

ABSTRACTS OF ORAL PRESENTATIONS

1. CHANGES IN REGIONAL ADIPOSITY AND IMPROVEMENT OF VARIOUS METABOLIC PARAMETERS AFTER BARIATRIC SURGERY

M Giannetti, F Santini, P Fierabracci, M Anselmino, B Solito, G Scartabelli, R Valeriano, A Marsili, G Salvetti, A Pucci, G Galli, I Ricco, M Rossi, A Pinchera. *University Hospital of Pisa, Italy.*

Background: Obesity is a prevalent condition associated with high morbidity and mortality rates. Sustained reduction of body weight following bariatric surgery is accompanied by improvement of several metabolic and cardiovascular risk factors. The aim of this study was to evaluate the relationship between changes in regional adiposity and various metabolic parameters following weight loss after bariatric surgery.

Methods: 18 severely obese women (mean age 45.5 ± 11.8 yr; mean BMI 46 ± 6 kg/m²) were enrolled. Subjects underwent Swedish adjustable gastric banding (n=9) or Roux-en-Y gastric bypass (n=9), and the postoperative follow-up was 7 ± 1.5 months.

Results: Reduction of BMI was on average $-22.3 \pm$ SD 8.5 % (range -5 -38). Weight loss was directly related to reduction of visceral adipose tissue (mean -41.7 ± 18.9 %; range -7.5 -68.5) and to reduction of hepatic left lobe volume (HLLV), both measured by ultrasound (mean -41.8 ± 23 %; range -1.5 -85). The reduction of BMI was independently related to the reduction of fasting blood glucose (R=0.627; $P < 0.01$) and ESR (R=0.758; $P < 0.005$), while the reduction of HLLV was independently related to the reduction of aspartate aminotransferase (R=0.669; $P < 0.01$), alanine aminotransferase (R=0.507; $P < 0.05$), triglyceride (R=0.447; $P < 0.05$) and uric acid (R=0.523; $P < 0.05$). No significant association was found between reduction of visceral adipose tissue and various metabolic changes.

Conclusions: Our data indicate that improvement of metabolic abnormalities after surgical weight loss involves various mechanisms, possibly including the reduction of liver volume, an indicator of the degree of hepatic steatosis.

2. COMPARISON OF QUALITY OF LIFE BETWEEN SEVERE AND MORBIDLY OBESE INDIVIDUALS AND HEALTHY VOLUNTEERS: PROSPECTIVE STUDY USING GIQLI QUESTIONNAIRE (252 CASES)

C Polliand, T Poghosyan, K Bernard, N Rizk, G Champaul. *University Hospital Jean Verdier, Bondy, France.*

Background: Morbid obesity decreases quality of life. The aims of surgical and medical treatment are loss of weight, reduction of co-morbidity and increasing quality of life. The aim is to compare quality of life between obese patients who were candidate for surgical treatment (BM $I > 40$ or > 35 with co-morbidities) and healthy volunteers, using GIQLI questionnaire (Gastro-intestinal Quality of Life Index).

Methods: Between January 2001 and December 2002, 127 patients with morbid obesity (109 females, 18 men) with a mean age of 40.1 years were surgically treated by laparoscopic gastric banding. In the preoperative data, quality of life using GIQLI questionnaire was systematically evaluated. During the same period, a control group of 125 healthy volunteers, comparable according age, sex, gender and previous surgery, applied anonymously the same questionnaire.

The questionnaire includes 36 items (each noted from 0 to 4) asking about symptoms, physical status, emotion, social dys-

function and effect of medical or surgical treatment; the latter has been excluded from the study.

Results: The 2 groups were comparable according age and sex. They were significantly different in terms of weight (123 vs 66 kg) BMI (44.3 vs 22.2) ($P < 0.001$), co-morbidities ($P = 0.001$), and professional activities ($P = 0.02$). The mean global score was 122 for healthy individuals and 95 for obese patients ($P = 0.001$). This difference was not correlated with sex and age. There was a relationship between BMI and global score, particularly for super-obese patients. The difference specially concerns social dysfunction, physical status and emotion, but did not concern symptoms.

Conclusions: Pre- and postoperative evaluation of the quality of life in morbid or severe obesity is an important data. GIQLI questionnaire can be used. There is a good relation between the degree of obesity (BMI) and alteration of the GIQLI global and sub scale scores.

3. COMPARISON OF BARIATRIC AND NON-BARIATRIC ELECTIVE OPERATIONS IN MORBIDLY OBESE PATIENTS ON THE BASIS OF WOUND INFECTION

S Topaloglu, F M. Avsar, H Ozel, M Babacan, H Berkem, Y Yildiz, S Hengirmen. *Ankara Numune Training and Research Hospital, Turkey.*

Background: Wound infection rates after various types of bariatric operations have been well described. The question of whether bariatric surgery increases wound infection rate compared with similar elective surgical procedures in obese patients has not been clearly answered up to day. The purpose of this study was to investigate wound status of morbidly obese patients after elective general surgery.

Methods: A prospective evaluation of 141 morbidly obese patients undergoing bariatric (n=60) and non-bariatric elective general surgery in similar invasiveness (n=81) with ASEPSIS wound surveillance method.

Results: Median age of patients undergoing non-bariatric elective surgery (51, 32-68) was significantly higher than patients exposed to bariatric surgery (39, 24-57). Patients who underwent bariatric surgery had higher BMI indexes (44, 35-52.5) compared to the others (38.4, 35-43). All patients enrolled for the study were followed for a 21-day period. At the seventh day, 9 patients in the bariatric surgery group developed infection (15%), whereas 13 patients (16%) in the non-bariatric surgery group suffered from wound infection. Wound infection continued in 2 patients (3.4%) in the bariatric surgery group and 3 patients (3.7%) in the non-bariatric surgery group at 21st day. Risk factors on wound infection included history of coronary artery diseases, diabetes, chronic respiratory illness and malignant disease.

Conclusions: Bariatric surgery does not cause an additional risk on postoperative wound infection in morbidly obese patients, compared to elective general surgical operations in the same invasiveness.

4. BARIATRIC SURGERY: OPPORTUNITIES AND CHALLENGES FOR EASTERN EUROPE: THE CASE OF MOLDOVA

S Domete, G GHidrim, G Contu, G Rojnovceanu. *State Medical and Pharmaceutical University "N. Testemitanu", Chisinau, Republic of Moldova.*

Background: Even though surgery is the only effective treatment for severe obesity, attempts to introduce bariatric procedures into Eastern Europe have been sporadic without a clear and comprehensive approach to selection criteria, choice of pro-

cedures, peri-operative management, continuous follow-up of patients, and initiation of research efforts.

Methods: A "qualitative leap" took place in Moldova with the initiation of a partnership between the State Medical and Pharmaceutical University "N Testemitanu" (Moldova) and the East Carolina University. After an initial exploratory visit to the US by Dr Domete, the team of professionals from East Carolina, including two surgeons, a nurse, an engineer and an educator came to Moldova in September 2003 to help initiate the new program with lectures, development of care paths, and instruction regarding the logistic needs for a successful program. The team also helped the Moldovan surgeons perform the first two Greenville gastric bypass (GGB) operations in Eastern Europe. In September, 2004, the Moldovans came to the US for further training, especially in terms of patient selection and the management of complications.

Results: Shortly after their return home in October 2004, the team performed their first independent operation. The outcomes of three cases are good, all of the patients having lost more than 50 kg and enjoying a much better quality of life.

Conclusions: The introduction of new surgical technologies must be carefully planned to be successful. In bariatric surgery, one of the most challenging fields in surgery, the exchange of international faculties is an effective start.

5. NATURAL HISTORY OF CHOLELITHIASIS AFTER GASTRIC BANDING: A CASE AGAINST PROPHYLACTIC CHOLECYSTECTOMY

L Arnalsteen, PM Jacob, D Dosseh, O Ernst, M Romon, C Proye, F Pattou. *Departments of General and Endocrine Surgery, Radiology and Nutrition, CHRU, Lille, France.*

Background: Prophylactic cholecystectomy has been proposed in the mean time as surgical treatment of morbid obesity. We investigated the rationale for this approach by studying the natural history of cholelithiasis following the laparoscopic adjustable gastric banding procedure (SAGB).

Methods: 118 consecutive patients (99F/19M, 134±23 kg, BMI 49±6 kg/m²), undergoing laparoscopic placement of a SAGB were included in this prospective study. Clinical evaluation, ultrasonography of the gallbladder and biochemical evaluation (including SGOT, SGPT, serum bilirubin, cholesterol, triglycerides, fasting blood glucose and insulin levels) were performed before and 1 year after the intervention.

Results: 116 (98%) patients were available for evaluation at 1 year. Weight loss (21.5±13 kg, 34±19 % of excess BMI) was accompanied by a significant reduction in levels of SGOT, SGPT, serum triglycerides, blood sugar and insulin ($P<0.001$). Gallbladder pathology was present prior to intervention in 33 patients (28%) (21 cholecystectomies, 12 asymptomatic gallstones), a prevalence 5 times greater than an age-matched general population. Only age ($P<0.05$) and weight ($P<0.05$) were significantly associated with gallstones before intervention. Among the 83 patients without gallstone disease prior to surgery, 15 (18%) developed gallstones, an incidence 15 times greater than that found in the non-operated obese. There was no evidence of predictive factors for this finding. During the follow-up, 3 patients underwent cholecystectomy, 2 of these with known gallstones that became symptomatic during follow-up, necessitating cholecystectomy.

Conclusions: Weight loss after the SAGB procedure is associated with the appearance of gallstones in 18% of cases. The low complication rate associated with both pre-existing and *de novo* gallstones in the first year of follow-up does not support the case for prophylactic cholecystectomy. We propose an expectant management for gallstone disease in the surgical treatment of morbid obesity.

7. THE FIRST DECADE OF THE ITALIAN REGISTRY FOR BARIATRIC SURGERY

M Toppino. *University of Turin, Italy.*

Background: Italian Registry started on January 1996, in order to assess bariatric surgery in our country.

Methods: Data on 11,923 cases were recorded from 49 Centers. The operations were: ASGB 5324 (44.7%), VBG 3794 (31.8%), BPD 1849 (15.5%), GBP 647 (5.4%), BIB 199 (1.7%), others 110. The laparoscopic approach progressively increased (66.9% of cases in the last 4 years). ASGB was performed by laparoscopic approach in 96.6 % of cases, VBG in 35.5 %, BPD in 9%, GBP in 53.9%. Conversion rate was 1.4% in ASGB, 4.3% in VBG, 12.2% in BPD, 1.7% in GBP. Operative time was 86.8 min in lapASGB, 110 in lapVBG, 196 in BPD, 185 in lap GBP. Post-operative stay was 2.5 days in lapASGB, 6.4 in lapVBG, 9.5 in BPD, 9.1 in lapGBP.

Results: Early complications were 1.6% in lapASGB, 6.7% in lapVBG, 12.4% in BPD, 13.9% in lapGBP. Excess weight % loss (EW%L) at 5 years was 39.9 in ASGB, 59.3 in VBG, 67.3 in BPD (BPD patients had a higher preoperative BMI). EW%L at 8 years was 42.2 in ASGB, 52.4 in VBG, 70.5 in BPD. Reoperations were performed in 10% of ASGBs (6.3% for major complications), 3.4% of VBGs, 5.3% of BPDs, 2.5% of GBPs.

Conclusions: The Registry allowed us to obtain data on a high number of patients, with a regular update, and permitted a reliable comparison between different techniques.

8. A NATIONWIDE SURVEY ON BARIATRIC SURGERY IN FRANCE: 1 AND 2 YEARS PROSPECTIVE FOLLOW-UP

JM Chevallier, M Paita, M Marty, MH Rodde-Dunet, F Nogues, K Slim, A Basdevant. *Hopital Européen Georges Pompidou, Paris, Caisse Nationale d'Assurance maladie, CHU Clermont-Ferrand, Hôtel-Dieu, Paris, France.*

Background: Most studies on bariatric surgery have been performed in clinical trials (i.e. SOS study) or related experience of specific centers. Little is known about the current practice at a nation-wide level.

Methods: All consecutive bariatric operations performed in France in December 2002 and January 2003 have been included, as well as the 1 and 2 years outcomes. Data on mortality, complications, weight loss, patient satisfaction and comorbidities were collected independently from the medical and surgical team involved in the patient's care.

Results: 1238 patients were analyzed, 1083 after 1 year, 1008 after 2 years (lost to follow-up=12%). 87.3% of the patients underwent an adjustable gastric banding (AGB), 8.6 % a Vertical Banded Gastroplasty, 3.8% a gastric bypass (GBP) and 0.3% a Biliopancreatic Diversion. The rate of laparoscopic procedures was 98.3% for AGB and 73% for GBP. Mortality rate was 0.16% postoperatively, 0.08% during the first year and 0.18% during the second year. The complication rate appeared differently after AGB than after GBP: postoperatively (3.4% vs 11.1%), at 1 year (17.1% vs 21.9%) and at 2 years (23.2% vs 2.6%). At 1 year, excess weight loss ranged from 42.7% after AGB to 58.7% after GBP. Co-morbidities improved in more than 70% of patients and more than 90% of the patients felt "better" and "much better", especially in physical fitness.

Conclusions: In this nation-wide exhaustive series, mortality rate, excess weight loss, evolution of co-morbidities, and quality of life compared favorably with those of clinical trials.

9. ROLE OF THE INTRAGASTRIC BALLOON IN THE TREATMENT OF MORBID AND NON-MORBID OBESITY

D Rabreau, A Lobontiu. *European Hospital Georges Pompidou and Mondor Hospital, Paris, France.*

Background: The intragastric balloon (IGB) is a bariatric

method that should be combined with a diet change. It represents an adjuvant therapy for food re-education. This drug-free induced satiety makes it possible to prescribe behavioral and nutritional modifications.

Methods: The silicone prosthesis is orally introduced downward into the stomach. This can be done with or without upper GI endoscopy. The procedure can be performed under general anesthesia or without. Once positioned into the stomach, the prosthesis is filled with 600 cc of saline. The balloon is taken out after 6-8 months.

Results: The weight reduction and comorbidities improvement are similar to those obtained from surgery in a same period of time and with similar psychological condition. We report the experience from 300 patients (SOFCO gastro-enterologists group); and a personal experience of 65 patients with a 12 months follow-up. 4 patients had surgery after a primary weight loss.

Conclusions: The inclusion criteria are similar to surgery: BMI above 40 (or 35 with related co-morbidities); temporary contraindication for surgery and/or anesthesia; other surgical exclusion criteria (anatomical or medical reasons); low BMI patients before considering esthetic surgery. Besides, these patients can be reconsidered for a second step surgery, either in the same time as balloon removal or later on. In order to prevent morbid obesity, patients with a BMI between 30 and 35 can be considered as well.

10. RESULTS AND COMPLICATIONS ON 3,252 PATIENTS TREATED BY BIOENTERICS® INTRAGASTRIC BALLOON (BIB®): THE ITALIAN EXPERIENCE

A Genco, T Bruni, SB Doldi, P Forestieri, M Marino, C Giardiello, F Furbetta, L Angrisani, L Pecchioli, P Stornelli, M Alkilani, A Nigri, N Di Lorenzo, M Cipriano, M Lorenzo, N Basso. *Italian Collaborative Study Group for LAP-BAND and BIB (GILB), Naples, Italy.*

Background: Temporary treatment of morbidly obese patients with Bioenterics Intra-gastric Balloon (BIB®) is expanding worldwide.

Methods: Data were recruited from the prospective database of the Italian Multicentre Study Group for LapBand System and BIB®. The balloon was positioned after EGDS, and filled with saline (500-700 ml) and methylene blue. Patients were discharged with proton-pump inhibitors and diet (1000 kcal). BIB® was removed after 6 months. Placement and removal were performed under conscious or unconscious sedation. Mortality, complications, BMI, %EWL, and co-morbidities were evaluated. Data were expressed as mean±standard deviation.

Results: From May 2000 to July 2004, 3252 patients underwent BIB® (1029M/2252F; mean age: 39.1±13.9; range 12-71; mean BMI: 44.9±8.2 kg/m²; range 28-79.1; mean EW: 59.9±28.7; range 16-210 kg). BIB® positioning was not complicated in all but two cases (0.1%) with acute gastric dilation treated conservatively. Up to 30 days, 11/3252 (0.34%) patients underwent balloon removal because of psychological intolerance. Overall complication rate was 22/3252 (0.68%). Gastric perforation presented in 4(0.12%) patients with previous gastric surgery: two died and two were treated by laparoscopic repair after balloon removal. Gastric obstruction (n=5; 0.15%) and balloon rupture (n=17; 0.6%) were treated by BIB® removal, while esophagitis (n=7; 0.25%) and gastric ulcer (n=3; 0.11%) were treated conservatively by drugs. Preoperative co-morbidities were diagnosed in 1492/3252 (45.9%) patients and were: resolved in 598/1492 (40.1%); improved (less pharmacological dosage) in 592/1492 (39.8%), and unchanged in 144/1492 (9.6%). After 6 months, mean BMI was 36.2±13.3 (range 27-50 kg/m²) and %EWL was 31.4±21.2 (range 0-87).

Conclusions: BIB® is an effective and safe procedure with satisfactory weight loss and improvement in co-morbidities.

11. ARE BPD SUBJECTS AT INCREASED RISK OF COLORECTAL CANCER?

GM Marinari, G Camerini G, F De Cian, FS Papadia, F Schenone, S Baldo, GF Adami, N Scopinaro. *Department of Surgery, Azienda Ospedaliera Universitaria San Martino, Genoa, Italy.*

Background: A greater incidence of colorectal cancer (CRC) has been documented in obese patients, probably related to insulin resistance, which as a rule disappears after BPD. On the other hand, it can be hypothesized that in BPD subjects the presence of unabsorbed food and increased bile acid in the colonic lumen acts as a chronic stimulus to mucosal cell reproduction, and thus may result in increased CRC risk.

Methods: The incidence of CRC in 2731 obese patients undergoing BPD in a 28-year follow-up period was evaluated. As the follow-up time was calculated from the date of the operation to the last contact with the BPD subject, it is very unlikely that an event of such a magnitude as a CRC could have escaped the analysis.

Results: Among 22,763 person-years, 6 cases of CRC were detected, for an overall incidence of 26.3 per 100,000 per year, which favorably compares with that observed in the general population, and is expectedly lower than that reported in type 2 diabetic patients. Furthermore, the close relationship existing with our operated patients makes it most probable that, if such an event had occurred after the last contact, it would have been reported to us. This makes the real incidence even lower than that mentioned above.

Conclusions: It can be concluded that the rearrangement of gastrointestinal tract entailed by BPD does not cause an increased CRC risk. The incidence apparently lower than that in the general population can be explained considering the absence of insulin resistance in BPD subjects.

12. BARIATRIC SURGERY IN ADOLESCENTS: A VERY LONG-TERM FOLLOW-UP SURVEY AFTER BILIO-PANCREATIC DIVERSION (BPD)

FS Papadia, GM Marinari, G Camerini G, F Murelli, F Carlini, F Mariani, L Milone, GF Adami, N Scopinaro. *University of Genoa School of Medicine, Italy.*

Background: Benefits of bariatric surgery in adults are well established, but data are scarce in adolescents. Aim of this study is to retrospectively assess operative mortality and morbidity, percent loss of initial excess weight (IEW%L), incidence of long-term complications, reoperations, and long-term mortality in a cohort of obese patients submitted to BPD before their 18th birthday, with a minimum 10-year follow-up.

Methods: 73 adolescents underwent BPD between 1976 and 1995. 7 patients with Prader-Willi and 1 with Turner syndrome were excluded. There were 49 females and 16 males. Mean age was 16.8 (14 to 18), mean BW at operation 126 (77-198) kg, with a mean BMI of 46 (30-70) kg/m² or an IEW of 113 (40-230)%. Operative mortality was nil, with minimal morbidity. Mean follow-up is 17 years. Mean IEW%L at each patient's longest follow-up was 79 (0-115). Preoperatively, 33 patients (50%) were hypertensive, 11 (17%) dyslipidemic, 3 hyperglycemic and 2 type 2 diabetic.

Results: At the longest follow-up, 6 were hypertensive, and none dyslipidemic or diabetic. A total of 19 reoperations were performed in 14 (21%) patients, including 7 revisions. 11 patients developed protein malnutrition 1 to 10 years after BPD. Long-term mortality was 5%. 18 females gave birth to 28 healthy babies, 4 to 23 years after BPD.

Conclusions: Adolescents can be submitted to malabsorptive bariatric surgery with excellent long-term weight loss results. The high frequency of long-term complications and revisions is fully comparable with that observed in our general population of operated patients along the first 20 years of BPD evolution.

13. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING IN ADOLESCENTS: A RETROSPECTIVE STUDY

A C Dandriofosse, A Denoel, E Hayward. *CHR Citadelle, Liège, Belgium.*

Background: In our general hospital, we started to perform LAGB in July 1994. We operated on 659 patients. Today, our question is if this intervention should be adapted to younger patients or not. Out of our patients, some were less than 18 years old and we decided to analyze their results.

Methods: Each time we meet a patient, we keep track of his results in our computer. We retrospectively reviewed the data of patients less than 18 years old.

Results: From July 1996 through December 2005, 23 patients under 18 years old underwent LAGB. Mean age was 16.53 years old (14.37-17.90) and 74% were female. Mean BMI was 42 kg/m² (34-61). Mean follow-up is 4.45 years (0.3-9 years). We had no conversion but as for adults, we had complications in the follow-up. 2 had port complications and 6 had slippages. 5 out of those 6 patients were operated the first time before we started the pars flaccida technique in 1997. Weight results are good with a mean EWL of 50% (12-100%) and a new mean BMI of 32 kg/m².

Conclusions: As for adults, we have good weight results for adolescents with LAGB. A close and attentive follow-up, both medical and psychological, is necessary for this particular population. Body image distortion, eating disorders, compliance to treatment are more difficult to adjust.

14. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING IN ADOLESCENTS: THE AUSTRIAN EXPERIENCE

G Silberhumer, K Miller, S Kriwanek, K Widhalm, G Prager. *Medical University Vienna, Department of Surgery and Pediatrics, Vienna, Salzburg, Austria.*

Background: Morbid obesity is a rising problem in adolescents in the industrial nations. Up to 25% of children have a body mass index (BMI) higher than the 85th age and sex adjusted percentile. Obesity in the youth is associated with increased risk for morbidity and mortality in adulthood. In addition, these patients suffer from psychological problems and decreased quality of life. Bariatric procedures have shown effective long-term results in adults, but they are still discussed controversially in adolescent patients.

Methods: Between 1998 and 2004, 50 adolescent patients with a mean age of 17.1±2.2 years (range 9 to 19 years) underwent laparoscopic adjustable gastric banding (LAGB) in Austria. The psychological changes were analysed by the Moorehead-Ardelt/BAROS questionnaire.

Results: The mean BMI decreased from 45.2±7.6 kg/m² at time of surgery to 32.6±6.8 kg/m² after a mean follow up of 34.7±17.5 months. The mean excessive weight loss was 61.4±35.5%. Most of the adolescents showed remarkable improvements in their quality of life: The outcome was regarded as "excellent or very good" in 32 patients, "good" in 12 patients and "fair" in 5 patients. Only one patient remarked no alterations after surgery. Two-thirds of the preoperative co-morbidities resolved, and one-third improved during follow up. Except for one port dislocation, no peri- and postoperative complications arose.

Conclusions: Laparoscopic adjustable gastric banding is an effective and attractive treatment option in very carefully selected obese adolescents, due to its adjustability and the preservation of the gastrointestinal passage. The majority of patients showed a remarkable improvement of their quality of life.

15. BILIOPANCREATIC DIVERSION - DUODENAL SWITCH FOR SEVERE OBESITY: INTERMEDIATE RESULTS OF THE FIRST RUSSIAN SERIES (100 PATIENTS)

Y Yashkov, D Bekuzarov, S Epstein. *The Center of Endosurgery and Lithotripsy, Moscow, Russia.*

Background: Although in some published studies high effectiveness of BPD/DS was described, this operation is used relatively rarely (4%) in America and was almost not used in East Europe.

Methods: First Russian series of 100 open BPD/DS done since September 2003 is presented. Mean initial weight of patients was 134.7 ± 25.3 kg (94-207), mean BMI – 47.1 ± 7.3 (35.3-65.0) kg/m². Key technical points: harmonic scalpel for tissue preparation, stapling technique, preoperative preparation with diets and BIB in the very high-risk group, combined (general and epidural) anesthesia. All patients were followed-up.

Results: Perioperative and postoperative mortality was zero. There were neither splenectomies for trauma nor re-laparotomies. Major early complication rate is 4 % (duodenal stump leakage, laparoscopy -1, major wound infection -1, rhabdomyolysis, acute renal failure -1, duodenoileal anastomosis with prolonged parenteral nutrition - 1). Late surgical complications (2%) included two cases of small bowel obstruction. The frequency of incisional hernias was 12 %. Mean EWL was 75.4 ± 12.8 % at 1.5 years and 74.5 ± 10.7 % at 2- year follow-up period. Operation is very effective in the patients with diabetes mellitus type II, hypercholesterolemia and bulimia nervosa. Open BPD/DS provided better results with regards on both weight loss and postoperative complications than in our previous series of VBG, gastric bypass and laparoscopic gastric banding at the same follow-up periods.

Conclusions: Open BPD/DS may be recommended for wider use as rather safe operation providing predictable very good weight loss and positive metabolic effects.

16. HOW DOES ADDITIONAL DUODENAL SWITCH CONTRIBUTE TO WEIGHT LOSS AFTER A RESTRICTIVE PROCEDURE?

D Kraczykowski, M Lecko, O Nore. *Centre Hospitalier de Vitry le François, France.*

Background: Laparoscopic adjustable silicone gastric banding (LAGB) and laparoscopic sleeve gastrectomy (LSG) provide late inadequate weight loss (IWL). For failed restrictive surgery, malabsorption should be added. Duodenal switch (DS) is the malabsorptive part of biliopancreatic diversion with duodenal switch (BPD-DS).

Methods: Between July 2002 and January 2006, 41 patients had an additional DS (common limb 1 m length, alimentary limb 2.5 m) for IWL: there were 29 banded DS and 12 LSG followed by a DS. Laparoscopic approach has been attempted in 20 and completed in 15.

Results: Mean time between restriction and DS was 37 months (13-66) for LAGB versus 13 (6-16) for LSG. At 12 months, average additional BMI loss was respectively: 5.9 (SD: 5.8) / 6 (SD: 4.4). No low albumin level has been encountered except for 2 patients with major postoperative complications. 6 patients were reoperated in the early post operative course (15%). While some complications are described with DS (2 pancreatitis, 1 internal hernia), others were related either to the learning curve of the laparoscopic approach (1 distal leak, 1 distal kink, 2 subcutaneous cellulites) or to stomach and band preservation (8 delayed gastric emptying, 1 late ileal perforation, 16 band removals for intolerance with 2 simultaneous SG).

Conclusions: For inadequate weight loss with a primary restrictive surgery, secondary DS provides a moderate additional drop of BMI. Laparoscopic DS is a very demanding procedure, but the number of complications should be reduced after the learning curve.

17. FEASIBILITY OF LAPAROSCOPIC SLEEVE GASTRECTOMY AS A REVISION PROCEDURE OF PRIOR LAPAROSCOPIC GASTRIC BANDING

P Bernante, M Foletto. *Università di Padova, Italy.*

Background: Laparoscopic sleeve gastrectomy (LSG), initially

described by Gagner's group as the first stage of the laparoscopic duodenal switch in super-obese patients, is now gaining wide diffusion among bariatric surgeons as a new restrictive operation.

Methods: From January 2005 to January 2006, 8 obese patients with BMI 35-55 kg/m² underwent LSG for conversion from a prior complicated or failed gastric banding (LAGB). 3 patients had severe symptomatic esophageal dilation, while 5 patients had unsuccessful weight loss. After de-banding, LSG was calibrated upon a 34-French gastric bougie using blue linear staplers. The staple-line was inverted by placing a sero-serosal running suture in all but one patient and methylene blue dye was used to test for leaks. All the patients underwent upper GI series with water-soluble contrast medium 2 days after surgery.

Results: The average operating time for LSG was 90 minutes (range 60-120 min). The average duration of hospital stay was 4 days (range). There were no perioperative complications, no intraoperative or postoperative blood transfusions, no conversions, and no mortalities.

Conclusions: LSG proved to be feasible and safe after LAGB. Longer follow-up is needed to assess weight loss results.

18. A PROSPECTIVE COMPARISON OF LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING, LAPAROSCOPIC GASTRIC BYPASS AND BILIOPANCREATIC DIVERSION USING THE B.A.R.O.S. SYSTEM

J Pujol-Rafols, L Catot Alemany, C Pujol-Rafols, S Bru Piquer, T Baliño Alberdi, C Gomez. *Clinica Tres Torres, Barcelona, Spain.*

Background: Laparoscopic adjustable gastric banding (LAGB), gastric bypass (GB) and biliopancreatic diversion (BPD) are the most accepted techniques in bariatric surgery but there is still lack of comparison studies. This trial compares the effects and outcomes of these three different options.

Methods: In a prospective comparative study, 22 matched patients from each group operated by one single surgeon were followed to assess postoperative improvement in weight loss, health status, quality of life and complications. During the follow-up their weight was recorded in kg, BMI and %EBW. A t-test for independent variables was performed to compare weight changes with a 95% of confidence interval to accept the difference ($P < 0.05$). The Bariatric Analysis and Reporting Outcome System (BAROS) has been used to evaluate health status and quality of life.

Results: BMI and %EBW at 36 months were 36, 29, 30 and 29, 66 and 68 for LAGB, GBP and BPD respectively. There were significantly better results in terms of weight loss and QoL for the GB and BPD groups.

Conclusions: There was a significant loss of weight in all the three groups. Both GBP and BPD were demonstrated to be more effective. LAGB must be reserved for selected patients with special surgical risk.

19. ADJUSTABLE GASTRIC BANDING WITH DUODENAL SWITCH (BANDINARO): SEQUENTIAL TREATMENT IN A FAILED RESTRICTIVE PROCEDURE (LAPAROSCOPIC PRELIMINARY EXPERIENCE)

M De Luca, G Segato, L Busetto, A Ceoloni, O Banzato, G Enzi, F Favretti. *San Bortolo Regional Hospital, Vicenza, Italy.*

Background: Laparoscopic Biliopancreatic Diversion with Duodenal Switch and Stomach Preservation and Restriction (Bandinaro) has been considered a second choice operation in our experience. Its main indications are: failure of restrictive procedure and/or second step in the sequential treatment of super-obese patients.

Methods: The operation is a restrictive procedure (VGB, ASGB and Lap-Band) followed, in case of unsatisfactory results (mainly due to lack of compliance), by a BPD/DS with a 200-cm alimentary

channel and 50-cm common channel. The stomach is left intact. The malabsorptive procedure was performed laparoscopically in the last 20 cases. From Sept 1993 to Jan 2006, 57 patients underwent a sequential treatment (first step: restriction; second step: malabsorption). The original restrictive procedure was VBG in 4 pts, ASGB in 22 and Lap-band in 31. Surgical morbidity and mortality is reported for the entire series. Metabolic complications and weight-loss are investigated in 39 pts, with a follow-up >18 months.

Results: At the time of the original restrictive procedure mean body weight was 133.2±23.1 kg (BMI 49.8±7.3); the least body weight the restrictive procedures were able to achieve was 95.5±22.1 kg (BMI 35.3±7.3, %EWL 56.7±23.9). When the Duodenal Switch (DS) procedure was added to the previous restrictive one, the mean weight was 119.7±19.9 kg, (BMI 45.3±7.2; %EWL 16.1±21.8). 1, 3, 5 and 7 years after the DS the body weight (kg) was 92.9±16.5, 86.3±16.9, 91.8±16.6 and 80.2±17.7 respectively. The BMI dropped to 34.7±5.4 at the first year and to 28.1±6 at 7 years. The % EWL reached 81.7 at 7 years. As major complication of the DS open series, there was 1 case of pancreatitis (requiring reoperation) and 1 case of internal hernia (requiring reoperation). The DS laparoscopic series registered 1 case of mortality (myocardial infarction), 1 case of hemo-peritoneum requiring reoperation and 2 cases of duodeno-ileal fistulas not requiring reoperation. In the subset of patients with a follow-up longer than 18 months, the reported bowel movements (daily) were 4.4±3.2 (2-16). In the long-term, the metabolic consequences were: anemia 50 % (WHO Criteria: M<13.0 Hb and F<12.0 Hb g/dl), secondary hyperparathyroidism 61.1 % (PTH>normal range), hypo-albuminemia 0.0 % and 4 cases of iron deficiency requiring I.V. supplementation.

Conclusions: Laparoscopic BPD/DS and Stomach Preservation and Restriction (Bandinaro) is considered a second choice operation. In our experience, it is indicated in case of failure of the restrictive procedure and/or second step in the sequential treatment in super-obese patients. These data suggest that laparoscopic Bandinaro is feasible, with good weight loss results and acceptable morbidity rate. The laparoscopic preliminary experience requires a larger study with longer follow up.

20. LATE SURGICAL COMPLICATIONS IN BILIOPANCREATIC DIVERSION: ANALYSIS OF A GROUP OF 138 PATIENTS

ML Cossu, GB Meloni, S Profili, PL Tilocca, L Pilo, G Noya. *Universities of Sassari and Perugia, Italy.*

Background: Biliopancreatic diversion (BPD) is not free from late surgical complications: intestinal obstruction in particular, and post-anastomotic peptic ulcer, that is BPD "specific" late complication, and require the experience of a bariatric surgery team for its immediate resolution. Ventral hernia almost always requires elective surgery.

Methods: The present work analyses the incidence of mechanical complications in a group of 138 patients who underwent classic BPD technique in the period 1995-2003. Mean follow-up was of 60 months (min. 24 – max. 96).

Results: Urgent surgical intervention was necessary in 9 cases of 138 (6.5%). The overall incidence of intestinal obstruction was 5% (7 of 138 cases): 3 patients had occlusion of the alimentary tract, in the other 4 cases the biliopancreatic tract was involved. Incidence of post-anastomotic peptic ulcer was 10.1% (14 of 138 cases), but only 2 cases (1.4%), one massive hemorrhage and one perforation, required urgent attention. Overall incidence of median ventral hernia was 39.8% (55 of 138 cases); in all cases, we corrected the ventral hernia by repairing the abdominal wall with a polypropylene net; in 10% of cases we also performed dermolipectomy.

Conclusions: Surgical complications of BPD are common to all

gastroenterological surgical operations and thus are not "specific" to the type of surgery like those of a metabolic nature. We emphasize the importance of early diagnosis and treatment, particularly as regards intestinal obstruction, because any delay could have dramatic consequences.

21. SERUM ADIPOKINE AND CYTOKINE LEVELS IN MORBIDLY OBESE PATIENTS WITH FATTY LIVER

J Caballería, S Delgado, C García-Ruiz, R Corcelles, R Bataller, G Martínez, J Vidal, JC Fernández-Checa, AM Lacy. *Hospital Clinic, IDIBAPS, Barcelona, Spain.*

Background: To assess the role of adipokines and proinflammatory cytokines in obese patients with fatty liver.

Methods: Serum samples from 35 patients (7 men and 28 women, mean age 41 ± 2 years) with morbid obesity (BMI 45.2 ± 0.9 kg/m²) were obtained immediately before surgery, and a liver biopsy was also obtained during the surgical procedure. Adiponectin, leptin, TNF- α and IL-6 levels were determined by ELISA. Additionally, liver function tests, glucose, insulin, cholesterol, triglycerides, hyaluronic acid and P-III-P were also determined.

Results: Liver biopsy of patients only showed different degrees of steatosis: mild in 12, moderate in 13 and severe in 10 patients, respectively. Three patients with severe steatosis had also mild inflammatory changes, but none of the patients had fibrosis. Serum adiponectin and leptin levels were 5.4 ± 0.37 mg/ml and 38.1 ± 2.45 ng/ml, respectively. Moreover, adiponectin was low and leptin was high in all patients. Contrary to other studies, there were no significant differences in serum levels of both adipokines according to the severity of steatosis. TNF α was elevated in 71% of patients (mean value 27.9 ± 1.6 pg/ml) and IL-6 was elevated in 80% of patients (mean value 21.7 ± 5.9 pg/ml), being the values also similar regardless the degree of steatosis.

Conclusions: Low adiponectin, high leptin levels and activation of proinflammatory cytokines are common features in morbidly obese subjects with simple steatosis supporting the role of these cytokines in the pathogenesis of non-alcoholic fatty liver disease.

22. LAPAROSCOPIC SLEEVE GASTRECTOMY FOR MORBID OBESITY USING SEAMGUARD® BIOABSORBABLE STAPLE-LINE REINFORCEMENT

JM Catheline, M Charara, M Perez, J Benichou, R Cohen, G Reach. *Hôpital Avicenne and Centre de Recherche en Nutrition Humaine, AP-HP, Bobigny, France.*

Background: Complications due to surgical treatment of morbid obesity are influenced by patient's body mass index, perioperative bleeding and anastomotic leakage. Sleeve gastrectomy is a restrictive procedure which can be offered to high-risk morbidly obese or super-obese patients as a first step (interim) procedure to help decrease perioperative risk before duodenal switch or gastric bypass. With the objective to reduce bleeding and anastomotic leakage, a new absorbable polymer membrane (Seamguard®, Gore) has been introduced for staple-line reinforcement used in conjunction with a linear cutting device.

Methods: The procedure requires 6 trocars. The gastrocolic ligament is opened to 7 cm from the pylorus. The greater curvature of the stomach is divided by a vessel sealing system (Ligasure, Tyco). A 36-French bougie is positioned in the stomach along the lesser curvature. A sleeve gastrectomy is performed by sequential firing of a linear stapler parallel to the bougie along the lesser curvature of the stomach. The absorbable polymer membrane (Seamguard®, Gore) is used while stapling. The marked sleeves are put on the cartridge and anvil of the stapler. The implanted membrane is a porous fibrous structure composed solely of synthetic 67% polyglycolic acid (PGA) and 33% trimethylene car-

bonate (TMC). The gastric fundus is resected. The remaining stomach is made by the intact antrum and a sleeve-like stomach corpus. A subsequent perioperative methylene blue test is performed. A 15-mm retrieval bag is introduced to remove the resected part of the stomach (sleeve gastrectomy specimen) through the 15 mm enlarged port-site. A water-soluble upper gastrointestinal contrast study is selectively performed on the first postoperative day. After a normal contrast study, clear liquids and oral analgesics are instituted on the first postoperative day.

Conclusion: Sleeve gastrectomy can be offered to high-risk morbidly obese or super-obese patients as a first step (interim) procedure to help decrease perioperative risk before duodenal switch or gastric bypass. Using an absorbable polymer membrane as staple-line reinforcement material is a reliable and effective way to decrease perioperative risk of hemorrhage and leakage without implanting a permanent prosthetic material.

23. LONG-TERM SPECIFIC EFFECTS OF BILIO-PANCREATIC DIVERSION ON THE MAJOR COMPONENTS OF THE METABOLIC SYNDROME

N Scopinaro. *Department of Surgery, University of Genoa School of Medicine, Italy.*

Background: Gastric bypass and biliopancreatic diversion (BPD) are known to have a beneficial effect on glucose metabolism superior to that of the other bariatric operations. Thanks to its excellent weight loss results and to its specific actions, BPD has proven able to guarantee permanent normalization of serum glucose, triglyceride and cholesterol levels in the vast majority, if not the totality, of operated patients. However, clinical studies on the duration of these effects in large patient populations are still lacking.

Methods: The files of 312 BPD obese patients with type 2 diabetes mellitus operated on from June 1984 to January 1993 were examined. Pre and postoperative serum glucose, triglyceride and cholesterol levels, along with arterial pressure measurements, were considered.

Results: After BPD, fasting serum glucose concentration fell within normal values in all but 2 of the operated subjects, and remained in the physiological range in all but 6 through 10 years. Serum triglyceride and total cholesterol steadily normalized in all subjects with abnormally high preoperative values, and arterial hypertension disappeared in the vast majority of the preoperatively hypertensive patients.

Conclusion: BPD proved able to reverse all the major components of the metabolic syndrome in nearly all the operated subjects, with results being strictly maintained over a 10-year follow-up period. This outcome, which far exceeds those following similar weight loss at short or long term obtained by any other means, confirms the existence of specific actions of BPD on the major components metabolic syndrome.

24. MORTALITY OF MORBIDLY OBESE PATIENTS ON THE WAITING LIST FOR BARIATRIC SURGERY

MM Silva, J Faintuch, A Capeletto, CE Machado, MC Arruda, JL Nogueira, A Halpern, P Lucinda, ST Campoleoni, LS Correa, VM Scabim, S Trecco, DV Oliveira, MC Ferreira, AC Lunardi, CAD Paula, E Parente, B Zilberstein, I Ceconello. *Obesity Surgery Group, Endocrinology Service, Nutrition and Dietetics Division, and Division of Psychology, Hospital das Clinicas, Sao Paulo, Brazil.*

Background: A large number of patients seek bariatric surgery at Hospital das Clinicas, generating a chronic backlog. Aiming to analyze this population, a telephone and interview updating protocol was designed.

Methods: Among 1256 non-operated cases registered at the Outpatient Service of Hospital das Clinicas in the last 10 years, initial telephone contact was attempted in all circumstances. Unfortunately

766 could not be reached (61.0%), mostly because of number changes. The remaining 490 represent the sample of this study.

Results: Operation elsewhere had been performed on 220/490 (44.9%), 22/490 had died (4.5%), and 248/490 (50.6%) were scheduled for an appointment, which 206/248 (83.1%) honored and 42/248 (16.9%) missed. Mean age of evaluated patients was 45±9 years (18-61), 83.4% were females, BMI was 48.3±7.7 and time since first registration was 4.8±1.4 years (5 months to 8 years). Average mortality corresponded to 0.9% per year (4.5/4.8), which nearly equals perioperative death rate in the Service (1.2%).

Conclusions: Morbid obesity proved to be a serious condition, with nearly as many fatal outcomes per year on the waiting list as during surgical treatment, and a much higher mortality when the entire waiting period is considered.

25. THE REFUSAL RATE OF HEALTH-CARE REIMBURSEMENT IN MORBIDLY OBESE PATIENTS UNDERGOING BARIATRIC SURGERY

D Gärtner, M Hoyer, A Hornung, T Andus, S Bischoff, U Hesse. *Klinik Bad Cannstatt, Stuttgart, Germany.*

Background: Surgery is an effective method to treat patients with morbid obesity. However health insurance companies frequently refuse to cover the costs for the procedure despite an existing DRG-code for this operation. Individual medical expertises are necessary to receive reimbursement. In the present study, the acceptance of medical expertises to receive cost coverage was analyzed in our patients of the years 2000-2003 eligible for obesity surgery.

Methods: 617 medical expertises of patients eligible for obesity surgery in our hospital were reviewed and the acceptance rate was evaluated. Parameters such as body mass index, personal medical history, diets, co-morbidity and prognosis were included. Expertises were submitted to the health care insurance companies, and in the case of acceptance the operation was performed.

Results: The average age of our patients was 39.1 years. 72.1% were female, 27.9% male. The average BMI was 47.5 kg/m². There was a high incidence of co-morbidity in these patients (58.7% arterial hypertension, 38.6% diabetes mellitus, 95.8% dyspnea, 96.1% arthritis, 89% psychological disorders). The difference between accepted and non-accepted regarding these secondary complications was not significant. 209 patients (33.8%) were operated on. 14 of them paid the costs themselves. Only in 195 cases (31.6%), the healthcare insurance company covered the costs of the operation

Conclusions: The high number of refusals of medical expertises is not justified when considering the strict criteria for indication, the high frequency of co-morbidity and the good results of bariatric surgery.

26. GUT HORMONE PROFILES MAY EXPLAIN REDUCED APPETITE AND FOOD INTAKE FOLLOWING BARIATRIC SURGERY

CW le Roux¹, SJB Aylwin², RL Batterham¹, CM Borg³, F Coyle², V Prasad¹, S Shurey⁴, MA Ghatge¹, AG Patel³, SR Bloom¹. *Department of Metabolic Medicine¹, Hammersmith Hospital, Imperial College London, Department of Endocrinology² and Surgery³, King's College Hospital, London, Department of Surgical Research⁴, Northwick Park Hospital, London, UK.*

Background: Deficiencies of the gut hormones peptide YY (PYY) and glucagon-like peptide 1 (GLP-1), may perpetuate obesity in patients. Following bariatric surgery, glycemic control and enhanced satiation improve before substantial weight loss occurs.

Methods: We studied bariatric surgery's effect on the entero-hypothalamic endocrine axis of humans and rodents by examining meal-stimulated responses of insulin, ghrelin, PYY and GLP-1 in humans and rodents following different bariatric surgical techniques.

Results: Compared to lean and obese controls, patients following Roux-en-Y gastric bypass (RYGBP) had enhanced satiety and increased postprandial plasma PYY and GLP-1. Furthermore, RYGBP patients had early and exaggerated insulin responses, potentially mediating improved glycemic control. None of these effects were observed in patients losing equivalent weight through gastric banding. Leptin and ghrelin were similar in both the surgical groups. Using a rodent model of Roux-en-Y gastric bypass, we showed elevated PYY and GLP-1 in RYGBP rats compared to sham-operated rats. Moreover, exogenous PYY reduced food intake and blockade of endogenous PYY, increased food intake. Thus higher plasma PYY following JIB may contribute to reduced food intake and contribute to weight loss.

Conclusions: Following RYGBP and JIB, a pleiotropic endocrine response may contribute to the improved glycemic control, appetite reduction and long-term changes in body weight.

27. HIGH MORTALITY RATE FOR PATIENTS REQUIRING INTENSIVE CARE AFTER SURGICAL REVISIONS FOLLOWING BARIATRIC SURGERY

N Kermarec, P Mogno, D Chosidow, JP Marmuse. *Service de chirurgie générale A, CHU Bichat-Claude Bernard, Paris, France.*

Background: Bariatric surgery is associated with low morbidity and mortality. Some patients occasionally require revision because of surgical complications, and intensive cares following bariatric surgery. We describe this subgroup of patients.

Methods: From 2001 to 2004, 16 obese patients required admission to the surgical intensive care unit for surgical complications after bariatric surgery. We reviewed retrospectively medical records regarding gender, body mass index (BMI), age, type of initial surgery, APACHE score, delay of revision surgery, type of complications and bacteriological analysis.

Results: Patients were on average 44±9 years old, with BMI 49±10. All patients had proven surgical complications. The delay before revision was long (8±5 days) because of the absence of specific signs of surgical complications. APACHE II score was 17±10. Bacteriological study was without particularity. Mortality rate was 37.5% (6/16 patients). Mean BMI of those who died was higher 59±8. The length of stay in intensive care unit was 14±13 days.

Conclusions: An increasing number of surgical revisions will likely accompany the recent increase in popularity of bariatric surgery. We found a high mortality rate among this subgroup of patients. Mortality rate is associated with importance of BMI. Revision surgery should be early in these high risk patients.

28. HIATOPLASTY IN COMBINATION WITH LAP-BAND IS INDICATED IN OBESE SUBJECTS WITH HIATAL HERNIA

L Angrisani, F Favretti, F Furbetta, SB Doldi, E Lattuada, M Paganelli, M Lucchese, N Basso, F D Capizzi, N Di Lorenzo, G Lesti, C Giardiello, A Veneziani, F Puglisi, A Cascardo, M Alkilani, P Forestieri, L Di Cosmo, A Gardinazzi, A Luppà, P Bernante, V Borrelli, M Lorenzo. *Italian collaborative study Group for Lap Band & BIB (GILB), Naples, Italy.*

Background: The aim of this study is to evaluate the influence of HiatoPlasty (H), posterior repair of diaphragmatic crura, combined with Lap-Band System procedure, in morbidly obese with hiatal hernia.

Methods: A case-control study was performed involving patients submitted to Lap-Band System procedure + H since December 1996: 161/5,364 (3.0%) patients (24M/137F) (Group A) were compared with 161 patients LapBand-System alone operated during the same period (Group B), matched for sex, age, band positioning technique, and BMI. Operative time, mortality, operative complications, laparotomic conversion, hospital stay,

BMI and %EWL were considered. Data were expressed as mean±standard deviation, $P<0.05$ was considered significant (Fisher exact test).

Results: LapBand-System was positioned by perigastric or pars-flaccida technique in 74 and 87 patients of both group (mean age: 47.4±10.7 and 46.9±10.2 years; mean BMI: 39.2±5.4 and 39.9±5.1 in Group A and B respectively). Mortality, laparotomic conversion, intra/postoperative complications, gastric pouch dilation and erosion were absent in both groups. Significantly longer operative time (89.2±54.4 vs 77.9±30.2 minutes; $P<0.01$) and hospital stay (3.1±2.4 vs 2.4±3.3 days; $P<0.05$) was observed in Group A. At 3 and 5 years mean BMI was 33.2±2.8 and 30.1±4.4 in Group A, and 33.6±7.2 and 30.6±7.3 in Group B ($P=ns$). Mean %EWL at same intervals was 51.2±12.7 and 55.1±12.7 in Group A, and 51.4±10.7 and 54.4±10.7 in Group B ($P=ns$). Patients with %EWL<25 at 5 years follow-up were 31/161(19.2%) and 33/161(20.5%) in Group A and B respectively ($P=ns$).

Conclusions: Hiatal hernia repair performed during Lap-Band System does not add mortality, complications or differences in weight loss to Lap-Band System procedures, but only a longer operative time and hospital stay.

29. GASTRIC BANDING IN PATIENTS WITH DIFFERENT SIZES OF HIATAL HERNIA – 3-YEAR RESULTS

K Dolezalova, M Fried. *Clinical Center for Minimally Invasive & Bariatric Surgery ISCARE, Prague, Czech Republic.*

Background: Obesity is often associated with gastroesophageal reflux disease, and incidence of hiatal hernia (HH) is rising with increasing BMI. Authors present their own experience, how to manage morbidly obese patients with HH, selected for gastric banding.

Methods: Retrospective review of 50 consecutive morbidly obese patients who were selected for SAGB (Obtech, Ethicon-EndoSurgery, Switzerland), during the period of 2003/04, and prospective evaluation of 50 consecutive patients operated in 2005/06 was carried out. Altogether, 43% of patients were preoperatively (upper GI endoscopy) diagnosed to have a HH. HH <4 cm had 38% patients (GROUP A, average BMI 44), and HH >4 cm had 5% patients (GROUP B, average BMI 48). Both groups were further investigated with esophageal manometry and upper GI X-ray series. 16% patients had concomitant reflux symptoms. All patients with HH <4 cm, underwent standard SAGB implantation procedure. Patients with HH >4 cm were treated through a modified approach. Simple repair of hernia defect has been carried out and at the same stage SAGB was implanted in the usual way and anatomic location. However, band adjustment was restricted during the first 6 months after surgery. All HH patients were followed-up by endoscopy and radiology 1 and 6 months postoperatively as well as per regular out-patient protocol.

Results: There were no early and/or late postoperative complications during the follow-up period. Average WL in GROUP A was 38 kg, in GROUP B 44 kg. The number of patients on anti-reflux medication decreased from 9% to 0% in GROUP A and from 5% to 1% in GROUP B.

Conclusions: SAGB implanted through the standardized pars flaccida technique without hernia repair is suitable for patients with presence of HH <4 cm. In patient with HH >4 cm, crural repair is recommended during band implantation. However, in both cases, gastric restriction is a safe approach in morbid obesity treatment.

30. ANTERIOR HIATAL HERNIA REPAIR WITH GASTRIC BANDING TO TREAT MORBIDLY OBESE PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE

S Ahmad. *Roserklinik, Stuttgart, Germany.*

Background: Symptoms of gastroesophageal reflux disease (GERD) usually get worse after gastric banding if remain untreated. We have performed this study to determine the effect of anterior hiatal hernia repair on gastroesophageal reflux symptoms as a combination with gastric banding in obese patients.

