

# Biliary Drainage With Endoscopic Ultrasound-Guided Choledochoenterostomy in a Patient With Duodenal Switch Anatomy

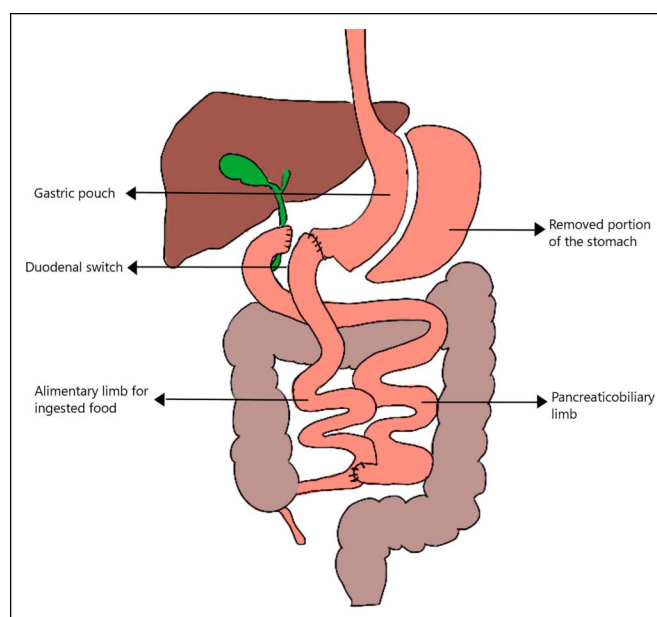
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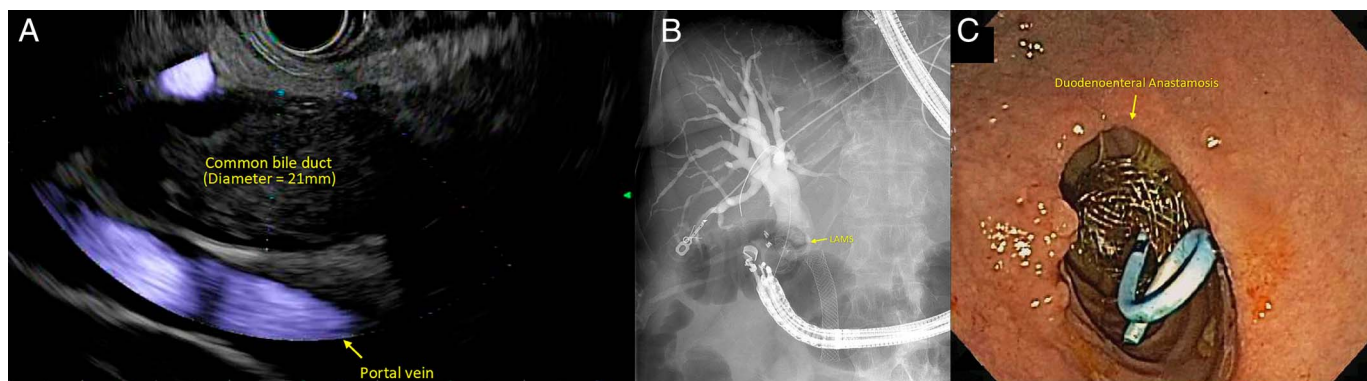
## CASE REPORT

A 73-year-old woman with a medical history of duodenal switch surgery was recently diagnosed with pancreatic head adenocarcinoma presenting as obstructive jaundice (Figure 1). Double-balloon enteroscopy-guided endoscopic retrograde cholangiopancreatography (DBE-ERCP) for biliary decompression was attempted but unsuccessful because of inability to reach the papilla. Endoscopic ultrasound (EUS)-guided choledochoenterostomy (CDE) was not attempted at this point because it was felt that the patient was upfront resectable, and there was concern that a procedural complication could potentially delay surgery. Hence, the patient underwent percutaneous transhepatic biliary drainage (PTBD). PTBD was subsequently internalized by interventional radiology with a common bile duct (CBD) metal stent after the patient was deemed to be a nonsurgical candidate because of osseous metastasis.

Eight months later, the patient presented with cholangitis and septic shock from an obstructed CBD stent and refused PTBD placement. Given the previously unsuccessful attempt at DBE-ERCP, the decision was made to proceed with EUS-guided CDE. The linear echoendoscope was passed just distal to the duodenoenteral anastomosis; the extrahepatic bile duct was examined and measured 21 mm in its widest diameter. Once an appropriate position was identified, the common wall between the small bowel and the CBD was interrogated using color Doppler imaging to identify interposed vessels. The extrahepatic bile duct was punctured using a 19-gauge needle under endosonographic and radiologic guidance. Bile was aspirated, and the cholangiogram showed obstruction at



**Figure 1.** Illustration of duodenal switch anatomy.



**Figure 2.** (A) Endoscopic ultrasound showing CBD and portal vein. (B) Cholangiogram showing brisk flow of contrast through ducts proximal to the CBD stent and deployed LAMS. (C) Endoscopic image showing lumen apposing the metal stent and double pigtail stent distal to duodenoenteral anastomosis. CBD, common bile duct; LAMS, lumen apposing metal stent.

the proximal end of the existing CBD stent. Then, a EUS-guided CDE with a 10 × 15-mm lumen apposing metal stent (LAMS) with a cautery enhanced delivery system was performed (Figure 2). A double pigtail stent (7 Fr × 3 cm) was placed through the LAMS to help maintain LAMS orientation and to prevent the CBD wall from collapsing into the inner flange.<sup>1</sup> The patient was transferred from the intensive care unit to the medical floor in 24 hours because sepsis improved and discharged home 48 hours later.

ERCP in duodenal switch anatomy is highly challenging and often unsuccessful even with DBE because of inability to reach the major papilla and may need laparoscopic assistance.<sup>2</sup> EUS-guided CDE using LAMS is effective in biliary decompression and made endoscopic biliary drainage possible in this case without the need for PTBD or surgery.<sup>3</sup> The most essential factor, in this case, was to find a safe window for biliary drainage proximal to the existing CBD metal stent, which we were able to find just distal to the duodenoenteral anastomosis to create a CDE.

## DISCLOSURES

**Author contributions:** All authors contributed equally to this article. R. Krishnamoorthi is the article guarantor.

**Financial disclosure:** None to report.

**Informed consent** was obtained for this case report.

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