

ALLIED HEALTH ABSTRACTS

1. PROFILE OF PATIENTS ATTENDING A MULTI-DISCIPLINARY WEIGHT MANAGEMENT CLINIC OF A TERTIARY HOSPITAL IN A SOUTH-EAST ASIAN COUNTRY

Peter Chou, Eric Gan, Davide Lomanto, Jimmy BY So. *National University Hospital of Singapore*

Background: 124 patients (2005-2006) attended the Weight Management Clinic. Majority of the patients were referred by physicians for metabolic syndrome and obstructive sleep apnea. Of these patients, 23.4% underwent laparoscopic gastric banding and 76.6% opted for dietary and exercise treatment.

Methods: Prospective data collection of all patients attending the Weight Management Clinic of NUH. The demographics, co-morbidities, lifestyles and eating pattern are analyzed with the statistical tool SPSS.

Results: Out of the 124 patients, 59.7% are females and 40.3% are males. Racial distributions are 46.8% Chinese, 21.8% Malays, 25% Indians and 6.5% Others. Mean age is 39.9, mean years overweight are 13.5, and mean BMI is 39.9. 58.9% professed of not exercising at all. As for eating habits, 70% professed to be sweet eaters and 85.7% bulk eaters, but most patients are neither smokers nor drinkers (75% and 83.6%). As for co-morbidities, 28.6% are diabetics on medications, 50.4% are hypertensive, 44.4% have hyperlipidemia, 8.9% have IHD, 50.4% have obstructive sleep apnea, 53.8% have osteoarthritis and 28.7% have esophageal reflux. Patients also exhibit family history of obesity, diabetes and IHD (67.8%, 49.5% and 39%). Chinese patients tend to be bulk eaters ($p=0.019$). Male patients tend to present with hypertension ($p=0.03$). Male patients have a strong correlation for obstructive sleep apnea ($p=0.01$). Female patients tend to have a more sedentary occupation ($p=0.001$). More male patients are smokers or past smokers ($p=0.000$). Female patients are more likely than male patients to opt for laparoscopic gastric banding for weight management ($p=0.006$).

Conclusion: There are more females who are morbidly obese than males in the local context. This could be due to their more sedentary lifestyles as compared to the local males. Chinese patients exhibit the cultural preference of bulk eating as compared to other races. The strong representation of male obese patients with smoking, hypertension and obstructive sleep apnea is similar to results of international studies on the subject. Lastly, local female patients tend to be more motivated to lose weight by surgical means than male patients.

2. THE MULTIDISCIPLINARY APPROACH TO THE MORBIDLY OBESE PATIENT

Asnat Raziell, Amir Szold. *The Israeli Center for Bariatric Surgery, Assuta Hospital, Tel Aviv, Israel*

Background: There are numerous causes for morbid obesity: genetic, hormonal, psychological, social, cultural, environmental and lack of exercise. Bariatric surgery is a successful treatment which solves the obesity but does not treat its causes.

Methods: We describe a model for a multidisciplinary approach to treat morbidly obese patients. It includes a cognitive behavioral treatment as well as frequent dietary consultations in the first three postoperative months.

Results: Patients enjoy loss of weight, improvement in co-morbidities and learn a new and healthier way of life. They develop a new relationship with food and practice new and improved habits.

Conclusions: It is very important to teach a morbidly obese patient how to cope with the changes in lifestyle. The bariatric center aids in first steps during the early postoperative period.

3. PREOPERATIVE PROGRAM WITH WEIGHT REDUCTION AND BEHAVIORAL THERAPY PRIOR TO SURGERY: IS IT WORTH IT?

Hjörtur Gislason, Björn Geir Leifsson. *Department of surgery, Landspítali University Hospital, Reykjavik, Iceland*

Background: It is a matter of debate if behavioral treatment prior to surgery increases success rate after surgery. Lower complication-rate after surgery and better weight loss and weight maintenance are parameters of importance.

Methods: From 2000-2006, we have performed 500 laparoscopic Roux-Y gastric bypass operations in Iceland. Prior to surgery 208 patients had a multi-disciplinary treatment at rehabilitation center (group A). The aim of the program was to establish a permanent lifestyle changes. Physical, psychological, nutritional and social aspects are stressed. The program includes outpatient treatment with 5% weight reduction, followed by intensive 5 weeks in-hospital treatment (or 8 weeks in day-care status) and outpatient follow-up for 2 years. The other 292 patients (group B) were prepared at the surgical outpatient clinic with 2-3 visits.

Results: The mean BMI was 50, mean age 38.1 years and 81 % of the patients were females. Preoperative weight loss was 13.7 kg in group A compared with 9.1 kg in group B. The mean hospital stay (3.3 d) and complication rate was equal (3.5%), in both groups. With 95% follow-up, the EWL was 82% at 18 months and 78% after 4 years, exactly the same in the two groups. The total direct cost of surgery was 780.000 ISK (10.600 USD / 8.020 EUR). The total cost of the behavioral therapy was 450.000 ISK (6.450 USD / 4.880 EUR).

Conclusions: Intensive behavioral treatment does not reduce our complication-rate or increase EWL or weight loss maintenance 4 years after surgery.

4. USE OF THE 6-MINUTE WALK TEST, MOOREHEAD ARDELT QUALITY OF LIFE QUESTIONNAIRE II AND THE HAQ QUESTIONNAIRE TO EVALUATE THE IMPACT OF A SPECIFIC PREOPERATIVE PROGRAM FOR MORBIDLY OBESE PATIENTS FOCUSED ON PHYSICAL ACTIVITIES

Vinicius Gomes da Silveira. *Universidade Federal do Rio de Janeiro, J.R.I. Carneiro UFRJ / HUCFF Bariatric Unit – Diabetes and Nutrition Department, Brazil*

Background: Bariatric surgery significantly ameliorates life conditions of severely obese patients. However, we believe that it is possible to improve their quality of life even before the surgical procedure.

Methods: 37 morbidly obese patients ($BMI = 50.00 \pm 6.68$ kg/m²) were evaluated for the Moorehead Ardel Quality of Life Questionnaire II and the HAQ questionnaire and submitted to a 6 minute walk test. They started on a specific preoperative program preparation initially focused on respiratory rehabilitation and subsequent aerobic work. 26 (70.27%) patients completed the program and were re-evaluated after an average period of 3 months.

Results: The distance covered at the end of the 6 minutes test and the speed measured at this period were significantly higher at the end of the program, respectively, (517.77 ± 54.15 m x 545 ± 53.51 m ; $p < 0.001$) and (5.17 ± 0.54 km/h x 5.45 ± 0.52 km/h). Total Moorehead Ardel score was significantly higher and the HAQ score was significantly lower at the end of the study; respectively (34.12 ± 12.73 x 47.22 ± 8.22 ; $p < 0.00$) and (1.05 ± 0.67 x 0.52 ± 0.45 ; $p < 0.001$).

Conclusions: When favoring weight loss, and improving mobility before surgery, a supervised physical program acts as an important factor of surgical risk reduction. Quality of life can be also improved. This can be particularly interesting for patients who do not want to be operated or those who have some impediment for the surgical procedure.

5. POSTURAL ASSESSMENT IN BARIATRIC CANDIDATES

Marlene Monteiro da Silva (Hospital das Clínicas, SM Fabris¹, AC Valez², SAF Souza³, J Faintuch⁴, M Pedroni Jr¹, E Vidotti¹, ICB Fonseca⁵, MF Andrade⁶, S Sukemi⁶, Marlene M Silva⁴. ¹Department of Physiotherapy, UNOPAR University, Londrina, ²Gastroenterology, Londrina State University, ³Department of Physiotherapy, Londrina State University, ⁴Gastroenterology, Hospital of Clinicas, São Paulo, ⁵Experimental Statistics, Londrina

Background: Postural deviations in obese subjects may contribute to adverse effects on bones and joints. In this sense, they may interfere with surgical outcome and long-term quality of life. The purpose of this study was to investigate the main abnormalities found in a homogeneous group of preoperative bariatric subjects.

Methods: Patients were stratified as Group 1, bariatric candidates (n=15; 80% females; age 50.0 ± 14.2 years; BMI 42.5 ± 8.2 kg/m²) and Group 2, non-obese adults (n=15; 93.3% females; age 32.6 ± 18.5 years; BMI 21.3 ± 1.6 kg/m²). Posture was analyzed by means of a Symmetrograph (wall grid), which permits the exact assessment of lines and angles of body architecture. Variables included anterior, lateral and posterior angular deviation from the vertical body axis at the head, shoulders, Thales triangle (torso), spine, pelvis, knees, ankles and feet.

Results: A significant adverse effect of obesity (P<0.05) on posture involving all major skeletal compartments was demonstrated. Main aberrations were flat foot, valgus ankle, genu valgum and hyperextension of the knees, pelvic anteversion and antepulsion, protuberant abdomen and head tilt.

Conclusions: 1) Bariatric candidates routinely deviated their axis of gravity to compensate for excessive load, thus generating bone and joint stress and deformity; 2) Evaluation and management of this population by a multidisciplinary team including a physical therapist is recommended. Acknowledgement: The support of FAPESP Foundation, Grant 06/51197-5 is appreciated.

6. CHANGES IN EXPECTATIONS BUT NOT IN BODY IMAGE DO NOT LEAD TO IMPROVEMENT IN SELF-ESTEEM OR DEPRESSION SIX MONTHS AFTER LAPAROSCOPIC GASTRIC BYPASS

Norberto Cassinello Fernández (Hospital Clínico Universitario), J. Ortega (Hospital Clínico); R. Fernández (Facultat Psicologia); S. Alvarez (Facultat Psicologia); M.J. Báguena (Facultat Psicologia); S. Lledó (Hospital Clínico)

Background: Preoperative psychological assessment of the morbid obesity patient submitted to a laparoscopic gastric bypass can change in the follow-up. The physical change goes so fast that often it costs to incorporate it to the mental structure causing nonrealistic and distorted expectations of image.

Methods: 32 patients submitted to laparoscopic gastric bypass were included, with an average BMI of 45.94 kg/m². We evaluated the preoccupation about the expectations, body image, the self-esteem, and the level of anxiety-depression that the patients display before operating and 6 months after the surgery, by a battery of questionnaires including the semistructured Boston interview, Hospital Anxiety and Depression Scale, Body Shape Questionnaire and the questionnaire of self-esteem of Rosenberg.

Results: The assessment of the body image before surgery and after 6 months, where the BMI has decreased to 34.4 kg/m², continues being a moderate preoccupation for the perception of the figure. On the other hand, levels of self-esteem, anxiety and depression change scarcely after 6 months. The most important previous factors to the operation for the patients are two: health and daily mobility. 6 months after, we find with a 100% importance the expectation related to the improvement of the health with a significant increase (p<0.05) in the change of expectations referring to the factor to improve the appearance.

Conclusions: The preoperative and postoperative subjective factor that is more valued by the morbid obese patient is the improvement of health. 6 months after laparoscopic gastric by-pass there are no changes in the body image appraised. Likewise the expectations related to appearance change significantly in postoperative follow-up, leading to the same levels in self-esteem and depression.

7. RADIOLOGICAL FINDINGS IN SYMPTOMATIC INTERNAL HERNIAS AFTER LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (LRYGBP)

Ahmed R Ahmed, Gretchen Rickards, Joseph Johnson, Thad Boss, William O'Malley. University of Rochester Medical Center, NY, USA

Background: Radiological findings in 58 symptomatic internal hernias based on our 6-year experience (2000-06) of 2572 LRYGBP patients are presented.

Methods: A retrospective chart review was performed of all patients undergoing LRYGBP who developed symptomatic internal hernia requiring operative intervention between Jan 1 2000 and September 15 2006. Types of radiological tests performed and their results were recorded. A positive finding was defined as any abnormal radiological finding suggestive of intestinal obstruction.

Results: 58 symptomatic internal hernias were recorded, of which 56/58 (97%) underwent radiological investigation; 2/58 went directly to surgery. The Table demonstrates the nature of imaging tests performed and incidence of positive findings. Performing both CT and upper GI series successfully diagnosed symptomatic internal hernia in all cases. Subgroup analysis did not reveal any association between positive result of imaging test and type of internal hernia.

Radiological Test performed	Number of patients (%)	Positive finding suggestive of internal hernia (%)
None	2/58 (3)	-
Abdominal radiograph	41/56 (73)	19/41 (46)
CT	37/56 (66)	34/37 (92)
Upper GI series	26/56 (46)	17/26 (65)
CT + Upper GI series	10/56 (18)	10/10 (100)
Ultrasound abdomen	8/56	0/8 (0)

Conclusion: This study demonstrates CT scanning as the single most effective radiological investigation for diagnosing internal hernias post LRYGBP. In non-diagnostic cases, the addition of an upper GI series increased the diagnostic rate to 100%. Delayed treatment can have catastrophic consequences and thus patients with worrisome findings on presentation should be considered for immediate surgical exploration without radiological work-up.

8. MAXIMAL PULMONARY PRESSURES IN OBESE PATIENTS

Marlene Monteiro da Silva, Hospital das Clínicas ¹SAF Souza, ²J Faintuch, ³JW Greve, ⁴N Cobben, ²I Ceconello. ¹Department of Physiotherapy, Londrina State University, Brazil

Background: Performance of the respiratory apparatus can be evaluated not only by means of volumes but also by pressures, especially maximal inspiratory and expiratory pressure. Such variables are commonly used in the assessment of surgical candidates, as they tend to correlate with postoperative complications. Respiratory dysfunction in patients with advanced obesity has been often reported, and it may contribute to exercise intolerance and well as to hospital course. Nevertheless, findings are controversial, as normal results have occasionally been reported in this population. The purpose of this study was to assess respiratory muscle strength determined by maximum respiratory pressure (P_{Imax} and P_{Emax}).

Methods: 33 patients with severe obesity aged 45.6 ± 10.0 years, body mass index 46.5±12.4 kg/m², 91% female participated in

the study. Maximum static inspiratory (PI_{max}) and expiratory (PE_{max}) mouth pressures were determined before bariatric surgery (Lap-Band). Patients were free from acute respiratory symptoms, and subjects with chronic obstructive lung disease, lung resections or other serious pulmonary conditions were excluded from the series.

Results: Both PI_{max} and PE_{max} were significantly below reference values (-64.7 ± 22.0 cmH₂O, $p=0.001$ and 86.2 ± 25.4 cmH₂O, $p=0.001$ respectively), in spite of the favorable clinical condition of that population.

Conclusion: Respiratory muscle function was markedly impaired in patients with severe obesity. Fat excess, and particularly visceral obesity, probably interfered with respiratory muscle activity.

9. BARIATRIC SURGERY IN AN ACHONDROPLASIC PATIENT WITH MORBID OBESITY - USE OF THE 6-MINUTE WALK TEST AS INDICATIVE OF MOBILITY AND QUALITY OF LIFE – EXTENSION OF THE EVALUATION UNTIL 18 MONTHS AFTER THE SURGICAL PROCEDURE

Vinicius Gomes da Silveira, *Universidade Federal do Rio de Janeiro*, João Regis Ivar Carneiro, *Hospital Universitário Clementino Fraga Filho - Bariatric Unit / Diabetes and Nutrition Division - Universidade Federal do Rio de Janeiro*, Ana Carolina Nader Vasconcelos, *Hospital Universitário Clementino Fraga Filho, Universidade Federal do Rio de Janeiro*, Denise Xerez *Hospital Universitário Clementino Fraga Filho - Bariatric Unit / Physiatry Department, Universidade Federal do Rio de Janeiro*, Gustavo Gavina da Cruz, *Hospital Universitário Clementino Fraga Filho, Fabricia Miranda Hospital Universitário*, José Carlos do Vale, *Quaresma Hospital Universitário Clementino Fraga Filho*, Raul G. A. Macedo, *Hospital Universitário Clementino Fraga Filho, Universidade Federal do Rio de Janeiro*, José Egídio Paulo de Oliveira, João Regis Ivar Carneiro, *Hospital Universitário Clementino Fraga Filho, Rio de Janeiro, Brazil*

Background: Achondroplasia is associated with a higher prevalence of musculoskeletal dysfunctions that significantly interfere with quality of life. The co-existence of this dysfunction and morbid obesity imposes a more impressive impact.

Case Report: A 28-year-old female with achondroplastic dwarfism and morbid obesity was referred May 2004 with 144 kg and 123 cm (BMI = 95.18 kg/m²). She was unable to walk, and reported nightly snoring and evidence of sleep apnea, orthopnea and bilateral leg edema. She also presented great difficulty in routine activities. We began her preparation with a multidisciplinary team formed by clinicians, cardiologists, nutritionists, psychologist, physical therapist and physiatrist aiming to optimize her health conditions and reduce surgery risk. She evolved very well losing weight progressively. Before surgery, weighing 125 kg (BMI = 82.26 kg/m²), she went through a 6-minute walk test when she cross a distance of 198 m. She underwent open vertical banded gastroplasty, and she evolved very well. Six months latter, weighing 98 kg (BMI = 64.77 kg/m²), she covered a distance of 236 meters on the same test. She was submitted to tests 12 and 18 months after the surgical procedure covering higher distances progressively (338 m and 385.51 m respectively).

Conclusions: The impact of progressive loss of weight after 18 months of the bariatric procedure parallels with an improvement of the 6-minute walk test.

10. BAND EROSION: OUR EXPERIENCE WITH GASTROSCOPIC BAND REMOVAL

Marco Antonio Zappa, E. Lattuada, M.A. Zappa, E. Mozzi, P. Granelli, F. De Ruberto, I. Antonini, P. Boati, S. Badiali, G.C. Roviario. *Dipartimento di Chirurgia Generale. Università degli Studi di Milano. Fondazione Ospedale Maggiore Policlinico, Mangiagalli e Regina Elena IRCCS, Italy*

Background: Band erosion is an unusual but major long-term complication of gastric banding; its frequency ranges from 0.5 to 3.8% and always requires removal of the band. Different laparoscopic, laparotomic or endoscopic methods are currently used to remove the band.

Methods: 673 morbidly obese patients underwent adjustable gastric banding from February 1998 to March 2007. Band erosion occurred in 3 patients, and 6 more patients were referred to our Center from other hospitals. To remove the band, in 7 out of 9 patients we used an endoscopic approach with a device designed to cut the band: the Gastric Band Cutter (A.M.I. Agency for Medical Innovation GmbH, Götzis, Austria).

Results: The gastric band cutter was able to cut successfully the band in all cases except one, where a twisting of the cutting wire required conversion to laparoscopy. In another case, the band, after being cut, was blocked in the stomach and required laparotomic removal. In 2 patients we had to remove surgically the band, in one case for port-site infection associated with a sub-phrenic abscess, and in the other case for acute pancreatitis, cholelithiasis and choledocholithiasis, associated with complete band migration in jejunum.

Conclusion: The Gastric Band Cutter proved successful in cutting the band in all cases, even if not all bands could be removed gastroscopically. It seems to be the procedure of choice in the treatment of band erosion. It is advisable to do it in the operating room for the possible complications of the procedure.

11. ANTHROPOMETRIC PROFILE AND PULMONARY FUNCTION IN OBESE SUBJECTS

Marlene Monteiro da Silva, *Hospital das Clínicas, S.A.F Souza*, J. Faintuch, J.W. Greve, N. Coben, I. Ceconello. *Department of Physiotherapy, Londrina State University, Brazil*

Background: Obesity may be associated with severe impairment of ventilation, involving both volumes and respiratory dynamics, however, few studies have been done with morbidly obese adults. This protocol aimed to evaluate the influence of obesity on pulmonary function in the preoperative period.

Methods: Morbidly obese patients (n= 49), age 44.3 ± 11.1 years, body mass index 52.4 ± 18.0 kg/m², 83.7% females, were prospectively analyzed. All were candidates for bariatric intervention (Lap-Band). Methods included anthropometrics and spirometry. Forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV₁) were used as principal measures of ventilatory function. All patients were clinically stable, and none of them suffered from chronic obstructive lung disease or reported chronic cough, dyspnea or cyanosis.

Results: Forced vital capacity and forced expiratory volume in one second (FEV₁) were significantly lower than in the normal population. However, these findings were not statistically influenced by anthropometric results. Obese individuals also presented significantly reduced expiratory reserve volume (ERV), which negatively correlated with BMI.

Conclusions: 1) Pulmonary function was clearly diminished in asymptomatic morbidly obese surgical candidates; 2) Both patients with lower and higher BMI were similarly affected; 3) Only findings for expiratory reserve volume were influenced by BMI.

12. EXCELLENT OUTCOMES AFTER LAPAROSCOPIC GASTRIC BYPASS CAN BE ACHIEVED IN A COMMUNITY BASED TRAINING PROGRAM WITH MODERATE CASE VOLUME

Shanu N. Kothari¹, Matthew T. Baker¹, Christopher A. Larson¹, Michelle A. Mathiason². ¹Dept. of General Surgery, *Gundersen Lutheran Health System*; ²Dept. of Research *Gundersen Lutheran Medical Foundation, La Crosse, WI, USA*

Background: Laparoscopic gastric bypass remains one of the most advanced laparoscopic procedures currently performed

worldwide. The following represents a single institutional series from a community based training program with a minimally invasive bariatric surgical program.

Methods: Data from all patients undergoing laparoscopic retrocolic, retrogastric Roux-en-Y gastric bypass (RYGBP) since the inception of the program were entered into a prospective database. Measured outcomes included length of operation, length of stay, major and minor complications, and percentage excess weight loss. Results were compared to published outcomes in a recent review of the literature of over 3400 cases using chi square and Fischer exact test (Arch Surg 2003;138:957-61.)

Results: From 2001 to 2005, 500 consecutive patients underwent laparoscopic 9.3 years. The mean weight was $\pm 136 \pm 22.4$ kgs. Initial BMI was 48 ± 6 . The mean length of stay was 2.2 ± 1 . The length of operation was 146 ± 32 minutes. Mean %EWL at 1 year was 72% (n=344).

Complication	N=500	Literature	p-value
Mortality	0.0	0.2	.607
Anastomotic Leaks	0.4	2.0	.007
Pulmonary Embolism	0.2	0.4	.704
Bleeding	3.4	1.9	.133
Bowel Obstruction	3.2	2.9	.726
Wound Infection	2.0	3.0	.219

Conclusions: Exemplary outcomes following laparoscopic RYGBP can be achieved in a community based program with moderate case volume. Reimbursement decisions should be based on actual quality indicators rather than volume alone.

13. SATISFACTION WITH INTIMACY, SOCIAL ACTIVITIES, FAMILY AND FRIENDS SOCIAL SUPPORT: ARE THERE DIFFERENCES BETWEEN OBESE PATIENTS WAITING FOR BARIATRIC SURGERY AND PATIENTS WHO WERE ALREADY SUBMITTED TO THIS PROCEDURE

I. Silva¹, J. L. Pais-Ribeiro², H. Cardoso³, G. Rocha³, M. Monteiro⁴, C. Nogueira⁵, J. Santos⁵, A. Sérgio⁵. *1Fernando Pessoa University; Psychology and Educational Sciences College, Porto University – Grant from Science and Technology Foundation (BPD-28475-2006), Porto, Portugal); 2Psychology and Educational Sciences College, Porto University, Porto, Portugal*
Background: The impact of bariatric surgery in patients' satisfaction with intimacy, social activities, and family and friends social support has been reported in psychotherapy context.

Methods: The aim of this study was to analyze the differences in satisfaction with intimacy, social activities, family and friends social support between patients who were submitted to bariatric surgery and patients who are still waiting for this procedure. Two groups were studied: - A cohort of 37 obese patients waiting for bariatric surgery, aged between 17 and 61 (M=37.54), 89.2% female, with BMI ranging between 30.37 and 71.98 (M=47.58); - A cohort of 37 obese patients who had been submitted to bariatric surgery (78.4% gastric band and 21.6% bypass); mean follow-up of 30.69 months; with a mean BMI before surgery of 50.36, aged between 23 and 62 (M=44.57), 86.5% female, with a current BMI ranging between 23.32 and 49.24 (M=34.62). Participants answered to the Social Support Satisfaction Scale in the context of a personal interview, and clinical data were collected from patient's hospital records, after their informed consent. In order to achieve our objective, we have proceeded to a Student t-test analysis.

Results: Data analysis demonstrate that patients who were already submitted to bariatric surgery report higher satisfaction with intimacy (t(71)=-3.12; p<.01), social activities (t(71)=-2.23; p<.05), family (t(71)=-2.23; p<.05) and friends support (t(71)=-3.57; p<.01).

Conclusion: Results suggest that bariatric surgery has important consequences on social support satisfaction and that this treatment probably contributes to improve social functioning and adjustment in obese patients.

14. PSYCHOLOGICAL EVALUATION FOR OBESITY SURGERY CANDIDATES

M.M. Silva, C.D.B. Sobreira, C.E. Machado, S.E.F. Modesto, A.B. Garrido Jr., M.C.S. de Lucia. *Obesity Surgery Unit of the Digestive System Surgery Department and Division of Psychology; Hospital das Clínicas, São Paulo, Brazil*

Background: Morbid obesity has diverse causes, needs attention of different professionals, and bariatric surgery is the gold standard method of treatment. The psychological evaluation is an important part of the preparation to surgery. It identifies aspects of emotional structure, including healthy and pathological aspects of the personality, and contributes for the prognosis after many years of surgery. The objective of this study is to report the importance to evaluate the emotional structure and aspects of the personality of the obesity surgery candidates through 25 years of experience using psychological evaluation.

Methods: The psychological evaluation has been applied with psychological tests, clinical interview and Binge Eating Scale (BES). This process permits to know the structure of the personality and the psychological functioning of the obese patients.

Results: The experience demonstrated that these patients present impulsiveness, affective immaturity, persecutory ideas, aggressiveness, passivity, shyness, depression, melancholy, compulsion, unstable mood, anxiety and bipolar personality disturbances.

Conclusions: It is not possible to define a single psychic structure for the obese patients, but knowledge is necessary about aspects of their personality structure and psychic dynamic to orientate the psychological treatment, the surgical indication and the appropriate surgical technique to be used.

15. QUALITY OF LIFE IMPROVES AND CORRELATES WITH WEIGHT LOSS AFTER GASTRIC BYPASS SURGERY

John Morton, E. Lawson, B. Encarnacion. *Stanford University School of Medicine, Department of Surgery, Stanford, CA, USA*

Background: Gastric bypass surgery has been demonstrated to provide significant improvement in weight loss, co-morbidity resolution, quality of life (QoL) and survival. Both general and disease specific QoL instruments exist for obesity and its related co-morbidities. The aim of our study was to examine different QoL instruments demonstrating their improvement over time as well as their correlations to each other and to weight loss.

Methods: The Gastro-Intestinal Related Quality of Life (GIRQoL), Three Factor Eating Questionnaire (TFEQ), Impact of Weight on QoL (IWQOL), Short Form for Musculo-Skeletal Function Assessment (SMFA), Beck Depression Index (BDI), and SF36 surveys were administered prospectively for 86 gastric bypass patients and again at 3, 6, and 12 months. Patient demographics included average age 43, 82% female, and average pre-op BMI 49. Continuous and categorical variables were analyzed via T-test and Chi Square test respectively with a p-value of 0.05 set as significant.

Results: All survey results were significantly different from general societal norms at pre-op. At three and six months, all QoL surveys demonstrated significant improvement. Correlations in preop QoL results demonstrated there was significant correlation (Spearman) GIRQoL (-.34), IWQOL (.28), and BDI (-.14) to all QoL instruments. The two QoL instruments which best correlated (Spearman) to preop and postop BMI included TFEQ (-.29) and IWQOL (.29).

Conclusion: Gastric bypass clearly improves quality of life with Impact of Weight on Quality of Life demonstrating best correlation to other Quality of Life instruments and pre- and post-operative BMI.

16. ANGER EXPRESSION ASSOCIATED WITH THE OCCURRENCE OF BRUXISM AFTER ROUX-EN-Y GASTRIC BYPASS

M.M. Silva, V.L. Kogler, C.D.B. Sobreira, C.E. Machado; A.B. Garrido Jr., M.C.S. de Lucia. *Obesity Surgery Unit of the Digestive System Surgery Department and Division of Psychology; Hospital das Clínicas, São Paulo, Brazil*

Background: Through studies and clinical observations there was verified inappropriate manifestations of aggressiveness; difficulties of control and expression of anger feelings, and inadequate aiming of these feelings. Correlation was observed between manifestation of anger and obesity, suggesting that obese patients transfer to eating behavior their difficulty in anger expression. The objective of this study is to observe if the operated patients present eccentric bruxism (habit to creak the teeth during sleep) to express anger, either repressed or manifested after food ingestion surgically reduction.

Methods: 48 patients submitted to RYGBP were studied 5 years or more after the operation, using the evaluation of the State-Trait Anger Expression Inventory (S.T.A.X.I.) and to the detailed dental Questionnaire, panoramic face x-ray, test of Helkimo (Index of craniofacial dysfunction), combined with the Index of Quality of Sleep of Pittsburg.

Results: 58,5% of the patients with eccentric bruxism present a repressed anger score above average and 63.5% of the same group present an expressed anger score below average, suggesting that anger expression is transferred to tension of the teeth. The variables Expressed Anger and Repressed Anger are different according to the groups with eccentric bruxism present or not (value of $p > 0.05$).

Conclusions: Eccentric bruxism after RYGBP is related to the repressed anger expression.

17. WORK-RELATED QUALITY OF LIFE IN OBESE PATIENTS WHO ARE WAITING FOR BARIATRIC SURGERY AND PATIENTS WHO WERE ALREADY SUBMITTED TO THIS SURGICAL PROCEDURE

Isabel Silva, J. L. Pais-Ribeiro, H. Cardoso, G. Rocha, M. Monteiro, C. Nogueira, J. Santos, A. Sérgio. *Hospital Geral de Santo António, Fernando Pessoa University; Psychology and Educational Sciences College, Porto University, Grant from Science and Technology Foundation (BPD-28475-2006); Pro-QOL Group, Porto, Portugal; Psychology and Educational Sciences College, Porto University, Porto, Portugal*

Background: Obese patients often report discrimination and prejudice in the job market, and research reveals that obesity is positively associated to workdays lost, restricted activity, doctors' office visits made and bed-bound days.

Methods: The aim of this study was to analyse the differences in job related quality of life between patients who were submitted to bariatric surgery and patients who are still waiting for this procedure. Two groups were studied: - A cohort of 37 obese patients waiting for bariatric surgery; mean age of 37.54; 89.2% female; with a mean BMI of 47.58. - A cohort of 37 obese patients who had been submitted to bariatric surgery (78.4% gastric band and 21.6% bypass); mean follow-up of 30.69 months; with a mean BMI before surgery of 50.36; mean age of 44.57; 86.5% female; with a mean current BMI of 34.62. Participants answered to ORWELL 97 Portuguese version. Clinical data were collected from patient's hospital records, after their informed consent. Data was analyzed through Student t-test.

Results: Data analysis demonstrates that there are no significant difference between the two groups concerning how important they consider to have success in their job is. However, patients who are still waiting for bariatric surgery report lower quality of life in the job domain generally considered ($t(70)=5.77$; $p < .0001$), as

well as they consider that their body weight constitutes a higher obstacle to accomplish their job tasks ($t(70)=6.11$; $p < .0001$). **Conclusion:** Although job is equally important for the two groups studied, quality of life related to job domain seems to improve after surgery induced weight loss.

18. BINGE EATING DISORDER BEFORE AND AFTER BARIATRIC SURGERY: EXPLORATORY STUDY

Isabel Silva, J. L. Pais-Ribeiro, H. Cardoso, G. Rocha, M. Monteiro, C. Nogueira, J. Santos, A. Sérgio. *Hospital Geral de Santo António Fernando Pessoa University; Psychology and Educational Sciences College, Porto University- Grant from Science and Technology Foundation (BPD-28475-2006), Porto, Portugal; Psychology and Educational Sciences College, Porto University, Porto, Portugal*

Background: A substantial percentage of bariatric surgery patients suffer from binge eating disorder (eating disorder which symptoms include overeating episodes, accompanied by a subjective loss of control and significant emotional distress). Some researchers consider that the presence of binge eating disorder before surgery is associated with poor surgery outcomes.

Methods: The aim of this study was to analyze the differences in binge eating disorder between patients who were submitted to bariatric surgery and patients who are still waiting for this procedure. Two groups were studied: - A cohort of 37 obese patients waiting for bariatric surgery; mean age of 37.54; 89.2% female; with a mean BMI of 47.58. - A cohort of 37 obese patients who had been submitted to bariatric surgery (78.4% gastric band and 21.6% bypass); mean follow-up of 30.69 months; with a mean BMI before surgery of 50.36; mean age of 44.57; 86.5% female; with a mean current BMI of 34.62. Participants were submitted to a psychological assessment in the context of a personal interview, and clinical data were collected from patient's hospital records, after their informed consent. Data was analyzed through Chi-Square Test.

Results: Data analysis demonstrate that patients who were already submitted to bariatric surgery report less frequently to present binge eating disorder ($\chi^2(1,72)=24.66$; $p < .0001$) than those who are still waiting for this surgery.

Conclusion: As binge eating was not considered as a contra-indication for bariatric surgery, we can conclude that this surgical procedure contributed to the improvement of this eating disorder.

19. SEXUAL LIFE: DIFFERENCES BETWEEN OBESE PATIENTS WAITING FOR BARIATRIC SURGERY AND PATIENTS ALREADY SUBMITTED TO THIS PROCEDURE

I. Silva, J. L. Pais-Ribeiro, H. Cardoso, G. Rocha, M. Monteiro, C. Nogueira, J. Santos, A. Sérgio. *Fernando Pessoa University; Psychology and Educational Sciences College, Porto University - Grant from Science and Technology Foundation (BPD-28475-2006), Pro-QOL Group, Porto, Portugal; Psychology and Educational Sciences College, Porto University, Porto, Portugal*

Background: One of the most usual complaints in obese patients' psychological consultation is the diminished libido and body weight as a physical obstacle to sexual performance. Nevertheless, sexual domain is very often neglected by the health care team.

Methods: The aim of this study was to analyze the differences in sexual life between patients who were submitted to bariatric surgery and patients who are still waiting for this procedure. Two groups were studied: - Group 1: A cohort of 37 obese patients waiting for bariatric surgery; mean age of 37.54; 89.2% female; mean BMI of 47.58. - Group 2: A cohort of 37 obese patients who had been submitted to bariatric surgery (78.4% gastric band and 21.6% bypass); mean follow-up of 30.69 months; mean BMI before surgery 50.36; mean age 44.57; 86.5%

female; with a mean current BMI of 34.62. Participants answered to ORWELL 97 Portuguese version. Clinical data were collected from patient's hospital records, after their informed consent. Data were analysed through Student t-test.

Results : Results show that Group 1 patients consider their sexual life as important as Group 2 patients. However, Group 1 patients report lower quality of life in the sexual domain generally considered ($t(68)=7.45$; $p<.0001$), and report that their body weight more frequently constitutes a physical obstacle to their sexual performance ($t(68)=5.45$; $p<.0001$).

Conclusion: Although sexual life is equally important for the two groups studied, quality of life related to sexual domain seems to improve after surgery induced weight loss.

20. QUALITY OF LIFE IN PATIENTS WITH MORBID OBESITY SUBMITTED TO BARIATRIC SURGERY BY DUODENAL SWITCH

A Vázquez Prado, EM^a Montalvá Orón, P Galindo Jara, L De Tursi Rísoli, A Ismail Mahomoud, C Redondo Cano. *General and Digestive Surgery Service. University General Hospital, Valencia, Spain*

Background: To evaluate the quality of life of patients with morbid obesity submitted to surgery by duodenal switch.

Methods: In a series of 118 patients (10 men and 90 women, with an average age of 41.8 years and average BMI of 49.2), the post-operative quality of life is evaluated following the B.A.R.O.S score. We excluded 18 patients because they did not arrive to a year of follow-up.

Results. All the patients have responded the questionnaire ($n=100$), and more than 50% have had a follow-up of two years at least and the whole more than a year. No patient considered its self-esteem "much worse" and only in two cases was "worse", "equal" in 18, "better" in 48 and in 32 "far better". In the physical activity, there were no cases "much worse" nor "worse", "equal" 28, 50 "better" and 22 "far better" attending to patient's answers. The social activity showed that there was no patient who had it "much worse", "worse" in one case, 20 "equal", 46 "better" and 33 "far better". In the labor activity, 3 patients were "much worse", 4 "worse", 28 "equal", 38 "better" and 27 "far better". No patient responded to be "much worse" in his/her sexual relations, 2 "worse", 36 "equal", 40 "better" and 22 than "far better".

Conclusions. The quality of life in morbid obesity patients submitted to duodenal switch improves dramatically, so that 71.6% of the patients consider that quality of life is better or far better.

21. VARIATION AND EFFICACY OF PREOPERATIVE PSYCHOLOGICAL EVALUATION FOR BARIATRIC SURGERY

John Morton, I. Liu, B. Encarnacion. *Stanford University School of Medicine, Department of Surgery, Stanford, CA, USA*

Background: Bariatric surgery remains the only effective and enduring treatment for morbid obesity. A hallmark of bariatric surgery pre-operative preparation includes a psychological evaluation. The purpose of this study is to determine the adequacy of the psychological evaluation and its potential prediction of future weight loss.

Methods: At a single academic institution, clinical records for 179 bariatric surgery patients were reviewed from 2005-2006. Demographic, co-morbidity, and weight loss data were recorded. Psychological evaluation was required prior to surgery but the evaluation could be obtained by outside providers. All psychological evaluations were reviewed by two independent observers for diligence of evaluation and its correlation to weight loss. Continuous and categorical variables were compared by t-test and chi-square analysis respectively with $p<.05$ set as significant.

Results: Of the 179 patients, 82% were female with an average age of 43 and diabetes rate 33%. There was large variation in which items were reported in the psychological evaluation. The

following items and their frequency of reporting of any response follows: educational level, 35%; employment, 69%; living situation, 66%; family psychiatric history, 45%; number of anti-depressants, 32%; suicidal ideation, 37%; alcohol use, 51%; Axis I-V, 10%; thought process, 38%; mood, 46%; and affect 40%. The only psychological evaluation item associated with poorer one year weight loss was poor energy level ($p<.05$).

Conclusion: Considerable variation exists in psychological evaluation reporting for bariatric surgery. Additionally, there is poor documentation of important psychological data with little correlation of any psychological finding to long-term weight loss. These results may indicate a need for a dedicated program psychologist and a consensus regarding appropriate psychological data reporting.

22. QUALITY OF LIFE, PSYCHOSOCIAL ADJUSTMENT AND SYMPTOMS: ARE THERE DIFFERENCES BETWEEN OBESE PATIENTS WAITING FOR BARIATRIC SURGERY AND PATIENTS WHO WERE ALREADY SUBMITTED TO THIS PROCEDURE?

I. Silva, J. L. Pais-Ribeiro, H. Cardoso, G. Rocha, M. Monteiro, C. Nogueira, J. Santos, A. Sérgio. *Fernando Pessoa University; Psychology and Educational Sciences College, Porto University-Grant from Science and Technology Foundation (BPD-28475-2006); Pro-QOL Group, Porto; Psychology and Educational Sciences College, Porto University, Porto, Portugal*

Background: One of the most important bariatric surgery outcomes is, patients' quality of life and psychosocial well-being.