Methods: 270 patients between Sept. 2001 and Jan. 2005 underwent laparoscopic gastric banding. 44 patients (16%) had clinically GERD-symptoms more than three days weekly and hiatal hernia between 1-3 cm in size. We have randomized the patients in group A: 22 patients, who had laparoscopic anterior hiatal repair and gastric banding, and group B: 22 patients treated only with gastric banding. A questionnaire was filled 4 weeks, 3 months, 6 months and 12 months postoperatively.

Results: 19 patients (86%) in group A, who had the combined procedure, at 1 year post surgery remained free of GERD-symptoms. 3 patients (14%) had occasional reflux disease and needed occasional treatment with proton pump inhibitors. 17 patients (77%) in group B continued to have regular GERD-symptoms and needed regular PPI- medication. Five patients (23%) became free of GERD-symptoms or improved remarkably post gastric banding alone. Excess weight loss within the first year was significantly higher in group A, 55%, and 40% in group B.

Conclusions: Patients who are undergoing gastric banding and suffering from GERD-symptoms with evident hiatal hernia should have hiatal hernia repair. Anterior hiatal repair seems to be safe and sufficient.

31. IS DIP (DIGITAL IMAGE ACQUISITION) A VALID NEW TOOL FOR PREOPERATIVE BODY COMPOSITION ASSESSMENT? A VALIDATION WITH DUAL X-RAY ABSORPTIOMETRY

N Di Lorenzo, S Michele, L Di Renzo, C Orlandi, G Coscarella, A Gaspari, A De Lorenzo. *University of "Tor Vergata", Department of Surgery and neuroscience, National Institute for Mediterranean Diet and Nutritional Science, Rome, Italy.*

Background: The increasing incidence of obesity and the wider acceptance of laparoscopic surgery, have led to a 10-fold increase of bariatric surgery in the last 10 years. Widely used indexes of obesity (weight and BMI - body mass index) cannot adequately distinguish between fat mass (FM), represented by the sum of kilograms (kg) of lipid, and fat-free mass (FFM), inclusive of lean (kg of proteins), bone (kg of minerals), glycogen, and total body water (TBW), which are important parameters for clinical and physiological studies.

Methods: Anthropometric variables were measured in 19 Caucasian Italian individuals according to standard *methods*. Body weight (kg) and height (m) were measured, BMI was calculated as kg/m². Body composition was evaluated, with a mean BMI of 25.95±5.04 kg/m², by Dual X-ray Absorptiometry (DXA) and by digital imaging acquisition (DIP), with a digital camera. The clear-colored body of the subjects was automatically converted in a front and lateral red shape figure; then through algorithms the two pictures were transformed in a nominal volume; body weight is then divided by the estimates volume, so that the body density can be obtained. DXA was used to assess fat mass and fat-free mass. Radiation exposure was <0.6 mSv.

Results: Significant positive correlation ($R=0.971$, $P<0.001$) was found between data of body composition obtained by DXA and DIP.

Conclusions: Body volume assessed using DIP or DXA did not differ. According to this validation study, DIP represents a new promising technique, and a useful tool for clinical applications.

32. BIOENTERICS INTRAGASTRIC BALLOON SYSTEM: THE PROCEDURE, TREATMENT AND EFFECTS AFTER THERAPY

Z Kowalczyk, A Tondel, A Wojciechowska. *Pulsmed Bariatric*

Clinic, Lodz, Poland.

Background: From July 2003 to January 2006, 612 Intra-gastric Balloons (BIB®) were implanted in 594 patients (66% F, 34% M). Mean age was 38 (18-66), mean weight 112 kg (60-210), mean EW 40 kg (8-127), mean BMI 38.6 (26.2-66.6): BMI 30-40 (51%), BMI > 40 (39%), BMI < 30 (10%).

Methods: The BIB was designed to facilitate weight loss by partially filling the stomach and inducing satiety. The BIB was placed and removed endoscopically under short intravenous sedation or general anesthesia. The balloon was inflated from 520 to 680 ml 0.9% NaCl (women usually 480-580, men 560-680). After the implantation, patients were given Ondansetron and Omeprazol. A 1200 kcal diet with low glycemic index, and more physical activity were prescribed. After a maximum of 6 months, the BIB was removed. 16 patients decided to get another BIB, and 2 patients with morbid obesity extended the period of treatment to 18 months (i.e. 3 BIB).

Results: Weight-loss was obtained in 98% of cases; the most spectacular effect was visible with patients that followed dietetic recommendations and enhanced physical activity. Mean weight loss was 16 kg (0-68), BMI loss 5.3, mean EWL 43% (0-100%). The most important part of EWL was observed during the first 3 months after implantation: in the group of patients with BMI >40, mean EWL was 31.1%, BMI 30-40 45.9%, BMI <30-73.5%. In 98% cases dyspeptic symptoms occurred after the procedure during 2-3 days. GERD observed in 3.5%. In 10 cases (1.6%) the BIB was removed because of intolerance, by the second week post-implant. Severe complications occurred in three cases (0.49%). In one case, the balloon was removed soon after the implantation due to laceration of the mucous membrane of cardia (S. Mallory-Weiss). A conservative treatment was possible. In two cases (0.3%), there was a gastric ulcer 3 and 5 months after implantation, which required a specific surgical procedure.

Conclusions: The BIB System of therapy is an effective method in obesity treatment. There were no significant health problems or side effects after the BIB removal. It represents an alternative method for patients who refuse gastric restrictive surgery or for patients with morbid obesity before other surgical interventions.

33. CHANGES OF BODY COMPOSITION FOLLOWING ADJUSTABLE GASTRIC BANDING

M Coupaye, S Servajean, N Berger, JM Oppert, A Basdevant, JL Bouillot. *Departments of Nutrition and Surgery, Hôtel Dieu, Paris, France.*

Background: Bariatric surgery induces a significant weight loss. There is still debate to know if this loss is at the expense of lean or fat mass. The aim of the present study was to assess the body mass component before and after laparoscopic adjustable gastric banding.

Methods: 32 women recruited for gastric banding were included in this study. There were 42.7 (±8.7) years old with a mean BMI of 47.2 kg/m² (±8.5). The body composition was estimated by DEXA, before and 1 year after surgery, and was compared with a group of similar obese women requiring no surgery.

Results: 1 year after gastric banding, there was a significant decrease in weight, BMI, fat body mass, but minor in lean body mass and appendicular lean mass.

	Before surgery	1 Year follow-up	Medical group
Age (yrs)	42.6 ± 8.4	43.7 ± 8.4	44.5 ± 7.5
Weight (kg)	120.2 ± 18.7	96.5 ± 18.3	96.8 ± 17.9
BMI (kg/m ²)	45.5 ± 6.4	36.4 ± 5.9	36.7 ± 5.5
Fat mass (kg)	62.6 ± 15	41.4 ± 13.8	44.3 ± 13.6
Lean mass (kg)	53.6 ± 7.4	51.5 ± 7.8	49.1 ± 6.9
Appendicular			

lean mass 22.5 ± 4.2 21.7 ± 4.1 20 ± 3.2

Conclusions: These results show that weight loss induced by surgery is at the expense of fat mass and spares the lean mass, especially appendicular lean mass, which is a good indicator of muscular mass. The body composition 1 year after surgery is similar to comparable non-operated patients.

34. ANESTHETIC ISSUES IN BARIATRIC SURGERY

A Sinha. *Department of Anesthesiology, University of Pennsylvania, Philadelphia, PA, USA.*

Background: As patients presenting for bariatric procedures get heavier, older and sicker, their anesthetic care gets more involved. Preoperatively, issues of hypertension, diabetes and hyperlipidemia are compounded by pulmonary issues like sleep apnea. Their hypersensitivity to volatile agents makes them prone to more adverse respiratory events later.

Methods: Preoperative examination of these patients should include a comprehensive airway examination as well as a search for co-morbidities, especially obstructive sleep apnea as determined by an apnea hypopnea index >30. If these patients are smokers, a strong recommendation for smoking cessation, 6 weeks before the surgery, should be made. On the operating table, in patients with a BMI >40, at the start of the case, employing a 30° reverse Trendelenberg position along with a ramped position eases intubation. All these patients should receive CPAP or Pressure Support (PS) with PEEP at induction. This helps increase period of 'safe apnea'. We studied TcPO₂ (trans-cutaneous partial pressure of oxygen) in patients placed on PS breathing prior to induction and noticed a significant increase in tissue oxygen reserves by this method.

Intraoperatively ventilation with mild PEEP (~7cms of H₂O), respiratory rates in the 10-12/min and tidal volumes of 12-14 ml/kg seem to be optimal. Complete paralysis to allow ease of surgery as well as ventilation is needed. Extubation after complete reversal of neuromuscular blockade, as identified by a train-of-four ratio >0.9, is the safest extubation technique. Postoperative pain may be best managed via an epidural catheter in the cases of open GBP or IV PCA combined with local infiltration in the laparoscopic cases.

35. ROUX-EN-Y GASTRIC BYPASS: GASTRO-JEJUNOSTOMY TECHNIQUE AND COMPLICATIONS

D Halmi, O Anez, E Kolesnikov. *Obesity Surgery Center, Potomac Hospital, Woodbridge, VA, USA.*

Background: Gastro-jejunal anastomosis still remains the "Achilles heel" of the gastric bypass operation. There are severe potential complications related to the anastomotic technique: leaks, strictures, dilatations, ulceration and hemorrhage. There is no mutual agreement regarding the optimal size and technique for creating the anastomosis.

Methods: Between October 2000 and December 2005, 981 morbidly obese patients underwent Roux-en-Y gastric bypass via mini-laparotomy. Female – 849, Male – 129. Average age – 40.5 (16-68). Average BMI – 45.9 kg/m² (35.8-80). Size of the upper midline laparotomy incision 7-8 cm. Average operative time – 60.3 min (42-79). Anterior non-purse-string gastro-jejunostomy was created using both 21-mm and 25-mm intra-luminal circular staplers (Ethicon Endo-Surgery, Inc.). In 837 patients the 21-mm stapler was used. Between September 2004 and December 2005 in 144 selected patients the 25-mm stapler was used. Selection criteria were: BMI <50 kg/m², age over 60, history of peptic ulcer, positive preoperative Helicobacter pylori test, significant cardiac co-morbidity.

Results: Using the 21-mm circular stapler, the incidence of anastomotic stricture requiring endoscopic dilatation was 4% (32

patients). 4 patients (0.5%) in this group required surgical revision of the gastro-jejunosomy due to recurrent stricture. Using the 25-mm circular stapler, we had no early or late anastomotic stricture to date. There were no anastomotic leak in either group and the short term weight loss is similar in the 2 groups.

Conclusions: Circular intra-luminal staplers, both 21-mm and 25-mm can be safely used for creating gastro-jejunal anastomoses. The short-term anastomotic complications are lower with the larger 25-mm stapler, and we continue to monitor whether the size of the anastomoses will influence the long-term weight loss and weight loss maintenance.

36. TRANSMESOCOLIC GASTRIC BYPASS: COMPARATIVE RESULTS BETWEEN FIRST AND RE-DO PROCEDURES

JM Chevallier, F Zinzindohoué, R Douard, G Chakhtoura, Y Ghannem, PH Cugnenc. *Hopital Européen G Pompidou, Paris, France.*

Background: Although controversial, the alimentary loop in the laparoscopic Roux-en-Y gastric bypass can suffer high tension when raised through the antecolic-antegastric way. Retro-colic retro-gastric bypasses were compared between first procedures and redo .

Methods: From 02/ 2002 to 12/ 2005, 102 bypasses were performed through a retrocolic- retrogastric way, without closing mesenteric defects. 81 F, mean age 45.4 yrs (22-69.4), mean weight 138 kg (80-340), mean BMI 50.6 kg/m². Mean operative time was 190 min, and mean hospital stay 8.5 days (5-21). We compared bypasses as a primary bariatric operation (group I) and as a re-do (group II after 35 bands, 4 Mason, 3 sleeve-gastrecomies).

Results:

	Group I (bypass as first op)	Group II (bypass as re-do)
N	60	42
Age	43.7 (22-69.4)	47.8 (30-54.4)
Operative weight	150.5 kg (124-340)	102 (80-142)
BMI (kg/m ²)	53.6 (43.4-91)	44.6 (30.4-52)
Operative time	130 min (105-350)	148 min (134-310)

There was one death (340 kg: septicemia); 5 early complications (2 reoperations for 1 fistula on the gastric remnant and 1 fistula on the gastro-jejunal anastomosis, 3 pulmonary infections), 9 late complications (2 incisional hernias, 1 shortening of the common limb, 2 obstructions at trocar site, 4 peptic ulcers). 4 complications occurred in group I, 11 in group II.

Conclusion: No internal hernia occurred in these retro-colic retrogastric bypasses. Even if redo bypasses were performed on lighter patients, the operation was more difficult and longer, with more complications.

37. ANALYSIS OF COMPLICATIONS IN 257 CONSECUTIVE ROUX-EN-Y GASTRIC BYPASSES

M. Anselmino, B. Solito, M. Lamacchia, F. Santini*, P. Fierabracci, M. Giannetti*, R. Valeriano*, M. Rossi, A. Pinchera. *Bariatric Surgery Unit, *Dept. of Endocrinology, Azienda Ospedaliera-Universitaria Pisana, Pisa, Italy.*

Background: Complications after RYGBP can be life-threatening because of the high-risk patients treated; laparoscopy would seem to represent a factor in increasing surgical complications because of the great difficulty in fashioning anastomoses.

Methods: Evaluation of complications after Roux-en-Y gastric bypass was performed in 257 obese (198 F and 59 M, median age of 48 y, BMI of 56.8): there were 229 laparoscopic and 28 laparotomic procedures. In the lap group, 115 stapled (20 circular [CSA] and 95 linear [LSA]) and 114 hand-sewn [HAS] gastro-jejunal anastomoses were performed, whereas in the open group there were 2 CSA, 5 LSA and 21 HSA. In all patients a jejuno-

jejunal LSA was fashioned at 120-150 cm on the antecolic alimentary limb with a standardized bilio-pancreatic limb of 120 cm. Closure of the Petersen and mesenteric defects was carried out in the last 85 cases of the lap group and in all 28 patients of the open group .

Results: Short and long-term complications are shown below:

Complications	LAP (n=229)			OPEN (n=28)		
	Overall	CSA (n=20)	LSA (n=95)	Overall	CSA (n=2)	HSA (n=21)
Anastomotic Bleeding	4 (1.7%)	2 (10%)	2 (2%)	0	0	0
Leakage	6 (2.6%)	1 (5%)	4 (4%)	1 (1%)	0	0
Anastomotic ulcer	6 (2.6%)	2 (10%)	3 (3%)	1 (1%)	1 (3.5%)	0
Anastomotic stricture	6 (2.6%)	6 (30%)	0	0	1 (50%)	0
Internal hernia	2 (0.8%)			0		0
Gastric remnant complications	1 (0.4)			0		0
DVP	4 (1.8%)			0		0
Pulmonary embolism	2 (0.8%)			0		0
Wound infection	1 (0.4%)			7 (25%)		0
Incisional hernia	1 (0.4%)			12 (43%)		0

* 1 death at 43 days

Conclusions: Except for wound complications such as infections and incisional hernias, the open approach would seem to decrease postoperative anastomotic complications when compared to the laparoscopic approach. But this has been demonstrated true only when stapled gastro-jejunal anastomoses have been used. Anastomotic bleeding, stricture and leakage significantly decrease with HSA technique during laparoscopy compared to the stapling techniques. Therefore, the learning curve for HSA technique does not seem to influence the postoperative complication rate in obese patients treated with Roux-en-Y gastric bypass.

38. LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: OUTCOME IN 300 PATIENTS

JP Marmuse, P Mognol, D Chosidow. *Service de chirurgie générale A, CHU Bichat-Claude Bernard, Paris, France.*

Background: Our goal is to evaluate the outcomes of laparoscopic Roux-en-Y gastric bypass (LRYGBP).

Methods: A prospective analysis of the initial 300 patients who underwent LRYGBP was performed. Study endpoints included operative time, early and late complication rates, hospital length of stay (LOS), time to initiation of oral diet, and percentage of excess body weight loss.

Results: 180 women and 120 men with a mean age of 41 years (range 17 to 68) were included. Mean preoperative weight was 151 kg (range 70 kg to 270 kg), with a mean preoperative body mass index of 53 (range 27 to 81). 90% of patients had at least one significant comorbidity (median = 6 per patient). 118 patients had a previous restrictive bariatric procedure. Mean operative time was 3.4 hours (range 3.0 to 6.5). 5% of patients required conversion to open gastric bypass. 5 patients had early complications: 2 anastomotic bleeding and 2 intraperitoneal bleeding, and 1 intestinal leak requiring reoperation. 18 patients had late complications: 1 small bowel obstruction due to a herniation through the transverse colon mesentery (these complications occurred early in the series, prompting a change in the technique, with no subsequent occurrence), 9 gastrojejunostomy stenosis requiring endoscopic dilation, 6 anastomotic ulcers, 1 gastrogastric fistula and 1 port-site incisional hernia. One death occurred. Median hospital stay was 8 days. The median time before starting oral diet was 3 days. Average excess weight loss was 72% (median follow-up 18 months).

Conclusions: LRYGBP is a technically challenging procedure that can be safely integrated into a bariatric treatment program with good results. Improved outcomes, shorter operative times, and fewer complications are associated with increased surgical experience.

39. DENTAL ABNORMALITIES IN THE LATE FOLLOW-UP PERIOD AFTER BARIATRIC SURGERY

VL Kogler, MCL Lemos, MM Silva, J Faintuch, D Pajecski, B

Zilberstein, A Halpern, BB Mendonça, MCS Lucia, PE Pinto Jr, I Cecconello. *Department of Endocrinology, Division of Psychology and Obesity Surgery Group, Hospital das Clínicas, São Paulo, SP, Brazil.*

Background: Little information is available on late oro-dental changes in the bariatric population. Aiming to investigate this question, a prospective study was designed.

Methods: Patients (n= 45, Group I) submitted 82±8 months earlier to Roux-en-Y gastric bypass (RYGBP) were compared to preoperative bariatric candidates (n= 45, Group II) and to non-obese controls (n= 40, Group III). Populations were comparable regarding age, gender and social/economic conditions. Studies included a detailed questionnaire, panoramic mouth X-ray, and Helkimo index (cranio-facial dysfunction index for bruxism) combined with Pittsburgh Quality of Sleep test (for bruxism).

Results: Findings for principal problems are shown in the Table. All differences were significant with regard to Group I.

Group	Cavities	Tooth fractures	Bruxism	Dry mouth
I	89.36%	82.61%	70.00%	67.00%
II	10.64%	13.04%	25.00%	31.00%
III	0.0%	4.35%	4.35%	2.00%

Conclusions: 1) Serious dental and oral problems were precipitated by the anti-obesity intervention; 2) Nutritional derangements related to calcium and vitamin D malabsorption could be involved; 3) Reduction in salivary volume and pH should also be investigated.

40A. LAPAROSCOPIC SLEEVE GASTRECTOMY. Video

A Baltasar. *Alcoy, Spain.*

Background: LSG (Laparoscopic Sleeve Gastrectomy) is the first part (the restrictive) of the more complex restrictive and mal-absorptive operation developed by Hess in 1988. Gagner is the first surgeon who recommended the procedure in 2001.

Methods: The technique of the LS is shown. Four 5 mm, one 10 mm for the camera and a 12 mm as a working trocar are used. Devascularization of the greater curvature is done with ultrasound from the left crus of the diaphragm down to and distal to the pylorus. The lesser curvature longitudinal sleeve gastric tube is made over a 12-mm stent with linear staplers of blue cartridges. The stapler-line is covered with a Prolene continuous sero-serosa suture to prevent leaks and control bleeding. Leaks are checked by loading the gastric tube with 50 cc of Methylene blue. The stomach is removed by enlarging the working trocar and this opening is always closed by a figure of eight Maxon 1 suture. The operation is usually done in 50 minutes. 45 patients had LSG.

Results: There were no leaks. One patient with BMI 74 died due to trocar bleeding of less than 400 cc but having required laparotomy.

Conclusions: LSG is a simple restrictive operation with a short stay and may become the best alternative to gastric banding.

40B. STAPLING OF NASOGASTRIC STENT IN A LAPAROSCOPIC SLEEVE GASTRECTOMY. Video

A Baltasar. *Alcoy, Spain.*

Background: LSG (Laparoscopic Sleeve Gastrectomy) is the first part, the restrictive, of a more complex operation, the LDS (Laparoscopic Duodenal Switch). Gagner is the first surgeon to have described the procedure as a 1st stage procedure, but isolated LSG is more commonly used today for different settings.

Methods: While stapling and dividing the gastric tube of the LSG, the NG (Naso-Gastric) tube, stent, was divided at the upper part of the vertically made longitudinal gastrectomy. Most often this complication would have required the conversion to an open technique. The stent was disengaged from the staple-line. Repair of the gastric defect is critical since the size of the gastric tube is

small and a possible gastric leak has to be avoided. Once the stent was free then an interrupted layer of silk sutures was used to close the opening. A second, standard, running suture of Prolene was used to close permanently the sero-serosa.

Results: The patient has an uneventful recovery.

Conclusions: During the performance of a LSG, accidental division of the stent tube may occur, but successful repair of the defect can be made without exposing the patient to conversion to the open technique.

41. A NEW DEVICE TO FACILITATE A TOTALLY INTRA-ABDOMINAL STAPLED GASTROJEJUNOSTOMY IN LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS. Video

M Morino, M Toppino, C Garrone, G Bonnet, G Scozzari. *University of Turin, Italy.*

The gastro-jejunal-anastomosis is a critical step in laparoscopic Roux-en-Y gastric bypass (RYGBP). When using a circular stapler, most reports describe the passage of the anvil transorally, with risks of oesophageal injury or bacterial contamination.

The new device (Microfrance, Paris, France) facilitates the introduction of the anvil into the pouch by intraperitoneal technique. The instrument appears as an arrow, with a retractable end and a lateral notch in order to grasp a wire. The procedure begins with the construction of the lower part of the pouch with a linear cutter stapler. A small gastrotomy in the anterior gastric wall of the fundus is then carried out. The device penetrates the lower part of the pouch; once inside the lumen, the pointed end is retracted and the instrument is driven through the stomach, until coming out by the gastrotomy. A wire connected to the pin of the anvil, which was previously percutaneously introduced in the abdomen, is then fastened to the notch of the device. Retraction of the device allows the anvil to penetrate into the stomach through the gastrotomy, being finally positioned with the pin through the lower end of the pouch. The gastrotomy is then closed by a linear cutter stapler and the upper part of the pouch is completed.

The video shows the procedure, which we adopted in our last 10 cases without complications. In our opinion, this device allows to perform safely the gastro-jejunal anastomosis, avoiding the transoral anvil placement and its potentially dangerous consequences.

42. LAPAROSCOPIC GASTRIC BYPASS AFTER FAILURE OF LAPAROSCOPIC GASTRIC BANDING. Video

J Mouiel. *University of Nice, Center of Surgery and Laparoscopy, Nice, France.*

Laparoscopic gastric bypass is proposed as rescue procedure after pouch slippage in a patient (female of 42 years) operated 2 years before for morbid obesity (BMI 45 kg/m²) by gastric banding. After insufflation and trocars positioning, the first step is represented by division of bands and removal of the gastric banding. The second step: gastropasty pouch, is performed using linear staplers. The stapling-lines of the pouch and the remnant are secured by a continuous suture. The third step is the construction of the Roux-en-Y jejunal loop with a length of 150 cm at 50 cm of the duodeno-jejunal angle. The top of the loop is lifted in a pre-colic way after division of the epiploon. The fourth step is the gastro-jejunal anastomosis performed by a continuous suture in two layers. After a control by methylene blue, a thin suction drain is inserted, the patient is exsufflated and the openings are closed. Experience on a series of conversion is presented.

43. GASTRIC BYPASS: 4 TECHNIQUES OF GASTRO-JEJUNAL ANASTOMOSIS

JM Zimmermann, M Blanc, P Mashoyan. *Clinique Clairval, Marseille, France.*

Gastric bypass is a complex operation that carries risks of leakage or bleeding from different sutures. We describe and show 4 different techniques of gastro-jejunal anastomosis, which is the key-point in terms of success and postoperative course. 1) Circular stapling (Gagner); 2) Linear stapling (Lonroth); 3) Manual anastomosis (Higa); and 4) A personal variation of manual anastomosis using the Endostitch® device. 4 layers of stitching are recommended. We urge bariatric surgeons to practise several kinds of anastomoses owing to different intra-operative conditions.

44. LAPAROSCOPIC ROUX-EN-Y BANDED GASTRIC BYPASS WITH SUBTOTAL GASTRECTOMY FOR A MORBIDLY OBESE PATIENT WITH BIERMER'S ANEMIA

M Sodji. Clinique des Emailliers, Limoges, France.

Background: Biermer anemia is an auto-immune atrophic gastritis inducing vitamin B₁₂ deficiency by malabsorption and increased incidence of gastric carcinoma (three times). A 41 year-old female of 157 kg, BMI 57, had megaloblastic anaemia, low vitamin B₁₂ level, and atrophic gastritis. Her condition improved after B₁₂ injections.

Methods: We proposed a gastric banded bypass with subtotal gastrectomy in order to avoid gastric carcinoma in the gastric remnant, with regular endoscopic control of the gastric pouch. Operative technique (video): The procedure of RYGBP-B included an isolated gastric pouch of 7 cm on the lesser curvature, a calibration of the gastric pouch with a 6 cm silastic ring, a 40 cm biliopancreatic limb, a 150 cm Roux limb in a retro-colic position, a side to side jejuno-jejunostomy, a side-to-side linear gastro-jejunostomy. We make use of the Harmonic scalpel, and of a 45-mm linear cutter with blue cartridges reinforced with Seamguard®. The duodenum was transected with a 45-mm linear cutter using a blue cartridge. A subtotal gastrectomy was completed. The mesenteric defect was closed in order to avoid internal hernia. A prophylactic cholecystectomy was performed.

Results: The histological analysis confirmed a severe atrophic gastritis. Patient was discharged without complication.

Conclusions: This experience of a subtotal gastrectomy associated with a gastric bypass for Biermer anemia encourages us to propose this technique in other cases, e.g. to the patients with an antral benign tumor.

