Single-session EUS-directed transgastric endoscopic retrograde cholangiopancreatography and transpapillary gallbladder drainage
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CASE

A 61-year-old woman with a history notable for a Roux-en-Y gastric bypass (RYGB) presented to the emergency department (ED) with abdominal pain. She was diagnosed with acute cholecystitis and underwent a laparoscopic cholecystectomy, which was ultimately aborted because of the presence of severe adhesions. She was referred for percutaneous cholecystostomy tube (PCT) placement, with plans for repeat cholecystectomy in 2 months.

Prior to cholecystectomy, the patient’s PCT was removed because of clinical improvement and patient preference. However, 4 weeks later, she returned to the ED with abdominal pain and bilious drainage from the PCT insertion site, which was concerning for a cholecystocutaneous fistula.

Given concerns for concurrent cholangitis, the gastroenterology service was consulted. Following a multidisciplinary discussion, the decision was made to pursue endoscopic gallbladder drainage (GBD) through a single-session EUS-directed transgastric endoscopic retrograde cholangiopancreatography (EDGE). Provided that the patient was still a surgical candidate, the surgeons requested that trans-cystic stenting be performed.

PROCEDURE

At the start of the procedure, the excluded stomach was identified from a position in the Roux limb. Trans-remnant puncture was performed using a 19-gauge needle, and the excluded stomach distended to confirm positioning (Fig. 1). A jejunogastric anastomosis was then created using a 20- × 10-mm lumen-apposing metal stent (LAMS) (Fig. 2).

To reduce the risk of migration, the proximal edge of the LAMS was sutured in place (Fig. 3). The LAMS was then dilated using a through-the-scope dilator to a total diameter of 20 mm (Fig. 4). Resistance attributed to the patient’s adhesions was encountered at the pylorus, which was also dilated to 15 mm.

The duodenoscope was advanced to the papilla, where pus was found emerging from the biliary orifice (Fig. 5). The

Figure 1. Following fine-needle puncture, the excluded stomach is distended with contrast to confirm positioning.
bile duct was cannulated and a 0.035-inch wire was passed into the gallbladder (Fig. 6). Following sphincterotomy, the cystic duct and common duct were dilated with a 4-mm balloon dilator, after which a 7F × 20-cm double-pigtail plastic ureteral stent was placed into the gallbladder.

OUTCOME

The patient recovered well and was discharged from the hospital the following day. She returned for repeat ERCP and second stent placement 2 months later to facilitate ongoing internal biliary drainage. During the repeat ERCP, the previous plastic stent was removed, and a cytology brush was used to aid placement of 2 guidewires into the gallbladder (Fig. 7). The cytology brush, by accommodating a second wire within the brush port, allows the endoscopist to maintain access to the lumen in cases where cannulation or wire placement can be challenging. The cystic duct and common bile duct were dilated to 6 mm, and two 7F × 20-cm double-pigtail plastic stents were sequentially advanced into the gallbladder (Fig. 8). She was discharged the same day and returned for follow-up on postoperative day 3, when she reported...
resolution of her abdominal pain. There were no adverse events during either procedure. Three months later, she underwent a repeat ERCP with removal of both transpapillary stents and closure of the gastro-gastric fistula using an endoscopic tacking system in preparation for her upcoming cholecystectomy.

In patients with RYGB, EDGE has gained favor as a method of accessing the excluded stomach. Compared to historical methods such as laparoscopy-assisted enteroscopy, EDGE has similar rates of technical success but is cost-effective and associated with reduced procedural time and hospital length of stay.\(^1,2\) Previous reports have described single-stage EDGE and EUS-GBD; however, in potential surgical candidates, transpapillary GBD might be preferred because it does not create an endoscopic anastomosis with the gallbladder and preserves surgical anatomy.\(^3\) Our case is instructive in demonstrating the

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**Figure 5.** The duodenoscope is advanced to the papilla following dilation, where pus can be seen emanating from the papilla.

**Figure 6.** Cholangiogram of the biliary tree following cannulation. The wire is subsequently maneuvered into the cystic duct and gallbladder to allow for initial transpapillary stent deployment.

**Figure 7.** Following cannulation, a cytology brush is used to aid insertion of 2 guidewires into the gallbladder.

**Figure 8.** Final fluoroscopic image of two 7F × 20-cm plastic stents coiled in the gallbladder lumen, confirming transpapillary gallbladder drainage.
feasibility of performing a single-stage EDGE in cases where urgent gallbladder drainage is required (Video 1, available online at www.giejournal.org).

DISCLOSURE

Dr Marya is a consultant for Boston Scientific. All other authors disclosed no financial relationships.

Abbreviations: ED, emergency department; EDGE, EUS-directed transgastric endoscopic retrograde cholangiopancreatography; GBD, gallbladder drainage; LAMS, lumen-apposing metal stent; PCT, percutaneous cholecystostomy tube; RYGB, Roux-en-Y gastric bypass.

REFERENCES

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