

Experimental devices and newer techniques

Laparoscopic gastric plication: Technical report

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Abstract

Background: Laparoscopic gastric plication is an emerging restrictive bariatric procedure but still lacks standardization of the technique. The aim of this study was to apply a standardized, modified 3-port approach to laparoscopic gastric plication to improve outcomes.

Methods: The modified laparoscopic gastric plication technique was applied for 63 morbidly obese patients between March 2010 and January 2013. There were 9 men and 54 women, with a mean age of 34.2 years (range 20–48 years) and a mean body mass index of 38.9 kg/m² (range 32–65 kg/m²).

Results: There were no deaths, no conversion to laparotomy, no reoperation, and no readmission. Percent excess weight loss was 41%, 52%, and 60% at 3, 6, and 12 months, respectively. There were no major complications reported in our study, but prolonged early postoperative nausea and vomiting occurred in 3 of 63 (4.8%) patients who had been successfully treated with proton pump inhibitors and antiemetics.

Conclusions: Our initial experience showed that the 4-bite technique starting 2 cm below the angle of His with tight calibration of the gastric tube for obese patients is feasible, effective, and well tolerated, with a low frequency of major problems. (*Surg Obes Relat Dis* 2014;10:151–154.) © 2014 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords:

Laparoscopic; Gastric Plication; Technique

Laparoscopic sleeve gastrectomy (LSG) has become a commonly performed bariatric procedure because of the several advantages that it carries over other bariatric procedures, such as laparoscopic Roux-en-Y gastric bypass [1]. LSG has no bypass anastomosis, making the upper digestive tract accessible to endoscopy, the absorption of drugs is not affected, and micronutrient and vitamin deficiencies are similar to those observed after pure restrictive procedures, with the exception of vitamin B₁₂. Furthermore, because there is no division of the bowel, no mesenteric defect is created, avoiding the risk of internal hernia, a potential complication of gastric bypass and duodenal switch [2]. For these reasons, several bariatric surgeons have accepted this procedure not only as a bridge to gastric bypass [3] or duodenal switch [4] but also as a stand-alone procedure [5].

Although LSG is considered by most to be a technically simple procedure, complications have been seen in LSG that

are attributable to its long staple line with the potential for bleeding or leak. Moreover, the irreversible nature of LSG might be less attractive to some patients [6,7]. Laparoscopic gastric plication (LGP) is a newly emerging restrictive bariatric operation in which the greater curvature of stomach is sutured vertically in rows to reduce its volume. The operation was initially proposed by Talebpour et al. [8], and subsequently, several authors have reported that the operation is feasible and well tolerated, with early results comparable to those of other restrictive procedures [9–15]. In a recent paper published by Talebpour et al., they concluded that LGP is as effective as other restrictive methods to lose weight. Its advantages include easy follow-up, no foreign body, much less cost, low complications (.6%), low reoperation rate (1%), with only 31% weight regain at up to 12 years follow-up, an easy plan for a group that regains weight, and psychological advantage due to a sense of normal physiology and anatomy without any resection. This method does not prohibit secondary malabsorptive methods (2-stage operation) in cases with insufficient weight loss [16]. However, the major criticism for LGP

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is lack of standardization. The surgical technique is one of the major determinants of the success of this procedure. Herein, we present a standardized and modified LGP that was adopted in 63 consecutive morbidly obese patients.

Methods

The data of morbidly obese patients who were underwent LGP by our standardized technique were analyzed. This technique was adopted in 63 consecutive patients between March 2010 and January 2013. There were 9 men and 54 women, with a mean age of 34.2 years (range 20–48 years) and a mean body mass index (BMI) of 38.9 kg/m² (range 32–65 kg/m²). An informed consent was obtained from all patients, and our local ethical committee approved the study.

Surgical technique

The patient was placed on the operating table with 30-degree reverse Trendelenburg in the French position with the surgeon standing between the legs, the assistant at the left side, and the cameraman to the right of the patient. With the skin of the abdominal wall elevated by 2 towel clips, the Veress needle was inserted into the umbilicus for establishment of pneumoperitoneum at 12–15 mm Hg. Alternative techniques for establishment of pneumoperitoneum were used when necessary, such as insertion of the needle at Palmer's point in the left upper quadrant, the use of optical trocar (OptiView; Ethicon Endo-Surgery, Cincinnati, OH), or use of open Hasson technique. A 10-mm port for the camera was placed 20 cm below the xiphoid process slightly to the left from the midline. Under direct visualization, other trocars were placed as follows: a 5-mm port for the surgeon's left hand at the right midclavicular line a hand breadth from camera port, a 5-mm port for the right surgeon's hand at the left midclavicular line a handbreadth from the camera port. Two 5-mm ports could be placed; a 5-mm port for assistant subcostally at the left anterior axillary line and a 5-mm port for liver retraction just under the xiphoid process. The liver was lifted using an endograsper only in selected cases when it impairs the access to the stomach.

