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ROLE OF PREOPERATIVE UPPER GI TESTING PRIOR TO GASTRIC BANDING

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Objective: Relations between Laparoscopic Adjustable Gastric Banding (LAGB), gastroesophageal reflux (GER) and hiatal hernia (HH) are controversial. In this context the role of preoperative investigations to assess upper gastrointestinal (GI) function and its impact on the approach to LAGB and outcomes remains unclear. Our aim is to define the value of preoperative upper GI testing, and to relate the findings with postoperative outcomes.

Methods: 78 cases were enrolled among 250 patients undergoing LAGB from January 2010 to December 2011. Patients were submitted preoperatively to endoscopy and radiologic series with oral contrast to assess the state of upper GI mucosa, the presence of HH, GER or cardias incontinence. According to the findings, patients were assigned to group A, if one or both exams showed positive results; or to the control group B if both exams were negative.

Results: GI series showed GER in 14.1% of patients, HH in 6.4%, altered motility in 5.1 %, gastritis in 3.1 % and were negative in 75.6%. Endoscopy showed gastritis in 71.8 % of patients, HH in 30.8%, esophagitis in 7.7%, duodenitis in 7.7%, LES incontinence in 8%; while only 21.8% of patients had a negative exam. Differences between group A and B are not statistically significant in terms of pre- and post-operative BMI, EBWL%, long-term complications, time and number of regulations.

Conclusions: Positive findings in preoperative testing rarely postpone or change the surgical approach and postoperative outcomes. Our results encourage the omission of upper GI series from routine evaluation protocol prior to LAGB.

GASTRIC PLICATION ASSOCIATED TO GASTRIC BANDING: BETTER OUTCOMES?

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Objective: Laparoscopic Adjustable Gastric Banding (LAGB) is widely known as one of the safest procedures for the treatment of morbid obesity, having the lowest rate of early complications and an acceptable weight loss result. Our aim was to determine if the association of LAGB with the Gastric Plication (GP) of the Fundus could improve our outcomes in terms of weight loss and number of band adjustments.

Methods: 20 patients (group A) undergoing LAGB from April 2012 to September 2012 were enrolled. In these patients Gastric Plication of the Fundus was performed laparoscopically in addition to LAGB. 20 patients undergoing LAGB only formed the control group (group B). The following data were recorded: BMI, follow-up at 1, 3, 6 months, %EWL, short-term complications, operative time, length of hospital stay, number of adjustments.

Results: Group A (LAGB + GP) had a mean preoperative BMI of 42.8 kg/m²; the mean operative time was of 69 min, the hospital stay was of 4 days; a NG tube was required for 24h; the average n° of band adjustments at 6 months was 1,2. Group B (LAGB only) had a mean preoperative BMI of 41.6 kg/m²; the mean operative time was of 46 min, the hospital stay of 2.5 days; the average n° of adjustments at 6 months was 2.98. No early complications were registered.

Conclusions: Despite the short follow-up period considered (6 months), we believe that the association of LAGB with the GP of the Fundus improves outcomes in terms of weight loss and number of band adjustments, determining although a longer hospital stay.

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LAPAROSCOPIC SLEEVE GASTRECTOMY VERSUS LAPAROSCOPIC GASTRIC BYPASS: A 2-YEAR FOLLOW-UP COMPARATIVE STUDY

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Objective: Laparoscopic Sleeve Gastrectomy (LSG) and Laparoscopic Roux-en-Y Gastric Bypass (LGB) are widely performed bariatric procedures, but controversy still persist about their efficacy. Aim of the study was to compare them in terms of weight loss, food intake and metabolic improvement effects.

Methods: Retrospective analysis of a prospectively collected database. The study included 25 patients who underwent LGB and 25 patients who underwent LSG matched by gender, age and BMI. Patients underwent a pre-operative thorough evaluation repeated 24 months after surgery (follow-up rate 100 %).

Results: No preoperative differences were found between the two groups in terms of BMI, blood levels and food intake. Excess weight loss at 24-month follow-up was 53.1% in the LSG and 52.9% in the LBG group (p=ns). At follow-up, no significant differences were recorded in mean glycaemia between groups (92.2 vs 85.7 mg/dl) while the LGB group showed a significantly lower total cholesterol level (168.7 vs 196.9 mg/dl, p<0.001). At 24 months, the LGB group showed a significantly higher total caloric intake (1612 vs 1378 Kcal/day, p<0.001) related to a higher lipid (58.8 vs 52.8 g/day) and glucose intake (161.4 vs 204 g/day).

Conclusions: This matched-pair analysis showed that LSG and LGB achieved a very similar 24-month weight loss. The two procedures achieved a similar glycaemia improvement, while LGB showed a significantly higher blood lipids decrease. Total daily caloric intake was significantly higher for LGB patients at 24 months. Higher decrease of food intake in LSG patients may be related to the higher appetite decrease.