45. LAPAROSCOPIC TREATMENT OF A POSTOPERATIVE LAPAROSCOPIC GASTRIC BYPASS LEAK. Video

JL Cruz Vigo, F Cruz Vigo, JM Canga Presa, P Sanz de la Morena. Clinica San Francisco (León), Hospital Universitario 12 de Octubre (Madrid) y Sanatorio Nuestra Señora del Rosario (Madrid), Spain.

Background: Postoperative leaks are the most dreadful complications in bariatric surgery, open or laparoscopic. Although some of them can be resolved without operation, sometimes operation is necessary. The video shows the way in which we do it laparoscopically.

Methods: Male patient operated on for morbid obesity. Uneventful laparoscopic banded gastric bypass. The 2nd postoperative day, he has fever and leucocytosis, thorax X-Ray shows a left basal pneumonia that is treated with antibiotics. The fever persists and purulent fluid appears around the drain, that is unproductive. The patient is reoperated on the 5th day. The previous five ports are used. Left subphrenic and subhepatic spaces are explored. A small purulent collection is discovered on the highest part of the vertical staple-line of the gastric reservoir. The leak is confirmed with saline through a nasogastric tube. The polypropylene band is removed, a drain is placed on the leak and a feeding gastrostomy is performed.

Results: Patient evolution is satisfactory, being treated in the

outpatient clinic after the 10th day. Drain and gastrostomy tube are removed when the leak is cured.

Conclusions: With the diagnosis, or high suspicion, of a leak during the postoperative period of bariatric surgery, if the patient shows signs of sepsis, immediate reoperation is mandatory, and it can be done laparoscopically.

46. ECHELON™-60 ENDOPATH STAPLER IN LAPAROSCOPIC BARIATRIC SURGERY: INITIAL EXPERIENCE. Video

L Piazza, A Pulvirenti, F Ferrara, D Cocco, A Bellia. Azienda Ospedaliera di Rilevo Nazionale e di Alta Specializzazione, Catania, Italy.

Background: Laparoscopic bariatric surgery needs extensive use of staplers. We recently started to use a new stapler which has been specifically planned for bariatric or colorectal surgery. Technical improvement of the device is analyzed. Stapling devices are utilized in surgery from the early 1960s. Continuous improvement of such instruments allowed reduction of time and complication of surgical operation. Some device malfunction like abnormal firing of the stapler and improper staple formation depends on poor device design, which fails to account adequately for the needs of users. Thus, more improved devices are welcome.

Methods: In the last five laparoscopic biliopancreatic diversion, we utilized the new Echelon™ 60 Endopath Stapler with gold cartridge. The use of the stapler gave optimal results.

Results: In our opinion this new stapler presents many advantages that make the surgical operation easier and safer but in some situation is penalized by the impossibility to articulate. We hope that a new model with this feature will be released in the near future.

Conclusions: Technological improvement represents the basis upon which modern surgery is constructed. For this reason, it is very important take advantage of it.

47. LAPAROSCOPIC CONVERSION OF MACLEAN VERTICAL BANDED GASTROPLASTY (VBG) TO GASTRIC BYPASS (GBP) WITH HIGA GEA TECHNIQUE. Video

G Camerini, GM Marinari, FS Papadia, F Carlini, F Murelli, GF Adami, N Scopinaro. Department of Surgery, University of Genoa School of Medicine, Italy.

Background: Laparoscopic MacLean VBG, in a personal series of 79 cases, yielded good weight loss results, with a mean of about 60% reduction of the initial excess weight at 5 years, even if patients with long-term insufficient weight loss are not infrequently seen. Poor weight loss result, and/or severe gastro-esophageal reflux disease (GERD), with or without pouch dilatation and/or outlet stenosis, are the main indications for VBG conversion to another procedure. Although keeping the patient's choice into account as much as possible, we suggest a conversion into BPD when excessive body weight is the only or the main complaint, while GBP is recommended in case of GERD, especially when weight loss is not needed. The laparoscopic conversion to GBP is performed using the same technique as for the primary operation. After freeing the stomach from the liver adhesions, the original pouch is isolated and transected at its distal end, right above the collar. The jejunum is then interrupted and the jejunojejunostomy is performed. The distal jejunal stump is then brought antecolically to the gastric pouch and joined to it with a totally hand-sewn two-layer running suture, according to the Higa technique.

Results and Conclusion: Three of our 79 patients with MacLean VBG had this type of conversion from March 2000 to May 2005, the prevailing indication being the presence of GERD in all cases. There were no major perioperative complications. 1 year after operation, all patients had a percent excess weight comparable to that of primary GBP, while GERD was much improved or disappeared.

48. LAPAROSCOPIC GASTRIC BYPASS AFTER VERTICAL BANDED GASTROPLASTY. Video

S Bonilauri, F Mecheri, M Piccoli, D Capizzi, S Maggiore, R Morici, G Melotti. *Dept. Of Surgery NOCSE, Az.USL Modena Italy.*

Background: The main technical steps in converting a vertical banded gastroplasty, either laparoscopic or open, to gastric bypass are shown in the video.

Methods: This procedure was performed in 11 cases between February 2004 and February 2006, the indications being unsatisfactory weight loss or weight re-gain (5 cases), staple-line failure after Mason operation (3 cases), polypropylene band erosion with stenosis (2 cases), band erosion after Lap-Band (1 case, delayed after band removal).

Results: In two cases conversion to open surgery was required for technical difficulties. Postoperative morbidity consisted of GEA leak in 2 patients. Both of them were reoperated, and one died from sepsis and multiple organ failure after multiple reoperations. There were no important differences in technical difficulty between patients with primary open or laparoscopic procedures. In both cases the greatest difficulties were encountered when dissecting the polypropylene mesh from the inferior surface of the left lobe of the liver.

Conclusion: Generally, the laparoscopic conversion of vertical banded gastroplasty or adjustable silicone gastric banding to gastric bypass appeared a technically demanding but feasible operation.

49. COULD A MESH ABOVE THE BAND BE THE SOLUTION TO THE ENLARGEMENT OF PROXIMAL GASTRIC POUCH? A PRELIMINARY SERIES OF PATIENTS TREATED WITH BASKET BAND. Video

A Catona, G Morone, R Ruggiero, L La Manna, C Sampiero. *General and Mininvasive Surgical Division IRCCS Fondazione S.Maugeri Pavia, Italy.*

Background: The main complication of Adjustable Gastric Banding (AGB) is proximal gastric pouch dilatation: it affects quality of life and may require emergency reoperation. We thought that one possible solution to prevent the proximal pouch from enlargement may be a mesh tied to a regular band to envelope the upper part of the stomach. Thus, we developed Basket Band (BB): a new AGB with a soft silicone mesh above it.

Methods: With an experience of over 1,000 AGB, in the last year, we implanted 40 BB. To fit the mesh of BB we need a wider freeing of the gastric fundus, just like in a 360° Nissen fundoplication for treatment of gastroesophageal reflux. Once the band is passed around the stomach, the superior mesh is closed with stitches to envelope at 360° the proximal pouch.

Results: One year EWL in BB group was 47.6% vs a 40.8% in the AGB group. We had no gastric pouch dilatations in BB group vs 6.6% in the AGB group. At the moment, we have not observed symptoms like vomiting or dysphagia with BB.

Conclusions: Gastric banding is a safe operation that allows a 2-year EWL of 40-50%. The main problem of AGB is long-time complications and particularly proximal pouch dilatation. We are aware that it is too early to assert that a mesh may be the solution to gastric pouch enlargement, because we know from our experience that this complication happens about 2-3 years after operation, but the results of this preliminary series are encouraging.

50. DIGESTIVE ADAPTATION (VERTICAL GASTRECTOMY, OMENTECTOMY AND SEGMENTAL ENTERECTOMY) AS A NEW PROCEDURE TO TREAT OBESITY: 3-YEAR RESULTS AND CHANGES IN GHRELIN, RESISTIN, GLP-1 AND PYY

S Santoro, CE Malzoni, MC Prieto Velhote, F Milleo, S Klajner, F Guilherme Campos, PCM Borges. *Department of Surgery, Hospital Albert Einstein, São Paulo, Brazil.*

Background: Critical review of physiological and anthropological data allowed us to design this new proposal in bariatric surgery.

Methods: We perform a sleeve gastrectomy, omentectomy and an enterectomy, leaving 50 cm of jejunum and 250 of ileum (3 meters of small bowel - still within the length normal range). Initial hundred cases are described. Fasting Ghrelin and Resistin, and post-prandial curves of GLP-1 and PYY were measured.

Results: Follow-up: from 4 to 36 months. Average Body Mass Index reduction was 4.2, 8.2, 10.2, 10.7, 10.4 kg/m², respectively at 1, 4, 6, 12 and 24 months. All patients reported earlier satiety. Major improvement in pre-surgical co-morbidities, especially diabetes (93% cure), was observed. Operative complications occurred in 7 patients but all resolved without sequelae. One patient presents mild heartburn, and 4 present mild constipation. All others are free of symptoms. Fasting Ghrelin and Resistin were significantly reduced ($P<0.05$). GLP-1 and PYY response to food ingestion was significantly enhanced ($P<0.05$)

Conclusions: This procedure creates a proportionally reduced gastrointestinal tract, leaving basic physiological functions intact, resulting in adaptation of gastric chamber size to hypercaloric diet and shortened intestinal tract (more adapted to easily absorbable food and distal nutrient detection). The procedure reduces sources of Ghrelin and Resistin production and allows more nutrients into the distal bowel for an earlier and more efficient production of its hormones. Patients do not need nutritional support or medication postoperatively. This technique has a short learning curve, and is easy and safe to perform.

51. IS SHORT-TERM HOSPITALIZATION (<24 HOURS) SAFE FOR PATIENTS UNDERGOING GASTRIC BANDING FOR MORBID OBESITY? (A 3-YEARS EXPERIENCE)

M Fried, K Dolezalova, D Melechovsky. *Clinical Center for Minimally Invasive & Bariatric Surgery ISCARE, Prague, Czech Republic.*

Background: Length of hospitalization after bariatric surgery is soon going to be one of key parameters, as the number of patients undergoing bariatric surgery increases substantially in Europe. Hence, the more bariatric patients are treated, the more important role both play: HE outcomes, and operational (organizational) issues preventing hospital wards from overload.

Methods: Patients who consequently underwent gastric banding (SAGB) in our institution during the year 2003 and from the beginning of 2005, were included into the study. Relevant data were retrieved retrospectively from hospital charts (year 2003 & Q1/05) and recorded prospectively from Q2/2005 onwards. Total of 124 patients were available.

Results: 73 patients (58.8%) were hospitalized <24 hours after surgery, 47 (37.9%) were admitted for 24-36 hours and 4 (3.2%) for >36 hours. There were no hospital emergency re-admissions in either group. In the group with <24 hour hospitalization, no conversions, and/or short-term reoperations were observed. In patients staying between 24-36 hours 1, (2.1%) conversion and 0 reoperation were recorded. In the >36 hours group, there were 2 (50%) conversions and 1 (25%) reoperation. No statistical difference in pre-op BMI (43.1 vs 41.8), age (41.5 vs 42.8 yrs) and/or serious co-morbidities (i.e. in T2DM 30.1% vs. 21.2%) in the first two groups. The group with >36 hours hospitalization was the smallest (3.2%), with the lowest pre-op BMI (35.5) and the highest average age (50.0 yrs).

Conclusions: Short-term 24-36 hours hospitalization is safe and feasible for patients after SAGB. In our cohort, more than 95% of all banding patients were discharged from the hospital in <36 hours. This did not affect post-op complication and/or reoperation rate, as well as weight and % EW losses.

52. AMBULATORY LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING: A GENERAL HOSPITAL EXPERIENCE OF 160 CASES

M Hamdan, D Berlemont, H de Fresnoye. *Departments of General Surgery and Anaesthesia, Centre Hospitalier Général, Laon, France.*

Background: We present the experience of 2 years of ambulatory adjustable gastric banding in a general hospital.

Methods: Between January 2004 and January 2006, 160 patients underwent ambulatory laparoscopic adjustable banding (LAGB). They were all operated on by the same surgeon and anesthetist. All patients responded to the NIH selection criteria for morbid obesity surgery. They received no pre-medication and induction of anesthesia was obtained by the adjunction of Sufentanyl, Atracrium and Propofol. Anesthesia was maintained by Desflurane. The soft band® (MIDBAND, France) was used in all the cases, introduced by the Swedish pars flaccida technique.

Results: Among the 160 patients, 141 were female (88%), average body mass index 42.5 kg/m² (37-54) and mean age 34 years (20-54). All patients responded to the ambulatory surgery criteria and stable co-morbidities (hypertension, diabetes, obstructive sleep apnea, etc.) were not considered as contraindications to this type of surgery. No peri-operative complication occurred and the postoperative course was unremarkable, authorizing discharge in the evening after deambulation and a liquid meal. Patients went home with analgesic and antithrombotic medications and the surgeon's cellular phone number. They were systematically phoned home the day after surgery. No complication occurred in the first postoperative month, joining results of in-patient LAGB. 20 patients were excluded from this study (difficult intubation 3, nausea and vomiting 10, pain 7).

Conclusions: In skilled hands and selected patients, ambulatory LAGB is simple, safe, feasible and beneficial for both patients and the health-care system.

53. A NEW QUESTIONNAIRE FOR QUICK ASSESSMENT OF FOOD TOLERANCE AFTER BARIATRIC SURGERY

M Suter, A Paroz, JM Calmes. *Department of surgery, Hôpital du Chablais1, Aigle-Monthey, and CHUV2, Lausanne, Switzerland.*

Background: Bariatric surgery is often associated with reduced food tolerance and sometimes frequent vomiting, which influence quality of life, but are not included in the overall evaluation of these procedures, notably the BAROS. Our aim was to develop a simple questionnaire to evaluate food tolerance during follow-up visits.

Methods: A one-page questionnaire including questions about overall satisfaction regarding quality of alimentation, tolerance to several types of food, and frequency of vomiting/regurgitation was developed, giving a score between 1-27. Validation was performed with a group of non-obese adults and a group of morbidly obese non-operated patients.

Results: It takes 1-2 minutes to fill out the questionnaire. Food tolerance is worse in the morbidly obese population compared with non-obese adults (24.5 vs 25.9, $P=0.01$). Following Roux-en-Y gastric bypass, food tolerance is reduced after 6 months (23.5), but becomes comparable to that of the normal population and remains so as of 1 year postoperatively. Following gastric banding, food tolerance is already significantly reduced after 3 months (22.3), and worsens continuously over time (19.2 after 7 years). In the gastric banding population, decision to adjust the band is based at least partially on food tolerance, and the questionnaire proved helpful in that respect.

Conclusions: Our new questionnaire proved very easy to use, and helpful in the day-to-day practice, especially after gastric banding. It was also helpful in comparing food tolerance over time after surgery, and in comparing food tolerance between procedures. Food tolerance should be part of the overall evaluation of bariatric surgery.

54. POST ADJUSTABLE GASTRIC BANDING SYNDROME: PH-METRIC AND MANOMETRIC RECORDINGS IN 19 PATIENTS

M Merrouche, JM Sabate, P Jouet, S Msika, S Ledoux, B Coffin, S Scaringi. *CH Louis-Mourier, Colombes, France.*

Background: Adjustable gastric banding (AGB) is one of the most common surgical procedures for the treatment of morbid obesity. However, AGB frequently induces upper gastrointestinal symptoms. The consequences of AGB on acid reflux and esophageal motility have been poorly evaluated. The aim of this study was to describe pH-metric and manometric abnormalities in patients complaining of upper gastrointestinal symptoms after AGB for morbid obesity.

Methods: A standardized questionnaire, 24-hrs pH-metric recording (% of time with pH <4) and esophageal manometry [lower esophageal sphincter pressure (LES), morphology, amplitude and propagations of esophageal contraction waves] were performed in patients with AGB addressed for upper gastro-intestinal symptoms and/or AGB failure (insufficient weight loss) to a tertiary unit specialized in the treatment of morbid obesity.

Results: (mean \pm SD) 19 patients (F: 17; age 44.0 \pm 10.2 yrs) were included 24 to 36 months after AGB. BMI was 45.8 \pm 6.9 kg/m² (range: 39.9-67 kg/m²) before surgery and 37.8 \pm 9.2 kg/m² (range: 22.2-59.4 kg/m²) at the time of the study. Mean weight loss was 20.8 \pm 14.4 kg (range: 0-50 kg). None of these referred patients had had preoperative pH-metry or manometric recordings. At the time of the study, 13 patients (68.4%) had one or more upper gastrointestinal symptoms: vomiting more than 3 times a week in 9 (47.3%), dysphagia in 6 (31.6%), heartburn in 5 (26.3%) and epigastric pain in 3 (15.7%). pH-metry was abnormal in 6 out of 15 patients (40%) with a percentage of time with pH<4 of 29.5 \pm 24.8% (range: 8.5-71%). Esophageal manometry was abnormal in 12 out of 19 patients with incomplete LES relaxation in 9 (47.4%) associated with abnormal esophageal contractions in morphology, amplitude and duration; presence of non-peristaltic waves were also noted.

Conclusions: The presence of major reflux and esophageal motor disorders that could be defined as pseudo-achalasia are frequent in patients consulting for upper gastrointestinal symptoms and/or insufficient weight loss after AGB. These preliminary results in a small cohort of symptomatic patients without preoperative data suggest that complete esophageal investigations are mandatory before performing bariatric surgery with adjustable AGB, as it has been recommended before antireflux surgery.

55. 1,000 BARIATRIC OPERATIONS IN A COMMUNITY SETTING

A Baltasar, R Bou, M Bengochea, C Serra, N Pérez. *Hospital Virgen de los Lirios y Sanatorio San Jorge, Alcoy, Spain.*

Background: Obesity surgery is the only effective therapeutic tool on the morbidly obese. The local setting is located in a 60,000 population and a 135,000 non-university community.

Methods: 1,000 morbidly obese patients were treated since 17.6.1977. 16 patients had the open GBP (gastric bypass) of Griffen until 1979, 129 had the VBG (Vertical banded gastroplasty) of Mason modified by Baltasar since 16.5.1984, only 3 had the AGB (adjustable gastric band) in 1995, 43 had the LGBP (laparoscopic GBP) since 14.1.1997, 525 the open DS (duodenal switch) since 17.3.1994, 1 DS without gastrectomy for metabolic syndrome, 240 had the LDS (laparoscopic DS) since 5.10.2000, 42 had the LSG (Laparoscopic sleeve gastrectomy) since 2.12.2002 and 1 the LMGBP (laparoscopic mini-gastric bypass).

Results: 11 patients died (1.1%): 4 (0.4%) of PE, 1 pericardial tamponade, 1 Rabdomyolysis and 5 (0.5%) due to MOF (1 due to

bleeding and 4 due to leaks and sepsis). Major morbidity occurred in 61 cases (6.1%): 1) 49 leaks: 3 VBG (1.5%), 2 LGBP (4.3%), and 44 DS (5.56%); 2) 3 abdominal rectum abscesses and 3 intra-abdominal; 3) 5 intra-abdominal bleeding (0.5%). Minor morbidity was 71 (7.1%). 10 (1%) patients died long-term (liver failure, renal failure, suicide, acute appendicitis, leak in a lengthening procedure, alcoholism, lung abscess, pancreatic cancer, mediastinitis and myocardial infarction), 10 had impaired temporary liver functions, 3 Wernicke-Korsakoff, 83 ventral hernias, 10 small bowel obstruction (3 early and 6 late with 3 small bowel resections) and 12 (1.51%) patients had Protein-Caloric Malnutrition in DS. %EBMIL (percentage of excess BMI loss) at 5 years is 66.4 in VBG and 78.8 in DS and 69.3 in GBP. Only 55.3% of VBG patients had satisfactory results compared with 85.7% in DS.

Conclusions: Obesity surgery can be done in a community setting with acceptable results.

56. ADJUSTABLE GASTRIC BANDING: EXPERIENCE OF 2,000 CASES WITH 10 YEARS OF FOLLOW-UP

JM Zimmermann, M Blanc, P Mashoyan. *Clinique Clairval, Marseille, France.*

Background: We review our 10 years experience of 2,013 cases of adjustable gastric banding from July 1995 to September 2005, operated on by the same surgical team. We establish guide-lines.

Methods: The follow-up was computerized and the data were comprehensive. Each patient had a follow-up every other month in the first year and twice a year in the following years. A barium test was routinely performed. Diet and behavioral follow-up were proposed twice a year. Follow-up rate was: 99% at 1 month, 76% at 1 year, 60% at 2, and 55% following to 45% at 7. 2,013 patients were included, 83% F, 17.3% M, mean age 39.1, mean BMI 44.5, mean weight 114.5 kg, mean EW 46.7kg. The total number of surgical procedures was 2,433 in 10 years (including re-operations). 5 had a laparotomy.

Results: 29 bands were changed, 157 were removed, 1847 still have the band in place (91.7%). EWL has been 30% at 6 months, 41.1% at 1 year, 44.5% at 2, 45.3% after 4, 40.4% after 7.3% at 10. The type of band has not influenced the weight-loss. Complications: 3 hemorrhages (trocar) requiring re-operation, 1 gastric perforation, 2 infections requiring banding removal, 2 deaths caused (embolism and gastric necrosis). 225 slip-pages/1,093 procedures with perigastric technique (18.4%), 25/920 procedures with pars flaccida approach (2.7%). 29 intra gastric migration (1.4%), mean time post-operatively 38.3 months (11-113). 138 patients had a conversion to gastric bypass. Port complications are not reported.

Conclusions: Despite 17% complications and a 0.09% mortality, we still consider gastric banding a satisfactory procedure and a valuable compromise between risk and results, although requiring a strict cooperation from the patient.

57. MANAGEMENT OF GASTRIC BANDING IN BARIATRIC SURGERY: AN EXPERIENCE OF 7,000 PATIENTS

V Frering, E Fontaumard, P Vicard, Y Matussiere, S Bates. *Clinique de la Sauvegarde, Lyon, France.*

Background: Gastric banding is recognized as a safe procedure for the control of obesity. Among surgical teams, preoperative care and follow-up may be provided in various ways. This report details organization of a bariatric center dealing with 7,000 patients.

Methods: Our center provides different bariatric procedures including Gastric Banding which commenced in 1997 and Gastric Bypass in 2004. More than 600 patients per annum are referred for bariatric surgical procedures and follow-up. We describe the patient pathway and organization of the delivery of care from initial referral.

Results: From January 1997 to December 2005, 7,160 patients were referred for bariatric procedures. 90.3 % for first intervention, 9.7 % following previous VBG. This study excludes patients from other centers who were referred for follow-up care only. Gastric banding was performed in 4,620 and 40 have had Gastric Bypass. An efficient team and an effective organization is required to complete a weekly mean of 30 surgical procedures, 75 band adjustments, 25 programmed consultations and 10 emergency consultations. Members of the medical team include secretaries, nurses, radiologist, anesthesiologist, psychiatrist, nutritionist and surgeon. The organization of such team is essential to insure a safe, efficient and effective pathway for the patient. This includes access to radiology and operating room 24 hours a day.

Conclusions: Dedicated bariatric centers with high patient load need structural organization from the outset and should include a full medical team and 24 hours use of hospital facilities in case of emergencies.

58. VBG BY MINILAPAROTOMY APPROACH: RESULTS FROM 1,700 PATIENTS AND 14 YEARS FOLLOW-UP: TECHNICAL EVOLUTION WITH SILIBAND® OVER 4 YEARS

P Urbain. *Polyclinique du Parc, Saint Saulve, France, C.H.R. Haute Senne, Soignies, Belgium.*

Background: It is our goal as bariatric surgeons to search for better techniques and new devices which could emphasize the results. This paper refers to our technical evolution of bands in Mini-SRVG (Minilaparotomy Silastic Ring Vertical Gastroplasty).

Methods: The total experience on SRVG and Mini-SRVG is 1,741 patients. In order to reduce postoperative pain and discomfort, hospital stay and cost, to lower the wound-related morbidity, we have modified the SRVG to deliver it through a 5-cm incision (Mini-SRVG) (1,613 patients). In order to reduce dysphagia, ring migrations or breakdowns, we initiated the SiliBand® in 2001. This study compares prospectively the SiliBand® to the Silastic ring.

Results: 472 SiliBand® and 294 Silastic bands were applied from July 16, 2001 to Dec 31, 2005. The SiliBand® is 5.5 cm long, radio-opaque, very flexible, white coloured and slightly elastic. During the procedure, the SiliBand® presents several advantages on handling, fixing to the stomach and removal. The early post-operative period was uneventful in all patients. No temperature or early dysphagia were recorded. The SiliBand® gives better (but NS) functional results in terms of BMI loss, need for dilatation and satisfaction over this follow-up time.

Conclusion: The SiliBand® has been handled more easily and has proven as safe as the Silastic Ring in this 4 year's follow-up. Mid run functional results are not statistically better for the SiliBand®. The long-term follow-up will be studied prospectively for late band problems.

59. FOOD AND DRINK ABERRATIONS IN CANDIDATES FOR BARIATRIC SURGERY

MM Silva, DBC Sobreira, J Faintuch, A Capeletto, LM Horie, CE Machado, B Zilberstein, MCS Lucia, I Cecconello. *Obesity Surgery Group and Division of Psychology, Hospital das Clinicas, Sao Paulo, Brazil.*

Background: Varying frequencies of food aberrations and alcoholism have been described in morbidly obese populations, but results are still debated. In a prospective study, unselected bariatric candidates were interviewed preoperatively.

Methods: Two questionnaires aiming at respectively feeding habits and alcohol and substance addiction were applied in 139 consecutive patients. Mean age was 47±6 years (18-61), 84.2% were females, and BMI was 46.4±7.0.

Results: Most patients (104/139, 74.8%) admitted to grazing and 61.2% reported at least one episode of compulsive eating per month (85/139). Use of illegal drugs was totally denied, and 69.8% did not consume alcohol either (97/139). However 20.9% reported social drinking (29/139), 7.2% indicated occasional binges (10/139) and 2.2% (3/139) were heavy drinkers.

Conclusions: 1) Food aberrations were far more common than alcohol or drug abuse in this series; 2) It is hypothesized that conflictive situations were preferentially managed by aberrant alimentary patterns instead of substance addiction.

