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Case report

Placement of a laparoscopic adjustable gastric band after failed sleeve gastrectomy

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Originally introduced in 1988 as part of a duodenal switch operation [1,2], the laparoscopic sleeve gastrectomy (LSG) has become a popular primary procedure for morbidly obese patients. Although LSG is most often indicated for the super obese patient group, its use has recently been advocated for multiple subsets of the morbidly obese population, including patients with a body mass index >35 kg/m^2 with co-morbidities, patients with contraindications for gastric adjustable banding, morbidly obese adolescents, and those patients for whom malabsorptive procedures would be contraindicated [3,4].

Long-term follow-up after LSG as a primary procedure, however, is not yet available, and concerns regarding its efficacy persist. Because the use of LSG is increasing, we could begin to see an increased number of failures; thus, it will be important to define an approach for failed LSG. To illustrate 1 method of managing this problem, we report the placement of a laparoscopic adjustable gastric band (LGB) after failed LSG.

Case report

A 42-year-old man with a history of depression and morbid obesity presented to our group 4 years after undergoing LSG performed over a 60F bougie. His original weight had been 390 lb (ideal weight 200 lb) with a body mass index of 48.7 kg/m^2. Within 9 months of the original LSG, he had reached a low weight of 325 lb; however, by 3 years postoperatively, he had stabilized at 360 lb, for a net 16% excess weight loss (EWL), despite adequate dietary and nutritional guidance. Our workup included an upper gastrointestinal GI study, which showed a significant amount of residual stomach (Fig. 1). These findings suggested likely inadequate restriction at the first surgery; however, dilation of the sleeve with time could not be excluded.

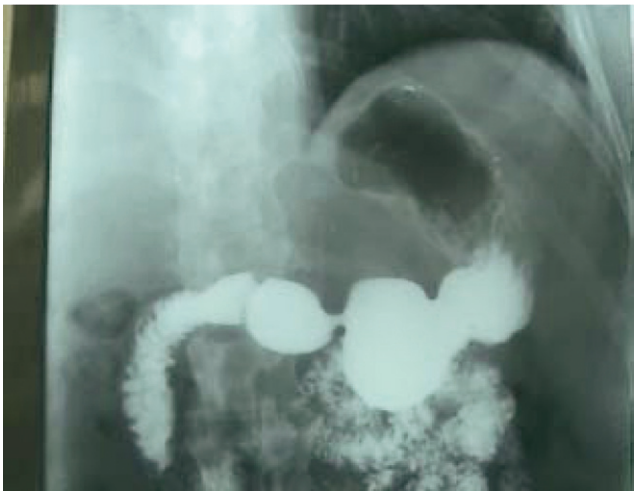

Fig. 1. Preoperative upper GI swallow revealing dilated sleeve.

We discussed with the patient various surgical options, including a secondary LSG over a smaller bougie (also known as “re-sleeve gastrectomy” or “reoperative sleeve gastrectomy”) [5,6], a malabsorptive procedure such as the duodenal switch, or conversion to Roux-en-Y gastric bypass (RYGB). However, he refused these options, because he was dependent on several oral antipsychotic medications. He was interested in whether a band could be added to increase the restriction. We agreed that given the appear-

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ance of the stomach on his upper GI study, a band could be placed in a normal position, proximal to any staple line of the sleeve. It was also agreed that if a band were not technically feasible, secondary LSG would be performed over a smaller bougie. The patient understood that postoperative weight loss could not be guaranteed, and he provided detailed informed consent.

Surgical procedure

We performed the procedure in a fashion similar to what we use to perform primary LGB. We entered the abdomen in the left upper quadrant using a 5-mm OptiView trocar (Ethicon Endosurgery, Cincinnati, OH). At 6 cm superior to the umbilicus, we inserted a 5-mm trocar laterally in the right upper quadrant, a 15-mm trocar to the right of midline, and a 5-mm trocar to the left of midline. A liver retractor was also placed.

We first inspected the residual stomach to ensure that a band could be safely inserted in a virginal plane proximal to the old staple line of the sleeve. We dissected the epiphrenic fat pad off the anterior serosa of the gastroesophageal junction and determined that enough tissue was present to perform the stomach plication over the band.

After dissecting out the angle of His, we inserted a VG-size Lap-Band System (Allergan, Irvine, CA) using a standard "pars flaccida" technique. The lesser omentum was opened, and the lesser sac was entered bluntly using a long grasper that was then passed behind the stomach until its tip was visualized in front of the left crus near the angle of His. The grasper was used to pull the Lap-Band retrogastrically, and then the band was buckled. Four interrupted nonabsorbable sutures were used to fix a portion of the remaining fundus of the stomach to the anterior cardiac portion of the stomach, securing the band in place. Finally, the port was placed in the right upper quadrant. Postoperatively, a standard upper GI contrast swallow study confirmed the anatomic position of the band (Fig. 2). The patient had had no postoperative complications at the last follow-up visit.

