show a high surgical risk (major complications in 30% and mortality rate of 5-12%). The present study evaluates the use of BIB as a preoperative procedure aiming an initial weight loss and reduction of surgical risk.

Methods: From November 2000 to February 2003, 24 superobese patients (mean BMI= 60.3 ± 10.1 kg/m²) were treated with the BIB for at least four months before surgical treatment: 19 male (BMI= 59.0 ± 9.6) and 5 female patients (BMI= 65.3 ± 11.7). They showed associated diseases, including systemic arterial hypertension (13 cases), diabetes mellitus (5 cases), sleep apnea (10 cases), hypercholesterolemia (5 cases) and osteoarthritis (8 cases).

Results: Patients showed mean percent excess weight loss (%EWL) of 23.4 ± 11.0%, mean percent total weight loss (%TWL) of 13.6 ± 6.5%, and mean BMI reduction of 8.4 ± 4.9 Kg/m². More than 80% of patients showed improvement in hypertension and diabetes mellitus, with sleep apnea changed from severe to minimal. Surgical risk was reduced from ASA III-IV (before the BIB) to ASA II. All these patients were submitted to bariatric surgery (GB, LAGB or BPD). Two patients had wound infection (8.3%). There was no mortality.

Conclusions: Our results showed that the intragastric balloon is an effective technique in order to prepare superobese patients in preoperative time, reducing their major complications and mortality.

P70. THE EFFECTS OF BARIATRIC SURGERY ON EXERCISE TOLERANCE AND CARDIOPULMONARY FITNESS IN THE MORBIDLY OBESE

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Background: Obesity is associated with cardiovascular and all-cause mortality. Obesity related comorbidities, including hypertension, diabetes and cardiovascular disease, increase throughout the range of body mass index (BMI). Unfortunately, non-surgical weight loss methods often fail in these clinically severe obese patients. Bariatric surgery is recognized as an appropriate and effective weight loss approach in this population. However, major surgery generally has a negative, short-term effect on functional capacity.

Purpose: To evaluate the acute effect of bariatric surgery mediated weight reduction on exercise tolerance and cardiopulmonary fitness.

Methods: We performed cardiopulmonary stress testing on 76 morbidly obese patients referred for bariatric surgery. To date, 16 patients underwent surgery, and 6 patients (2 men and 4 women, mean age 41 years) completed cardiopulmonary stress testing 7 weeks postoperatively.

Results: Mean preoperative body weight and BMI were 137.3 kg and 46.0, respectively. The average weight loss was 7.9 kg (5.7% relative decrease) at the sixth

postoperative week. Exercise performance variables are listed below (mean ± standard deviation (SD)).

Conclusion: Bariatric surgical weight reduction in clinically severe obese patients results in improved exercise tolerance at the seventh postoperative week.

| Variable | Mean (Pre/Post Surgery) | SD | Paired Sample P Value |
|-------------------------|-------------------------|-----------|-----------------------|
| SBP (mmHg) | 137.7/124.0 | 22.9/17.3 | 0.06 |
| Heart Rate (bpm) | 82.5/78.3 | 12.1/15.8 | 0.37 |
| Exercise Duration (min) | 7.8/8.8 | 1.6/1.5 | 0.04 |
| Peak HR (bpm) | 162.5/168.3 | 23.3/16.5 | 0.30 |
| Peak SBP (mmHg) | 193.7/170.0 | 25.3/14.1 | 0.02 |
| % Hrmx | 93/97 | 0.10/0.05 | 0.28 |
| Peak VO2 (ml/kg/min) | 18.4/19.5 | 2.7/4.5 | 0.24 |
| RER (VCO2/VO2) | 1.14/1.13 | 0.06/0.07 | 0.66 |

SBP = systolic blood pressure; HR = heart rate; VO2 = O2 uptake; RER = respiratory exchange ratio

P71. SUPERIOR WEIGHT LOSS FOLLOWING LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING USING PATIENT-DRIVEN, FLUOROSCOPICALLY GUIDED BAND ADJUSTMENTS

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Background: Laparoscopic adjustable gastric banding (LAGB) has led to variable weight loss results in the United States. We believe a patient-driven, fluoroscopically guided method of band adjustment results in the most successful weight loss. Hereafter, we present our data following 248 consecutive LAGB's performed in a tertiary care center.

Methods: Between November 2001 and October 2003, 248 patients underwent LAGB. After the initial post-operative follow-up visit, patients were seen for band adjustments with an irregular schedule and on an as needed basis. Patients reported for adjustments when consuming solid food, not sensing satiety, and not experiencing regular weight loss. Adjustments were done under fluoroscopic guidance. Data were collected at the time of adjustments and through periodic telephone interviews.

Results: Weight loss data are available for 142 patients who have had a minimum of 6-month follow-up. Patients are divided into 3 groups according to length of follow-up: 6-12 months, 12-18 months, and 18-23 months. Mean pre-operative weight and BMI for all 142 patients were 143.8 kg (92.3-214.1) and 50.6 kg/m² (35.6-73.8) respectively. Following a mean of 3.8 (0-10) adjustments, percent excess weight loss was 41.6% (1.9-85.7), 44.7% (8.5-100.6) and 51.0% (13.3-95.9) for the 6-12, 12-18 and 18-23 month follow-up periods respectively. There were no post-adjustment band erosions or port-site infections.