SHORT- AND MEDIUM-TERM OUTCOMES OF LAPAROSCOPIC SLEEVE GASTRECTOMY: A SINGLE CENTER EXPERIENCE

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Objective: There are different surgical techniques adopted to treat morbid obesity; the most popular are Laparoscopic adjustable gastric banding (LAGB), Laparoscopic Roux-en-Y gastric bypass (LRYGB) and Laparoscopic sleeve gastrectomy (LSG). LSG is now performed by standardized surgical technique. The objective of this study is to report surgical result after 20 LSG cases treated for morbid obesity during a 2-years follow-up and verify the effectiveness of LSG in term of Excess Weight Loss (EWL) as compared to LAGB.

Methods: Data were obtained by reviewing the national database of the Italian Society of Obesity Surgery and Metabolic Diseases (SICOB) where our patients were registered, that identified all patients who underwent LSG in our institute from January 2010 to December 2012. Patients with a BMI>45 were treated primarily with an intragastric balloon and then underwent LSG.

Results: Twenty patients underwent LSG. BMI were 42,05 years (range 25-64). Excess weight loss (EWL%) was as follows: 6 months 40,53%, 12 months 47,42%, 24 months 60,07%.

Conclusions: LSG was initially considered as a first step (a bridging procedure) in super-obese patients with comorbidities to be followed by a second definitive procedure such as Biliopancreatic diversion with the duodenal switch (BPD-DS). Our results, in accordance with the international literature, show a weight loss of 60,07% after 2 years of follow-up. The advantages of LSG are the relative simplicity, satisfactory weight loss results and safety of the technique. LSG could be considered a primary definitive procedure. LSG is not only a restrictive procedure, but also as metabolic effects.

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POST-OPERATIVE C-REACTIVE PROTEIN LEVELS IN LAPAROSCOPIC SLEEVE GASTRECTOMY LEAKS

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Objective: Gastric leaks represent the most feared postoperative complication after laparoscopic sleeve gastrectomy. Nevertheless, in the obese patients clinical assessment is frequently unclear and clinical symptoms such as fever and abdominal pain may be absent. Aim of the study was to analyze if the postoperative blood levels of c-reactive protein (CRP) might represent a useful diagnostic tool to recognize patients with asymptomatic leaks.

Methods: Retrospective review of all patients who underwent a laparoscopic sleeve gastrectomy between October 2008 and December 2012.

Results: Globally, 220 patients entered the study. Mean preoperative age, weight and BMI were 44.0 years, 125.9 kg and 46.7 kg/m², respectively. Mean operative time was 101.4 minutes (range, 40-240). There were 8 leaks (incidence rate 3.6%). Comparing patients who developed a gastric leaks with patients without leaks, the CRP levels were significantly higher in the former: 39.50 vs 22.06 in postoperative day 1 (p<0.05), 79.66 vs 45.26 in postoperative day 2 (p<0.05), 143.93 vs 71.40 in postoperative day 3 (p<0.05), 258.42 vs 68.89 in postoperative day 4 (p<0.001), 282.44 vs 60.44 in postoperative day 5 (p<0.001), 188.84 vs 54.59 in postoperative day 6 (p<0.001).

Conclusions: In the obese patients undergoing laparoscopic sleeve gastrectomy, the postoperative increase in CRP level should be interpreted as a strong sign of suspicion of gastric leak and should lead to exhaustively study the patient with radiological or surgical exploration.

LAGB: LONGTERM OUTCOMES. MANAGEMENT OF COMPLICATIONS

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Objective: Laparoscopic adjustable banding (LAGB) is a highly effective treatment for morbid obesity being minimally invasive and an easy surgical technique. However long-term studies have increasingly described complications. Major complications associated to band have been described, such as dilatation of the pouch, slippage and erosion; minor complications related to the porth or connection tube such as dislocation of the porth, disconnection of the porth-tube and porth infection.

Methods: Data were obtained by reviewing the national database of the Italian Society of Obesity Surgery and Metabolic Diseases (SICOB) where our patients were registered, that identified all patients who underwent LAGB in our institute from January 2002 to December 2012. Patients with a BMI > 40 or BMI between 35 and 40 Kg/m² with associated comorbidities were candidates for LAGB.

Results: A total of 196 patients underwent LAGB. Mean BMI was 43,46 kg/m² (range 29,30-57,80). The most common complications were dislocation/rotation of the porth (5,10%), disconnection of the porth-tube (4,59%), slippage (3,06%), erosion (1,02%). No mortality occurred. One intraoperative complication (0,51%) occurred.

Conclusions: The immediate management of bariatric surgery complications requires accurate diagnosis through regular follow-up, monitoring clinical symptoms, as well as endoscopic and radiological controls. The longer the follow-up, the greater the major complications, although these complications are not life-threatening for the patient and can be resolved with laparoscopic reoperation. Many patients were lost to follow up and more were operated in other centers. Best results were obtained for patients followed in the same centre where they underwent the primary treatment.