Follow-up

At 9 months postoperatively, the patient had undergone 3 adjustments to the band (6 cm^3 placed total). At his 9-month visit, he weighed 282 lb (body mass index 35.2 kg/m^2), correlating to a 57% EWL from his initial weight.

Discussion

LSG functions as a restrictive operation and has been growing in popularity. The target patient population has expanded from the super obese to a variety of morbidly obese patients. Given the comparable weight loss efficacy of LSG to the other standard bariatric operations, several specific groups of patients have been identified who would benefit most from it as an isolated procedure. They include, but are not limited to, patients concerned about the potential long-term side effects of intestinal bypass, those who cannot risk malabsorption of oral medications, patients at high medical risk, patients at risk of ulcer formation, and patients who are considering a band but either do not want a foreign body or would be unreliable for follow-up [7]. As the incidence of LSG increases, so could the complexity of its associated complications and failures. With our case report of a failed sleeve treated with laparoscopic adjustable gastric banding, we present a simple, yet novel, solution for failure of a sleeve gastrectomy to induce adequate restriction and weight loss.

The LSG originated as the restrictive portion of a biliopancreatic diversion with a duodenal switch (BPD-DS). It was then postulated that by "staging" the BPD-DS in the high-risk super-obese population, the overall morbidity associated with operating in this group could be reduced [8]. Soon after this discovery, studies demonstrated that, in addition to serving as a good first-stage operation for the super obese [9], LSG could induce impressive weight loss alone (i.e., 50–80% EWL at 12 months [10,11]), which might be comparable, at least in the short term, to that achieved with BPD-DS and RYGB [7]. Furthermore, in addition to its restrictive effects with early satiety [2], isolated LSG has been proved successful because of its beneficial effects on plasma ghrelin levels [12].

Although many experienced surgeons who perform LSG have described well-maintained weight loss (>55% EWL) at 3 years, some patients appear to have an inefficacy for adequate weight loss [13]. In addition, the longest published follow-up of isolated LSG data was limited to approximately 3 years. Himpens et al. [14] published a randomized prospective trial in 2006 comparing LSG and LGB and found that patients sustained a 66% EWL at 3 years after LSG and that 5% (2 of 40) required a second operation for

Fig. 2. Postoperative upper GI swallow showing band to be in good position.

inefficacy. In another study, Lee et al. [7] argued that LSG would be able to achieve significant weight loss comparable to that after the BPD-DS and RYGB. However, their conclusions are at risk of the typical selection biases associated with nonrandomized retrospective studies [7]. It is clear that LSG will play a role in the treatment of obesity, and follow-up data of >5 years should help confirm its efficacy. With its success will come some failures, and developing safe options to treat such patients will be important.

When presented with a patient after LSG who has been unable to lose weight, one must consider a number of etiologies. Because high-caloric foods such as ice-cream and milkshakes can still be absorbed and easily digested [5], patients with poor nutritional guidance and/or exercise habits might not benefit from LSG. In addition, one must also consider the possibility of failed restriction—either that the gastric diameter was left too large at the initial surgery or that the sleeve has dilated with time [11].

If restriction is adequate, we agree that one should recommend proceeding with conversion to BPD or RYGB. If, however, clear evidence is seen of inadequate restriction on upper GI radiography, we believe that—as demonstrated in the present case report—a safe and efficient option to increase restriction could be the addition of an adjustable gastric band. In addition, one should consider performing secondary LSG with a smaller bougie [5,6,11] or conversion to laparoscopic RYGB. Endoluminal suturing might have a role in failed sleeves; however, to date, this approach has only been reported after failed RYGB [15].

To our knowledge, the placement of a gastric band proximal to a LSG has not yet been reported. In addition to being relatively simple to perform, a theoretical advantage to this procedure is that it avoids the additional staple lines associated with revisional bariatric surgery. Although our patient at last follow-up had not had any postoperative complications, the theoretical drawbacks of the procedure include band erosion, slippage, puncturing of the band by the staple line, or the finding of inadequate stomach to plicate over the band.

Conclusion

As demonstrated in this case report, in certain patient populations with failed LSG, the insertion of a LGB into its normal anatomic position proximal to the staple line of the sleeve could be feasible and effective in inducing significant weight loss. Additional studies with a greater number of patients and longer follow-up are needed.

Disclosures

B. P. Jacob has an association with Covidien, Inc.

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