ORIGINAL ARTICLE

EUS-guided choledochoantrostomy as an alternative for biliary decompression in malignant distal biliary obstruction with duodenal invasion

Ahmed Altonbary, MD, FRCP,[1] Hazem Hakim, MD,[1] Amr Elrabat, MD[1]

INTRODUCTION

Biliary drainage through ERCP is the standard therapeutic approach for malignant distal biliary obstruction. However, failure to achieve biliary access may occur in patients with surgically altered anatomy, pyloric/duodenal obstruction, or malignant ampullary infiltration.[1] Since the development of EUS, EUS-guided biliary drainage (EUS-BD) has been increasingly performed. Herein, we report a case of unresectable pancreatic cancer with extrahepatic biliary obstruction and duodenal invasion that was successfully treated with a variant of EUS-BD by performing EUS-guided choledochoantrostomy (EUS-CAS).

CASE

A 59-year-old man with unresectable pancreatic cancer presented with extrahepatic obstructive jaundice. Previous ERCP failed because of malignant invasion of the duodenal bulb and obtained biopsy specimens revealed poorly differentiated adenocarcinoma. EUS-BD was considered after discussing alternatives with the patient and family. On EUS examination using Pentax linear echoendoscope EG-3870UTK (Pentax Medical, Tokyo, Japan) attached to a Hitachi Avius ultrasound system (Hitachi Medical Systems, Tokyo, Japan), there was a large, hypoechoic, locally advanced pancreatic head mass with subsequent dilation (29 mm) of the common bile duct visualized from the antrum because of the difficulty to advance the echoendoscope to the infiltrated duodenal bulb (Fig. 1). EUS-guided choledochoduodenostomy (EUS-CDS) was impossible; thus, EUS-CAS was carried out. The dilated common bile duct was punctured above the mass using a 19-gauge needle (Expect Flexible; Boston Scientific, Marlborough, Mass, USA) through the antrum. After the stylet was removed, bile was aspirated, and contrast medium was injected into

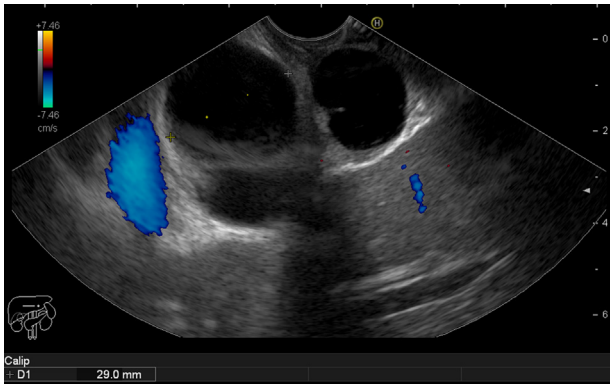

Figure 1. EUS showing dilated common bile duct (29 mm) and dilated cystic duct.

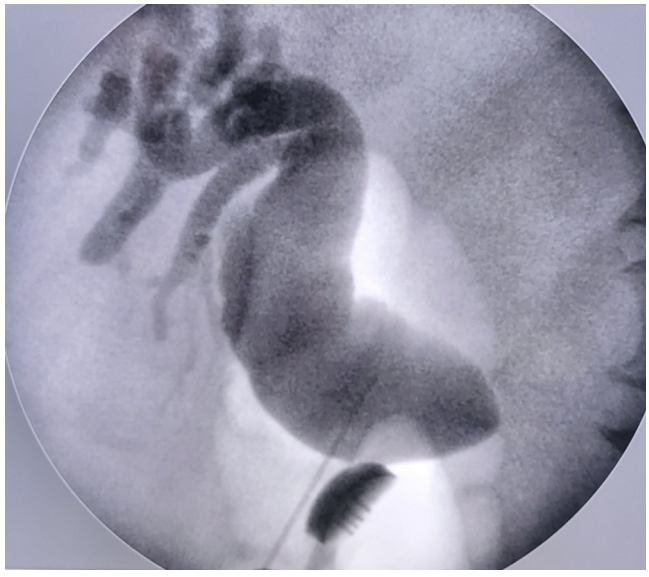

Figure 2. Contrast medium injected by 19-gauge EUS needle showing dilated biliary tree.