The greater curvature of the stomach was freed by dividing the attachment of the gastrocolic ligament to the greater gastric curvature. Gastrolysis is always started from the middle of the stomach, as the vessels and adhesions are fewer in this area, making the entry into the lesser sac easier. The vascular supply to the greater curvature was divided with the harmonic scalpel (Ethicon Endo-Surgery Inc., Cincinnati, OH) not close to, but a few centimeters away from the stomach wall (Fig. 1). Gastrolysis extended proximally up to 2 cm below the cardioesophageal junction preserving the angle of His and distally down to 2 cm proximal to the pylorus. Once the stomach was dissected free, a 38F bougie was inserted by the anesthesiologist and directed through the pylorus (Fig. 2). Under its guidance,

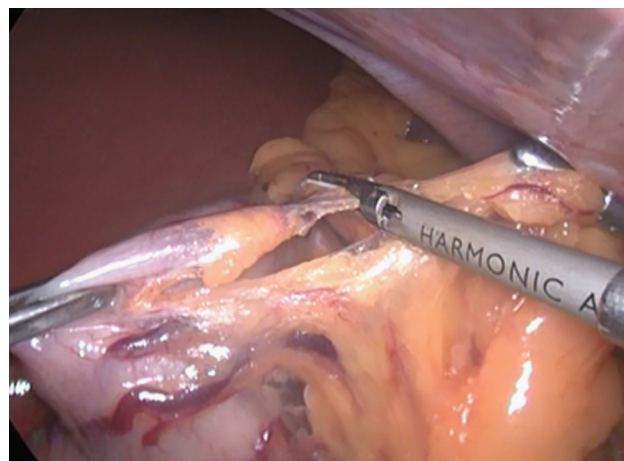


Fig. 1. Division of gastrosplenic ligament away from gastric wall.

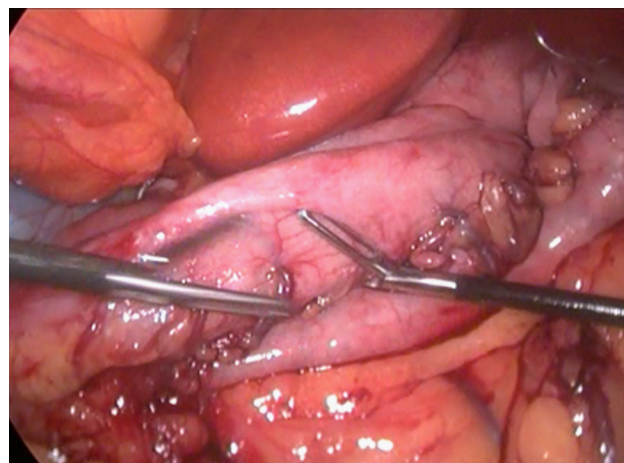


Fig. 2. Calibration tube inside the stomach before plication.

the stomach was vertically sutured with 2 rows of stitches. The inner row was 10–13 extramucosal nonabsorbable interrupted stitches (2-0 Ethibond; Ethicon, Inc., Somerville, NJ) separated 2 cm apart starting 2 cm below the

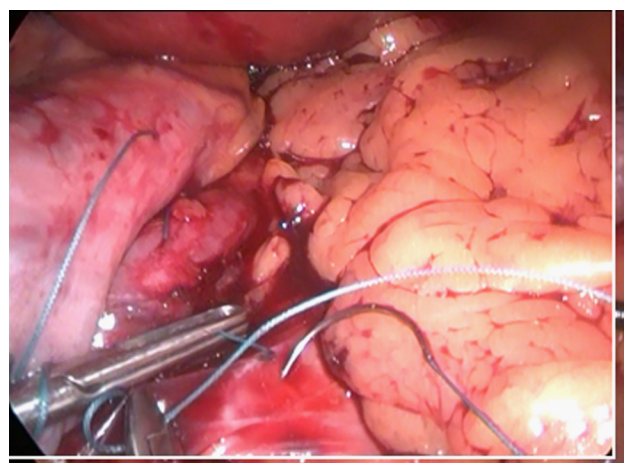


Fig. 3. Plication stitches beginning about 2 cm below the angle of His.

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