Case report

Augmenting weight loss after laparoscopic adjustable gastric banding by laparoscopic gastric plication

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Laparoscopic adjustable gastric banding (LAGB) has been widely accepted as weight loss surgery for treating morbid obesity. However, combating stagnant weight loss after achieving $>50\%$ excess weight loss (EWL) is a tedious problem. We describe the case of a patient who was successfully treated with laparoscopic gastric plication after his weight had plateaued following LAGB. The patient was able to lose an additional 14 kg during the 4 months after gastric plication.

Case report

A 27-year-old man weighing 115 kg, with a body mass index (BMI) of 40.75 kg/m\textsuperscript{2} and no co-morbidities had undergone LAGB 3 years previously. He had lost 23.4 kg and achieved an EWL of 52\%. After 30 months, his weight had become static, and he had not been able to lose any additional weight for 6 months. He then presented with symptomatic gall bladder stones that caused biliary colic and was scheduled to undergo laparoscopic cholecystectomy. At that point, his BMI was 32.45 kg/m\textsuperscript{2}. Although the achievement of an EWL of 52\% indicated the success of his LAGB, he still weighed 21.15 kg more than his ideal body weight, estimated for a target BMI of 25 kg/m\textsuperscript{2}. He was offered laparoscopic total vertical gastric plication (TVGP) and laparoscopic cholecystectomy with the intention of augmenting his weight loss. He was provided informed consent, and we performed laparoscopic cholecystectomy and TVGP. The cholecystectomy was performed first. Next, using a trocar arrangement similar to that for laparoscopic sleeve gastrectomy, we bared the greater curve at 3 cm from the pylorus to the angle of His using a harmonic scalpel. A 38F orogastric tube was placed, and the stomach was then tabularized over it by invaginating the gastric wall and securing it with continuous 2-0 Ethibond (Ethicon, Somerville, NJ) gastrogastric sutures from the angle of His to a point 3 cm short of the pylorus (Fig. 1). The TVGP required 45 minutes to complete, with 20 mL blood loss. He had an unremarkable recovery and was discharged from the hospital 18 hours after surgery, with instructions to consume a liquid diet. His postplication dietary regimen was similar to that prescribed to patients undergoing sleeve gastrectomy. At 4 months after TVGP, he had lost an additional 14 kg, and his BMI was 27.5 kg/m\textsuperscript{2}, for a total EWL of 82.6\% from the first surgery. A barium meal test performed at 3 months (Fig. 2) showed the plication to be intact, with the stomach contour...
resembling that of a sleeve gastrectomy patient. Our patient has been very satisfied with the outcome of the second procedure.

Discussion

Bariatric surgery is undoubtedly the most effective and sustainable weight loss option for morbidly obese patients. The selection of a bariatric procedure must be tailored to the patient characteristics to ensure long-term weight loss and also to honor the wishes of the patient.

Restrictive procedures such as LAGB and sleeve gastrectomy have gained popularity, because they are technically less demanding and have lower complication rates compared with malabsorptive procedures [1]. Moreover, LAGB is completely reversible, with lasting weight loss and control of co-morbidities [2]. However, compared with other procedures, LAGB has some potential disadvantages, including band slippage, erosion, pouch dilation, leaks, port site complications, the repeated band adjustment requirement, and unsatisfactory weight loss [3]. Inadequate weight loss after LAGB is not an infrequent problem. van Wageningen et al. [4], in their series of revisional bariatric surgery, reported that 29 of their 47 patients needed to undergo revisional surgery for insufficient weight loss after LAGB. The Reinhold criteria have defined inadequate weight loss as < 25% EWL [5]. For patients experiencing insufficient weight loss, Roux-en-Y gastric bypass is a superior option [6]. A unique challenge lies in treating a patient whose weight loss has plateaued after achieving 50% EWL but with a need for additional weight loss for multiple reasons. In such a scenario, a tailor-made approach should be used to address the problem with the patient, with emphasis on the potential benefits versus disadvantages of revisional surgery. All revisional procedures, except for band revision, involve division of the gastrointestinal tract. However, Talebpour et al. [7], using a novel technique, TVGP, reported a 3-year %EWL similar to that of conventional sleeve gastrectomy without the need for dividing the stomach. We used this technique in the present patient to augment our patient’s static, but successful, weight loss during his scheduled laparoscopic cholecystectomy. Instead of what could have been a long effort at additional weight loss, gastric plication helped salvage the scenario, and the BMI of our patient decreased to 27.5 from 32.45 kg/m² at 4 months of follow-up and continued to show a downward trend. Although this technique is in its infancy, it has the potential of becoming an alternative to medical treatment alone in such cases, particularly if the long-term results are also positive.

A novel application of this technique is the central theme of our current research project. We are investigating the combined use of plication and gastric banding in morbidly obese patients electing to undergo gastric banding. We have used the term “laparoscopic adjustable banded gastric plication” (LABGAP) for this new procedure that combines LAGB and plication. The idea is to achieve weight loss with plication and reserve the gastric band for the future, with the hope that we will be able to achieve greater EWL compared with either technique alone, without compromising the care of our patients.

Conclusion

Laparoscopic total vertical gastric plication could be potentially added to the list of procedures that could be considered for patients who have achieved successful weight loss but have still not achieved their ideal target weight and for whom a more radical surgery might not be indicated or chosen. Until long-term results are available, the application of this procedure should be in the context of investigational protocols.

Disclosures

The authors have no commercial associations that might be a conflict of interest in relation to this article.

References