60. QUALITY OF LIFE AND ALTERATIONS IN CO-MORBIDITY FOLLOWING LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING

M Titi, JT Jenkins, P Modak, DJ Galloway. *Gartnavel General Hospital, Glasgow, UK.*

Background: Substantial weight loss follows bariatric surgery; however, effects on obesity-related morbidity and quality of life (QOL) are less clear. We assessed the relationship between weight loss after laparoscopic adjustable gastric banding (LAGB) and QOL together with patient's perception of change in co-morbidities.

Methods: 100 patients were identified from a prospective database of LAGB patients that recorded initial body mass index (BMI), complications, co-morbidities, and excess weight loss (%EWL). QOL was assessed during follow-up using Moorehead-Ardelt QOL questionnaire and Bariatric Analysis and Reporting Outcome System (BAROS).

Results: 81 patients (14 M, 67 F) completed questionnaires during follow-up. Median initial BMI was 49.1 kg/m² (IQR 44.5-52.8 kg/m²). Median follow-up was 31 months (IQR 21.5-52 months). The median %EWL was 61.0% (IQR 41.4-82.2%). 64 patients reported greatly improved [41] or improved [23] QOL (self esteem, physical activity, social involvement, ability to work). Interest in sex improved in 43 patients. Major co-morbidities were recorded in 71 and resolved or improved in 61 patients: Hypertension 26/33; Hypercholesterolemia 23/28; Diabetes 19/22; Sleep apnea 19/22; Arthritis 22/37.

Conclusions: LAGB can achieve satisfactory loss of weight with significant improvement in both QOL and patient's perceptions of their co-morbidities.

61. QUALITY OF LIFE FOLLOWING LAPAROSCOPIC GASTRIC BANDING: PROSPECTIVE STUDY (152 CASES) WITH A FOLLOW-UP OF 2 YEARS

A Champault, C Polliand, N Rizk, G Champault. *University Hospital Jean Verdier, Bondy, France*

Background: Laparoscopic adjustable gastric banding (LAGB) is a popular bariatric operation in Europe. The objectives of surgical therapy in patients with morbid obesity are reduction of body weight, and a positive influence on the obesity-related co-morbidities as well the concomitant psychological and social restrictions of these patients. In a prospective clinical trial, development of the individual patient QOL was analyzed, following LAGB in patients with morbid obesity.

Methods: From October 1999 to January 2001, 152 patients (119 women, 33 men, mean age 38.4 years (range 24-62), mean body mass index 44.3 (range 38-63) underwent evaluation for LAGB according to the following protocol: history of obesity; concise counselling of patients and relative to non-surgical treatment alternatives, risk of surgery, psychological testing, questionnaire for eating habits, necessity of lifestyle change following surgery; medical evaluation including endocrinological and nutritionist work-up, upper GI endoscopy, evaluation of QOL using the Gastrointestinal Quality of Life Index (GIQLI). Decision for sur-

gery was a multidisciplinary consensus. This group was followed up at least 2 years, with a focus on weight loss and QOL.

Results: Mean operative time was 82 min; Mean hospital stay was 2.3 days and the mean follow-up period was 34 months. The BMI dropped from 44.3 to 29.6 kg/m² and all co-morbid conditions improved markedly: diabetes mellitus resolved in 71% of the patients, hypertension in 33% and sleep apnea in 90%. However 26 patients (17%) had late complications requiring reoperation. Preoperative global GIQLI score was 95 (range 56-140), significantly different from the healthy volunteers score (120) (70-140) $P < .001$. Correlated with weight loss (percentage loss of overweight and BMI), the global score of the group increased to 100 at 3 months, 104 at 6, 111 at 1 year to reach 119 at 2 years which is not significantly different from healthy patients. Analyzing the sub-scale, physical condition, emotional status and social integration increased significantly ($P < .001$) from preoperative to end of follow-up. Digestive symptoms were not modified. In case of failure of the procedure (10.5%), global GIQLI score is not modified. Patients who have required successful revisional surgery for late complications (6.5%) have an excellent QOL outcome that is not different from the whole group.

Conclusions: Together with a satisfactory reduction of the excess overweight, LAGB may lead in a carefully selected population of patients with morbid obesity to a significant improvement of patient QOL, in at least 2 years of follow-up.

62. USE OF REMOVED FAT TISSUES FROM PLASTIES

R Zyllox, F Braille, O Damour, PM Durand, E Berthier, V Justin, A Mouajjalh. *Lyon, France.*

Dermo-cosmetic companies need to test their products, and face the fact that animal experiments are now prohibited. Moreover, cell cultures are necessary. In this respect, human dermo-cutaneous wastes such as those obtained from abdominoplasty, breast surgery, face ore crural liftings, are valuable assets. According to European regulations (ISO 9002) the bank for tissues, in the Hospital Edouard Herriot (Lyon), is collecting skin after bariatric and plastic procedures with complete safety (patient informed consent, transportation, blood test). We consider these protocols as a leading pathway for future research.

63. ABDOMINOPLASTY IN THE EX-OBESE PATIENT: OUR 11-YEAR RESULTS

S Cariani, M Guerra, E Faccani, L Agostinelli, A Lucchi, E Amenta. *Dipartimento di Scienze Chirurgiche ed Anestesiologiche, Università di Bologna, Italy.*

Background: The abdominoplasty is based on correction of cutaneous abdominal flaccidity due to the important weight loss in patients who had bariatric surgery. The ideal ex-obese patient had obtained a good and steady weight loss at least 2 years post-operatively, without co-morbidities, and he was aware of the scars due to the operation.

Methods: In our experience, abdominoplasty is based on an anchor incision with umbilicus reimplantation. From September 1994 to December 2005, we performed abdominoplasty in 141 patients, age 18 to 63 years; 108 patients were female and 33 male. In 47 patients, we performed abdominoplasty as a single procedure, and in 94 patients, we performed an incisional hernia repair as well. Repair included direct defect closure in 24 patients and non-reabsorbable mesh implantation in 2 patients. Six cholecystectomies, 1 breast reduction, and 1 hysterectomy were performed during abdominoplasty and incisional hernia repair.

Results: The weight of the abdominal tissue removed was between 0.7 and 13 kg. Most common complications are related to the altered wound-healing, particularly in the reimplanted

umbilicus and in the scar's junction of the pubic region. Seroma may occur if drains are not well positioned.

Conclusions: Abdominoplasty is one of the most performed procedures after bariatric surgery and it represents a very therapeutic completion in selected patients, both for early functional and esthetic results and low risk of complications. It is of primary importance to deliver to the patients honest and accurate information about the possibility of reconstructive surgery following massive weight loss.

64. SINGLE-STAGE LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING AND ABDOMINOPLASTY: SAFETY AND EFFECTIVENESS

C Karaindros, N Sikas, M Papaioannou, P Giannakakis, A Enchef, S Gabriel, D Milonaki, S Gabriel. *Obesity Surgery Clinic, Athens Medical Center, Athens, Greece.*

Background: With the increasing number of morbidly obese patients undergoing laparoscopic adjustable gastric banding (LAGB), there is also a growing demand for a plastic-reconstructive operation following the resultant massive weight loss. In this study, the objective was to assess the safety and effectiveness of LAGB and abdominoplasty as a single-stage procedure.

Methods: From January 2001 to December 2003, 170 morbidly obese patients underwent LAGB combined with abdominoplasty. The demographics included: 139 (82%) female and 31 (18%) male, with a mean age of 41.6 years and a mean preoperative BMI of 43.1 kg/m². Percentage excess weight loss (%EWL), patient satisfaction, rate of complications and assessment of predictive risk factors for complications were evaluated.

Results: Mean operative time and hospital stay were 3.8 hrs and 3 days respectively. Complications included: wound dehiscence (23), seroma (73), infection (4), deep venous thrombosis (1), atelectasis (9), hypertrophic scars (19) and band slippage (1). The mean follow-up time was 2.8 years. Mean %EWL was 33 and 41 at 1 and 2 years respectively. The vast majority of patients (i.e. 147) were very satisfied with the cosmetic result as well as the rate of weight loss. Statistically significant risk factors for postoperative complications were: BMI >45 kg/m², prolonged operation (operative time >4 hrs), age >45 years, extensive blood loss (> 800ml).

Conclusions: Single-stage LAGB and abdominoplasty is a safe and effective procedure in morbidly obese patients.

65. RECONSTRUCTIVE PROCEDURES AFTER MASSIVE WEIGHT LOSS

A-M Wolf. *University Hospital of Ulm, Germany.*

Background: Following excess weight loss in many patients, a dermolipectomy of the abdomen, arms and thighs becomes necessary. This kind of operation was offered to 97 former morbidly obese patients after having lost between 50 and 75% of their excess weight.

Methods and Results: Abdomen: Due to a distinct pannus, a dermolipectomy was performed on 66 females and 16 males. An average of 2,841 g of tissue was removed from the females and 3259 g from the males. Operative time was 165±36 and 174±48 minutes for the female and male patients, respectively. Minor and major wound healing disorders occurred in 24% and 25% of the patients. In 2 females, a panniculectomy (12.4/13.5kg) was performed after the patients had reached 150 kg of body weight.

Thighs: A dermolipectomy was performed in 18 females (a varicectomy was included in 11 patients). In patients receiving a dermolipectomy, 1,212 g of tissue was removed in 172±81 minutes of surgery. Four patients had complications (wound infection, lymphatic fistula). With both dermolipectomy and varicectomy, 1289 g of tissue were removed in 264±99 minutes. 45% of the patients (5) developed a wound infection.

Arms: 7 patients had surgery on their arms, with an average of 410 g of tissue removed from both arms over a period of 161±64 minutes. In one patient, a neurolysis of the nervus ulnaris became necessary due to postoperative edema.

Conclusions: Dermolipectomy and/or panniculectomy should be offered to bariatric patients who have lost massive amounts of weight.

66. DEFORMITIES OF THE ANTERIOR ABDOMINAL WALL FOLLOWING ROUX-EN-Y GASTRIC BYPASS FOR MORBID OBESITY: INCIDENCE AND TREATMENT

A Iljin, J Strzelczyk, J Kruk. *Departments of General and Plastic Surgery, Medical University, Lodz, Poland*

Background: The risk of incisional hernia in patients undergoing surgical treatment for morbid obesity is very high. The aim of this study was to evaluate the results of surgical treatment of the abdominal wall deformities in patients after RYGBP.

Methods: Between years 1999 and 2004 in the Department of General and Transplant Surgery, we performed RYGBP in 135 morbidly obese patients. In all of them, the abdominal wound was closed in a standard way with continuous polypropylene suture. We identified and analyzed 25 cases of postoperative hernia. Patients were divided into 2 groups. Patients from group I (13) underwent incisional or umbilical hernia repair. Patients from group II (12) underwent hernia repair along with abdominoplasty. In all patients, hernia was repaired with the use of polypropylene mesh.

Results: In patients from group I, there were 2 cases of mesh infection treated conservatively. Hernia recurrence was observed in one patient. There were two cases of wound infection in group II, including one with skin necrosis, separation of wound margins and pneumonia. There was no statistically significant difference between the groups.

Conclusions: Complex surgical treatment of the anterior abdominal wall deformities in patients post RYGBP surgery allows to perform hernia operations simultaneously with abdominoplasty and does not prolong hospitalization.

67. BODY CONTOURING AFTER BILIOPANCREATIC DIVERSION

F Migliori. *Plastic Surgery and Burns Unit, San Martino University Hospital, Genova, Italy.*

Background: From 11/2001 to 1/2006, 176 patients were operated, previously treated by biliopancreatic diversion (BPD, 1976) and having therefore achieved a body weight loss varying from 30 to 100 kg. The surgery targeted mainly the arms (24), breast (58), abdomen (62) and thighs (20), plus torsoplasty (12).

Methods: BPD is a "non-cosmetic bariatric surgery", providing malabsorption and subsequent weight-loss within 12 to 18 months. The typical "empty" aspect of the slimmed areas led our surgical choices to specific techniques: brachioplasty, reduction mammoplasty and/or mastopexy (with or without prosthesis or "self prosthesis" technique), thigh lift, abdominoplasty and torsoplasty. We do not consider any liposuction technique suitable for these patients, due to specific histological changes caused by BPD.

Results: The metabolic discrepancies following BPD jeopardize preoperative and postoperative management of these patients. A higher incidence of complications was reported, systemic as well local: the local ones, quite common on the abdominal wall, convinced us to perform a preoperative arteriographic study, to check anatomical alteration following BPD and plastic surgery as well.

Conclusions: Although the peculiar characteristics of the BPD patients limit the choices, we can actually consider ourselves satisfied with results regarding cosmetic correction, quality of life and so forth: all the patients, with no exception, notes a high rate of perceived quality (positive thinking) and underwent further body-contouring surgery (or plan to do so).

68. MORPHOLOGICAL REHABILITATION SURGERY AFTER MAJOR WEIGHT LOSS: INITIAL EXPERIENCE OF AN INTEGRATED BARIATRIC SURGICAL TEAM

A Capon, B Moura, L Arnalsteen, T Janny, C Latteux, B Carnaille, F Pattou. *Department of General and Endocrine Surgery, University Hospital, Lille, France.*

Background: The aim of this retrospective study was to assess our initial experience of morphological rehabilitation following major weight loss after bariatric surgery.

Methods: Between January 2004 and January 2006, 30 patients (4 men and 26 women, median age 45 years) have undergone 36 surgical interventions carried out by a plastic surgeon who joined our integrated bariatric surgery team. The initial bariatric procedures were carried out between 1998 and 2003, and included vertical banded gastroplasty (n=20), bilio-intestinal bypass (n=14) and laparoscopic Roux-en-Y gastric bypass (n=2). The average body mass index was 51.5 kg/m² prior to surgery and 31.8 kg/m² after the operations (mean follow-up 3.5 years).

Results: Indications for plastic surgery were determined after weight stabilization and after discussion with highly motivated patients. 22 abdominoplasties were carried out: 9 with reconstruction of the umbilicus and 13 without reconstruction of the umbilicus. The principal difficulty was to make a low abdominal incision in patients initially operated by a bilio-intestinal anastomosis through a right subcostal incision. 7 reduction mammoplasties, 4 cruroplasties and 3 brachioplasties were carried out, in most cases following an abdominoplasty. Outcome was uneventful (mean postoperative hospital stay 5 days), except in two cases. One patient was readmitted for fat lysis/lymphatic leak through the abdominal incision and another patient required reoperation for unsatisfactory results after a mammoplasty. Overall, all patients appeared satisfied or very satisfied with the results of morphological rehabilitation.

Conclusions: Morphological rehabilitation appears to be an important aspect of the surgical treatment of severe obesity and should be part of any bariatric surgery.

69. CAN WE OVERCOME THE GLOBAL OBESITY EPIDEMIC? A PESSIMISTIC VIEW

M Deitel. *OBESITY SURGERY journal, Toronto, Canada.*

Obesity has been increasing at an alarming rate in the developed and developing world over the past 30 years. The rapidity indicates that the major cause has been lifestyle change. The world has become mechanized and urbanized, where the individual is sedentary and spends hours at the computer or TV. Even minor activities have become unnecessary. We use the remote control to lift the garage door. We travel by automobile, and no longer walk distances or bicycle. We take the elevator for more than one floor. At the same time, the food industry has developed low-cost, high-caloric, low-protein, convenience foods. Super-sized portions have made these attractive. Excess sugar, which spikes insulin secretion with eventual insulin resistance, has been found to be a major culprit of the epidemic. At the drive-through fast-food restaurants, we do not even have to get out of the car.

Children are playing computer games instead of sports. Obesity, with the metabolic syndrome, is appearing in adolescents. The current youth may become the first generation of humans who do not live as long as their parents. Obesity is increasing particularly in North America, Europe, Brazil, the Middle East, and now the Asia-Pacific region.

The World Health Organization (WHO) in May 2004 approved an international strategy to overcome globesity. Measures are underway in the various countries. The WHO will be meeting in 2007-2008 to review the progress of the international strategy. To thwart

the epidemic requires available regular physical activity, labeling nutritional content, education, control of junk-food advertising, and likely, governmental action and incentives related to manufacturers and restaurateurs. This is very important for adolescents, now that both parents tend to be at work during the day. There is widespread fear that the relentless obesity epidemic cannot be thwarted.

70. RESTORATION OF BETA-CELL FUNCTION FOLLOWING BILIO-PANCREATIC DIVERSION (BPD) IN PATIENTS WITH TYPE 2 DIABETES

G Camerini, L Briatore, B Salani, GM Marinari, FS Papadia, F Murelli, GFAdami, N Scopinaro. *Department of Surgery and Department of Endocrinology, University of Genoa, Italy.*

Background: Insulin resistance and loss of early glucose-stimulated insulin response are the two major faults in type 2 diabetes. While soon after BPD for obesity a complete normalization of insulin activity was documented, postoperative data on beta-cell function are still lacking.

Methods: 10 obese patients (5 diabetics) undergoing BPD were investigated. Data were collected prior to and 1 month after operation. Insulin sensitivity was evaluated according to HOMA method and beta-cell function by acute insulin response (AIR) to intravenous glucose tolerance test (IVGTT).

Results: Preoperatively, non-diabetic patients exhibited higher than normal basal insulin level with a normal insulin response pattern, while diabetics showed an even higher basal insulin level, with delayed and lower response. At one month body mass index (BMI, kg/m²) and waist circumference (W, cm) mean values decreased from 46.9 to 45.9 and from 138 to 130, respectively, and the mean HOMA values decreased from 7.65 to 3.24. In non-diabetics, insulin basal value normalized, with unchanged IVG response, whereas in operated diabetics AIR mean value increased from 13.4 to 33.2 pmol/l and the pattern of insulin response became similar to that of non-diabetics.

Conclusions: This preliminary report indicates normalization of beta-cell function in obese type 2 diabetics already 1 month after BPD. Since BMI and W values were still in the pathological range, the improvement is evidently not due to weight loss or reduction of central fat size. Extreme fat malabsorption and changes in entero-insular axis after BPD may primarily account for the early normalization of insulin resistance and beta-cell function.

71. MORBID OBESITY AND METABOLIC SYNDROME

V Silvestre, M Ruano, R Castro, G. García-Lescún, E Aguirregoicoa, A Rodríguez, A Marco, G García-Blanch. *Hospital General of Móstoles, Madrid, Spain.*

Background: The relationship between obesity and metabolic syndrome has been widely confirmed and represents a huge health problem all over the world. The objectives of the present study are: 1) to evaluate the risk factors for the metabolic syndrome (ATP III) and 2) to analyze the possible association between them in patients with a diagnosis of morbid obesity in our hospital.

Methods: We have retrospectively evaluated the data from 488 MO patients, 316 women and 126 men. The mean age was 42 years (range 14-76). We have measured anthropometric data and blood pressure, glucose, tryglicerides and HDL-cholesterol levels.

Results: The waist circumference (\geq or $<$ 102 cm in men and \geq 88 or $<$ 88 in women) classifies our patients in two groups: sifica a los pacientes en dos grupos: A (n = 406; 106 and 300) and group B (n = 82; 20 and 62). For group A, the mean BMI [x (SD)] was 46.1 (5.9); 24.3% had one risk factor, 25.1% had two, 25.1% had three, 17.7% had four and 7.6% had five. In group B patients, the mean BMI was 40.7 (2.9) and 35.3% had no risk factor, 29.2% had only one, 20.7% had two, 10.9% had three, 2.4% had

four and only 1.2% had five. Group A patients show higher indexes of HD (39.4% vs 14.6%), higher BMI values and a higher percentage of risk factors (either alone or in association).

Conclusions: Patients with visceral obesity show more tendency to suffer metabolic syndrome.

72. METABOLIC AND NUTRITIONAL PARAMETERS AFTER BARIATRIC SURGERY: THE TWO SIDES OF THE COIN

S Ledoux, S Msika, S Scaringi, F Moussa, E Larger, P Boudou, L Salomon, G Baron, C Clerici. *CH Louis-Mourier, Colombes, France.*

Background: Roux-en-Y Gastric bypass (RYGBP) seems to be more efficient than adjustable gastric banding (AGB) on weight loss and comorbidities, but nutritional complications of each surgical procedure have been poorly evaluated.

Methods: We have measured metabolic parameters and micronutrient levels in 201 consecutive morbidly obese patients treated with conventional methods (CT, n=110) or with bariatric surgery (including 51 AGB and 40 RYGBP).

Results: BMI was similar after AGB (36.6 ± 5.3 kg/m²) and GBP (35.4 ± 6.3 kg/m²), but patients in the RYGBP group had less metabolic disturbances than those in the AG group, even after adjustment for BMI loss, age or time elapsed since surgery. Cholesterol and insulin levels were significantly lower after RYGBP, suggesting a specific effect of this surgical procedure on lipid metabolism and insulin resistance. On the other hand, the prevalence of nutritional deficits was significantly higher in the RYGBP group than in the 2 others groups ($P < 0.01$), whereas AGB group did not differ from CT. Particularly, patients of the RYGBP group presented an unexpected high frequency of deficiencies in fat-soluble vitamins. Moreover, calcium balance was altered and vitamin B₁₂ and hemoglobin levels were decreased in RYGBP group. Finally, plasma pre-albumin and creatinin levels were lower than in the other groups, suggesting protein malnutrition.

Conclusions: These results show that RYGBP has a greater efficiency than AGB in correcting metabolic disorders associated with obesity. The price to pay is a high frequency of nutritional deficits that should be carefully monitored after this surgical procedure.

73. LONG-TERM EXPERIENCE WITH LAPAROSCOPIC BANDED GASTRIC BYPASS

F Cruz Vigo, JL Cruz Vigo, P Sanz de la Morena, JM Canga Presa, JI Martínez Pueyo, P Gómez Rodríguez. *General and Digestive Surgery Dpt. 12 de Octubre University Hospital (Madrid), San Francisco Hospital (León) and Nuestra Señora del Rosario Hospital (Madrid), Spain.*

Background: We evaluated the results of a different laparoscopic banded gastric bypass technique, with a 6.5 cm polypropylene mesh band around the gastric pouch.

Methods: From June 1999 to January 2006, 652 consecutive patients have been operated on by the same surgical team. Mean age of patients has been 39 years old, weight 124 kg, height 165.9 cm, Body Mass Index (BMI) 45.7 and percent excess weight 103.8%. The number of superobese patients (BMI > 50) was 177 (27.3%). The number of co-morbidities was 1,890 (2.9 each patient). 67 had cholelithiasis. Among their antecedents were: cholecystectomy 30, gynecologic laparotomy 35, previous adjustable gastric banding 3, traumatic splenectomy 1, ureteroileostomy 1. A laparoscopic banded gastric bypass was performed in all, associated with a cholecystectomy if they had cholelithiasis. Retrocolic jejunal limb was used in the first 276 patients and antecolic in the last 376.

Results: Mean operation time was 135 min. A patient was converted (0.15%) because of a methylene blue leak at the end of the operation. Mortality 1 (0.15%). Immediate major complications

20 (3%): 12 (1.8%) leaks, 1 nasogastric tube entrapment, 2 internal hernia, 3 intraabdominal abscesses, 1 band infection, 1 acute gastric dilatation. Immediate reoperations 10 (1.5%). Mean hospital stay has been 3.4 days. Long-term major complications 7 (1.1%): 6 laparoscopic and 1 open reinterventions (3 ring withdrawal, 3 internal hernia, 1 incarcerated umbilical hernia). The percent excess weight loss has been: 1st year: 75%, 2nd year: 80%, 3rd year: 77%, 4th year: 76%, 5th year: 75%.

Conclusions: Reaching 5 years of follow-up, our laparoscopic banded gastric bypass technique confirms its feasibility and safety, showing at the moment a very good excess weight loss curve.

74. ABDOMINOPLASTY AFTER MASSIVE WEIGHT LOSS INTEGRATED INTO BARIATRIC SURGICAL PRACTICE

D Halmi, O Anez, E Kolesnikov. *Potomac Hospital, Woodbridge, Virginia, USA.*

Background: The number of patients in need for body contouring surgical procedures after successful bariatric operations continues to increase, and it outpaces the capacity of the available plastic surgeons. The bariatric surgeon, who initiates the patient's weight loss and who takes responsibility for the patient's post-surgical health and lifestyle change, should be able and qualified to help with the management of the abdominal skin redundancy.

Methods: 981 morbidly obese patients underwent Roux en Y gastric bypass between October 2000 and December 2005 via mini-laparotomy. Female: 849, Male: 132, average age: 40.4 years, average BMI: 45.9 kg/m². Our modified abdominoplasty, the "Tightening jacket" was performed in 27 patients. The average time between the gastric bypass and the abdominoplasty was 21.9 months (14-34), and the average weight loss at the time of the abdominoplasty was 58.6 ± 9.2 kg and stabilized.

Results: "Tightening jacket" abdominoplasty, that combines vertical elliptical skin excision and horizontal resection to restore body contour of the mid and lower torso was performed by the bariatric surgeon. All 27 patients had vertical scars from previous surgical procedures. Mesh for incisional hernia repair was used in 5 cases. There was no mortality. Complications were: hematoma 2, wound infection 2, and seroma requiring repeated aspiration 4. All patients were satisfied with the result.

Conclusions: Abdominoplasty with incisional hernia repair can be safely and economically done by the bariatric surgeon. Training for bariatric surgeons should include elements of plastic surgery to qualify them to perform abdominoplasty and dermolipectomy after massive weight loss.

75. THE MAMMARY-LIPECTOMY WITH AREOLAR GRAFT AFTER EXTENSIVE WEIGHT LOSS IN A MALE PATIENT: THE "MAMMA-LIPECTOMY"

D.Maladry. *Reconstructive Surgery Unit, HEGP, Paris, France.*

Background: Male patients with very important weight loss cannot bear their own breast aspect. Their areolar complex seems a female one, and their chest is bulky with an external and lower fatty part of the thoracic outline.

Methods: Mammary reduction, like in the case of female mammary reduction, is not relevant: these techniques increase the breast projection. Subcutaneous mastectomy, with liposuction, peri-areolar skin cutting off, and the preservation of the areolar complex by a subcutaneous dermal pedicle, are used in adipogynecomastia treatment (iatrogenic, obesity, teen-agers cases...).