Conclusions: Our data suggest that patient-driven band adjustments results in superior weight loss. In addition,

uroscopic guidance may optimize the result of each adjustment and minimize the incidence of adjustment related complications. Prospectively randomized studies may further support these results.

P72. THE USE OF INTRAOPERATIVE ENDOSCOPY AND THE "BUBBLE" TEST TO DETECT PERIOPERATIVE LEAKS DURING LONG LIMB ROUX-EN-Y GASTRIC BYPASS

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Background: The postoperative complication of gastrojejunal anastomotic leak has been identified to occur from 2 – 6 % of patients undergoing Roux-en-Y Gastric Bypass. This complication is one of the major contributing factors leading to postoperative mortality. A multitude of methods have been used to identify staple line and suture line competency. Intraoperative endoscopy and the "bubble test" are infrequently utilized.

Methods: All operations were performed by one pair of surgeons at a small community hospital with an antecolic antegastric long limb gastric bypass using a transoral 21 French EEA stapled technique. 100 consecutive patients were tested for competency of staple line at the gastrojejunal anastomosis. In each patient, the operating surgeon performed a diagnostic intraoperative endoscopy with intraluminal and extraluminal visualization of the anastomosis. Identification of fresh clot, an incomplete staple line, and extraluminal "bubbles" were searched for as signs of staple line incompetence.

Results: Three patients were identified to have staple line incompetence by "bubbles" noted at the extraluminal surface of the gastrojejunal anastomosis. At closer inspection with intraluminal visualization, the leaks were able to be identified and repaired with intraoperative suturing technique. No patients were returned to the operating room nor identified to have a leak post-operatively.

Conclusions: Intraoperative endoscopy and the "bubble test" is a superior method to identify the potential for perioperative leak. Intraoperative endoscopy is easy and safe to perform immediately post-operatively and gives the advantage of instantaneous repair if a leak or potential leak is identified.

P73. LAPAROSCOPIC RETRO-COLIC RETRO-GASTRIC PASSAGE OF THE ROUX LIMB FOR GASTRIC BYPASS DOES NOT RESULT IN A HIGH RATE OF INTERNAL HERNIA

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Background: Laparoscopic Roux-en-y gastric bypass using a retro-colic retro-gastric Roux limb has been implicated as having a high internal hernia rate. The reported rate of internal hernia using a laparoscopic approach has a range of 0 to 5%. Running suture, non-absorbable suture and an ante-colic Roux limb are techniques that have been credited with a decrease in the occurrence of this type of hernia.

Methods: Between August, 2001 and October 2003, 225 patients underwent laparoscopic Roux-en-Y gastric bypass. A retro-colic retro-gastric Roux limb was used in 223 patients. The jejuno-jejunostomy defect was closed with a running suture, the Peterson defect was closed with

an interrupted suture(s) and the transverse mesocolon was closed with 3-4 interrupted sutures. These defects were closed with absorbable and non-absorbable sutures in 140 and 83 patients, respectively. There were 140 patients who had the three defects closed with absorbable suture and 83 patients used non-absorbable suture. All mesenteric defect closures involved suturing mesentery lined with visceral peritoneum and not denuded adipose tissue.

Results: Two patients (0.9%), one in each of the suture groups, developed a symptomatic internal hernia. Both hernias presented within the first month after surgery, incarcerated, and with a CT scan diagnostic for small bowel obstruction. Diagnostic laparoscopy ruled out an internal hernia as the cause of post-operative abdominal pain in 14 (6%) patients.

Conclusion: Laparoscopic retro-colic retro-gastric Roux-en-y gastric bypass does not lead to a high rate of internal hernias if sutures are meticulously placed using only mesentery covered with visceral peritoneum.

P74. THE USE OF MESH IMPREGNATED WITH BOVINE SERUM ALBUMIN (BSA) AND GLUTERALDEHYDE TO SECURE THE ACCESS PORT IN PATIENTS UNDERGOING THE LAP BAND PROCEDURE

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Background: The safety of laparoscopic adjustable gastric banding has been demonstrated worldwide. A significant number of complications involve the access port site which includes infection, seroma formation, dislodgment, or incisional hernia. Furthermore, post-operative pain in many circumstances persists at the access port site. We report a new method of securing the access port in order to minimize these complications and the post-operative pain associated with port placement.

Methods: Patients undergoing the Lap-Band had the access port secured with the use of mesh impregnated with BSA and gluteraldehyde. The 15 mm fascial entry site was sealed with BSA glue with a separate exit site tunneled superiorly with a 5 mm trocar. The 15 mm trocar site was closed with BSA glue. Polypropylene mesh was secured with sutures to the posterior side of the access port and then placed within a bluntly dissected subcutaneous pocket above the fascia. BSA glue was used to affix the mesh to the fascia and the incision was closed in layers.

