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

► **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.

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.

Endoscopy_UCTN_Code_CPL_1AK_2AD

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.

Video 1 Management of cholangitis from a necrotic bile duct with combined fully covered metal biliary stent and endoscopic ultrasound-guided gastrojejunostomy.

- [4] Chen YI, James TW, Agarwal A et al. EUS-guided gastroenterostomy in the management of benign gastric outlet obstruction. *Endosc Int Open* 2018; 6: E363–E368
- [5] Iqbal U, Khara HS, Hu Y et al. EUS-guided gastroenterostomy for the management of gastric outlet obstruction: a systematic review and meta-analysis. *Endoscopic Ultrasound* 2020; 9: 16–23

Bibliography

Endoscopy 2021; 53: E172–E173
DOI 10.1055/a-1216-0374
ISSN 0013-726X
published online 20.8.2020
 © 2020. Thieme. All rights reserved.
 Georg Thieme Verlag KG, Rüdigerstraße 14,
 70469 Stuttgart, Germany

The authors

Christopher J. DiMaio, Antonio R. Cheesman, Satish Nagula, Nikhil A. Kumta
 Dr. Henry D. Janowitz Division of Gastroenterology, Icahn School of Medicine at Mount Sinai, New York, NY

Corresponding author

Christopher J. DiMaio, MD
 Dr. Henry D. Janowitz Division of Gastroenterology, Icahn School of Medicine at Mount Sinai, One Gustave L. Levy Place, Box 1069, New York, NY 10029, USA
 Fax: +1-212-241-2276
 Christopher.DiMaio@mountsinai.org

References

- [1] Tyberg A, Perez-Miranda M, Sanchez-Ocana R et al. Endoscopic ultrasound-guided gastrojejunostomy with a lumen-apposing metal stent: a multicenter, international experience. *Endosc Int Open* 2016; 4: E276–E281
- [2] Chen YI, Itoi It, Baron TH et al. EUS-guided gastroenterostomy is comparable to enteral stenting with fewer re-interventions in malignant gastric outlet obstruction. *Surg Endosc* 2017; 31: 2946–2952
- [3] Khashab MA, Bukhari M, Baron TH et al. International multicenter comparative trial of endoscopic ultrasonography-guided gastroenterostomy versus surgical gastrojejunostomy for the treatment of malignant gastric outlet obstruction. *Endosc Int Open* 2017; 5: E275–E281

ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>

Endoscopy E-Videos is a free access online section, reporting on interesting cases and new techniques in gastroenterological endoscopy. All papers include a high quality video and all contributions are freely accessible online.

This section has its own submission website at
<https://mc.manuscriptcentral.com/e-videos>