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SURGERY FOR OBESITY AND RELATED DISEASES

Surgery for Obesity and Related Diseases ■ (2015) 00-00

## Original article

# Laparoscopic total gastrectomy as an alternative treatment to postsleeve chronic fistula

Almino Cardoso Ramos, M.D.<sup>a,\*</sup>, Manoela Galvão Ramos, M.D.<sup>a</sup>, Josemberg Marins Campos, M.D., Ph.D.<sup>b</sup>, Manoel dos Passos Galvão Neto, M.D.<sup>a</sup>, Eduardo Lemos de Souza Bastos, M.D., Ph.D.<sup>a</sup>

<sup>a</sup>Gastro Obeso Center, Advanced Institute for Digestive and Bariatric Surgery, Sao Paulo, Brazil
<sup>b</sup>Federal University of Pernambuco, Recife, Brazil
Received June 27, 2014; accepted October 26, 2014

#### Abstract

**Background:** Sleeve gastrectomy (SG) has become a very common 1-stage procedure in bariatric surgery. Postsleeve chronic fistulas could be one of the possible complications and represent a true challenge for the surgeons. After the failure of more conservative treatments, including surgical and endoscopic approaches, laparoscopic total gastrectomy (LTG) could be an alternative treatment proposal. The objective of this study was to evaluate outcomes of patients who underwent laparoscopic total gastrectomy for the treatment of postsleeve chronic fistula.

**Methods:** Retrospectively review the data from patients after LTG for postsleeve chronic fistula who had failed in all previous treatment attempts with a combination of conservative, endoscopic, and/or surgical approach.

**Results:** From January 2008 to December 2012, 12 patients underwent LTG. Mean time from SG to LTG was 16 months (ranged from 6 to 30). All patients had undergone several previous treatment attempts, including endoscopic techniques (fibrin glue, clips, pneumatic dilation, and stents) and surgical procedures for abscess drainage. Surgical time ranged from 4 to 7 hours with a mean hospital stay of 6 days. Complications occurred in 2 patients (17%) with 1 revision as a result of an intestinal occlusion. There were no conversions to open surgery, anastomotic leaks, or deaths.

**Conclusions:** LTG was feasible in the management of postsleeve chronic fistulas recalcitrant to other treatment approaches with a few complications and high rate of resolution. (Surg Obes Relat Dis 2015; 1:00–00.) © 2015 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords:

Bariatric surgery; Postoperative complications; Anastomotic leak; Gastrectomy

Laparoscopic sleeve gastrectomy (LSG) was initially proposed as part of a combined approach in association with duodenal switch and also as a staged strategy as the first-step surgical procedure for super-obese and high-risk obese patients [1]. Now it has been most commonly accepted as a stand-alone surgical technique becoming more popular all over the world [2–5].

\*Correspondence: Almino Cardoso Ramos, M.D., Gastro Obeso Center, Advanced Institute for Digestive and Bariatric Surgery, Rua Barata Ribeiro, 237 Sao Paulo, SP, Brazil.

E-mail: ramos.almino@gmail.com

Considering the increasing worldwide numbers for LSG in recent years, a higher number of complications can also be expected. The gastric leak and subsequent fistula could possibly be considered the most dreaded complication, with an occurrence of approximately 2% [6–12]. The leak can be present all along the staple-line, but when it happens close to the esophagogastric junction, at the angle of His, the treatment could be a true challenge for the surgeon. Unfortunately, this is the most common site of the leak [13].

A number of therapeutic modalities have been proposed to handle postsleeve fistulas, including surgical or percutaneous drainage [14]; endoscopic therapy with clips, dilation,

and stents [15–18]; and early resuturing of the leak [19]. When these options fail, surgeons have to resort to more aggressive surgical revisional options, such as converting the sleeve to Roux-en-Y gastric bypass (RYGB) or Roux limb drainage placement at the fistula site [6,20–22]. Laparoscopic partial or total gastrectomy may be the last and most radical options to be offered for selected cases. Total gastrectomy has already been used successfully according to reports of a few cases in the effort to correct the staple-line postsleeve fistula [23–28], but unfortunately, the very small number of patients has not offered enough data to evaluate the safety profile and efficacy of this proposition.

The aim of this study is to present a case series of patients who required laparoscopic total gastrectomy (LTG) as treatment for postsleeve chronic fistula after previous failed conservative, endoscopic, or surgical management.