Results: Postoperative pain scores relating to the access port site were significantly less (0-2 out of 10) in patients in which BSA glue impregnated mesh was used as compared to (8-10 out of 10) patients with fascial sutures. There were no access port complications in patients receiving BSA glue.

Conclusion: Access port complications represent a significant proportion of the complications seen after the Lap-Band procedure. We describe a new technique to secure the access port that minimizes complications as well as reduce postoperative pain.

P75. EVALUATION OF LEARNING CURVE FOR LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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Background: Literature reports that the learning curve for laparoscopic Roux-en-Y gastric bypass is approximately 75

to 100 cases. This report evaluates the safety, feasibility and learning curve in performing Laparoscopic Roux-en-Y gastric bypass (LRYGBP) by an experienced laparoscopic surgeon.

Methods: This study reports of first 100 consecutive LRYGBP performed by an experienced laparoscopic surgeon from 4/03 to 9/03. These cases were performed after first assisting in 30 cases and the first 4 cases proctored by an experienced laparoscopic bariatric surgeon. 2 cases after previous gastric stapling and nissen fundoplication were excluded from the study. Outcome variables included operative times, complications, conversion and mortality.

Results: Of the first 100 LRYGBP patients, mean age was 42.6 years (range 22 to 62 years) and mean BMI was 47.6 kg/m² (range 36 to 71.8). The complications include 1 intestinal leak, 1 small bowel obstruction, 6 gastro-jejunal stenosis, 8 wound infections, 1 wound seroma and 2 pulmonary embolisms resulting in 1 mortality. One case was converted to open. However, over the second 50 cases, there were a significant reduction in mean operative times to 73 minutes (range 39-145 minutes) from 113 minutes (range 54-238 minutes) as well as complications - no GI leak or obstruction, 2 gastrojejunal stenosis, 2 wound infections, no PE/DVT and no mortality.

Conclusion: LRYGBP can be incorporated well into an experienced laparoscopic surgeons practice and done safely. However, this must be done with a careful training and proctorship by an experienced bariatric surgeon. This data suggest that there are higher rates for surgical morbidity and mortality in the first 50

P76. LAPAROSCOPIC GASTRIC BYPASS IN PATIENTS WITH PREVIOUS ABDOMINAL SURGERY

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Background: The laparoscopic approach has the potential benefit of decreased morbidity and faster recovery in patients undergoing gastric bypass. One of the concerns has been increased technical difficulty and longer operative times, perhaps leading to increased morbidity. This may be of particular concern in patients with previous intra-abdominal surgery. We examine our experience in this group of patients.

Method: A retrospective review of a prospectively collected database on all laparoscopic gastric bypass patients was analyzed. The subgroup of all patients with previous intra-abdominal surgery was examined for preop weight and BMI, conversion to laparotomy, operative time, perioperative morbidity and mortality.

Results: In the subgroup of patients with previous intra-abdominal surgery there were 200 patients (187 female, 12 male). The mean age was 42.9 years (18-70 years). Mean preop weight was 284.9 lbs (200-529 lbs); mean preop BMI was 48.2 (35-79).

Most patients had multiple previous procedures. There were 3 patients with previous vertical banded gastroplasty, 89 C-sections, 36 appendectomies, 33 hysterectomies, 57 open cholecystectomies, and 18 lap. cholecystectomies, 1 splenectomy, 1 small bowel lysis of adhesions. There were no conversions to laparotomy. Average surgical time was 96 minutes (50-265 min). Hospital length of stay was 2.2 days (2-7 days). There was one death from a pulmonary embolism for a 0.5 % mortality. There were 3 complications (2 anastomotic strictures, 1 foot drop) for a

1.5 % complications rate.

Conclusion: Previous intra-abdominal surgery is not a contra-indication to a laparoscopic approach for gastric bypass. Although surgical time can be prolonged if lysis of adhesions is needed, our overall surgical time in this group of patients was quite acceptable. Our short hospital stay accompanied by low morbidity and mortality argues that this may be the preferred approach.

P77. SUPER-OBESITY IS NOT A CONTRA-INDICATION TO LAPAROSCOPIC GASTRIC BYPASS.

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Background: There are bariatric surgeons that advocate an open approach to super obese patients (BMI>55) undergoing gastric bypass. They believe that technical difficulty in the super obese will result in prolonged operative times and increased complication rates. We offer laparoscopic gastric bypass to all patients including the super obese.

Method: A retrospective review of a prospectively collected database on all laparoscopic gastric bypass patients was analyzed. The subgroup of all patients with a BMI>55 was examined for preop weight and BMI, conversion to laparotomy, operative time, perioperative morbidity and mortality.

Results: In the subgroup of patients with a BMI>55 there were 83 patients (67 female, 15 male). The mean age was 40.7 years (18-65 years). Mean preop weight was 363 lbs (256-529 lbs); preop BMI was 60.6 (55-82). There were no conversions to laparotomy. Average surgical time was 144.4 minutes (90-171 mm). There was one death from a pulmonary embolism for a 1.2% mortality. There were no other perioperative complications in this subgroup of patients at an average 6-month follow-up. Mean weight loss was 80 pounds (10-171 lbs) at an average follow-up of 6 months (1-18 months).