Methods: The aim of this study was to analyze the differences in quality of life, psychosocial adjustment and symptoms between patients who were submitted to bariatric surgery and patients who are still waiting for this procedure. Two groups were studied:

- A cohort of 37 obese patients waiting for bariatric surgery; mean age of 37.54; 89.2% female; with a BMI ranging between 30.37 and 71.98 ($M=47.58$; $SD=8.54$). - A cohort of 37 obese patients who had been submitted to bariatric surgery (78.4% gastric band and 21.6% bypass); mean follow-up 30.69 months, with a mean BMI before surgery of 50.36; mean age of 44.57; 86.5% female, with a current BMI ranging between 23.32 and 49.24 ($M=34.62$; $SD=6.46$). Participants answered to SF-36 and ORWELL 97 Portuguese versions in the context of a personal interview, and clinical data were collected from patient's hospital records, after their informed consent. Student t-test analysis was used.

Results: Data analysis demonstrate that patients who were already submitted to bariatric surgery report higher psychosocial adjustment and higher quality of life in all the domains studied (namely, physical functioning, role-physical, body pain, general health, vitality, social functioning, role-emotional, mental health, and health transition), as well as less symptoms.

Conclusion: Surgery induced weight loss is accompanied by positive changes in quality of life, psychosocial adjustment and symptoms.

23. DO OBESE PATIENTS WHO CHOOSE BARIATRIC SURGERY DIFFER IN CLINICAL CHARACTERISTICS, EATING DISORDERS OR PSYCHOPATHOLOGY FROM THOSE WHO CHOOSE TRADITIONAL TREATMENT?

Mikael Wirén (*Karolinska Huddinge*), K. Elfhag (*Obesity Unit*); L. Konradsson (*Gastrocentrum*), Sweden

Background: Bariatric surgery is a radical intervention that requires subsequent adjustment to the post-operative condition. Information on the morbidly obese prone to select a surgical intervention is needed.

Methods: Clinical characteristics of patients selecting bariatric surgery vs non-surgical treatments were evaluated in 281 patients (188 women, 93 men) with a mean BMI of 41.3 kg/m² and a mean age of 43.6 years from May 2003 to December 2004. Basic background data, eating disorders (Binge Eating Disorder

and Bulimia Nervosa) were evaluated by using the Questionnaire of Eating and Weight Related Patterns-Revised (QEWP-R), and psychopathology using the Symptom Check List-90 (SCL-90). Results were compared for the 53 patients choosing surgery vs the 228 choosing nonsurgical treatment.

Results: Obesity patients requesting bariatric surgery were more often women (79 vs 64%, $p<0.05$), younger (37.8 vs 44.9 years, $p<0.001$), heavier (BMI 43.8 vs 40.8 $p<0.01$) and had an earlier onset of obesity (11.4 vs 17.4 years of age, $p<0.001$). There were no significant differences in education (64 vs 58 % with post-college education), eating disorders (10 vs 10%) or psychopathology (GSI 0.99 vs 0.94) between the groups.

Conclusion: Young women who are severely obese, who have been obese for the major part of their life and made many weight loss attempts may be most motivated to seek a solution of their obese state through bariatric surgery. In many respects, the obesity patients requesting bariatric surgery can be the most likely for a successful outcome, according to predictors in prior literature.

24. QUALITY OF LIFE BEFORE AND AFTER GASTRIC BANDING IN A MULTIDISCIPLINARY INSTITUTION

Anthony Brancatisano, T. Brancatisano, S. Wahloors, R. Brancatisano. *Institute of Weight Control, Sydney, Australia*

Background: Quality of life (QOL) is an independent outcome measure for obesity surgery in addition to weight loss and improvement in co-morbid illnesses. The aim of this study was to examine the impact of weight loss on QOL following gastric banding using the Swedish Adjustable Gastric Band (SAGB).

Methods: QOL was evaluated using the Short Form 36 Health Survey (SF 36) and Beck Depression Inventory II (BDI-II) questionnaires. Forms were administered to 84 consecutive patients preoperatively undergoing laparoscopic gastric banding using the SAGB, and again 1 year postoperatively. Each patient was followed up by the multidisciplinary team which consisted of a surgeon, physician, dietician, psychologist and exercise consultant. The results of each category were compared to their individual pre and post score, and a paired t-test was used to calculate p values.

Results: There were 71 females and 13 males. Following a median follow-up of 13 months, mean (\pm SD) body mass index (BMI) decreased from 44.5 ± 9 kg/m² to 36.7 ± 9 kg/m² ($p<0.0001$), with excess weight loss of $37.2 \pm 19\%$. This was associated with significant differences between the pre- and postoperative scores in all SF 36 subscales (Table 1). Also, the mean (\pm SD) BDI-II score preoperatively was 16.9 ± 12 , and decreased significantly to 7.6 ± 10 postoperatively ($p<0.0001$).

Conclusions: Preoperative SF-36 and BDI-II scores indicate severe disability with the presence of mild to moderate depression in morbidly obese patients. Furthermore, modest weight loss following SAGB significantly improves QOL as well as depression to almost normal population values.

Components	Postoperative group (n=84)	P value	Preoperative group (n=84)
Physical functioning	55.7 \pm 27	$p<0.0001$	86.9 \pm 22
Role physical	45.1 \pm 38	$p<0.0001$	88.3 \pm 27
Body pain	55.7 \pm 28	$p<0.0001$	78.1 \pm 24
General health	37.4 \pm 23	$p<0.0001$	71.1 \pm 20
Vitality	32.8 \pm 21	$p<0.0001$	61.2 \pm 21
Social function	59.1 \pm 32	$p<0.0001$	85.9 \pm 22
Role emotional	61.0 \pm 41	$p<0.0001$	89.6 \pm 26
Mental health	57.1 \pm 26	$p<0.0001$	74.8 \pm 20

25. ALTERED THIAMINE DISTRIBUTION IN MORBID OBESITY

E.T. Aasheim, T. Böhmer. *Department of Medicine, Aker University Hospital and Faculty Division Aker university Hospital, University of Oslo, Oslo, Norway*

Background: Inadequate thiamine status in morbidly obese patients prior to surgery and severe thiamine deficiency with Wernicke

encephalopathy after bariatric surgery have been reported.

Methods: We prospectively examined thiamine status in 49 morbidly obese patients (mean age 39 years; 34 women) visiting a public bariatric surgery clinic and in 32 healthy, normal-weight controls of similar age, gender, and ethnicity. Participants with excessive alcohol consumption or a regular intake of vitamin supplements were not included in the study. The mean BMIs in the patients and controls were 46 (SD 6) and 24 (SD 3) kg/m², respectively. Thiamine and its phosphate esters were determined in blood and serum by high pressure liquid chromatography (Tallaksen CM, 1991).

Results: The obese patients had significantly increased mean erythrocyte thiamine pyrophosphate levels adjusted for hemoglobin compared with controls, 930 (SD 230) vs 770 (SD 130) pmol/g Hb ($p=0.001$). Patients also had significantly lower levels of serum thiamine, serum thiamine phosphate, and hemoglobin-adjusted erythrocyte thiamine phosphate ($p<0.03$ for each). Only one patient and no controls had a level below the reference interval for erythrocyte pyrophosphate, which in general is the preferred indicator of depleted thiamine tissue stores.

Conclusions: Morbidly obese patients have an altered distribution of thiamines, characterised by increased levels of thiamine pyrophosphate in erythrocytes and reduced levels of other thiamine esters in serum and blood. A low thiamine level in serum might therefore not indicate inadequate thiamine status in patients with morbid obesity.

26. NUTRITIONAL DEFICIENCIES IN BARIATRIC SURGERY CANDIDATES

Andrei Keidar (*Hadassah Medical Organization*), C. Schweiger, E. Berry, *Department of Clinical Nutrition and Department of Surgery, Israel*

Background: Bariatric patients are prone to development of mineral and vitamin deficiencies postoperatively. In view of high caloric intake they are not supposed to have nutrient deficiencies, but the scant existent data shows that there are hypovitaminosis in 20-30% of them even before surgery.

Methods: Between 01/2006 and 04/2007 all bariatric patients operated in our department had their nutritional status assessed preoperatively. A variety of vitamins and minerals was assessed before surgery. When low levels were identified, the patient was treated appropriately and retested before surgery.

Results: 55 primary bariatric operation patients were included, 39 females, 16 males. The mean age and BMI were 34 (17-59) and 46 (35-75) respectively. B₁₂ levels were collected in 52, Folic Acid in 50, Albumin in 55, calcium in 55, Phosphorus in 46, Iron and Ferritin in 45 and 47 respectively, and PTH in 44. The percentages of low levels were as follows in the respective order: 12%, 36%, 0%, 0%, 0%, 36%, 17%, and high PTH was found in 32%. Actual anemia was found in 7 patients, all but one women. In five it was iron deficiency anemia, one mixed iron and B12 deficiency-caused, and one unrelated. After treatment preoperatively the levels of deficient substrates improved in majority, and the anemia resolved in 4.

Conclusions: Since the incidence of nutritional deficiencies in bariatric surgery candidates is high and replacement is difficult postoperatively, all efforts should be made to treat them before surgery. Screening of all surgery candidates preoperatively is worthwhile.

27. VITAMIN C DEFICIENCY IN THE BARIATRIC SURGICAL POPULATION

Shanu Kothari (*Gundersen Clinic*), Kevin P. Riess, John P. Farnen, Pamela J. Lambert, Michelle A. Mathiason, Shanu N. Kothari. *Department of Research, Gundersen Lutheran Medical Foundation and Department of Surgery, USA*

Background: Ascorbic acid, vitamin C, is a water-soluble nonenzymatic antioxidant that is essential for cross-linking collagen.

Unlike most species, which synthesize ascorbic acid from glucose, humans rely entirely on dietary intake. The prevalence of vitamin C deficiency in the surgical population and the effects of obesity regarding deficiency are unknown. Our objectives was: 1. To determine the prevalence of vitamin C deficiency in the surgical population. 2. To determine the association between body mass index (BMI) and ascorbic acid concentrations. 3. To determine whether an association exists between ascorbic acid deficiency and adverse surgical outcomes.

Methods: Plasma ascorbic acid levels were prospectively assessed in 20- to 60-year-old patients undergoing elective abdominal surgery. Ascorbic acid levels were assessed preoperatively. Ascorbic acid deficiency was defined as any level ≤ 0.3 mg/dL and depletion as any level >0.3 and <0.6 mg/dL.

Results: Of the 266 patients 35. Overall, 57 (21%) patient evaluated, 167 patients had a BMI ≥ 30 and 99 patients were deficient. Vitamin supplementation decreased depletion rates from 23% to 20% ($p=0.001$) and deficiency rates from 23% to 5% ($p=0.001$). Factors contributing to decreased mean ascorbic acid levels included younger age ($p=0.004$), limited intake of vegetables and fruits ($p=0.026$), and greater BMI ($p=0.021$). No significant difference was found in postoperative complication rates.

Conclusion: Ascorbic acid depletion and deficiency occurs within the surgical population. Contributing factors included younger age, limited dietary intake of fruits and vegetables, lack of supplementation, and greater BMI. Low levels of ascorbic acid do not affect surgical outcome.

28. PANCREATIC ENZYME PREPARATIONS IN THE MANAGEMENT OF PROTEIN MALNUTRITION FOLLOWING MALABSORPTIVE BARIATRIC SURGERY

Conor Magee, J Brocklehurst, DD Kerrigan. *Aintree University Hospital*

Background: Hypoalbuminemia in the first 1-2 years after malabsorptive surgery is relatively infrequent, but can require intensive enteral/parenteral supplementation. We investigated whether the alimentary limb could be utilized to enhance protein absorption by the addition of pancreatic enzyme preparations.

Method: Six patients developed significant hypoalbuminemia (< 30 g/l) following duodenal switch or gastric bypass. Their oral protein intake was 1.2g/kg/IBW. They were managed with a combination 1.5 g/kg/IBW high protein diet and pancreatic enzyme supplements (Creon, Solvay). Once normal serum albumin levels had been achieved, Creon was discontinued, and patients were maintained solely on the high protein diet.

Results: Hypoalbuminaemia was successfully and rapidly corrected in all patients. Creon was required for 7 weeks (median; range 4-12 weeks). Mean serum albumin rose from 22.5 g/l to 39 g/l during this period, with bowel frequency decreasing to 2-3 motions per day. At follow-up a minimum of one month after cessation of Creon, patients had a mean protein intake of 1.4 g/kg/IBW, and all had maintained normal serum albumin levels. Bowel frequency was relatively stable at 2-3 motions per day.

Conclusion: A combination of a high protein diet and pancreatic enzyme supplementation effectively and rapidly corrects significant postoperative hypoalbuminaemia after malabsorptive bariatric procedures. Afterwards, serum albumin could be maintained by providing a protein intake of 1.4 g/kg/IBW.

29. COMPLIANCE TO PRESCRIBED SUPPLEMENTS AFTER GASTRIC BYPASS

Mikael Wirén (*Karolinska Huddinge*), K. Larsson (*Gastrocentrum*); P. Lundquist (*Clinitec*), C. Olsson (*Gastrocentrum*), Sweden

Background: Gastric bypass is the most common bariatric surgical method in Sweden. Hypocalcemia and low levels of vitamin D

are common in the morbidly obese. Side-effects of gastric bypass include micronutrient deficiencies.

Methods: It has been our policy to prescribe B_{12} , calcium/vit D and multivitamin supplementation mandatory and to follow blood tests including Hb and plasma iron regularly. This is a survey of patients with a follow-up of >2 years after gastric bypass. How many of these patients actually got a prescription, were they compliant and did they develop deficiencies in vitamin B_{12} , iron and calcium? Data on PTH or DEXA were not routinely collected. The aim was also to learn whether supplements corrected the deficiencies. 138 questionnaires were sent to patients who had undergone a gastric bypass since 2001. Information on deficiencies and prescriptions were found in the case records of patients who responded to the questionnaire.

Results: The response rate was 65%. No patient developed any deficiency in vitamin B_{12} , 23 % developed iron deficiency and 16% developed a low level of plasma calcium after surgery. Patients stated compliance to supplementation of B_{12} in 100%, of iron in 79% and of calcium in 94%.

Conclusion: Compliance was high for most of the supplements on prescription, particularly B_{12} . Iron deficiency was common but compliance to oral supplementation was lower. Life-long surveillance of micronutrient status is clearly indicated in patients undergoing bariatric surgery.

30. WERNICKE-KORSAKOFF SYNDROME AFTER RAPID WEIGHT LOSS IN MORBIDLY OBESE PATIENTS

Catoi Galea Adriana Florinela (*University of Medicine and Pharmacy Cluj Napoca Romania*) Romeo Florin Galea (*Second Surgical Clinic, University of Medicine and Pharmacy Cluj Napoca, Romania*), Dafin Muresan (*Department of Neurology, University of Medicine and Pharmacy Cluj Napoca, Romania*)

Background: Infrequent neurological complications such as Wernicke-Korsakoff syndrome due to nutritional, especially vitamin deficiencies appear after silastic ring vertical gastroplasty.

Method: Four cases of morbidly obese patients are presented, three female and one male. In two cases neurological manifestations were intense, of an acute or chronic polyneuropathy. Weight ranged between 120-153 kg with body mass index between 46.87 kg/m² and 63.75 kg/m² in the female patients. The one male case had the body mass index of 81 kg/m² and a weight of 270 kg.

Results: The evolution of the four cases followed a period of severe vomiting, nutritional and vitamin deficiencies, resulting in a severe peripheral polyneuropathy and other neurological manifestations such as loss of lower limb mobility. Manifestations appeared 2-3 months after a rapid weight loss of 25-30 kg. Therapy consisted in administration of B1, B6, C vitamins, along with an adequate diet rich in multivitamins and physiotherapy to re-establish muscular force. Two female patients have had a positive response and no sequelae were recorded. The third female patient had the same manifestations as a late complication after two years from the surgical intervention through a severe stenosis of the ring. In this case the ring has been removed. The 270 kg male lost progressively weight up to 93 kg, had less intense lower limb immobility and symptoms disappeared after treatment with vitamins.

Conclusions: B1 vitamin deficiency may occur after gastric bariatric operations in situations of rapid weight loss. Early diagnosis accompanied by immediate adequate treatment are needed.

31. THE EFFECTS OF THE L-LYSINE REPLACEMENT IN PATIENTS WITH TELOGEN EFFLUVIUM AFTER BARIATRIC SURGERY

Marlene Monteiro da Silva, A.C. Leite Jr., M.M. Silva, A.B. Garrido Jr. *Obesity Surgery Unit of the Digestive System Surgery Department at the HC-FMUSP Gastroenterology Department, Hospital das Clínicas, São Paulo, Brazil*

Background: Check and quantify the response of patients with chronic telogen effluvium post bariatric surgery to L-lysine replacement.

Methods: Two patients who were operated by gastric bypass method with the use of a ring and carried chronic post surgery telogen effluvium have been evaluated on their responses to the replacement of 2 grams daily of L-lysine. The method chosen for clinical evaluation was phototricogram for its advantage in quantifying the hair in the growth phase as well as in measuring the growth speed.

Results: There has been a significant improvement in the hair loss reduction in the two patients treated, duly confirmed by phototricogram, which proved a reduction of 8-9% of the hair in the telogen phase. The phototricogram has also confirmed an increase in the hair growth speed as well as a gain in the volume of hair strings after 4 months of L-lysine replacement.

Conclusion: The use of L-lysine in patients who were operated by gastric bypass method with the use of a ring and carried chronic post surgery telogen effluvium proved to be an interesting choice not only for hair loss but also for improving the growth speed of the strings and increasing the hair volume. There were no gastrointestinal side-effects associated with the use of L-lysine in the patients treated with this method.

32. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING LOWERS BLOOD PRESSURE MONTHS AFTER SURGERY

Harry Quach, P. Dumbrell. *Victorian & Sydney Obesity Surgery Centre, Australia*

Background: To study the effect of gastric banding surgery on systolic blood pressure readings.

Methods: Data were prospectively collected on 75 patients undergoing laparoscopic gastric banding using the HELIOSCOPIE HAGA™ band between Jan 2005 to Feb 2006. Blood pressure readings (mmHg) were taken preoperatively and between 4-10 months after surgery.

Results: *75% of patients experienced a drop in systolic BP (statistically significant), 15% had no change, 10% had a rise. 15% of preoperative patients had high BP (ie. systolic BP >140 mmHg). After surgery only 5% had high BP (not statistically significant). Of the patients with high systolic BP before surgery, 91% had normalized their blood pressure. 83% of patients were reviewed 4-7 months after surgery. 17% were reviewed at 8-10 months. 29% of the population had reported a known history of hypertension. The number of hypertensive patients on medication fell from 64% down to 45% after surgery. This was not found to be statistically significant. Improvements in BP postoperatively were best predicted by preoperative BP (coefficient = -0.583), preoperative age (coefficient=0.269) and %EWL (coefficient= -0.218).

Conclusion: Gastric banding lowers systolic blood pressure postoperatively in 75% of all patients as early as 4 months.

33. LAPAROSCOPIC GASTRIC BYPASS AND BILIOPANCREATIC DIVERSION: LONG-TERM COMPARISON STUDY USING THE BAROS SYSTEM

J. Pujol-Rafols, C. Pujol-Rafols, S. Bru Piquer, T. Baliño Alberdi, C. Gomez

Background: Although Laparoscopic Gastric Bypass (LGB) and Biliopancreatic Diversion (BPD) are common bariatric procedures, there are few studies comparing them. This trial compares their effects and outcomes throughout five years taking into account not only weight loss but also evolution of co-morbidities and quality of life.

Methods: 30 matched patients from each group, operated by one single surgeon were controlled to assess any postoperative difference during a five-year period. Data were collected prospectively. Their weight was recorded in Kg, BMI and %EWL. A T-test for inde-

pendent variables was performed to compare weight changes with a 95% of confidence interval to accept the difference ($P < 0.05$). BAROS was used to evaluate health status and quality of life.

Results: BMI and %EWL at 3, 4 and 5 years were 28, 28, 30 and 70, 69, 64 for the LGB group and 29, 28, 28 and 70, 69, 64 for the BPD group. There were significant health status benefits for both groups. 98% of the patients referred improvement of their quality of life, but not all the parameters of the questionnaire improved equally. According to the scoring key, 88% of the LGB group and 95% of the BPD group reached good, very good or excellent results.

Conclusions: By utilizing BAROS, it has been possible to compare the results of different procedures. Both LGB and BPD have demonstrated to be highly effective while improving not only weight loss but also co-morbidities and quality of life.

34. OBSTRUCTIVE SLEEP APNEA (OSA) PATTERNS IN BARIATRIC SURGICAL PRACTICE IN ASIA AND RESPONSE OF OSA TO WEIGHT LOSS AFTER THE LAGB

Anil D Rao, Ganesh Ramalingam. *Alexandra Hospital, National Healthcare Group, Singapore*

Background: To evaluate the incidence of Obstructive Sleep Apnea (OSA) in severely obese Asians and to study the impact of weight loss on OSA.

Methods: We report the results of routine preoperative Polysomnograms in 350 Asian patients undergoing bariatric surgery in our institute. Polysomnograms were repeated in seventy-five randomly selected patients with moderate to severe OSA after target weight loss.

Results: The prevalence of OSA in obese Asians is high. Moderate OSA was found in 46% of patients and severe OSA was found in 33%. Severe OSA was significantly more in the Chinese (46%) compared to the Malays (29%) or Indians (21%) ($p = 0.035$). We identified other risk factors for severe OSA (male sex, higher body mass index and the presence of hypertension) but were unable to select identifying parameters for very low (< 5%) likelihood of severe OSA such that routine sleep studies prior to bariatric surgery could be omitted. After target weight loss Apnea Hypoapnea Index (AHI) showed improvement of 50% at 20 kg excess weight loss with cure of OSA in preoperatively severe cases ($p < 0.005$). Mild to moderate cases reported similar improvements though a direct correlation could not be established. Desaturation events, apnea episodes, work of breathing and subjective assessment of sleepiness scores and QOL showed improving trends, albeit not statistically significant.

Conclusions: The incidence of OSA in Asians undergoing bariatric surgery is high. Routine sleep studies in asian patients are justified. Weight loss brought about a significant improvement in AHI.

35. NEED FOR MULTI-VITAMIN USE IN POSTOPERATIVE PERIOD OF ROUX-EN-Y GASTRIC BYPASS

F.G. Colossi, D.S. Casagrande, R. Chatkin, J. Rizzolli, C.C. Mottin, M. Moretto, G. Repetto. *Centro da Obesidade Mórbida, Hospital São Lucas, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil*

Background: Nutritional deficiencies are inherent in bariatric surgery, because with food intake reduced after RYGBP, patients are unable to obtain dietary reference intake (DRI) amounts of nutrients, in addition to having poor absorption. The replacement of nutrients in the postoperative period varies with surgery teams. The aim of this study was to determine the need for multi-vitamin use for 30 days postoperatively and for the long-term to prevent nutritional deficiencies.

Methods: We calculated the daily dietary intakes of 210 patients for the 1st, 3rd, 6th, 9th, 12th, 18th and 24th month after surgery. Total intake was determined for protein, calcium, iron, vitamin A,

vitamin C, and the B complex vitamins thiamin, riboflavin, cyanocobalamin, folic acid, niacin and pantothenic acid. We obtained reliable data for the different periods as follows: 1st month, 189 inquiries; 3rd month, 182; 6th month, 158, 9th month, 187, 12th month, 147, 18th month, 164; and 24th month, 193. Dietary intake was determined and means of the nutrients for each period were compared with DRI values for healthy adults.

Results and Conclusion: DRI of nutrients are generally in reference to deficiencies reported in the literature. We focused on nutrients that did not reach DRI levels and that are not assayed periodically in laboratory tests. This study (of dietary intake) did not evaluate malabsorption, which probably aggravates the intake deficiencies. To minimize potential nutritional deficiencies, we suggest the regular use of multi-vitamins from the first month to the 24th month after surgery, accompanied by basic clinical laboratory tests.

36. HEALTH-RELATED QUALITY OF LIFE BEFORE AND AFTER BILIOPANCREATIC DIVERSION WITH DUODENAL SWITCH: TWO YEARS FOLLOW-UP STUDY

John R. Andersen (*Sogn og Fjordane University College*), A. Wahl (*University of Oslo*); P. Bergsholm (*Førde Central Hospital*); N. Sletteskog (*Førde Central Hospital*); V. Våge (*Førde Central Hospital*); A. Aasprang (*Sogn og Fjordane University College*); G.K. Natvig (*University of Bergen*), Norway

Background: The aim of this study was to explore the health-related quality of life (HRQL) in a consecutive sample of morbidly obese patients before and after biliopancreatic diversion with duodenal switch. These patients represent our initial experience with bariatric surgery.

Methods: Thirty-nine patients (17 men, 22 women, mean age 37.0 years) completed the generic HRQL questionnaire "Short Form-36" (SF-36), which measures several aspects of physical and mental health status. Data were collected preoperatively, and one and two years after the operation. The patients SF-36 scores were compared to a gender and age adjusted norm sample (N=2323).

Results: The mean BMI decreased from 52.0 (SD 7.4) preoperatively to 32.0 (SD 5.1) by two years follow-up ($p<0.001$). There was also a large reduction in obesity-related co-morbidities during the same time period ($p<0.001$). The preoperative SF-36 scores were poorer in all areas compared to the norm sample ($p<0.001$). At the one year follow-up, substantial improvements were shown in all areas of SF-36 ($p<0.001$). The SF-36 scores remained improved by two years follow-up, and were not statistically different from one year follow-up or norm scores.

Conclusion: The morbidly obese patients in this study had very poor HRQL compared to norm. After biliopancreatic diversion with duodenal switch, this group experienced a substantial reduction of BMI, obesity-related co-morbidities and a normalization of their HRQL.

37. FOLLOW-UP OF THE CO-MORBIDITIES HYPERTENSION, DIABETES AND JOINT PAIN AFTER BARIATRIC SURGERY

A. Rosenthal, S. Weiner, R.A. Weiner. *Krankenhaus Sachsenhausen, Center for Minimally Invasive Surgery, Section of Bariatric Surgery, Frankfurt am Main, Germany*

Background: Obesity and its associated co-morbidities cause a decrease in life-expectancy and quality of life in a rising patient population. Laparoscopic bariatric surgery can effectively reduce weight and thereby improve related disease. In a longitudinal study, we investigated the influence of preoperative BMI, sex and operative technique on the course of three co-morbidities.

Methods: All consecutive patients (n=447) that underwent laparoscopic bariatric surgery from 2001 to 2005 received a questionnaire that among other things was designed for the evaluation of the co-morbidities hypertension, diabetes and joint pain pre-operatively, 6 and 12 months after surgery. From 191 patients, we received all 3 questionnaires. The decrease over time was evalu-

ated using Cochran's Q-test. Discriminant analysis was used for the prediction of improvement in co-morbidities after 12 months.

Results: There was a significant decrease over time in hypertension ($Q=47.26$, $p<0.001$) after 6 months (29.3%) as well as after 12 months (20.4%), compared to the baseline study (40.3%). In detailed analysis, the decrease was independent from preoperative BMI, sex and used operative technique. Age, number of medications and excess weight loss were identified as predictors for significant improvement of hypertension after 12 months. Discriminant analysis using these 3 variables showed a right prediction of 69.5% for the existence of hypertension after 12 months. Also, a significant improvement in diabetes ($Q=26.69$, $p<0.001$) and joint pain ($Q=22.68$, $p<0.001$) was found.

Conclusion: In addition to the primary goal of weight reduction, laparoscopic bariatric surgery improves hypertension, diabetes and joint pain significantly. This could mean both an increase in life-expectancy as well as a cost reduction in medical care.

38. IMPROVEMENT OF INSULIN SENSITIVITY AFTER LAPAROSCOPIC GASTROPLASTY

Helena Cardoso (*Hospital Geral Danto António*), G. Melo-Rocha (*Endocrinology Dpt, Hospital Geral de Santo António, Porto*), M.P. Monteiro (*Instituto de Ciências Biomédicas Abel Salazar/UMIB, Porto*), I. Silva (*Human and Social Sciences College, Fernando Pessoa University; Psychology and Sciences Education Department, Porto University*), F. Pichel (*Endocrinology Dpt, Hospital Geral de Santo António, Porto*), A. Sérgio (*Surgery Dpt, Hospital Geral de Santo António, Porto*), J. Santos (*Surgery Dpt, Hospital Geral de Santo António, Porto*), C. Nogueira (*Surgery Dpt, Hospital Geral de Santo António, Porto*), C. Cunha (*Clinical Chemistry Dpt, Hospital Geral de Santo António, Porto*), F. Bravo (*Clinical Chemistry Dpt, Hospital Geral de Santo António, Porto*), M.H. Cardoso (*Endocrinology Dpt, Hospital Geral de Santo António, Porto, Portugal, Instituto de Ciências Biomédicas Abel Salazar/UMIB, Porto, Portugal*)

Background: Bariatric surgery is responsible for considerable weight reduction, accompanied by the improvement in several metabolic parameters such as insulin resistance. In this study our goal was to prospectively evaluate the changes in insulin resistance assessed by the homeostatic model (HOMA-IR) after gastrobandoplasty.

Methods: 90 patients (76 females and 14 males) with a mean age of 44 years submitted to gastrobandoplasty were prospectively evaluated for a mean follow-up time of 3 years and 4 months (limits: 4 months and 9 years). Significant reductions were found in body mass index (BMI), from 51.4 kg/m² to 36.5 kg/m², fasting glycaemia (from 109 to 94 mg/dl), glycated haemoglobin (from 5.81 to 4.64%), fasting insulinemia (from 22.4 to 9.4 IU/ml) and HOMA-IR (from 6.1 to 2.3). In a detailed analysis, patients were separated into 5 categories according to the BMI attained after surgery: 20 to 26.9; 27 to 29.9; 30 to 34.9; 35 to 39.9 and >40 kg/m², and there was a significant reduction of BMI and HOMA-IR after surgery in all the groups, even in the group of patients that reached a BMI >40 kg/m². Although, it must be stressed that this was the group with shorter mean follow-up time (2.1 years), greater BMI before surgery (65.5 kg/m²) and higher baseline HOMA-IR.

Conclusions: Bariatric surgery with gastroplasty is not only an effective therapy for weight reduction in severe obesity but also at improving insulin resistance regardless the extent of weight loss.

40. PATIENT ACCEPTABILITY AND COMPLICATIONS OF EXTENDED THROMBOPROPHYLAXIS POST BARIATRIC SURGERY

Hossam Shaaban. *North Bristol NHS Trust, UK*

Background: Many authorities advocate the use of extended (post discharge) thromboprophylaxis following bariatric surgery

to reduce the incidence of thromboembolic complications. We monitored patient acceptability and compliance to an extended thromboprophylaxis regime.

Methods: 120 patients underwent laparoscopic gastric banding between the years 2003 and 2006. All patients received 40 mg enoxaparin injections to be subcutaneously administered once daily for 1-2 weeks post discharge. Verbal explanation regarding method of injection was given. All patients were seen after 6 weeks and any complications recorded. Patients were also invited to answer a questionnaire on their experience with the course and to describe any side-effects encountered.

Results: None of the patients had thromboembolic complications. 53% of the patients preferred to have had written instructions in addition to verbal explanation on the method of injection. A minority (6%) requested live demonstration of the way of injection. The great majority (87%) did not miss any doses. Three-quarters (74%) self-injected the drug while 26% had it injected by a nurse or a family member. One out of five patients had bruising at the injection site, and only one patient had a heavy period during the course.

Conclusions: Extended thromboprophylaxis with LMWH is an effective way of reducing the risk of thromboembolic complications following laparoscopic gastric banding. Patient compliance is high, provided adequate explanation (verbal as well as written) is given. Live demonstration of the injection process may help alleviate the anxiety. A 10-day course of enoxaparin 40 mg is both safe and well-tolerated.

42. THE EFFECTS OF LOW FREQUENCY LASER ON HAIR RECOVERY OF PATIENTS WITH CHRONIC TELOGEN EFFLUVIUM POST BARIATRIC SURGERY

Marlene Monteiro da Silva, A. C. Leite Jr., M.M. Silva, A. B. Garrido Jr., F.P.C. Leite, *Obesity Surgery Unit of the Digestive System Surgery Department at the Hospital das Clínicas; Faculdade de Medicina da Universidade de São Paulo, Gastroenterology Department, São Paulo, Brazil*

Background: Verify and quantify the responses of patients with chronic telogen effluvium after more than 3 years post bariatric surgery to the low frequency laser stimulus.

Methods: 14 patients were studied who had more than 3 years PO after gastric bypass and had chronic telogen effluvium confirmed by anamnesis, clinical examination and trichogram. During the study 10 low frequency laser sessions were made, Diode 655nm 4J/cm², weekly sessions on the scalp of the studied women. The patients who had hair loss for other previously identified reasons were excluded. No change was suggested in their eating habits, as well as no nutritional supplements were given during the course of the treatment. No topical medication to correct the hair loss was used either.

Results: There was a reduction of hair loss in 10 of the treated patients, 2 patients showed a moderate improvement and 2 patients did not show any noticeable improvement in hair loss. The trichogram showed an average reduction in the 14 patients of 7% of the hair in the telogen phase (loss phase), therefore improving the quantity of hair in the anagen (growth phase). After 4 months from the beginning of the treatment, the patients reported an improvement in the hair quality.

Conclusion: The use of low frequency laser therapy in the chronic telogen effluvium in patients with more than 3 years of PO after bariatric surgery demonstrated to be an interesting option not only for interrupting the hair loss but also for improving the hair strings quality of the treated patients.

43. OBESITY CO-MORBIDITIES: WHO DEVELOPS WHICH CONDITIONS AND HOW MANY

H. Quach, P. Dumbrell. *Victorian & Sydney Obesity Surgery Centre, Australia*

Background: To find factors determining how many co-morbidities

an obese individual has and the type of co-morbidity.

Methods: Data was prospectively collected on 216 obese patients undergoing LAGB Jan 2005 to Jan 2006. The number and types of co-morbidities for each patient were analyzed against their other parameters: physical, demographical, habitual and parental co-morbidities.

Results: Prevalence of co-morbidities: Hyperlipidemia (HL): 47%; Lower Back Pain (LBP): 41%; Osteoarthritis (OA): 38%; Gastroesophageal Reflux Disease (GERD): 37%; Hypertension (HT): 28%; Depression (DEP): 20%; Type II Diabetes (DM2): 18%; Asthma (ASTH): 18%; Obstructive Sleep Apnea (OSA): 13%; Polycystic Ovarian Syndrome (POS): 9%; Gout: 3%; Coronary Artery Disease (CAD): 2%. The number of co-morbidities per patient: 1 = 26%, 2 = 20%, 3 = 18%, 4 = 9%, 5 = 7%, 6 = 6%, 7 = 2%, nil = 11%. The best predictors of the number of co-morbidities were: age, weight, waist circumference, race, alcohol intake, the number of exercise sessions per week and parental obesity. Apart from parental co-morbid conditions, predictors for HL: overweight parents and age; HT: age, weight and alcohol intake; DM2: WHR and age; DEP: marital status; OSA: race and waist circumference.

Conclusion: Having at least one parent who was overweight or obese was the strongest predictor of the number of co-morbidities present in an obese individual. Having at least one parent with the same co-morbid condition was the best predictor of an individual having a given co-morbid condition.

44. INSULIN RESISTANCE INDEXES IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE UNDERGOING GASTRIC BYPASS

Vicente Silvestre Teruel, M. Ruano, M.C. García, E. Aguirregoicoa, L. Criado, G. García-Blanch. *Hospital General de Móstoles, Madrid, Spain*

Background: The prevalence of non-alcoholic fatty liver disease (NAFLD) and simple steatosis is high. Among the factors contributing to their development we can include insulin resistance (IR), diabetes mellitus type 2, hyperlipidemia, obesity and, most importantly, morbid obesity (MO). The aims of the present study are: 1) to evaluate abnormalities in the indexes employed to measure insulin resistance in MO and 2) to analyze their evolution following bariatric surgery.

Methods: We have retrospectively evaluated data from 200 patients, 160 women and 40 men with MO operated in our Hospital (Capella's gastric bypass). The mean age was 38.6 years (range: 16-62). In 35% of the cases (n = 70) there were ultrasonographic changes consistent with NAFLD. We have measured antropometric parameters, including the body mass index (BMI) and the waist circumference (WC), and determined the plasma levels of insulin, glucose and triglycerides. We have also calculated the HOMA, Quicki and Mffm indexes both before surgery and 6, 12, 60 and 84 months after it.

Results: The 50.9 (8.2) for the BMI; 127.4 (13.9) for the WC; 5.4 (3.4) for the HOMA index; 0.488 (0.019) for the Quicki; and 6.2 (1.5) for Mffm. During the first 6 months following surgery, the values of the BMI, WC and insulin resistance indexes decreased, and this decrease is maintained 84 months after surgery.

Conclusions: The results of this study suggest that IR is the cause of hepatic dysfunction in MO and that surgery is an efficient therapy to reduce it.

45. GASTRIC BYPASS AS A TREATMENT FOR TYPE 2 DIABETES IN 39 OBESE PATIENTS

Marta Filomena Guimaraes, Mário Nora, Pedro Rodrigues, Paulo Martins, Jorge Costa, Tiago Ferreira, Ivo Carvalho, Gil Gonçalves. *Hospital de São Sebastião*

Background: Obesity is an increasing problem of public health which constitute a global epidemic. Surgery for obesity treatment

and its associated co-morbidities has a major role that was accentuated with the introduction of mini-invasive techniques. The authors present experience in the morbid obesity treatment in 39 patients who had diabetes, as a co-morbidity.

Methods: Retrospective analysis of 39 patients, who were submitted to gastric bypass between June 2004 and December 2006. All of these patients had diabetes which was treated with oral anti-diabetics and/or insulin.

Results: During the first days after surgery, the need for oral anti-diabetics and/or insulin was reduced. The complete stop to the taking of drugs for the diabetes treatment was done in 82% of patients.

Conclusions: After gastric bypass, there is a dramatic changing in the carbohydrates global metabolism, insulin activity and secretion during the absence of pharmacological therapy. The cure mechanism of diabetes after the bypass is complex and related to multiple factors. Beyond the most visible effect of weight reduction, bariatric surgery allows to decrease the risk factors associated with obesity, and in an early stage, it can allow cure of diabetes.

46. EFFECTS OF OBESITY SURGERY ON C-REACTIVE PROTEIN

Wei-Jei Lee, Jung-Chien Chen, Kong-Han Ser, Weu Wang.
Department of Surgery, Min-Sheng General Hospital, National Taiwan University, Taiwan

Background: Obesity has been widely recognized as a chronic inflammatory condition. Elevated C-reactive protein (CRP) has been recognized associated with inflammatory conditions. Recent studies have shown that elevated CRP is a significant risk factor for cardiac events and stroke. Obese patients with elevated CRP, therefore, are at high risk of cardiovascular diseases and may benefit from surgical-induced weight loss.

Methods: From December 1, 2001 to January 31, 2006, 640 consecutive morbidly obese patients enrolled in a surgically supervised weight loss program with at least 1 year's follow-up were examined. The relationship between the CRP and degree of obesity, clinical and biochemical markers of the metabolic syndrome at baseline were studied, and paired analysis of the change in CRP with weight loss following obesity surgery.

Results: Of 640 individuals (442 females and 198 males), 476 (74.4%) had elevated CRP at preoperative study. Baseline CRP increased with increasing BMI. Multivariate analysis confirmed BMI and WBC count are independent predictors of the elevation of CRP. Laparoscopic gastric bypass was performed in 522 (81.6%) of the patients and laparoscopic gastric banding in 118 (18.4%). BMI and CRP levels decreased rapidly after obesity surgery. These improvements resulted in a 69.8% reduction of CRP 1 year after surgery. Although individuals who underwent laparoscopic gastric bypass lost significantly more weight (36.8 + 11.7 kg vs 17.3 + 10.8 kg, $p=0.000$) and achieved a lower BMI (27.8 + 4.6 vs 35.0 + 5.5, $p=0.000$) than individuals who underwent laparoscopic gastric banding, there was no difference in the resolution of elevated CRP 1 year after surgery (95.9% vs. 84.5%, $p=0.169$).