Results: We observed seromas and areolar or periareolar scar enlargements, especially if skin excision was important, which is common in such cases. The areolar subcutaneous pedicle size and the limited skin excision in a peri-areolar procedure explain

the constant bulky aspect of the thoracic outline in male mammary reshaping. Thus, we use an "in situ" mammary dermolipectomy of the lower part, with a liposuction of the superior part of the breast. The resulting scar is drawn along the infra-mammary fold. The areolar complex is raised with the "mamma-lipectomy"; then it is grafted in a correct position, with a good size, after closure.

Conclusions: We obtained good results in terms of breast outline, and size or location of the areolar complex. We have to warn patients that the postoperative complication rate has been decreasing, but the scar length will increase!

77. RESORBABLE FILLERS: WHAT'S NEW IN EUROPE?

C Bergeret-Galley. Paris, France.

Background: The resorbable fillers can always be classified in four big groups: Collagene from human and animal; originHyaluronic; acidSugar and Polyactic acid; Calcium hydroxyapatite extracts.

Methods and Results: They should also be classified in wrinkle fillers or volumators. Some products are definitely good for reshaping the face (VOLUMA®, SUBQ®, SCULTRA®...). Some will be more dedicated to fine wrinkles, and some others to deep nasogenian folds. The periorbital region, an area which often combines thin skin with fine wrinkles, malaire insufficient projection and tear-through accentuation, will require different products with different density.

Conclusions: The injectable fillers are reconsidered depending on their indication, their duration and tolerance, and the possibility of an association of different products depending on the location and the skin texture.

78. SAFE LIPOPLASTY AND OBESITY: QUICK FAT LOSS WITH EXTENSIVE VOLUME LIPOPLASTY

El Hassane Tazi. Casablanca, Morocco

Background: Obesity is a chronic and dangerous condition that predisposes to numerous serious disorders and premature death. Since no effective treatment has been described so far, several investigators have recently adhered to the nihilistic hypothesis that "no treatment is better than any treatment at all".

Methods: The most effective methods should include extensive reduction of the number of fat cells. After 10 years of practice, a selection of 2 methods has gradually come out; when combined they proved to be safe, effective, harmless and affordable. Our goal is to develop surgical procedures that significantly reduce or normalize fat cell number. Two effective therapies may be recommended: 1) Reducing the volume of fat cells by the fat burning stimulated using the placenta-hormone HCG; 2) Reducing high fat cell number by extensive liposuction.

The reduction of the volume: The Simeons course has shown a very tiny amount of the human pregnancy hormone HCG, that is equally effective in females and males. This process must be combined with a low-calorie diet (500 Cal). We observed a weight decrease by the day and that daily activities can easily be continued without feeling tired or depressed.

Extensive volume lipoplasty, by surrounding aspiration system of ultrasound assisted lipoplasty (SAS.UAS): New data suggest that extensive volume lipoplasty (EVL) and total body can produce dramatic weight loss, as well as significant and long-lasting health benefits.

Results: We present our results in 500 obese patients: men (5%) and women (95%), age 13 to 65 years, with a 4 year follow-up. The liposuction varied from 7 to 27 litres in one session, up to 100 litres in 16 months; the cumulative weight loss varied from 10 to 20 kg in 40 days up to 70 kg in 16 months. We observed a dramatic size reduction in chest and abdomen circumferences: between 6 cm to 45 cm (e.g. in 100 kg patients, the suction must exceed 10 litres). A large staff collaborates in providing cares

(cardiologist, endocrinologist, psychiatric, anesthesiologist, physiotherapist). We use this new procedure of lipoplasty that combines the advantages of both traditional and ultrasound liposuction. Results at 24 months after EVL showed that weight loss ranged from 10 to 20 kg in 40 days.

Conclusions: The maximum bulk of fat around hips, buttocks, thighs and abdomen disappeared. In general more than 70-85% experienced little or no difficulty in holding their weight permanently, along with a steady and healthy lifestyle.

79. POSTERO-MEDIAL BRACHIOPLASTY

R Selinger. Paris, France.

Background: Brachial dermo-lipectomy is not a very common operation, but it has become useful with the recent development of bariatric surgery. The most important issue is the scar, because the correction of an excessive skin circumference needs an axial spindle-shaped resection (total or at least proximal): this leads to a longitudinal scar. Most of authors describe procedures with a medial scar.

Methods and Results: Our purpose is to show, with a follow-up of 3 years, the reasons of our choice of a postero-medial scar procedure: 1) Technical reason: it allows the same setting of both arms, posterior faces turned upwards; the arms attached together are laid in front of the patient's face. This setting has dramatically improved the surgical comfort and the operative time. 2) The common observation of low quality scars in a medial place (hypertrophic, enlarged...). On the opposite, a better quality is obtained in a posterior or a postero-medial scar, if the surgeon respects the skin congruence. This means to get equal lengths on both sides, like we do in other procedures such as breast surgery. 3) The postero-medial scar is always hidden, either in a frontal or in a posterior view, either in abduction or when arms are adducted.

Conclusions: We definitely choose the postero-medial approach in brachioplasty, for technical reasons (setting) and to obtain better scars (less visible).

81. OUTCOME OF 24-HOUR ESOPHAGEAL PH MONITORING AND ESOPHAGEAL FUNCTION AFTER LAPAROSCOPIC VERTICAL BANDED GASTROPLASTY AND LAPAROSCOPIC GASTRIC BANDING: RESULTS FROM A RANDOMIZED CONTROLLED TRIAL

F Rebecchi, C Giaccone, G Bonnet, M Toppino, M Morino. Department of General Surgery, University of Turin, Italy.

Background: One of the co-morbidities frequently associated with morbid obesity is gastro-esophageal reflux disease (GERD). The aim of this randomized control led trial (RCT) study is to compare the anti-reflux effect of laparoscopic vertical banded gastroplasty (LVBG) and laparoscopic gastric banding (LGB), and their effect on esophageal function.

Methods: 17 patients who underwent LVBG and 16 patients who underwent LGB were included in the study. Symptomatology of gastroesophageal reflux disease (GERD), esophageal manometry, and 24 hours esophageal pH monitoring were recorded in all patients preoperatively, and at 3 months and 1 year postoperatively.

Results: The prevalence of heartburn and acid regurgitation among patients treated with LGB increased from 31.3% (5/16) and 25% (4/16) to 68.7% (11/16) and 62.5% (10/16), respectively. Heartburn and acid regurgitation were present before surgery in 23% of patients treated with LVBG, percentages unchanged by the procedure. The 24-hour reflux time increased significantly from 4.8% to 18.6% in patients treated with LGB but was essentially unchanged in patients treated with LVBG (4.1% and 4.6%). There was a significant increase of the postoperative De Meester's score only in the LGB group (19.6% to 28.4). The

lower esophageal sphincter and esophageal motility were unaffected by surgery in both groups.

Conclusions: The prevalence of GERD was unchanged by LVBG, but LVBG did not demonstrate antireflux properties. The incidence of GERD increased markedly after LGB.

82. UK EXPERIENCE OF THE MIDBAND® LAPAROSCOPIC ADJUSTABLE GASTRIC BAND IN 105 PATIENTS

SA Norton, DF Hewin, AB Johnson, SE Bates, L Sawyer, S Brennan, JDT Morgan. *Departments of Surgery and Endocrinology, Southmead Hospital, Bristol and Gloucester Royal Hospital, UK.*

Background: Laparoscopic adjustable gastric banding (LAGB) is commonly used for the surgical treatment of morbid obesity. The initial experience with a new LAGB is presented.

Methods: The first 105 patients who underwent LAGB using the MIDband® (Lyon, France) in two UK centres were studied prospectively. All patients fulfilled the National Institute for Clinical Excellence criteria and underwent comprehensive preoperative multi-disciplinary team assessment. Band placement was performed using a standardized pars flaccida approach. Complete postoperative follow-up has been achieved in 100% of patients from 1 to 24 months.

Results: The median age of patients was 42 (range 21-69) years with a median BMI of 42 (range 35-69). All patients underwent LAGB using a standardized technique with a median hospital stay of 1 day (range 1-7 days). There was no conversion to open surgery. The early complication rate was 7.6% (1 intra-operative bleed, 3 total dysphagia, 4 port-site infections) and there was 1 prosthesis replacement due to leak. Mean excess weight loss was 12%, 42%, 58% and 100% at 3, 12, 18 and 24 months respectively. Of the 27 patients with diabetes, there has been a significant improvement in glycemic control ($P < 0.001$) and reduction in diabetic medication.

Conclusions: LAGB using the MIDband® is a safe procedure with a low peri-operative complication rate and promising short-term results.

83. LAPAROSCOPIC SURGERY FOR MORBID OBESITY: RESULTS OF A COMPARATIVE STUDY: GASTRIC BANDING VS GASTRIC BYPASS

JL Bouillot, S Servajean, M Coupaye, N Berger, N Veyrie, C Poitou, A Basdevant. *Department of surgery, Hôtel Dieu, Paris, France.*

Background: Bariatric surgery is the only effective technique for control of morbid obesity. Two types of procedures (restrictive or malabsorptive) are used, and there is still a debate of the best technique which has to be proposed to the patients. The purpose of this study is to compare the results of two techniques: laparoscopic adjustable gastric banding (LAGB) vs laparoscopic gastric bypass (LGBP).

Methods: During a 4-year period, 200 consecutive patients have been operated on for morbid obesity: 100 LAGB, 100 GBP. The two groups were similar:

	LAGB (n=100)	GBP (n=100)
Sex ratio (M/F)	12/88	25/75
Age (yrs)	41 (21-60)	40 (18-68)
Mean weight (kg)	130±26	137±24.4
BMI (kg/m ²)	47.9±8	48.5±8.2

Results: The results are summarized in the following table:

	Time 0	3 mon	6 mon	12 mon	24 mon	36 mon
Weight (AGB-GBP)	130-137	119-114	116-103	108-83	101-80	100-73
%PEP (AGB-GBP)		13 - 32	21-45	31-66	39-68	39-72
BMI (AGB-GBP)	47.9-48.5	44-42	43-38	39 - 37	37-36	37-34

Conclusions: The two techniques LAGB and LGBP are effective for weight loss. The weight loss after LGBP is more important and rapid compared to LAGB.

84. PLASMA GHRELIN LEVELS AFTER SLEEVE GASTRECTOMY IN MORBIDLY OBESE SUBJECTS

MC Ribaud, D Capoccia, FMM Simbari, C Tiberti, A Pecchia, M Rizzello, G Casella, F Leonetti, G Silecchia, P Stefanini. *Endocrinology, Department of Clinical Sciences, Department of Surgery, University La Sapienza, Rome, Italy.*

Background: Ghrelin (Ghr), a peptide secreted from the gastric fundic mucosa, stimulates food intake, decreases in obesity and increases with weight loss. The aim of the study was to evaluate plasma Ghr in obese patients underwent laparoscopic sleeve gastrectomy (LSG).

Methods: 30 subjects (17F, 13M,) underwent LSG (gastric pouch of 160±35ml was created) and 20 obese controls with BMI comparable to operated subjects after 12 months. We measured plasma Ghr levels, insulin, glycemia before LSG and after 2, 6 and 12 months.

Results: All subjects improved their metabolic pattern after operation:

	Before	2 mon	6 mon	12 mon	ANOVA P	Controls
Weight (kg)	153.28 ±27.50	127.50 ±24.16	119.00± 26.91	14.25± 28.67	<0.0001	112.13 ±19.32
BMI (kg/m ²)	57.11 ±8.29	46.95 ±5.00	43.15 ±6.57	40.48 ±7.67	<0.0001	38.61 ±7.04
Ghr (pg/ml)	127.10 ±40.8	96.9 ±10.5	91.8 ±30	102.8 ±27.4	<0.0001	230.85 ±66.17
Glucose (mg/dL)	102.48 ±36.46	86.42± 36.46	85.27 ±11.44	78.33 ±7.29	0.0026	80.55 ±8.32
Insulin (mU/ml)	35.60 ±20.57	18.07 ±5.55	16.16 ±9.23	17.80 ±16.15	0.0002	15.65 ±5.64

Ghr levels before surgery were inversely correlated with BMI and not correlated with glycemia and insulin. After LSG, we observed a further decrease of Ghr values.

Conclusions: Ghr values confirm an inverse correlation with BMI. After SLG, Ghr concentrations fall, although an important weight loss and the correlation with BMI is lost. We suppose that LSG caused an elimination of the principal source of Ghr and a reduction of food intake allowing the success of this surgery.

85. HEPATIC FREE-CHOLESTEROL DEPOSITON CORRELATES WITH HISTOLOGICAL SIGNS OF STEATOHEPATITIS IN MORBIDLY OBESE PATIENTS WITH FATTY LIVER

J Caballeria, S Delgado, C Garcia-Ruiz, R Corcelles, R Bataller, G Martínez, J Vidal, JC Fernández-Checa, AM Lacy. *Hospital Clinic, IDIBAPS, Barcelona, Spain.*

Background: Recent studies have shown that hepatic free cholesterol sensitizes fatty livers to TNF-mediated steatohepatitis in experimental models of steatosis. Therefore, the aim of this study was to correlate the presence of hepatic free cholesterol with signs of steatohepatitis in obese subjects with fatty liver.

Methods: 16 untreated patients (5 men and 11 women, mean age 40±12.7 years) with morbid obesity (BMI 50.1±6.7 kg/m²) were included. Serum samples for biochemical determinations were obtained immediately before bariatric surgery and a liver biopsy was obtained during the surgical procedure. Liver sections were stained with H&E, Masson's trichrome and oil red. The presence of free cholesterol was assessed by histochemistry after staining liver specimens with filipin.

Results: According to the histological diagnosis, all patients had steatosis (mild in 5 and moderate to severe in 11), 10 of them with associated inflammatory changes and fibrosis. Staining with filipin was positive in 11 liver samples. There was no relationship between filipin-positive samples and serum levels of aminotrans-

ferases or the degree of steatosis. By contrast, there was a close correlation between filipin-positive samples and the inflammatory changes. Furthermore, most liver sections with collagen staining showed an increase in free cholesterol deposition.

Conclusions: These results suggest that free cholesterol accumulation in the liver plays a role in the pathogenesis of NAFLD and provide a rationale for the use of statins in the treatment of this disease.

86. IMPACT OF BARIATRIC SURGERY ON CO-MORBIDITIES ASSOCIATED WITH MORBID OBESITY

J. Mezghani, P. Ténrière, A. Gancel, M. Scotté. *Service de chirurgie générale et digestive, CHU Rouen, France.*

Background: Morbid obesity is a major public health problem, leading to increased mortality or morbidity. Bariatric surgery is increasingly taking part in the management of obese patients. The aim of this study was to analyze the outcome of gastric banding (GB) and vertical calibrated gastroplasty (VCG) in terms of weight loss and associated co-morbidity for patients presenting with morbid obesity.

Methods: 332 women and 54 men with a mean age of 41, were operated on for morbid obesity. The mean BMI was 48.5 (41.5 to 54.5) and the mean excess of weight was 73.6 (53.5 to 93.7). GB was used on 219 patients and 166 patients underwent VCG. Among these patients, 73 were diabetic (18.91%), 111 had hypertension (28.76%), 122 had sleep apnea (31.61%), 208 had osteoarthritis (53.89%) and 271 had dyspnea (70.21%).

Results: In GB group, postoperative complications were incidents with the GB case box and tubes in 19.1%, dilatation and slippage in 10.5%. Complications for VCG were ventral hernia in 2.3% and stenosis in 2.3%. Weight loss was significantly more important with the VCG than with GB. Relative weight losses were respectively at 1, 2, 3 and 5 years for VCG 51.42%±4.01%, 58.14%±4.63%, 58.71%±6.91% and 46.77%±16.87% versus 34.32%±2.15%, 39.09%±3.08%, 41.07%±4.32%, and 31.84%±7.85% for GB. The probability of improvement or disappearance of co-morbidity was 33.3% at 12 months and 34.7% at 24 months for diabetes, 36.7% at 12 months and 41.9% at 24 months for hypertension, 34.7% and 39.4% for sleep apnea, 31.8% and 37.4% for joint pathologies, and finally 30.3% and 36.3% for dyspnea.

Conclusions: GB is far less effective than VCG in terms of weight loss. Surgery also positively acts on co-morbidity since one-third of patients experienced an improvement or disappearance of their diabetes, hypertension, sleep apnea, joint pathology or dyspnea. These results call into question the interest of GB in the treatment of morbid obesity.

87. BODY CONTOUR MODELING AFTER WEIGHT LOSS FROM BARIATRIC SURGERY: AN ITALIAN EXPERIENCE OF 41 PATIENTS

A. Corapi, R. Sacco. *Humanitas Gavazzeni Hospital, Bergamo, Italy.*

Background: From 1998 to 2006, 1,178 patients with severe obesity have been treated in Humanitas-Gavazzeni Hospital. They had adjustable gastric banding, bilio-intestinal bypasses or intragastric balloons. The surgical treatment had been performed mostly through the laparoscopic approach.

Methods: Patients had an average body index of 44.7, and a mean excess body weight of 110% in 139 super-obese. From 2000 to 2006, 41 patients have been operated with a total weight loss ranging from 50.2% in 2 years to 59% in 5 years. They had a cutaneous hypertrophy of the abdomen with ptosis, cutaneous hypertrophy of the arms (6), and of the thighs (8). These patients had subjective symptoms such as dermatitis, eczema, difficulties in moving and cleaning, and important local esthetic troubles. Surgery has been performed only when these patients had a steady body weight 12 months after bariatric surgery. Mean age

was 42, and 90% were female. The average weight loss has been 5.65 kg after abdominoplasty, 1.25 kg after upper limb lipectomies and 2.50 kg after thigh lipectomies. Three patients only had surgery of the abdomen and arms 8 to 12 months after bariatric surgery. The technique used is the classical abdominoplasty described by Pitanguy; 3 had simultaneous abdominal wall repair with a mesh of polypropylene or Vicryl. For the arms, we performed a lifting with scars placed at the medial surfaces.

Results: The subjective satisfaction of the patients has been very high for the abdominoplasty, both for the scar quality and the contouring. That was not the case for the lifting of the upper arms (30% only). The drains were usually taken out after 10-14 days and the sutures after 14-21 days. Postoperative pain has been moderate in 70% of the patients and important in 10%. Complications were: hematomas (2 early cases, 1 after 1 month); seromas (6 cases treated with percutaneous drain); hypertrophic scars (8 patients, treated with silastic gel and corticoid infiltrations); local pain (1 case, treated with local corticoid infiltrations); scar asymmetry (3 cases).

88. BRICOUT MODIFIED SUPERIOR PEDICLE REDUCTION MAMMOPLASTY AFTER MASSIVE WEIGHT LOSS: Video

C. Bouteille, N Bricout. *CHU Saint-Etienne, Clinique de Chatou, Rueil-Malmaison, France.*

The authors describe a standard and reproducible technique of reduction mammoplasty using a superior pedicle, which is likely to be convenient in most cases of ptosis associated with still large breast after massive weight loss. The main principles are: a areola-wearing flap with a superior pedicle; an homogeneous glandular resection, without topographic limits; a controlled skin resection by clamp, allowing an adapted reduction of the mammal basis.

89. HOW DOES LIPOSUCTION MODIFY THE OUTCOME OF APRONECTOMY IN A GENERAL SURGICAL PRACTICE?

D Kraczykowski, M Belhadj, M Lecko. *Centre Hospitalier de Vitry le François, France.*

Background: Bariatric surgery provides an increasing demand for reconstructive surgery that often may be performed by a general surgeon. Liposuction may improve the plastic effect of the surgery.

Methods: We have introduced liposuction (Lipomatic) in our reconstructive surgical practice in September 2004. We are comparing 30 consecutive patients that underwent an isolated apronectomy immediately before the introduction of liposuction to the first 30 patients that sustained an apronectomy combined to a tumescent liposuction.

Results:

	Prior bariatric surgery or medical weight loss	Prior weight loss (mean ±SD)	Mean age ± SD	Mean weight resection	Length of drainage	Length of hospital stay	Infection	Hematoma
Apronectomy	19	30.5±15.8	42.5±11.7	1.8±1.2	2.3±1	2.6±1	1	1
30 Combined liposuction & apronectomy	16	25.2±10.5	40±8.8	1.9±1.2	2.5±0.9	2.6±1	2	3

Conclusions: Adding liposuction to paniclectomy is the natural evolution in reconstructive surgery even in a general surgical practice. Except for hematomas and 30 min extra-operative time, liposuction may be considered for better esthetic results.

90. INTRA-BAND MANOMETRY FOR BAND ADJUSTMENTS: THE BASICS

W Lechner, M Gadenstätter, R Ciovica, W Kirchmayer, G Schwab. *Hospital of Krems, Austria.*

Background: Postoperative band adjustment is an essential part of the gastric banding procedure. We present the basic aspects of

a new method of band adjustment based on intraband pressures.

Methods: The records of 70 band adjustments are evaluated. All patients underwent gastric banding using the Swedish adjustable gastric band (SAGB) in pars flaccida technique. Measurements were performed according to two different protocols investigating basic pressures and dynamic pressures during bolus application.

Results: The basic concepts of intraband manometry are presented. The *in vivo* intraband pressures correlate with the amount of outflow obstruction, which is regulated by band adjustment. Band adjustment can be done based on basic pressures but has to be adapted by the dynamic pressures. There are pressure rises inside the band following bolus application. These dynamic pressures have a strong correlation to the esophageal peristalsis, primary and secondary.

Conclusion: Intraband manometry is a reliable method of band adjustment without the need for x-ray studies.

91. FIRST EXPERIENCES WITH THE ROUTINE USE OF THE RAPID PORT™ SYSTEM WITH THE LAP-BAND®

T Horbach, D Herzog, I Knerr. *University of Erlangen, Germany.*

Background: Since the availability of the Rapid Port™ System in Germany, we use it routinely in all gastric banding cases. We have preliminary experiences in 10 cases up to January 2006.

Methods: The system eliminates the need to put the 3 sutures against the fascia, and therefore reduced operating time (mean: 4.7 minutes). Proper exposure of the fascia is still requested, as the size of the incision could only be decreased about 1 cm. The S-shape of the Rapid Port tool allows adequate distance from the port site and is convenient to handle.

Results: We had 2 failures in port fixation in the first 10 cases. One was due to an angulated positioning of the device, and one fastener therefore could not be deployed into the fascia. In the second case, the rotating mechanism of the Rapid Port tool did not work due to a mechanical malfunctioning of the device.

Conclusions: As a first conclusion, we would state that even the use of a simple tool shows a learning curve. With experience and training, the Rapid Port™ System will be a reliable accessory. To use this system will not only speed up the procedure, but it also seems smart to finish a minimally invasive procedure without a maximum invasive epifascial preparation of the port-site.

92. USE OF GENTAMYCIN IN THE TREATMENT OF EARLY ACCESS-PORT INFECTIONS

S Speybrouck, C Aelvoet, T Tollens, JPVanrykel. *Department of surgery, Imeldahospital, Bonheiden, Antwerp, Belgium.*

Background: A therapy concept for access-port infections is presented.

Methods: Between January 2001 and May 2005, 556 adjustable gastric bands were placed laparoscopically, and access-port infection data were analyzed. 6 early infections occurred. Two were treated successfully with port removal and later reconnection; however, infection recurred at the access-port soon after reconnection, so a PMMA-chain was positioned around the port. Two following infections were treated successfully by port removal and later connection of a new access-port together with placement of a PMMA-chain. In extenso, the last two infections were treated with placement of a PMMA-chain at the port-site – without port removal – with success.

Results: Complete healing was achieved in all cases, and follow-up revealed no complications with subsequent band adjustments.

Conclusions: For early port infection, the placement of a PMMA-chain around the subcutaneous port appears to be a safe and effective approach that is less invasive than the usual port removal under general anesthesia. Placing the PMMA-chain is a rapid and simple procedure that allows retention of the original

access-port. Once local healing is complete, the port can then be accessed easily and safely for band inflation.

93. A SIMPLE WAY TO ADJUST BANDS UNDER RADIOLOGIC CONTROL

V Rode, F Gay, AJ Baraza, J Dargent. *Polyclinique de Rillieux, Lyon, France.*

Background: Lap-banding requires fine tuning of adjustments in order to achieve a sustainable weight-loss without major disturbance in food intake.

Methods: We present a video describing the radiological procedure for adjustments; the adjustment is always performed under radiological vision with a barium swallow. The band is inflated so that the fluid passage stops, then slowly deflated by a tenth of a cc, until the outlet becomes narrow with a regular gastric pouch.

Results: This procedure does not prevent occasional over/under inflation or the band, but allows a safe monitoring of long-term adjustments.

Conclusions: Although often overlooked, the adjustment issue is of primary importance in long-term follow-up of adjustable banding. Defining a strategy for iterative adjustment is difficult but necessary, particularly in case of esophageal dilatation or mild slippage.

94. LONG-TERM RESULTS AFTER LAP-BANDING: THREE PREDICTIVE FACTORS OF FAILURE: INITIAL BMI, EATING BEHAVIOR AND REOPERATION (379 PATIENTS AT 7 YEARS)

JM Chevallier, F Zinzindohoué, R Douard, G Chakhtoura, Y Ghannem, PH Cugnenc. *Hopital Européen G Pompidou, Paris, France.*

Background: Our goal was to assess predictive factors of success of the Inamed laparoscopic adjustable gastric banding (LAGB) in a long-term period.

Methods: From 1996 to 2006, 1,225 consecutive morbidly obese patients underwent LAGB; 379 patients were followed more than 7 years after Inamed band placement: 328 women, with a mean age of 40.2 years (16.3-66.3), initial body weight 120 ± 18.6 SD kg and body mass index (BMI) 44.1 ± 5.7 kg/m².

Results: There was no death. Cumulative rate of complications was 166. 122 patients required an abdominal reoperation for 1 perforation, 67 slippages, 1 gastric necrosis, 5 esophageal dilations, 9 migrations, 4 incisional hernias, 8 cholecystectomies and 27 port-related problems. Before October 2000, slippage rate after perigastric dissection was 24% (62/262 patients); with the pars flaccida technique, it fell to 4% (5/117). We observed 60 failures (16%): 36 bands have been removed, and we switched to Mason VBG in 3 cases, to gastric bypass procedures in 21; 257 primary bands and 42 secondary “pars flaccida” bands are still efficient. Mean BMI fell to 33.4 kg/m² and Excess Weight-Loss was up to 46.5%. Failures (BMI >35) concerned 39 out of 57 superobese patients (initial BMI >50) ($P < 0.001$), and 54 among the 122 who were reoperated (44%). 16 patients among the 21 converted to bypass had or started “sweet-eater” habits.