Conclusions: The operative time in our super obese patients was not prohibitively long and certainly did not cause increased morbidity. A 0% conversion rate demonstrates the laparoscopic procedure to be technically possible. A 1.2% mortality is higher than we would have liked, but not unreasonable when compared to "open" series in super obese patients. Our data demonstrated that a laparoscopic approach is feasible in super obese patients. Further, our low mortality and morbidity argue that this may be the preferred approach.

P78. THE PLATEAU OF MORBIDITY AND MORTALITY AFTER LAPAROSCOPIC GASTRIC BYPASS

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Background: Morbidity and mortality (M&M) after laparoscopic gastric bypass (LGB) occurs in 10% and 1% of patients, respectively. The technical complexity of this procedure as well as the challenge of managing morbidly obese patients have been well characterized. This study critically analyzed outcomes after LGB and sheds light on lessons learned through the learning curve and beyond. **Methods:** We have maintained a prospective database on all patients undergoing LGB at our institution since 1998. We retrospectively reviewed our database of 613 patients

undergoing LGB by two surgeons and critically analyzed our experience.

Results:

| PERIOPERATIVE COMPLICATIONS | | | |
|-----------------------------|----------|---------|-----------|
| Complication | 1-100 | 101-200 | 613 Cases |
| Wound Infection | 8 (8%) | 1 (1%) | 12 (2%) |
| Intraabdominal Bleed | 3 (3%) | 1 (1%) | 9 (1.5%) |
| Intraluminal Bleed | 2 (2%) | 3 (3%) | 22 (3.6%) |
| Gastrointestinal Leak | 3 (3%) | 0 | 8 (1.3%) |
| DVT/PE | 1 (1%) | 1 (1%) | 3 (0.5%) |
| Internal Hernia | 1 (1%) | 0 | 1 (0.2%) |
| Bowel Obstruction | 3(3%) | 3(3%) | 12 (2%) |
| Death | 1 (1%) | 0 | 2 (0.3%) |
| TOTAL | 22 (22%) | 9 (9%) | 69 (11%) |

Conclusion: M&M after LGB plateaus after 100 cases and remains constant beyond that level regardless of experience. We have gained significant insight into the avoidance and management of complications after LGB and seek to share this knowledge with those who have yet to conquer the learning curve associated with this challenging procedure.

P79. GALLBLADDER PATHOLOGY IS INCREASED IN MORBID OBESITY

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Background: Obese patients are at increased risk for biliary pathology. Our aim was to compare the incidence and type of gallbladder pathology in morbidly obese patients compared to a non-obese control group.

Methods: Consecutive groups of obese patients who underwent bariatric surgery with concurrent cholecystectomy and organ donors were reviewed. Gallbladder disease was defined as: cholelithiasis, chronic cholecystitis, or cholesterolosis. Comparisons were made by Fisher exact test.

Results: 484 morbidly obese patients and 481 donors were included. The average age in the two groups was 43 and 42 years respectively. Mean BMI of obese patients and donors was 51 and 26(p<0.001). There were more females in the obesity group (88%, 47% p<0.001). 30% of obese patients and 6% of controls had a previous cholecystectomy(p<0.0001). 72% of the controls and 20% of the obese had normal pathology(p<0.0001). Overall obese patients had higher incidence of cholelithiasis(16%, 4%), cholesterolosis(25%, 5%) and chronic cholecystitis (34%, 15%) compared to controls(p<0.0001). There was no difference in the incidence of biliary pathology by gender or age in the obesity group. Among the control group normal pathology was more frequent in male patients and < 50 years (p<0.0001). Obese patients with a BMI>50 had increased incidence of cholelithiasis(p<0.001).

Conclusions: Biliary pathology is more common in morbidly obese patients when compared to a non-obese group. The incidence of cholelithiasis has a four fold

increase in the morbid obese patients, particularly in those whose BMI is above 50. Age and gender are not factors in the obese patients.

P80. LAPAROSCOPIC BARIATRIC SURGERY IN MORBIDLY OBESE ADOLESCENTS

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Background: The incidence of morbid obesity is rapidly increasing; 15% of adolescents are now obese. We reviewed a cohort of adolescents who have undergone laparoscopic weight loss surgery (LWLS).

Methods: We reviewed charts from our prospective database for all patients under 21. All patients met NIH criteria. Preoperative weight, BMI, and co-morbidities were recorded, as were OR time and length of stay. Postoperative weight loss and resolution of co-morbidities were noted.

Results: 16 patients met the study criteria, mean age 18.13 years (range 15-20), equally distributed between genders. Mean BMI was 51.89 (range 40-67). Preoperative co-morbidities included obstructive sleep apnea, hypertriglyceridemia, gastro-esophageal re ux disease, arthritis, dyspnea, hypertension, asthma, and diabetes. 11 patients underwent Roux-Y gastric bypass, two underwent Lap-Band® placement, and three underwent sleeve gastrectomy. The mean OR time was 135 minutes (range 69-181), and the average length of stay was 2.3 days. There were no conversions, but two patients required subsequent exploration, one for bowel obstruction, and another for an incarcerated internal hernia. Follow-up data were collected on all patients for an average of 7.4 months (range 3 weeks to 26 months). Weight loss averaged 31 kg (range 1.4 kg to 58 kg), and improvement in co-morbidities was demonstrated in most patients.

