EUS–guided choledochoduodenostomy using a lumen-apposing metal stent in a patient with preexisting duodenal stent and ascites

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Endoscopic retrograde cholangiopancreatography in patients with a pre-existing duodenal stent is technically challenging with a low success rate. EUS-guided biliary drainage has emerged as a promising technique for patients with malignant biliary obstruction when conventional ERCP fails. Although combined placement of self-expanding metal biliary and duodenal stents can be performed for patients with simultaneous biliary and duodenal obstruction, reports on transduodenal EUS-guided biliary drainage in patients with an existing duodenal metal stent are limited. Herein, we report a case of EUS-guided choledochoduodenostomy (EUS-CD) with a new small lumen-apposing metal stent (LAMS) in a patient with malignant biliary and duodenal obstruction with an existing duodenal metal stent and ascites.

A 67-year-old woman with a history of metastatic breast adenocarcinoma with peritoneal carcinomatosis presented with a 1-week history of nausea and vomiting secondary to duodenal obstruction. Liver enzymes were normal at presentation. Upper endoscopy revealed severe extrinsic compression in the second and third portions of the duodenum. Two overlapping self-expanding metal enteral stents were placed traversing the stricture in the duodenum. Three weeks later, the patient developed painless obstructive jaundice and an increase in total bilirubin (8.3 mg/dL). MRI showed new moderate to severe dilation of intrahepatic ducts and common bile duct (CBD) (Fig. 1). Extensive retroperitoneal metastatic and infiltrative disease was noted obstructing the CBD and pancreatic duct entering the duodenum. A CT scan of the abdomen and pelvis with intravenous contrast demonstrated a metal stent in the duodenum with the ampulla located within this segment of indwelling metal stent (Fig. 2). Moderate dilatation of the intra- and extrahepatic bile ducts was seen.

ERCP was first attempted but was unsuccessful because of the poor maneuverability and limited view of the duodenoscope through the stent (Fig. 3). Under EUS, moderate to severe intrahepatic ductal dilatation was seen. The CBD measured 13.7 mm (Fig. 4). A mild to moderate amount of ascites was noted in the peritoneal cavity that precluded the possibility of performing an EUS-guided hepatogastrostomy (Video 1, available online at www.giejournal.org).

Figure 1. MRI demonstrating moderate to severe dilation of the intrahepatic ducts and the common bile duct.

Figure 2. CT abdomen pelvis with intravenous contrast showing ampulla located in the overlapping portion of the biliary stents.
Because of the acute angulation and interference of the proximal end of the duodenal stent in the duodenal bulb, it was not possible to obtain a transduodenal access of the intrapancreatic portion of the bile duct for a rendezvous procedure to place a transpapillary stent. After prolonged examination from multiple locations, a clear window to the bile duct was found just proximal to the duodenal stent within the duodenal bulb, although ascites was seen in this area. The distance between the duodenum and bile duct was 8.3 mm (Fig. 5). Cautery was activated and the bile duct was punctured using a smaller 6- × 8-mm cautery-enhanced LAMS as one-step stent placement to reduce bile leak and possible infection to the ascites. A long angled 0.025-inch wire was advanced toward the hilum immediately. The LAMS delivery system was further advanced into the bile duct over the wire. The stent was deployed at the distal flange first within the bile duct and then it was pulled toward the duodenum to deploy the proximal flange to ensure close approximation of the bile duct and duodenal wall. Proximal flange of the LAMS was noted within the duodenal bulb just proximal to and outside of the duodenal stent (Fig. 6). Excellent biliary drainage was confirmed. The entire procedure was completed with the patient under general anesthesia, and there were no postprocedural adverse events. On the next day, her bilirubin was down to 2.6 mg/dL. The patient was discharged home on a 7-day course of antibiotics. At 11 months follow-up, the patient was clinically doing well with normalized bilirubin level without repeat intervention.

In conclusion, direct EUS-CD with the smaller configuration of the LAMS was successful in this difficult patient with
ascites when other endoscopic interventions were not technically feasible. The smaller caliber of the stent helps target the small window of stent placement and the short distance that needs to be advanced into the duct for stent deployment. One-step placement of the fully covered LAMS would likely minimize the chance of bile leak making this device ideal for the procedure.

DISCLOSURE

Dr Fukami is a consultant for Boston Scientific, Olympus America, Creo Medical, and ConMed. Dr Mohapatra disclosed no financial relationships.

Abbreviations: EUS-CD, EUS-guided choledochoduodenostomy; CBD, common bile duct; LAMS, lumen-apposing metal stent.

REFERENCES

1. Khashab MA, Valeshabad AK, Leung W, et al. Multicenter experience with performance of ERCP in patients with an indwelling duodenal stent. Endoscopy 2014;46:252-5.
2. Due-Petersson R, Hansen LB. Lumen-apposing metal stent for treatment of malignant biliary obstruction, placed through an uncovered duodenal self-expanding metal stent. BMJ Case Rep 2021;14:e238599.
3. Sportes A, Airinei G, Kamel R, et al. Endoscopic ultrasound-guided choledochoduodenostomy with a lumen-apposing metal stent through an uncovered metal duodenal stent. Endosc Int Open 2018;6:E1395-7.

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