Division of a long-term symptomatic tissue bridge for reversal of endoscopic sleeve gastroplasty

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INTRODUCTION

Endoscopic sleeve gastroplasty (ESG) induces weight loss through delayed gastric emptying through gastric remodeling. In the long term, this commonly manifests as tissue bridges seen on follow-up endoscopy. ESG’s clinical efficacy, long durability for weight loss, and minimal rate of severe adverse events have led to widespread adoption. Although “redo” ESG appears safe and effective, reversibility is not well described and is limited to the acute setting. There is a risk that cutting sutures acutely may result in microperforations that put a patient at risk for leak, perigastric fluid collection, abscess, and bleeding. For this reason, it may be advisable to avoid cutting sutures less than 2 to 3 months after ESG, instead managing any severe gastric
outlet obstruction symptoms through hydrostatic balloon dilation of the sleeve. Beyond 3 months, we will consider removal of sutures or resection of tissue bridges post-ESG. However, there is concern for serosal tunnels within tissue bridges that, if cut, could result in gastric perforation. In this case (Video 1, available online at www.giejournal.org), we report a technique for successful ESG reversal 2 years after ESG.

CASE

A 33-year-old woman who had undergone ESG 2 years prior for morbid obesity (body mass index 42 kg/m²) complicated by insulin-dependent diabetes presented with a body mass index of 24 kg/m² and persistent symptoms of delayed gastric emptying leading to symptomatic malnutrition, including iron deficiency anemia and new osteoporosis requiring iron infusions and bisphosphonate therapy, respectively. She was referred to our center for further evaluation. After discussing the risks of bleeding and perforation versus the benefit of improving her nutritional status, and to avoid surgical intervention, she elected to proceed with endoscopic reversal.

Endoscopy (Fig. 1) was significant for a large tissue bridge in the gastric body, explaining her intractable symptoms. The stomach appeared widely patent in the retroflexion and forward views, which highlights ESG’s mechanism for weight loss (ie, delayed gastric emptying, which can occur even with minimal remodeling of the distal stomach).1-3 Tools for full-thickness injury closure, including over-the-scope clips and an endoscopic suturing device, were on hand in case of perforation. A scissors-type knife (SB Knife Standard, Sumitomo Bakelight, Manchester, Conn, USA) was used for successful electrosurgical (ERBE EndoCut Q effect 3, Solingen, Germany) dissection of the thinnest, medial-most portion of the bridge without perforation (Figs. 2 and 3).

After the dissection, the 2 resulting ulcers were closed to prevent delayed bleeding, given the patient’s symptomatic iron-deficiency anemia, as well to prevent reforming of the mucosal bridge as these tissues healed. The anterior wall defect was closed with a through-the-scope tack and suture device (X-Tack, Apollo Endosurgery, Austin, Tex, USA) and secured with a cinch (Figs. 4 and 5). Of note, the anterior wall defect could have been closed with clips; however, we estimated it would require at least 3 clips and opted for the suture device to reduce procedure-related costs. The smaller posterior wall defect was managed with 2 through-the-scope clips (Instinct, Cook, Winston Salem, NC, USA) (Fig. 6). Finally, an extruded suture was removed with biopsy forceps because it may have led to symptoms of pain (Fig. 7). The stomach thereafter appeared widely patent. With successful closure, there was no concern for perforation; as such, antibiotics were not given.

Figure 5. After tack and 3-0 polypropylene suture placement, a cinch was used to close the gastric defect and secure the construct.

Figure 6. Successful closure of the posterior wall gastric defect with 2 through-the-scope clips.

Figure 7. Removal of an extruded suture near the gastric antrum with a cold biopsy forceps.
postanesthesia care unit, the patient had no symptoms and was able to be discharged home the same day.

At 1-week follow-up, her symptoms had improved, and she was tolerating a regular diet. Her gastroparesis cardinal symptom index daily score decreased from 4/4 to 0/4 over 2 weeks postprocedure.8 No delayed perforation or bleeding symptoms occurred. At 2 months, her symptoms remained in remission. Consequently, no follow-up endoscopy has been performed.

CONCLUSION

ESG rarely requires reversal for intractable symptoms of delayed gastric emptying. In the setting of significant symptoms and malnutrition, however, endoscopic reversal is feasible, and dissecting tissue bridges may lead to resolution of symptoms. It is important to counsel patients regarding the risk of perforation and bleeding, and the endoscopist should be prepared to manage these issues. In our case, dissecting the thinnest and the medial-most portion of the bridge avoided adverse events. Finally, closure of the mucosa at the resection sites may prevent delayed bleeding and re-formation of tissue bridges.

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DISCLOSURE

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Abbreviation: ESG, endoscopic sleeve gastroplasty.

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