

Laparoscopic Insertion of a Gastric Band for Weight Gain Following Laparoscopic Roux-en-Y Gastric Bypass: Description of the Technique

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Abstract

Background A recently published prospective series has demonstrated that weight loss ceases 18 to 24 months following Laparoscopic Roux-en-Y gastric bypass (RYGB) and that, by 48 months, there is significant weight regain in 50% of patients.

Methods We report the case of a 38-year-old male patient who developed significant weight regain 42 months following laparoscopic (RYGB) and underwent laparoscopic placement of a Swedish adjustable gastric band (SAGB) around the gastric pouch.

Results In previous reports, the gastric band was placed around the upper part of the stomach. This paper provides the first report of the placement of a gastric band around the lower gastric pouch, just above the gastrojejunal anastomosis, in the management of weight regain following laparoscopic RYGB. Prior to revision surgery, the patient's weight was 95 kg [body mass index (BMI) 31 kg/m², excess weight loss 65%].

Conclusion Four months following the procedure this had reduced to 82.1 kg (BMI 26 kg/m², excess weight loss 90%).

Keywords Roux-en-Y gastric bypass · Bariatric surgery · Morbid obesity · Adjustable gastric banding · Revision surgery · Post-bariatric surgery weight loss

Introduction

A recently published prospective series has demonstrated that significant weight loss ceases 18 to 24 months following Roux-en-Y laparoscopic gastric bypass (RYGB) and that, by 48 months, there is significant weight regain in 50% of patients [1]. We report the case of a 38-year-old male patient who developed significant weight regain 42 months following laparoscopic (RYGB) bypass and underwent laparoscopic placement of a Swedish adjustable gastric band (SAGB; Ethicon EndoSurgery) around the gastric pouch. In previous reports, the gastric band was placed around the upper part of the stomach [2–5]. This paper provides the first report of the placement of a gastric band around the lower gastric pouch, just above the gastrojejunal anastomosis, in the management of weight regain following laparoscopic RYGB.

Case Report

A 35-year-old man weighing 129 kg [body mass index (BMI), 42.1 kg/m²; ideal body weight, 77 kg, assuming a BMI of 25 kg/m²] underwent laparoscopic RYGB in October 2004. The gastric pouch was formed over a 32-French gauge bougie, the stomach being divided between the second and third vessels below the gastroesophageal junction on the lesser curve side. Care was taken to include the posterior gastric wall and to remain close to the esophagus when forming the upper part of the gastric pouch in order to ensure that the pouch was cylindrical. The biliopancreatic and alimentary limbs were each 80 cm in length. A Gastrografin® swallow on the first postoperative day was normal, and the patient was discharged home well on the second postoperative day. He attended for regular

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review. Nine months following surgery, he became concerned about rapid weight loss. His weight at this time was 84.5 kg (BMI, 27.9 kg/m²; excess weight loss, 85.5%). At review 42 months following surgery, he reported that he was able to eat as much as he liked and that he had been gaining weight for the last 6 months. His weight at this time was 95 kg (BMI, 31 kg/m²; excess weight loss, 65%). A barium study was performed, which examined the size of the pouch and excluded a fistula between the gastric pouch and gastric remnant. The gastric pouch was estimated to have increased in size by one third since the time of surgery. After discussion with the patient, it was agreed that he should undergo laparoscopic insertion of a gastric band in order to prevent further weight gain and to encourage weight loss.

A five-port laparoscopic approach was made. Minimal adhesions between the greater omentum and abdominal wall were divided, and the gastrojejunal anastomosis then came into view. Adhesions between the left lobe of the liver and gastric pouch were divided carefully using sharp dissection without an energy source, so as not to inadvertently open the gastric pouch. The lesser omentum was then revealed and opened and the right crus identified. The peritoneum on the medial edge of the right crus was divided and a retrogastric tunnel dissected in the standard manner. The angle of His was dissected free of adhesions and the left edge of the gastric pouch identified. A trial passage of the Goldfinger dissector (Ethicon EndoSurgery) was then undertaken. It was not possible to pass it around the gastric pouch due to adhesions between the gastric pouch and the gastric remnant. Attempts were then made to separate the pouch from the gastric remnant using a combination of blunt and sharp dissection but were abandoned as too likely to cause perforation. A perigastric dissection on the right-hand side of the gastric pouch, just above the level of the gastrojejunal anastomosis, was then attempted. It was possible to develop a plane behind the gastric pouch without coming into contact with the gastric remnant, with relative ease. The Goldfinger dissector was then easily passed behind the gastric pouch and the gastric band drawn back through and locked around the lower end of the pouch. Sutures were not inserted to hold the band in place because of the lack of sufficient tissue to cover the band without the sutures coming into contact with the band itself. The final position of the band was approximately 1 cm above the gastrojejunal anastomosis.