Conclusion: BMI and WBC predict the elevation of baseline CRP in morbidly obese patients. Significant weight reduction 1 year after surgery markedly reduced CRP resulted in a 93.9% resolution rate of elevated CRP. Obesity surgery performed by laparoscopic surgery is recommended for obese patients with elevated CRP.

47. MARGINAL ULCERS AFTER GASTRIC BYPASS: PROSPECTIVE MULTICENTRIC ENDOSCOPIC STUDY DURING PROPHYLACTIC USE OF ESOMEPRAZOLE

Arthur Garrido, Marçal Rossi, Sizenando E. Lima, Antonio Brenner. *São Paulo, Brazil*

Background: Dyspeptic symptoms after Roux-Y gastric bypass (RYGBP) may be caused by marginal ulcers. Possible pathogenic

factors: secretion of the pouch, H. pylori, ischemia, foreign body effect of suture materials and anti-inflammatory medication (NSAID). Esomeprazole, a potent blocker of acid secretion reduces peptic symptoms and prevents mucosal lesions even in NSAID users. This prospective non-randomized study evaluates dyspeptic symptoms and endoscopic findings of marginal ulcers 2 months after RYGBP during prophylactic use of esomeprazole. **Methods:** From 10/11/2005 to 02/07/2006, in 4 bariatric centers, 118 open or laparoscopic RYGBP were performed. Patients took esomeprazole - 20 mg/day from 3rd through the 60th P.O. Gastrointestinal symptoms were registered between the 10th and the 5th and the 55th and the 65th P.O. days. This last interview included a new upper GI endoscopy.

Results: At 10th - 15th and 55th - 65th P.O., only a few patients had light digestive symptoms. Endoscopy in this period revealed marginal ulcers in 9 patients (7.6%), 2 of them including granuloma around suture or staple material. 10 patients used NSAID at least once after the operation. None had ulcer.

Conclusion: Esomeprazole does not prevent significant occurrence of peri-anastomotic ulcer in the first 2 months after RYGBP, but may be responsible for the very moderate symptoms. There was no relation with NSAID ingestion.

48. PROGNOSTIC SIGNIFICANCE OF LOSS OF CONTROL OVER EATING IN GASTRIC BYPASS PATIENTS FOR 12- AND 24-MONTH POSTOPERATIVE OUTCOMES

C.M. Grilo, M.A. White, R.M. Masheb, B.S. Rothschild, C.H. Burke-Martindale. *Yale University School of Medicine, New Haven, CT, USA*

Background: The prognostic significance of loss of control over eating for patients who undergo bariatric surgery is uncertain. We examined prospectively the relations of loss of control and binge-eating (both pre- and postoperatively) to 12- and 24-month postoperative outcomes.

Methods: 140 gastric bypass surgery patients completed a battery of established assessments pre-surgery and again post-surgery.

Results: In terms of binge-eating, 24% reported binge-eating regularly and 16% reported occasional binge-eating pre-surgery. At 12-months post-surgery, binge eating was infrequent; 9% reported occasional binge-eating. Loss of control was reported by 57% of patients pre-surgery and 28% at 12-months post-surgery. Statistically significant and robust improvements in weight and in all measures of eating and psychosocial functioning were observed at 12 and 24 months post-surgery. Loss of control, like binge-eating, at baseline was associated (cross-sectional) with significantly greater eating and psychosocial problems but was not associated (prospectively) with either weight loss or most psychosocial outcomes at 12 and 24 months post-surgery. Loss of control at 12 months post-surgery was significantly associated (cross-sectional) with eating psychopathology and poorer psychosocial functioning but not associated (prospectively) with 24-month outcomes.

Conclusions: Loss of control over eating and binge-eating are common in bariatric surgery patients and are associated with heightened concurrent eating disorder psychopathology and psychological problems. However, pre-surgery loss of control and binge-eating do not appear to be potent negative prognostic indicators for gastric bypass surgery. Our findings highlight substantial improvements in weight and functioning and these improvements differ little by loss of control or binge-eating status.

49. LEPTIN IN INDIAN OBESITY: FIRST TIME STUDY REPORT
Sanjay Borude, Madhavi Pusalkar, Sanjay Borude, Pervin Meherji, Jyotsna Gokral, Saravanan Chinnaraj, Anurupa Maitra. *National Institute for Research in Reproductive Health (Indian Council on Medical Research), Mumbai, India*

Background: The increasing prevalence of obesity is a major

public health concern. Although environmental factors play an important role in the development of obesity, there is strong evidence indicating that genes also contribute to the development of obesity. Leptin, a protein associated with obesity, is synthesized by adipose tissue and regulates food intake and energy expenditure. However, the mechanisms underlying these processes are not clear. The present study was carried out to assess in-depth role of leptin in etiology of obesity at the molecular level. Specific objectives were to assess the putative variations in the leptin gene and to study their association with leptin levels.

Methods: A total of 75 subjects along with 20 morbidly obese cases were screened. Analysis of coding region of leptin gene was carried out using PCR-SSCP and DNA Sequencing approach. Analysis of untranslated region of leptin gene was also

carried out. Plasma levels of leptin were assessed by Radioimmunoassay.

Results: Levels of leptin were significantly high in obese subjects as compared to lean subjects ($p < 0.01$). Genetic analysis of leptin in these subjects did not show any variations. The untranslated Exon 1 showed a variation (A>G), which is located at -19bp site. A higher frequency of the G allele compared to A allele was found in the study subjects ($p < 0.01$) which is in contrast with that reported in Western population. G allele was found to be significantly associated with higher levels of leptin ($p = 0.05$).

Conclusion: Thus, the study for the first time in the Indian population documents a higher association of G allele with leptin levels, which is more predisposing to obesity.

PLENARY SESSION ABSTRACTS

50. WHO BENEFITS FROM GASTRIC BANDING?

Marco Bueter, Andreas Thalheimer, Caroline Lager, Marion Schowalter, Alexander Wierlemann, Alexander Wichelmann, Bertram Illert, Martin Fein. *Julius-Maximilians-University of Wuerzburg, Germany, Department of Surgery I, Institute of Psychotherapy and Medical Psychology*

Background: In the present study, possible criteria were investigated to predict major benefit after laparoscopic adjustable gastric banding (LAGB).

Methods: 85 morbidly obese patients (1999-2005) were analyzed retrospectively after LAGB according to several possible predictive characteristics. Success rate (excess weight loss, EWL >50%, no band removal) and failure rate (EWL <20%, band removal) were the endpoints. Mean follow-up was 37 months (range 8-90 months).

Results: In total, EWL was 43.2% (-41 – 171.5%) with a decrease in BMI of 8.0 kg/m² (range -9 - 35 kg/m²). Success rate was 36.5% (n=31), failure rate was 22% (n=18). Significant success predictors were found to be baseline absolute BW, EW, BMI ($p < 0.01$), BMI with a threshold value of 50 kg/m² ($p = 0.024$), and female sex ($p = 0.023$) as well as eating behavior and physical activity after LAGB. Significant failure predictors were male sex ($p = 0.038$) and occurrence of port dislocation ($p = 0.019$). Postoperative vomiting was associated with sufficient weight loss ($p = 0.015$). Baseline EW and change in eating behavior after surgery were identified as strongest predictors in multivariate analysis.

Conclusion: Patients with a lower excess weight who improve especially their eating behavior after surgery have the best chance of success after LAGB.

51. A RANDOMIZED COMPARISON OF TWO LOW-PRESSURE ADJUSTABLE BANDS IN THE TREATMENT OF MORBID OBESITY

A. Vogel, C.J. Slotboom, N.P.M. Reijnen. *Obesity Centre Emmen, The Netherlands, Leveste Scheper Hospital*

Background: Laparoscopic gastric banding is a frequently used operation in the treatment of morbid obesity. Many types of adjustable gastric bands (AGB) have been used during the last few years. The aim of this study was to compare two bands used in our hospital.

Methods: Two groups of patients treated with an AGB were analyzed in a randomized setting. Group A consisted of 70 patients who were treated with a Midband® and group B consisted of 78

patients who received a Quick Closeband®. The whole study group consisted of 24 men and 124 women, mean age 39.6 years (18-66) and a mean BMI of 44.9 (35-61), which was the same for both groups.

Results: At 6, 12 and 18 months after surgery, percentage of excess weight loss (%EWL) was 33.4%, 47.0% and 52.7% in group A versus 33.6%, 45.5% and 47.1% in group B, respectively. Comparison between the two groups did not show a significant difference in %EWL. The mean number of adjustments to the bands in the first 12 months and 18 months was, respectively, 2.8 and 3.4 in group A versus 3.1 and 3.9 times in group B. For both periods, no statistical difference was found between the groups. In 4 patients from group A and 3 from group B, the port got dislocated. In group B, leakage was observed 2 times and slippage of the band 3 times. However, this was not significantly different.

Conclusion: The two adjustable bands do not seem to be superior or inferior with respect to each other in clinical usage.

52. SELF-ADJUSTING SAGB BY HYPEROSMOLAR SOLUTION: FEASIBLE?

S. Shah, J. Todkar, P. Shah. *Dept. of Bariatric Surgery, Ruby Hall Clinic, Pune, India*

Background: India being a large country with huge obese population; compliance of the patients is challenging. Any method to adjust the band by itself is the patient and surgeon's dream.

Methods: 80 patients underwent implantation of Swedish AGB from 2004. SAGB was adjusted with saline (40) or urografin 76% (40) and were followed. The first adjustment alone with 2 to 3 ml **contrast** maintained satisfactory weight loss (60%EWL) at one year. The other group required 2 to 3 adjustments with **saline** to achieve similar effect. On aspiration it was found that the volume of fluid inside the band was more than the volume injected earlier in the contrast group.

Results: The solution (contrast) in the balloon being hyperosmolar; fluid was gradually drawn into the balloon over time in these patients, giving a slow and sustained self-adjustment. This resulted in giving satisfactory weight loss over time without adjustment. A close watch on reflux symptoms and timely removal of fluid from the balloon was very important to prevent the discomfort and complications.

Conclusion: We conclude from this observation that the use of contrast can be a simple way to make the SAGB self-adjusting.

Any external device that could measure the volume and pressure inside the band could revolutionize the adjustment protocol for bands and improve the outcome and compliance.

53. PREDICTIVE FACTORS OF OUTCOME OF GASTRIC BANDING: A NATIONWIDE SURVEY ON THE ROLE OF CENTER ACTIVITY AND PATIENT BEHAVIOR

J-M Chevallier (*Hopital Europeen Georges Pompidou*), M. Païta (*Caisse Nationale d'Assurance Maladie, CNAM-TS, Paris*), M.H. Rodde-Dunet (*Caisse Nationale d'Assurance Maladie, CNAM-TS, Paris*) M. Marty (*Caisse Nationale d'Assurance Maladie, CNAM-TS, Paris*); F. Nogues (*Caisse Nationale d'Assurance Maladie, CNAM-TS, Paris*); A. Basdevant (*AP-HP Pitié-Salpêtrière, Service de Nutrition, Hôtel-Dieu, Paris, Université Paris 6. Inserm, Nutrimique, Paris*). K. Slim (*Service de chirurgie viscérale, CHU Clermont-Ferrand, France*)

Background: Data on clinical trials generally reflect the experience of skilled obesity centers. Little is known about the current practice at a nationwide level. The present study analyzes the outcome of all bariatric procedures consecutively performed in two months, as registered by the French National Medical Insurance Service (CNAM) and focuses on predictive factors of success with follow-up at one and two years.

Methods: Data of all consecutive 1,236 bariatric operations performed in France in December 2002 and January 2003 were collected independently by consultants of the CNAM. EWL >50% was considered a "success" and compared to 15 parameters with Chi² tests and a backstep logistic regression.

Results: for gastric banding significant differences in EWL were found with five data: age <40 ys (p<0.01), initial BMI <50 kg/m² (p< 0.001); experience of the team > 2 procedures per week (p< 0.01), recovery of physical activity (p<0.001) and change in eating habits (p< 0.001). Being operated by a team with a surgical activity over 15 bariatric procedures / 2 months doubles the chance of success, compared to patients operated by teams having performed 1 or 2 procedures and decreases the one- and two-year complication rate.

Conclusion: This nationwide survey shows the best profile for a success after gastric banding. It emphasizes that obesity surgery requires experience of the surgical team and a multi-disciplinary approach to improve behavioral changes and choose the optimal procedure at first in order to prevent challenging reoperations.

54. EATING ABILITY AND WEIGHT LOSS AFTER LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING FOR MORBID OBESITY - TWELVE YEARS EXPERIENCE

Eliezer Avinoah, Leonid Landsberg, Solly Mizrahi. *Surgery A, Soroka Medical Center, Faculty of Health Sciences, Ben-Gurion University, Beer-Sheva, Israel*

Background: Laparoscopic gastric banding is creates the smallest gastric pouch and very narrow but controlled stoma. We follow the eating capability of patients three to ten years after surgery performed by the same surgeon with the same band.

Methods: We performed 3400 laparoscopic gastric banding for morbid obesity during the last ten years, 1800 of which were performed before the end of 2003 (more than three years after surgery). Their mean BMI was 43±4 and their mean age 38±7 (age range 9-72 years old). The pars flaccida technique was used with the same band without gastro-gastric sutures. We begin band adjustments one month after surgery and continue every month until weight loss rate reaches 0.5 to one kg per week.

Results: Present survey shows that BMI remains stable below 29 even more than eight years after surgery. Laparoscopic reposition of band was 5% and gradually declines. We found prominent change in esophageal function depending on band inflation. At Stage I – slower eating, ability to eat everything. Stage II – inability

to eat certain kinds of food. Stage III – periodic eating, eating restricted to evening. Stage IV – eating and drinking depend on esophageal activation. Drinking can be more difficult than eating. There was no significant difference regarding either gender nor age. **Conclusions:** More than three years after surgery, finds that nevertheless their severe eating restriction patients are satisfied with surgery. Weight loss depends mainly on their gastric restriction independent of their age, gender, or level of education and even intelligence.

55. HELIOGAST BAND®: MID- TO LONG-TERM RESULTS IN 2,307 PATIENTS

Bellini Fabrizio. *Ospedale Desenzano Del Garda*

Background: Gastric banding is the most popular restrictive operation for the treatment of morbid obesity in Europe, Australia and South America. We present the outcomes of 2307 *Heliogast Band®* from experienced centers.

Methods: From January 2001 to December 2006 we performed 2,307 Laparoscopic Adjustable Gastric Bands (LAGB). Perigastric "two step" technique, was used in 92% of the patients, while pars flaccida in 8%.

Results: Mean age was 41 for female and 40 for male with the range from 16 to 72 years. Preoperative mean BMI was 42.8 for male and 42.5 for female. No intraoperative or postoperative deaths. Conversion rate: 2 (0.08%). Short-term complications: port site infection 14 (0.52%). Long-term complications: slippage: 66(2.8%), intragastric migration 7 (0.3%), trocar hernias 9 (0.39%), port disconnections 5 (0.21%), port rotation 20 (0.86%), failure to lose weight 14 (0.52%), voluntary band removal 11 (0.47%), leak of the ring 10 (0.43). All major complications were treated laparoscopically. Mean excess weight loss at 48 months was 59.2% for female, 50.3% for male.

Conclusion: The study shows that *Heliogast Band®* in the mid/long term, can achieve EWL >55%, with no mortality, and no major complications. All the complications were treated laparoscopically. Global acceptable short/medium/long term results occurred with 95% of reducing >55% of the EWL and the possibility of conversion to another procedure.

56. BARIATRIC SURGERY IS NOT A QUICK FIX! LONG-TERM RESULTS 7 YEARS AFTER GASTRIC BANDING IN UNSELECTED PATIENTS

Rudolf Steffen, N. Potoczna, N. Bieri, F.F. Horber. *Klinik Lindberg, Winterthur, Switzerland*

Background: Long-term weight loss results, complication-rates, reoperations after laparoscopic gastric banding (SAGB) and their influence on quality of life included in Bariatric Analysis and Reporting Outcome System (BAROS)-scores with high percentage of follow-up are scarce.

Methods: 404 patients were followed after unselected SAGB for 7 years (84±1 months). Type of reoperations were chosen according our algorithm (Surgery 2005;137:33-41).

Results: Follow-up rate was 96%: 79% women; age 43±0.5 years [mean±SEM]; BMI 42.6±0.2 kg/m², 11 patients lost to follow-up and 5 deaths unrelated to bariatric surgery, procedural mortality was 0%. 75% (292/388) lost 61±1.5% of their excess weight (EW), stable weight beyond 5 years and a reoperation-rate of 2.2%/year (due to slippage (n=22), leak (n=20) or migration (n=4)). At seven years 71% reached a BAROS-score of "good" or higher, "failure" were 7.2%. QoL-subscore was 1.21±0.05 (p<0.001 vs preoperative). 23.6% (91/388) lost 59±2% EW, stable weight beyond 5 years after conversion: 68 to Roux-en-Y gastric bypass due to secondary band intolerance, 23 to biliopancreatic diversion due to insufficient weight loss. At seven years, 28% reached a BAROS-Score of "good" or higher, "failure" were 17.6% (p<0.001 vs nonconverted patients). QoL-subscore was 1.04±0.09 similar to that observed in nonconverted patients.

Conclusions: Applying a structured failure treatment algorithm after SAGB in unselected patients results in sustained weight loss of about 60% EW with an acceptable reoperation-rate, but good QoL, not mirrored in the overall BAROS-score. Sustained longterm outcome of co-morbid conditions, QoL and weight loss was independent of the final bariatric procedure used.

57. LAP-BAND SYSTEM®: THE ITALIAN MULTICENTRIC EXPERIENCE IN THE LAST 10 YEARS

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

Background: This study analyzes the results of the Italian Group for Lap-Band-System (GILB) in the last 10 years.

Methods. Patients operated from January 1996 to December 2005 were allocated into two groups according to the year of band positioning: LB1 (January 1996 to December 2000) and LB2 (January 2001 to December 2005). Laparotomic conversion, post-operative complications and weight loss (BMI and %EWL at minimum 3 years of follow-up) were considered. Data SD. Statistical analysis was done with Fishers' ± were expressed by mean exact-test or Student t-test (p<0.05 was considered significant).

Results. From January 1996 to December 2005, 5,624 patients underwent LapBand-System procedure (age: 37.1±12, sex: 4,431F/1,193M; BMI: 44.8±9.1 kg/m², EW: 56.3±21.7 kg; %EW: 75.8±27.2). Both group were similar for demographics. Band was positioned by Peri-gastric access was in all LB1-group, and in 47.3% of LB2-group. Laparotomic conversion rate was higher in LB1-group (51 vs 8; p<0.001), mainly due to surgical anatomy (41 vs 4; p<0.001). Late complications rate was higher in LB1-group (734; 28.6% Vs 172; 6.7%; p<0.001) and were mainly due to: gastric pouch dilation-slippage (365 vs 67; p<0.001); intra-gastric migration (68 vs 17; p<0.001), and tube-port failure (301 vs 88 p<0.001). Patient eligible at minimum 3 years follow-up were 1,792/2,539 and 960/2,549 with mean BMI of 33.7±11.7 and 31.9±12.2, and mean %EWL of 46.8±23.8 and 50.4±21.9, in LB1 and LB2-groups respectively.

Conclusions. Significant improvement of Lap-Band System results in laparotomic conversion and postoperative complications rate were observed during the 2nd five years.

58. LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING: DEALING INTRA-OPERATIVELY WITH A TIGHT BAND AFTER BAND CLOSURE.

H. Quach, P. Dumbrell. *Victorian & Sydney Obesity Surgery Centre, Australia*

Background: The situation of an overly tight band can become apparent during LAGB after the band is closed. We sought to see if unbuckling the band was advantageous in these situations and how easily it could be performed laparoscopically.

Methods: Laparoscopic gastric banding was performed on 267 patients using the HELIOSCOPIE HAGA™ band between the period Jan 2005 to Mar 2006. Intra-operative tight bands were identified. In these cases, the band was unlocked (a feature of the HAGA band). Further dissection of the fat pad using the ultrasonic dissector was performed before the band was relocked and routine anterior fixation of the band carried out.

Results: 22 patients (8%) with tight bands were identified during surgery. All of them had high Waist-to-Hip ratios and 86% were male patients. All the tight bands encountered were due to a large volume of fat in the perigastric pad on the medial side of the gastro-esophageal junction preventing proximal stomach from being pulled up through the band for placement of gastro-gastric sutures

into seromuscular tissue. The HAGA band was able to be easily unlocked laparoscopically. In all cases, an ultrasonic dissector was used for fat pad dissection before the band was relocked and the routine remainder of the operation was carried out. No problems with postoperative obstruction were encountered.

Conclusion: A band that can be unbuckled easily laparoscopically is advantageous in this situation.

60. HIGH BMI SHOULD NOT PRECLUDE LAPAROSCOPIC BANDING: RESULTS OF 1,000 PATIENTS FROM A BARIATRIC CENTER IN UK

Rishi Singhal, A. Guy, M. Kitchen, K. Hunt, S. Nidrika, P. Super. *Heart of England Foundation NHS Trust, UK*

Background: Laparoscopic Adjustable Gastric Banding is an accepted procedure in the management of morbid obesity. It has gained acceptance for patients with BMI <50 but uptake for super-obese patients has not been universal. We present results of the first 1000 Laparoscopic Bands performed in our unit.

Methods: Between July 2003 and Nov 2006, 1,000 consecutive patients, mean weight 119.2 kg (range 79 -268 kg), mean BMI 43.8 kg/m² (range 35-88) underwent LAGB. 17.3% of the patients had a BMI >50. Pars flaccida insertion and 3 tunnelling sutures were used in all cases. Fluoroscopy-guided adjustments were performed at 3 and 6 months (occasionally at 9-12 months).

Results: The mean duration of the procedure was 59.5 (40-140) minutes. All patients were discharged the day following surgery, except for 4 patients who stayed for 2 days.

	No.	Preop BMI	Preop weight	Excess weight	Excess % wt loss @ 3 mos	Excess % wt loss @ 6 mos	Excess % wt loss @ 12 mos	Excess % wt loss @ 18 mos
BMI <50	827	41±4.1	112.8±16	54.6±12.4	21.4±11.3	27.4±15.9	30.7±18.3	40.6±22.8
BMI ≥50	173	55.9±6.3	151±27.6	93.6±22	18.3±7.7	26.4±11.2	34.9±9.2	38.8±11.6
Chi ²	NA	NA	NA	NA	0.022	NS	NS	NS

Complications included 2 pouch dilatations observed at 10 and 18 months in separate patients, 1 port-site infection, 3 true band infections, 1 complete band slippage. All of these complications occurred in BMI<50 patients.

Conclusion: These results demonstrate that this procedure is successful in producing weight loss and at the same time has a very low complication rate when compared to more invasive bariatric procedures even for patients with high BMI. It also suggests that band slippage, a complication that has led many to give up the procedure, is largely avoidable.

61. RESULTS WITH GASTRIC BANDING IN SUPER-OBESE TREATMENT

Vincent Frering, Eric Fontaumar, Yann Matussiere, Pierre Vicard. *Clinique Sauvegarde, Lyon, France*

Background: Mortality and morbidity in high-risk super-obese patients is a main concern in bariatric surgery. BMI over 50 is considered as an independent variable for mortality. One of current solution proposed is vertical gastrectomy as a first stage before gastric bypass or duodenal switch to reduce the complication rate. We report our management with gastric banding in 421 patients with BMI > 50 kg/m².

Methods: From 1997 to 2006, 5,838 patients had gastric banding by the same surgical team. Out of them, 429 (7.3%) had BMI over 50. There were 334 female and 95 Male from 16 to 67 years old (40.15 ± 11.17). Mean BMI was 55.83 ± 5.44 from 50 to 84.8 kg/m². Gastric banding used were Lapband in 54, SAGB in 95

and Midband in 280.

Results: There were no deaths. Hospitalization length >48 h occurred in 9 patients. Gastric band was removed in 16 patients (3%) – 6 because of slipping, 5 on patient request and 5 because of intragastric migration. Band was changed in 5 cases because of leakage on SAGB band. Gastric bypass was done in 5 because of inadequate weight loss and sleeve gastrectomy in one. Port site was changed in 6 because of leakage with Lapband. Year 0 1 2 3 4 5 >5 Mean BMI \pm SD 55.84 \pm 5.45 47.75 \pm 6.65 39.55 \pm 8.91 36.04 \pm 9.03 33.30 \pm 7.05 35.38 \pm 7.6 28.6 \pm 6.61. 9.7% are lost of follow-up.

Conclusion: Among different bariatric procedures and according to safety and excellent results, gastric banding is our first choice for super-obese.

62. THE ROLE OF PREOPERATIVE UPPER GI TESTING IN THE LONG-TERM OUTCOME AFTER GASTRIC BANDING IN MORBIDLY OBESE PATIENTS

Michel Suter (Hôpital du Chablais), J.M. Calmes (Department of surgery, CHUV, Lausanne); A. Paroz (Department of Surgery, CHUV, Lausanne); V. Giusti (Division of endocrinology, metabolism and diabetology, CHUV, Lausanne), Switzerland

Background: Gastric banding (GB) is one of the most popular bariatric procedures for morbid obesity. Apart from causing weight loss by alimentary restriction, it can interfere with functions of the esophagus and upper stomach. As such, GB can prevent or promote gastro-esophageal reflux, and may interfere with esophageal motility. We have shown that esophageal motility is reduced rapidly after GB. The aim of this study was to evaluate if the results of extensive preoperative upper GI testing was correlated with long-term outcome and complications after GB.

Methods: Prospectively maintained computerized database including all the patients undergoing bariatric operations in both our hospitals. Retrospective analysis of the patients who underwent complete upper GI testing (endoscopy, pH-monitoring and manometry) before GB.

Results: 134 patients underwent complete testing before GB. Abnormal pH-monitoring (increased total reflux time, increased diurnal reflux time, increased number of long reflux episodes) predicted the overall development of complications, and especially pouch dilatation and food intolerance. The mean DeMeester score was higher among patients who developed complications than in the remaining ones (25.4 versus 17.7, $P=0.03$). Low lower esophageal sphincter pressure also predicted progressive long-term food intolerance. Endoscopic findings were not predictive of the long-term outcome.

Conclusions: Gastroesophageal reflux disease objectivated by pH-monitoring and manometry should be regarded as contraindications to gastric banding, because they are associated with an increased risk to develop long-term complications.

63. LAPAROSCOPIC GASTRIC BANDING MADE EASY - THE SUTURELESS PORT

Conor Magee, J Ahmed; DD Kerrigan. Aintree University Hospital

Background: Laparoscopic adjustable gastric bands (LAGB) are adjusted by injecting fluid into a subcutaneous port. This can be sutured to the rectus sheath, but can be difficult to locate without radiological screening. Inaccurate injections can damage the tubing, leading to deflation. Many surgeons place a pre-sternal or costal margin port via a relatively large incision. This often leaves an unsightly hypertrophic or keloid scar. We describe a simple, technique which overcomes these problems and reduces operating time significantly.

Methods: A 15-mm epigastric port is used for both liver retraction and band insertion. Using digital dissection, a snug pre-sternal pocket is created and a low-profile port is placed over the ster-

num. This does not involve a pre-sternal skin incision. Results were prospectively audited on 51 patients and compared with data from 88 patients who underwent standard port placement.

Results: Median operating time was reduced by 20 minutes compared to standard sutured port placement (35 v 55 mins, $p<0.0001$ Mann Whitney U). Median follow-up was 12 months. Postoperatively, 168 band fills were performed in clinic without radiological screening. There were 164 successful fills at first attempt (97.8%). Infection rate was zero. There were no episodes of port migration, epigastric hernia, tube kinking or fracture. **Conclusions:** Sutureless LAGB port site placement is simple to perform and as effective as the conventional technique. It can reduce operating time and reduces morbidity from poor cosmesis and port tubing problems.

64. 10 YEARS EXPERIENCE WITH LAPAROSCOPIC GASTRIC BANDING

Jean Biagini, Lamisse Karam. St Joseph Hospital, Bawchrieh, Lebanon

Background: Gastric banding is a safe and efficient bariatric procedure. We report the results of 591 consecutive gastric bandings in terms of excess weight lost up to 10 years follow-up and complications as well as the impact of follow-up.

Methods: Between June 1996 and September 2006, 591 patients underwent Laparoscopic gastric banding by the same surgeon (J.B.). 69.8% of patients were women. Mean age was 33.6 yrs \pm 10.9 and mean BMI was 46.87 kg/m² \pm 0.74. Follow-up was done each 3 weeks initially for the first six months, every 2 months for the next 6 months and after the first year when needed. Excess weight lost was calculated at 6 months, 1, 2, 4, 6 and 8 years.

Results: 515 patients were included in the study. 51 patients (8.63%) had band removal due to a complication. Mean follow-up time was of 34.97 months \pm 1.88. Percentage of excess weight loss was 45.8 % \pm 2.48 at 6 months and respectively of 66.72% \pm 2.82, 72.56% \pm 2.92, 75.91% \pm 3.64, 82.81% \pm 8.08 and 82.31% \pm 19.02 for 1, 2, 4, 6 and 8 years. Complication rate was of 23.32% overall and 2.5% when calculated on the second half of patients. Complications encountered were band failure (9.36%), slippage (5.30%), erosions (4.59%), infections (2.47%) technical failure (1.94%) and others (2.83%).

Conclusion: Laparoscopic gastric banding is a safe and efficient bariatric procedure. With experience, complication rate drops to very low ranges. Close follow-up can further increase its efficacy.

65. LONG-TERM FOOD INTOLERANCE AFTER GASTRIC BANDING: THE MOST COMMON CAUSE OF BAND REMOVAL

J Dargent. Polyclinique de Rillieux, Rillieux-la-Pape, France

Background: Erosion and pouch dilatation (or slippage) have been acknowledged as typical long-term issues after lap-banding. Yet it seems from our experience that food intolerance has become a leading cause for band removal, although not reported as such in the literature. A strict definition of this syndrome should be proposed.

Methods: 1m276 patients have been operated on over 11 years (5/95-5/06). Food intolerance occurred in 41 cases (2, 9%), representing 1/3 of the causes of band removal. The average time for diagnosis was 58 months (16-110). 17 cases occurred before 5 years of follow-up, and 25 after.

Results: Postoperative course has been uneventful in all cases of simple removal. No patient had re-banding after removal, 1 had VBG in another center, 2 a gastric bypass, 1 a BPD, and 4 had a sleeve gastrectomy in the same operative time as band removal. This complication is rarely reported, or often attributed to "poor compliance" or "poor results" after lap-banding. The background and symptoms of this entity should be separated from other issues, i.e. esophageal dilatation and band slippage. RYGBP is a

valuable option after band removal, but like others, we prefer Sleeve Gastrectomy as a second step procedure given the weight-loss that has already been achieved in most cases.

Conclusion: Food intolerance after lap-banding is rarely reported but is likely to represent the most common cause for band removal in the long run, although we do not know its future rate. From the literature and our experience, there is no clear cause to this complication in the majority of the cases; neither the type of band nor the type of procedure are sufficient explanations.

67. LAPAROSCOPIC GASTRIC BYPASS FOR ADOLESCENTS (13-17 Y) WITH MORBID OBESITY - PRELIMINARY RESULTS FROM A SWEDISH NATIONWIDE STUDY

Torsten Olbers¹, M. Werling¹, C. Marcus², S. Mårdlid¹, H. Lönroth¹, J. Dahlgren¹, C-E Flodmark³, P. Friberg¹. ¹Sahlgrenska University hospital, Göteborg ²Karolinska University hospital, Huddinge, Stockholm, ³University hospital MAS, Malmö, Sweden

Background: Severely obese adolescents not only have an impaired quality of life but also co-morbidities such as diabetes and hypertension. The “gold standard” in obesity surgery, laparoscopic gastric bypass, is not generally accepted for ages under 18. The purpose of this study is to elucidate whether surgery can be an option for adolescents.

Methods: This is a nationwide Swedish multi-centre controlled study with the surgery performed at one site (Sahlgrenska Univ Hosp). Adolescents (13 to 17 years) with a history of failed conservative treatment and a BMI >40 or >35 with co-morbidity are considered eligible (n=80). The control group is adolescents declining surgery and being conventionally treated according to best local standard (n=40). Follow-up are scheduled for one, two, four and ten years postop. Metabolic, cardiovascular risk and quality of life status will be focused.

Results: 22 adolescents have yet been operated without serious peri-operative complications. The preoperative average BMI was 48 (range 34.4-59.1) and age 13-18. Postoperatively, adolescents have consistently lost more than two BMI units monthly. One patient was re-operated 4 months postop due to a kinked bowel loop, with smooth postop outcome. Adolescents demonstrate the same altering in eating patterns as adults, i.e. preferring meat, vegetables and fruits and avoiding fat and sweet foods.

Conclusion: So far, the surgical outcomes in this study for morbidly obese adolescents are encouraging. Further thorough follow up is needed for firm conclusions. We consider it mandatory that surgery on adolescents should be performed only in controlled trials.

70. CÉSAR ROUX AND THE ROUX-EN-Y ANASTOMOSIS

Mervyn Deitel, MD, *OBESITY SURGERY, Toronto, Canada*
The origins of “Roux” have been misinterpreted. One surgeon has actually explained that “Roux” means “street”.

César Roux (1857-1934) was born in Mont-la-Ville, Switzerland, one of 11 children. He was a student in Medicine in Bern, and eventually practiced in Lausanne where he was Professor of External Pathology and Gynaecology. He had wide interests in various areas of General Surgery.

A major problem in the 1890s was the treatment of gastric outlet obstruction. At that time, there was no radiology for preoperative diagnosis, only an early concept of asepsis (with no rubber gloves), rudimentary anesthesia, and lack of I.V. fluids (fluids were administered into the rectum, and oral fluids were started early postoperatively). Starting in 1892, Roux began re-routing the gastric contents by dividing jejunum and anastomosing the distal jejunal (subsequently known as Roux) end to the stomach, and anastomosing the proximal jejunal (afferent or biliopancreatic) limb to the side of this jejunum. He first reported this technique in 1893. This operation was used for relief of peptic ulcer obstruction and effective temporary palliation for cancer of the lower stomach.

A late complication of this procedure was marginal ulcer on the jejunal side of the gastrojejunostomy. There was no pharmacologic treatment for peptic ulcer, nor the concept of vagotomy, at the time. Thus, the Roux-en-Y jejunal loop was little used until the 1950s, when it began to be used for the relief of biliary obstruction and choledochal cyst, drainage of the pancreatic duct of Wirsung and pancreatic pseudocysts, and for total gastrectomy replacement, duodenal trauma, and for bile reflux gastritis.

Initially, Roux used a limb of 12 cm, but later it was found that 30 to 40 cm was necessary to prevent reflux of digestive juices to the stomach, or to prevent reflux of food to the biliary system (avoiding ascending cholangitis) or to pancreas.

The use of a Roux-limb in bariatric surgery to drain the proximal stomach was first described independently in 1977 by Nicola Scopinaro in the biliopancreatic diversion (to overcome the blind loop of the JI bypass) and by Ward Griffen (to prevent tension on the jejunal discontinuity-loop of the Mason horizontal loop gastric bypass). In both these operations, a major portion of the acid-producing stomach is resected (BPD) or bypassed (gastric bypass).

71. MORBID OBESITY, METABOLIC SYNDROME AND HEPATIC DYSFUNCTION

Vicente Silvestre Teruel, M. Ruano, M.C. García, E. Aguirregoicoa, L. Criado, A. Marco, G. García-Blanch. *Hospital General de Móstoles, Madrid, Spain*

Background: Morbid obesity (MO), non-alcoholic fatty liver disease (NAFLD), steatohepatitis (NASH) and metabolic syndrome (MS) are tightly related entities and MS frequently predicts the development of NAFLD. The aims of the present study are: 1) to evaluate the risk factors for MS according to the IDF in patients with MO and hepatic dysfunction and 2) to determine their potential reversibility after bariatric surgery.

Methods: We have retrospectively evaluated data from 200 patients, 160 women and 40 men with MO operated in our Hospital (Capella's gastric bypass). The mean age was 38.6 years (range: 16-62). In 35% of the cases (n = 70) there were ultrasonographic changes consistent with NAFLD. We have measured BMI, WC and the risk factors for the development of a MS (SD) which in women was 49.2 (5.9) for the BMI

Results: Before bypass, 119.6 (13.3) for the WC; we found hyperglycemia in 28 women, hypertriglyceridemia in 20, low HDL levels in 39 and hypertensive disease (HD) x (SD) values for BMI and WC in men were 52.6 (10.5) and 135.2 in 3; the (14.5), respectively. We found hyperglycemia in 5, hypertriglyceridemia in 6, low HDL levels in 13 and HD in 5. After surgery and during the first 6 months, we found a decrease of BMI and the WC in both sexes, and the risk factors related to MS, NAFLD and NASH tend to normalize.

Conclusions: Weight loss and risk factors normalization for MS after surgery confirm surgery as an effective therapy for MO.

72. EFFICACY OF LAPAROSCOPIC GASTROPLASTY (LAP-BAND) IN THE TREATMENT OF OBESITY ACCOMPANIED BY ARTERIAL HYPERTENSION WITH METABOLIC DISORDERS

Andis Pliks, M. Margolins; G. Trofimovics; ģ. Ārōzova. *Baltic Obesity Research and Treatment Centre, Latvia*

Background: Latvia is “a leader” in mortality of cardiovascular diseases in the Baltic States. Adults in Latvia have 42.8% overweight and 16.3% are obese.

Methods: In our centre, 40 gastroplasties (Lap-Band) were performed in patients with mean BMI 45.5 in the period from 2004 till 2006. Of all operated patients, 34 patients had concomitant diseases; 19 patients had arterial hypertension. For all patients examinations of lipid metabolism were performed, as well as functional-morphological changes of their target organs – fundus

oculi, left atrium and left ventricle diastolic volume (LVDV) and systolic volume (LVSV) were examined.

Results: After laparoscopic gastroplasty in patients with obesity complicated by arterial hypertension, reduction of body weight on average by 18.36 kg, cholesterol by 4%, triglycerides by 35%, LDH by 1%, left ventricle septa by 5.4%, posterior wall by 7% and left atrium by 3% was observed during 1 year. EF was approx. same before and after laparoscopic gastroplasty. Reduction of LVDV by 5% and LVSV by 8% was shown in our studies. EWL 13.3%. Regression of angiopathy in fundus oculi, switch of Gunn-Salus symptom from degree I to degree II.

Conclusions: Laparoscopic gastroplasty is an effective method for morbid obesity treatment with concomitant arterial hypertension disease and can also reduce hematocchemical parameters associated with risk factors of cardiovascular diseases.

73. GASTRIC BANDING FOR THE TREATMENT OF TYPE 2 DIABETES MELLITUS IN THE MORBIDLY OBESE

T. Brancatisano, S. Wahlroos, R. Brancatisano. *Institute of Weight Control, USA*

Background: Obesity is a leading cause of type 2 diabetes (DM). Our aim was to assess the efficacy of the Swedish Adjustable Gastric Band (SAGB) in the treatment of diabetes in the morbidly obese.