Conclusions: LWLS can safely be performed in adolescents, and weight loss improves with longer follow-up. Patients in this series had both restrictive and malabsorptive procedures, but were more likely to be male than our adult populations. For individuals who meet WLS criteria, young age should not be a contraindication for surgery.

P81. A PROSPECTIVE RANDOMIZED TRIAL LAPBAND VS. OPEN VBG

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Laparoscopic adjustable gastric banding (LAGB) and open VBG are treatment modalities for morbid obesity. However, thus far no prospective randomised clinical trial (RCT) has been performed to assess the long-term-effectiveness of LAGB compared to VBG. For this reason a RCT has been performed in our hospital.

From May 1999 till December 2001 100 patients were included in the study. 50 patients underwent VBG and 50 LAGB. Outcomes included length of hospital stay (LHS), direct postoperative and long-term complications, %EWL, reduction in total co-morbidities, long-term complications and total costs.

Mean preoperative BMI (VBG/LAGB) was 46.4/46.7, total co-morbidities 1.3/1.3. LHS was significantly shorter in the LAGB group (3.5 vs. 6.8 days). Total costs did not differ.

Peroperative three LAGB were converted to open, 1 to gastric bypass. Directly after VBG, 3 re-laparotomies were performed due to leakage. Two of these patients died (4%), compared to 0 in the LAGB group. After 1 year, %EWL was significantly better in the VBG group compared to the LAGB group (72.7% vs. 53.3% respectively). Total co-morbidities significantly decreased and did not differ. Within a median of 2 years after LAGB, 20 patients needed revisional surgery due to pouch dilation/slippage (n=13), band leakage (n=2), erosion (n=2) or access port problems (3). In the VBG group 16 patients needed revisional surgery due to staple line disruption (14) or too narrow outlet (2). Eight patients developed an incisional hernia after VBG. This RCT demonstrates that LAGB is superior to VBG in the treatment of morbid obesity at similar costs.

P82. GASTROJEJUNAL ANASTOMOTIC STRICTURE AND STOMAL ULCER FOLLOWING ROUX-EN-Y GASTRIC BYPASS

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South Nassau Community Hospital

Background: Stomal stenosis and stomal ulcer are known postoperative complications after Roux-en-Y gastric bypass. We present our experience with open Roux-en-y gastric bypass (RYGBP) versus laparoscopic Roux-en-Y gastric bypass (LRYGBP) and compare the results.

Methods: 841 patients underwent RYGBP since January 1998 till present (243 RYGBP and 598 LRYGBP) at two institutions. The charts were retrospectively analyzed for presence of postoperative complications. The incidence of stomal stenosis and stomal ulcer were compared between the two groups.

Results: The two groups were similar in terms of age, sex and BMI. 36 patients developed stomal stenosis, 7 (2.88%) in RYGBP and 30 (5 %) in the LRYGBP group. 24 patients developed stomal ulcer, 7 (2.88%) in RYGBP and 17 (2.84%) in LRYGBP group. Out of the 24 patients with stomal ulcer 5 tested positive for H. pylori and were treated prior to surgery.

Conclusion: In our study stomal ulcer has the same incidence in both groups, while stomal stenosis has a higher incidence in the LRYGBP when compared with RYGBP (5% versus 2.88%). Technical differences between the open and laparoscopic approach may account for the higher incidence of stomal stenosis seen in the laparoscopic group.

There does not appear to be an association between the presence of stomal ulcer and H. pylori infection in either the open or laparoscopic group.

P85. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING: AN AMERICAN EXPERIENCE

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Background: Laparoscopic adjustable gastric banding (LAGB) is a relatively new surgical option in the management of morbid obesity in the United States. Both short and long-term data is lacking in defining it's role in the U.S. We review our short-term outcomes with the LAGB procedure since FDA approval.

Methods: From July 2001 to January 2003, approximately 198 bariatric procedures were performed

by a single surgeon at a single institution. LAGB was performed in 61 patients. The data was prospectively collected and retrospectively analyzed.

Results: 61 patients were included with intention to treat in this study. The mean age was 40 with a mean BMI of 48. The conversion rate was 0%, mortality rate 0% and 30-day morbidity of 14%. Complications included: perforation 1.6%, infection 5%, port-site hernia 1.6%, and immediate postoperative delayed gastric emptying 9.8%. Late complications included anterior slippage 3.3%, band erosion 1.6%, tubing disruption 3.3%, and bezoar 1.6%. During the period of the study there was a 9.8% re-operation rate with 4 explanations. The mean percent excess weight loss at was 35%/ BMI 39 at 6 months, 37%/ BMI 38 at 12 months and 42%/ BMI 35 at 18 months follow-up.