Four milliliters of saline were inserted into the band 4 weeks postsurgery. Adequate restriction was only experienced, and weight loss started when a fill volume of 9 ml was achieved.

Four months following the procedure, the patient's weight had reduced to 82.1 kg (BMI 26 kg/m², excess weight loss 90%).

Discussion

Weight regain is a significant problem for patients undergoing RYGB [1–6]. The reason why this occurs may be related to pouch dilatation, pouch anatomy, fistula formation, the size of the stoma at the gastrojejunal anastomosis, hormonal, and patient factors [1–6]. While longer limb RYGBs produce more rapid weight loss, they are also associated with a higher incidence of malnutrition, and there is no significant difference in weight loss at 5 years compared with those patients who have a standard limb length [6]. Revision bariatric surgery can be technically demanding and lead to serious complications [7, 8]. It has been demonstrated that the insertion of a silastic ring around the gastric pouch at the time of RYGB can prevent long-term weight regain by restricting the size of the outlet to the gastric pouch [9].

Possible strategies designed to address weight gain following RYGB include reduction in the size of the gastrojejunal anastomosis, reduction of the pouch volume or the insertion of a ring made from silastic or other material or an adjustable gastric band, or conversion to a biliopancreatic diversion. These options were discussed with the patient, and it was agreed that the greatest body of evidence supported the effectiveness of some form of restriction to the pouch outlet (even though this evidence related to the use of restriction at the primary operation). We were aware that a number of patients having restrictive devices inserted had experienced degrees of vomiting or discomfort such that the device had to be removed. We therefore elected to insert an adjustable gastric band in the hope that it would be possible to avoid these complications and to ensure the greatest degree of control over the size of the outlet of the gastric pouch.

There are three papers describing the use of the adjustable gastric band in treating weight regain following gastric bypass.

Kyzer et al. [2] reported the use of the SAGB in 37 patients who had not achieved adequate weight loss following a primary procedure: 12 of these patients had previously undergone laparoscopic RYGB. All SAGBs were inserted at open operation, a retrogastric tunnel being created by blunt finger dissection “from the lesser curve to the angle of His.” The authors report that in the patients who had undergone RYGB, “the band was applied around the proximal pouch.” The bands were fixed with two Prolene® sutures (Ethicon EndoSurgery). Bleeding from the short gastric vessels was encountered in one patient. One patient had a perforation of the gastric pouch, while it was being dissected from the left lobe of the liver and another a perforation of the gastric fundus during formation of the retrogastric tunnel. The mean operating time was 83 min (range, 54 to 145 min).

Besler et al. [3] placed adjustable gastric bands around the gastric pouch in eight patients who had previously undergone RYGB. Five procedures were undertaken laparoscopically, and all used the pars flaccida approach. The fundus and anterior wall of the gastric remnant were plicated over the band in order to ensure “adequate fixation.” The report does not comment on the technical difficulty of the procedure, although the median operating time was 156 min (range, 105 to 240 min).

Gobble et al. [4] reported 11 patients in which the band was placed in the “usual” position after dissection of the angle of His and pars flaccida. Any anterior fat pad was removed to prevent acute stomal obstruction. Sutures were placed between the gastric remnant below and the pouch above or, if the pouch was very dilated, the pouch below and above the gastric band. Fixation to the Roux limb was considered unnecessary and was not performed.

All three groups chose to place the gastric band around the upper stomach in a manner similar to that employed when inserting a band as the primary procedure, and our initial intention was to do the same. We hoped that it would be possible to dissect a plane around the gastric pouch. However, the gastric pouch and gastric remnant were so adhered that it was not possible to separate them safely, and for this reason, this approach was abandoned. We then attempted a perigastric dissection around the lower gastric pouch, which we were able to complete successfully in a few minutes with minimal concern that we might be risking perforation of the gastric pouch or gastric remnant. While this is not the position we would normally expect to see a band in, its position is the same as that described for the ring in banded RYGB, and we might therefore reasonably expect the SAGB to act in a similar manner and be as effective. We also did not fix the band, largely because it was not technically possible. However, slippage in a band placed around the upper stomach tends to be anterior and associated with the large amount of stomach available to slip under the band. The gastric pouch is a tube with little redundant tissue, and therefore, we do not expect slippage

to be a particular concern. While it is possible that the alimentary limb could slip into the band, this has not proved a problem with bands applied in banded RYGB, and we agree with Gobble et al. [4] that fixation is unnecessary.

Placement of the gastric band around the lower gastric pouch was simpler and safer than the attempted placement around the upper gastric pouch, probably because the gastric remnant was not adherent to the gastric pouch at this level, and has resulted in an excellent postoperative weight loss. We recommend that surgeons should consider placing the gastric band at this site when performing gastric banding of a gastric pouch for weight regain following RYGB.

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