Combination of ERCP with endoscopic ultrasound-guided hepaticogastrostomy and hepaticoduodenostomy for biliary drainage in malignant hilar biliary obstruction

Among patients with malignant hilar biliary obstruction, those suffering from cholangitis sometimes require decompression of all divided biliary branches; however, PTBD has been associated with a decreased quality of life. Endoscopic ultrasound (EUS)-guided procedures are widely performed [2], and there are increasing reports that EUS-guided biliary drainage (EUS-BD) is useful in patients with malignant hilar biliary obstruction [3–5].

A 79-year-old man with malignant hilar biliary obstruction, Bismuth type IV, caused by a poorly differentiated hilar cholangiocarcinoma ([Fig. 1]) underwent biliary multistenting using four intraductal plastic stents during ERCP ([Fig. 2]). After 2 months, the patient developed acute obstructive cholangitis. The hilar cholangiocarcinoma was growing rapidly and the multiple branches of the biliary system were divided, thereby making transpapillary drainage for all branches challenging. Bilateral endoscopic nasobiliary drainage and antibiotic therapy were administered, and a combination of biliary drainage with ERCP, EUS-guided hepaticogastrostomy (EUS-HGS) and hepaticoduodenostomy (EUS-HDS) was planned ([Video 1]).

First, EUS-HGS of the B3 bile duct was performed with a 6-mm × 12-cm partially covered self-expandable metal stent (PCSEMS) ([Fig. 3a]). Second, via the transpapillary route, we deployed 10-Fr plastic stents at the divided B5 and B8 branches ([Fig. 3b]). Finally, EUS-HDS of the B6 bile duct was successfully performed from the first portion of the duodenum using a 6-mm × 10-cm PCSEMS ([Fig. 3c]). Because each intrahepatic bile duct was thin, we performed EUS-BD using a 22-gauge fine needle and 0.018-inch guidewire. After biliary access had been achieved, we used a 0.025-inch guidewire, a 7-Fr bougie dilator with ultra-tapered tip dedicated to the 0.018-inch guidewire, and a balloon dilator as necessary. After performance of this combined biliary drainage procedure, the patient’s cholangitis was controlled and he was able to continue chemotherapy.

Video 1 Combination biliary drainage with endoscopic retrograde cholangiopancreatography, endoscopic ultrasound-guided hepaticogastrostomy, and hepaticoduodenostomy is performed for a patient with malignant hilar biliary obstruction.

Fig. 1 Magnetic resonance cholangiopancreatography image showing a severe, Bismuth class IV, hilar biliary obstruction, specifically of the left, right-anterior, B5, and B8 bile ducts.

Fig. 2 Radiographic image showing the four 7-Fr intraductal biliary plastic stents that were placed for decompression of the hilar biliary obstruction, 2 months prior to the development of acute obstructive cholangitis.
The combination of ERCP and EUS-BD can provide precise and effective biliary drainage for malignant hilar obstruction.

**Endoscopy_UCTN_Code_TTT_1AS_2AD**

**Competing interests**

A. Katanuma has received speaker’s fees from Olympus Co., Tokyo, Japan. The remaining authors declare that they have no conflict of interest.

**The authors**

Haruka Toyonaga, Tsuyoshi Hayashi, Toshifumi Kin, Kazuki Hama, Kosuke Iwano, Risa Nakamura, Akio Katanuma

Center for Gastroenterology, Teine Keijinkai Hospital, Hokkaido, Japan

**Corresponding author**

Haruka Toyonaga, MD

Center for Gastroenterology, Teine-Keijinkai Hospital, 1-40-1-12 Maeda, Teine-ku, Sapporo 006-8555, Japan
toyonaga.pc@gmail.com

**References**


**Bibliography**

Endoscopy

DOI 10.1055/a-1864-9339

ISSN 0013-726X

published online 2022 © 2022. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (https://creativecommons.org/licenses/by-nc-nd/4.0/)

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

**ENDOSCOPY E-VIDEOS**

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

Endoscopy E-Videos is an open 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. Processing charges apply (currently EUR 375), discounts and waivers acc. to HINARI are available.

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