Endoscopic ultrasound-guided transportal cholangiography and jejunoduodenostomy to facilitate through-the-stent ERCP and transmural gallbladder drainage in Roux-en-Y gastrectomy

Endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasound (EUS)-guided gallbladder drainage can be combined in one session [1] but remain challenging in postsurgical anatomy [2]. EUS-directed transgastric ERCP has led to favorable results in Roux-en-Y gastric bypass; several other through-the-stent endoscopic procedures are also possible in gastric bypass, including EUS [3]. ERCP may similarly be performed in Roux-en-Y hepaticojejunostomy by creating a fistula from the stomach or duodenum to the afferent limb using a lumen-apposing metal stent (LAMS) [4]. An 88-year-old woman who had undergone subtotal gastrectomy for gastric adenocarcinoma experienced cholecystitis with common bile duct (CBD) stones. Access to the papilla using ERCP failed. EUS-guided antegrade stone removal was attempted. Lack of intrahepatic dilation precluded transhepatic EUS-guided cholangiography. The CBD was imaged transgastrically under EUS and punctured through the hepatic artery and portal vein with a 22G needle (▶ Fig. 1). Methylene-blue cholangiography confirmed the presence of multiple CBD stones. Contrast outflow into the duodenum provided fluoroscopic mapping (▶ Fig. 2). EUS-puncture of the duodenum from the jejunum next to the surgical gastrojejunostomy using a 19 G needle confirmed access by aspiration of blue-tinged fluid. Saline injection through the 19G needle brought about luminal distension prior to freehand duodenal insertion of a cautery-enhanced 20 × 10-mm LAMS at the duodenojejunal flexure (▶ Video 1). After balloon dilation of the LAMS to 18 mm, the echoendoscope was removed. A duodenoscope was passed through the LAMS retrogradely to the papilla (▶ Fig. 3). CBD stones were cleared following over-the-stent needle-knife sphincterotomy and balloon sphincteroplasty. The duodenoscope was removed. An echoendoscope was advanced through the LAMS into the duodenal bulb under careful fluoroscopic monitoring (▶ Fig. 4). A 10 × 10-mm LAMS was advanced freehand under EUS and deployed for cholecystoduodenostomy (▶ Fig. 5). After cholesta- sis and symptom resolution, the patient was discharged without further event.

Endoscopic ultrasound view of the endoscopic ultrasound (EUS)-guided transvascular puncture of the common bile duct using a 22G needle. CBD, common bile duct.

Fluoroscopic view of EUS-guided transportal methylene-blue cholangiography confirming multiple choledocholithiasis. Contrast outflow from the common bile duct through the major papilla outlines the duodenum and proximal jejenum on fluoroscopy.

Endoscopic retrograde cholangiopancreatography through the lumen-apposing metal stent (LAMS), monitored by fluoroscopy. Additionally, choledocho- lithiasis demonstrated on retrograde cholangiography.

Fluoroscopic view of the echoendoscope passage through the LAMS to access the duodenal bulb. Inset: Endoscopic view of the jejunoduodenostomy.

Endoscopic ultrasound view of freehand placement of a 10 × 10-mm LAMS for cholecystoduodenostomy.
Through-the-LAMS ERCP appears feasible in gastrectomy patients, as in other patients with postsurgical anatomy [3, 4]. Transportal EUS-guided puncture may safely be performed for tissue sampling [5]; it may also allow EUS-guided cholangiography in postsurgical anatomy without intrahepatic dilation, facilitating afferent limb mapping on fluoroscopy. Transenteric LAMS allow sequential endoscope passage for combined ERCP and EUS-guided gallbladder drainage as a same-session procedure in high-surgical-risk Roux-en-Y gastrectomy patients.

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Competing interests
Dr. Manuel Perez-Miranda is a consultant for Boston Scientific, Olympus, Medtronic, and M.I.Tech.

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