



Endoscopic management of recurrent cholangitis following EUS-guided choledochoduodenostomy

Raffaele Salerno, MD, Nicolò Mezzina, MD, Stefania Carmagnola, MD, Sandro Ardizzone, MD

CLINICAL CASE

A 74-year-old man who previously underwent a Roux-en-Y gastro-jejunostomy for duodenal stenosis due to an inoperable pancreatic adenocarcinoma was admitted at our institution for obstructive jaundice. Considering the duodenal stenosis, biliary drainage via EUS-guided choledochoduodenostomy was performed using a 6 × 8 mm electrocautery-enhanced lumen-apposing metal stent (LAMS) (Hot Axios; Boston Scientific, Natick, Mass, USA), with subsequent resolution of jaundice (Fig. 1). After 2 months, the patient was readmitted for acute cholangitis: CT scan showed marked dilation of the biliary tracts, with the LAMS in its proper position (Fig. 2). An upper GI endoscopy was then performed, revealing complete obliteration of LAMS by food debris. Transduodenal ERCP confirmed marked dilation of the biliary tract, and a large amount of bezoars, biliary stones, and sludge was removed with a stone extraction basket. Given the duodenal stenosis, which may increase the likelihood of obliteration of the LAMS by food debris, a duodenal uncovered self-expandable metal stent (SEMS) was placed in the same session. Despite this, 2 weeks later, the patient



Figure 1. CT scan after EUS-guided choledochoduodenostomy, showing correctly positioned lumen-apposing metal stent, without dilation of common bile duct.

experienced a new episode of cholangitis and was referred for a new endoscopic treatment (Video 1, available online at www.giejournal.org).

PROCEDURE

The procedure was performed using a duodenoscope. The first step was the cleaning the common bile duct of bezoars, biliary stones, and sludge with a stone extraction basket. Then, to prevent new obliteration of the LAMS, we decided to place another SEMS in the biliary tract through the LAMS itself; we opted for a 10- × 60-mm partially covered SEMS (Wallflex; Boston Scientific) to avoid stent migration. The distal end of the stent, released in the duodenal bulb, was then captured with a snare and moved through the duodenal stent under endoscopic and radiological guidance. The intent was to allow bile to drain directly from the biliary tract into the second duodenum, preventing food impaction in the LAMS (Fig. 3).

OUTCOME AND DISCUSSION

After the procedure, the patient was discharged home in fairly good condition. An abdominal x-ray 3 months later confirmed the presence and patency of all stents (Fig. 4), and the patient did not experience any further episodes of cholangitis up to his death from cancer progression 6 months after the procedure.

EUS-guided biliary drainage using LAMS is becoming an increasingly recognized option for palliation of malignant biliary obstruction, given its high efficacy and safety profile, especially compared to percutaneous transhepatic biliary drainage. Cholangitis due to obstruction of biliary LAMS by food debris impaction is a reported late adverse event of EUS-guided choledochoduodenostomy. Usual treatments may include endoscopic stent cleaning and double-pigtail stent placement through LAMS to re-establish stent patency.¹⁻⁵ However, there is no evidence on the best approach to use in these cases. Our endoscopic procedure can be considered as a potential effective treatment of these adverse events, especially in a patient with Roux-en-Y gastrojejunostomy. In fact, gastroduodenal food transit in a patient with normal anatomy would probably be an issue because of the biliary metal stent inside the duodenal stent, leading to a gastric outlet obstruction.



Figure 2. CT scan showing marked dilation of the biliary tracts due to complete obliteration of lumen-apposing metal stent 2 months after its positioning.

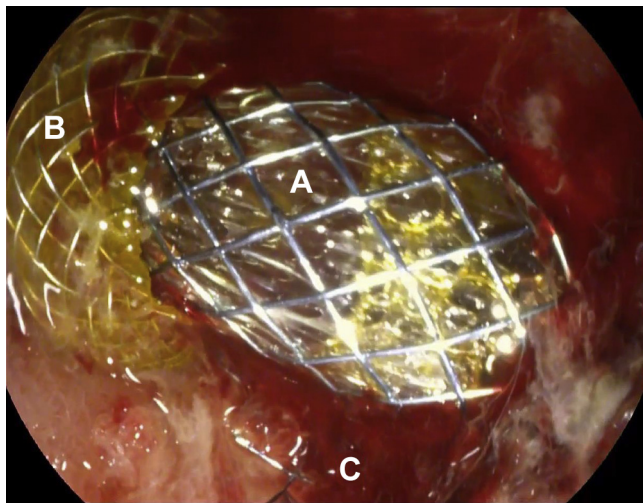


Figure 3. Endoscopic view at the end of the procedure, with (A) partially covered self-expandable metal stent between (B) lumen-apposing metal stent and (C) duodenal uncovered self-expandable metal stent.



Figure 4. Abdominal x-ray 3 months after last procedure, showing all stents in place.

Indeed, in this case, our choice was even more appropriate in light of the Roux-en-Y gastrojejunostomy. Another potential concern related to this management could be the

need for reintervention because of biliary obstruction: In that case, there are many possible solutions (eg, cannulation of the common bile duct through the mesh, EUS-hepaticogastrostomy, or percutaneous transhepatic cholangiography). In any case, a decision regarding any possible therapeutic procedure must be made on a case-by-case basis, taking into account the whole picture, including patient's medical history, comorbidities, and life expectancy.

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviations: LAMS, lumen-apposing metal stent; SEMS, self-expandable metal stent.

REFERENCES

1. Amato A, Sinagra E, Celsa C, et al. Efficacy of lumen-apposing metal stents or self-expandable metal stents for endoscopic ultrasound-guided choledochoduodenostomy: a systematic review and meta-analysis. *Endoscopy* 2021;53:1037-47.
2. Jacques J, Privat J, Pinar F, et al. EUS-guided choledochoduodenostomy by use of electrocautery-enhanced lumen-apposing metal stents: a French multicenter study after implementation of the technique (with video). *Gastrointest Endosc* 2020;92:134-41.
3. El Chafic AH, Shah JN, Hamerski C, et al. EUS-guided choledochoduodenostomy for distal malignant biliary obstruction using electrocautery-enhanced lumen-apposing metal stents: first US, multicenter experience. *Dig Dis Sci* 2019;64:3321-7.
4. Anderloni A, Fugazza A, Troncone E, et al. Single-stage EUS-guided choledochoduodenostomy using a lumen-apposing metal stent for malignant distal biliary obstruction. *Gastrointest Endosc* 2019;89:69-76.
5. Tsuchiya T, Teoh AYB, Itoi T, et al. Long-term outcomes of EUS-guided choledochoduodenostomy using a lumen-apposing metal stent for malignant distal biliary obstruction: a prospective multicenter study. *Gastrointest Endosc* 2018;87:1138-46.

Gastroenterology and Digestive Endoscopy Unit, ASST Fatebenefratelli Sacco, Milan, Italy.

Copyright © 2022 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.vgie.2022.01.010>