Conclusion: Our short-term results show that LAGB is a safe alternative, with an acceptable morbidity. In selected patients LAGB may have a role in the management of the severely obese. The % excess weight loss is however lower than reported gastric bypass series.

P87. LOVENOX® AND MECHANICAL PROPHYLAXIS IN LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS SURGERY IN 1160 CONSECUTIVE PATIENTS

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Background: Deep vein thrombosis (DVT) is a serious complication of all abdominal surgery. We evaluated Lovenox® (enoxaparin) 40 mg once daily as a safe and effective means for DVT prophylaxis in LRYGB surgery.

Methods: Laparoscopic surgeries were performed in 1160 patients between March 2001 and June 2003. Data were retrospectively collected for complications, readmissions, and weight loss. Patients received enoxaparin 40 mg subcutaneously 8 hours post-op and then every 24 hours for an average of three doses. Mechanical prophylaxis with intermittent pneumatic compression of the legs (IPC) was initiated pre-operatively and discontinued 24 hours after ambulation.

Results: BMI, pre-op weight, age, length of hospital stay (LOS), and operative time were 48.2 kg/m², 136 kg, 40.6 years, 3.05 days, and 121.3 minutes, respectively. 86.2% were women. Of the 1160 patients who underwent LRYGB surgery, 79 (7%) developed complications, including five DVT/PE related (0.43%). There were five (0.43%) deaths, with three (0.26%) deaths from DVT/PE (range, 10–65 days postoperatively). 245 (21%) patients required readmission. Most common readmission diagnoses: nausea/vomiting (37.1%), dehydration (24.5%), and cholecystitis (18.4%). Mean weight loss was 50.2 kg after 1 year and 48.8 kg after 2 years. Three patients treated for a clinical DVT/PE received a total of 44 enoxaparin doses at 100 mg every 12 hours.

Conclusion: Enoxaparin 40 mg once daily along with mechanical prophylaxis provides safe and effective DVT prophylaxis for LRYGB surgery with a DVT complication rate of 1.2% without increased risk of bleeding. However, consideration for longer prophylaxis with enoxaparin should be given.

P88. MARITAL SATISFACTION BEFORE AND AFTER ROUX-EN-Y GASTRIC BYPASS SURGERY

Kristina Cooper, PhD- Banner Good Samaritan Bariatric Center

Marcia Wells, MC- Arizona Bariatric Surgery

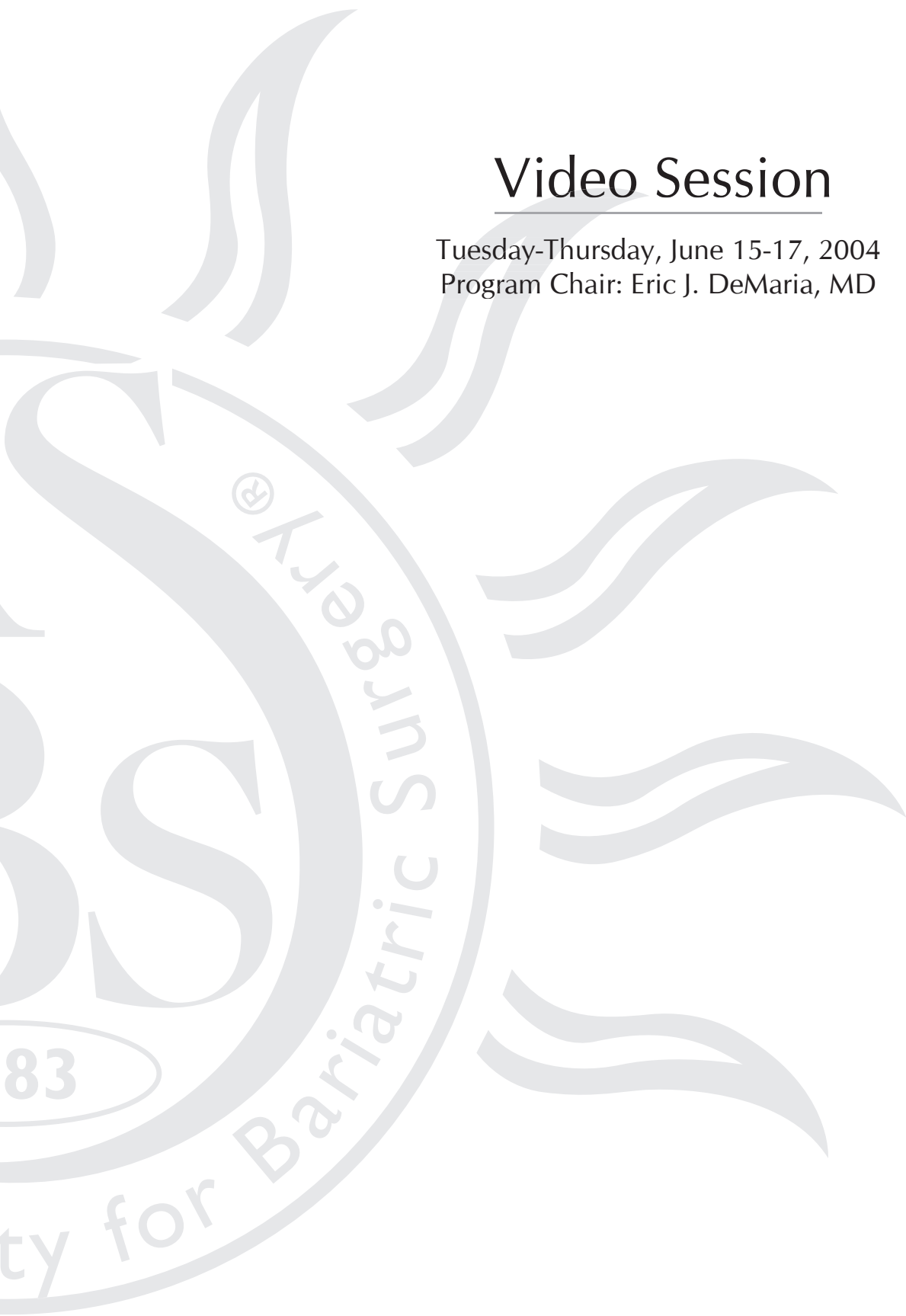
Background: Low self-esteem, depression and poor body image are common problems in the obese population. Little has been documented as to how this might affect the marital relationship. Many of these problems improve following gastric bypass surgery. Our goal is to document the marital satisfaction of patients preoperatively, and through their 1st year postoperatively. We also want to assess the relationship between patient and spouse support group attendance and marital satisfaction.