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**PERSONAL TECHNIQUE FOR LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (RYGBP)
GASTRO-JEJUNAL ANASTOMOSIS: EXPERIENCE WITH 219 PATIENTS**

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Objective: Laparoscopic RYGBP is one of the most widely-used bariatric procedures; the construction of the gastrojejunal anastomosis is the most controversial point of the procedure. The circular-stapled anastomosis shows short operative times due to a technical simplicity, but the trans-oral placement of the stapler anvil leads to high wound infection rates and involve the risk of esophageal or hypopharyngeal injuries. To overcome the problems of transoral anvil placement, we developed a new device enabling a totally intra-abdominal anastomosis technique to be used.

Methods: Globally, 285 patients who underwent primary RYGBP with a minimum follow-up of 6 months were included, 219 operated with the new technique and 66 with transoral technique.

Results: No preoperative differences were found between the two groups in terms of gender, age, weight and BMI. Operative times were similar (182.3 min in the personal technique group vs 188.6 min in the trans-oral), while conversion rate was significantly lower in the personal technique group (0 vs 14.3%, $p < 0.001$). Although not statistically different, the personal technique demonstrated lower gastrojejunal leaks (0.5 vs 1.5%), gastrojejunal stenosis (6.4 vs 9.1%) and wound infections (6.4 vs 7.6%) rates. Weight loss results were similar between groups.

Conclusions: The totally intra-abdominal gastrojejunal anastomosis technique, involving a specially designed device, compared favourably with the transoral technique. It avoids oesophageal passage of the anvil, is simple to perform and easy to learn. The present study shows that our technique leads to lower wound infection rates and lower gastrojejunal leaks and stricture rates.

**ANALYSIS OF THE INCIDENCE OF POST-GASTRIC BYPASS REACTIVE HYPOGLYCEMIA:
PRELIMINARY DATA**

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Objective: Roux-en-Y gastric bypass (RYGBP) is a commonly used bariatric operation; postprandial hyperinsulinemic hypoglycemia is a recently recognized complication of this procedure. The etiology of this complications is still under debate and its real prevalence still unknown. Aim of the study was to evaluate the incidence of hypoglycemia-related subjective symptoms and objective measure in post-RYGBP patients.

Methods: Retrospective study of patients who underwent RYGBP between January 2007 and December 2011 (follow-up 6–60 months). The study protocol included hypoglycemia screening questionnaires (Edinburgh Hypoglycemia Scale and Sigstad Score) and subsequently Endocrinological assessment if one of the two questionnaires was positive.

Results: 312 patients were included in the study and 149 (47.76%) resulted positive to the screening questionnaires. Among them, 44 underwent Self-Monitoring of Blood Glucose (SMBG) test; the test was considered positive if there were symptoms and/or glucose < 60 mg/dl. 15 patients showed negative response to the test, 10 patients (22.7%) resulted positive for both items and 19 for only one. These 19 patients underwent second-line tests (Oral Glucose Tolerance Test and Continuous Glucose Monitoring): 5 of these showed a late dumping syndrome with hypoglycemia and one demonstrated an asymptomatic hypoglycemic episode.

Conclusions: The present study, even though still in progress, suggests that post-RYGBP hypoglycemia, with or without symptoms, could be an important complication of this bariatric procedure. Because of the side-effects and potential risk of neuroglycopenic hypoglycemia, it is essential to carefully evaluate any new or suspect symptom occurring during bariatric surgery follow-up.

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CONTINUOUS GLUCOSE MONITORING IS MORE EFFECTIVE THAN MIXED MEAL TEST IN THE DIAGNOSIS OF POSTGASTRIC BYPASS HYPOGLYCEMIA

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Objective: Postprandial hypoglycemia is a recently recognized complication of gastric bypass (RYGBP). The diagnosis is based on biochemical evidence of glycaemia <60 mg/dl with hypoglycemic symptoms. In clinical practice, a high percentage of patients with symptoms in everyday life prove negative to tests used as triggers i.e. Mixed Meal Test (MMT), suggesting an inadequate sensitivity of this test. Aim of the study was to explore the value of Continuous Glucose Monitoring (CGM) associated with standard MMT in diagnosing post-RYGBP hypoglycemia.

Methods: 12 patients with symptoms suggestive of reactive hypoglycemia after RYGBP were included. They underwent MMT (=plasma glucose) and a 5-day CGM (=interstitial glucose); the tests were considered positive if there were both symptoms and glucose levels <60 mg/dl.

Results: Although mean glucose levels during MMT were significantly lower than those during CGM (72.3 vs 91.3 mg/dl, $p<0.001$), mean nadir levels were higher (59.2 vs 48.4 mg/dl, $p=0.003$). Moreover, concordance between the two tests proved to be low: only 2 patients out of 12 were positive to MMT (16.7%), whereas 10 out of 12 were positive to CGM (83.3%); furthermore, while 8 patients were negative to MMT but positive to CGM, no patient was positive to MMT but negative to CGM.

Conclusions: CGM could be a relevant tool in the diagnosis of post-RYGBP hypoglycemia, allowing to detect hypoglycemic events during everyday life not adequately triggered by MMT. Therefore, it should be used when patients report suggestive symptoms of hypoglycemia after RYGBP.

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