Methods: We identified all patients with either DM or impaired glucose tolerance (IGT) at the time of surgery from our database of 774 consecutive patients who underwent placement of the SAGB between January 2001 and November 2006. Patients were followed-up by our multidisciplinary team and their diabetes managed by their treating General Practitioner and/or Endocrinologist.

Results: There were 450 patients with greater than 6 months follow-up. Of these, 46 patients had DM and 53 had IGT. The median age was 50 (range: 24-67) years with a mean (\pm SD) of initial weight and BMI of 131 ± 25 kg, and 46 ± 8 kg/m², respectively. At a median follow-up of 14 months (range: 6-48), the percentage excess weight loss (%EWL) was $38 \pm 18\%$. Of the patients with DM, mean (\pm SD) HBA1c significantly decreased from $8.5 \pm 1.9\%$ to $6.7 \pm 1.4\%$ ($p < 0.0001$). Sixteen patients normalized their HBA1c (reference range < 6). Of the 15 patients previously on insulin, 7 (47%) ceased, 6 (40%) reduced insulin dose by greater than 50% and 2 (13%) had no change. Of the 38 patients treated with oral hypoglycemics, 9 (24%) stopped medication, 13 (32%) reduced by greater than 69% and 12 (32%) did not change. Four patients increased their tablet dose; two of which had reduced insulin dosage. Of the patients with IGT, mean fasting blood glucose (mmol/l) significantly decreased from 6.3 ± 1.4 to 4.9 ± 0.8 ($p < 0.0001$). No patient with IGT developed diabetes. None of the 46 patients who were diet-controlled progressed to require medications.

Conclusions: Sustainable weight loss following gastric banding is an effective treatment of DM in morbidly obese patients. It may even prevent the occurrence of DM in patients with IGT.

74. IMPROVEMENT OF INSULIN SENSITIVITY AND REMISSION OF DIABETES MELLITUS AFTER GASTROPLASTY

Helena Cardoso (*Hospital Geral Danto António*), G. Melo-Rocha (*Endocrinology Dpt, Hospital Geral de Santo António*); M.P. Monteiro (*Instituto de Ciências Biomédicas Abel Salazar/UMIB, Porto, Portugal*); I. Silva (*Human and Social Sciences College, Fernando Pessoa University; Psychology and Sciences Education Department, Porto University*), A. Sérgio (*Surgery Dpt, Hospital Geral de Santo António*); J. Santos (*Surgery Dpt, Hospital Geral de Santo António*), C. Nogueira (*Surgery Dpt, Hospital Geral de Santo António*), C. Cunha (*Clinical Chemistry Dpt, Hospital Geral de Santo António, Porto, Portugal*); F. Bravo, (*Clinical Chemistry Dpt, Hospital Geral de Santo António, Porto, Portugal*), F. Pichel (*Endocrinology Dpt, Hospital Geral de Santo*

António), Porto, Portugal

Background: One of the most important outcomes after obesity surgery is the improvement of co-morbidities associated with obesity. Our aim was to evaluate insulin sensitivity and metabolic control in patients with type 2 Diabetes Mellitus (T2DM) submitted to gastroplasty.

Methods: Changes in body weight (BW), body mass index (BMI), glycated hemoglobin (HbA1c), fasting glycemia, fasting insulinemia, and insulin resistance as assessed by the homeostatic model (HOMA-IR), were evaluated prospectively in 30 T2DM patients (23 females and 7 males) submitted to laparoscopic adjustable gastric banding in 25 and to vertical-banded gastroplasty in 5.

Results: Patients had age of 48.0 ± 7.9 years old at time of surgery and after a mean follow-up time of 4.4 years (range 1 to 11 years), there was a statistically significant reduction in BW (130.4 ± 32.8 kg to 89.7 ± 22.7 kg; $p < 0.001$), BMI (49.7 ± 9.5 kg/m² to 34.7 ± 9.5 kg/m², $p < 0.001$), HbA1c ($7.3 \pm 2.3\%$ to $4.9 \pm 0.5\%$, $p < 0.001$), fasting glycaemia (143 ± 66 mg/dl to 90 ± 16 mg/dl, $p < 0.001$), fasting insulinemia (25.5 ± 14.4 mU/ml to 8.7 ± 7.5 mU/ml, $p < 0.001$) and HOMA-IR (from 8.8 ± 5.9 to 2.5 ± 1.9 , $p < 0.001$). Two patients on insulin before surgery switched to metformin and metformin plus glitazone, two other patients stay on metformin and all the others stopped anti-diabetic drugs as a result of diabetes regression. This was accompanied by an improvement in the lipid profile and blood pressure, allowing stopping or reducing hypo-lipidemic and anti-hypertensive drugs.

Conclusions: The improvement of insulin sensitivity and glycemic control observed after gastroplasty, with even the normalization of glucose levels and remission of the disease, supports the use of gastroplasty as a good treatment option in obese patients with T2DM.

75. LONG-TERM IMPROVEMENT IN HYPERTENSION AND OTHER COMPONENTS OF THE METABOLIC SYNDROME (MS) AFTER ADJUSTABLE GASTRIC BANDING (SAGB): A QUESTION OF AMOUNT OF WEIGHT LOSS?

Rudolf Steffen, N. Bieri, N. Potoczna, F. F. Horber. *Klinik Lindberg, CH-8400 Winterthur, Switzerland*

Background: The SOS-study revealed long-term recurrence of hypertension after bariatric surgery along with weight regain.

Methods: 404 patients were followed after implantation of a SAGB. Weight loss and components of MS were recorded prospectively. 388 patients (79% women; age 43 ± 0.5 years [mean \pm SEM]; BMI 42.6 ± 0.2 kg/m²) completed seven-year follow-up. 23.6% (91/388) were converted: 68 to Roux-en-Y gastric bypass (RYGBP), 23 to biliopancreatic diversion (BDP-DS). (Algorithm: Surgery 2005;137:33-41).

Results: Follow-up was 96%. Prevalence of metabolic syndrome (MS; ATPIII) was 60.7%. Prevalence of components of MS during 7 years were:

Years after surgery	Hypertension (5)	Type 2 Diabetes (%)	Low HDL-cholesterol (%)	Triglycerides (%)
0	69.4	13	61.6	42.7
4	42.9*	4.4*	19.7*	9.6*
7	49.2*	5.7*	10.7*	7.2*

* $p < 0.001$, preoperative vs 4 or 7 years after surgery

After 84 ± 1 months and a mean reduction of $60 \pm 2\%$ excess weight, prevalence of MS was 12.6% ($p < 0.0001$ vs preoperative). There were inverse linear relationships ($p < 0.001$) between the magnitude of weight loss and new-onset and persistence of hypertension, ranging from 14 to 0% of new onset and 57 to 29% of persistent hypertension, demonstrating a clear dose-response between weight-loss and reduction of blood pressure as well as type 2 diabetes (persistent 17 vs 0%, $p < 0.01$). Comparing the subsets of patients converted to RYGBP or BDP-DS, results

were similar corrected for initial BMI, age and duration of disease. **Conclusion:** A purely restrictive operation (SAGB), based on reduced food intake supplemented with lifestyle interventions, achieves equivalent weight loss dependant improvement of hypertension and MS without altering GI continuity as done with gastric bypass.

76. EFFECT OF OMENTECTOMY ON METABOLIC SYNDROME, ACUTE PHASE REACTANTS AND INFLAMMATORY MEDIATORS IN PATIENTS UNDERGOING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (LRYGBP): A RANDOMIZED CONTROLLED TRIAL

Miguel F. Herrera, A. Dávila-Cervantes, A. Zarain J. Cabiedes, R. Gamino, J. P. Pantoja, E. García, C. Aguilar. *Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán. Departments of Surgery, Endocrinology, Rheumatology & The Obesity Clinic. Mexico City, Mexico*
Background: Metabolic Syndrome (MS) is related to Morbid Obesity (MO). Weight loss controls the MS and reduces the level of inflammatory markers in the long term. This study evaluates the short term impact of omentectomy on the MS, acute phase reactants (APR) and inflammatory mediators in patients with MO undergoing LRYGBP.

Methods: 24 patients with MO and MS were randomized into 2 groups: G1: LRYGBP alone and G2: LRYGBP + omentectomy. BMI, CBC, glucose, lipids, liver function tests, TNF α , IL-6, adiponectin, and protein-C-reactive (PCR) were measured before and 3 months after surgery. **Results:** Demographics were comparable in both groups. The most common co-morbid conditions were: High blood pressure (10 in each group). Diabetes (11 G1, 12 G2) and Hyperlipidemia (6 G1, 7 G2). Complications related to omentectomy occurred in 3 patients. Variables are shown in the table

	Before surgery			3-months after surgery		
	Group 1	Group 2	p	Group 1	Group 2	p
Glucose*	107 \pm 2	103 \pm 8	0.6	90 \pm 6	89 \pm 9	0.7
LDL cholesterol	127 \pm 4	117 \pm 3	0.6	106 \pm 38	75 \pm 2	0.06
Triglycerides	180 \pm 107	199 \pm 68	0.6	142 \pm 50	114 \pm 41	0.2
PCR**	6.8	7.2	0.8	1.6	2.9	0.2
TNF α **	5.8	5.6	0.9	4.7	4.1	0.6
Adiponectin**	9.2	10.5	0.7	15.8	13.2	0.2
IL-6**	8.9	4.5	0.4	10.4	14.01	0.7

*mg/dl **pg/ml

Conclusion. Omentectomy does not have significant impact on the control of the MS, APR, and inflammatory mediators in the short term.

77. GASTRIC BYPASS FOR THE TREATMENT OF TYPE 2 DIABETES MELLITUS (T2DM) IN PATIENTS WITH BODY MASS INDEX (BMI) BELOW 35

Camilo Wilson¹, Alex Escalona², Rodrigo Muñoz², Gustavo Perez², Fernando Crovari², Sergio Guzman², Luis Ibañez².

¹Pontificia Universidad Católica de Chile, ²Department of Digestive Surgery, Hospital Clínico Pontificia Universidad Católica de Chile, Santiago, Chile

Background: Gastric bypass surgery has proven to be an effective treatment for T2DM in morbidly obese patients. The aim of this study was to assess the surgical results and metabolic outcome of diabetic patients with BMI below 35 undergoing gastric bypass. **Method:** We identified all diabetic patients undergoing gastric bypass. We analyzed surgical results, complications, weight progression, BMI, % of excess weight loss (EWL) and resolution of T2DM.

Results: From 2,117 patients undergoing gastric bypass (BMI: 42 + 7 kg/m², age 38.3 \pm 12 years, women: 54.1%) we identified 261 (12.3%) with T2DM (BMI: 43.2 \pm 7.1 kg/m², age 46.8 \pm 10.3 years). Twenty of these diabetic patients had a BMI <35. (Mean BMI 33.2 \pm 1.1 kg/m², age: 47 \pm 9.1 years). One patient was under insulin therapy. Preoperative fasting glucose was 122 \pm 14.4 mg/dl, insulin 15 \pm 10.1 mg/dl, HOMA-IR 3 \pm 2.2. All patients underwent a gas-

tric bypass with a 15 cc gastric pouch, 150 cm alimentary limb and a 30 cm biliopancreatic limb. Mean operative time was 102.2 \pm 30.2 minutes and mean hospital stay was 4.5 \pm 1.1 days. The 30 day complication rate was 15% (n=3 patients, gastrojejunal stenosis). Late complications occurred in 25% (n=5). The most common late complication was symptomatic cholelithiasis in 3 patients. BMI at 1, 6, 12, 24 months was 30.5 \pm 2.1 kg/m², 25.7 \pm 2 kg/m², 25.3 \pm 1.8 kg/m² and 27.1 \pm 2 kg/m² respectively. Percentage of excess weight loss at 1, 6, 12 and 24 months was 33.8 \pm 17.8%, 90.5 \pm 26.8, 95.2 \pm 42% and 75.1 \pm 31.0%. After a median follow up of 12 months fasting glucose was 88 \pm 10 mg/dl, insulin 8 \pm 2.4 mg/dl and HOMA-IR 2 \pm 2.2. Complete resolution of T2DM was achieved in 16 of 20 patients (80%). Two patients improved their metabolic control, one decreased medication need in 50% and the other decreased daily insulin requirements in 80%.

Conclusion: Bariatric surgery in T2DM patients with BMI below 35 is safe and effective, but longer follow-up is required.

78. METABOLIC EFFECT OF BARIATRIC SURGERY: EVOLUTION OF DIABETES AFTER GASTRIC BYPASS

Amador García Ruiz de Gordejuela, Jordi Pujol, Fernando Estremiana, Lluís Secanella; Leonardo Sivio, Jose Manuel Francos, Pablo Moreno, Carles Masdevall, Antoni Rafecas. *Hospital Universitari de Bellvitge, Spain*

Background: Gastric bypass is one of the most common bariatric surgeries worldwide. These patients achieve nearly 60%EWL. After this surgery, most of the patients have improved metabolic risk, especially in terms of Diabetes.

Methods: Retrospective analysis of diabetic obese patients operated in our Hospital. All diabetic laparoscopic gastric bypass has been included. Variables studied are status of Diabetes, need for oral antidiabetics or insulin, and laboratory test like fasting glycemia or glycosylated hemoglobin.

Results: Since 2002, 146 diabetic obese patients were operated. 124 were women (84.9%) and medium age was 47.09 \pm 8,09 years old. All patients had at least 12 months of follow-up. After 3 months, 12 patients (8.22%) needed any medication yet; 4 after 6 months (2.74%); 4 after 12 months (2.74%). No patient needed any medication after 2 years. In most of the patients fasting glycemias were normal after 6 months. We have also observed that these patients improve other co-morbidities like hypertension (90% free of medication after 12 months), or obstructive sleep apnea (95% cured at 6 months).

Conclusions: Bariatric surgery may also be metabolic surgery, because it improves patient's metabolic risk. Indications for bariatric surgery must be considered as a treatment for obesity metabolic risk, and not only for weight loss.

79. RESTORATION OF BETA CELL FUNCTION AFTER BARIATRIC SURGERY IN TYPE 2 DIABETIC PATIENTS: A PROSPECTIVE CONTROLLED STUDY COMPARING GASTRIC BANDING AND GASTRIC BYPASS

F. Pattou (General and Endocrine Surgery, CHRU Lille); G. Beraud (Diabetology, CHRU Lille); L. Arnalsteen L (General and Endocrine Surgery, CHRU Lille); D. Seguy (Nutrition, CHRU Lille); P. Pigny (Biochemistry, CHRU Lille); C. Fermont (Diabetology, CHRU Lille); M. Romon (Nutrition, CHRU Lille); P. Fontaine. *Diabetology, CHRU Lille, France*

Background: Bariatric surgery in patients with type 2 diabetes (T2D) is often followed by a dramatic but only partially explained improvement of glucose metabolism. We compared the outcome of T2D after a similar weight loss (10%) following restrictive surgery alone (gastric banding) or combined with intestinal bypass (gastric bypass).

Methods: Among 53 consecutive surgical candidates with T2D, 50 patients (49 \pm 9 years; 50 \pm 8 kg/m²; 6 \pm 5 years of T2D; HbA1c

8.7±2.1%) undergoing laparoscopic gastric banding (GB, n=19) or gastric bypass (GBP n=31) were included in this prospective controlled study. Each patient was evaluated after one withdrawal of all antidiabetic drugs, (1) prior to surgery and (2) after the loss of 10% of initial body weight. Blood glucose and plasma insulin were measured during 3 hours following a standardized mixed meal test. Beta cell function was estimated by the ratio [post prandial insulin rise (mU/L) x insulin sensitivity (QUICKI)]. **Results:** Baseline patient characteristics (age, sex, BMI, HbA1c, FBG, insulin secretion) were similar in both groups (NS). All patients lost 10% of initial weight, 3.6±3.3 months after GB and 1.4±0.7 months after GBP (P<0.001); 47 (94%) successfully underwent both test meals. T2D remission (fasting blood glucose <1.26 g/L without treatment) was observed respectively in 25% of GB and 49% of GBP (NS). Fasting blood glucose and plasma insulin were significantly decreased in both groups (P<0.01 vs basal) but were lower in GBP (P<0.001 vs GB). Insulin sensitivity (QUICKI) was similarly and significantly increased in both group (P<0.01 vs basal). HbA1c was significantly decreased only in GBP (<0.001 vs basal and GB). Postprandial insulin rise and beta cell function were slightly increased after GB (P<0.05) but dramatically improved after GBP (P<0.0001). **Conclusion:** Our results demonstrated that glucose metabolism in obese patients with T2D is better improved after gastric bypass, independent of weight loss, and due to a dramatic restoration of beta cell function.

80. BILIO-PANCREATIC DIVERSION IN THE TREATMENT OF TYPE 2 DIABETES IN THE PATIENT AFFECTED BY OVERWEIGHT AND SLIGHT OBESITY

G. Nanni, A. Iacobelli, V. Tondolo, C. Guidone, M. Manco, F. Rubino, M. Castagneto, G. Mingrone. *Department of Surgery and Medicine, Division of Metabolic Diseases, Catholic University, Roma, Italy*

Background: The NIH consensus conference (1991) established the selection criteria for bariatric surgery. Obese subjects with BMI >40 kg/m² are eligible as well as less severe obese patients (BMI 35-40) with high-risk co-morbid conditions, such as cardiopulmonary problems, diabetes mellitus, physical problems interfering with lifestyle. Since Bilio-pancreatic Diversion (BPD) has shown a high rate of success in the cure of type 2 diabetes associated with severe obesity, the Ethical Committee of the Catholic University in Rome approved a pilot study where 5 type 2 diabetic subjects (BMI 26-32 kg/m²) would have underwent BPD with the aim to cure diabetes.

Results: Five patients underwent BPD. Mean age was 37 yrs (range 28-50), BMI 30.4 kg/m² (range 27-32), FFM 58.60±9.36 kg and FM 29.95±6.73 kg. One month after the operation BMI was 29.1 kg/m² (P<0.001), FFM 54.53±7.74 kg (P<0.01) and FM 27.80±4.06 kg (P<0.01). Euglycemic hyperinsulinemic clamp before and 1 month after showed an increase (P<0.0001) in insulin-mediated glucose uptake (from 18.56±10.34 to 33.61±12.56 μmoles/kgFFM/min). Fasting plasma insulin fell from 94.80±31.29 to 37.80±7.22 pM (P<0.0001) and plasma glucose decreased from 9.37±3.38 to 4.75±0.27 (P<0.05). Changes in plasma incretins are consistent with the mechanism related to diabetes resolution. At a minimum 7 months follow-up, patients are in good general condition, with slight alterations in biochemical parameters without any treatment for diabetes.

Conclusions: This pilot study suggests that BPD is effective and safe in curing type 2 diabetes in subjects with a BMI between 27 and 32 kg/m².

81. IMPACT OF LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING ON OBESITY-ASSOCIATED CO-MORBIDITIES: A 5-YEAR FOLLOW-UP

M. Korenkov¹, S. Shah¹, S. Sauerland², F. Duenschede¹, Th. Junginger¹. ¹*Department of Surgery, University of Mainz, Germany*, ²*Institute for Research in Operative Medicine, University of Witten/Herdecke, Cologne, Germany*

Background: The objective of this study was to evaluate the impact of laparoscopic adjustable gastric banding (LAGB) over five years on obesity-associated disorders, namely diabetes mellitus, pulmonary diseases, hypertension and arthrosis.

Methods: 145 morbidly obese patients were included in the study who underwent LAGB surgery. Mean age of the patients was 38 years and preoperative Body Mass Index (BMI) averaged at 48.5 kg/m² (range 34 to 77 kg/m²). Postoperative changes in weight were evaluated by comparing BMI and excessive weight loss (EWL).

Results: 138 out of 145 patients (95%) were available for follow-up examinations. The average mean duration of the follow-up was 5 years. At follow-up, average BMI had dropped to 34.0 kg/m² (SD 6.4) and average excess weight loss (EWL) was 61.9% (SD 26.1). The prevalence of obesity-associated diseases was also significantly reduced during the follow-up period: Diabetes mellitus (DM) went down from 10% to 4%, medication requiring pulmonary diseases from 15% to 5%, hypertension from 43% to 27%, and arthrosis-related pain from 47% to 38%.

Conclusion: Gastric banding is effective in the treatment of morbid obesity. In addition to the weight loss, more than 75% of all examined patients suffering from obesity-associated diseases diminished their co-morbidities.

82. ENDOSCOPIC DUODENAL-JEJUNAL BYPASS SLEEVE: FIRST HUMAN EXPERIENCE ON A SAFETY TRIAL

Leonardo Rodriguez, Almino Ramos, Manoel Galvao Neto (*Gastro Obeso Center*). Munir Alamo, Percy Brante, Eliana Reyes (*Centro de Cirugía de la Obesidad, Hospital DIPRECA*). Michael Tarnoff (*Department of Surgery, Tufts-New England Medical Center, Boston*)

Background: We report the first human experience with an endoscopic duodenal-jejunal bypass sleeve (DJBS).

Methods: The DJBS is a 61-cm sleeve anchored in the duodenum creating a duodenal-jejunal bypass. In a 12-patient prospective, open label, single center, 12-week safety study, the device was endoscopically implanted, left in situ and retrieved. The study included 5 males and 7 females, mean BMI=43. Four patients had type 2 diabetes (T2DM). The primary endpoints were incidence/severity of adverse events. Secondary outcomes included % excess weight loss (%EWL) and changes in co-morbid status.

Results: The DJBS was endoscopically delivered and retrieved in all patients (mean implant/explants time 26.6 and 43.3minutes, respectively). Ten patients maintained the device for 12-weeks while 2 patients underwent explant after 9 days secondary to poor device placement. Several self-limited adverse events were possibly or definitely related to the device including: (6) abdominal pain; (18) nausea and (16) vomiting mainly within 2 weeks of implant; (2) partial pharyngoesophageal tears occurred during explant. Implant site inflammation was encountered in all patients. No event was considered severe. The average %EWL for the ten 12-week patients was 24% with all patients achieving at least 10% EWL. All 4 diabetics went 12-weeks without hypoglycemic medications with normal fasting plasma glucose levels. Three of these 4 patients decreased HbA1c by at least 0.5% by week 12. A randomized controlled obesity treatment efficacy trial (diet X GI Sleeve) for 6m and a randomized controlled type 2 diabetes treatment trial (clinical treatment X GI Sleeve) are running with the results to be presented.

Conclusions: The DJBS can be safely delivered and removed endoscopically and left in-situ for 12-weeks. The device has a favorable safety and encouraging efficacy profile. Randomized prospective trials are warranted.

83. VAGAL BLOCKING FOR OBESITY CONTROL (VBLOC): EFFECTS ON EXCESS WEIGHT LOSS, CALORIE INTAKE, SATIATION AND SATIETY

James Toouli (Flinders Medical Centre), J. Collins (Department of Surgery, Flinders Medical Centre, Bedford Park, Australia), N. Wray (Department of Surgery, Flinders Medical Centre, Bedford Park, Australia), C. Billington (Department of Internal Medicine, University of Minnesota Medical School, Minneapolis, USA); M. Knudson (EnteroMedics Inc., St. Paul, USA); C. Pulling (Integra CTS, Minneapolis, USA); K. Tweden (EnteroMedics Inc., St. Paul, USA); M. Vollmer (EnteroMedics Inc., St. Paul, USA); R. Wilson (EnteroMedics Inc., St. Paul, USA); L. Kow (Department of Surgery, Flinders Medical Centre, Bedford Park, Australia)

Background: A medical device that creates intermittent vagal block via electrodes placed laparoscopically adjacent to both intra-abdominal vagi is being developed to treat obesity. These high-frequency electrical algorithms are intended to cause excess weight loss (EWL) by inhibiting: 1) gastric accommodation, causing early satiation; 2) gastric contractions, prolonging satiety; and 3) pancreatic exocrine secretion, reducing calorie absorption. To evaluate changes in calorie intake, satiation during meals and satiety between meals during 6 months of vagal block and weight loss.

Methods: 10 females (age 31-60 years; BMI 33-48) received the device. To study effects of the device alone, no diet, exercise or behavior management was instituted. Follow-up included body weights, 7-day diet records and visual analogue scale (VAS) questionnaires to assess satiation and satiety using both 1-week and 1-day recall.

Results: All subjects completed the trial. Mean EWL at 6 months was 23%, $p < .0001$. Calorie intake decreased by $>30\%$, $p < .05$ at 4 and 12 weeks and 6 months. In addition, satiation and satiety VAS data revealed: 1) for 1 week prior to visits, decreased calorie intake and decreased capacity for food intake; and, 2) for 24 hours prior to visits, earlier satiation at main meals, increased satiety between meals and decreased capacity for food intake at meals (6 months, all $p < .05$).

Conclusions: In conjunction with an EWL $>20\%$, subjects experienced earlier satiation at meals and prolonged satiety between meals leading to reduced calorie intake. These findings are consistent with the therapeutic rationale for intermittent vagal block to treat obesity.

84. VAGAL BLOCKING FOR OBESITY CONTROL (VBLOC): AN OPEN-LABEL STUDY OF AN IMPLANTABLE, PROGRAMMABLE MEDICAL DEVICE TO TREAT OBESITY

Lilian Kow (Flinders Medical Centre), M. Herrera (Department of Surgery, Instituto Nacional de la Nutrición Salvador Zubiran, Mexico City, Mexico), B. Kulseng (Department of Internal Medicine, St. Olavs Hospital, Trondheim, Norway), R. Marvik (Department of Surgery, St. Olavs Hospital, Trondheim, Norway), J. P. Pantoja (Department of Surgery, Instituto Nacional de la Nutrición Salvador Zubiran, Mexico City, Mexico), M. Anvari (Department of Surgery, McMaster University Medical Centre, Hamilton, Canada); M. Bierk (EnteroMedics Inc., St. Paul, USA), J. Freston (Department of Internal Medicine, University of Connecticut Health Center, Farmington, USA), M. Knudson (EnteroMedics Inc., St. Paul, USA), K. Tweden (EnteroMedics Inc., St. Paul, USA), M. Vollmer (EnteroMedics Inc., St. Paul, USA); R. Wilson (EnteroMedics Inc., St. Paul, USA), J. Toouli (Department of Surgery, Flinders Medical Centre, Bedford Park, Australia)

Background: Historically, surgical vagotomy for refractory ulcers caused transient anorexia and weight loss by mechanisms that were unclear. A new medical device that creates intermittent, intra-abdominal vagal block using high-frequency electrical algorithms is being developed to treat obesity. The algorithm is delivered by laparoscopically implanted electrodes positioned at both

vagi near the esophagogastric junction. The proposed mechanisms for weight loss are down-regulation of gastric accommodation and gastric contractions and emptying, as well as decreased pancreatic exocrine secretion. To evaluate the safety and performance of intermittent, intra-abdominal vagal block on excess weight loss (EWL) in obese subjects without concomitant nutritional or behavioral consultation.

Methods: 3 sites participated. Following informed consent, qualified subjects were implanted. 2 weeks post-implant, therapy was started. Subjects were followed for 6 months, including visits for body weight, physical examination, clinical chemistries and adverse event (AE) inquiries.

Results: 31 subjects (mean BMI 41.4 ± 7.6) received the device. EWL achieved at 4 and 12 weeks and at 6 months following device implant were 7.5%, 11.3% and 14.2%, respectively, all $p < .0001$. During the study, there were no deaths or unanticipated device-related AEs. Three serious (regulatory definition – overnight hospitalization) and readily treatable AEs occurred: one post-op lower respiratory tract infection, one post-op subcutaneous implant site infection and one case of *Clostridium difficile* diarrhea.

Conclusions: This study demonstrated both efficacy as measured by EWL and safety as documented by the AE profile. An independent expert medical board reviewed the data and recommended continued clinical development.

85. PRELIMINARY EXPERIENCE WITH THE RADIUS SURGICAL SYSTEM IN BARIATRIC SURGERY

Nicola Di Lorenzo, Giorgio Coscarella, Iwona Gacek Fabrizio S. Altorio, Achille L. Gaspari. Università di Roma tor Vergata, Italy

Background: Laparoscopic Roux-en-Y gastric bypass (LRYGB) and laparoscopic adjustable gastric banding (LAGB) are common surgical procedures for morbid obesity. The Radius Surgical System, an advanced manual instrument for laparoscopic surgery, provides 6 degrees of freedom, allowing for deflection and rotation of the instrument tip using interchangeable effectors (Universal Needleholder, Self-Aligning Needleholder, Atraumatic Grasper, Gastric Band Retractor). The tips of the instruments can be deflected for 70 degrees by deflection of the handle, thus permitting optimal alignment of the instrument towards the tissue. For suturing, this means the possibility to perform more precise sutures in recesses and smaller spaces, as frequently happens in obese patients with hepatomegaly.

Methods and Results: From January, 2006 to March, 2007, the system has been used in 26 procedures, 10 bypass (GBP) and 16 gastric banding (GB). Tissue manipulation, feasibility and easiness have been evaluated. Furthermore, the ergonomics of the instruments has been assessed. In GB, the instrument has been effectively used for the preparation of the stomach as well as the creation of the retrogastric tunnel with minimal trauma to the surrounding tissue. In GBP, dissection behind the stomach and near the left pillar have speeded up the procedure, as well as some steps of the hand-sewn anastomoses in difficult angles. During the OR sessions, the surgeons experienced less strain for arms and shoulders when using the Radius Surgical System

Conclusions: The Radius Surgical System can be an efficient tool to support surgeons performing GBP and GB procedures, enabling the surgeon to manipulate the instruments accurately and precisely in an ergonomic position. Especially for surgeons with less experience in the field of bariatric surgery, this might offer a possibility to quickly achieve satisfying results. The Radius Surgical System should be considered as an interesting multifunctional option for these procedures with regard to tissue manipulation, the placement of the gastric band and suturing procedures.

86. ANTIREFLUX SLEEVE GASTROPLASTY

Vadim Fedenko, V. Evdoshenko. *Federal Medical Center, Moscow, Russia*

Background: Laparoscopic sleeve gastrectomy for morbid obesity is associated with a high incidence of postoperative permanent heartburn as a result of gastroesophageal reflux. In order to avoid this complication, the authors developed a new technique, combining the creation of a very long and narrow vertical gastroplasty with antireflux procedure.

Method: The new operation was performed in five patients with BMI from 40 to 58 (2 males, 3 females). All the procedures were conducted laparoscopically using six trocars. The greater curvature of the stomach was mobilized in the antral region. A primary hole in both walls of the stomach was made in the antrum 5-7 cm from the pylorus. Starting from this hole the stomach was stapled and divided along a 33 Fr bougie to the His angle, creating a long (15-20 cm) and narrow tube. The divided fundus was then passed behind the mobilized abdominal part of the esophagus and a 360° wrap was made (as in a Nissen procedure).

Results: None of the five patients developed complications. The first patient lost 25 kg in three months. No signs of esophagitis were revealed during postoperative upper GI endoscopy.

Conclusion: This operation is technically simple. Preliminary early postoperative results regarding its antireflux and weight-loss effects are encouraging.

87. SLEEVE GASTRECTOMY WITH SILASTIC RING (SGSR) BAROENDOCRINE MASON OPERATION

Gustavo Peixoto Soares Miguel, J.L.M.C. Azevedo (*Federal University of São Paulo*), P.S. Carvalho (*Federal University of Espírito Santo, and Meridional Hospital*), C.L.C.B. Moreira (*Federal University of Espírito Santo*), F.H. Oliveira (*Federal University of Espírito Santo*), M.C. Barelli (*Federal University of Espírito Santo*); M.A. Novaes (*Metropolitano Hospital*), S.B. Kumaira (*Metropolitano Hospital*), I. W. Abreu (*Meridional Hospital*), O.C. Azevedo (*Federal University of São Paulo, Brazil*)

Background: Knowledge about ghrelin, a peptide that stimulates food intake, changes the viewpoint about gastric restrictive procedure. Mason Vertical Banded Gastroplasty (VBG) showed lower weight loss than gastric bypass. Recent studies confirm that in VBG and Laparoscopic Adjustable Gastric Banding (LAGB) long-term patients, ghrelin concentrations increase, which could result in increased appetite. Resection of principal ghrelin production and release sites can give to restrictive procedures more physiological means to help morbidly obese patients lose weight. A Sleeve Gastrectomy with Silastic Ring (SGSR) links VBG and satiety hormones regulation, which could be called "Baroendocrine Mason Operation".

Methods: Among 1,601 patients who underwent bariatric procedures since 2002 (mainly silastic ring gastric bypass, our choice procedure), from July 2004 to April 2007, 33 obese patients with different medical conditions (cirrhosis, inflammatory bowel disease), very low socioeconomic status, older age or low BMI were eligible for SGSR. The greater curvature vessels were taken down using the Ligasure Atlas® (ValleyLab), a gastric tube based on the lesser curvature is made using a 12-mm orogastric tube. A silastic ring was inserted to achieve a 25-cc gastric pouch. The stapled suture-line was reinforced with Prolene 3.0. A methylene blue test was carried out.

Results: Mortality index was 0%. Four (12,12%) patients presented post-surgery complications. Two of them presented abscesses, one bleeding, and one leakage. Median follow-up was 11 months (range 3 to 32). Mean excess weight loss (EWL) was 83.1%. The majority of patients could discontinue the medications for the treatment of obesity-related conditions.

Conclusions: SGSR can become a good alternative as a sole

operation for some patients. Studies are requested to verify long-term advantages (no dumping syndrome, gastric and intestinal bypass, small bowel obstruction, nutritional deficits, port complications, staple-line disruption) and limitations (weight regain, second stage, unknown long-term results).

88. A PROSPECTIVE STUDY ON THE EFFICACY OF LAPAROSCOPIC SLEEVE GASTRECTOMY AS A SINGLE STEP PROCEDURE IN THE TREATMENT OF MORBID OBESITY

C. Slotboom (*Leveste, Scheper hospital*), A. Vogel (*N.P.M. Reijnen*)

Background: Obesity is an increasing, chronic disease worldwide. Obesity is associated with multiple co-morbidities and complications that lead to both physical and psychological problems. Bariatric surgery is the only proven long-term effective treatment for morbid obesity. The laparoscopic sleeve gastrectomy (LSG) was initially described as the first stage operation for duodenal switch. The aim of our investigation was to prove that LSG is a good alternative as a sole restrictive procedure on the short- and middle-term follow-up.

Methods: All obese patients who got an LSG, from July 2005 to April 2007, were asked to join the study and gave permission. 89 patients were included, 8 men and 81 women, the median age was 41 years (21-67). Before surgery, mean weight was 130 kg (86-196) and mean BMI 45 kg/m² (29-58). Their length, weights, co-morbidities, complications and medication before and after operation were noted. Assessing the quality of life, the patients got a Baros questionnaire. Ghrelin blood levels were examined.

Results: At 6 months after surgery, mean BMI was 37 kg/m² (26-44), percentage excess weight loss (%EWL) was 40% (-4-91). The BMI at 12 months follow-up was 35 kg/m² (22-54), the %EWL was 53% (-19-126). The Baros score of Quality of Life was -1.2 preoperatively and 1.1 postoperatively.

Conclusions: LSG seems effective as a stand alone bariatric procedure. Quality of life improved from poor to good, according to the Baros score. Longer follow-up is necessary to evaluate long-term results.

89. A PROSPECTIVE RANDOMIZED STUDY BETWEEN TWO DIFFERENT TECHNIQUES OF LAPAROSCOPIC SLEEVE GASTRECTOMY

G. Dapri, C. Vaz, J. Himpens. *Department of Gastrointestinal and Obesity Surgery, Saint-Pierre University Hospital, Brussels, Belgium*

Background: Laparoscopic sleeve gastrectomy (LSG) represents a relatively restrictive procedure for obesity. We report a prospective randomized study comparing two different techniques in order to perform LSG.

Methods: Between January and August 2006, 20 patients (A) and 20 patients (B) were prospectively and randomly submitted to LSG. The characteristics of patients in the two groups were similar in age, sex and weight. Mean preoperative weight was 125.2 kg (95-180) (A) and 132.3 kg (83-175) (B). Mean preoperative BMI was 42.9 kg/m² (35-58) (A) and 46.3 kg/m² (37-58) (B). The two techniques differ in that in A stapling is performed after full devascularization and mobilization of the gastric curvature, whereas in B stapling is performed as soon as the lesser sac is entered and the greater curvature is devascularized after full completion of the sleeve. The stapler line is reinforced at the end of stapling in both techniques.

Results: Median operative time was 34 min (12-54) (A) and 26,5 min (9-77) (B) (p=0.13). Median peroperative bleeding was 5 mL (0-450) (A) and 5 mL (0-600) (B) (p=0.55). One patient of B was converted to RYGBP. One patient of A presented postop leak. Minor early complications affected 4 patients (A) and 1 patient

(B). Median hospital stay was 3 days (1-10) (A) and 3 days (1-35) (B). Weight loss after 9 months was similar in both groups.

Conclusion: LSG can be realized by two different techniques. No observed difference is significant, but the technique B seems better than A in terms of operative time.

90. TREATMENT OF SUPER-SUPER-OBESITY BY SLEEVE GASTRECTOMY

Jean-Marc Catheline, Maxime Sodji, Régis Cohen, Gérard Reach, Mikael Perez, Joseph Benichou. *Bariatric Surgical College, Hôpital Avicenne, France*

Methods: A prospective study of 14 patients who underwent laparoscopic sleeve gastrectomy was performed. Study evaluated operative time, complication rates, hospital length of stay and percentage of excess weight loss (%EWL). There were 11 women and 3 men, with a mean age of 35 years (range 19 to 58 years), with mean preoperative BMI 65 kg/m² (range 60 to 80 kg/m²). Mean preoperative weight was 163 kg (range 145 to 238 kg). One patient had situs inversus totalis and another two had previous restrictive surgery.

Results: Mean operative time was 140 minutes (range 110 to 200 minutes). No patient required conversion. We noted a postoperative complication in two patients (subdiaphragmatic abscess and subdiaphragmatic hematoma treated by drainage). Median hospital stay was 9 days (range 6 to 28 days). There were no mortality. Average weight loss at 18 months was 53 kg (range 31 to 100 kg). Average %EWL and BMI at 18 months were 53% (range 21 to 74%) and 21 kg/m² (range 10 to 36 kg/m²) respectively. A failure of slimming after 18 months (%EWL < 25) was noted among 3 patients; one accepted a gastric bypass.

Conclusion: Sleeve gastrectomy is associated with few perioperative complications and offers rapidly effective treatment for super-super-obesity.

91. LAPAROSCOPIC SLEEVE GASTRECTOMY – INFLUENCE OF SLEEVE SIZE AND REMOVED GASTRIC VOLUME

Rudolf A. Weiner, Sylvia Weiner, Ingmar Pomhoff, Christoph Jacobi, Wojciech Makarewicz, Gerhard Weigand. *Center for Minimal-Invasive Surgery, Department of General and Bariatric Surgery, Krankenhaus Sachsenhausen, Frankfurt/M., Germany; Department of Surgery (Charite), Humboldt-University Berlin, Germany; Department of General, Endocrine and Transplant Surgery, Medical University of Gdansk, Poland*

Background: Although the efficacy of laparoscopic sleeve gastrectomy (LSG) for morbidly obese patients with a BMI <50 kg/m² and the incidence of weight gain by changing of eating behaviors and gastric dilatation following LSG have not been investigated. Laparoscopic sleeve gastrectomy is becoming more common as a single-stage surgical procedure for the treatment of morbidly obese patients. Our prospective study contains one center's experience comparing 3 different types of sleeve resection since 2001. The results were extracted from a total number of 3,324 bariatric procedures performed between 1994 and 2006.