Abbreviations: EUS-BD, EUS-guided biliary drainage; EUS-CAS, EUS-guided choledochoantrostomy; EUS-CDS, EUS-guided choledochoduodenostomy; EUS-HGS, EUS-guided hepaticogastrostomy.

2468-4481
https://doi.org/10.1016/j.vgie.2023.02.007

Department of Gastroenterology and Hepatology, Mansoura Specialized Medical Hospital, Mansoura University, Mansoura, Egypt (1).

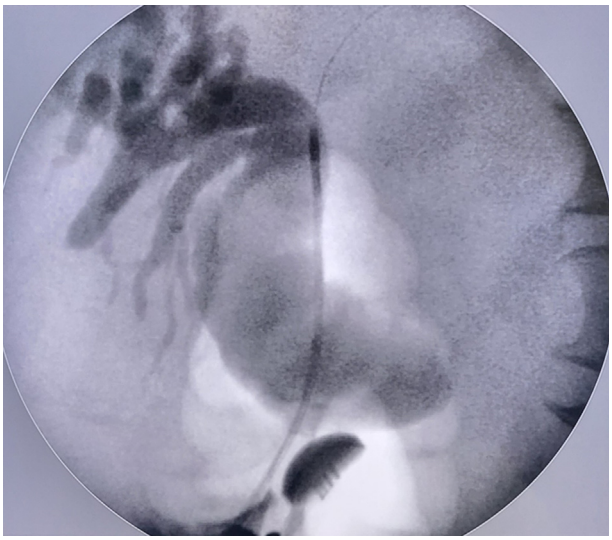

Figure 3. Track creation using 6F cystotome over 0.035-inch guidewire.

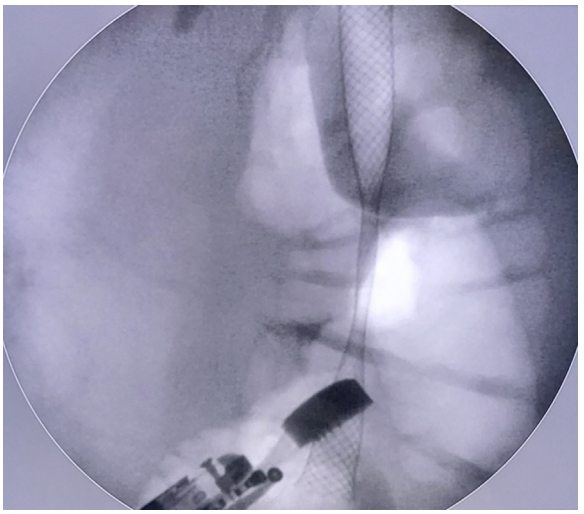

Figure 5. Fully deployed metal stent in adequate position.

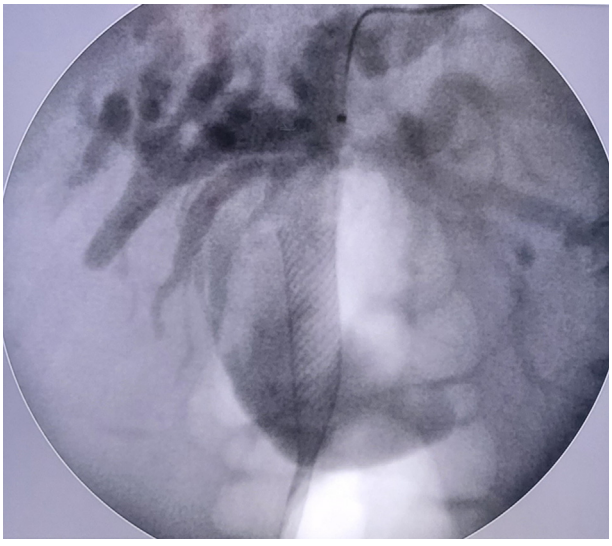

Figure 4. Deployment of the distal part of the metal stent under fluoroscopic guidance.

