Management of a necrosed bile duct by combination of a fully covered metal biliary stent and endoscopic ultrasound-guided gastrojejunostomy

Endoscopic ultrasound-guided gastrojejunostomy (EUS-GJ) is an emerging procedure in the management of gastric outlet obstruction [1–5]. One potential application of EUS-GJ is to divert luminal contents away from a luminal defect in order to minimize infection and/or facilitate healing.

The patient is a 71-year-old man with a history of pancreatic adenocarcinoma and uncovered metal biliary stent placement 16 months ago who was admitted with cholangitis and bacteremia (E. coli and Klebsiella) secondary to an occluded biliary stent. Endoscopic retrograde cholangiopancreatography (ERCP) demonstrated tumor infiltration of the medial duodenal wall with an associated necrotic debris-filled cavity (▶Video 1). The lateral wall of the indwelling metal stent was clearly visible in the cavity, consistent with necrosis of the bile duct (▶Fig. 1).

Cholangiogram demonstrated extravasation of contrast through the stent side holes into a contained cavity (▶Fig. 2). To prevent further contamination of the biliary tree, a 10-mm × 60-mm fully covered metal biliary stent (Wallflex; Boston Scientific, Marlborough, Massachusetts, USA) was placed within the uncovered stent (▶Fig. 3). Repeat cholangiogram confirmed no further extravasation.

To minimize the risk of further soiling of the necrotic cavity and bile duct, EUS-GJ was pursued with the goal of diverting luminal contents away from this area. Approximately 250 cc of a dilute methylene blue/saline/contrast solution was infused into the proximal jejunum. A loop of jejunum adjacent to the gastric wall was identified and a 15-mm × 10-mm electrocautery-enhanced lumen-apposing metal stent (LAMS) (Hot Axios; Boston Scientific) was placed (▶Fig. 4).

The patient tolerated the procedure well and was started on a clear liquid diet that night. He was discharged home 2 days later. At 1 month follow-up, the patient was eating a full diet and was otherwise doing well.

This case demonstrates a novel use of endoscopic ultrasound-guided gastrojejunostomy to manage a gastrointestinal luminal defect. Other potential applications may include management of gastroduodenal fistulas, perforations, and post-operative leaks.

E-Videos
▶Fig. 1 Necrotic cavity at second portion of duodenum with visible lateral wall of indwelling biliary stent (arrow); duodenal lumen is visible separately (star).
▶Fig. 2 Cholangiogram demonstrating contrast extravasation through the side holes of the indwelling uncovered metal biliary stent into a contained necrotic cavity.
▶Fig. 3 Placement of a coaxial fully covered metal biliary stent.
▶Fig. 4 Endoscopic ultrasound-guided gastrojejunostomy with a lumen-apposing metal stent.

Competing interests
Dr. DiMaio is a speaker and consultant for Boston Scientific and Covidien as well as a speaker for AbbVie. Dr. Kumta is a consultant for Olympus America, Boston Scientific, Apollo Endosurgery, and Gyrus ACMI. The other authors have no interests to declare.
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Video 1 Management of cholangitis from a necrotic bile duct with combined fully covered metal biliary stent and endoscopic ultrasound-guided gastrojejunostomy.