



Pitfalls of EUS-guided gastrojejunostomy in a patient with history of Roux-en-Y gastric bypass and a frozen abdomen

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BACKGROUND

Patients with surgically altered GI anatomies are at increased risk of anastomotic strictures and gastric outlet obstruction. Laparoscopic gastrojejunostomy has been the traditional approach for such cases. However, with the advance in endoscopy, EUS-guided gastrojejunostomy (EUS-GJ) provides a novel, efficacious, and minimally invasive technique for palliation of gastric outlet obstruction in patients not amenable to surgery.¹⁻⁴ EUS-GJ involves the location of the jejunum endosonographically from inside the stomach followed by placement of a lumen-apposing metal stent (LAMS) (Boston Scientific Inc, Marlborough, Mass, USA) across the formed fistulous tract.⁵ We present here the case of EUS-GJ in a patient with a history of Roux-en-Y gastric bypass and a frozen abdomen (Video 1, available online at www.videogie.org). Ethical approval was waived by the Mayo Institution Board Review.

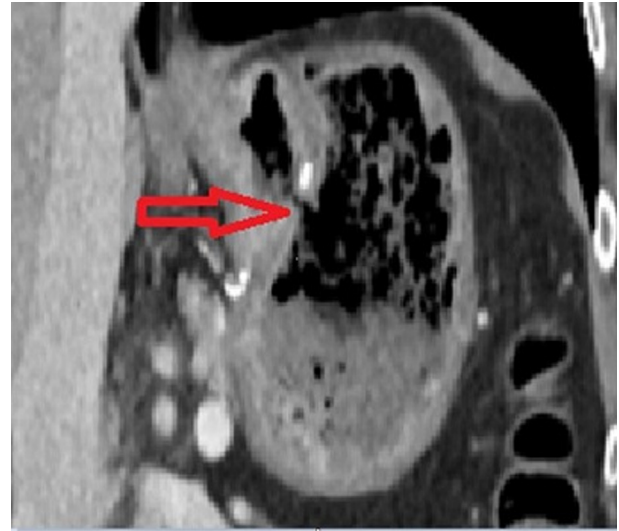


Figure 1. CT scan of the abdomen/pelvis showing the gastrogastric fistula.

CASE

This is the case of a 56-year-old female patient with a history of multiple comorbidities and a prior history of an open Roux-en-Y gastric bypass complicated by multiple adhesions. She presented at our unit with recurrent nausea, vomiting, and abdominal pain associated with malnutrition. Workup revealed 2 large gastrogastric fistulas (GGFs) associated with stapling of the distal antrum. Apparently, this stapling caused a gastric outlet obstruction of the excluded stomach and triggered spontaneous GGFs (Fig. 1). Also, we found a mild stricture of the gastrojejunal anastomosis, turning the GGFs into the dominant exit of the gastric

pouch. Considering the outlet obstruction, this patient had a clinical scenario resembling candy cane syndrome.

From a surgical perspective, she was deemed a high-risk patient and her abdomen was hostile. Therefore, we decided to perform an EUS-GJ from the excluded stomach (Fig. 2). The LAMS was advanced to the jejunum, creating a 15-mm gastrojejunal anastomosis. Contrast was injected, confirming rapid drainage into the segment of the small bowel. A second coaxial 10F × 5-cm double-pigtail stent was placed inside of the LAMS.

One day after the procedure, she presented with signs of peritonitis because of leakage at the anastomosis site. A CT scan of the abdomen/pelvis with intravenous contrast showed free gas and fluid in the upper abdomen and along the left flank (Fig. 3). Urgent abdominal exploration was performed with concurrent lysis of adhesions. Three Jackson-Pratt drains were placed in the left upper quadrant, in the pelvis, and anterior to the previous gastric bypass. However, identification of the ligament of Treitz was not possible because of extremely dense interloop adhesions in the infra-mesocolic compartment. The area of small-bowel leak could not be identified as access to this location was not safely feasible. The surgery team affirmed that any further operative intervention that would require access to the patient's small bowel would be extremely difficult and should be avoided.

Abbreviations: EUS-GJ, EUS-guided gastrojejunostomy; GGF, gastrogastric fistula; LAMS, lumen-apposing metal stent.

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2468-4481
<https://doi.org/10.1016/j.vgie.2023.03.013>

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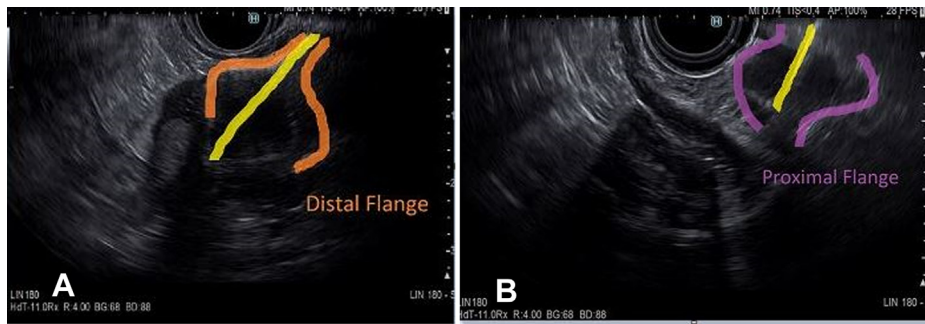


Figure 2. **A**, EUS-guided gastrojejunal anastomosis creation (distal flange). **B**, EUS-guided gastrojejunal anastomosis creation (proximal flange).



Figure 3. CT scan of the abdomen/pelvis with intravenous contrast showing free gas and fluid in the upper abdomen.

