EUS-guided hepaticogastrostomy and antegrade direct peroral cholangioscopy: An effective alternative to overcome the distance (with video)

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An 85-year-old woman, with a history of biliopancreatic diversion for bariatric surgery 10 years before, presented with obstructive jaundice.

Computed tomographic scan showed dilation of the biliary tree with evidence of a stricture in the distal common bile duct (CBD).

Due to multiple comorbidities, the patient was deemed unfit for surgery; thus, an adequate tissue sampling and biliary drainage were required to confirm the diagnosis and to palliate jaundice.

A transpapillary biliary drainage by enteroscopy-assisted ERCP was unsuccessfully attempted due to a long jejunal limb.

The patient was therefore referred to our unit to perform an EUS-guided hepaticogastrostomy (EUS-HGS).

EUS evaluation through the gastric remnant demonstrated dilation of the left intrahepatic bile ducts and failed to visualize the distal CBD.

Under EUS and fluoroscopy guidance, a dilated left intrahepatic duct was identified and punctured with a 19-gauge needle with injection of contrast to provide a cholangiogram. Subsequently, a 0.025-inch guidewire was advanced into the biliary system [Figure 1 and Video 1]. A 6 Fr cystotome was inserted over the wire and used to dilate the tract. A dedicated 10 mm × 80 mm partially-covered self-expandable metal stent (HANARO stent BPE, M.I. Tech, Seoul, Rep. South Korea) was inserted, ensuring biliary drainage.

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released through the gastric wall into the intrahepatic duct [Figure 2].

To obtain a histological diagnosis of the indeterminate biliary stricture, a direct peroral cholangioscopy (DPOC) through the newly created HGS was performed.

First of all, the stent was dilated with a pneumatic balloon up to 9 mm (CRE, Boston Scientific Corporation Inc., Marlborough, MA, USA) through the EUS scope [Figure 3].

A 5.9-mm ultraslim endoscope (Fujifilm EG-580NW2, Tokyo, Japan) was advanced under CO₂ insufflation across the HGS into the biliary system with fluoroscopic guidance to avoid misplacement of the stent.

An obstructing lesion with dilated and tortuous vessels in the distal CBD was revealed [Figure 4]. Under direct endoscopic visualization, multiple targeted biopsy specimens were obtained with forceps for histopathologic analysis.

Histologic analysis revealed cholangiocarcinoma [Figure 5]. Neither adverse events occurred during the procedure nor at the subsequent follow-up.

The management of pancreatobiliary diseases in patients with surgically altered anatomy (SAA) is technically challenging and associated with a significant number of failures. [1,2] EUS-HGS has emerged as an alternative procedure for achieving an endoscopic internal biliary drainage showing promising data in term of efficacy and safety, especially in SAA patients. [3,4] Recently,
a case of DPOC few days after EUS-HGS for the management of difficult intrahepatic stones has been reported.\(^5\)

EUS-HGS could be considered not only as a viable alternative for palliation of malignant jaundice but also as an entry port for therapeutic and diagnostic purposes.

Furthermore, to the best of our knowledge, this case first demonstrated that single session of EUS-HGS with DPOC might represent an effective alternative approach for biliary drainage and the assessment of CBD strictures in patients with SAA.

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**Conflicts of interest**
There are no conflicts of interest.

**Declaration of patient consent**
The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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