Conclusions: From this 7 years-experience, Lap-banding has proven effective in 80% of the cases. Outside of changing a perigastric band through the pars flaccida approach, super-obese patients, sweet-eaters and reoperated patients would rather qualify for malabsorptive procedures.

95. WEIGHT LOSS AFTER LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING COMPARED TO ROUX-EN-Y GASTRIC BYPASS IN SUPER-OBESE PATIENTS

P Mognol, D Chosidow, JP Marmuse. *Service de chirurgie générale A, CHU Bichat-Claude Bernard, Paris, France.*

Background: The aim of this study is to compare the effectiveness on weight loss of laparoscopic adjustable gastric banding

(LAGB) and laparoscopic Roux-en-Y gastric bypass (LRYGBP) in super-obese (BMI >50 kg/m²) patients.

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

Results: Morbidity was significantly higher in the LRYGBP group (14.1%) than in the LAGB group (2.9%) ($P < 0.001$). There was one death in each group (0.6% Vs 1.2% (NS)).

Follow-up		6 months	12 months	18 months	24 months
LAGB patients	patients	148	107	61	28
	BMI	42±6	42±8	42±7	42±8
	% weight loss	40±16	42±22	47±22	39±23
LRYGBP patients	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. LRYGBP should be the bariatric procedure of choice for those patients.

96. ONE-ANASTOMOSIS GASTRIC BYPASS BY LAPAROSCOPY: RESULTS FROM THE FIRST 209 PATIENTS

M Garcia-Caballero, MA Carbajo, D Osorio, A Minguez A, C García-Lanza. *University Malaga, Spain.*

Background: The One-Anastomosis Gastric Bypass by laparoscopy (OAGB) is an European procedure for treating morbid obesity. It consists of making a 25 ml gastric pouch between the esophago-gastric junction and the crow's foot level, parallel to the lesser curvature which is anastomosed latero-laterally to a jejunal loop 2 m distal from the ligament of Treitz. We compared the results of the 209 first patients with those of the next 209 (210-418).

Methods: Both groups are comparable in age, BMI and preoperative excess body weight as well as associated surgical procedures and redo of previous restrictive bariatric procedures.

Results: In the first 209 patients, we converted two patients (0.9%) to open surgery due to uncontrollable bleeding. In three cases (1.4%) the patients needed re-operation in the immediate postoperative period. Five patients (2.3%) needed a prolonged hospital stay due to acute pancreatitis in one and four others had an anastomotic leakage, all resolving with conservative treatment. Two patients died (0.9%), one due to fulminant pulmonary thromboembolism and one had a nosocomial pneumonia. In the next 209 (210-418) there were only one case of perforation in the esophago-gastric junction (0.4%) and one case of intestinal obstruction distal to the gastro-jejunal anastomosis 24h after the operation (0.4%).

Conclusions: These results demonstrated that OAGB is a procedure that induced a significant weight loss with minimal complications.

97. LAPAROSCOPIC BILIOPANCREATIC DIVERSION FOR THE TREATMENT OF MORBID OBESITY: OUR EXPERIENCE

L Piazza, A Pulvirenti, F Ferrara, D Cocco, A Bellia. *Azienda Ospedaliera di Rilevo Nazionale e di Alta Specializzazione, Catania, Italy.*

Background: Biliopancreatic diversion (BPD) is a mixed technique and has been an excellent operation for morbid obesity to achieve long-term weight reduction. We present our laparoscopic BDP experience in the last years. Surgery as a treatment modality of morbid obesity has had impressive progress over the past decades because of a better understanding of the metabolic characteristics of obesity and the rationale for its surgical treatment. Open BPD is a proven effective operation for morbid obesity and laparoscopically too.

Methods: 60 patients were submitted to laparoscopic BPD from September 2003. All patients were morbidly obese (BMI 48-61).

Results: All operations were performed by laparoscopy except one case that was converted to hand-assisted laparoscopy. The operations were completed in a mean time of 180 minutes. Reasonable complications, related to surgery, were observed.

Conclusions: The operation has a fair level of complexity, but can be safely executed by laparoscopy. We perform some technical variations (antecolic gastro-jejunostomy and a necessity cholecystectomy) with respect to the original operation described by Scopinaro et al. Substantial weight loss combined with the benefits of laparoscopic surgery have been reached.

98. DOWN-REGULATION OF MACROPHAGE MIGRATION INHIBITORY FACTOR (MIF) BY INSULIN DURING THE STEADY STATE PLASMA GLUCOSE TEST: NEW INSIGHTS IN MIF REGULATION

J Nijhuis, FMH van Dielen, WA Buurman, JWM. Greve. *Department of Surgery Maastricht University, The Netherlands.*

Background: Macrophage Migration Inhibitory Factor (MIF) is a pro-inflammatory cytokine associated with cardiovascular disease and insulin resistance (IR). Morbidly obese patients are reported to have higher MIF plasma levels. Moreover, MIF mRNA expression in mononuclear cells (MC) are increased in the morbidly obese. The mechanism behind these increased plasma MIF levels is not clear. Recently, it was reported that insulin could regulate MIF production ex-vivo. Moreover, MIF mRNA expression in MC decreased when insulin sensitivity was increased. To further clarify regulation of MIF by insulin, we compared the effect of supra-physiological plasma levels of insulin in morbidly obese patients with different degrees of IR.

Methods: IR was measured using Steady State Plasma Glucose (SSPG) levels. Measurement of SSPG levels requires supra-physiological administration of insulin. SSPG levels were measured preoperatively, 25% EWL and 50% EWL (Group A, 11 subjects) and during stable weight condition (group B, 11 subjects). Plasma MIF, insulin and glucose levels were measured during the SSPG test.

Results: IR was still present in group A, while group B showed increased insulin sensitivity. Significantly decreased plasma MIF levels were found in group A, whereas MIF plasma levels of group B did not decrease.

Conclusions: This study is the first to show that insulin is able to regulate MIF production in vivo. We showed that supra-physiological levels of insulin could only decrease plasma MIF levels in patients with severe insulin resistance (group A). Therefore, we hypothesize that the increased MIF plasma levels observed in morbidly obese individuals could partly result from increased insulin resistance.

99. ANOMALIES OF ESOPHAGEAL MOTILITY IN PATIENTS WITH MORBID OBESITY WAITING FOR LAPAROSCOPIC BARIATRIC SURGERY: A PROSPECTIVE STUDY IN 93 PATIENTS

S Msika, S Scaringi, M Merrouche, F Harnois, JM Sabate, B Coffin. *CH Louis-Mourier, Colombes, France.*

Background: Anomalies of esophageal motility in morbidly obese patients are not well known. Their presence could influence the functional results of bariatric surgery and help to understand pseudo-achalasia described after gastric banding. The aim of the study was to evaluate esophageal manometry in a prospective cohort of patients selected for bariatric surgery.

Methods: Each obese patient selected for laparoscopic bariatric surgery was prospectively studied with a careful evaluation of gastroesophageal symptoms, esophageal manometry, and in most cases upper gastrointestinal endoscopy and 24 h pH-metry.

Results: (mean±SD): 93 patients (78 women) have been

included. Mean age was 39 + 11 years and BMI was 45.0 + 6.3 kg/m². Heartburn, regurgitations, chronic pharyngitis and asthma were present in 58, 42, 21 and 19 patients, respectively. Endoscopy (87 patients) evidenced a hiatal hernia in 35 patients, cardia failure in 13 and esophagitis in 6. 24 h pH-metry (88 patients) evidenced 40 patients with acid reflux. The pressure of esophageal inferior sphincter (EIS) was normal in 28 patients, moderately reduced (10-15 mmHg) in 39 and highly reduced (<10 mmHg) in 26. There was no hyper-pressure of EIS. In comparison with patients with BMI between 35 and 40 kg/m², the patients with BMI >40 kg/m² (74.2%) had more often an hypotonicity of EIS (<15 mmHg) (60.6% versus 72.1%) had a lower mean pressure of EIS (13.9 ± 3.9 mmHg versus 12.3 ± 3.4 mmHg) and had more often a severe hypotonicity of EIS (10 mmHg) (16 versus 28 %) respectively. However, there was no statistically significant correlation between BMI and pressure of EIS. The amplitude of P1 waves was reduced in 40 patients but not correlated with BMI.

Conclusions: Esophageal manometric abnormalities are frequent in patients with morbid obesity but are not strongly correlated with BMI. However, because of frequent esophageal symptoms after gastric banding, a preoperative manometry should be useful as a reference before surgery. Analysis of postoperative long-term results is carried on.

100. INTRAGASTRIC MIGRATION OF ADJUSTABLE BAND: ANALYSIS OF 13 CASES

B Bokobza. *Groupe Hospitalier du havre, France.*

Background: Gastric erosion is a potentially severe complication of adjustable gastric banding.

Methods: From June 1998 to December 2005, 13 patients have been operated for intra-gastric migration of an adjustable band. In the same period of time, 338 patients had an adjustable band, i.e. a 3.8 % erosion rate. 11 F (mean BMI 45.6), and 2 M (mean BMI 49.6) were operated on. The mean interval between the placement of the band and its removal has been 44 months (8-68). Symptoms were epigastric pain (5), abscess of the access-port (4), and band slippage with GERD (4). Weight loss had stopped in all cases.

Results: The laparoscopic approach has been used in all cases except one (open procedure for a 6 months pregnant woman who had the band partially inserted into the spleen). Post-op gastric barium swallow has been routinely performed. No complication occurred. 5 Bypass have been performed, including 2 intra-operatively. Mean BMI at this time was 44.3, and dropped to 30.7 after an 8 months follow-up.

Conclusions: Intra-gastric erosion of a band is a rare and serious complication after lap-banding that entails careful monitoring of the patients including upper GI endoscopy in case of suspicion. A secondary bypass may obtain good results in these cases, which question the results of lap-banding.

101. PLACEMENT OF A NEW GASTRIC BAND FOR FAILURE OF PREVIOUS RESTRICTIVE SURGERY

P Grumillier. *Essey-les-Nancy, France.*

Background: We review a single-surgeon series of 30 re-do procedures for secondary failures of gastroplasty using an adjustable gastric band (AGB) or stapling devices (vertical banded gastroplasty, VBG), undertaken over a 1-year period. Outside of surgical re-interventions using restrictive procedures or malabsorptive techniques, there is a place for the implantation of a new, low pressure, non-traumatic gastric band. We will describe a new method and not only the re-positioning of a gastric band.

Methods: We included surgery for removal of gastric bands

that required repeated surgery, or presented late or chronic slip-page, leakage, hernia above the gastric band, obstruction of the catheter, ill-placement of the gastric band, mega-esophagus caused by the gastric band, as well as late VBG failures. The different stages of the surgical technique are described in detail; these re-do surgeries were performed through the laparoscopic approach, regardless of the initial surgical approach. The type of AGB that has been used is important: it is streamlined, flexible, and has a moderate shape memory (BIORING® band).

Results: After a short period of time (4 to 14 months), there were no early complications, no mortality or morbidity. Postoperatively, patients had strict multi-disciplinary medical care, and further weight-loss added up to the one obtained from the initial procedure.

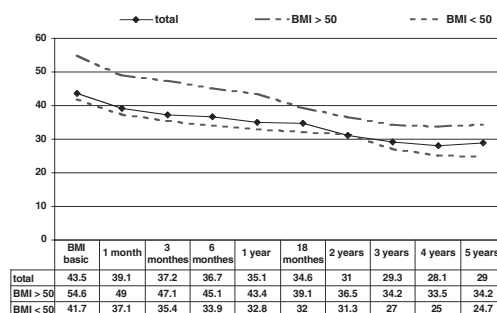
Conclusions: In a certain number of cases of failed restrictive surgery, which should be clearly specified, a new procedure with an AGB is possible, using a new generation band that minimizes the visceral damages.

102. ADJUSTABLE GASTRIC BAND IN THE MANAGEMENT OF MORBID OBESITY: OUR EXPERIENCE

A Giovanelli, L Bertolani, M Brevi, R Sacco. *Humanitas Gavazzeni Hospital, Bergamo, Italy.*

Background: 1,178 patients with severe obesity have been treated at Humanitas-Gavazzeni Hospital since may 1998. Adjustable gastric banding in 956 patients (4 Lap-Band, 460 SAGB, 492 MidBand), 176 intragastric balloon (149 BIB®, 26 Heliosphere) and 46 bilio-intestinal bypass.

Methods: The average BMI was 44.7 (range 33-84.6), with 110% EWL in 139 patients suffering from super-obesity (average BMI 56.8 range 50-84.6). There were 77.3% F and 22.7% M. The overall results showed co-morbidities in 76.8% of the patients with 29.3% suffering from metabolic syndrome, 19.8% from diabetes or glucose intolerance, 35% from hepatic steatosis. 26.7% had hiatal hernia (GERD in 7.9%), which has not been a contraindication for us. This % differed slightly in the severe obesity group in favor of the male population. 99.6% were treated with a laparoscopic approach. 16 of the patients had previously undergone bariatric surgery elsewhere, unsuccessfully. 8.3% underwent simultaneous cholecystectomy (only if gallstones were present).



Results: Body weight loss % EWL is: 38.4 (1 year), 50.2 (2 years), 48.3 (3 years), 60.4 (4 years), 59.0 (5 years). The complications were: 1 death 30 days after discharge, 0.1% (for acute cardiovascular failure); pouch dilatation 4% (4.32% in obese versus 2.80% in superobese) with a reoperation rate of 1%; intra-gastric migration 1.7% (1.68% versus 2.1% in superobese); slippage 0.2% (all in obese patients); port problems 2% (1.56 versus 4.9 in superobese); GERD and oesophagitis (at 2 years) 4.5% (all observed after laparoscopic procedures). In 3.9% the band was removed: 1.7% for intragastric migration, 1% for pouch

dilatation, 0.2% for oesophageal motility disorders, 0.2% for slippage and 0.8% for band damage. 4.5% of the patients were re-operated for band replacement and/or removal.

103. REOPERATIONS AFTER FAILED GASTRIC BANDING

A Lavryk, O Tyvonchuk. Institute of Surgery and Transplantology, Kyiv, Ukraine.

Background: The Gastric Banding (GB) is the common bariatric operation in Europe. However, GB has a high incidence of long-term complications and some patients will need revisional surgery.

Methods: A total 192 GB procedures were performed from 1999 to 2005. A mean BMI 49.31 ± 7.24 kg/m². Re-operations after GB was 13 (6.7%): removal of the band (band erosion -1, slippage -2) - 3; pars flaccida re-gastric banding (slippage -2 and 1 - weight gain) - 3; 2 revisions of the access port and then it was substituted. Duodenal switch (DS) with common loop 75 cm without band removal was performed in 4 patients (inadequate weight loss, sweet-eaters syndrome). In the last case, we have done gastric bypass by Fobi after a GB procedure due to sweet-eaters syndrome.

Results: After regastric banding due to slippage-syndrome, we have observed the subsequent stabilization of weight in the adequate range of BMI. After duodenal switch, percent excess weight-loss at 1 year was $69 \pm 4\%$ and after Fobi -pouch operation 63%. In all 3 patients with the type 2 diabetes mellitus after DS in a 3 month period, we observed a considerable improvement of DM. A rapid normalization of lipid profile was revealed at the end of 3-6 months after DS.

Conclusions: The indication for the GB, evidently, should be narrowed and individualized. Duodenal switch without band removal is an effective and safe surgical treatment for failed gastric banding. Also DS can be considered an optimal redo operation for inadequate weight loss after GB.

104. REOPERATION FOR FAILURES OF ADJUSTABLE BANDING: A PERSONAL SERIES OF 290 CASES

J Cady. Clinique de la Porte d'Italie, Gentilly, France.

Background: We have an experience of 3500 laparoscopic gastric banding and wished to assess in which conditions re-operations were feasible and safe. We consider failures as an insufficient weight-loss and/or technical flaws demanding surgical corrections.

Methods: Re-operation has been carried out in the mean-time as band removal or as a second step. From 1997 to 2005, we performed in our centre various re-do procedures: primary replacement of a gastric adjustable band at the same time as removal of the former one (134), secondary replacement (34), sleeve gastrectomy (3), RYGBP (117), BPD (4).

Results: 1) Re-banding: there was no mortality, no conversion and no postoperative complications; 2) BPD and RYGBP (121): there was one death, 12 re-operations for early complications, 4 conversions. The number of re-operations for complications has not been correlated to a simultaneous band removal, but the morbidity was slightly superior in this case. In terms of weight loss, EWL at 2 years was considered satisfactory in 33% of the cases, fair in 50%, and mediocre in 30%. 8% of the patients asked for removal of the band. Regarding RYGBP, the follow-up is not long enough, but 9% failed already.

Conclusions: Provided the failure is correctly assessed, a re-operation after lap-banding is possible, a mechanical failure is not a contra-indication to re-banding, which carries much less risks.

105. BANDED GASTRIC BYPASS: A 20-YEAR EXPERIENCE

M Fobi. St Mary Medical Center, Long Beach, CA, USA.

Background: The Banded Gastric Bypass (BGBP), first per-

formed in 1984 as a revision operation of a failed Vertical Banded Gastroplasty, has evolved into a primary bariatric operation which appears to provide more weight loss in more patients that is maintained for a longer time.

Methods: This modification provides a small vertical proximal gastric pouch and a standard non-dilatatable stoma in the gastric bypass operation. The BGBP provides the same magnitude of weight loss as the Biliopancreatic Diversion (BPD) with or without a Duodenal Switch without the inherent peri-operative or long-term complications of the BPD.

Results: The surgical techniques, open and laparoscopic, will be presented. Data from long-term studies, prospective studies and comparative studies and anecdotal reports will be presented to illustrate the effectiveness of the BGBP.

106. LAPAROSCOPIC FUNCTIONAL GASTRIC BYPASS: ORIGINAL TECHNIQUE AND 4-YEAR RESULTS

F Furbetta, S Gennai, F Gragnani, F Guidi, B Lo Iacono, C Masetti. Casa di Cura Leonardo Vinci, Empoli (FI), Italy.

Background: The aim of this study is to evaluate the results of Laparoscopic Functional Gastric Bypass (LFGBP): a combination of laparoscopic gastric bypass and adjustable gastric band.

Methods: LFGBP was performed by positioning the Lap-Band System[®], calibrating 10-25 cm virtual pouch, alimentary limb of 200 cm and common limb of 150 cm. Band inflation or deflation allows activation or de-activation of the bypass. Patients were allocated into 2 groups according to their preoperative status: 1. First bariatric procedure in non-compliant patients with a restrictive procedure (Group A); 2. Patients with weight loss failure after gastric banding (Group B). Mortality, intra- and postoperative complications, laparotomy conversion, and BMI were considered. Data were expressed as mean \pm standard deviation.

Results: From January 2001 to December 2005, 61 patients underwent LFGBP (10M/52F; mean age 42.2, range 23-68; mean BMI: 42.6, range 33.3-66.7). Mortality, intra and postoperative complications, and laparotomy conversion were absent in both groups. In Group A (n=17 patients) mean BMI decreased from 46.7 to 35.5, 29.8, 31.2, and 30.9 kg/m² at 12 (12/12 pts), 24 (9/9), 36 (6/6), and 48 (3/3) months respectively. In Group B (n=44 patients) mean BMI decreased from 40.6 to 35.1, 34.1, 31.0, and 29.8 kg/m² after 12 (28/28 pts), 24 (12/12), 36 (7/7), and 48 (4/4) respectively.

Conclusions: LFGBP can be considered a safe and effective procedure. Weight loss is obtained both in patients who were non-compliant with gastric restrictive procedures and those with Lap-Band failures.

107. EARLY OUTCOMES AFTER LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS, WITH OR WITHOUT SILASTIC RING, FOR MORBID OBESITY IN A PRIVATE HOSPITAL: RETROSPECTIVE STUDY OF 100 CONSECUTIVE PATIENTS

M Sodji. Clinique des Emailleurs, Limoges, France.

Background: The laparoscopic Roux-en-Y gastric bypass (RYGBP) is becoming rapidly the standard bariatric procedure. Fobi et al continue to defend the laparoscopic Roux-en-Y banded gastric bypass (RYGBP-B). This study evaluates our initial results comparing these two procedures in a private hospital.

Methods: From August 2003 to November 2005, 100 consecutive patients had gastric bypass. 69 underwent RYGBP-B, 22 underwent RYGBP and 9 underwent RYGBP after removal gastric banding. The procedure of RYGBP-B included an isolated gastric pouch of 7 cm on the lesser curvature, a calibration of the gastric pouch with a 6-cm silastic ring, a 40-cm biliopancreatic limb, a 100-150 cm Roux limb in antecolic position, a side-to-side

jejuno-jejunostomy, a side-to-side linear gastro-jejunostomy.

Results: 91 F and 9 M were operated on, mean age 40 (18-65), mean BMI 44 (29-57), mean weight 110 kg (79 to 161). Mean operative time was 207 mn (90-465), and mean hospital stay 8 days (5-15). There were 4 cholecystectomies, 1 subtotal gastrectomy of the remnant gastric for Biermer's anemia and 3 repair of abdominal incisional hernia. Complications were: 5 negative laparoscopic exploration, 2 intra-abdominal staple-line hemorrhages, 2 incisional hernia, and 1 jejuno-jejunostomy stenosis. One internal hernia occurred 3 months postoperatively. There were no conversions, no postoperative leaks, no band erosion or stenosis, and no mortality. Mean EWL at 1 year was 96,5% in the RYGBP-B group (39 patients), and 84% in the RYGBP group (11 patients).

Conclusions: RYGBP-B and RYGBP can be done safely and with good results in morbid obese patients in a private hospital.

108. LAPAROSCOPIC GASTRIC BYPASS: LESSONS LEARNED FROM THE FIRST 100 PROCEDURES

S Servajean, N Berger, A Kachor, JP Bethoux, A Basdevant, JL Bouillot. *Department of surgery, Hôtel Dieu, Paris, France.*

Background: Gastric bypass (GBP) is becoming more and more popular in France for bariatric surgery. However, it is a difficult surgical procedure with a learning curve. The purpose of this study was to analyze the first 100 procedures performed by one surgical team.

Methods: During a period of 30 months, 100 consecutive patients have been operated for laparoscopic gastric bypass. There were 25 males, 74 females with a mean age of 39.1 yrs (± 10.4). The mean body weight was 137 kg (± 24.4) with a mean BMI of 48.5 (± 8.2). In 22 cases, the GBP was a revisional bariatric procedure (17 for failed adjustable gastric banding, 5 for failed vertical gastric banding). During the GBP procedure, 26 patients underwent cholecystectomy, 5 herniorrhaphy for umbilical hernia. The procedure used was a seven-port technique. The 100-cm or 150-cm Roux limb was placed in the retrocolic retro-gastric position. The gastrojejunal anastomosis was created with a 25-mm circular stapler.

Results: In two cases, the laparoscopic procedure was converted to laparotomy (2%). The mean duration of the procedure was 204 mn (± 56). It was 224 min for the 50 first patients vs 183 min for the 50 last patients. 17 patients developed intra-abdominal complications during the early postoperative course: 11 for the 50 first patients requiring 8 reoperations, 6 for the 50 last patients with 5 reoperations. One patient among the first 50 patients died secondary to a leak of the staple-line of the distal transected stomach.

Conclusions: Laparoscopic gastric bypass is a complex procedure with a long learning curve. With increasing experience, the duration of the procedure is reduced and the incidence of complications decreases. The learning curve includes at least 100 patients.

109. THE BILIO-INTESTINAL BYPASS

G Micheletto, G Roviato, E Lattuada, MA Zappa, E Mozzi, M Perrini, MC Librenti, B Doldi. *Università di Milano, Unità di malattie metaboliche Istituto Clinico San Siro, Milano, Italy.*

Background: Since 1990, we adopted the bilio-intestinal bypass (BIBP) for all morbidly obese patients eligible for a malabsorption procedure. Since 2001 we used laparoscopic technique.

Methods: 148 patients, mean age 35.4 (18-63) years; preoperative mean weight kg 148.3 (104-225); mean preoperative BMI 54.1 kg/m² (40-66.2); mean follow-up 10 years (1-22). 83 patients underwent open and 65 laparoscopic BIBP. Laparoscopic BIBP was performed with five lap ports. Section of the jejunum 30 cm distal to the ligament of Treitz and of mesentery was made by a linear stapler. The cholecysto-jejunal anastomosis was completed with 45-mm linear stapler. A side-to-side anastomosis between

the proximal jejunum and the last 12-18 cm of the ileum was created by firing a 60-mm linear stapler. On the excluded ileum, an anti-reflux valve system was hand-sutured.

Results: 5 years postoperatively, mean weight was 89 (62-130) kg, mean BMI was 31 kg/m² (24-41). Two patients of the 65 laparoscopic patients were converted to open surgery for adhesions post-appendectomy. The main late complications were incisional hernia (19.3%) and abdominal bloating (2.9%). The reversal and conversion rate was 6.5%. There was no death.

Conclusions: Our experience showed that 5 years post-BIBP, the weight loss was satisfactory in 90.7% of patients. Using laparoscopic technique, it is possible to reduce pain, in-hospital time, respiratory and thromboembolic complications, convalescence and incisional hernia.

110. MECHANISMS OF RECOVERY FROM TYPE 2 DIABETES MELLITUS AFTER MALABSORPTIVE BARIATRIC SURGERY

C Guidone, M Manco, G Nanni, E Valera-Mora, A Iaconelli, D Gniuli, A Mari, E Tondolo, M Castagneto, M Calvani, G Mingrone. *CNR Centro di Fisiopatologia dello Shock, School of Medicine, Rome, Institute of Biomedical Engineering, Padova, Italy.*

Background: There are no data in the literature regarding the pathophysiological mechanisms involved in the rapid resolution of type 2 diabetes (T2DM) after bariatric surgery, which was reported as an additional outcome of surgery for morbid obesity

Methods: We studied insulin sensitivity, using euglycemic hyperinsulinemic clamp, and insulin secretion, by the C-peptide deconvolution method after an oral glucose load, and the circulating levels of intestinal incretins and adipocytokines, in 10 diabetic obese subjects before, 1 and 4 weeks after biliopancreatic diversion (BPD), to avoid the weight loss interference.

