ELSEVIER
Surgery for Obesity and Related Diseases 000 (2018) 1–10
SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Laparoscopic stomach intestinal pylorus-sparing surgery as a revisional option after failed adjustable gastric banding: a report of 27 cases with 36-month follow-up

Amit Surve, M.D., Hinali Zaveri, M.D., Daniel Cottam, M.D.*, Austin Cottam, H.S., Samuel Cottam, H.S., LeGrand Belnap, M.D., Walter Medlin, M.D., F.A.C.S., Christina Richards, M.D., F.A.C.S.

Bariatric Medicine Institute, Salt Lake City, Utah

Received 28 December 2017; received in revised form 23 April 2018; accepted 2 May 2018; Available online xxx

Abstract

Background: Inadequate weight loss, weight recidivism, and device-related complications after an adjustable gastric banding (AGB) can be treated by a laparoscopic conversion to stomach intestinal pylorus-sparing surgery (SIPS).

Objective: The aim of the study was to analyze the midterm outcomes of revision SIPS surgery after failed AGB.

Setting: Private practice, United States.

Methods: This is a retrospective review of our prospectively collected data of patients who underwent laparoscopic conversion from AGB to SIPS surgery from June 2013 and February 2017 by a single surgeon in a single institution.

Results: Twenty-seven patients (1 stage: 22 and 2 stage: 5) underwent a laparoscopic revision of AGB to SIPS surgery. The mean ± standard deviation preoperative body mass index (BMI) before AGB was 47.5 ± 6.8 kg/m^2, while the mean nadir BMI after AGB was 36 ± 7.7 kg/m^2. The overall time to reoperation was 9.3 ± 8.7 and 5.6 ± 2.5 years in 1- and 2-stage conversion patients, respectively. The mean preoperative BMI before revision SIPS surgery was 46.7 ± 7 kg/m^2. At 36 months, the patients had an average change in BMI of 20.9 units with 90% excess weight loss. A major complication occurred in 4 patients. Postoperatively, the fasting blood glucose, insulin, low-density lipoprotein, triglyceride, and most of the co-morbidities were resolved or improved.

Conclusion: This study demonstrates that conversion of failed AGB to SIPS surgery is an effective approach to AGB failure. (Surg Obes Relat Dis 2018;000:1–10.)

Keywords: Stomach intestinal pylorus-sparing surgery; SIPS surgery; Failed adjustable gastric banding; Weight regain; Bariatric; Revision

There are now a multitude of studies that demonstrate the high incidence weight recidivism and long-term complications in adjustable gastric banding (AGB) [1–6]. To date, several authors have reported their approach to dealing with this often complex problem with sleeve gastrectomy (SG), Roux-en-Y gastric bypass (RYGB), mini-gastric bypass (MGB), and biliopancreatic diversion with duodenal switch (BPD-DS) [7–10]. Controversy currently exists regarding the best choice for patients once they require removal of the AGB.

*Correspondence: Daniel Cottam, Bariatric Medicine Institute, 1046 East 100 South, Salt Lake City, UT 84102.
E-mail address: drdanielcottam@yahoo.com (D. Cottam).

https://doi.org/10.1016/j.soard.2018.05.001
1550-7289/

In 2013, our group began performing a modification of the traditional duodenal switch (DS) using a single anastomosis instead of a Roux-en-Y reconstruction with the sleeve done over a 40- to 42-Fr bougie [11,12]. This modification was named the stomach and intestinal pylorus-sparing (SIPS) surgery. We have used this surgery in the past for patients who have failed the RYGB [13]. However, the outcomes of SIPS surgery in patients with failed AGB are still unknown.

We report our preliminary experience with 1- and 2-stage revision SIPS surgery in patients who had AGB as their primary surgery. We have also compared the outcomes between 1- and 2-stage revision SIPS surgery, and the outcomes between the nonresponders (insufficient weight loss or weight regain) and AGB complication group. This is the first report in the literature that reports the outcomes of SIPS surgery after failed AGB.