Methods: We have begun collecting data prospectively to assess marital satisfaction in persons having Roux-En-Y gastric bypass surgery. Patients are being given the Comprehensive Marital Satisfaction Scale (Blum & Mehrabian, 1999) preoperatively and at 5 points postoperatively to assess marital satisfaction at critical stages of psychological adjustment. These post-operative assessments are at two weeks, six weeks, three months, six months and twelve months (this final data point will not yet be available at the time of this presentation). Additionally, patient and spouse support group attendance is being tracked. Our program has a mandatory pre-operative 2-3 session psychoeducational support group requirement, and recommended, but optional postoperative support groups. These postoperative groups are divided into a psychoeducational group for patients less than six months post-op which meets two times per month, and a support group using an emotional-expressive therapy model for patients greater than six months post-op, which also meets two times per month. Spouse attendance at all groups is encouraged, but optional.

Results and Conclusion We are still collecting data and results are not yet available.

Video Session

Tuesday-Thursday, June 15-17, 2004
Program Chair: Eric J. DeMaria, MD



V1. LINEAR STAPLE TECHNIQUE FOR LAPAROSCOPIC GASTRIC BYPASS: AN EVOLUTION IN IMPROVED OUTCOMES

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Background: The laparoscopic Roux-en-Y gastric bypass (LRYGBP) is a relatively new technique that has continued to evolve as our advanced laparoscopic skills and instruments have improved over the course of a few short years. In the evolution of surgery, modifications in technique are continually made to improve outcomes.

Method: Review of leak data on 370 patients over a 5 year period from one surgeon's experience in creation of the gastrojejunostomy anastomosis with a linear stapler(LS). Patients were classified into 3 groups, based upon the evolution of the surgical technique: LS with stapled closure (n=69), LS with hand-sewn closure (n=233), LS with hand-sewn closure and omental wrap (n=68). Statistics using Fisher's exact test was employed.

Results: 6 of 69 (8.7%) of patients undergoing LRYGBP with LS and stapled closure experienced a leak. 6 of 233 (2.2%) in the LS with hand sewn closure experience a leak, with one of those (1/233 = 0.4%) actually coming from the excluded stomach, to yield an adjusted leak rate from the hand-sewn closure of 1.7%(5/233). 0 of 69 patients undergoing LS with hand-sewn closure and omental wrap experienced a leak (0%). The overall leak experience of one surgeon translates in 11/370(2.97%), demonstrating a decrease with experience and modified technique.

Conclusion: The overall leak rate from the gastrojejunostomy anastomosis in the experience of one surgeon can be decreased with evolution of technique.

V2. GASTROJEJUNOSTOMY STENOSIS: LESSONS LEARNED FOLLOWING SURGICAL REVISION

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This video presents a case report of a surgical revision of a gastrojejunostomy stenosis following laparoscopic gastric bypass. This material provides the surgeon with a unique opportunity to accurately review all the critical events related to this surgical complication, from the primary surgical procedure to the treatment, including the unsuccessful endoscopic attempt to dilate the stoma via balloons and the final surgical correction. Lessons learned from this experience reinforce suggestions that others have previously made regarding the construction of a gastrojejunostomy: 1- Dissection and division of the short gastric vessels should be avoided as this may cause ischemia of the remnant stomach and/or increase the chance of bleeding. 2-The gastric pouch should be small to facilitate postoperative emptying to the roux limb. 3- The gastrojejunostomy should be performed without tension to avoid ischemia and any risk for anastomosis leak. When medical management via an endoscopic approach fails, a surgical option via laparoscopic technique is a viable choice to treat this type of postoperative complication.

