Endoscopic management of gastrojejunal fistula after endoscopic gastrojejunostomy
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INTRODUCTION

Endoscopic ultrasound-guided gastrojejunostomy (EUS-GJ) is an alternative to endoscopic stent placement alone and surgical gastrojejunostomy for the management of gastric outlet obstruction (GOO). Similar technical and clinical success rates have been shown with EUS-GJ and endoscopic stent placement alone with lower rates of reintervention in the EUS-GJ group.1 When compared to the more invasive surgical GJ, EUS-GJ has shown similar rates of clinical success and lower adverse event rates.2,3 Rare EUS-GJ adverse events include perforation, peritonitis, bleeding, stent misdeployment, and migration.1,4 The following case describes the formation of a gastrojejunal fistula as a rare delayed sequela of EUS-GJ.

CASE

A 52-year-old woman with a history of metastatic gastric cancer status after multiple lines of leucovorin calcium (folinic acid), fluorouracil, and oxaliplatin initially presented with GOO and underwent EUS-GJ via a 15-mm lumen-apposing metal stent (LAMS) anchored with a plastic stent (Fig. 1). She was discharged on a low-residue diet. One month later, she was readmitted with abdominal pain, distension, and new-onset diarrhea. Computer tomography showed progression of disease with interval development of large volume ascites without luminal obstruction. Abdominal pain improved after therapeutic paracentesis; however, diarrhea persisted. Repeat EGD noted migration of the LAMS with fistulization into both the adjacent jejunum and transverse colon (Fig. 2). The LAMS was removed and a new 20-mm LAMS was placed with the distal end in the stomach and the proximal end in the jejunum (bypassing the gastrocolic fistula), anchored with a double-pigtail 7F × 10-cm plastic stent (Fig. 3). Flexible sigmoidoscope visualized the gastrojejunal fistula (Fig. 4). The fistula was effectively bridged via the newly placed LAMS. Attempts to close the fistula from the colonic side via hemostatic clips were unsuccessful. Three interrupted sutures were placed via an endoscopic suturing device with good tissue approximation and fistula closure (Fig. 5).

The patient developed recurrent diarrhea within 1 week. Repeat EGD again noted proximal migration of the GJ stent into the fistulized colon resulting in a recurrent gastrojejunal conduit. A guidewire was introduced into the gastrojejunal fistula within the prior LAMS. A tandem 15-mm LAMS was placed with the distal end in the jejunum and the proximal end in the stomach. A 20-mm × 6-cm long covered stent was placed within tandem 15-mm and 20-mm LAMSs to create a longer gastrojejunal conduit (Figs. 6 and 7; Video 1, available online at www.giejournal.org). Diarrhea symptoms resolved postprocedure. Her malignancy continued to progress and she eventually died 1 month later.

DISCUSSION

Gastrojejunal fistulas can occur in the context of inflammatory disease processes, including malignancy. For gastrocolonic fistulas (GCFs) in particular, typical symptoms include abdominal pain, diarrhea, and weight loss.5,6 Risk factors in this case include the inflammatory state of her widely metastatic malignancy as well as the development of large volume ascites leading to biomechanical tension on the LAMS itself.

Closure of malignant GCFs can be challenging in these cases. Endoscopic interventions for repair include hemostatic clips, suturing, stent placement, and tissue adhesives. Endoclips can be effective in the immediate closure of benign GI fistulas, but long-term success rates are low.7 Endoscopic suturing requires specialized technical expertise and can be effective for closing larger fistulas. One study noted a 62% clinical success rate for patients who underwent endoscopic suturing for repair of GI fistula; however, success was limited to patients who had early closure.8

To our knowledge, this case demonstrates the first reporting of a gastrojejunal fistula after EUS-GJ. There are numerous endoscopic tools readily available for fistula closure, but many have inherent limitations. Bridging malignant luminal fistulas with associated ascites can have high technical success rates but carry the risk of stent migration.9 For the repair of gastrojejunal fistula following EUS-GJ, tandem stent placement with a long
Figure 1. Initial gastrojejunostomy showing 15-mm lumen-apposing metal stent with distal end in the jejunum and the proximal end in the stomach (A). A 7F x 5-cm anchoring double-pigtail plastic stent within 15-mm lumen-apposing metal stent (B).

Figure 2. Gastric body with lumen-apposing metal stent extending into the colon with adjacent fistula into the jejunum. Top arrow: colon; bottom arrow: small bowel.

Figure 3. A 20-mm lumen-apposing metal stent anchored with a double stent in proximal end of gastric body and distal end in fistulized loop of small bowel bypassing the colon.

Figure 4. A 10-mm fistula (to small bowel) with lumen-apposing metal stent traversing splenic flexure as seen on flexible sigmoidoscopy.

Figure 5. Fistula after endoscopic suture repair.
covered metal stent represents an effective rescue intervention.

DISCLOSURE

Dr Sharaiha is a consultant for Boston Scientific and Olympus. All other authors disclosed no financial relationships.

Abbreviations: EUS-GJ, EUS-guided gastrojejunostomy; GCF, gastrocolonic fistulas; GOO, gastric outlet obstruction; LAMS, lumen-apposing metal stent.

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