Laparoscopic Adjustable Silicone Gastric Banding: Technique and Results

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Background: Kuzmak’s Adjustable Silicone Gastric Banding (ASGB) is the least invasive operation available for morbid obesity, and it is one of the more effective. Based on the know-how gained from performing more than 250 ‘open’ procedures, we have developed an original laparoscopic technique, whose main steps are pouch measurement, limited dissection along the lesser and the greater curvature and the application of the retention sutures.

Methods: From September 1993 through October 1994, 30 morbidly obese patients underwent laparoscopic ASGB.

Results: Mean operative time was 2 h and the postoperative stay 2-3 days. Only one major perioperative complication (stomach slippage) was observed. The weight loss achieved, reported as a variation of Body Weight, Body Mass Index, per cent Ideal Body Weight and per cent Excess Weight Loss was similar to that obtained with the open procedure.

Conclusion: This new approach is a major achievement in bariatric surgery, because it combines the minimal invasiveness of laparoscopy with the reversibility and adjustability of ASGB.

Key words: Morbid obesity, gastric banding surgery, laparoscopy, weight loss, implantable device

Introduction

Gastric restrictive operations are the most commonly utilized procedures in the treatment of morbid obesity. Adjustable Silicone Gastric Banding (ASGB), introduced by Kuzmak in 1986, is completely reversible, yet also allows the size of gastric pouch outlet to be adjusted to a desirable size.

This gastric banding technique is the least invasive operation available for morbid obesity, and its efficacy has been proven. However, when performing this operation, access to the subcardial area is required, and the exposure required leads to parietal injury disproportionate to the procedure itself. Moreover, for satisfactory visualization throughout the operation, sustained retraction of the costal margin is required, and recovery time can be compromised by the extent of the trauma inflicted to achieve good exposure.

With laparoscopic access, trauma is limited to the abdominal wall, and the postoperative morbidity rate and hospitalization time are thus reduced. In 1992, G.B. Cadiere first showed the feasibility of the laparoscopic positioning of ASGB. The recent modification of the traditional ASGB and the availability of specific instruments have allowed the laparoscopically-guided application of ASGB on a routine basis.

Based on know-how gained in more than 250 open procedures, we have developed a laparoscopic technique which fully respects the main steps of the open procedure. We report the laparoscopic technique and the first year of experience with laparoscopic ASGB (LAP-ASGB).

Patients and Methods

Patients

From September 1993 through October 1994, 30 morbidly obese patients (28 Female, 2 Male) underwent laparoscopic application of LAP-ASGB. The
patients were operated upon by the same surgical teams at (1) the Surgical Department of Padova University, Italy (17 patients), (2) the Surgical Department of Brussels Free University, Belgium (13 patients).

Patients' mean characteristics were: age 39 years, Body Weight (BW) 105 ± 25 kg, per cent Ideal Body Weight (%IBW) 179 ± 40, Body Mass Index (BMI) 40 ± 9. All the patients were refractory to dietary and medical regimes as well as group therapy. Follow-up consisted of a clinical surveillance and body weight measurement 2 and 4 weeks postoperatively and then every 2 months. As the aim of any treatment for obesity is loss of excess body weight, we used the per cent loss of excess body weight (%LEBW) to show postoperative weight loss together with (BW), (%IBW) and (BMI).

LAP-BAND Adjustable Gastric Banding System

The LAP-BAND Adjustable Gastric Banding System consists of: Adjustable Gastric Band, Injection Reservoir, Calibration Tube, Lap-Band Closure Tool and Gastrostenometer Electronic Sensor (INAMED, Carpinteria, CA). The LAP-ASGB (Figure 1) is a 13 mm wide band. Supplied in two standard sizes, when fastened, it forms a circular ring with an inside circumference of 10 or 9.75 cm and is connected to a 50-cm-long tube. Made of silicone elastomer, which is biocompatible and inert, the band has an inflatable inner surface. The radiopaque Kink-resistant tube is used to connect the inflatable section to the subcutaneous injection reservoir. An end plug is provided to seal the system while the band is passed round the stomach.

Equipment

The equipment used was a standard 0° and 30° laparoscopic telescope, camera, video and screen. A series of 5, 10 and 18 mm trocars, as well as a set of Roticulator Endograsp, Endograsp, Endodissector, Endo-scissors, Endoclip, EndoBabcock, fan liver Retractor and cautery hook should also be available.

Operative Procedure

The main steps of the procedure developed at our institutions are as follows: