

EUS-directed transenteric ERCP–assisted internalization of a percutaneous biliary drain in Roux-en-Y anatomy



Todd A. Brenner, MD,¹ Jay Bapaye, MD,² Linda Zhang, MD,³ Mouen Khashab, MD³

INTRODUCTION

Endoscopic ultrasound–directed transenteric ERCP (EDEE) has recently been described as a safe, effective procedure to obtain biliary access in patients with Roux-en-Y anatomy.^{1,2} Here, we present a video case report of EDEE-assisted biliary drain internalization in a patient with prior liver transplant and Roux-en-Y hepaticojejunostomy (HJ), presenting with HJ anastomotic stricture (Video 1, available online at www.giejournal.org).

CASE

The patient is a 24-year-old woman with a history of biliary atresia for which she underwent orthotopic liver transplantation with creation of a Roux-en-Y HJ. She presented to our facility with acute cholangitis and intrahepatic ductal dilatation on MRCP with a dilated common hepatic duct (7 mm) proximal to the HJ. Enteroscopy-assisted ERCP was attempted, but ultimately aborted because of the tortuosity and acute angulation of

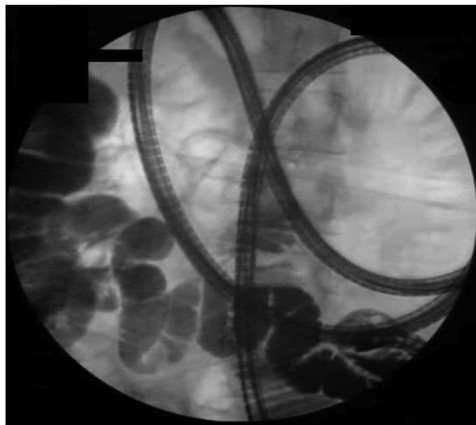


Figure 1. Enteroscopy-assisted ERCP was unable to reach the hepaticojejunostomy anastomosis.



Figure 3. The afferent jejunal limb was identified under EUS and punctured with an FNA needle.



Figure 2. Anterograde percutaneous cholangiogram showing an hepaticojejunostomy stricture and dilation of the common and intrahepatic bile ducts. An 8.5F internal-external biliary catheter was placed.

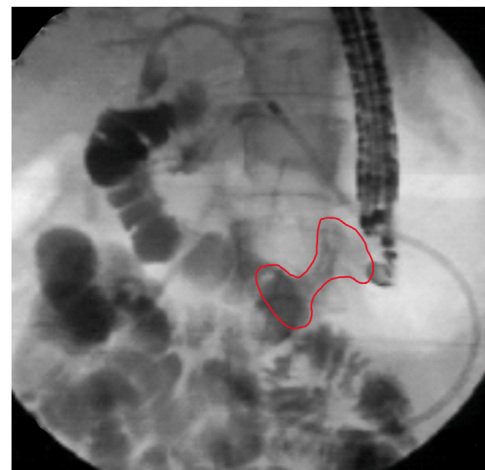


Figure 4. A 15- x 10-mm electrocautery-enhanced lumen-apposing metal stent (red) was deployed to form the gastrojejunostomy.



Figure 5. EUS-directed transenteric ERCP via gastrojejunostomy lumen-apposing metal stent with retrograde contrast injection through the hepaticojejunostomy demonstrating tight hepaticojejunostomy stenosis with proximal dilation of the common hepatic duct.

the afferent limb (Fig. 1). She subsequently underwent percutaneous transhepatic biliary drain (PTBD) placement (Fig. 2).

PROCEDURE

Graded endoscopic internalization of her drain was planned, beginning with EUS-guided gastrojejunostomy (GJ) creation. A curvilinear echoendoscope was advanced into the stomach and the afferent limb identified by injection of contrast through the PTBD (Fig. 3). The corresponding loop of small bowel was identified under EUS and punctured with a 19-gauge FNA needle. A mixture of contrast and saline was then injected, demonstrating opacification of the afferent limb under fluoroscopy. A mixture of methylene blue and saline was then instilled via the PTBD to distend the afferent jejunal limb. A 15- × 10-mm electrocautery-enhanced lumen-apposing metal stent (LAMS) (AXIOS; Boston Scientific, Marlborough, Mass, USA) connected to an electrosurgical unit (Erbe V10; Erbe USA, Marietta, Ga, USA) was loaded onto the echoendoscope and the afferent limb punctured with the catheter tip. The LAMS was then deployed under EUS and fluoroscopic guidance (Fig. 4). The total procedure time was 23 minutes.