To salvage the situation endoscopically, an overlap 15-mm LAMS was placed to bridge that area of disruption with its distal flange confirmed within the jejunum (Fig. 4). We then placed 2 side-by-side fully covered self-expandable metallic stents (10 × 80 mm and 10 × 60 mm) into the anastomosis (Fig. 5). Contrast was injected showing good control of the leak and filling of the jejunum.

However, her course was further complicated by sepsis because of the anastomotic leak as well as by acute hypoxemic respiratory failure requiring intubation. A repeat CT scan of the abdomen/pelvis showed improved control of the leak with residual intra-abdominal collections still observed, requiring placement of drains. Drains were placed in the perigastric fluid/gas collection, left subdiaphragmatic fluid/gas collection, and left lateral abdominal

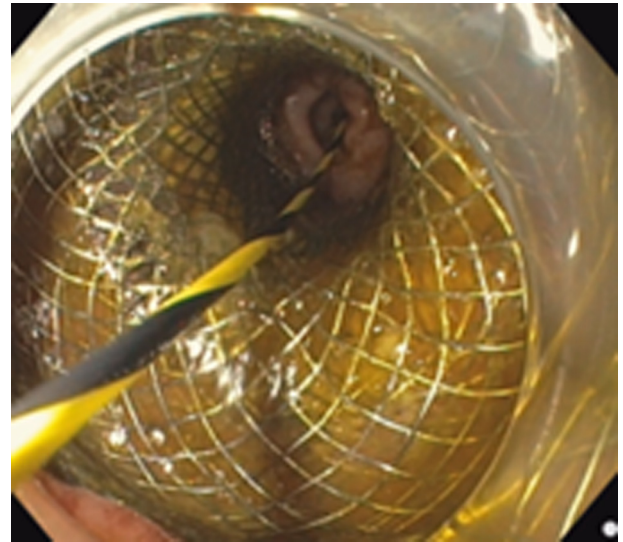


Figure 4. Lumen-apposing metal stent overlapping the first lumen-apposing metal stent that was placed to control the leak.

fluid collection. A second endoscopy procedure was performed to upgrade the stents. We placed a 10 × 100 mm fully covered self-expandable metallic stent into the anastomosis and a 10F × 7-cm straight biliary stent, sealing the gastrojejunosomy (Fig. 6). Contrast was injected showing excellent control of the leak with rapid emptying through the jejunum.

The patient was extubated 10 days later and transferred to the regular floor where she stayed for pain control and nutrition management. The intra-abdominal infections resolved, a repeat CT scan of the abdomen/pelvis showed no residual leak, and the drains were removed. She was discharged 2 months after admission. A follow-up EGD was performed 20 days after discharge, and all stents were removed. Both the afferent and efferent limbs of the gastrojejunosomy were patent. To maintain the tract, a double-pigtail soft plastic stent was placed extending from the excluded stomach across the gastrojejunosomy into the efferent limb. A repeat CT scan of the abdomen/

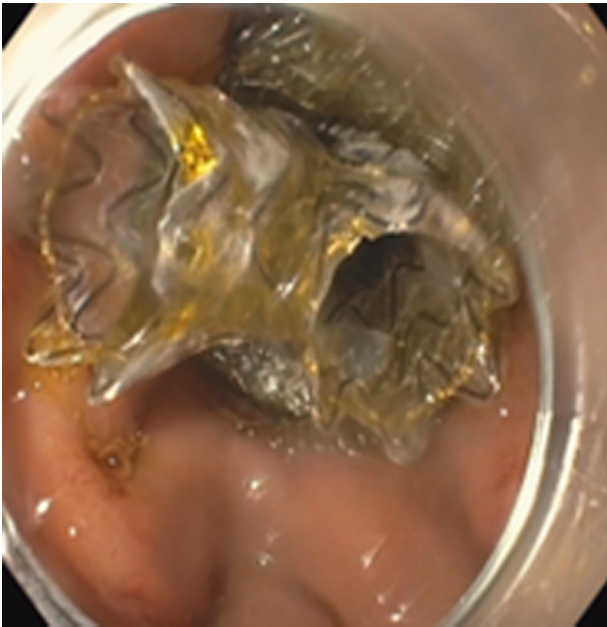


Figure 5. Two side-by-side fully covered self-expandable metallic stents that were placed to control the leak.



Figure 6. Final configuration of stents after placement of an additional fully covered self-expandable metallic stent and a straight biliary stent for better sealing around the gastrojejunostomy.

pelvis showed no residual leak with good approximation of the small intestine to the excluded stomach (Fig. 7). On follow-up, the patient was doing well and tolerating an oral diet with resolution of her symptoms of nausea and vomiting.



Figure 7. CT scan of the abdomen/pelvis showing no residual leak in the abdomen.

CONCLUSION

In challenging anatomies, including postsurgical ones, EUS-GJ can be performed to provide access to and successful palliation of gastric outlet obstruction. Nevertheless, adverse events could arise, and approaching them as a multidisciplinary team that includes experts in surgery and endoscopy is important.

DISCLOSURE

Dr Abu Dayyeh is a consultant for Endogenex, EndoTAGSS, Metamodix, and BFKW; a consultant for and recipient of grant/research support from USGI, Cairn Diagnostics, Aspire Bariatrics, and Boston Scientific; a speaker for Olympus and Johnson & Johnson; a speaker for and recipient of grant/research support from Medtronic and EndoGastric Solutions; and a recipient of research support from Apollo Endosurgery and Spatz Medical. All other authors disclosed no financial relationships.

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