Methods: This is a prospective study of the initial 120 patients who underwent isolated LSG. Initially the LSG was performed without a calibration tube and resulted in high sleeve volumes (group 1: n=25). In group 2 (n=32) a calibration tube of 44 Fr and in group 3 (n=63) a calibration tube of 32 Fr was used. The study group consists of 32 patients with high BMI who were scheduled for a two-step BPD-DS, but rejected the second step after one year. 6 patients had undergone restrictive bariatric surgery previously, and 9 patients had undergone intragastric balloon treatment previously. Study endpoints include estimated sleeve volume, operative time, complication rates, length of hospital stay, changes of co-morbidity, percentage of excess weight loss (% EWL) and changes in BMI (kg/m²).

Results: All 3 groups were comparable regarding age, gender, and

co-morbidities such as hypertension, sleep apnea and arthritis. The mean BMI, calculated after introduction of LSG as a single-stage procedure, was lower in group 3 (p=0.05). All gastric sleeve procedures were performed using laparoscopy. Operating time decreased with experience and shows a relationship to BMI. There was no hospital mortality, but one case of late mortality (0.8 %). 2 early leaks (1.7 %) were seen. The %EWL was significantly higher for patients who underwent LSG with tube calibrations. LSG with large sleeve volume showed a slight weight gain during five years of observation. A total of 16 patients (13.3%) underwent a second stage procedure within a period of 5 years (2 re-do-sleeves, 7 BPD-DS, 3 gastric bypasses.) There was no relationship to preoperative BMI.

Conclusion: All groups were very similar according to the constitutional parameters, except BMI. The patients with BMI>60 kg/m² had longer operative times and a higher frequency of complications. Band migrations after LAGB are a risk for LSG. Early weight loss results were not different between the groups, but after 2 years the more restrictive LSG (groups 2, 3) results were significantly better than in patients without calibration. A statistically significant improved health status and quality of life were registered for all groups. Previously, patients had to be informed that the LSG was only the first stage of the procedure. The general introduction of LSG as a one-stage restrictive procedure in the bariatric field can be considered only if the procedure is standardized and long-term results are available.

92. THE SUPER MAGENSTRASSE AND MILL OPERATION WITH PYLOROPLASTY

Carlo Vassallo, G. Berbiglia, A. Firullo, E. Palamarcic, M. Fariseo, M. Carena. *Instituto Clinico Citta di Pavia, Italy*

Background: Our strategy of performing various types of bariatric procedures (since 1978, 1760 restrictive and 267 malabsorptive operations) have been carried out, in order to make them suitable to the peculiar characteristics of the individual obese patient, has led us to take into account the original Magenstrasse and Mill (M&M) operation and to modify it in some aspects. This resulted in the so-called Super Magenstrasse and Mill Pyloroplasty (S.M.&M.P.).

Methods: In the past 4, years 57 patients with mean preoperative body mass index (BMI) 48 and mean age 43 years underwent the S.M.&M.P operation for the treatment of morbid obesity. A digitoclastic pyloroplasty was effected and a 36-F bougie was used to calibrate the Magenstrasse. A 21-mm circular stapler was used to create a gastric window at 10 cm from the pylorus; the partition of the stomach from the angle of His up to 3-4 cm from the pylorus was performed first distally off the gastric window by means of Echelon 60 green reloads, and then proximally off the window with three or four golden 60 reloads if the procedure was \ Hand Assisted Laparoscopy Surgery, and with two or three green reloads if the procedure was carried out via an open technique.

Results: Of two patients operated, 4 years ago one was unassessable because of the development of a rectal cancer one year after surgery and the other one reported an excellent outcome, with BMI 26. Eight patients who underwent surgery 3 years ago reported a mean percentage initial excess weight loss 71; nineteen patients 2 years ago 69 and twenty patients 1 years ago 64. All patients, including those who underwent surgery in the ongoing year, showed a clear reduction of appetite, with vomiting absent or rare.

Conclusions: The technique we adopted, consisting in a major gastric partition up to 3-4 cm from the pylorus associated with digitoclastic pyloroplasty, confers to this kind of restrictive intervention some characteristics similar to gastric bypass, including rapid transit of alimentary bolus in the prepyloric Mill, scarce reflux into the gastric fundus with possible entero-endocrine

effects and loss of interest in food.

93. ONE ANASTOMOSIS GASTRIC BYPASS BY LAPAROSCOPY (BAGUA) WITH ROBOTIC ASSISTANCE: EXPERIENCE IN 600 PATIENTS

Manuel Garcia-Caballero, J. Ortiz. *Dept. Surgery, University of Malaga, Hospital Campo Grande Valladolid, Spain*

Background: BAGUA represents a simplified form of Gastric Bypass easier to perform, lower complications, excellent weight loss and quality of life long term.

Methods: From 2002 to 2006, we operated 600 morbid and super-morbid patients by BAGUA. In the last 520 patients, the operation was performed with robotic assistant (Lap-ManR). Mean age 42 (14-73), 77% female and 23% male. Mean BMI 47 (34-86), mean EBW (kg) 63 (34-220). Primary surgery was performed in 348 patients (60%). 112 patients had a previous open surgery. Associated procedures were performed in 114 patients. 24 patients were converted from previous restrictive procedures. **Results:** Mean operating time (minutes) in primary surgery was 86 (60-180), with associated procedures 112 (95-230) and in re-do surgery 175 (130-240). Mean hospital stay in uncomplicated patients 31 h (18-86) and 9 days (5-32) in major complications. Major complications with re-operation: Conversion to open surgery 2 cases (0.3%), immediate postoperative re-operations 8 (bleeding 4 cases, fistula 2, intestinal occlusion 1 and necrosis of the excluded stomach 1(1.3%). Major complications treated conservatively 7 patients: leakage 5 cases; infected hematoma 1; and acute pancreatitis 1(1.1%). Mortality 2 cases (0.3%): 1 massive pulmonary embolism and 1 nosocomial pneumonia. Mean EBW loss: 72% in first year, 79% in second and 80% in third. Mean resolution or improvement of co-morbidities 95%.

Conclusions: BAGUA is a safe, quick and effective bariatric option for morbid and super-morbid obese. Reduce complications some fold compared with RYGBP. Robotic assistance reduces the visual, corporal and mental fatigue, increasing safety and efficiency.

94. COMPLICATIONS RELATED TO THE RING AFTER 7,000 ROUX-EN-Y GASTRIC BYPASS WITH SILICONE RING

Alexandre Amado Elias, Arthur Belarmino Garrido Jr; Luiz Vicente Berti, Marcelo Roque de Oliveira, Nestor Bertin Suguitani. *Instituto Garrido de Obesidade de São Paulo, Brazil*

Background: The obesity epidemic incites damages in great proportions and in global extension. About 30,000 people per year pass away in the world due to its consequences. The aim of this research is to analyze the complications related to the silicone ring in Roux-en-Y Gastric Bypass, the diagnosis methods, the evolution and repercussion of this treatment.

Methods: From March of 1994 through December of 2005, 7000 patients were submitted to Silicone-Ring-Roux-en-Y Gastric Bypass at Garrido Institute. Complications related to the ring were diagnosed. At that moment, there was a casuistics of 1,000 procedures already held. From 2000 cases on, the first complications with the ring were examined and treated. These occurrences became more significant with the progressive increase of the number of surgeries. They achieved the number of 2.28% out of the 7000 patients.

Results: 125 patients had ring removal; 109 (78.98%) gained back the lost weight, 5 (3.62%) kept the same weight, and 24 patients (17.40%) lost weight. The Body Mass Index (BMI) of the 125 monitored patients was analyzed separately according to the type of complication. In the displacement cases (the inadequate and narrow ring), there was a relevant reduction of BMI in most patients in the moment of the removal and, later on, a tendency to a gradual increase after its intensity and a tendency to the maintenance or to a slight decrease after its removal. The patients who had its ring repositioned presented a noticeable

reduction of BMI during their treatment and a tendency to maintenance throughout it. The variations of BMI during the monitoring of the patients (4) who presented ring erosion and still remained the same, show a important loss of BMI with the maintenance of it.

Conclusions: 1) The complications related to the silicone ring in the Roux-en-Y Gastric Bypass rarely occur. 2) The symptoms of these complications are variables correspondingly to the type and time of after surgery evolution. 3) The treatment is basically ring removal. 4) The treatment that results in ring removal tends to go along with the unsteady recovery of lost weight.

95. STANDARD VERSUS BANDED MICRO-POUCH ROUX-EN-Y GASTRIC BYPASS: SHORT AND INTERMEDIATE TERM RESULTS

Khaled Gawdat. *Ain-Shams School of Medicine, Cairo, Egypt*

Background: Roux-en-Y gastric bypass is currently the most commonly performed bariatric procedure in the world. There are many variables as the pouch size, stoma size, and limb lengths involved. Varying combinations of these give different weight loss results and change eventual outcomes. The Fobi-Capella modification of the Roux-en-Y gastric bypass entails placing a prosthetic band around the gastric pouch to limit the pouch dilatation and improve results. Aim of work: is to compare two identical Roux-en-Y procedures in terms of pouch, stoma size and alimentary limb length with the only difference being the placement of a Fobi-Capella band around the gastric pouch.

Methods: From March 2000 to April 2007, 594 patients had a laparoscopic Roux-en-Y procedure. All patients had identical gastric pouch size (micro-pouch) and similar gastro-jejunostomy size and had a 120-cm alimentary limb length. In Group I patients (220), the gastric pouch was not banded, while in Group II patients (374), the gastric pouch was banded using a prolene mesh. The two groups were compared in terms of early and late complications, weight loss and food tolerance.

Results: The 2 groups had similar early and late complications rate except for band erosions (1.3%) for group II patients. Group II showed better short and intermediate term weight loss with 61 %EWL for group 1 at 36 months compared to 89% EWL for group 11. Group I patients had less vomiting and food intolerance.

Conclusion: Laparoscopic Banded Micropouch Roux-en-Y gastric bypass gives superior and more durable weight loss than the non-banded gastric bypass. That weight loss justifies its use despite the higher late complications and food intolerance rates.

96. RESULTS AFTER 3,000 CASES OF SIMPLIFIED LAP GASTRIC BYPASS

Almino Cardoso Ramos, Manoel Galvao Neto, Manoela Galvao, Andrey Carlo, Edwin Canseco, Abel Hiroshi. *Gastro Obeso Center*

Background: The gastric bypass is considered the gold standard in the treatment of morbid obesity. It is considered one of the most complex procedures in laparoscopy. Any maneuver, or approaches which can improve its feasibility are welcome. With the Simplified Lap Gastric Bypass (SGB) approach, a 3,055 case mark was achieved and a retrospective survey applied.

Methods: From December 2001 to December 2006, 3,055 SGB patient records were analyzed in a retrospective manner, 1502 of them were vertical banded gastroplasty and 1553 were non-banded gastroplasty; 2,199 were female, age range from 13 a 68y (M= 39.4 y), weight range from 85 a 265 Kg (M= 134 kg) and BMI were between 35.4 a 71 kg/m² (M=44.3 kg/m²). The Simplified technique is based in doing all of the anastomoses in the supra-mesocolic floor with the trocars in similar position of lap Nissen procedure.

Results: There was no conversion to laparotomy in this series. BMI came from a mean of 45.8 to 27.6 kg/m² (75.1% EWL) on 2y

follow-up. Operative time stays between 39 to 154 min (M=78 min), Hospital stay within 1.5 to 6d (M=3d). Complications occurred in 1.2% of ulcers, 4.6% of gastrojejunostomy strictures, 1.2% of leakage (0.6% of fistulas and 0.6% of leaks), 0.5% of digestive bleeding, 0.3% of food impaction and 0.3% bowel obstruction. Revisional surgery was done in 1.0% due to complications and 2.7% due to non-satisfactory weight loss. There were 0.16% (5 p) of deaths (3 p with pulmonary embolism, and 2 p with sepsis due to gastrojejunostomy leakage). There were also 0.5% of silastic ring migration and ring dislodgment in VBG patients.
Conclusion: The Simplified Gastric Bypass at a mid-term follow-up is safe, effective and with low complication and mortality rates.

97. LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: A PORTUGUESE CENTER EXPERIENCE

Pedro Rodrigues, M. Nora, M. Guimarães, P. Martins, J. Costa, I. Carvalho, G. Gonçalves. *Surgery Department Hospital de S. Sebastião, Santa Maria da Feira, Portugal*

Background: The epidemic of obesity poses one of the most serious public health problems in the European Region. The absence of effective conservative treatment is responsible for the increasing number of bariatric surgical procedures. Although Roux-en-Y gastric bypass is usually considered as the procedure of choice for morbid obesity, its use seem limited in European countries.

Methods: Retrospectively and prospectively collected data from 155 Laparoscopic Roux-en-Y gastric bypass (LRYGBP) performed at our institution from July 2004 to December 2006 was analyzed. All the patients had National Institute of Health consensus criteria for treatment of morbid obesity. Overall assessment was done using the bariatric analysis and reporting outcome system (BAROS)

Results: 19 men and 136 women were submitted to LRYGBP. Five were redo surgery from Lap-band. The mean hospital stay was 4.8 days (range 3-28). There were no conversions to open surgery. The mean operative time was 116 minutes (range 47-330). Early minor and major morbidity rate were 5.8% and late minor complications were 22.5%. There was no mortality. The excess weight loss (EWL) was 58% and 71% on the 6th and 12th month respectively. Co-morbidities resolved or improved in most patients and quality of life improved. There were no re-operations for late complications.

Conclusions: These results were satisfactory and agree with our choice of LRYGBP as treatment of morbid obesity in Portuguese patients.

98. FIFTH YEAR WEIGHT LOSS RESULTS OF THE LAPAROSCOPIC BANDED GASTRIC BYPASS

Felipe de la Cruz Vigo, JL Cruz Vigo, F Cruz Vigo, P Sanz de la Morena, JM Canga Presa, P Gómez Rodríguez, J Zarate. *Hospital Universitario 12 de Octubre University Hospital (Madrid), San Francisco Hospital (León) and Nuestra Señora del Rosario Hospital (Madrid), Spain*

Background: For the evaluation of the success of bariatric techniques, the most important issue is their ability to maintain the weight loss obtained in the long term, that is considered over five years. We evaluate our experience with patients operated on more than five years ago.

Methods: Since June 1999 to March 2007, 849 patients have been operated on by the same surgical team, 111 of them before March 2002; this group is the object of our study. Mean age was 37 years, weight 123.1 kg, the height 159.7 cm, the BMI 48 and the percentage of excess weight 104.3%. Ten had cholelithiasis, two had been cholecystectomized and three had antecedent gynecologic laparotomy. A laparoscopic banded gastric bypass was performed to all of them and a cholecystectomy was added if they had cholelithiasis.

Results: The mean operation time was 3:30 h. One patient was

converted to open (0.9%) because of a methylene blue leak at the end of the procedure. Mortality was 0.9%. Complications: two leaks, one internal hernia, two digestive bleedings and one intraabdominal bleeding. Mean hospital stay has been 3,5 days. The percentage of excess weight loss the first year has been 76%, the second year 80%, the third 78%, the fourth 76% and the fifth 75%. BMI the fifth year has been 29, weight loss 47 kg and the percentage of excess BMI loss 86%. There have not been significant differences between obese and super-obese patients.
Conclusions: At five years follow-up, our technique of laparoscopic banded gastric bypass confirms its reproductibility and safety, showing, until now, an excelent weight loss curve.

99. COMPARISON OF THE FIRST 100 CASES OF LAPAROSCOPIC BANDING AND LAPAROSCOPIC GASTRIC BYPASS FOR MORBID OBESITY

Pedro Ballester, M. Rao, P. Ballester, M. Mydin, P. Sedman, C. O'Boyle. *Department of Oesophagogastric and Minimally Invasive Surgery*

Background: From May 1998 to March 2007, we have performed 553 bariatric surgical procedures, on 475 patients with morbid obesity. This study compares our experience with the first 100 laparoscopic banding (LGB) patients versus patients undergoing laparoscopic Roux-en-Y bypass (LRYGBP).

Methods: Data were collected prospectively from a dedicated departmental database. All case notes were reviewed and the demographics, excess weight loss and resolution of co-morbidity were analyzed.

Results: The median age and sex ratio was similar in both groups. Median BMI was similar for both groups- 47 (range 36-75) kg/m² and 49 (25-66) kg/m² respectively. Median follow-up for banding procedures was longer, as we have been performing these since 1998-60 (34-106) months versus 21 (13-45) months respectively. The median excess weight loss at 12 months was 43% (11-109%) and 70% (0-168%) respectively. 39% and 92% of patients respectively achieved a weight loss of greater than 50% of the excess at this time point. 48% of banding patients underwent re-operative bariatric surgery (bypass- 24, band removal- 1, band re-position- 7, port re-siting or removing- 16). 8% of patients underwent a reoperative bariatric procedure for anastomotic leak, strictures and intestinal obstruction. 87% of patients undergoing LRYGBP were cured of their diabetes compared with 50% undergoing LGB (p<0.05, Chi square test).

Conclusion: In our experience, laparoscopic Roux-en-Y bypass for morbid obesity is associated with a greater weight loss and lesser morbidity as compared with the banding procedure. We recommend laparoscopic Roux-en-Y gastric bypass as the first line intervention for morbid obesity.

100. COMPARISON STUDY BETWEEN LAPAROSCOPIC GASTRIC BANDING AND ROUX-EN-Y GASTRIC BYPASS

Sami Salem Ahmad. *Obesity Center Stuttgart, Roserlinik Germany*

Background: Controversy exists regarding the best surgical treatment for morbid obesity. The two most common bariatric procedures performed worldwide are laparoscopic adjustable gastric banding (LAGB) and laparoscopic Roux-en-Y gastric bypass (LRYGBP). We observed the pattern of weight loss, mortality and morbidity in our patients who had one of these two operations.

Methods: 488 morbid obese patients underwent laparoscopic bariatric surgery. 432 (88%) were available for follow-up, 344 (80%) LAGB and 88 (20%) LRYGBP.

Results: There were one death (1%) and, 2 anastomotic leaks (2.5%), and 3 patients developed polyneuropathy (3.5%) in the LRYGB group one pulmonary embolism (1%) in LRYGB and three (1%) in LAGB. 14 cases of band slippage (4%), one erosion

(0.2%) and one band infection (0.2%). Operating time and hospital stay were significantly higher in the LRYGBP group (3days vs one day). LRYGBP had significantly better excess weight loss than LAGB (67% vs 50% at 1 year, and 71% vs 60% at 2 years) and becoming similar in the 3 years (73% vs 69%).

Conclusion: LRYGBP and LAGB are both safe procedures to treat morbid obese patients and have significant weight loss, which is higher in the group of LRYGBP in the first and second year and getting similar to the LAGB in the third year. Early complication rate is higher and more serious in the LRYGBP.

101. EIGHT YEARS EXPERIENCE WITH LAPAROSCOPIC BANDED GASTRIC BYPASS

Felipe de la Cruz Vigo, F Cruz Vigo, JL Cruz Vigo, JM Canga Presa, P Sanz de la Morena, JI Martinez Pueyo, V Casanova. *San Francisco Hospital (León), Nuestra Señora del Rosario Hospital (Madrid) and 12 de Octubre University Hospital (Madrid), Spain*

Background: To evaluate the complications and weight loss results of a prospective consecutive series of laparoscopic banded gastric bypass.

Methods: Since June 1999 until March 2007, 849 patients have been operated on with the technique of laparoscopic banded gastric bypass, 276 with the Roux-en-Y limb retrocolic retrogastric and 573 antecolic antegastric. The length of the alimentary limb was 150 cm if BMI >50 and between 100 and 149 cm for the rest. Mean BMI was 46, 663 were females, 229 patients were super-obese and 2.475 co-morbidities were recorded.

Results: Operation time, 139 minutes. Conversion, 1 (0.1 %). Mortality, one patient (0.1%). 70 patients have suffered some complication during evolution, 45 in the postoperative period and the rest during follow-up. 31 (3.6%) have been considered major and 39 (4.6%) minor complications. Major were: leaks, 13 patients (1.5%); internal hernia, 6 (0.7%); intraabdominal abscess, 3 (0.35%); suture of the nasogastric tube, 1 (0.1%); infection of the band, 1 (0.1%); and non-obstructive gastric remnant, 1 (0.1%). 21 patients needed reoperation (2.5%), 12 post-operatively (1.4%) and 9 lately (1%). The most frequent late complication has been stenosis 14 (1.6%) followed by internal hernia 4 (0.5%). Mean hospital stay, 3.4 days. With a follow-up of 89%, the percentage of excess weight loss has been: 76%, 80%, 78%, 76% and 75%; at 12, 24, 36, 48 and 60 months respectively.

Conclusions: Laparoscopic banded gastric bypass has proved to be a feasible and safe technique, with a good weight loss result in the mid-long term.

102. EXPERIENCE OF THE FIRST 500 LAPAROSCOPIC GASTRIC BYPASS OPERATIONS: LONG BP LIMB GIVES BETTER RESULTS IN SUPER-OBESE PATIENTS

Hjörtur Gíslason, Björn Geir Leifsson. *Aleris Hospital Department of Surgery, Landspítali University Hospital, Reykjavík, Iceland*

Background: In super-obese patients, adequate weight loss after surgery without causing malnutrition is a problem. After standard

gastric bypass, many of the super-obese patients will still have a BMI >35 after weight stabilization. We present our gastric bypass with partial biliopancreatic diversion (2m BP limb) and 2-2.5m common channel.

Methods: Prospective study between 2000-2006 of 500 consecutive laparoscopic Roux-Y gastric bypass operations in Iceland. In 380 patients, bypass with 2m BP-limb and 60cm A-limb (alimentary limb) is used and in 120 patients 150cm A-limb and 60cm BP-limb is used.

Results: The mean BMI was 50 (34-84), mean age 38 (13-72) years and 81% of the patients were females. All operations were successfully performed laparoscopically, one converted to sleeve gastrectomy. 27 operations were re-operations after earlier open gastric binding. There was no operative-related mortality. There were 10 intestinal leaks (2%), all treated with re-operation, and 9 bleedings (1.8%) requiring re-operation. As a late complication 33 (6.6%) have been treated for gastric ulcer and four have been re-operated due to intestinal obstruction. The mean hospital stay was 3.3 days and mean operation time changed from 116 min for the first 50 patients to 58 min for the last 200 patients. With 95% follow-up, the EWL was 78% after 4 years. In super-obese patients treated with 2m BP-limb, EWL was 78% compared to 69% in patients treated with 150 cm long A-limb.

Conclusions: The operative morbidity was low and the EWL at 4 years after surgery excellent. Long BP-limb induces better EWL than gastric bypass with long alimentary limb in super-obese patients.

103. PROBLEMS WITH THE SILICONE RINGS IN THE FOBI/CAPELLA OPERATION

Fernando Luiz, F.L. Barroso, M.A. Leite, A.Z. Almeida, M.R. Paiva, D.C. Valente, N.A. Mateotti. *Instituto F.L. Barroso, Hospital Geral de Ipanema, Rio de Janeiro, Brazil*

Background: A silicone ring is used by many bariatric surgeons for a more reliable gastric restriction in the vertical gastroplasty with a bypass (VGBRY). Eventually we see patients with complex problems.

Methods and Results: We found 31 patients with problems in 1,318 VGBRY (2.2%), followed from 03/97 to 02/07 (10 years). Eighty-eight cases were done laparoscopically with the same technique. Problems- 26/1318 N^o Removal Complic.(Removal) Stenosis 11 (0.8%) 9/11 2/9(*) Open ring 3 (0.2%) (-) Erosion (extrusion) 9 (0.68%) 1/9 Spontaneous elimination 2 (0.15%) (-) Slipping 3 (0.2%) 3/3 "Dysfunction" 3 (0.2%) 3/3 Total: 31 16 (51%) 2/16 (12.5%) (*) Uneventful recovery.

Conclusions: 1) Problems are few, but in half of them (51%) the ring was removed. 2) In "stenosis" the endoscopic dilatation should be used as the first approach, but only in a few cases it will be definitive; 9/11 cases the ring had to be removed. 3) In nine cases with erosion (extrusion) only once we had to take out the ring; In this case there was an associated stenosis. 4) Asymptomatic spontaneous elimination was found out in two cases. We suppose that other cases might have occurred. 5) Removing the ring is a benign procedure with few complications. 6) Patients we removed the ring had a small, but significant, weight regain.

CONCURRENT PLENARY SESSION ABSTRACTS, SEPTEMBER 8

104. UTILIZATION OF THE INTRAGASTRIC BALLOON (BIB) IN PREOPERATIVE PREPARATION FOR SUPER-OBESE PATIENTS WITH HIGH SURGICAL RISK COMPARING WITH TWO-STEP SURGERY

José Afonso Sallet, João C Marchesini, Pablo Miguel, Maurélio R. Ribeiro Jr, Carlos E. Pizani, Fabio L. Bonaldi, Roberto Tussi Jr; Paulo C. Sallet. *Brazilian Intra-gastric Balloon Protocol, Interdisciplinary Obesity Treatment Group, Sallet Institute, São Paulo, Brazil*

Background: Super-obese patients show a high surgical risk (major complications in 30% and mortality rate of 5-12%). The present study evaluates the use of BIB as a preoperative procedure, aiming at initial weight loss and reduction of surgical risk.

Methods: From November 2000 to February 2006, 66 super-obese patients (mean BMI = 60.3 ± 10.1 kg/m²) were treated with the BIB for at least four months before surgical treatment: 45 male (BMI = 58.4 ± 8.0) and 11 female patients (BMI = 62.3 ± 10.7). They showed associated diseases, including systemic arterial hypertension (27 cases), diabetes mellitus (10 cases), sleep apnea (20 cases), hypercholesterolemia (10 cases) and osteoarthritis (16 cases).

Results: Patients showed mean percent excess weight loss (%EWL) of $23.4 \pm 11.0\%$, mean percent total weight loss (%TWL) of $13.6 \pm 6.5\%$, and mean BMI reduction of 8.4 ± 4.9 kg/m². 80% of patients showed good results with 27% EWL with improvement in hypertension, diabetes mellitus and sleep apnea. Surgical risk was reduced from ASA III-IV (before the BIB) to ASA II (after BIB). All these patients were submitted to bariatric surgery (GB 41%, LAGB 33% or SGBP 26%). There was no mortality and only four minor complications (wound infection - 7.5 %).

Conclusions: Our results showed that the intra-gastric balloon is an effective technique in order to prepare super obese patients in preoperative time (79%), reducing their major complications and mortality. Effective non-surgical technique in pre-op time for patients BMI >50. Change surgical risk ASA III - IV to ASA II (79%). No mortality and minimal risk of major complications. Reduce 79% the indications of two-stage surgery. Low risk and lower cost than two-stage surgery.

105. ENDOLUMINAL THERAPY FOR THE TREATMENT OF OBESITY (INTRAGASTRIC BALLOON): BRAZILIAN MULTICENTRIC STUDY GROUP

José A. Sallet, João B. Marchesini, Pablo Miguel, Carlos E. Pizani, Maurélio L.B. Ribeiro, Álvaro M. Ferraz, Fábio L. Bonaldi, Roberto Tussi Jr, Paulo C. Sallet, Dyker S. Paiva. *Brazilian Intra-gastric Balloon Group, Interdisciplinary Obesity Treatment Group, Sallet Institute of Medicine, São Paulo, Brazil*

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

Method: From November 2000 to March 2007, after Brazilian Ministry of Health's approval of BIB protocol, 1,492 overweight and obese patients were treated with the intra-gastric balloon. 1242 of them completed a 6-month follow-up: 410 male (BMI = 42.8 ± 10.7 kg/m²) and 832 female patients (BMI = 35.5 ± 7.8 kg/m²), mean (BMI = 38.5 ± 9.8 kg/m²). All patients were encouraged to take part in a multidisciplinary program involving clinical, psychiatric, physical training and dietary approaches.

Results: After a 6-month follow-up, subjects showed significant reductions in percent excess weight (%EWL = $44.8 \pm 30.5\%$) and

percent of total weight loss (%TWL = $12.5 \pm 6.7\%$). The main side effects were nausea/vomiting (521 cases, 42%), epigastric pain (260 cases, 21%), requiring prosthesis removal in 25 patients (2,01%). Minor complications were reflux esophagitis (136 cases, 11%) and symptomatic gastric stasis (99 cases, 8%) which were clinically controlled. Balloon impaction occurred in 2 cases (0.16%), and in one patient (0.08%) there was spontaneous deflation of the balloon leading to a small-bowel sub-occlusion which was solved by laparoscopy.

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

106. BIOENTERIC INTRAGASTRIC BALLOON (BIB), LONG-TERM RESULTS IN MORBID OBESE PATIENTS: A FIVE YEAR FOLLOW-UP.

Massimiliano Cipriano, A. Genco, R. Maselli, M. Baglio, S. Velocchia, N. Basso. *University of La Sapienza – Roma, Paride Stefanini General Surgical Department, Italy*

Background: BIB is used worldwide as a temporary treatment of obesity but there are no data about long follow-up results. Aim of this study is to evaluate BIB long-term efficacy and recognize predictive factors in long-term success.

Methods: Patients were recruited from the database of our group. Inclusion criteria were: only one BIB procedure, no other medical or surgical treatment and follow-up >60 months. These patients (45/613) were allocated into two groups according to EWL% at the time to BIB removal. Then they were submitted to clinical evaluation: weight loss, BMI and EWL% were considered. To individuate possible predictive factors in long-term success, we evaluated the association between follow-up results and initial BMI, pre-BIB age and sex. Statistical univariate analysis was done by means of Fisher's exact test ($p < 0.05$ was significant).

Results: at the time of BIB removal, 30 patients (69%) have EWL% >25 and were classified as successes, while 15 patients (31%) EWL% <25 and were categorized as failures. At 60 months follow-up (60 ± 21.47), 30% of the success group had an EWL% >25 and were categorized as long term successes; whereas 70% of them had an EWL% <25 and were categorized as long term failures. A statistical analysis confirmed that the association: female gender, age <35 years and initial BMI <40 is long-term success predictive factor ($p < 0.05$).

Conclusions: This study confirms BIB safety and short-term efficacy. If the three different factors we singled out will be confirmed by larger studies, BIB use could be recommended in female patients >35 years old, with an initial BMI <40.

107. ROUX-EN-Y GASTRIC BYPASS FOR ADOLESCENTS: OUTCOMES OF A SINGLE CENTER EXPERIENCED IN ADULT BARIATRIC SURGERY

Alex Escalona, V. Irribarra, C. Boza, A. Alarcón, R. Muñoz, M. Moreno, G. Pérez, L. Ibañez. *Departamento de Nutrición, Diabetes y Metabolismo. Facultad de Medicina; Departamento de Cirugía Digestiva, Facultad de Medicina. Pontificia Universidad Católica de Chile*

Background: Although literature demonstrating efficacy of surgical weight loss in adults is extensive, there is a general lack of information and published data in adolescents. We communicate the experience of an experienced bariatric surgery team in adolescent patients.

Methods: Between March 1999 and March 2006, a total of 53 adolescent patients (range 14 to 19 years) underwent Roux-en-Y gastric bypass (RYGBP) in our institution. Patients followed a multidisciplinary approach for obesity treatment; those above the 99.5th percentile BMI-age-gender and failure to medical treatment were considered for surgery. Data were collected prospectively in patient medical records. Informed consent from parents was obtained. Patients received nutritional advice before and after surgery in regular medical controls.

Results: 53 adolescents (10 males and 43 females) underwent an open (19) or laparoscopic (34) RYGBP. The mean age and BMI were 17.4 ± 1.5 years and body mass index (BMI) 42.3 ± 1.4 kg/m², respectively. Dyslipidemia was the most frequent co-morbidity (69%) following insulin resistance (47%), hypertension and diabetes were less common (<1%). The Mean operative time was 110 ± 7.9 min. and hospital stay was 3.6 ± 0.1 days. There were no deaths. Two patients (3.7 %) presented gastrojejunostomy stenosis after the 2nd month and required endoscopic dilatation. The mean BMI at 1st, 2nd, and 4th year was 27.8 ± 3.9 , 28.1 ± 4.0 and 28.1 kg/m², respectively.

Conclusion: RYGBP is a safe and effective alternative for morbidly obese adolescent patients.

108. 210 PREGNANCIES AFTER GASTRIC BYPASS WITH SILICONE RING (SRGBP): IN THE FIRST YEAR PO, MORE MALE NEWBORN

Josefina Matielli, APK Simioli, AB Garrido Jr, NTB Suguiani. Instituto Garrido, São Paulo, Brazil

Background: Obesity increases gestational risk. However, there is some concern about possible nutritional problems in pregnant women who had surgical treatment for morbid obesity.

Methods: In order to study those eventual difficulties, we observed 210 gestations in 182 women submitted to SRGBP. Age: 15-42 years; preoperative BMI: 35-63 kg/m².

Results: Fertilization happened during the weight loss period (first year PO) in 55 cases and after that in 166. Out of 169 newborns, 142 were delivered at term and 28 before term. 96 were male and 73 female. Prevalence of boys (68.7%) in pregnancies of the first year was significantly higher than that of girls, but not after the first year (52%). During gestation, most of the women presented anemia and almost 50% hypoalbuminemia. All received adequate treatment. Sub-occlusion related to ring displacement caused difficult nourishment of 4 women, who however, with proper assistance and surgical treatment delivered healthy babies.

Conclusion: SRGBP provides obese women excess weight loss and morbidity control, benefits fertility and may favor gestation and normal births. However, those women need special care when they become pregnant after surgery. In particular, they need good support regarding anemia and hypoalbuminemia control and vitamin and mineral supplements. Newborn from pregnancies in the first year PO are predominantly male, for reasons yet to be cleared.

109. A PROSPECTIVE STUDY OF OBESE ADOLESCENTS WHO UNDERWENT A BARIATRIC OPERATION

Daoud Nasser, Adriana Sales Finizola, Bruno Nanni Alexandrino, Mariana Mazetti do Nascimento, Ellen Adressa Sotti Barbosa, Caroline Abrecht Moreira, Carolina Romano Toledo de Moraes.

Background: Obesity and overweight are becoming epidemics. The increase of the prevalence is frightening and occurs in all ages and every country. The prevalence of obese adolescents moved from 15.5% to 37% in the last 30 years. An obese child's risk to become an obese adult is, at least, twice larger than a non-obese child.

Methods: This prospective study evaluates the results obtained in the surgical treatment of morbid obesity in adolescents, and

gives complementary information to the that already exists in the literature. We made a review of 49 obese adolescents with age between 12 and 17 years-old (15.69 ± 1.44 years) completed before the surgery. These patients underwent a gastric bypass with Roux-Y. The surgeries happens between 1999 to 2006, in adolescents with BMI >40 kg/m² or >35 kg/m² with co-morbidities.

Results: From the 49 adolescents, 79% had some case of obesity in their family and 83.3% were obese since their childhood. 91.67% of this patients had some kind of co-morbidities; this number follows to 50% after surgery. These patients had a significant ($p=0.000000$) decrease weight (123.34 ± 23.4 ; 80.9 ± 20.1 kg) and their BMI (42.73 ± 6.6 ; 27.4 ± 6.1 kg/m²).

Conclusion: Those results justify to use the bariatric surgery as one of the solutions for the problem of the childhood obesity.

110. THE DOUBLE LOOP TECHNIQUE IN LAPAROSCOPIC BPD AND RYGBP FOR MORBID OBESITY

Francesco Greco, Daniele Matera, Roberto Maria Tacchino. Dipartimento di Scienze Chirurgiche Universita' Cattolica del Sacro Cuore, Roma, Italy

Background: Standard laparoscopic BPD and RYGBP utilized a retrocolic antegastric reconstruction. We propose a new technique of creation of "Roux en Y" limb both in laparoscopic RYGBP and BPD called "double loop technique".

Methods: From September 2003 to January 2007, we performed 150 "double loop" GBP and 110 "double loop" BPD. Four trocars were used in both procedures. After creation of a standard gastric pouch in RYGBP and after gastric resection in BPD, the Roux limb is created: the first loop of bowel is brought up antecolic and the gastro-enteric anastomosis is performed with a linear stapler. An enterotomy is made on the afferent loop. A second loop of bowel, distal from the gastro-entero anastomosis is brought up to the enterotomy and the E-E anastomosis is performed. The two openings are then closed and finally the bowel is interrupted between the G-E and the E-E anastomosis to create the Roux-en-Y.

Results: Data were collected prospectively giving special concern to short term complications and intestinal occlusion secondary to internal hernias. The series presented no mortality. Operative time was always below 60 minutes in GBP and always below 90 in BPD. There was no evidence of internal hernias.

Conclusions: The "Double loop" technique is a simplification of the traditional technique of construction of the Roux-limb: the operating field is limited to the upper abdomen, no shift in position of surgeon or operative instruments and no mesentery interruption is necessary, reducing the risk of picking the wrong bowel segment or of torsion of mesentery. The risk of internal hernias is also reduced.

111. DVT/PE PROPHYLAXIS ALGORITHM IN MORBIDLY OBESE PATIENTS UNDERGOING LAPAROSCOPIC AGB – PROSPECTIVE STUDY

Martin Fried, K. Dolezalova¹. ¹Clinical Center for Minimally Invasive and Bariatric Surgery ISCARE, Prague, 21st Medical Faculty, Charles University Prague, Czech Republic

Background: Morbid obesity represents important risk factor for developing deep vein thrombosis (DVT) and/or pulmonary embolism (PE). Bariatric surgery further increases this risk. Clinical signs of DVT are diagnosed in about 20% of patients and PE symptoms occur in about 2% of non-obese after major abdominal surgery, and is even higher in the morbidly obese population.

Method: From January to September 2006, 298 morbidly obese who received bariatric surgery were included in our study. No one was excluded. Patient's average age - 38.3 years, average preoperative BMI 43.8. Prospective evaluation of standardized approach in DVT/PE prevention was carried-out. Approach consists of: 1) lower limb TED compression applied 3 hours before operation. 2) LMW Heparin in dosis recommended as to patient's

weight. 3) Intermittent pneumatic compression (IPC) during the entire operation. In patients with personal history of DVT/PE, IPC is applied in addition during the postoperative period until full mobility. Clinical signs of DVT/PE were evaluated by surgeon every postoperative day until discharge. In addition, signs of possible presence of DVT/PE were examined 1 and 4 weeks after surgery during post-op follow-up visits.

Results: Literature data reveal that risk of DVT/PE increases substantially in patients with BMI >30, who undergo abdominal surgery. With our standardized approach in DVT/PE prevention, no clinical signs of this serious thromboembolic complication were diagnosed in bariatric patients.

Conclusion: TED stockings, combined with LMW Heparin and IPC applied during the pre, intraoperative and postoperative period in high risk, morbidly obese patients undergoing abdominal (bariatric) surgery, were efficient in preventing DVT/PE in all of our bariatric patients.

112. TIME TRENDS AND LOW MORTALITY IN OBESITY SURGERY 1995 THROUGH 2005 IN SWEDEN – A POPULATION-BASED STUDY

Jakob Hedberg, Akademiska Sjukhuset, M. Sundbom, B.M. Karlsson. *Department Surgery, Uppsala University Hospital, Uppsala, Sweden*

Background: The National Board of Health and Welfare in Sweden keeps a nation-wide registry of all in-patient hospital care. In order to describe the practice of obesity surgery, we extracted data for all patients who had undergone obesity surgery between 1995 and 2005.

Methods: A total of 8,148 obesity procedures were identified. 78% of the patients were women, and the mean age was 40.4 (13-76) years. Hospital stay averaged 6 days.