Three weeks later the patient underwent ERCP via the newly created GJ tract. An initial attempt was made to advance the therapeutic endoscope through the LAMS,

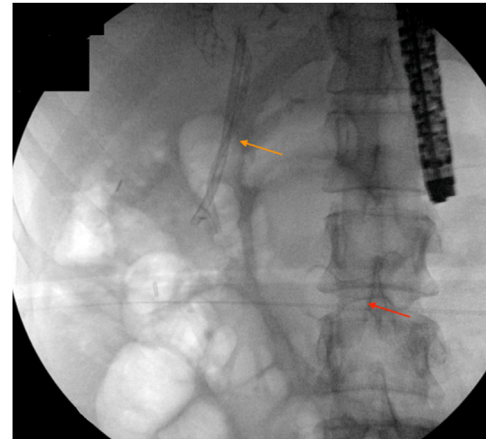


Figure 6. A 10F × 5-mm and a 7F × 5-mm straight plastic biliary stent were placed across the hepaticojejunostomy stricture (yellow arrow). The pre-placed gastrojejunostomy lumen-apposing metal stent is indicated by the red arrow.

but this was aborted when resistance was encountered. The LAMS was then removed using a Raptor grasper (Steris, Mentor, Ohio, USA) and the GJ tract dilated using a 15-mm balloon dilation catheter (CRE PRO Wireguided Balloon Dilation Catheter; Boston Scientific). The endoscope was then advanced across the GJ, and the PTBD was identified at the HJ anastomosis. The PTBD was then removed and the HJ cannulated with a 9- to 12-mm sphincterotome preloaded with a guidewire. Contrast was injected; the cholangiogram showed a 10-mm common hepatic duct (Fig. 5). The anastomosis and common hepatic duct were dilated using a 10-mm balloon, followed by placement of side-by-side plastic biliary stents (10F × 5 cm and 7F × 5 cm, Fig. 6). The LAMS was then back-loaded onto the endoscope and placed across the GJ tract (Fig. 6). The total procedure time was 39 minutes.

OUTCOME

The patient returned 4 months later for a repeat ERCP, which showed residual narrowing of the HJ but free drainage of contrast from the biliary tree. The biliary stents were removed and the GJ LAMS replaced with a double-pigtail plastic stent to maintain GJ patency. Three months later, however, she developed epigastric abdominal pain with evidence of bile gastritis on upper endoscopy. This prompted removal of the plastic stent and closure of the GJ with a 12/6 GC over-the-scope clip (Ovesco Endoscopy, Tubingen, Germany).

CONCLUSION

EDEE represents a valuable complement to the current armamentarium of EUS-guided biliary procedures in patients with Roux-en-Y anatomy, as in this case of EDEE-

assisted treatment of an HJ anastomotic stricture. This case also illustrates that EDEE requires existing access to the afferent limb to facilitate safe placement of the LAMS, as well as the fact that creation of the enteroenteral connection may result in bile gastritis and, as such, the GJ tract should be mechanically closed once no longer needed.

DISCLOSURE

Dr Khashab is a consultant for Boston Scientific, Olympus, Medtronic, Pentax Medical, and GI Supply and receives royalty fees from UpToDate and Elsevier. All other authors disclosed no financial relationships.

Abbreviations: EDEE, EUS-directed transenteric ERCP; GJ, gastrojejunostomy; HJ, hepaticojejunostomy; LAMS, lumen-apposing metal stent; PTBD, percutaneous transhepatic biliary drain.

REFERENCES

1. Khashab MA. Endoscopic ultrasound-directed transenteric ERCP (EDEE) in patients with postsurgical anatomy: novel but challenging. *Endoscopy* 2019;51:1119-20.
2. Ichkhanian Y, Yang J, James TW, et al. EUS-directed transenteric ERCP in non-Roux-en-Y gastric bypass surgical anatomy patients (with video). *Gastrointest Endosc* 2020;91:1188-94.e2.

Division of Gastroenterology, Johns Hopkins Hospital, Baltimore, Maryland (1), Department of Medicine, Rochester Regional Health, Rochester, New York (2), Division of Gastroenterology, Johns Hopkins Hospital, Baltimore, Maryland (3).

Copyright © 2022 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.vgie.2022.07.005>

Twitter

Become a follower of *VideoGIE* on Twitter. Learn when new articles are posted and receive up-to-the-minute news as well as links to our latest videos. Search @VideoGIE on Twitter.