Methods

After obtaining an institutional review board approval, we searched our database from June 2013 through February 2017. The failure of AGB was defined as not losing or not maintaining >50% weight loss at 18 months or having a slip postoperatively. The patients who met the criteria for AGB failure were given various revision surgery options; after detailed discussion with the surgeon, the patients chose to undergo laparoscopic SIPS surgery.

Because the International Federation has only declared the SIPS surgery not investigational for the Surgery of Obesity and not the American Society for Metabolic and Bariatric Surgery, we chose to alter our preoperative consent process [14]. Our consent process includes a discussion of the papers present in the literature as well as the differences between a Roux-based DS and a single anastomosis DS. Finally, the patient signs a specific consent for single anastomosis DS that includes a specific diagram of the proposed operation.

A multidisciplinary team (nutritionist, psychologist, and surgeon) routinely evaluated each patient preoperatively. The relevant information included demographic characteristics, indication for conversion, time from the AGB to the SIPS surgery, operative time, length of hospital stay, morbidity and mortality rates, nutritional data, co-morbidity data, and weight loss data. Co-morbidities included were, type 2 diabetes (T2D), hypertension (HTN), obstructive sleep apnea, and gastroesophageal reflux disease (GERD). Presence of co-morbidity was based on medication use or a positive sleep study. A single surgeon at a single private institution performed all operations. The patients were followed-up at our office clinic at 1, 3, 6, and 12 months postoperatively and yearly after that to assess weight loss, complications, and mortality.

The patients underwent either 1- or 2-stage revision SIPS surgery. The method of a 1- or 2-stage operation depends on the surgeon's preference, reasons for band removal, and overall patient safety. One-stage revision SIPS surgery consisted in removing the AGB and performing the laparoscopic SIPS procedure simultaneously. Two-stage revision SIPS surgery consisted in removing ABG and interval conversion to laparoscopic SIPS surgery.

Statistical methods

Patients had their weight loss modeled on a nonlinear regression curve. Patients then had their weight loss interpolated at 12, 18, 24, and 36 months. A patient data for each interpolated weight loss was only included if the individual regression had an r^2 value >.95 (simply, this means that at most 5% of the weight loss cannot be explained by time since the operation, but by extraneous variables). At each time interval, weight loss was measured, and then averages and standard deviations were calculated. Weight loss results were then compared using *t* tests.

Nutritional data and complications were gathered for each patient; χ^2 tests, Fisher exact tests, and z tests were then run to compare the nutritional rates between the 2 procedures.

All statistical analyses were run through SigmaPlot™ (Systate Software Inc., headquartered in San Jose, CA) statistical software.

Surgical technique

For the single-stage approach, we first removed the lapband port (Fig. 1). Once this was accomplished, the ileocecal valve was located, and then the small bowel was traced retrograde to 300 cm and brought up and tacked to the gastrocolic omentum. We then took down adhesions from the old band and removed the old band and the adhesions under the band. At this point, we were able to begin the dissection to the lesser sac and then sequentially fire a Gastrointestinal Anastomosis (Covidien, Minneapolis, MN) stapler 5 cm from the pylorus, onto the stomach approximately 1.5 cm, and then fire up the greater curve of the stomach after a sizing tube (40-Fr bougie) from the Allergan Corporation. We then brought this all the way up to the angle of His, and after we had created a long sleeve, we then looked over the entire staple line to make sure that there were no places that were narrowed at all, and there were no places where there were staple line problems. The stomach was taken out of the abdominal cavity. We then dissected free the duodenal bulb 3 cm from the pylorus circumferentially and transected it using a Gastrointestinal Anastomosis stapler [15]. We then oversewed the duodenal stump using PDS (Polydioxanone) suture. Next, we brought up the loop limb and sewed it to the duodenal stump using 2.0 polysorb (Medtronic, Minneapolis, MN, USA). Enterotomies were made in both limbs, and 3.0 polysorb was used to do another posterior row. An anterior row was also done using 3.0 polysorb.

Please cite this article as: Amit Surve et al., Laparoscopic stomach intestinal pylorus-sparing surgery as a revisional option after failed adjustable gastric banding: a report of 27 cases with 36-month follow-up, Surgery for Obesity and Related Diseases (2018), https://doi.org/10.1016/j.soard.2018.05.001