Long-term Results and Gastroesophageal Reflux in a Series of Laparoscopic Adjustable Gastric Banding

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During the past decade, laparoscopic adjustable gastric banding has become the most popular surgical procedure in treating morbid obesity. On the other hand, significant drawbacks such as inadequate long-term weight loss, a high prevalence of reoperations, and frequent postoperative symptoms have been reported in the literature. This analysis summarizes our Department’s experience with this operation. Thirty-one patients (27 women and 4 men) with a mean body mass index of 46.5 kg/m² (range, 38.3–59.8 kg/m²) were operated upon laparoscopically between September 1997 and January 2003. The preoperative work-up of all patients included a psychological evaluation. Mean follow-up was 59.3 months (range, 19–84 months). Sixteen patients had esophageal pH-metry and 18 patients had upper gastrointestinal endoscopy preoperatively and postoperatively. Data were collected prospectively during the outpatient visits. Mean preoperative excess weight was 65.6 kg (range, 37.4–96.1 kg). Mean excess weight loss after 12, 24, 36, 48, 60, 72, and 84 months was 40.3%, 50.5%, 51.9%, 48.9%, 46.2%, 51.8%, and 30.2%, respectively. In total, six patients (19.4%) had an abdominal reoperation, including four patients (12.9%) for band removal. Upper gastrointestinal endoscopy was performed in 18 patients after 30.1 months (range, 5–67 months), showing a high prevalence of esophagitis (30.0%; grade 1: n = 3, grade 2: n = 3). Conversely, postoperative esophageal pH-metry performed in 16 patients was pathologic in 43.8%. Laparoscopic adjustable gastric banding produces significant weight loss even after long-term follow-up. However, the reoperation rate is high and postoperative symptoms are frequent. The high incidence of gastroesophageal reflux and esophagitis remains a matter of concern. (J GASTROINTEST SURG 2005;9:941–948) © 2005 The Society for Surgery of the Alimentary Tract

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Morbid obesity has become one of the major health concerns of the Western world. The high prevalence of comorbidities in this specific population, particularly type 2 diabetes and hypertension, perpetuates a reduction of life expectancy and quality of life, and in turn drives the tremendous escalation of health care cost. In addition, a number of 300,000 deaths in the United States per year attributable to massive overweight is widely accepted today. As first-line conservative measures including diets, exercise, and pharmacologic treatment virtually never produce reliable long-term weight loss, the interest in surgical options is rising rapidly. Besides being effective for weight reduction, it has been shown that surgical treatment efficiently reduces comorbidities and secondary costs and improves quality of life. Today’s spectrum of surgery for obesity involves malabsorptive, restrictive, and combined procedures. The latest generation of these procedures is represented by purely restrictive gastric surgery, developed to avoid potentially deleterious side effects of the traditional malabsorptive gastric or intestinal bypass procedures. In the era of minimally invasive surgery, adjustable gastric banding has become the preferred form of bariatric surgery in many institutions in Europe and overseas because it is relatively easy to perform laparoscopically and offers the advantages of adjustability and reversibility.

On the other hand, divergent reports have been published about long-term outcome after laparoscopic adjustable gastric banding (LAGB): in contrast to a number of studies showing favorable results and consistent weight reduction, others have reported a high reoperation rate, frequent side effects, and modest weight loss, particularly during long-term follow-up.
Another issue of debate remains the incidence of gastroesophageal reflux (GER) after gastric banding; it is not clear whether subcardial placement of a Silastic band would promote GER and esophagitis by intraluminal stasis due to reduced clearance or whether the band would act as an antireflux mechanism similar to Angelchick’s Silastic antireflux prosthesis.

In this setting, it was challenging to perform a prospective evaluation of weight evolution, incidence of complications, symptoms, and reoperations in patients operated in our department. Furthermore, we performed upper gastrointestinal (GI) endoscopies and 24-hour pH-metries in a number of patients prior to and following the operation to assess frequency and extent of gastroesophageal reflux disease (GERD) in this specific population.

MATERIAL AND METHODS

Patients

Between September 1997 and January 2003, 31 patients (27 women and 4 men) with a mean age of 37.0 years (range, 20–61 years) underwent an LAGB procedure. Mean body mass index (BMI) was 48.0 kg/m² (range, 38.3–59.8 kg/m²), and mean excess body weight was 65.6 kg (range, 37.4–96.1 kg). Excess body weight was calculated as the difference between the theoretical normal body weight defined by a BMI of 25 and the patient’s weight at the time of surgery.

Preoperative Work-up

The inclusion criterion was a BMI greater than 40 kg/m² or greater than 35 kg/m² with significant comorbidities. All patients had a history of prior unsuccessful conservative dietetic measures. They underwent a thorough interview on diets, weight evolution, eating habits, and symptoms; special attention was paid to GER. In addition, every patient was seen by a psychotherapist to exclude those presenting with specific eating disorders. Diagnostic work-up involved physical examination, laboratory investigations, upper GI endoscopy, barium swallow, stationary esophageal manometry, and esophageal 24-hour pH-metry. Exclusion criteria for LAGB were a history of upper GI surgery, psychiatric illness, eating disorders, and severe esophagitis.

Every patient was instructed about nature, possible complications, and side effects of the procedure and signed a written consent.

Operative Technique and Immediate Postoperative Treatment

All operations were performed by or under supervision of an experienced laparoscopic surgeon (P.M.S.). The procedure involved five trocars placed in the upper abdomen. The Swedish adjustable gastric band (SAGB) was used in the whole series (Obtech Medical, Baar, Switzerland). It was placed high at the stomach from the lesser curvature near the gastroesophageal junction to the angle of His via a retrogastric tunnel created using an angulated instrument (Obtech Medical) to ensure minimal posterior dissection, thus avoiding band migration. The gastric pouch was calibrated to a size of 15 ml using an inflatable balloon placed on a gastric tube. Band migration was prevented by suturing the gastric fundus over the anterior aspect of the band with three nonabsorbable sutures. In all patients, a contrast esophagogram was performed the morning after the operation to exclude perforation and to determine band position. The patients started on oral liquids on the first postoperative day and resumed a soft diet on day 2. Soft diet was maintained for 6–8 weeks before returning to solid foods.

Outpatient Visits at Follow-up

All patients were set on a strict follow-up protocol. The first visit was realized 1 month postoperatively, followed by further visits every 2 months during the first year, every 3 months during the second year, and every 6 months thereafter. During the visits, actual weight and GI symptoms were assessed.

The band was filled via a subcutaneous port system placed in the epigastrium with water-soluble contrast medium. Initial band inflation was performed 3 months after surgery with 2 ml of contrast medium. During the following visits, subsequent filling to a maximum load of 7 ml was performed only if indicated (there was inadequate weight loss).

In addition, patients were regularly instructed by a clinical dietitian regarding fat, protein, carbohydrate, and vitamin intake. Laboratory investigations to exclude nutrition deficiencies were also performed regularly.

In the case of regurgitation or severe dysphagia, contrast esophagograms were performed to exclude band dislocation or pouch distention. After a follow-up greater than 6 months, all patients were offered a 24-hour pH-metry and an upper GI endoscopy.

Patients not willing to attend the outpatient follow-up visits were contacted by telephone at the end of the evaluation period.

Upper Gastrointestinal Endoscopy and 24-Hour pH-metry

Gastroscopy was performed with a PQ-20 upper GI endoscope (Olympus Corporation, Tokyo, Japan). Macroscopic lesions were classified according to the