Results: Diabetes disappeared 1 week after BPD, while insulin sensitivity ($32.96 \pm 4.30 \mu\text{mol/kgFFM}/\text{min}$ to 65.73 ± 3.22 at 1 week and to 64.73 ± 3.42 at 4 weeks, $P < 0.0001$) was normalized. Fasting insulin secretion rate ($148.16 \pm 20.07 \text{ pmol min}^{-1} \text{ m}^{-2}$ to 70.02 ± 8.14 and 83.24 ± 8.28 , $P < 0.01$) and total insulin output ($43.76 \pm 4.07 \text{ nmol m}^{-2}$ to 25.48 ± 1.69 and 30.50 ± 4.71 , $P < 0.05$) dramatically decreased; a significant improvement in beta-cell glucose sensitivity was observed. Both fasting and glucose-stimulated GIP ($13.40 \pm 1.99 \text{ pM}$ to 6.58 ± 1.72 at 1 week and 5.83 ± 0.80 at 4 weeks) decreased ($P < 0.001$), while GLP1 increased ($1.75 \pm 0.16 \text{ pM}$ to 3.42 ± 0.41 at 1 week and 3.62 ± 0.21 at 4 weeks, $P < 0.001$). Very early, leptin levels halved ($51.59 \pm 6.38 \text{ ng/ml}$ to 38.56 ± 7.49 at 1 and 31.03 ± 3.73 at 4 weeks, $P < 0.0001$).

Conclusions: BPD determines a prompt reversibility of T2DM by normalizing peripheral insulin sensitivity and enhancing beta-cell sensitivity to glucose; these changes occurring very early after the operation. BPD may affect the enteroinsular axis by diverting nutrients away from the proximal gastrointestinal tract and delivering incompletely digested nutrients to the ileum, which regulates GIP and GLP1 secretion.

111. SAFE INTESTINAL DECOMPRESSION IN FRESH POSTOPERATIVE GASTRIC BYPASS (PREVENTION OF LEAKS AND PERFORATIONS)

C Carrasquilla, M Weiss, J Gianos. *Florida Medical Center Hospital, Fort Lauderdale, FL, USA.*

Background: Dilatation of the Roux-limb is sometimes found following gastric bypass procedures. This could be the result of transient episode due to ileus, or a partial or complete obstruction. The risk of this complication is an increase in intraluminal pressure and the potential for leaks. The blind insertion of a nasogastric tube for decompression could be risky due to possible perforation at the stapled or sutured lines.

Methods and Results: Diagnosis is made with extended UGI X-rays 24 hours after surgery. To determine the relationship of the intestinal dilatation, increase in intraluminal pressures, and leaks, measures were taken in porcine models duplicating a gastric bypass procedure. Pressures obtained at the sites of the anastomosis were higher than pressures in the jejunum between the anastomosis, and related directly to the production of leaks. Similar pressures have been observed in patients who have needed decompression. The angles of a freshly constructed pouch and the recent stapled or sutured lines, may be easily perforated with a nasogastric tube (mainly ones that are hard and/or semi-rigid). We use a soft and flexible tube. An angled end 0.035" wire is introduced into the intestines with fluoroscopy assistance. The tube tip is perforated with a needle, and through this opening, the wire is passed into the tube. The tube is then fed over the wire in a safe decompression.

Conclusions: Decreasing the intestinal pressure with a safe decompression may avoid one of the causes of leaks. Reasons and the technique used for this procedure are presented.

112. 3-YEAR RESULTS OF ROUX-EN-Y GASTRIC BYPASS ON VERTICAL BANDED GASTROPLASTY: AN EFFECTIVE AND SAFE INNOVATIVE PROCEDURE WHICH ENABLES ENDOSCOPY AND X-RAY STUDY OF THE STOMACH AND BILIARY TRACT

S Cariani, A Lucchi, M Guerra, E Faccani, L Agostinelli, E Amenta. *Dipartimento di Scienze Chirurgiche ed Anestesiologiche, Università di Bologna, Italy.*

Background: Our previous published study on Functional Roux-en-Y Gastric Bypass (FRYGBP), demonstrated that complete occlusion of the gastro-gastric outlet was not necessary to lose weight. Thus, since 2002, we have developed a combined surgical procedure: the Roux-en-Y Gastric Bypass on Vertical Banded Gastroplasty (RYGBP on VBG) in open surgery.

Methods: From June 2002 to September 2005, 128 patients (94 female and 34 male, with mean BMI 51.6 ± 7.2 SD kg/m², and mean EW% 117.9 ± 33.5 ^{SD}) underwent RYGBP on VBG as primary procedure. A 30-ml vertical gastric pouch was fashioned as in the Mason VBG. A hand-sewn retrocolic gastroenterostomy with 150-cm Roux and 30-cm afferent limbs completed the operation. The pouch outlet of 1 cm in diameter was encircled by a Gore-Tex™ band distal to gastro-jejunosotomy.

Results: The average operative time was 140 ± 15 ^{SD} minutes and the length of hospital stay was 8 ± 1 ^{SD} days. Mean BMI dropped from 51.6 ± 7.2 SD to 39.7 ± 6.3 SD after six months, to 36.1 ± 5.5 ^{SD} after 12 months and to 34.2 ± 5.5 ^{SD} after 36 months. Mean EWL% was 46.9 ± 13.9 ^{SD} after 6 months, 59.8 ± 16.4 ^{SD} after 12 months, and 66.1 ± 15.7 ^{SD} after 36 months. All the patients were followed with gastroscopy and/or x-ray study of the stomach and no specific complications were found.

Conclusions: RYGBP on VBG is as effective as traditional RYGBP, while allowing endoscopy and x-ray study of the bypassed stomach and common biliary tract. Moreover RYGBP on VBG performed in open surgery is cost-effective compared with LRYGBP, with good quality of life for the patients.

113. HAND-ASSISTED LAPAROSCOPIC PROXIMAL ROUX-EN-Y GASTRIC BYPASS: SHORTENING THE LEARNING CURVE

P Van De Walle. *Campus Volkskliniek, Gent, Belgium.*

Background: Based on our experience with more than 300 hand-assisted laparoscopic VBG procedures, we developed a technique for proximal Roux-en-Y gastric bypass.

Methods: In the 27 females (82%) and 6 males (18%), mean age was 33 years (range 16-52), mean body weight 117 kg (range 91-157), and mean BMI 42 kg/m². Severe obesity was present in

27%, morbid obesity in 57% and super-obesity in 6%. Co-morbid conditions included joint disorders and osteoarthritis in 79%, hyperlipidemia in 39%, GERD in 30%, steatosis of the liver in 27%, impaired glucose tolerance and diabetes in 15%, COPD in 12%, hypertension in 9%, gallstone-disease in 9% and sleep apnea in 6%. The procedure is performed with 4 trocars and a Gelport™ installed in the right upper abdomen. For the creation of the gastrojejunostomy, a 21-mm circular stapling device was used in 97% of the cases, a 25-mm in 3%. According to the BMI, the alimentary limb has a length of 100 cm in 94%, 150 cm in 3% and 200 cm in 3%. The side-to-side jejunio-jejunosotomy was made with a 45-mm blue cartridge in 88% of the patients and with a 60-mm blue cartridge in 12%. The mesodeflect at the jejunio-jejunosotomy was closed with non-absorbable sutures in 39% of the cases. The bilio-limb and the alimentary limb were sewn together at the inframesocolic region in 39% of the patients.

Results: mean excess weight loss was 22% at 1 month, 42% at 3 months, 62% at 6 months, 63% at 12 months and 85% at 18 months. Mean BMI was 38 at 1 month, 34 at 3 months, 31 at 6 months, 29 at 12 months and 26 at 18 months. Early postoperative complications were 1 superficial wound infection and 1 meralgia paresthetica. Late postoperative complications were severe dumping syndrome in 3%, and internal herniation at jejunio-jejunosotomy in 3%. We lost one patient because of internal herniations and perforation at the jejunio-jejunosotomy.

Conclusions: Hand-assisted laparoscopy can be an attractive alternative to the technically demanding totally laparoscopic gastric bypass. Nevertheless, we are aware of the short-comings of this small series. Further experience has to be gained and further follow-up is needed to define the place of this technique in laparoscopic bariatric surgery.

114. CONVERSION OF VERTICAL BANDED GASTROPLASTY TO GASTRIC BYPASS: INDICATIONS AND RESULTS OF 101 PATIENTS

R. Schouten, FMH van Dielen, JP de Zoete, JWM Greve. *Department of general surgery, University hospital Maastricht, The Netherlands.*

Background: This research focuses on the results after conversion of vertical banded gastroplasty (VBG) to Roux-en-Y gastric bypass (RYGBP).

Methods: A total of 101 patients underwent a conversion from VBG to RYGBP. Indications for conversion were weight regain (group 1), excessive weight loss (group 2) or severe eating difficulties (group 3).

Results: Weight regain, group 1, was the reason for conversion in 73% of patients. Staple-line disruption was the most important cause (70%). Excessive weight loss, group 2, affected 14% of patients, caused by outlet obstruction in 64%. The remaining 13% of patients had eating difficulties as a consequence of stenosis (46%), pouch dilatation (31%) or pouch diverticula (23%). Mean BMI before conversion to RYGBP was 40.5, 22.3 and 29.8 kg/m², respectively. Mean operation time was 3.7 hours and hospital stay 12 days. Direct postoperative complications were observed in 22%. Long-term complications were anastomotic stenosis (19%) and incisional hernia (18%). All stenoses were successfully dilated by endoscopy. There were no significant differences in short- and long-term complications between the three groups. Mean follow-up after RYGBP was 29 months. In group 1, BMI decreased from 40.5 to 31.1 kg/m² while in group 2 BMI increased from 22.3 to 25.2 kg/m². Mean BMI in group 3 decreased slightly from 29.8 to 28.6 kg/m², while 77% of patients in this group did not experience eating difficulties anymore.

Conclusions: Conversion to RYGBP is a feasible and safe opera-

tion after failed VBG in terms of effect on weight and eating difficulties.

115. ANALYSIS OF COMPLICATIONS AFTER 640 GASTRIC BYPASS OPERATIONS

A. Denoël, AC Dandrifosse. *CHR Citadelle, Liège, Belgium.*

Background: Gastric bypass is considered in our country as a major operation. We wished to evaluate the incidence and the treatment of complications in 640 consecutive patients.

Methods: Retrospective analysis of all complications was performed through the database and files of our patients. 640 consecutive patients were operated by the same surgeon.

Results: 160 procedures were performed laparoscopically. 228 were revision procedures: 188 after VBG, 39 after LAGB and 1 after BPD-Scopinaro procedure. 1 patient died (0.01%). 156 patients (24%) presented at least one complication. 78 patients (12%) had a reoperation. Complications were: 33 anastomotic leakages, 15 bleedings, 4 obstructions, 5 volvulus, 4 abscesses, 33 wound hernia, and others. We consider leakages, bleeding, occlusions and volvulus as major complications (8.9%). We compare the incidence of these complications in open (26%) versus laparoscopic operations (18%). Mean length of stay was 8.3 days. Length of stay of the 33 patients with anastomotic leakage was 22.8 days. We analyzed the treatment of these complications, with a focus on the treatment of anastomotic leakages. We analyzed the influence of these complications on the hospital length of stay and on the late results.

Conclusions: RYGBP is a good and safe operation: mortality is low and the number of major complications as well. Appropriate treatment of the complications is mandatory to reduce mortality, morbidity and hospital length of stay.

116. COMPARISON BETWEEN GASTRIC BANDING, ROUX-EN-Y AND SINGLE-ANASTOMOSIS GASTRIC BYPASS, BPD, BPD-DS AND GASTRIC STIMULATION: A SINGLE CENTER EXPERIENCE

R. Weiner, I Pomhoff, M Schramm, S Weiner, W Karcz. *Krankenhaus Sachsenhausen, Frankfurt am Mein, Germany.*

Background: The feasibility and safety of a laparoscopic approach to patients who are morbidly obese have been demonstrated for a large number of bariatric procedures. Further research is needed to examine the morbidities, frequency of complications and efficacy in controlled trials comparing the various laparoscopic operations. Most of the bariatric surgeons prefer only one or two laparoscopic techniques, so that controlled trials comparing the various laparoscopic operations are rare.

Methods: 1042 consecutive patients (F 82.5%) underwent in the time period 2/2001 – 01/2005 different bariatric procedures. All primary procedures were performed laparoscopically. In the group of secondary gastric bypass, 12 open and 4 conversions were included. Adjustable gastric banding (group A: n=224), primary Roux-en-Y gastric bypass (B: n=658), primary single-anastomosis gastric bypass (C: n=64), secondary gastric bypass (D: n=84), biliopancreatic diversion (E: n=54), biliopancreatic diversion with duodenal switch (F: n=134), sleeve gastrectomy (G: n=52) and gastric pacing (IGS: H: n=2 and Tantalus I: n=12) by a single surgeon. Initial body weight of the total population was 127.9±SD 23.9 kg and body mass index (BMI) was 46.4±SD 7.2 kg/m². Mean age was 37,9 (16-82). In a follow-up of median 27 months (60-3 months) the outcome of the patients were registered.

Results: Lethality, morbidity, complications, hospital stay, operating time and readmissions differs significantly. The hospital lethality was in all series 0%, excepted in the BPD-DS group (F: 1.5% lethality). In the 1-year mortality, one death after gastric bypass (0.15%: late liver abscess) and a late death after BPD-DS (0.75%: after open revision of

a gastric fistula) were reported (events in other hospitals). The hospital morbidity (%) was A: 0.8, B: 20.6, C: 6.2, D: 19, E: 3.7, F: 24, G: 13.6, H: 0, I: 8.3. The rate of reoperations (major complications) during the hospital stay was higher in the stapled than in the non-stapled surgery (4% versus 0%). The mean operating time (min) was A: 38, B: 58, C: 42, D: 118, E: 62, F: 166, G: 52, H: 43, I: 126 min. A learning curve with decreasing operative time within most series were seen. The most common complications were seen in stapled surgeries with bleedings and wound-infections. Reinterventions and wound-infections prolonged the hospital stay markedly. The mean excess weight loss (%) 1 year after was A: 54, B: 72, C: 74, D: 48, E: 74, F: 82, G: 8, H: 18, I: 32.

Conclusions: Marked differences in excess weight loss seems to be an argument for a tailored therapy concept in bariatric surgery. In super-obese patients, the LBGD-DS seems to be the most effective procedure regarding weight loss. The LBGD-DS can be performed in two steps to reduce the operative risk. The LAGB are a basic bariatric procedure with lowest risks, which offers a switch to other procedures by laparoscopy.

117. WHAT LAPAROSCOPIC PROCEDURE FOR MORBID OBESITY? PROSPECTIVE STUDY OF 100 PATIENTS CONCERNING GB, VBG, GBP

J. Mouiel. *University of Nice, Center of Surgery and Laparoscopy, France.*

Background: The aim of this prospective study of 100 patients was to compare from 1.1.1998 to 31.12.2005 gastric banding (GB) (34 pts), the vertical banded gastroplasty (VBG) (33 pts) and the gastric by pass (GBP) (33 pts).

Methods: Patient selection was performed by a multidisciplinary team and the indications were selected according to the scientific recommendations: BMI >40 or between 35 and 40 in case of co-morbidities. GB was proposed to female patients in child bearing age, without hiatal hernia >2 cm, and without a history of bulimia, binge eating or sweet eating. VBG was proposed to adult patients with a history of hyperphagia, without alimentary behavioral troubles or with a hiatal hernia >2 cm. GBP was used in super-obese patients with a hiatal hernia and with alimentary behavioural disturbance.

Results: Mean operative time was 70 min for GB, 100 min for VBG and 150 min for GBP. We experienced no conversion, 0 mortality, 6% early morbidity only for VBG and GBP, 11% late morbidity, mainly for GB with 10% reoperations. Results in weight loss and improvement of co-morbidities were markedly positive at the end of the study. BMI was 31 for GB, 30 for VBG, 29 for GBP and mean loss of excess weight was respectively 56, 70, 84% at 5 years. Quality of life according to BAROS was largely improved.

Conclusions: With a sufficient follow-up, laparoscopic approach has been beneficial. Indications had to be adapted to the personality of patients, BMI and alimentary behavior. The best results were observed for GBP.

118. 3-YEAR RESULTS OF LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING VERSUS LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: ARE THEY COMPARABLE?

L. Angrisani, V Borrelli, M Lorenzo, M Giuffrè, F Persico, CP DeAngelis, M Ciannella, M Battaglini, D Buono. *S. Giovanni Bosco Hospital, Public Economics Department, University of Naples Federico II, Italy.*

Background: Recent studies reported similar 3 years weight loss results and success rate of Laparoscopic Adjustable Gastric Banding (LAGB) and Laparoscopic Roux-en-Y Gastric Bypass (LRYGBP). A retrospective comparison of these operations performed in a single experimented center was conducted.

Methods: Between January 2000 and December 2002, 61 patients (9 M/52 F; mean age: 35.2±9.3; mean weight 114.9, range 92-160 kg; mean BMI 42.4, range 32-52 kg/m²; %EW 87.3, range

36.9-129.5) received LB through pars-flaccida approach (Group A) while 50 patients (10 M/40 F; mean age 33.1±9.8; mean weight 123,95-151 kg; mean BMI 45.6, range 38-54 kg/m²; %EW 94.3, range 34.6-131.7) underwent standard LRYGBP (Group B). All patients belonging to both groups were followed up for at least 3 years. Re-operation rate, kg, BMI, and %EWL, were collected for both groups. Failure rate was fixed at BMI>35. Data were analyzed by Student *t*-test (*P*<0.001 is considered significant).

Results: Mortality was absent. One patient was lost to follow-up. Laparoscopic de-banding for pouch dilation was performed in 5/61 (8.2%). Re-operation rate for internal hernia (n=4), intraluminal bleeding (n=1) and intestinal iatrogenic perforation (n=1) was 6/51 (11.8%) in Group B and laparotomy was required in 3 cases. The difference in re-operation rate was not statistically significant. After 3 years, mean weight was: 95.8 (range 67-125) and 81 (range 57-110) kg, BMI was 35.6±4.6 (range 26.2-46) and 29.8±3.2 (range 24.7-40), mean %EWL was 48.7 and 76.1, with failure rate 27/61 (44.2%) and 2/50 (4%) in Group A and B respectively (*P*<0.001).

Conclusions: The results of LRYGBP were statistically significantly better than LAGB in terms of weight loss and number of failures. Re-operation rate was comparable in both groups. The open approach was frequently required following LRYGBP due to the severity of complications.

119. VERTICAL BANDED GASTROPLASTY VS ADJUSTABLE GASTRIC BANDING: A PROSPECTIVE LONG-TERM FOLLOW-UP STUDY

K Miller, E Hell, A Pump. *Obesity Surgery Center, Hallein Clinic, Austria.*

Background: Vertical banded gastroplasty (VBG) has been in clinical use since 1979 and the adjustable gastric band (AGB) since 1985. Since promising results were achieved with adjustable gastric bands on the market, some surgeons came to the conclusion that VBG might be totally abandoned and replaced by the AGB. The aim of this study was to compare the outcome, short- and long-term complications of the two procedures.

Methods: Within a period of 6 years (1995-2001), 1,117 gastric restrictive procedures were performed in the course of a prospective nonrandomized comparative trial. 563 VBGs and 554 ASGBs by a two surgeon experience were entered into the study. The mean BMI was 46.9±09.9 for VBG and 46.7±07.8 for AGB respectively. The patient selection was performed by admittance to one of the two surgeons. VBG was performed via laparotomy, AGB was performed laparoscopically. The Bariatric Analysis and Reporting Outcome System (BAROS) were performed to evaluate the postoperative health status and quality of life.

Results: The mean duration of follow up was 75 months with a minimum of 4 years (range, 48 to 134 months) with an overall follow-up rate of 92%. No statistical significant difference of outcome in terms of weight loss, reduction of co-morbidity and improvement in quality of life following AGB or VBG was observed in the short-term follow-up of 3 years. The 30 days mortality rate was 0.4 % (2 patients) in the VBG and 0.2 % (1 patient) in the AGB group. The overall reintervention rate on long-term follow-up was 29,1 % for the VBG and 8,3 % for the AGB group (*P*<0.001). The excess weight loss (EWL) was significantly higher in the VBG after 12 months (58% vs 42%, *P*>0.05). On long-term follow-up, no significant weight loss was observed for both groups (62 % for VBG and 64 % for AGB, *P*=0.923). The BAROS score in the short term (3 years) was good to excellent in the VBG and AGB group in 94% and 90%. On long-term follow-up, the BAROS score was significantly in favor to the AGB group, 84 % vs 58%, respectively (*P*<0.01)

Conclusions: This long-term follow-up study shows that VBG

and AGB are effective restrictive procedures in terms of weight loss. A lower reoperation rate with a better health status as well as higher quality of life for the AGB patient group has been documented with statistical significance.

120. HIATAL HERNIA AND WEIGHT LOSS. Video

A Sergio, C Magalhães, H Cardoso. *Hospital da Ordem do Carmo, Porto, Portugal.*

Background: Hiatal hernia is one of the complications after gastric banding and weight loss. When it happens, patients have a lot of complaints that several times mislead to consider instead a pouch dilatation with heartburn, regurgitation and vomiting.

Methods: The authors show a video where we can see this complication in a patient who had a gastric banding and that lost in 1½ years 80% of excess weight (105 to 64.5 kg), when she started complaining of heartburn and regurgitation, although we had the band totally empty. This complication was solved by laparoscopy, isolating the esophagus, closing the crura and repositioning the band.

Results: 1 year after the operation the patient is very well, with 80% of excess weight lost and without any complaint.

121. LAPAROSCOPIC GASTRIC BYPASS: EXPERIENCE WITH MORE THAN 450 PATIENTS

R Corcelles, S Delgado, D Momblan, R Bravo, V Moizé, J Vidal, AM Lacy. *Hospital Clínic de Barcelona, Spain.*

Background: Bariatric surgery is the only effective treatment for morbid obesity. Laparoscopic Roux-en-Y Gastric Bypass (LRYGBP), is considered by most authors the gold standard procedure. The aim of our study was to prospectively assess the outcome of the series of LRYGBP performed at our Institution between September 1999 and January 2006.

Methods: 450 subjects (mean age 40.4 years, mean BMI 47.7 kg/m²) were included. 70% of patients had at least one obesity-associated co-morbidity and 23% had more than 3. 34% had had prior abdominal surgery, with 22 cases having previous bariatric surgery. Surgical and weight loss outcomes are reported

Results: There were no conversions. The hand-assisted technique was employed in 6 patients. The mean operative time was 128 minutes, being significantly longer in subjects who had undergone prior restrictive bariatric surgery. Intraoperative complications occurred in 12 patients. The mean time to oral intake was 20.8 hours, and the mean hospital stay was 3.4 days. Morbidity was observed in 63 patients (14%): 39 patients presented major complications, and minor complications were noted in 24 patients. Overall mortality rate was 0.2% (1 case) with a re-intervention percentage of 4.8%. Late complications developed by 23 patients, stenosis of gastrojejunal anastomosis being the most common. Mean excess weight loss at 3, 6 and 12 months of follow up was 35.8%, 53.3% and 69.6%, respectively

Conclusions: Our results suggest that LRYGBP is a safe, feasible and effective technique with an acceptable morbidity and mortality rate in our unit.

122. COMPARISON OF WEIGHT LOSS AFTER LAPAROSCOPIC GASTRIC BYPASS FOR MORBID OBESITY, SUPER-OBESITY, AND FAILURE OF PREVIOUS RESTRICTIVE SURGERY

P Espalieu, V Ruer, G Poncet, J Boulez. *Hopital Edouard Herriot, Lyon, France.*

We report a monocenter study which reflects part of the learning curve of one of the authors, with 52 patients operated over a 4 year period, starting January 2001. We will analyze: Operative time and morbidity of the different techniques used (hand-assisted, Gagner, Cadière, Lonroth); Statistical analysis of the results, spe-

cially Excess Weight Loss, comparing three sub-groups: morbidly obese patients, super-obese patients (BMI >50), and patients converted to bypass for failure of a restrictive procedure (Banding or Vertical Banded Gastroplasty); Statistical analysis of the results in terms of weight loss according to the length of the alimentary limb.

123. REBANDING: PERSONAL EXPERIENCE. Video

C Giardiello, S Cristiano, MR Cerbone, V Antognozzi, E Silvestri.
Department of Surgery, Hospital of Casoria "S. Maria della Pietà",
Naples, Italy.

Background: The adjustable gastric band can be considered the first choice in the treatment of obesity for its efficacy and for the low incidence of complications. Complications are due to incorrect eating habits that can suggest band removal, and consequently the rebanding or a different surgical treatment. The goal of our study has been to evaluate the efficacy of rebanding in terms of weight loss and occurrence of early and late complications .

Methods: Between January 2001 and January 2006, 252 patients underwent gastric banding, 11 of which underwent rebanding for pouch dilatation. These were female, with mean age of 33.5 (\pm 12.5), and mean initial BMI of 46.2 (\pm 5.1). At the first operation, 6 Heliogast (Helioscopie) and 5 Lap-Band (Inamed) were inserted. The time of rebanding was 17 months (\pm 8) after the first operation, with a mean BMI of 33.4 (\pm 5). In rebanding operations 6 Lap-Band and 5 SAGB (Ethicon) were inserted. The patients have been monitored in our hospital from the multidisciplinary team, based on 3 intervention areas: medical-surgical, psychological and nutritional.

Results: Patients at 6-months follow-up had mean BMI of 37.2 (\pm 2.7), and at 1-year follow-up mean BMI of 36.4 (\pm 2.4). No early or late complications were recorded.

Conclusions: The rebanding has good results in terms of BMI at 1 year, with no early or late complications. Hence, we consider the positioning of the second band a valid option to maintain a long-term weight loss.