Results: In total, there was a 27% increase in the number of procedures performed in 2005 compared to 1995. In the beginning of the study period, simple gastric restrictive procedures dominated (79%), but the percentage declined to 20 in 2005. Gastric bypass has had the opposite development and reached 79% of all bariatric procedures in 2005. This gives more than a 5-fold increase of gastric bypass procedures. Laparoscopy has been introduced under the study period, and in 2005, 42% of all gastric bypasses were performed by laparoscopy. The 30-day mortality as well as the hospital mortality was 0.2%.

Conclusions: There has been a 27% increase in obesity surgery in Sweden between 1995 and 2005, and a 2-fold increase was noted the in last 5 years. In 2005, gastric bypass dominated (79%) and almost half of them were performed by laparoscopy. In spite of the shift to more complex procedures, the operative mortality was low, 0.2%.

113. EFFECT OF DESFLURANE ON ABDOMINAL RELAXATION FOR LAPAROSCOPIC BARIATRIC SURGERY

Jan Paul Mulier (az Sint Jan av Brugge), J. P. Mulier*, B. Dillemans**, A. Luijten**, T. Declercq*. **Department of anesthesiology, **Department of general surgery, az sint Jan av Brugge, Belgium*

Background: The effect of desflurane on the abdominal pressure volume relation is analyzed. Goal of this study was to test if elastance (E) or pressure at zero volume (PV0) changes with 1.5 Mac (minimum alveolar concentration) versus 0.5 MAC desflurane.

Methods: 20 patients between 21 and 75 years old and scheduled for laparoscopic surgery were included in this study with approval from the ethical committee. Anesthesia was induced with Propofol 200 mg, Sufentanil 20 ug, and succinylcholine 100mg. Anesthesia was maintained with a remifentanyl infusion of 0.5 ug/kg/minute and patients were ventilated with 50% O₂/air. Desflurane was given randomly at 0.5 or at 1.5 Mac and followed by 1.5 or 0.5 Mac

in a 50 % O₂/air concentration. When end tidal concentration was stable the abdomen was inflated with calculation of E and PV0. All the CO₂ was allowed to escape between two measurements. A paired t-test was used to analyze the difference.

Results:

	E 0.5 mac	E at 1.5 mac	PV ₀ 0.5 mac	PV ₀ 1.5 mac
mean	2.76	2.81	6.2	5.4
st dev	0.87	0.94	0.4	0.7
paired t-test	0.262		0.045*	

Table gives the mean and standard deviation. PV0 falls significantly (*p<0.05) with increasing concentration of desflurane while E remained unchanged.

Conclusion: Desflurane lowers PV0 without affecting E, comparable to a weak muscle relaxant.

114. THE EFFECT OF SYSTOLIC ARTERIAL PRESSURE ON BLEEDING OF THE GASTRIC STAPLING DURING LAPAROSCOPIC GASTRIC BYPASS SURGERY

Jan Paul Mulier (az Sint Jan av Brugge), J. P. Mulier*, B. Dillemans**, G. Vandrogenbroek*, F. Akin**. **Department of anesthesiology, **Department of general surgery, az sint Jan av Brugge, Belgium*

Background: An elevated systolic arterial pressure (SAP) might help the surgeon detect bleeding on the gastric stapling and treat it by coagulation. During the operation, the bleeding status of the stapling line, the SAP and the use of coagulation is measured. At the end of the operation, the SAP is elevated above 140 mmHg and the same measurements are repeated.

Methods: 31 patients scheduled for laparoscopic bypass surgery were evaluated with approval of ethical committee. SAP was kept between 70-160 mmHg by adapting the dose of anesthetics during the first period. When the stomach is stapled, the line is noted as white, oozing or bleeding giving 3 groups. The use of coagulation by the surgeon unaware of the SAP is noted. At the end of the operation, the SAP was elevated above 140 mmHg with incremental doses of ephedrine. All the staple-lines are inspected by the surgeon and the use of coagulation on the gastric staple lines is noted again.

Results: The group white, oozing and bleeding had a mean SAP of 108, 125, and 143 mmHg in the first phase. Coagulation was then performed in 6 of the 6 patients in the bleeding group and in 1 of the 16 patients of the oozing group. In the second phase coagulation was only performed in 2 of the 16 patients of the oozing group and in 5 of the 9 of the white group. No coagulation was needed anymore in the bleeding group.

Conclusion: The visual appearance correlates with the SAP and the need for coagulation in the first phase. A low SAP and a white appearance in the first phase enhances the coagulation need in the second phase.

115. LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS IN A HIGH RISK REGION OF GASTRIC CANCER

Kazunori Kasama, Kanehira Eiji, Akiko Umezawa, Tetsuya Kurosaki, Takashi Ohshiro, Yoshimochi Kurokawa. *MIS center, Yotsuya Medical Cube, Tokyo Japan*

Background: Obesity is growing in Asia. Japan is known as high risk country of gastric cancer. We use three procedures about LRYGBP and postop examination for remnant stomach.

Methods: 1: LRYGBP with simultaneous remnant gastrectomy: performed for the patient who is high risk of gastric cancer. We have performed it for two patients with multiple family history of gastric cancer. 2: Gastric site marker of the surface of remnant stomach. We put gastric site marker on the surface of the remnant stomach for percutaneous access to remnant stomach 3:

Double balloon Enteroscopy can be inserted retrograde to the remnant stomach via jejunojejunostomy.

Results: LRYGBP with simultaneous remnant gastrectomy is useful for high risk of gastric cancer patients. It takes 40-50 min more than usual LRYGBP. But the problem is taking specimen out. It needs to make incision bigger, and rate of infection and incisional hernia would be more. This procedure should be performed in limited cases. Double balloon Enteroscopy is a good method but it is performed in selected hospitals and the cost is high. Gastric site marker is easiest way and it takes only 5-8 min added. And virtual Endoscopy is easily performed in Japan. If there are some pathological findings in Virtual Endoscopy, Double balloon enteroscopy should be performed for complete check-up and biopsy.

Conclusion: In a high risk region of gastric cancer as Japan, we should use three methods for preventing and detecting cancer of the remnant stomach.

116. LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS WITH JEJUNO-ILEAL DIVERSION - TECHNIQUE AND RESULTS

José A. Sallet, Carlos E. Pizani, Fábio L. Bonaldi, Roberto Tussi Jr, Paulo C. Sallet. *Sallet Institute of Medicine, São Paulo, Brazil*
Background: November 1998 to April 2007, we performed 3000 bariatric procedures including: 29% Lap-Band, 41% Gastric Bypass, 26% BIB and 4% BPD. The choice of the method was defined by protocols developed into a multidisciplinary team, considering BMI, social and eating profile, surgery risk, agreement to physical activity and patient's expectation.

Methods: In the first 2 years, we performed Gastric Bypass with Ring in 180 cases with 85% excess weight loss after 2 years. We perceived with this kind of surgery that the patients had too much difficulty with solid foods. Therefore, we decided to perform the surgery without ring. There were 274 cases with 69% of excess weight loss in 2 years and better eating quality. In the last 4 years we began to perform Laparoscopic Roux-en-Y Gastric Bypass with a Distal Jejunum-Ileal Diversion distant about 1.5 to 2.0 m from ileo-cecal valve (n=776). The surgery is all performed in a supra-mesocolic abdominal area. The gastroenteroanastomosis is always pre-gastric and precolic performed with linear stapler, and we first make the enteroenteroanastomosis. We can thus test both anastomoses with methylene blue.

Results and Conclusion: We had done 776 cases using this method, with 86% of excess weight loss 2 years after the surgery. With this technique we are able to reduce surgery time, avoid ring complications (erosion, slippage), getting the same perceptual of excess weight loss not using ring, no nutritional effects in the long term, and much better eating quality for the patients.

117. LAP GASTRIC BYPASS: REPRODUCIBILITY AFTER SYSTEMATIC AND SUPERVISED INTERNATIONAL TRAINING

Leonardo Rodríguez, Oscar Islã, Francisco San Miguel Manoel Galvão Neto, Manoel Galvão Neto. *Gastro Obeso Center, Centro de Cirugia de Obesidad, Hospital DIPRECA, Santiago, Chile*
Background: Gastric bypass is considered the gold standard on morbid obesity treatment. Due to a variety of different techniques, its reproducibility is hard to be evaluated, at a level in which surgical societies like SAGES point that those variations are a pitfall on analyzing results. With that in focus, there is space for technical systematization on gastric bypass. We evaluated the results of surgeons trained on lap gastric bypass by a systematic international approach.

Methods: On July of 2003, a group of surgeons from Hospital DIPRECA from Santiago, Chile were submitted to a systematic training on Simplified Lap Gastric Bypass (SLGB) at its origin on Gastro Obeso Center in São Paulo, Brazil. The training consisted in: Advanced lap suture, Animal models, multimedia interactive classes and attending a busy (4-6 cases per night) simplified lap

bypass OR schedule. Two months after this initial training, a step-wise proctored schedule were done on DIPRECA hospital with each surgeon of the trained group realizing 3 SLGB on the following sequence: The proctor realizes first having the trainee as assistant, the trainee realizes the second having the proctor as assistant, and the trainee with its own team realizes the procedure having the proctor observing. From August of 2003 to March of 2005, 380 charts of the first consecutive SLGB were retrospectively reviewed. 217 (57.1%) were females, age 18-65 (M=38), weight within 87-182 kg (M= 109.3 kg) and BMI 35-55.6 kg/m² (M= 42.3 kg/m²). The Simplified technique (to be presented) is based in doing all of the anastomoses in the supra-mesocolic floor with the trocars in similar position of lap Nissen procedure.

Results: BMI lowered from 42.3 to 28.4 kg/m² on mean (80.8 %EWL) on 220 patients with 1 y follow-up. Surgical time varies from 129-255 m (M=186 m), Hospital stay from 3-14 d (M=3.27 d). Complication rates goes as 7.4%. Re-operations stays on 2.1% rate with no deaths. Comparing with the results of the original series on SLGB, it corresponds in terms of complications and mortality to the ones obtained after 500 cases.

Conclusion: Systematic training on lap bypass allows reproducibility and safe transition to bariatric practice, also shortening the learning curve.

118. FAST TRACK SURGERY IN MORBID OBESITY

Carmen Mailló, Juan Carlos Ruiz de Adana¹, Julio Lopez Herreros¹, Maria Luz Pindado¹, Carlos Martins², Paula Ratinho².
¹Hospital Universitario de Getafe, Madrid, Spain, ²Hospital Cruz Vermelha Portuguesa, Lisbon, Portugal

Background: Fast track surgery is a multimodal rehabilitation program consisting in evidence-based perioperative treatment modalities to decrease operative stress, reduce organ involvement produced by surgical trauma and improve patient's general recovery. Fast track surgery has been implemented in cardiac and colorectal surgery. Morbid obese patients are high risk patients, so we have implemented this multimodal rehabilitation program in morbid obesity surgery.

Methods: All patients operated on morbid obesity followed a multimodal rehabilitation program. Preoperative: complete information of the procedure, hypocaloric diet, forced liquids intake, stimulated respiratory exercises, compressive stockings. Intraoperative: Minimal invasive technique, low fluid administration, local infiltration of anesthesia, total intravenous anesthesia (TIVA), biological glue. Postoperative: no use of nasogastric tube, selective use of drains, effective analgesia, stimulated respiratory exercises, fast mobilization and oral intake.

Results: 265 morbid obesity surgeries: 237 gastric bypass, 15 biliopancreatic diversion, 8 sleeve gastrectomies, 5 gastric banding. 262 had a laparoscopic approach (98.86%). Mean age 39 y o, Mean BMI 46. Immediate extubation after surgery 263 cases, re-intubation 2 (0.75%), operative mean time 210 minutes, Oral intake 1st po day, mobilization 16 hours after surgery. Mean hospital stay 4 days. Complications: hemoperitoneum or digestive hemorrhage needing transfusion 6 cases (2.26%), atelectasy or pneumonia 11 (4.15%), re-operations 3 cases (1.13%). Re-admitted 2 (0.75%). Mortality 0.

Conclusion: Fast track surgery can be successfully implemented in morbid obesity surgery. This modality of rehabilitation gets a fast recovery in these high risk patients and a short hospital stay. Surgical complications are low and the percentage of re-admitted patients is minimal.

121. ADAPTIVE ENTERO-OMENTECTOMY (AEO): A SIMPLE SURGICAL INTERVENTION AS AN AUXILIARY TREATMENT TO TYPE 2 DIABETES MELLITUS (T2DM)

S. Santoro¹, F.Q. Milleo², M.A. Santo³, C.E. Malzoni¹, S. Klajner¹, P.C.M. Borges¹, R. Peres⁴. ¹Department of Surgery, Hospital Israelita Albert Einstein (HIAE), São Paulo, Brazil. ²Department of Surgery, Hospital Vicentino da Sociedade Beneficente São Camilo, Ponta Grossa, Brazil. ³Department of Surgery Hospital das Clínicas, University of São Paulo, Brazil. ⁴Department of Endocrinology, HIAE, São Paulo, Brazil

Background: Adaptive Entero-Omentectomy (AEO) is a surgical intervention designed to treat T2DM in non-morbid obese patients, based on diminishing the small bowel to its minimal considered normal length, adapting it to refined food by moving the site of absorption to lower and less permeable segments, then diminishing rate of absorption and enhancing the secretion of GLP-1 and PYY. Omentectomy reduces visceral fat, contributing to a reduction in the production of resistin, plasminogen activator inhibitor-1 (PAI-1) and inflammatory adipocytokines.

Methods: 21 type 2 diabetic patients with BMI between 28 and 35 kg/m² were operated on. The technique included an omentectomy and an enterectomy that left the first 40 cm of jejunum and the last 260 cm of ileum. Analyses of fasting and post-prandial glucose, insulin, Hemoglobin A1c, HOMA indexes, triglycerides, GLP-1 and PYY were made pre- and postoperatively.

Results: Follow-up: 2 to 14 months. After AEO, fasting and post-prandial levels of GLP-1 and PYY were significantly enhanced (P<0.05). Patients present no symptoms, no complications and a significant diminution in fasting and post-prandial blood glucose levels, Insulin resistance measured by HOMA index, arterial blood pressure and blood lipids, especially triglycerides. Weight loss ranged from 1 to 15 kg. No changes in bowel movements frequency or nutritional parameters were observed.

Conclusions: Early results of AEO are expressive. All patients presented an improvement in metabolic profile, better secretion of GLP-1 and PYY with complete or partial withdrawal of diabetes medication. The procedure is simple, easy and inexpensive to perform.

122. PROBIOTICS IMPROVE GI-RELATED QUALITY OF LIFE AND H2 BREATH TESTS AFTER GASTRIC BYPASS SURGERY: A PROSPECTIVE RANDOMIZED TRIAL

John Morton, B. Encarnacion, E. Ketchum. *Stanford University School of Medicine, Department of Surgery, Stanford, CA, USA*

Background: Roux-en-Y Gastric Bypass (RYGBP) surgery provides significant improvement in weight loss, comorbidity resolution, and life-span. One potential complication after gastric surgery is bacterial overgrowth which may affect the outcomes of gastro-intestinal motility, quality of life, and weight loss. Our study aim was to determine if probiotic administration after surgery influenced these outcomes.

Methods: 42 patients successfully underwent laparoscopic RYGBP and were randomized into two groups. One group (PS) received 2.4 Billion Lactobacillus daily postoperatively while the other group served as control subjects (CS). The Gastro-Intestinal Related Quality of Life (GIRQoL) survey, Hydrogen (H2) breath test (H2 Sleuth®) and weight were obtained pre- and postoperatively at 6 weeks, 3 months and 6 months. At baseline, patient demographics for the two groups were similar including GIRQoL, H2 breath test, age 43, 82% female, and average pre-op BMI 49 for both groups. Continuous and categorical variables were analyzed via T-test and Chi-Square test respectively with a P value of 0.05 set as significant.

Results: At three months, the probiotic group had a smaller H2 peak (4.5 vs 5.1) and quicker return to baseline (17 min vs 32 min) versus the control group. In addition, the probiotic group had a statistically significant improvement in GIRQoL versus the con-

trol group (118 vs 106, P<.05). Furthermore, a significant difference in excess weight loss was noted, with the probiotic group losing 46.3% and the control group losing 38.9% (P<.05).

Conclusion: In this novel prospective randomized trial, the use of probiotics after gastric bypass clearly reduces H2 breath test values, improves GI quality of life and leads to increased weight loss.

123. ROUX-EN-Y GASTRIC BYPASS IS ASSOCIATED WITH ELEVATED LEVELS OF GLUCAGON-LIKE PEPTIDE 2 (GLP-2) AND PEPTIDE YY (PYY) IN HUMAN SUBJECTS AND WITH PROLIFERATION OF THE INTESTINAL MUCOSA IN A RODENT MODEL.

Cynthia-Michelle Borg, CW Le Roux (*Department of Metabolic Medicine, Hammersmith Hospital, Imperial College London, UK*); MA Ghatti (*Department of Metabolic Medicine, Hammersmith Hospital, Imperial College London, UK*); SR Bloom (*Department of Metabolic Medicine, Hammersmith Hospital, Imperial College London, UK*); SJB Aylwin (*Department of Endocrinology, King's College Hospital, London, UK*); AG Patel (*Department of Surgery, King's College Hospital, London, UK*)

Background: Roux-en-Y gastric bypass (RYGBP) results in sustained weight loss with few gastrointestinal side-effects. GLP-2 and PYY are released from L-cells post-prandially. GLP-2 stimulates intestinal crypt cell proliferation, mitigating effects of gut injury. The aims of this study were to determine PYY and GLP-2 levels after RYGBP in humans and in a rodent model and to examine ileal biopsies from the rat model.

Methods: Six patients undergoing RYGBP were seen after a 12-hour fast preoperatively, at 1, 3, 6, 12 and 24 months postoperatively. Blood was collected at baseline and each 30 min until 180 min following a test meal. Twelve adult rats underwent either RYGBP or sham procedure. At day 23, mixed venous blood was collected. The mitotic rate and proportion of crypt cells labelled with bromodeoxyuridine in ileal biopsies were determined. Human and rat blood samples were assayed for PYY and GLP-2.

Results: Amongst human subjects, GLP-2 AUC increased to a peak 168% of baseline (p<0.01) at 6 months. AUC for PYY increased significantly and persisted at 24 months postoperatively. Sham animals gained 26% weight while RYGBP rats lost 20% weight from baseline (p<0.001) with no differences in fecal energy loss using bomb calorimetry. RYGBP animals had significantly higher levels of PYY (p<0.001) and GLP-2 (p=0.02) and increased number of mitoses per crypt (p<0.001) and cells incorporating bromodeoxyuridine (p<0.001).

Conclusion: RYGBP induces an increase in PYY and GLP-2 release and mucosal proliferation. These changes tend to restore the absorptive surface area of the gut, potentially limiting malabsorption and gastrointestinal side-effects.

124. LARRAD BILIOPANCREATIC DIVERSION IN RATS: PRELIMINARY ANALYSIS OF WEIGHT LOST

A. Larrad¹, MP. Álvarez², MP. Fernández-Mateos², P. Canoc, V. Jiménez³, AI Esquifino³. ¹Servicio de Cirugía, Hospital Quirón, Madrid; ²Departamentos de ²Biología Celular y ³Bioquímica y Biología Molecular, Facultad de Medicina, Universidad Complutense, Madrid, Spain

Background: To validate the experimental model of Larrad-biliopancreatic diversion (LBPd) and to analyze weight gain evolution and mortality in rats fed with non-supplemented diets.

Methods: Control (6) and experimental (10) male Wistar rats were used. Experimental group was operated with an adaptation of human LBPd to the rats: Subcardial gastrectomy, short biliopancreatic channel created at 5 cm from Treitz angle and common channel at 5 cm from ileocecal valve. After surgery recovery (7 days), the rats were fed ad libitum with a standard diet non-supplemented (without proteins, minerals or vitamins).

Percentage of weight lost or gained until the end of the experiment was analyzed.

Results: Control animals gain weight progressively from 13.1±2.4% at day 7 to 58±9.2% at day 63, animals were sacrificed. After LBDP, mortality was 50% at day 25±17.5 (range 14-56), not finding significant differences in the percentage of weight lost between survival (-38.9±14.2) and non survival (-29±5.6%; $p=0.192$) rats. 80% of survival animals progressively lost weight reaching the maximum lost between day 63 (-42.3±8%) and 70 (-44.1±9.7%). 20% of the survival rats lost weight until day 35 and gained over 7% of body weight until sacrifice (day 147).

Conclusion: Experimental model of LBDP in rats is technically feasible. Both mortality and percentage of weight lost are not directly related. Bowel adaptation mechanism would mediate the percentage of weight regain in operated rats.

125. LARRAD BILIOPANCREATIC DIVERSION: RESULTS AT SHORT, MID AND LONG-TERM.

A. Larrad-Jiménez¹, C. Sánchez-Cabezudo¹, P. Cuadros-Borrajó¹, I. Bretón-Lesmes², B. Moreno-Esteban³. ¹Servicio de Cirugía, Hospital Quirón, Madrid; ²Sección de Nutrición, ³Servicio de Endocrinología, Sección de Obesidad, Hospital Gregorio Marañón, Madrid, Spain

Background: Results using a modification of the Scopinaro BPD (Larrad 50-50 BPD) are reported.

Methods: Of 343 operated patients 325, 194 and 65 patients were evaluated at two, five and ten years in terms of surgical morbimortality, metabolic sequelae and the progression of weight variables.

Results: Mortality was 0.87% and surgical morbidity 7.6%. There were no cases of suture dehiscence, peritonitis or stomal stenosis. The percentage excess weight loss (%EWL) at 10 years was 77.8±11.2% for morbidly obese patients and 63.2±11.8% for super-obese patients. The main surgical and digestive complications were 43.8% incisional hernia, 2.5% severe diarrhea, 10.8% mild diarrhea and 9.2% constipation. 30% experienced anemia and/or iron deficiency, and 3% of patients required iron given parenterally or lifelong zinc supplements. 28% showed preoperative PTH elevation and 30% vitamin D deficiency; these values postoperatively increased to 45% and 43% respectively; alterations resolved using supplements although 12% needed increased doses of vitamin D. The incidence of severe hypoproteinemia was 0.29%. No patient required surgery reversal. Individual failure rates were 11.3% at 10 years for morbidly obese and 14% for super-obese patients. According to the BAROS questionnaire, 75% were classed as excellent or very good, 18% good, 5% regular and 2% failures.

Conclusions: After 2, 5 and 10 years, Larrad's biliopancreatic diversion has offered excellent results in terms of maintenance of weight loss and quality of life, a low rate of metabolic sequelae, including a hypoproteinemia rate <0.5%, and a revision surgery rate due to serious sequelae of 0%.

126. EVOLUTION OF THE CO-MORBID CONDITIONS OF MORBID OBESITY AFTER BARIATRIC SURGERY BY DUODENAL SWITCH

A. Vázquez Prado, E.M. Montalvá Orón, L. De Tursi Ríspoli, A. Ismail, C. Redondo Cano. University General Hospital, Valencia, Spain

Background: To value the evolution of the co-morbid conditions in patients affected by morbid obesity, submitted to bariatric surgery.

Methods: In a series of patients, the evolution of the anthropometric parameters and the co-morbidities are described.

Results: During a 5-year period, 118 patients were submitted to duodenal switch. The average value of the BMI was 49.7. A total of 104 patients presented co-morbid conditions, from which 75.9% had a complete improvement, 14.4% had a partial improvement and a 9.6% did not improve at all. Among the

patients with complete improvement, 67% improved at third month, with a %LOW of 31%, 78.5% at first year (%LOW: 61.6%), 89.8% at two years (%LOW: 74.8%) and 95% at three years (%LOW: 69%). When attending each disease, we can notice that the patients were cured for hypertension in the 96%, 93% of diabetes, hyperlipidemia in 93% and SAOS in 95%. With an average lost of 25 kg (% lost BMI 40.3%) along the three postoperative months, we have obtained 51% complete improvement, a 60% along the six postoperative months with a 36 kg (% lost BMI 56.7%); a 65.3% along the twelve postoperative months with 45 kg (% lost BMI 70.4%), and a %LOW of 74.8% (% lost BMI of 90.5%) at two years, correlated with a complete improvement of co-morbidities in 76% of patients.

Conclusions: There is a direct relation between the loss of weight and the cure of co-morbidities.

127. ENTERO-HORMONAL CHANGES AFTER DIGESTIVE ADAPTATION: A NEW SURGICAL PROPOSAL TO TREAT OBESITY BASED IN PHYSIOLOGY AND EVOLUTION

Sérgio Santoro¹, Fábio Q. Milleo⁴, Carlos E. Malzoni¹, Manoel C.P. Velhote^{1,3}, Marco A. Santo², Sidney Klajner¹, Pedro C. M. Borges¹, Fábio G.M. Campos². ¹Department of Surgery, Hospital Israelita Albert Einstein, São Paulo, Brazil. ²Discipline of Digestive Surgery, Hospital das Clínicas, University of São Paulo, Brazil. ³Discipline of Pediatric Surgery, Hospital das Clínicas, University of São Paulo, Brazil. ⁴Department of Surgery, Hospital Vicentino da Sociedade Beneficente São Camilo, Ponta Grossa, Brazil

Background: To introduce evolutionary arguments in the rationale of obesity genesis and report on the intermediary results of digestive adaptation (DA), a new surgical technique to treat obesity and the changes in hormonal profile that it provokes.

Methods: The technique includes a sleeve gastrectomy, an omentectomy and an enterectomy that leaves initial jejunum and most of ileum, totaling 3 meters of small bowel (still within normal variation of adult human bowel length). Fasting Ghrelin and Resistin and fasting and post-prandial GLP-1 and PYY were measured pre- and postoperatively.

Results: Patients: 140 with initial Body Mass Index (BMI) varying from 35 to 51 kg/m². Follow-up: 1 to 4 years. Average BMI reduction was 4.4, 8.1, 10.1, 10.5 and 10.4 kg/m² respectively at 1, 4, 6, 12, and 24 months. Patients present early satiety and major improvement in pre-surgical comorbidities, especially diabetes. Fasting Ghrelin and Resistin were significantly reduced ($P<0.05$); GLP-1 and PYY response to food ingestion was enhanced ($P<0.05$). Surgical complications (4.9%) were resolved without sequela and without mortality. There is no detectable malabsorption or diarrhea.

Conclusions: Based in physiological and evolutionary data, this procedure creates a proportionally reduced Gastrointestinal (GI) Tract that amplifies postprandial neuroendocrine responses. It leaves basic GI functions unharmed. It reduces production of Ghrelin and Resistin and takes more nutrients to be absorbed distally enhancing GLP-1 and PYY secretion. Diabetes was improved significantly without duodenal exclusion. The patients do not present symptoms and need nutritional support or drug medication because of the procedure, which is safe to perform.

128. DIGESTIVE ADAPTATION WITH INTESTINAL RESERVE: A NEUROENDOCRINE-BASED PROCEDURE FOR MORBID OBESITY

Sérgio Santoro, Fábio Q. Milleo, Carlos E. Malzoni, Marco A. Santo, Sidney Klajner, Manoel C. P. Velhote. Department of Surgery, Hospital Israelita Albert Einstein, São Paulo, Brazil. Discipline of Pediatric Surgery, Hospital das Clínicas, University of São Paulo, Brazil. Department of Surgery, Hospital Vicentino da Sociedade Beneficente São Camilo, Ponta Grossa, Brazil

Background: Mechanical obstacles to food ingestion, nutrient-

excluded segments and malabsorption are the main tools in bariatric surgery which are a potential cause of symptoms or complications. Recently described, Digestive Adaptation with Intestinal Reserve (DAIR) does not utilize these tools, aiming just at neuroendocrine changes and visceral fat removal.

Method: It includes a sleeve gastrectomy, omentectomy and enterectomy, maintaining initial 40 cm of jejunum and final 260 cm of ileum (keeping bowel length within normal range). Jejunum is laterally anastomosed to ileum at 80 cm of the cecum. A gastroileostomy creates a transit bipartition (all segments in transit). 182 cases are presented.

Results: Follow-up: 1 to 46 months. Average Body Mass Index reduction was 4.8 kg/m², 9.2 kg/m², 15.2 kg/m², 17.7 kg/m², 17.9 kg/m² and 17.5 kg/m² respectively at 1, 3, 6, 12, 24 and 36 months. Patients present early satiety and major improvement in pre-surgical co-morbidities, especially diabetes (93% of remission). Postprandial GLP-1 and PYY were enhanced; fasting Ghrelin and Resistin are significantly reduced (P<0.05). Radiographic studies show nutrient transit through pylorus and through gastroileostomy. Major early complications: one intraperitoneal abscess, one internal bleeding, 2 hernias and 4 gastric fistulas; all resolved without sequela. Signals of malabsorption are rare. No deaths. Most patients present no symptoms at all.

Conclusions: DAIR amplifies postprandial neuroendocrine response and provokes intense weight loss. DAIR reduces Ghrelin and Resistin and takes more nutrients to be absorbed distally enhancing GLP-1 and PYY secretion. Diabetes is improved significantly without duodenal exclusion.

129. THE EFFECTS OF GASTRIC ELECTRICAL STIMULATION (TANTALUS®) ON GLYCEMIC CONTROL IN OBESE PATIENTS WITH TYPE 2 DIABETES (T2DM)

Arthur Bohdjalian (Medical University of Vienna, Austria), Ch. Rosak (Krankenhaus Sachsenhausen, Frankfurt); R. Jung (Krankenhaus Sachsenhausen, Frankfurt); M. Schramm (Krankenhaus Sachsenhausen, Frankfurt); R. Weiner (Krankenhaus Sachsenhausen, Frankfurt); B. Ludvik (Medical University of Vienna, Dept. of Internal Medicine III); G. Prager (Medical University of Vienna, Dept. of Surgery)

Background: The TANTALUS System (MetaCure Limited) is an implantable device that automatically detects food intake and delivers non-pacing electrical stimulation to the gastric wall during meals. Previous studies showed that this modality can induce weight loss in morbidly obese subjects. We investigated the potential effect of the TANTALUS System on glycemic control and weight in obese subjects with T2DM.

Methods: In this European multi-center, open label study, 24 T2DM obese (9 m, 15 f, BMI: 41.7±0.9 kg/m²) subjects treated either with insulin (7) or oral anti-diabetic medications (17) were implanted laparoscopically with the TANTALUS System. The system includes a pulse generator, three bipolar leads and delivers a non-excitatory signal initiated upon automatic detection of food intake.

Results: 16 subjects initially on oral anti-diabetic medications that have completed one year follow-up show a significant (p<0.05) decrease in weight of 5.5±2 kg. A subset of eight patients initially not well controlled (A1c>7%) on stable oral medications decreased HbA1c from 8.34±0.3% to 7.44±0.4%, FBG dropped from 206±12mg/dl to 158±15mg/dl (p<0.05). Self glucose monitoring data in this subset available at 9 months showed a significant (p<0.05) decrease in 2-hour post-prandial glucose (176±12mg/dl to 141±13mg/dl). The other eight patients on oral meds either changed drug regime during treatment or were initially well controlled (A1c≤7%). The four insulin subjects that have completed one year showed no significant changes in HbA1c and weight.

Conclusion: Interim results with the TANTALUS System suggest that non-excitatory stimulation applied during food intake can

potentially improve glucose levels and induce weight loss in obese T2DM subjects on oral anti-diabetic therapy. Further evaluation is required to determine underlying mechanisms of glucose lowering and weight loss.

130. RESULTS AFTER GASTRIC BYPASS AS REVISIONAL SURGERY

F.M.H. van Dielen, D. Stevens, J.P. de Zoete, I.H. de Hingh, J.F. Smulders. Dept. of Surgery, Catharina Hospital Eindhoven, Eindhoven, The Netherlands

Background: Morbid obesity is a growing problem in western society for which bariatric surgery is the only effective treatment. Despite its success, occasional patients require revisional surgery because of weight regain or mechanical complications. The effect on weight loss and complications after revision of restrictive operations to Roux-en-Y gastric bypass (RYGBP) was evaluated.

Methods: All patients who underwent revisional surgery to RYGBP from 2003 through 2006 in our institution were retrospectively evaluated. All patients had previously undergone gastric banding or VBG. Demographics, indications for revision, complications, weight loss and effect on co-morbidities were reviewed.

Results: 41 patients, 10 male and 31 female, underwent revision to RYGBP after failed bariatric operations (11 gastric banding, 30 VBG). 33 patients underwent open, 4 hand-assisted and 4 laparoscopic RYGBP. Mean initial BMI was 47.5 and before revision 37.7 kg/m². BMI further decreased to 29.4 kg/m² at 12 months after RYGBP. In line with this, percent of excess weight loss (%EWL) before revision was 39.1% and 12 months after revision 75.4% (P<0.001). Mean length of hospital stay was 8.8 days. Major perioperative complications occurred in 4 patients. Total number of co-morbidities did not change after revision (1.7±1.3 preoperative vs 1.7±1.4 after revision). The development of an incisional hernia was the only major complication in the long term, observed in 10 patients.

Conclusions: These data suggest that RYGBP can be performed as a revisional operation in patients with failed previous gastric restrictive operations. It induces extra weight loss and has an acceptable complication rate.

131. REOPERATIONS (“RE-DO”) IN BARIATRIC SURGERY: A GROUP EXPERIENCE

N. Botelho Vieira, J. Limão, R. Mesquita Lima. Baroclínica, Hospital Particular de Lisboa, Lisbon, Portugal

Background: A retrospective study of 547 patients, with an age average 13 and 69 years old and BMI values between 31 and 75, submitted to bariatric surgery, in three different Medical Units (HPL, HPV, CLISA), from July 1998 to April 2007.

Methods: Three different surgical techniques were used: gastric pacemaker in 4 patients, gastric banding in 499 patients and gastric bypass (mini-bypass and Roux Y bypass) in 44 patients.

All the surgeries, reoperations included, were made by the laparoscopic approach. Five different types of bands, of various models, were used in gastric banding.

Results: Among the 547 patients operated on, 84 reoperations took place (15.3%), including major and minor complications. Of the 499 gastric bandings we have verified reoperation 15.2%, 10.6% from major complications and 4.6% from minor complications, comparing to the 11.4% reoperations registered in the 44 patients submitted to gastric bypass. Three of the 4 patients submitted to gastric pacemaker were reoperated because of therapeutic unsuccess. A comparative study between the 5 different types of bands used was also done, as far as complications and consequent reoperations are concerned.

Conclusions: The reoperations encountered in our study are similar to those registered in the major series in the world. The major reoperations seen in gastric banding are related to long-term complica-

tions, from the 2nd postoperative year, while in gastric bypass they are usually immediate. From the 5 types of bands used, Lap-band proved to be the most efficient and safe; Gastric pacemaker is not the best choice for the treatment of morbid obesity; Laparoscopy has proven to be the best approach in bariatric surgery.

132. EFFECTS OF OBESITY SURGERY ON INSULIN RESISTANCE AND TYPE 2 DIABETES MELLITUS

Wei-Jei Lee, Jung-Chien Chen, Kong-Han Ser, Weu Wang. Department of Surgery, Min-Sheng General Hospital, National Taiwan University, Taiwan

Background: Obesity is a major risk factor for the development of type 2 diabetes mellitus (T2DM). Surgery is the most effective treatment currently for morbid obesity and leads to dramatic improvement in type T2DM. However, the mechanism of improving T2DM after bariatric surgery remains speculative. There is also no available data in Asian population.

Methods: Patients received obesity surgeries from April 1997 to March 2006 at our department. We evaluated pre- and postoperative data, including demographics, metabolic parameters, effect of obesity surgery on insulin resistance (IR) and the changes in different procedures.

Results: During this 9-year period, 1,375 patients underwent weight-reducing surgery and 166(12.1%) had impaired fasting glucose (IFG) and 247(18.0%) had T2DM. Patients with IFG or DM are significantly older, more central obese and had a higher insulin and HbA1C level than those with normal fasting glucose. The mean total weight loss for the population was 28.8%, 30.2%, 25.5% and 24.2% (at 1, 3, 6 and 9 years after surgery). After surgery, the IR began to lower rapidly and this reduction was maintained during follow-up. Fasting plasma glucose returned to normal in 78.5% T2DM and 94.7% of IFG patients. HbA1C level below 7.0 was obtained in 81.5% of T2DM and 100% in IFG patients. The bypass patients had a better weight reduction but higher surgical complication and long-term minor element malnutrition than the banding groups. The resolution of IR was similar between the two groups at the same weight reduction percentage.

Conclusion: IR and T2DM are common in morbidly obese patients. Obesity surgery resulted in significant weight loss (72% excess body weight loss) and normal fasting glucose level was achieved in 78.5% of IFG and 94.7% of T2DM patients. Weight-reducing surgery was also very effective for reversal of IR. The effect is related to the absolute weight loss rather than different surgical procedures.

133. CHANGES IN INNATE IMMUNE SYSTEM AND CIRCULATING ADIPOCYTOKINES AFFECT LIVER HISTOLOGY AFTER BILIOPANCREATIC DIVERSION FOR MORBID OBESITY

M. Manco¹, G. Nanni, V. Vellone², V. Tondolo, F. Vecchio², F. Equitani³, J.M. Fernandez-Real⁴, A. Iacobelli³, C. Guidone³, M. Castagneto, G. Mingrone. Department of Surgery, ³Division of Metabolic Diseases, ²Department of Pathology Catholic University, Roma, Italy, ¹Unit of Hepatology, "Bambino Gesù" Hospital and Research Institute; Rome, Italy, ³Dept. of Transfusion Medicine, "San Filippo Neri" Hospital, Rome, Italy

Background: Non-alcoholic steatohepatitis (NAFLD) is constantly associated with insulin resistance (IR) and frequently obesity. The latter conditions may be both regarded as situations of low-grade inflammation. Biliopancreatic diversion (BPD) is able to ameliorate IR, inflammation and NAFLD. We wanted to evaluate changes in insulin sensitivity, pro-inflammatory adipocytokines, molecules of the innate immune system and their relation to liver histology, in obese patients before and after weight loss induced by BPD.

Methods: Ten normoglycose-tolerant obese women were evaluated before and ~36 months after DPB. Glucose sensitivity (M value) was estimated using the euglycemic-hyperinsulinemic clamp. Mannan-binding lectin (MBL), bactericidal/permeability-increasing protein (BPI), alpha-defensins, soluble CD14 receptor, C-reactive protein (CRP), adiponectin, leptin, visfatin, interleukin-6 (IL-6), and TNF-alpha were assayed. NAS score was also evaluated. Liver biopsy was performed as open procedure, during BPD and in occasion of surgical intervention at different postoperative time.

Results: After massive weight loss (mean 58 kg), leptin ($P \leq 0.0001$), IL-6 ($P \leq 0.0001$), alpha-defensins ($P \leq 0.001$), CRP ($P \leq 0.0001$) sCD14, and visfatin levels decreased significantly. Adiponectin increased significantly ($P \leq 0.001$). No significant changes were observed in TNF-alpha, BPI, or MBL. Insulin sensitivity was more than doubled after BPD ($P \leq 0.0001$). Macrosteatosis as well as Inflammation, and thus the NAS score significantly ameliorated ($P \leq 0.0001$ for all variables).

Conclusions: Surgically-induced weight loss is capable of reversing low-grade inflammation, at least partially, liver histology and the milieu of circulating adipocytokines. The relationships among these variables in obesity warrant further investigation.