#### Methods

The treatment records of patients undergoing LTG for chronic fistula after LSG were reviewed. All consented and signed a form allowing medical records to be reviewed and published with previous approval of the local review board. Preoperative upper endoscopy, computed tomographic (CT) scan, and gastrointestinal radiographic series were performed to evaluate the site and path of the fistula and possible stricture or other sleeve-associated anatomic abnormalities. Total parenteral nutrition or enteral feeding were indicated in every case to improve nutritional status for the procedure. Previous treatment sessions of endoscopic management involving clips, fibrin glue, high-pressure pneumatic balloon dilation, and coated self-expanding stent placements and operations to drain abscesses and improve septic conditions were performed in all patients before the gastrectomy by interventional radiology, endoscopy, and laparoscopic approaches. Only after the failure of all of these was the LTG performed as a surgical attempt to resolve the clinical situation by removing the chronic fibrotic and damaged tissue, relocating the staple line, and performing an anastomosis in healthy tissue, looking for better chance of healing.

#### Surgical technique

LTG was undertaken in the split-leg position with the operating surgeon standing between the patient's legs. Pneumoperitoneum was created with an optical bladeless trocar and 4 more surgical ports were inserted, using the previous incisional sites when possible. The lesser curvature and anterior wall of the remnant-sleeved stomach were, in general, severely adhered to the left lobe of the liver and abdominal wall, and careful removal of adhesions was done with hook electrocauterization, regular scissors, and harmonic shears. Dissection of the gastric sleeve greater curvature, lesser sac, hiatus, and esophagus was performed, and the vessels of the stomach were identified, divided, and clipped. The first

portion of duodenum was dissected and then stapletransected 2 cm below the pylorus using a linear stapler device with a 45-mm white cartridge. After full mobilization of the abdominal esophagus, it was transected with a 45-mm blue cartridge linear stapler. The biliopancreatic limb was measured from the ligament of Treitz for 50-60 cm; the intestinal limb was anastomosed to the esophagus (E-J anastomosis) with a 45-mm blue cartridge linear stapler and sutured over a 32F bougie with polydioxonone 3-0 (PDS<sup>®</sup>, Ethicon Endo Surgery, Inc.) 3-0 extramucosal running suture with no calibration. A side-to-side jejunojejunostomy was constructed with the alimentary limb at 100 cm with a 45-mm white cartridge linear stapler and closed with an extramucosal 3-0 PDS running suture. The Petersen and mesenteric openings were closed with nonabsorbable, running Ethibond 2-0 suture, and a methylene blue leak test was done. Then the Billroth II like limb was converted into a Roux-en-Y by dividing the limb connecting the E-J and enteroanastomosis with a 45-mm white cartridge linear stapler. A drainage tube was placed around the E-J anastomosis and the duodenal stump; fascial incisions > 10 mm and the skin incisions were closed. All the operations were done in a high-volume bariatric center by the same bariatric surgeon, who performed approximately 1000 bariatric procedures each year.

#### Results

Over a period of 5 years (from January 2008 to December 2012), the charts of 12 patients (n = 12; 5 male patients) with a mean age of 44.5 years (range 18-62) undergoing LTG for esophagogastric junction chronic fistula after LSG were included. All but 1 patient were referred cases. The average total operative time of these procedures was 5 hours (range 4-7). The previous number of surgical interventions before the total gastrectomy ranged from 1 to 6 (mean 4) per case. Also patients were submitted to endoscopic attempts to close the fistula with an average of 5 sessions (range 3-8). Time from LSG to LTG ranged from 6 to 30 months (mean 16 mo). Patients had a postoperative length of stay of 6 days (range 5-12) and were able to walk on the second postoperative day. A liquid diet was given to most of them on the third postoperative day. There were no deaths, and complications occurred in 2 cases, with pneumonia in 1, treated with antibiotics and pulmonary physiotherapy, and an intestinal occlusion in another, caused by partial bowel herniation at the site of 1 of the 12-mm trocars (Richter hernia). This last patient required reoperation on the fifth postoperative day with good recovery. Demographic data and other clinical features of the patients are summarized in Table 1.

#### Discussion

The sleeve gastrectomy (SG) was first described as an effort to improve the results of the classic biliopancreatic

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