Endoscopic revision of gastric bypass using plication technique: an adjustable approach

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BACKGROUND AND AIMS

Roux-en-Y gastric bypass (RYGB) is one of the most commonly performed bariatric surgeries worldwide.1 Despite successful weight loss after RYGB, weight regain in subsequent years is common, with nearly one-third of patients returning to their prebypass weight.2,3 Although the cause of weight regain is often

Figure 1. Plication device used for restorative endoluminal obesity surgery. A surgical endoscope is used to deliver instruments to a working area in a controlled fashion. These instruments include the tissue approximator, which serves to grasp and oppose tissue, the helix to capture tissue to bring into the approximator, and needle catheters, which deliver a suture with 2 anchors for permanent tissue plication. Permission for reuse provided by USGI Medical (San Clemente, Calif, USA).

Figure 2. Dilated and incompetent gastrojejunal anastomosis. Evidence of a dilated and incompetent gastrojejunal anastomosis before (A) and after (B) argon plasma coagulation treatment. Argon plasma coagulation is performed to increase tissue strength and integrity, to serve as a foundation for plication placement, and to reduce risk for bleeding after plications.
multifactorial, one of the anatomic causes is dilation and increased tissue compliance of the gastrojejunal anastomosis (GJA), which is likely a larger contributor to weight loss than anastomosis size alone. Endoscopic therapies have evolved to treat weight regain due to a dilated or incompetent GJA, most commonly involving a suturing technique. However, a plication technique can serve as a more durable alternative with lower risk for suture breakage. This video case presentation highlights a 65-year-old woman with a history of obstructive sleep apnea and class 3 obesity, for which she underwent an RYGB in 2017 (Video 1, available online at www.VideoGIE.org). Although her weight decreased from a preoperative weight of 241 pounds to nadir of 177 pounds, she later regained nearly half of her lost weight after bypass, reaching 202 pounds. Diagnostic endoscopy revealed an incompetent or dilated GJA to 12 mm, and she presented for endoscopic revision of her gastric bypass, which involved a plication technique.

**METHODS**

The Incisionless Operating Platform (USGI Medical, San Clemente, Calif, USA) contains a surgical endoscope, tissue approximator, helix, and needle catheter components to deliver full-thickness tissue plications (Fig. 1). Argon plasma coagulation treatment (forced setting, flow 0.8 L/min at 70 W) was applied surrounding the dilated and incompetent GJA to reduce tissue compliance and encourage tissue healing and to reduce bleeding (Fig. 2). To minimize the risk of stenosis, a narrow margin with reduced tissue exposure was pursued when using argon plasma coagulation. A total of 2 full-thickness plications were placed around the GJA to reduce the gastric outlet diameter and reduce compliance (Figs. 3 and 4), followed by an additional 6 plications to the gastric pouch for volume reduction during the same procedure. The case was successfully performed without periprocedural adverse events.

**RESULTS**

Despite initial weight loss, the patient developed nausea, vomiting, and intolerance to oral intake. Repeat endoscopy demonstrated GJA stenosis (Fig. 5), requiring balloon dilation to 7 mm. However, given persistent symptoms, she later underwent placement of a 10- × 10-mm lumen-apposing metal stent (LAMS) (Fig. 6). This decision was pursued to ensure gradual outlet expansion to a reliable stent diameter of 10 mm, while reducing risk for injury during repeat balloon dilation or recurrent weight regain due to excessive dilation. LAMS placement resulted in resolution of symptoms while the patient...
maintained a liquid-to-soft-solid diet. Repeat upper endoscopy 6 weeks later allowed for successful LAMS removal and dilation of the anastomosis using a 10-11-12 mm balloon, after which a narrowly patent GJA was seen (Fig. 7). This resulted in durable symptom resolution while maintaining effective weight loss. Over 6 months, she achieved a 25-pound weight loss, reducing her body mass index from 35.7 kg/m² to 29.6 kg/m², correlating with a 16% total weight loss (Fig. 8).

CONCLUSIONS

Weight regain after RYGB is common and may be due to an incompetent or dilated GJA. The goal of the endoscopic approach should be to maximize weight loss while incrementally addressing symptoms until completely resolved.

DISCLOSURE

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Figure 7. Gastrojejunal anastomosis after lumen-apposing metal stent removal. Demonstration of a 10-mm gastrojejunal anastomosis after removal of a 10- × 10-mm lumen-apposing metal stent.

Figure 8. Patient weight trajectory after endoscopic revision of gastric bypass.
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Abbreviations: GJA, gastrojejunal anastomosis; LAMS, lumen-apposing metal stent; RYGB, Roux-en-Y gastric bypass.

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