PLENARY SESSION ABSTRACTS, SEPTEMBER 8

134. ACUTE POSTOPERATIVE BLEEDING AFTER LAPAROSCOPIC RYGBP: INCIDENCE, MANAGEMENT AND PREVENTION

Alexandre Paroz (*Centre Hospitalier Universitaire Vaudois*), J.M. Calmes (*Department of visceral surgery, CHUV, Lausanne, Switzerland*); V. Giusti (*Division of endocrinology, diabetology and metabolism, CHUV, Lausanne, Switzerland*); M. Suter (*Hôpital du Chablais, Aigle-Monthey, Switzerland*)

Background: Postoperative bleeding after laparoscopic RYGBP is uncommon, between 1 and 4% in the literature. The source is mostly intraluminal and bleeding usually originates from a staple line, but it can be extraluminal too. Management includes observation, pro-coagulants like *e*-aminocaproic acid, blood transfusion, and endoscopic or operative intervention.

Methods: Prospectively maintained computerized database including all patients undergoing bariatric surgery in both our hospitals. Retrospective analysis of patients who presented with postoperative bleeding.

Results: Between June 1999 and March 2007, 785 patients underwent laparoscopic RYGBP. 29 patients (3.7%) developed postoperative hemorrhage. Bleeding was intraluminal in 18 cases (62%), intra-abdominal in 10 (34%) and of unknown origin in 1 (4%). 18 patients (62%) were treated conservatively, of whom 11 required transfusions. 11 patients were reoperated (38%). One patient (3.4%) died after bleeding in the distal stomach, which caused distension and eventually blow-out of the distal gastric staple line. Hypertension was more frequent among patients with hemorrhage than among those who did not bleed (65.5% versus 52.9%) although the difference was not statistically significant ($p=0.18$). As of early 2006, we treat postoperative hypertension aggressively with i/v metoprolol if the systolic pressure exceeds 140 mmHg. None of the 184 patients operated since then required blood transfusion or reoperation because of postoperative bleeding.

Conclusions: Acute postoperative bleeding is not so uncommon and is potentially lethal. Prevention is therefore important. Apart from reinforcement of the staple lines and extensive use of clips, prevention of postoperative hypertension could play a role in that respect.

135. COMPARISON OF RESULTS AND COMPLICATIONS AMONG BPD WITH DIFFERENT ALIMENTARY LIMB LENGTHS IN A 10-YEAR FOLLOW-UP

G. Marinari, C. Murmura, F. Carlini, F. Mariani, N. Scopinaro. *Department of Surgery, Azienda Ospedaliera Universitaria San Martino, Genoa, Italy*

Background: BPD has been claimed as a dangerous operation because of its nutritional complications (NC). In order to reduce NC, in 1992 we started elongating the alimentary limb (AL) in patients at risk.

Methods: Between 9/92 and 12/2003 513 obese subjects (OS) were submitted to 200 cm AL-BPD [Group 1, BMI preop 46, high protein intake (>80 g/day), younger age: median 35], 173 OS [Group 2, BMI preop 48, lower protein intake (~ 40-50 g/day), older age: median 44] had a 250 cm AL, 195 OS (Group 3, BMI preop 49, low expected compliance) received a 300 cm AL. Weight loss (EW%L) and incidence of iron deficiency (ID), bone demineralization (BD), night blindness (NB), protein malnutrition (PM) and revisions (R) were retrospectively investigated.

Results: At 10 years EW%L was equal (70%) in Groups 1 and 2, while it was 60% in Group 3. ID and BD had the same incidence (50% and 3.5%) in all groups, while NB affected 9% of patients in Groups 1 and 3, and 4% in Group 2. PM had a 3% incidence in all Groups but need of R was 1.6% in Group 1 and 3% in Group

3; no R were requested in Group 2.

Conclusions: 250 cm AL-BPD seems to be as effective as 200 cm AL-BPD in terms of EW%L but far safer in terms of NC. Weight loss and NC in low compliance OS are less satisfactory than in the general population.

136. REVISIONAL ROUX-EN-Y GASTRIC BYPASS: 8-YEAR EXPERIENCE WITH 121 PATIENTS

Michel Suter (*Hôpital du Chablais*), J.M. Calmes (*Department of Surgery, CHUV, Lausanne*), A. Paroz (*Department of surgery, CHUV, Lausanne*), V. Giusti (*Division of endocrinology, metabolism and diabetology, CHUV, Lausanne*), Switzerland

Background: With the increasing prevalence of morbid obesity, more and more bariatric procedures are performed each year. Purely restrictive procedures are popular because of their relatively low operative risk, but are associated with a high long-term complication rate.

Methods: Prospectively maintained computerized database including all the patients undergoing bariatric surgery in both our hospitals. Retrospective analysis of patients who had revisional Roux-en-Y gastric bypass (RYGBP).

Results: Revisional RYGBP was performed in 121 patients over an 8-year period, 109 women and 12 men, with a mean age of 42 years (23-63). The initial procedure was gastric banding in 82 cases, VBG in 36 and RYGBP in 3. The mean BMI before the initial procedure was 45 kg/m², and the mean BMI before revision was 37.7 kg/m² (17.7-57.8). Revision was performed by laparotomy in 47, and by laparoscopy in 74 patients. Mean duration of surgery was 181 minutes (90-335). Overall morbidity was 26.4%, major morbidity was 4.1%, and mortality was 0. After revision, the mean BMI decreased and remained between 30 and 31.5 up to the fifth postoperative year. Most patients with disabling symptoms from the initial procedure were relieved. Three and five years after revision, 79.3%, respectively 75% of the patients had a BMI \leq 35.

Conclusions: Revisional RYGBP is safe and effective, both in correcting complications from the initial procedure, and in maintenance of effective weight loss in the long-term. Weight loss is less in patients who never achieved sufficient weight loss after the first procedure.

137. LAPAROSCOPIC GASTRIC RE-BANDING FOR POUCH DILATION: RESULTS ON 24 PATIENTS

Mirto Foletto, Paolo Bernante (*Patologia Speciale Chirurgica-Padua University*), Luca Busetto (*Clinica Medica I-Padua University*), Luca Prevedello (*Clinica Chirurgica II-Padua University*), Gianluca Vecchiato (*Clinica Chirurgica II-Padua University*), Stefania Famengo. *Clinica Chirurgica II-Padua University, Italy*

Background: Pouch dilation is a serious complication of LAGB and requires reoperation in most the cases. It is still controversial, whether banding should be offered again or a different procedure should be chosen. We here report the results of synchronous de-re-banding on a prospective series of patients treated at our Institution for pouch dilation.

Methods: Since Jan 2000, 24 consecutive patients, 22 F and 2 M, underwent synchronous laparoscopic gastric de-re-banding for pouch dilation. Patient candidates for other procedures after de-banding were excluded from this study. The mean age at primary operation was 39.6 \pm 8.2 years and the mean BMI was 46.4 \pm 8.3. 23 had previous LAGB while 1 had previous open gastric banding, the perigastric way being the approach of choice. All the redo procedures were successfully carried out under laparoscopy, via "pars flaccida" and all the patients were followed-up according to the usual schedule, assessing BMI and %EWL.

Results: The mean time from LAGB was 43.2±31.5 months and the mean follow-up after re-banding was 28.1±22.3 months. At re-banding, the mean weight was 89.7±20.1 kg, the mean BMI 34.4±7.6 and %EWL 53.4±30.9. After 1 year, EWL was >45% in 60% of patients and in 50% after 2 years. One patient had re-banding after 6 months for a new slippage, 2 others had band removal with refusal of to switch to another procedure after 8 and 12 months, respectively and one was switched to BDP for slippage recurrence. **Conclusions:** Although this is a limited series, our results show that good outcomes can be expected after re-banding in at least for 50% of properly assessed patients with pouch dilation. Larger series and longer follow-up are needed to confirm this.

138. LAPAROSCOPIC SURGERY IN AUSTRALASIA – A SURVEY IDENTIFYING MAJOR COMPLICATIONS/OUTCOMES

Paul Anderson. *Ashford Surgical Obesity Centre, Adelaide, South Australia*

Background: Laparoscopic surgery has revolutionized the approach to bariatric surgery. It has significantly reduced mortality and morbidity. Australasian surgeons were surveyed to identify major complications.

Methods: Email addresses for affiliated bariatric surgeons were obtained from the Obesity Surgical Society of Australasia (OSSANZ). An email request was made to all the surgeons (34) in an attempt to identify major complications of laparoscopic surgery that they might have knowledge directly and indirectly. Major complications were those that prolonged hospital stay beyond a 2-week period or ended in death. Discussion were also undertaken at 2 national conferences, during surgery and by anonymous post or fax.

Results: Communications with 11 Australasian surgeons—6 surgeons out of 42 replied via email – 5 surgeons discussed complications that they had personal knowledge of (2 surgeons discussed cases that they had been consulted on – 1 as a medico-legal opinion. 3 cases were supplied anonymously and 2 cases were personal knowledge). From an estimated 10,000 laparoscopic bariatric operations during a 9-year period. 17 major complications were identified.

Major Complications: • Aortic injury – death, • Gastric ischemia – gastrectomy, • Gastric bougie stapled in situ – gastrectomy, Gastric Volvulus, • Gastric Paresis, Gastric perforation – 2 cases – toxic shock and death, • “Banding” of the common bile duct (Hepatic duct injury), • IVC injury, Large bowel perforation, • Reflux esophagitis esophageal cancer, • Pericardial perforation, • Small bowel fistula, • Splenectomy, • Thoracic duct injury, • Necrotizing fasciitis, • Dehydration renal failure/death • Xiphisternal osteomyelitis – PE – Stroke

Conclusions: Major complications occur in laparoscopic bariatric surgery infrequently per operation performed in Australasia. Major complications could be reduced by: Greater awareness of mechanisms causing preoperative and intra-operative misadventure; Basic and advanced bariatric training programmes; Certification of bariatric surgeons; Certification of bariatric hospitals Bariatric education program for non-surgical medical personnel; annual review of bariatric patients; National 24 hour emergency bariatric surgery contact number; National to State emergency referral Patient information and consent standardisation; National database.

139. LAPAROSCOPIC REVISION OF VERTICAL BANDED GASTROPLASTY TO ROUX-EN-Y GASTRIC BYPASS: OUR EXPERIENCE WITH 51 CASES

Kelvin Higa, F.M. Tercero, A.A. Nimeri, K.B. Boone. *UCSF-Fresno Medical Education Program, Fresno, CA, USA*

Background: The vertical banded gastroplasty (VBG) is no longer a viable option for the treatment of morbid obesity because of long-term complications and weight recidivism. Open revision to

Roux-en-Y gastric bypass (RYGBP) has been shown to be an effective procedure with defined complications. Increasing experience with minimally invasive bariatric surgery has prompted us to approach most revision procedures laparoscopically. We present our experience with laparoscopic revision of open VBG to RYGBP.

Methods: Analysis of 51 procedures performed from August 2000 to March 2007.

Results: 51 primary laparoscopic revisions were attempted with an open conversion rate: 3.9%. Mean follow-up: 2.0 years (1-5.6 years). Mean age 50.3 years (30-64 years); female to male ratio: 7.5:1; average preoperative BMI: 43.3 kg/m² (29.5-63.7 kg/m²); average hospital stay: 2.5 days (without complications). 18 patients (35.2%) experienced at least one complication; 10 patients (19.6%) had at least one major complication, including staple-line failure 5, (9.8%); leak at gastrojejunostomy 3, (5.8%), bleeding 3 (5.8%) and internal hernia 1 (2.0%). 10 patients (19.6%) had minor complications including gastrojejunostomy stenosis 7 (13.7%) and wound infection 3 (5.8%). There were no deaths. Mean postoperative BMI 31.3 (21-48.1). Mean %EWL 58.0% (-35 to 116%).

Conclusions: Laparoscopic conversion of VBG to RYGBP is possible but is associated with significant morbidity and presents a technical challenge for surgeons. Our technique is described.

140. LAPAROSCOPIC REVISIONAL GASTRIC BYPASS SURGERY FOR OBESITY RECIDIVISM: OUR EXPERIENCE IN 65 PATIENTS

Kelvin Higa, F.M. Tercero, A.A. Nimeri, K.B. Boone. *UCSF-Fresno Medical Education Program, Fresno, CA, USA*

Background: The treatment of obesity recidivism after gastric bypass remains controversial with respect to the indications for further surgical intervention, type of procedure to recommend and method, whether laparoscopic or open. Furthermore, there is a wide variation of techniques under the umbrella term “gastric bypass” encompassing different size pouches, limb lengths and the use of prosthetic material. Approach to these complicated patients remains individualized. We report our experience with the laparoscopic approach to this increasingly prevalent problem of weight relapse after gastric bypass.

Methods: Analysis of 65 procedures performed from August 1998 to March 2007.

Results: 65 laparoscopic revisions were attempted for obesity recidivism. Mean age 46.8 years (29-59 years); female to male ratio 20:1; average preoperative BMI 40.6 kg/m² (29.7-57.2); Reoperative procedures included revision to adjustable band (2), Fobi/Capella (22), pouch resizing and/or redo of gastrojejunostomy (33), standard-length to long-limb GBP (2), distal to standard-length GBP (6). Open conversions none; average hospital stay 2.3 days (without complications). 13 patients (20%) experienced complications; 7 patients (10.7%) had one major complication, including staple-line failure: 2 (3.1%); displaced ring 1 (1.5%); bowel obstruction 1(1.5%); postoperative respiratory failure 1 (1.5%); trocar-site hernia 1 (1.5%) and acalculus cholecystitis 1 (1.5%). 6 patients (9.2%) had minor complications including: stenosis at gastrojejunostomy 2 (3.1%); wound infection 3 (4.6%) and bile-reflux 1(1.5%). There was 1 postoperative death (1.5%) secondary to staple-line failure. Mean follow-up 2.2 years (1-7.6 years). Mean postoperative BMI 33.5 kg/m² (22.5-52.5 kg/m²). Mean %EWL 58.5% (8.4-105%).

Conclusions: Laparoscopic revision of RYGBP, open or laparoscopic, is possible but is associated with significant morbidity. It presents a technical challenge, but offers advantages over the open approach. Obesity recidivism after gastric bypass remains a serious problem.

141. RE-OPERATIONS AFTER 1,287 BARIATRIC SURGICAL PROCEDURES USING LAPAROSCOPIC AND MINI-OPEN APPROACH

D. Halmi, D. Tran, E. Kolesnikov. *Virginia Weight Loss Surgery Center, Woodbridge, VA, USA*

Background: Re-operations after bariatric surgical procedures are technically difficult and require minimal operative trauma to avoid complications and be safe and effective in long-term weight loss. **Methods:** 1,287 consecutive weight-loss surgical procedures were performed between January 2001 and April 2007 including 1,131 Roux-en-Y gastric bypass (RYGBP) via minilaparotomy incision and 156 laparoscopic operations (75 laparoscopic RYGB and 81 Lap-Band). 56 (4.4%) re-operations were performed; early postoperative complications 17 (1.3%), late postoperative complications 31 (2.4%), unsuccessful weight loss 8 (0.6%). Early postoperative complications were: hemorrhage from the anastomoses - 4, bowel obstruction (internal hernia, kinking) - 5, small bowel perforation - 1, entrapment of NG tube-1, Lap-BAND prolapse -1, major wound infection - 4. Late postoperative complications were: anastomotic stricture - 2, internal hernia, bowel obstruction - 5, gastro-entero anastomosis ulceration with bleeding - 2, incisional hernia - 22. Insufficient long-term weight loss - 7 (gastro-gastric fistula - 3, gastro-entero anastomosis dilatation - 2, enlarged pouch - 2), dissatisfaction with excessive weight loss and personal request to reverse bypass operation - 1. **Results:** Mortality – 1 (0.08%), pulmonary embolism three weeks after surgery. For the surgical correction of complications, 29 re-operations were done through upper midline minilaparotomy, 27 – laparoscopically or combination of both: initial laparoscopic lysis of adhesions and mini-open re-operation. In 5 cases, Lap-Band was used for revisional surgery after initial bariatric procedure failure. There were no major complications, one repeated re-operation, and there was no mortality after revisional surgery. Weight loss was satisfactory after revisional bariatric surgical procedures. **Conclusions:** Laparoscopic, mini-open or combination of both

approaches can be safely used for the surgical correction of post-operative complications or insufficient initial weight loss after bariatric surgery. The minimally invasive approach is one of the key components of successful re-operative surgery.

142. TREATMENT OF GASTRIC LEAKS WITH COATED SELF-EXPANDING STENTS AFTER SLEEVE GASTRECTOMY

Aniceto Baltasar, Carlos Serra, Luis Andreo, Nieves Pérez, Rafael Bou, Marcelo Bengochea. *General Surgery and Radiology, Virgen de los Lirios Hospital, Alcoy, Alicante, Spain*

Background: Duodenal switch (DS) is a very effective technique for the treatment of morbid obesity (MO) and its related co-morbidities with mortality rates of less than 1%, but with 9.4% morbidity. The Sleeve Gastrectomy (SG) is a topical operation and the staple-line at the Esophageal-Gastric Junction (EGJ) is the most frequent site of leaks. Conservative treatment is usually time-consuming. We present our experience in the treatment of gastric leaks with coated self-expandable stents (CSES).

Methods: Since 1994 to March 2007, we have performed 1002 SG (519 ODS, 352 hand-sewn LDS and 131 isolated LSG). We have managed one patient with GEJ leak with an uncovered stent (Wallstent) in the first case and five patients with SECS (Hanarostent® diameter 24 mm; length 9 cm M.I. TEC, Seoul, Korea). One patient had a symptomatic gastro-bronchial fistula. Stents were placed by the Intervention Radiologist under fluoroscopic control and removed endoscopically. In two patients, percutaneous microcoil embolization of the fistula was also added.

Results: The patient treated with a Wallstent required a total gastrectomy 6 months after the placement of the uncovered stent. In the other five patients, coated stents were successfully removed and gastric leaks completely sealed.

Conclusions: CSES are proposed as an alternative therapeutic option for the management of EGJ leaks in bariatric surgery with good results in terms of morbidity and survival.

THE PROGRAM PORTION OF THIS ISSUE IS PROUDLY SUPPORTED BY
ETHICON ENDO-SURGERY BARIATRIC EDGESM
IN COOPERATION WITH OBTECH MEDICAL

VIDEO SESSION ABSTRACTS, SEPTEMBER 7

V1. A STANDARD TECHNIQUE FOR ADJUSTABLE GASTRIC BANDING INCLUDING PARS FLACCIDA

Jose Alfonso Sallet, Carlos E. Pizani, José A. Sallet, Fábio L. Bonaldi, Antônio Leal, Maurélio Ribeiro, Paulo C. Sallet, Roberto Tussi Jr. *Instituto de Medicina Sallet, São Paulo, Brazil*

Gastric banding has been widely used for management of morbid obesity. The most frequent complications for the lap gastric banding are slippage and erosion. It has a strong relationship with the technical mistake regarding the retrogastric tunnel creation and gastro-gastric fixation. Once these procedures are performed properly, it can avoid or minimize such complications.

This video shows how we standardized a technique for this surgery procedure, including the following steps:

- We place five trocars on the upper area of abdomen.
- Dissection of the His angle.
- Open the hepatogastric ligament, creating a window and preserving the hepatic nerve coming from vagi.
- Dissection close to the right column opening a retrogastric tunnel.
- Now we use the reticulor through this tunnel.
- Placement of the band was through the retrogastric tunnel and through the pars flaccida.
- Then we place through the esophagus an orogastric probe with an inflatable balloon of the extremity.
- The anesthesiologist inflates the balloon with 15 cc of air, and we anchor at right esophago-gastric transition.
- The band is closed with a special instrument.
- Then, we perform the suture with three or four stitches between stomach bottom and mini-pouch, covering the band. Adjustable gastric banding is a safe and effective method for the treatment of morbid obesity, but the success of this operation depends on the correct application of the technique, an appropriate selection process for the patients and the postoperative care dispensed by the multidisciplinary team.

V3. ANTERIOR CRUROPLASTY WITH LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING

A.K. Madan, D.S. Tichansky, J.L. Harper. *University of Tennessee Health Science Center, Memphis, TN, USA*

It is not uncommon to find hiatal hernias in morbidly obese patients. We choose to repair most hiatal hernias especially during laparoscopic adjustable gastric banding. This video demonstrates our technique of anterior cruroplasty with laparoscopic adjustable gastric banding.

Initially, the phrenoesophageal ligament is divided above the arch of the right crus. The esophagus is dissected from the hiatus with blunt dissection anteriorly in the mediastinum. A bougie is placed into the esophagus to help with this dissection. Attention is paid to not disrupt the posterior plane that the band will lie in. After dissection of the esophagus, an anterior cruroplasty is performed. The first stitch is placed anterior. Subsequent stitches are placed posterior towards the esophagus. Care is taken not to make the repair too tight. A laparoscopic adjustable gastric banding is then performed after the bougie is removed.

Anterior cruroplasty can be done safely with a laparoscopic adjustable gastric banding when encountering a large hiatal hernia. Utilizing this technique, the rate of slippage should not be increased.

V4. LAPAROSCOPIC GASTRIC BANDING USING AN EXTENDED OBLIQUE ANTERIOR PLICATION (EOAP): NEW TECHNIQUE TO REDUCE SLIPPAGE AND POUCH DILATATION, AND POSSIBLY REDUCE BAND FILL VOLUME

Anthony Brancatisano, R. Brancatisano, T. Brancatisano. *Institute*

of Weight Control, Sydney, Australia

Background: While the “pars flaccida” approach has replaced the perigastric technique for laparoscopic Swedish adjustable gastric banding (SAGB), there is no standardized operative technique. The incidence of band slippage and pouch dilatation varies from 1-15% in reported series. We present a new technique using the SAGB and incorporating an extended oblique anterior plication (EOAP) to reduce anterior slippage.

Methods: Key features of the technique include:

1. Excision of the fat pad
2. Hiatal repair
3. 15 ml pouch
4. High postero-lateral fundus-to-gastric pouch sutures
5. Extended oblique anterior plication

Results: This technique has evolved in our experience and utilized in 829 patients, with the EOAP used in the last 250 patients. Hiatal repair was required in 22% of patients. The overall slippage rate for the entire series is 2.1% and ZERO slippage in the last 250 cases. We hypothesize that band fill volumes may be lower to achieve satiety in these patients, possibly due to an extension to the high pressure zone below the band.

Conclusions: Extended oblique anterior plication may be a useful technical advance in SAGB.

V5. A DIFFERENT PROCEDURE FOR PLACEMENT OF THE LAP-BAND®

Gérard Sassi. *France*

Background: We began using the LAP-BAND for the surgical treatment of morbid obesity in 1998 and have implanted bands in nearly 1,700 patients using either gastric or esophageal placement. This study assesses weight loss in this series and compares complication rates of the two placement sites.

Methods: 1,682 patients received LAP-BANDs at our institution between 1998 and 2006. 827 underwent gastric placement using the perigastric dissection from 1998 to 2002 with follow-up to 7.5 years. We began esophageal placement in 2002 and 885 patients have undergone that procedure, with follow-up to 4 years. Mean baseline BMI in the gastric group: 41.9 kg/m²; in the esophageal group: 42.4.

Results: Weight loss - mean BMI in the gastric group: 31.7 kg/m² at 1 year, 30.2 at 2, 30.5 at 3, 31 at 4, 31.6 at 5, 30.9 at 6, and 29.6 at 7.5 years. BMI in the esophageal group: 30.9 at 1 year, 27.3 at 2, 29.7 at 3 and 29.9 at 4 years. 369 complications occurred in the gastric group (44.62%): minor complications involved 218 access port changes and 23 disconnections, major complications included 126 slippages and 2 band replacements. By comparison, there were only 17 total complications in the esophageal group (0.2%): 13 access port changes, 2 disconnections, and 2 slippages.

Conclusions: In our series, the esophageal procedure has achieved effective, stable weight loss to 4 years and has all but eliminated slippages. In addition, the new, long tapered connector introduced by the manufacturer has dramatically reduced access port problems.

V6. TECHNICAL PITFALLS OF LAPAROSCOPIC SLEEVE GASTRECTOMY

Daniel del Castillo, S. Blanco, M. Hernandez, F. Sabench, A. Morandeira, J. Domènech, A. Sánchez Marín, D. del Castillo. *University Hospital of Sant Joan, Rovira i Virgili University*

Background: The sleeve gastrectomy was developed initially like a first passage in the accomplishment of the “duodenal switch,” in

patients super-super-obese, to make after 12 months the second time a biliopancreatic bypass. We propose this technique for triple morbid obesity (BMI >60 kg/m²) and in the retirement of the adjustable band. This technique can be made by laparoscopic way, considering technical details.

Methods: The patient's position is in anti Trendelenburg of 30°, with the surgeon placed between the legs. 5 trocars are placed, in strategic anatomical points. We recommend the optic of 30° and the use of an optical trocar for the entrance to the abdominal cavity. The coagulation by a sealer (Ligasure) facilitates the dissection and an excellent hemostasis. Surgical Steps: 1-Dissection of the gastric greater curvature towards the His angle. 2-Follow the dissection even 2-3 cm of pyloric. 3-Gastric section to 3 cm of the pyloric with GIA 4.8, and tutorized with Faucher's tube of 38 Fr. 4-Follow the gastric section with GIA 3.5 (blue), verifying the correct position Faucher's tube by making a tube in the stomach even the His angle. 5-The hemostasis is reviewed, by points or application of clips. 6-Filtration absence verification, by instillation of methylene blue by the GNS. 7-Aspirative drainage, Jackson Pratt type. 8-To close trocars' orifices.

Results: It has been made in 32 patients; in 13 of them the adjustable band was also removed. BMI median is 61 kg/m². There was no incidents during postoperative course in 30 patients. In 2 patients a leak, in the staple line was observed, but they were not reoperated, and they had closed after 7 days. There was no mortality. The median weight lost during the first year has been >65%.

Conclusions: The laparoscopic "sleeve gastrectomy" is a low mortality technique and it achieves good loss of weight. It can be presented as the "only" intervention, or like a first time of a duodenal switch.

V7. COMPARISON STUDY BETWEEN TWO DIFFERENT OPERATION TECHNIQUES IN SLEEVE GASTRECTOMY TO TREAT MORBID OBESITY

Sami Ahmad. *Obesity Center Stuttgart, Roserlinik, Germany*

Background: Sleeve gastrectomy (SG) is becoming a common procedure to treat morbid obesity. To consider this operation as a single procedure, different techniques are still under study. We observed the pattern of weight loss, mortality and morbidity in two different techniques of sleeve gastrectomy.

Methods: 44 morbidly obese patients underwent laparoscopic sleeve gastrectomy. They were randomized in two groups regarding the length of antrum left in situ. All procedures were performed laparoscopically over 34 Fr size tube. Group A: 20 patients with mean BMI 43, male 7 (35%), female 13 (65%), 4 cm of antrum were left in situ. Group B: 20 patients, mean BMI 44, male: 8 (40%), female 12 (60%) 7 cm of antrum left.

Results: Patients in Group A had significantly better excess weight loss than group B (66% vs 52% at 1 year, and 76% vs 59% at 2 years (p=0.001). One death in group A (lung embolus). Dysphagia was present in 70% in group A and 35% in B. After 2 years, 6 (30%) patients in group A and 2 (10%) in B developed gastroesophageal reflux disease (GERD). No dumping symptoms in both groups.

Conclusion: Sleeve gastrectomy with 4 cm antrum left in situ is safe and has a significant higher percentage of weight loss and higher incidence of morbidity than patients with 7 cm of antrum left in situ in the first two years postoperatively.

V8. SLEEVE GASTRECTOMY: TOTAL INVAGINATING CONTINUED SUTURE, A MODIFIED TECNIQUE

Juan José Gallardo Rouliez (*Hospital del Salvador*), J.E. Contreras, C. Carvajal, P. Herrera, L. Revello, J.M. Cortés, G. Czwiklitzer, A. Lara. *Departament of Surgery, Faculty of Medicine, Universidad de Chile sede Oriente-Hospital del Salvador, Santiago, Chile*

We describe step by step the technique of the classic sleeve gastrectomy and incorporate the reinforcement of the stapler line with a manual total continuous suture with PDS II 3-0, that narrows the sleeve and protects against fistula creation.

V9. LAPAROSCOPIC SLEEVE GASTRECTOMY: A COMPARISON BETWEEN TWO TECHNIQUES

Juan José Gallardo Rouliez, J.E. Contreras, C. Carvajal, P. Herrera, L. Revello, A. Lara, J.M. Cortés, G. Czwiklitzer. *Departament of Surgery, Faculty of Medicine, Universidad de Chile sede Oriente-Hospital del Salvador, Santiago, Chile*

We compared in real time two techniques of laparoscopic sleeve gastrectomy, first the unsutured classic sleeve without any suture and with vascular control with clips, against the sleeve with total invaginating suture. We contrast their step by step, with focus on the tips of each one.

V10. AIR-FILLED INTRAGASTRIC BALLOON ON OBESITY TREATMENT

Manoel Passos Galvao Neto (*Gastro Obeso Center*), Almino Ramos (*Gastro Obeso Center*); Carlos Capellanes (*Hospital Sirio-Libanés*); Kioshi Hashiba (*Hospital Sirio-Libanés*); Eduardo G H Moura (*Hosp da Clinicas - Universidade de Sao Paulo*); Josemberg M Campos (*Unifersidade Federal de Pernambuco*); Marcelo Falcao (*Gastro Obeso Center*); Manoela Galvao (*Gastro Obeso Center, Brazil*)

Background: Although surgical treatment for morbidly obese patients is the best option, the endoscopic treatment plays a role and can be offered as an effective weight loss option and can be used in a wide range on obesity treatment. The most known endoscopic options are the intragastric balloons. Since the first models with frustrating results and high complication rates, those balloons had evolved. By being a minimally invasive endoscopic approach with few serious complications, the indications for its use vary from NIH criteria to a more liberal use on lower BMI. The liquid-filled balloon (BIB™) has been used with good results. A new intragastric balloon was recently developed and is air-filled. Its implant-explant technique is slightly different, it can stay in for the same amount of time (6 m) and the initial non-randomized literature points to less side-effects. The patient should undergo a multidisciplinary evaluation process to adjust knowledge and expectations. This video shows the implant and explant technique.

Method: Implant; Patient under general anesthesia, is submitted to a Upper endoscopy to inspect the stomach and define the EGJ. After that the balloon is introduced orally until 10 cm after EGJ mark; the endoscope follows it and will visually guide the procedure. The balloon should be positioned on the stomach body. On outside, the suture of balloon coverage is disengaged and removed, followed by removal of the catheter-valve inner wire. After that, the one-way air-valve in connected to a 60 cc syringe and the balloon inflation begins guided by endoscopy until it reaches the equivalent of 30 g of air. At the end, the balloon is pulled against the EGJ and the catheter is disconnected from its valve. A last inspection is done and the endoscope withdrawn. Explants; After 6 m with the patient under general anesthesia, the balloon is deflated by endoscopic multiple puncture on valve and counter valve sites, aspirating all the air at the end, then a double hook grasper is used to grab and remove it. With the balloon on the EGJ, gentle and continued pressure is applied until the balloon passes it on the way to the mouth. A second-look endoscopy is also performed.

Results: Our first series with this balloon on 10 patients achieves a 33.5%EWL in 6 m with mild adverse events, in 25% vomiting and 30% abdominal pain. All patients completed the period without early removals.

Conclusions: The air-filled balloon is a novel modality of endoscopic obesity treatment and can be used safely and effectively

V11. INTRAGASTRIC MIGRATION OF LAPAROSCOPIC ADJUSTABLE GASTRIC BAND: LAPAROSCOPIC MANAGEMENT

B. Dillemans, B. Defoort, E. Van Dessel, T. Feryn, M. Vandelanotte, L. Proot. *Department of General Surgery AZ St-Jan, Brugge*

Background We describe a simple and safe laparoscopic technique to remove a migrated intragastric band. Intragastric band migration is a rare but severe complication of gastric banding. In this long-term complication, the gastric band gradually erodes into the stomach wall through chronic ischemia and pressure and can extend into the gastric lumen. Often the diagnosis is set by routine endoscopy. Clinical symptoms, although not always present, include aspecific epigastric or abdominal pain, weight gain, high gastro-intestinal bleeding, port-site abscess.

Methods: When endoscopic removal is unsuccessful, laparoscopic intervention is necessary. This is normally performed by a direct approach of the band with sometimes a difficult dissection of the scar tissue surrounding the band and stomach. The closure of the defect can be tedious and is at risk for leakage. A better approach is making a short anterior gastrotomy just inferior to the band, removing the band intraluminally and closing the gastrotomy.

Results: Advantages of this approach are a better exposure of the posterior wall of the stomach, less trauma through less dissection of the scar tissue, and by this, less chance of a postop leakage.

Conclusions: When endoscopic removal fails, a laparoscopic short gastrotomy is a good alternative for removing an intragastric migrated gastric band.

V12. WHAT TO DO WHEN LAP-BAND® FAILS

José A Sallet, Carlos E Pizani, Roberto Tussi Jr., Antonio Leal, Paulo C Sallet, F. L. Bonaldi. *Interdisciplinary Obesity Treatment Group, Sallet Clinic, São Paulo, Brazil*

With a mean EWL of 61%, in the last 6 years, we have performed 502 Lap-Bands. 62 of these patients (12%) had EWL lower than 40%, band erosion or slippage of the lap-band. In this case, we have converted Lap-Band to another kind of surgery (GBP or BPD), always with laparoscopic approach.

Placement of trocars in the upper abdominal wall;

Dissection, isolation, and take off the gastric band;

Section of stomach wall covering the gastric band, using a linear stapler;

Identification of the second gastric vessel in the small curvature, which is the initial point for the retro-gastric tunnel dissection, followed by a horizontal division of stomach;

Placement of the orogastric probe to guide gastric pouch section;

Vertical division of the stomach with linear stapler until the area previously dissected creating a mini-pouch with 30 cc;

Opening the epilon;

Identified the Treitz angle, we count a jejunal distance enough to perform a gastro-jejunum anastomosis with mechanic suture in a pre-colic and isoperistaltic form;

We check the biliopancreatic side;

Identification the jejunum-ileal transition and performing side by side jejunum-ileum proximal anastomosis with linear stapler;

We test with methylene blue both anastomoses;

We perform a section of the jejunum right to the end of the gastroentero-anastomosis.

V13. PRE-TREATMENT OF MORBIDLY OBESE PATIENTS WITH THE ENDOSCOPICALLY PLACED ENDOBARRIER®: FIRST EXPERIENCE IN MORBIDLY OBESE PATIENTS

J.W. Greve, N. Bouvy¹, R. Schouten¹, W. Hameeteman², G. Koek². *Departments of Surgery¹ and Gastroenterology², University Hospital Maastricht, Maastricht, the Netherlands*

Surgery is the treatment of choice in morbidly obese patients. Although the operative risk is limited in high volume centers severe complications still occur. Preoperative weight loss is suggested to reduce the operative risk by reducing liver size, intra abdominal fat and obesity-associated morbidity.

A new device has been developed to achieve the effects of a gastric bypass operation by endoscopic placement of a duodenal sleeve. This device, the Endobarrier®, with a total length of 60 centimeters bypasses food from the stomach directly to the jejunum without contact with the duodenal wall and without mixing of bile and pancreatic juices in the same trajectory. This minimal invasive procedure was shown to be effective in a series of patients in both inducing weight loss and reducing diabetes mellitus, and randomized trials are ongoing.

The video shows placement of the device including matching fluoroscopy. Preliminary results will be reported.

V14. LAPAROSCOPIC TREATMENT OF POST GASTRIC BYPASS BILIARY DISEASE: TRANSGASTRIC ERCP

Marina Kurian. *New York University Medical Center, New York, USA*

Background: There are increasing numbers of bariatric procedures performed worldwide. Gastric bypass is a prevalent operation with substantial associated weight loss. Post gastric bypass biliary disease is common and laparoscopic treatments are possible. Gastric bypass patients who require more than a laparoscopic cholecystectomy, or who need biliary tract manipulation after a cholecystectomy, can still be treated with endoscopic retrograde cholangiopancreatography (ERCP). The case of a gastric bypass patient with biliary dyskinesia and biliary colic post laparoscopic cholecystectomy is presented.

Methods: Laparoscopic transgastric access for ERCP and sphincterotomy was provided with primary closure of the gastrotomy. The procedure was done in conjunction with a gastroenterologist.

Results: Patient did well post surgery with no morbidity. Patient had successful resolution of her biliary colic.

Conclusions: Laparoscopic transgastric access for ERCP using the excluded stomach is a safe and controlled method for treatment of complicated biliary tract disease in the post gastric bypass patient.

V15. HOW TO PREVENT LAPAROSCOPIC GASTRIC BYPASS COMPLICATIONS

Felipe de la Cruz Vigo, J.L. Cruz Vigo, F. Cruz Vigo, P. Sanz de la Morena, J.M. Canga Presa, P. Gomez Rodriguez, J. Martín-Rubio. *Clínica San Francisco (León), Sanatorio Nuestra Señora del Rosario (Madrid) y Hospital Universitario 12 de Octubre (Madrid), Spain*

Background: To show how to prevent the main surgical complications of the laparoscopic gastric bypass: leak, obstruction and bleeding.

Methods: Leak is the most fearful surgical complication with an incidence of 1-5 % and a mortality between 11 and 37%. We perform five maneuvers to avoid it: continuous suture of the pouch vertical staple line, control of the tightness of the hand sewn continuous suture of the gastrojejunal anastomosis, intraoperative methylene blue test, para-anastomotic suction drain and Gastrografin swallow at 24 hours. Postoperative obstruction, above all as internal hernia, has been considered a complication almost exclusive of the laparoscopic way. Three places where it can happen are shown: transverse mesocolon, mesentery and Petersen space. Changing from the retrocolic to the antecolic way of placing the Roux-en-Y limb has finished with transmesocolic hernia. The suture of the mesentery with non-absorbable material has efficiently avoided this hernia. We do not close the Petersen space and we have had two hernias through it. The incidence of

digestive and intraabdominal bleeding in laparoscopic gastric bypass is 1-10 % and a reoperation rate between 0 and 5 %. Devascularization of the posterior part of the reservoir in the anastomotic area can lessen and minimize digestive bleeding.

Results: With these maneuvers, leak rate has been 1.5% (1.2% in the vertical staple line and 0.3% at the gastrojejunostomy) and 0% mortality by leak. The internal hernia rate among our patients is 0.8% (1.1 in the retrocolic group and 0.5 in the antecolic). Bleeding rate 2.8% with 0% reoperation rate.

Conclusions: Extremely careful attention to all the surgical details is necessary to minimize complications.

V16. REDUCING THE LEARNING CURVE IN GASTRIC BYPASS: STEPS TO SIMPLIFY IT

José A. Sallet, Carlos E Pizani, Antonio Leal, Fabio Bonaldi, Paulo C Sallet, Roberto Tussi Jr. *Interdisciplinary Obesity Treatment Group, Sallet Clinic, São Paulo, Brazil*

In the last three decades, many forms of gastroplasty have been performed with good results. However there is some polemic about the best technical procedure, including conventional or video laparoscopic access, ring placement or not, bypass with 100 cm or more. The objective of this video is to show how to simplify the steps:

- 1) Placement of the five trocars;
- 2) Dissection of gastrophrenic ligament at His angle;
- 3) Identification of the second gastric vessel in the small curvature, which is the initial point for the retro-gastric tunnel dissection, followed by a horizontal division of stomach;
- 4) Placement of the orogastric probe to guiding gastric pouch section;
- 5) Vertical division of the stomach with linear stapler until the area previously dissected creating a mini-pouch with 30 cc;
- 6) Opening the epiploon;
- 7) Identified the Treitz angle, we count a jejunal distance able enough to perform a gastro-jejunum anastomosis with mechanic suture in a pre-colic and isoperistaltic form;
- 8) We check the biliopancreatic side;
- 9) Identification the jejuno-ileal transition and performing side by side jejuno-ileo proximal anastomosis with linear stapler;
- 10) We test with methylene blue both anastomoses;
- 11) We perform a section of the jejunum right to the end of the gastroentero-anastomosis;
- 12) We believe by using this way, it is possible to reduce surgery time by 1/3. The surgeon works between the patients legs all the time, there is no mesenteric gap to close, test both anastomoses with methylene blue, and taking about 90 minutes.