V3. LAPAROSCOPIC ASSISTED ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY AFTER ROUX-EN-Y GASTRIC BYPASS FOR MORBID

OBESITY

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The evaluation and therapy of biliary pathology after Roux-en-Y gastric bypass for morbid obesity presents a unique challenge for both the surgeon and the gastroenterologist. Endoscopic retrograde cholangiopancreatography (ERCP) is not possible via conventional oral-gastric intubation, as the excluded gastric remnant and duodenum is not in direct continuity with the proximal gastric pouch.

We present a case of a 55 year old female status post Roux-en-Y gastric bypass (preop BMI 50) with a distal biliary stricture secondary to chronic cholelithiasis. Access to the gastric remnant and duodenum is facilitated laparoscopically so that an ERCP and sphincterotomy can be performed in the usual manner by the endoscopist. The patient subsequently has an uneventful recovery. Surgeons performing laparoscopic Roux-en-Y gastric bypass for morbid obesity should be familiar with this technique, as it allows for the minimally invasive management of a not-uncommon surgical problem.

V5. SURGICAL COMPLICATIONS OF LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS FOR MORBID OBESITY

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Laparoscopic Roux-en-Y gastric bypass has small but constant rate of complications, mainly associated with herniation through the mesenteric defects and leak from anastomosis. This video presents the surgical complications associated with this procedure. Complications related to the surgical technique and to the Roux-en-Y gastric bypass showed along with technical solutions presented herein reflect the experience accumulated in two surgical centers.

V6. CAUSES OF FAILURE IN LAPAROSCOPIC GASTRIC BANDING

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Background: Laparoscopic adjustable gastric band is a safe and effective option for weight loss in selected cases. We present three reasons of failure, requiring reoperation.

Methods: The first case is a 55 year-old man with a history of sleep apnea and a BMI of 44, who underwent laparoscopic placement of adjustable gastric band. The patient had an excellent weight loss result of over 100 lbs (BMI of 30). Unfortunately the patient developed progressive dysphagia and heartburn over the course of 2 years. Swallow examination revealed megaesophagus, worsening in spite of complete de- ation of the band.

The second case is a 41 year-old man with a BMI of 41 and obstructive sleep apnea, who had gastric banding 2 months prior to its removal for erosion. The patient presented to us complaining of increasing pain in the left upper quadrant and night sweats. Both the uroscopic and tomographic evaluations were negative, but due to the persistence of the

symptoms an endoscopy was obtained and proved the band erosion.

The third case is a 46 year-old man with hypertension and a BMI of 46 who, 8 months after his gastric banding, developed dysphagia and vomiting. The gastrografin swallow confirmed the presence of a slippage and the band was completely de-ated, without resolution of symptoms.

Results: The case of megaesophagus required laparoscopic removal of the band. At his 4-month follow up the patient has maintained his initial weight loss.

The erosion required laparoscopic removal of the band, drainage and antibiotic therapy.

The slippage was repaired laparoscopically and the band left in place.

Conclusion: Laparoscopic gastric banding presents some unique complications. Close follow up and early intervention are required

V7. STEP BY STEP TECHNIQUE FOR LAPAROSCOPIC REMOVAL OF LAPBAND

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Approximately 2% of lapbands will eventually come to removal, usually due to the inability of the patient to tolerate the restriction.

Removal can virtually always be performed laparoscopically.

This video details the step by step approach to safe, easy removal of the lapband. These steps include -

Adhesiolysis to the band

Freeing up of the buckle

Division of the band adjacent to the buckle - the band will then slip out and can be removed

V9.LAPAROSCOPIC REVISIONAL BARIATRIC SURGERY FOR FAILED WEIGHT LOSS

Gregory F. Dakin, MD, Joseph P. Regan, MD, William B. Inabnet, MD

Roux-en-Y gastric bypass (RYGB) is a popular operation for the treatment of morbid obesity, resulting in durable weight loss via restrictive, malabsorptive, and behavioral mechanisms. Procedures such as vertical banded gastroplasty (VBG) have also been performed to facilitate weight loss, though with somewhat less dramatic results. While surgery is usually expected to result in 50-70% excess body weight loss, it is estimated that as many as 20% of patients will require re-operation for failure to achieve or maintain adequate weight loss. Though the safety and efficacy of laparoscopic primary RYGB have been established, re-operative bariatric surgery has traditionally been performed via an open approach.

This video presents two cases of laparoscopic revision of bariatric procedures for failed weight loss. The first case is that of a 30-year old woman who had undergone a laparoscopic RYGB one year previously but failed to lose weight. An upper gastrointestinal series revealed an extremely large gastric pouch that was felt to be the cause of her inadequate weight loss and she underwent successful laparoscopic revision of the pouch. The second case is a 42-year old woman who underwent an open VBG 10 years ago. Though the operation was initially successful, she slowly regained weight and eventually reached a body mass index of 66. She was successfully converted to a RYGB laparoscopically. Both patients had uncomplicated laparoscopic revisions and were discharged uneventfully.

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