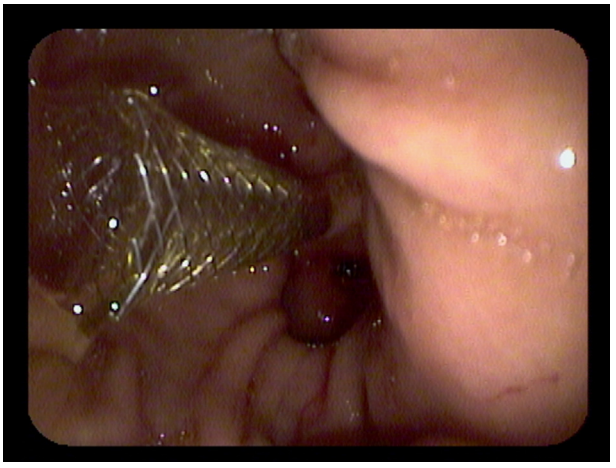

Figure 6. Endoscopic view of the metal stent draining bile to the antrum.

the bile duct for cholangiography (Fig. 2). A 0.035-inch guidewire (Jagwire; Boston Scientific) was passed to the biliary tree, and then the needle was exchanged with a 6F cystotome (Endo-Flex, Voerde, Germany) to create fistulous tract (Fig. 3). Finally, a partially covered self-expandable metal stent 8 cm long (given the increased mobility of the antrum) and 10 mm in diameter (Wallflex; Boston Scientific) was deployed successfully under fluoroscopic (Figs. 4 and 5) and endoscopic guidance with good bile drainage into the antrum (Fig. 6). No early or delayed adverse events were identified, and serum bilirubin significantly declined after 2 weeks. Subsequently, a duodenal stent was placed across the duodenal stricture and the patient was referred to the oncology center to start palliative chemotherapy. He had liver function tests before each cycle of chemotherapy, and the stent remained patent until his death 3 months later.

DISCUSSION

There are several types of EUS-BD procedures depending on the access routes and methods of clinical practice: EUS-assisted rendezvous, EUS-guided antegrade stenting, EUS-CDS, and EUS-guided hepaticogastrostomy (EUS-HGS). Each procedure may be selected based on the conditions of the patient and their health care providers.[2] For distal malignant biliary obstruction, EUS-CDS is commonly performed for biliary decompression after failed ERCP. However, EUS-CDS is not always feasible in cases of duodenal bulb invasion because it is difficult to advance

the echoendoscope and there is limited space to deploy the metal stent.[3] EUS-CAS has been described in previous case reports as a potential alternative for biliary decompression in patients with malignant distal biliary obstruction and duodenal bulb invasion. The case reports described technical advantages of this technique over EUS-HGS as the echoendoscope is in a more stable position, leading to a lesser chance of losing the guidewire, and more physiological biliary drainage by providing normal anterograde bile flow.[3,4] Another potential alternative that showed promising outcomes is the placement of a lumen-apposing metal stent through the mesh of duodenal stents.[5] This case illustrates technical and clinical success of EUS-CAS with no identified adverse events. In conclusion, EUS-CAS appears to be a safe alternative for biliary decompression in patients with malignant distal biliary obstruction and duodenal bulb invasion. However, larger prospective trials are needed to assess this technique (Video 1, available online at www.videogie.org).

DISCLOSURE

The authors disclosed no financial relationships.

REFERENCES

1. Sawas T, Bailey NJ, Yeung KYKA, et al. Comparison of EUS-guided choledochoduodenostomy and percutaneous drainage for distal biliary obstruction: a multicenter cohort study. Endosc Ultrasound 2022;11:223-30.
2. Jang DK. Endoscopic ultrasound-guided biliary drainage in malignant distal biliary obstruction. Int J Gastrointest Interv 2022;11:102-4.
3. Itoi T, Itokawa F, Tsuchiya T, et al. Endoscopic ultrasound-guided choledochoantrostomy as an alternative extrahepatic bile duct drainage method in pancreatic cancer with duodenal invasion. Dig Endosc 2013;25:142-5.
4. Artifon LA, Okawa L, Takada J, et al. EUS-guided choledochoantrostomy: an alternative for biliary drainage in unresectable pancreatic cancer with duodenal invasion. Gastrointest Endosc 2011;73:1317-20.
5. Mangiavillano B, Kunda R, Robles-Medranda C, et al. Lumen-apposing metal stent through the meshes of duodenal metal stents for palliation of malignant jaundice. Endosc Int Open 2021;9:E324-30.