V17. GASTRIC BYPASS BILLROTH II (MINI-BYPASS): TECHNICAL DETAILS

F. Zinzindohoué, G. Chakthoura, J-M Chevallier, Y. Ghanem, P-H Cugnenc. *Digestive Surgery, Hôpital Européen G Pompidou, Paris, France*

Background: Roux-en Y Gastric Bypass (RYGBP) is now considered the “gold Standard” in Obesity Surgery. But it is a challenging procedure: both anastomoses could be difficult to perform laparoscopically. A “mini gastric bypass “ happened to be quicker, less morbid and as efficient as RYGBP in a controlled randomized study. This video shows technical details of this procedure that we are now evaluating. Technical details: It is like a Billroth II gastrojejunostomy. The gastric pouch is a narrow long tube: the stomach is cut at the level of the angular incisura, then parallel to the lesser curvature up to the angle of His. After location of the duodenojejunal angle 2 meters are measured to raise the jejunal loop antecolically, then sutured by a linear mechanical anastomosis to the gastric tube.

Results: This Billroth II gastric bypass has been described to be efficient but curiously unusually performed. Its possible long-term

side-effects can be avoided by some precautions: biliary reflux is rare if the gastric tube is long and narrow; Peptic ulcer is avoided by a narrow gastric tube with as little fundic mucosa as possible and PPI postoperative medication is mandatory. Long-term gastric cancers have been reported after RYGBP as well and it is more likely to be due to *Helicobacter Pylori* which has to be eradicated in any bariatric gastric procedure.

Conclusion: Billroth II gastric bypass is a simple and efficient procedure and can be a safe alternative in case of reoperation, technical difficulties or when beginning bariatric surgery.

V18. POSTERIOR CRUROPLASTY WITH LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

A.K. Madan (*University of Tennessee Health Science Center*); C.T. Frantzides (*Evanston Northwestern University*); J.L. Harper (*University of Tennessee Health Science Center*); D.S. Tichansky (*University of Tennessee Health Science Center*), USA

Background: Hiatal hernias are common in morbidly obese patients. Large hiatal hernias may need repair during laparoscopic Roux-en-Y gastric bypass. This video demonstrates our technique of posterior cruroplasty with laparoscopic Roux-en-Y gastric bypass.

Methods: To begin, the gastrohepatic ligament is divided and then the phrenoesophageal ligament is divided. The esophagus is dissected from the hiatus with blunt dissection. A bougie is placed into the esophagus and a posterior cruroplasty is performed. The first stitch is placed posterior. Subsequent stitches are placed anterior towards the esophagus. Care is taken not to make it too tight. A laparoscopic Roux-en-Y gastric bypass is then performed after the bougie is removed.

Results: All patients are treated no differently from the patients who have not had a posterior cruroplasty.

Conclusions: Posterior cruroplasty can be done with a laparoscopic Roux-en-Y gastric bypass when encountering a large hiatal hernia.

V19. LAPAROSCOPIC MEANS OF ACCESS TO THE BYPASSED STOMACH DURING ROUX-EN-Y GASTRIC BYPASS

G. Dapri, G.B. Cadière, J. Himpens. *Department of Gastrointestinal and Obesity Surgery, Saint-Pierre University Hospital, Brussels, Belgium*

The procedure of Roux-en-Y gastric bypass (RYGBP) usually does not permit an access to the excluded stomach after the construction of the gastric pouch and the gastro-jejunostomy. Access to the bypassed stomach may be indicated for therapeutic and diagnostic reasons, such as in case of nutritional support requirement, decompression of acute distention, obstruction, gastric ulcers, suspicion of gastric tumor. A possibility to assure access to the bypassed stomach, is the placement of a radiopaque silicon marker disc during the procedure of RYGBP.

The movie shows a laparoscopic placement of a radiopaque marker disc on the bypassed stomach, performed in a sweet eater patient affected by recurrent antral and pyloric ulcers.

After construction of RYGBP and check of the gastro-jejunostomy, a radiopaque marker disc was introduced in the abdomen and placed on the anterior wall of the gastric fundus. A running suture, using non-resorbable stitch, approximated the anterior gastric wall and the abdominal wall. The radiopaque marker disc was positioned between the stomach and the peritoneum. Thanks to the radiopaque marker disc, the bypassed stomach after the procedure of RYGBP for obesity, can be inspected radiologically and endoscopically, and a percutaneous gastrostomy tube can be placed if necessary.

V20. LAPAROSCOPIC REPAIR OF INTERNAL HERNIA AFTER LAPAROSCOPIC GASTRIC BYPASS

A.K. Madan, J.L. Harper, D.S. Tichansky. *University of Tennessee Health Science Center, Memphis, TN, USA*

Internal hernias have been reported after laparoscopic gastric bypass. Diagnosis and prompt treatment are of utmost importance to help decrease the morbidity and mortality of this complication. This video demonstrates a laparoscopic repair of an internal hernia after a laparoscopic gastric bypass.

The case demonstrates entering the abdomen and minor lysis of adhesions. The bowel was reduced without difficulty. The defect was identified at the jejunojejunostomy site. Sutures were placed to close this defect.

Prompt diagnosis and operation are important in the treatment of internal hernia. Laparoscopic repair of internal hernia after laparoscopic gastric bypass can be performed without difficulty.

V21. GASTRECTOMY AND GASTRIC BYPASS THROUGH VIDEOLAPAROSCOPY IN A CASE OF MORBID OBESITY ASSOCIATED WITH GASTRIC POLYPOSIS

Alexandre Amado Elias, Arthur Garrido, Luiz Vicente Berti, Marcelo Roque Oliveira, Suguitani Nestor Bertin. *Instituto Garrido de Obesidade de São Paulo, Brazil*

The familiar Gastric Polyposis or multiple polypus (more than 30) and other diseases can compromise the progressive recovery and control of the patient who had Roux-en-Y Gastric Bypass because of stomach morbid obesity which is excluded from the alimentary transit due to difficulty of direct and endoscopic exam. Despite the current endoscopies enable study almost in the majority of the cases, some of them are not analyzed, resulting in lesion progression which puts at risk the patients' life. In these cases, we suggest the resection and removal of the whole excluded stomach (gastrectomy through videolaparoscopy), carrying on the conventional Roux-en-Y Gastric Bypass treatment.

V22. LAPAROSCOPIC MANAGEMENT OF INTERNAL HERNIAS AFTER ROUX-EN-Y GASTRIC BYPASS

Ahmed R. Ahmed, T. Boss, J. Johnson, W. O'Malley. *University of Rochester Medical Center, NY, USA*

Laparoscopic Roux-en-Y gastric bypass (LRYGBP) has been increasing in popularity with favorable outcomes comparable with its open counterpart. Complications are similar between the two approaches; however, the incidence of internal hernia is greater in the laparoscopic approach and is estimated to be around 2%. Potential internal hernia locations include: transverse mesocolon defect - 46%, enteroenterostomy mesenteric defect - 41% and Petersen's space - 13% (the area in between the posterior aspect of the mesentery of the Roux limb and the transverse mesocolon) 1.

This video illustrates the laparoscopic diagnosis and treatment of these internal hernias, which if detected in time, can be successfully treated.

V24. SLEEVE GASTRECTOMY THROUGH VIDEOLAPAROSCOPY AS A THERAPEUTIC OPTION FOR MORBID OBESITY IN GASTRIC CARCINOID TUMOR, GISTI, GASTRIC POLYPOSIS AND PRIOR SURGERIES

Alexandre Amado Elias, Arthur Garrido, Luiz Vicente Berti, Marcelo Roque de Oliveira, Nestor Bertin Suguitani. *Instituto Garrido de Obesidade de São Paulo, Brazil*

This kind of procedure initially was used as first surgery solution of Duodenal Switch for patients extremely obese with countless comorbidities and high surgery risk. They intended to provide a loss of weight and better clinic conditions, so that they could do the specific treatment with more security. In our group, this therapeutic option was used in gastric disease carrier patients like Gastric Carcinoid Tumor, GISTI and also in other patients with small intes-

tine prior surgery of the with Roux-en-Y digestive bile operation in Choledocholithiasis or biliary duct lesions. The patients have benefited from the result of this technique, as they lost weight about 50 or 60% in a short-term. In a longer term, it is needed more time to analyze the results. In sum, this technique has proved its efficiency in some patients, safety and feasibility via laparoscopy.

V26. VARIATION OF TECHNIQUE: DUODENAL SWITCH WITH SLEEVE GASTRECTOMY AND ATTAINMENT OF A DUODENUM-JEJUNUM ANASTOMOSIS WITHOUT TENSION

José A. Sallet, Carlos E. Pizani, Roberto Tussi Jr., Paulo C. Sallet, Fabio L. Bonaldi. *Sallet Institute of Medicine, São Paulo, Brazil*

This video shows that section of right gastric artery produces an easy anastomosis between the duodenum and jejunum in the duodenal switch with gastric sleeve. Also we point the steps to be able to simplify the procedure.

Steps:

- 1) Opening the gastro-colic ligament and release all the gastric curvature.
- 2) Dissection of antrum near to duodenum.
- 3) Create a gastric sleeve with stapler.
- 4) Make a reinforcement line with manual suture.
- 5) Preparation of the duodenum with pancreatic plateau dissection.
- 6) Identify the right gastric artery and section it.
- 7) Release the duodenum with stapler.
- 8) Count one meter from ileo-cecal valve, and make a mark.
- 9) Count one and half meter from ileo-cecal valve and staple the ileum.
- 10) Make a ileo-ileal anastomosis with stapler side-by-side one meter from ileo-cecal valve.
- 11) Close the mesentery gap.
- 12) Make the duodenum-ileum anastomosis manual.
- 13) Cholecystectomy.

V27. SIMPLIFIED LAPAROSCOPIC DUODENAL SWITCH

Almino Cardoso Ramos, Manoel Galvao Neto, Manoela Galvao, Andrey Carlo, Edwin Canseco, Abel Murakami. *Gastro Obeso Center, Brazil*

Background: The Duodenal switch is a bilio-pancreatic diversion highly effective in terms of weight loss. This procedure is done by open and laparoscopic way and is considered a complex procedure to do by laparoscopy. Our group had been using a so called simplified way to do the lap gastric bypass in more than 2,000 cases that had been reproduced among countries in Latin America, Europe and Asia. As the duodenal switch operation is being more accepted, especially on super-obese patients, the authors developed a standardization aiming at simplification and reproducibility after a proper training.

Methods: 6 trocars (3 12-mm and 3 5-mm) similar to Nissen's procedure with patient in semi-lithotomy position; Perform a vertical gastrectomy within staplers (green cartridges on first 2 ones) over a 36 Fr boogie after gaining the retro gastric space 6 cm away from pylorus on the greater curvature (staple first and than dissect the greater curvature); oversee the staple line with 2-0 PDS; Dissect and transect with staplers the duodenum 2 cm below the pylorus; identify the ileo-cecal valve measure and mark the ileum 100 cm after it; measure 200cm more from that point; transpose on antecolic isoperistaltic (omega shape) way this intestinal limb loop until it gets near to the distal duodenal stump; perform a side-to-side stapler duodenal-ileostomy; mobilize the alimentary limb until the mark and perform a stapled enteroanastomoses; after that, just divide the connection limb within staplers and test the anastomoses; the stomach from the sleeve and the gallbladder (mandatory lap chole); drains are left on sleeve and duodenal sites.

Results: This approach has the advantage of; on the sleeve, stapling first and them dissect the greater curvature allows better tissue stabilization; using 6 trocars is conformable for most of the surgeons

and a double-loop bypass was highly reproducible on simplified gastric bypass and may facilitate the learning on duodenal switch.

Conclusion: The lap simplified approach with double-loop is feasible and can help standardization of this technique.

V28. THERE IS A BEST TIME TO CONVERT THE LAP-BAND® TO ANOTHER KIND OF BARIATRIC SURGERY

José A. Sallet, Carlos E. Pizani, Roberto Tussi Jr, Antonio Leal, Fabio L. Bonaldi, Paulo C. Sallet. *Interdisciplinary Obesity Treatment Group, Sallet Clinic, São Paulo, Brazil*

This video shows a patient who had a LAGB for two years with an excellent result. It was necessary for the band removal due to an erosion. After this event, the patient had a considerable weight regain. This video presents the performance of a laparoscopic gastric bypass.

Steps:

- 1) Removal of the liver adhesences;
- 2) Dissection in the small curvature, followed by section of the stomach with linear stapler;
- 3) Placement of the orogastric probe to guiding gastric pouch section;
- 4) Vertical division of the stomach with linear stapler until the area previously dissected, creating a mini-pouch with 30 cc;
- 5) Opening the epiplon;
- 6) Identified the Treitz angle; we count a jejunal distance able to perform a gastro-jejunum anastomosis with mechanic suture in a pre-colic and isoperistaltic form;
- 7) We check the biliopancreatic side;
- 8) Identification the jejunum ileal transition and performing side by side jejunum-ileum proximal anastomosis with linear stapler;
- 9) We test with methylene blue both anastomoses;
- 10) We perform a section of the jejunum right to the end of the gastroentero-anastomosis.

V29. LAPAROSCOPIC RETRIEVAL OF GASTRIC BAND AND LRYGBP AT THE SAME TIME

J.E.M.T.M. Ettinger, E.M. Azaro, C.A.B. Mello, R. Santana, P. Amaral, E. Fabel. *Bariatric Surgery Division, Hospital São Rafael & Escola Bahiana de Medicina Salvador, Bahia, Brazil*

The authors present a laparoscopic retrieval of an Obtech band due to weight loss failure and perform a LRYGBP at the same time; the band is withdrawn with the use of the harmonic scalpel and a Laparoscopic RYGBP is performed: A cylindrical gastric pouch is created with staples longitudinally; the last 2 firings are performed with the use of green cartridges because of the thickened stomach wall caused by the band inflammatory reaction. A silastic ring with 6.5 cm in length is used around the small pouch and sutured in place with a polypropylene thread; a suture is used in both sides of the staple line to prevent bleeding. The Roux-en-Y is created cutting the jejunum 50 cm from the Treitz angle and the alimentary loop is 120 cm; the gastrojejunostomy is created with a linear stapler, and after the enteric anastomosis is created, both anastomoses are tested at the same time utilizing methylene blue; after this point, the bowel is divided with a white cartridge staple line. The mesenteric rent is sutured and the alimentary limb is fixed to the excluded stomach to avoid angulation of the gastrojejunostomy. The patient had hospital discharge after 2 days without complaints or complications.

Conclusion: The gastric band laparoscopic retrieval and LRYGBP at the same time is a challenge for the bariatric surgeon. It can be done safely by laparoscopy. The surgeon has to be aware of the thickened gastric wall and avoid stapler failure during the procedure.

V30. OPEN VERTICAL GASTROPLASTY CONVERTED TO LAPAROSCOPIC BANDED GASTRIC BYPASS

F. Cruz Vigo, J.L. Cruz Vigo, P. Sanz de la Morena, J.I. Martínez Pueyo, J.M. Canga Pesa, A. Beteta. *San Francisco Hospital (León), Nuestra Señora del Rosario Hospital (Madrid) and 12 de*

Octubre University Hospital (Madrid), Spain

Background: Restrictive bariatric surgical techniques obtain a satisfactory weight loss in the short term follow-up, but, after the two first years, regaining weight is frequent. The reasons are: staple line disruption, technical defects or switching to an aberrant nutrition.

Methods: A 25-year-old female had an Eckhout vertical gastroplasty performed five years before with a 4.7-cm metallic ring. After a loss of 27 kg, she regained weight, reaching her previous BMI (41.8). The barium swallow shows a big pouch, including a part of the gastric fundus, and a narrow stoma. The laparoscopic approach is made through five trocars. Hepatogastric adhesions are removed and a transected pouch is performed inside the big reservoir of the gastroplasty. A 6.5 cm polypropylene mesh is placed around the pouch and a Roux-en-Y, antecolic, antegastric, gastrojejunostomy is made with the linear stapler. The biliopancreatic limb has 40 cm length, and the alimentary one, 110 cm. A suction drain is placed from the left subphrenic space and over the gastric pouch.

Results: The postoperative period is uneventful. 24 hours after the operation, the Gastrografin swallow is shows no complication and liquid diet is prescribed. Hospital stay is three days. The drain is removed the fifth day.

Conclusions: Laparoscopic conversion of an open vertical gastroplasty to a gastric bypass is feasible and safe, although technically complex.

V31. LAPAROSCOPIC CONVERSION FROM RYGPB TO BPD

Aniceto Baltasar, Rafael Bou, Nieves Pérez, Carlos Serra. *Virgen de los Lirios Hospital, Alcoy, Alicante, Spain*

Background: Conversion from a RYGBP to a BPD is a very complex operation and requires multiple anastomosis. Joao Marchesini of Curitiba, Brazil has described a simple operation that can be done by lap.

Methods: A video is presented of a BMI-46 female patient who had a LRYGBP in 2000 and her nadir BMI was 29 four years later. She has regained weight since to a BMI-41 and lap conversion to a BPD is shown. The Roux-limb is measured, marked and divided transversally at 180 cm distal to the gastric-jejunal anastomosis and 10 cm above the RY. The Common Channel (CC) is marked at 65 cm. and the bowel is divided transversally 55 cm above (at 110 cm from the ileo-cecal valve). The "new digestive loop" is 235 cm in length (180 cm of the proximal jejunum plus the 55 cm above the CC), the CC 65 cm and the "new BPL" 400 cm. Both end-to-end and end-to-side anastomoses were hand-sewn with a continuous suture of PDS. No drain was used and the patient was discharged 3 days later.

Conclusion: Conversion from a RYGBP to a BPD can be done by lap as a simple and safe technique for patients who regain weight.

V32. DUODENAL-JEJUNAL LAP BYPASS TO TREAT TYPE 2 DIABETES IN GRADE I OBESITY

Almino Cardoso Ramos (*Gastro Obeso Center*), Manoel Galvao neto (*Gastro Obeso Center*); Francesco Rubino (*IRCAD – Strasbourg, France*); Manoela Galvao (*Gastro Obeso Center*); Andrey Carlo (*Gastro Obeso Center*), *Brazil*

Background: Type II diabetes cure has been proven with bariatric surgery on morbid obese patients in more than 80%. Recently, experimental research proves that operations that promote a proximal small bowel bypass treat diabetic rats. It has been discussed if that kind of procedure could work on type II diabetic humans and this may be a trend. Some limited clinical experience indicates that this could happen. The authors propose and show in video a duodenal-jejunal laparoscopic bypass to treat type II diabetes in grade I obesity.

Methods: A 38 y 30.5 BMI patient with type II diabetes using 2 oral hypoglycemic drugs plus insulin within 6 y from diagnosis

was submitted to a duodenal-jejunal lap bypass (IRB approved and informed consent cleared) on the following technique: 5 trocars similar to Nissen's procedure with patient in semi-lithotomy position; duodenal dissection and transection with staplers 2 cm below the pylorus; identification of Treitz angle and from that an omega loop with the biliopancreatic limb at 60 cm is obtained with grasper mobilization; then the intestinal limb is guided to the duodenal proximal stump; the duodenojejunostomy (G-J) is done within staplers as if it will be a BII isoperistaltic limb with a linear stapler; then the alimentary limb (left side of gastroplasty) is mobilized at 100 cm and a side-to-side enteroanastomosis is performed with a linear stapler. The G-J and enteroanastomosis are closed with 2-0 PDS extra-mucosal running sutures. At the end, the BII-like limb is converted to a Roux-and-Y bypass by just dividing the biliopancreatic limb with a linear stapler (at the right side of the gastroplasty from the surgeons view); the defects are closed and a methylene blue leak test is done; drain is left at duodenal stump site.

Results: The surgery were uneventful with patient discharge on day 2 using just one oral drug discontinued on day 5 when patient glucose levels became normal and remained there on 2 months follow-up.

Conclusion: The duodenal-jejunal lap bypass is feasible and seems to treat type II diabetes on grade I obese patients.

V34. THE LAPAROSCOPIC APPROACH IN FORMER TEG SURGERIES LIKE HIATAL HERNIA AND ADJUSTABLE GASTRIC BAND: EXECUTION OF ROUX-EN-Y GASTRIC BYPASS IN AN UNIQUE TIME OR IN TWO TIMES THROUGH VIDEO-LAPAROSCOPY

Alexandre Amado Elias, Arthur Belarmino Garrido Jr., Luiz Vicente Berti, Marcelo Roque de Oliveira, Nestor Bertin Suguaitani. *Instituto Garrido de Obesidade de São Paulo, Brazil*
It is even more common to have morbid obesity carrier patients previously treated surgically with gastro-esophageal reflux by Hiatal Hernia with fundoplication, presenting BMI higher than 40 and associated co-morbidity and relapsing reflux. Even patients with treatment failures from a restrictive surgery as gastric band, unsatisfied with their treatment and reincidence of obesity come after us in order to solve their problems with another mixture of surgery, like the Roux-en-Y Gastric Bypass or malabsorption with the advantage of not approaching the gastric-esophagus transition, where it had been previously manipulated, increasing the risks to complications. However, due to malabsorption surgeries inconveniences, we decided to do gastric bypass. The Gastric Bypass can be done in two times or in an unique time depending on the anatomical and clinical situation. In this video, we suggest the procedure in two ways, indicating the pros and cons of doing each of them

V35. TECHNIQUE STANDARDIZATION VIDEO LAPAROSCOPY IN SITUS INVERSUS TOTALIS IN THE ROUX-EN-Y GASTRIC BYPASS

Alexandre Amado Elias, Arthur Belarmino Garrido Jr., Luiz Vicente Berti, Marcelo Roque de Oliveira, Nestor Bertin Suguaitani. *Instituto Garrido de Obesidade de São Paulo, Brazil*
This type of anatomic variation is very rare. In more than 7,000 Roux-en-Y Gastric Bypasses in 10 years, we had one case of situs inversus totalis, associated with morbid obesity which compelled us to change and create a strategy inside the already established standardization, so that the procedure could be accomplished safely in the patterns used.

V36. SPECIAL MANEUVERS TO RING FIXATION DURING THE VIDEO-LAPAROSCOPIC GASTRIC BYPASS TO MINIMIZE POSTOPERATIVE RING COMPLICATIONS

Daoud Nasser, Adriana Sales Finizola, Bruno Nanni Alexandrino, Mariana Mazetti do Nascimento, Ellen Adressa Sotti Barbosa,

Caroline Abrecht Moreira, Carolina Romano Toledo de Moraes. (UEM)

Maneuvers are shown:

- 1) anterior ring fixation on the anterior pouch wall with prolene 3.0
- 2) continuous suture on the staple line of the pouch including the ring
- 3) a short blind jejunum of the gastroentero anastomoses to avoid slippage with ring traction
- 4) fixation of the blind jejunum to the big stomach

Conclusion: We have observed that after beginning these maneuvers, we have had less ring complications.

V37. TRIPLE STAPLE TECHNIQUE FOR JEJUNOJEJUNOSTOMY DURING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

A. K. Madan (*University of Tennessee Health Science Center*); C. T. Frantzides (*Evanston Northwestern University*); J. H. Harper (*University of Tennessee Health Science Center*); D. S. Tichansky (*University of Tennessee Health Science Center*), USA

Background: The jejunojejunostomy (JJ) needs to be constructed carefully during laparoscopic Roux-en-Y gastric bypass. It must have low risk of ischemia, stenosis, and leak. This video demonstrates our triple staple technique for the JJ.

Methods: The jejunum is divided 50 cm distal to the ligament of Treitz. The Roux limb is measured 100 to 220 cm distal where the JJ will be performed. The first stapler firing is placed after an enterotomy is made in each limb. The stapler is placed so the jaws are facing proximal in the biliopancreatic (BP) limb and distal in the Roux limb. The bowel is rotated and the second firing is performed 180° to the first. The jaws are facing distal in the BP limb and proximal in the Roux limb. The common enterotomy is closed with another firing. All staple lines are inspected and sutures are placed only if there is a concern.

Results: With over 800 cases, only 2 leaks were seen at the jejunojejunostomy (early in the series before the posterior aspect of the staple lines were checked). In addition, there was no stenosis seen at the JJ.

Conclusion: The triple staple technique is a forgiving, safe, and efficient method to perform the JJ during laparoscopic Roux-en-Y gastric bypass.

V39. BOWEL OBSTRUCTION AFTER ANTECOLIC ANTEGASTRIC LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS: POTENTIAL DEFECTS FOR INTERNAL HERNIAS, PRESENTATION AND MANAGEMENT

Miguel F. Herrera (*Instituto Nacional de la Nutricion*), Gaby Alarcon-Jarsun (*ABC Medical Center*); Sandra G. Medina-Escobedo (*ABC Medical Center*); Ricardo Fernández-Riera (*ABC Medical Center*); Miguel F. Herrera (*ABC Medical Center*), Mexico City, Mexico

The antecolic and antegastric Laparoscopic Roux-en-Y Gastric Bypass (LRYGBP) seems to lead to a low incidence of bowel obstruction. However, it has some potential defects where internal hernias may occur. This video highlights these potential defects, shows presentation and management of internal hernias in 3 patients, and presents some modifications that we have made to our surgical technique to avoid this complication. An animation first shows our standard technique which includes closure of both, the mesenteric defect at the jejunajejunostomy, and the space between the alimentary limb and the greater omentum. Once the gastrojejunostomy has been completed, the alimentary limb is stitched to the anterior aspect of the excluded stomach for alignment.

The 3 patients presented severe abdominal pain and food intolerance. Diagnosis of bowel obstruction was confirmed by contrast X-rays. All patients underwent diagnostic laparoscopy. In one patient reopening of the mesenteric defect with a small bowel hernia was found. The hernia was reduced, and the mesenteric defect closed using silk.

The second patient presented a small bowel hernia through an elongated space between the gastro-jejunostomy and the aligning stitch. Obstruction was released by transecting the stitch. In the last patient, a small bowel hernia through the Petersen space was identified and reduced. Defect was then closed.

A second animation shows 3 changes in our surgical technique. The mesentery of the small bowel is left undivided. The aligning stitch of the Y has been omitted, and the Petersen space is now closed from the right aspect of the alimentary limb.

V40. LATE PETERSEN HERNIA TREATED BY LAPAROSCOPY

Felipe de la Cruz Vigo, J.L. Cruz Vigo, F. Cruz Vigo, P. Sanz de la Morena, J.M. Canga Pesa, P. Gómez Rodríguez, M. Gutierrez. *San Francisco Hospital (León), Nuestra Señora del Rosario Hospital (Madrid) and 12 de Octubre University Hospital (Madrid), Spain*

Background: Internal hernia is a complication of laparoscopic bypass bariatric surgery. Sometimes in the immediate postoperative period, but, more frequently during the follow-up. Antecolic Roux-en-Y limb seems to have advantages to avoid the problem, but not completely.

Methods: A 40 years old female, operated for morbid obesity three years ago. Initial weight was 107 kg, height 159 cm and BMI 42.4. A laparoscopic banded gastric bypass was performed with an uneventful recovery. Currently, her weight is 72 kg (BMI 28,5). She was admitted to the hospital with abdominal pain, nausea and vomiting. Plain abdominal X-rays and CT scan were no conclusive of any abdominal pathology. The persistence of the clinical picture led us to perform a laparoscopic abdominal exploration.

Results: Four trocars are used to enter the abdominal cavity. The small bowel is dilated and edematous with a certain degree of venous stasis. The intestine is explored from the ileocecal valve above, until its sudden release, showing now that the problem was a hernia through the space of Petersen. The venous stasis recovers quickly as well as the bowel dilation. The Petersen space is closed with non-absorbable suture. The postoperative evolution is uneventful. Hospital stay 24 hours.

Conclusions: A high level of suspicion is the only way to diagnose internal hernias after laparoscopic bariatric bypass surgery as well as a low threshold for reoperation is necessary to avoid more severe complications.

V41. LAPAROSCOPIC GASTRIC BYPASS: INTERMITTENT BOWEL OBSTRUCTION DUE TO VITELLO-INTESTINAL REMNANT

Alberic Fiennes, M. ElKalaawy, K. Devalia, M. Adamo. *Bariatric Unit, St George's & St Anthony's Hospitals, London, UK*

Background: A 47 yr old lady presented 2 years after laparoscopic Roux-en-Y gastric bypass (RYGBP), performed elsewhere, with 8 months history of severe upper left abdominal pain associated with intermittent diarrhea, soon after meals. There was no complaint of vomiting or obstructive symptoms.

Methods: All investigations (CT abdomen with IV contrast, barium meal, upper GI endoscopy and routine serology) were entirely normal. Clinical examination suggested dilated small bowel loops on the left abdomen and pain over the Peterson's space. Because of the severity of the symptoms and clinical suspicion of internal hernia, a diagnostic laparoscopy was performed.

Laparoscopy revealed a dilated entero-enterostomy. A thick fibrotic bridge was arising from the small bowel and connecting the alimentary limb and the common channel to one another. It was also firmly attached to the anterior abdominal wall. This bridge was dissected using harmonic scalpel and transected off the small bowel by stapling (endo-GIA).

Results: Recovery was uneventful and the symptoms completely

resolved soon after surgery. Histology of the specimen suggested that this could represent a remnant of the vitello-intestinal tract.

Conclusions: Because of the complete disappearance of symptoms and on the basis of histology report, we reasoned that the remnant of the vitello-intestinal tract, clearly not seen during the primary procedure, was causing a unique case of intermittent small bowel obstruction.

V42. LAPAROSCOPIC MANAGEMENT OF INTERNAL HERNIA DURING PREGNANCY

L. Miyashiro, C.Y. Ro, R. Fukumoto, J. Teixeira. *St. Luke's-Roosevelt Hospital Center, USA*

Internal hernias during pregnancy after a Roux-en-Y gastric bypass can present a diagnostic and management challenge. We describe a 23 year old female, 25 weeks pregnant and 2 years after undergoing open RYGBP, who presented with a four day history of postprandial cramping abdominal pain, nausea, and vomiting.

Pelvic ultrasound confirmed a viable pregnancy. She underwent a diagnostic laparoscopy. Access was obtained via a Veress needle and a 5-mm optical trocar in the left upper quadrant. Three additional 5-mm ports were placed under direct vision to avoid trauma to the gravid uterus. Evaluation of the small bowel revealed an internal hernia through Petersen's space. Reduction was accomplished by running the bowel from the terminal ileum to the Roux limb. This defect was closed with a continuous non-absorbable suture. She tolerated a diet on POD #1 and was discharged home on POD #2 after an uneventful recovery.

Internal hernias are a known complication after gastric bypass surgery. Diagnosis during pregnancy is often difficult because of non-specific symptoms and the absence of diagnostic tools. Therefore, a high index of suspicion is required in this patient population. Diagnostic laparoscopy should be considered early in the presentation in order to avoid the risk of strangulation and loss of fetus.

V43. INTERNAL HERNIA AFTER ANTECOLIC ANTEGASTRIC LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

G. Dapri, G.B. Cadière, J. Himpens. *Saint-Pierre University Hospital, Brussels, Belgium*

Internal hernia is one of the leading causes of small bowel obstruction after laparoscopic Roux-en-Y gastric bypass (LRYGBP). Many surgeons recommend closure of the mesenteric, Petersen and transverse mesocolon defects during the procedure of LRYGBP. Laparoscopy appears to be the most accurate exam in the diagnosis of the internal hernias through mesenteric, Petersen and transverse mesocolon defects.

This movie shows two typical cases of internal hernia through the mesenteric and Petersen defects after an antecolic antegastric construction of the Roux-en-Y. The first patient presented, after 22 months of LRYGBP, an intestinal occlusion confirmed radiologically; the laparoscopy revealed the presence of the common and part of the alimentary limb incarcerated through the mesenteric defect. The second patient presented, after 12 months of LRYGBP, frequent abdominal pains and cramps not confirmed by any radiological exam; the diagnostic laparoscopy revealed the ouverture of the Petersen defect and a transposition of the jejunojejunostomy, alimentary, common and part of bilio-pancreatic limbs inside it. All the procedures consisted in an atraumatic reduction of the migrated small bowel and closure of the defects by 2/0 polypropylene purse-string stitches.

V44. LAPAROSCOPIC REPEAT GASTRO-JEJUNOSTOMY FOR STENOSIS AFTER ROUX-EN-Y GASTRIC BYPASS

G. Dapri, G.B. Cadière, J. Himpens. *Department of Gastrointestinal and Obesity Surgery; Saint-Pierre University Hospital, Brussels, Belgium*

We report a laparoscopic redo gastro-jejunostomy, performed in

a patient affected by symptomatic stenosis, after Roux-en-Y gastric bypass (RYGBP).

In October 2005 a laparoscopic RYGBP was performed in a 38-year woman, sweet eater with a BMI of 40 kg/m². The gastro-jejunoscopy was performed in an end-to-side one layer hand-sewn fashion. After 11 months, the patient reported significant dysphagia characterized by numerous episodes of vomiting and tolerance of a only liquid diet. The patient was submitted to 3 endoscopic dilations, successively performed at 1 month interval, with a final dilation of 15-mm balloon at each one. Two weeks after the last one, she was again symptomatic; hence, a new laparoscopic gastro-jejunoscopy was proposed to the patient.

The movie shows the sequence of the procedure, after the placement of 5 trocars in the abdomen: 1) identification of the gastro-jejunoscopy from the remnant stomach, 2) section of the proximal alimentary limb, 3) section of the gastric pouch above the gastro-jejunoscopy, 4) retrieval of the old gastro-jejunoscopy, 5) isolation of the gastric pouch from the upper part of excluded stomach, 6) isolation of the upper part of the excluded stomach, 7) section of the upper part of the excluded stomach, 8) reconstruction of the new side-to-side gastro-jejunoscopy by the linear mechanical technique. Operative time was 73 minutes and estimated intraoperative blood loss was 35 ml. Patient had an uneventful recovery and was discharged home on the 3rd postoperative day. At 1 month the patient was well, and the barium swallow showed good passage through the new anastomosis without stenosis.

Laparoscopic redo gastro-jejunoscopy after RYGBP is technically feasible, and can represent a valid option in cases that are resistant to endoscopic dilation.

V45. ENDOSCOPIC SELF-EXPANDABLE STENTS TO TREAT GASTRO-CUTANEOUS FISTULA AFTER GASTRIC BYPASS

Manoel Passos Galvao Neto (*Gastro Obeso Center*), Almino Ramos (*Gastro Obeso Center*); Eduardo G.H. Moura (*Hosp das Clinicas - Universidade de Sao Paulo*); Josemberg M. Campos (*Unifersidade Federal de Pernambuco*); Marcelo Falcao (*Gastro Obeso Center*); Manoela Galvao (*Gastro Obeso Center*); Andrey Carlo (*Gastro Obeso Center*), Brazil

Background: The gastrocutaneous fistula is an uncommon and difficult to treat complication that occurs in 0.5% to 3.9% of patients who undergo gastric surgery. Sepsis usually follows, and, when it is not managed effectively, the associated mortality rate can be as high as 85%. The traditional approach for that complication by means of a revisional surgical procedure is being changed by a less invasive endoscopic treatment. There are some endoscopic therapeutic procedures that can be applied in that situation like sealants, meshes, clips and sutures. One option that is being used recently is self-expandable prosthesis or stents to cover the fistula with the possible benefits of less procedures and early recovery. There is no specific stent developed to treat that complication so the endoscopists have to use the ones available to treat gastro-esophageal stenosis that are "covered". The authors present a referred case of gastrocutaneous gastroplasty fistula treated with a Nitinol self-expandable stent.

Methods: A 35 y female submitted to a lap bypass were referred for endoscopic treatment of a gastrocutaneous fistula with its origin on the gastroplasty 1 cm under the esophago-gastric junction (EJC). The patient were submitted to 5 revisional laparotomy, with a difficult abdominal access and repeated abscess. The authors option was to use a self-expandable Nitinol stent 18-mm diameter and 10-cm length (Hanaro Stent®).

Technique: Endoscopic fistula identification (3 cm in diameter, staple-line, 1 cm under EGJ); Injection of Lipoiodol,

Polymethylmetacrilate (PMMA) solution on its margins to narrow and radiologically identify the lesion; Pass a nitinol guide-wire; slide the stent over it and open its lumen, positioning the stent to cover the fistula and the pouch, with its proximal end on distal esophagus. After placement, a radiological leak test was performed. The patient recovered well and could eat on the second day. The video shows a radiological control with two months, and the stent was remove in third month. The retrieval is more challenging demanding the use of an overtube (shown in video); the removal happened with no complication, and the fistula was still closed at 6 months follow-up.

Conclusion: The use of self-expandable stents to treat gastroplasty fistula is a reliable option.

V47. DIFFICULTIES OF LAPAROSCOPIC ACCESS AND COMPLICATIONS DURING AND AFTER SURGERY IN RING-ROUX-EN-Y GASTRIC BYPASS

Alexandre Amado Elias, Arthur Belarmino Garrido Jr, Luiz Vicente Berti, Marcelo Roque de Oliveira, Nestor Bertin Suguitani. *Instituto Garrido de Obesidade de São Paulo, Brazil*

We often come across different situations which hamper our laparoscopic access in the accomplishment of the Roux-en-Y Gastric Bypass; many times it can be considered a good reason to convert the access to laparotomy or, in some cases, to abort the procedure. This kind of situation is exactly what enhances the time for surgery, which puts in danger the patient, with potential probability to have premature complications after surgery. Situations like enormous and steatotic liver, small intestine lesions, surgical stapling failure in the leaking of Methylene Blue intra-surgery, ventral hernia or big abdominal wall, bleeding and mesentery hemorrhages and mesentery defects. Premature re-surgeries due to extra leaking and peritonitis or later ones like ring removal due to obstruction. In this video, we show these difficulties to emphasize the importance of a good training program with all the surgery staff, mainly if the surgery is a high complexity procedure and potentially risky in unexperienced hands.

V48. AVAILABILITY OF CALCIUM, PARATHORMONE AND 1-25 DIHYDROXI VITAMIN D IN 101 PATIENTS SUBMITTED TO BARIATRIC SURGERY

Daoud Nasser, Adriana Sales Finizola, Bruno Nanni Alexandrino, Mariana Mazetti do Nascimento, Ellen Adressa Sotti Barbosa, Caroline Abrecht Moreira, Carolina Romano Toledo de Moraes, Romano Toledo de Moraes

Patients who have the benefit of reducing their weight minimize co-morbidities, but the endocrine modifications need more studies. The purpose of this data is to study if the reduction of the intestinal area for dietary calcium absorption causes serum low levels and enhances of the Parathormone and low levels of 1.25 Dihydroxyvitamin D3. 101 patients with medium age of 41.7 years old were submitted to Gastric Bypass with Roux-en-Y with 120 cm of the alimentary limb. The mean time between the surgery and the blood examination were 32 months, and they were collected during 2006 and 2007. The results were surprising, because 83.16% of the patients that had the Calcium dosage (94.06%) had normal serum level. The Parathormone was evaluated in 93.07% of the patients and was normal in 64.89%. Only 48.51% of the patients had the dosage of the Vitamin D3 which in 79.59% of these patients.

Conclusion: Bariatric surgery does not necessarily cause alteration in serum levels of Calcium, Vitamin D3 and Parathormone.