

Endoscopic ultrasound-guided hepaticojejunostomy for drainage of the right posterior hepatic duct enabled total liver drainage

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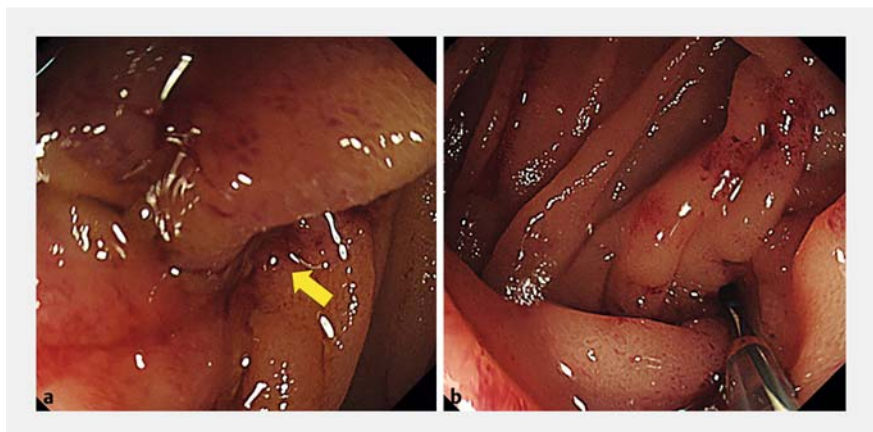
In a patient with unresectable malignant hilar biliary obstruction (MHBO), drainage of as much liver volume as possible is recommended [1,2]. However, the retrograde approach is difficult owing to anatomic factors or the extent of stenosis, particularly in the right posterior hepatic duct. We report a case in which endoscopic ultrasound-guided hepaticojejunostomy (EUS-HJS) of the right posterior hepatic duct allowed total liver drainage (► **Video 1**).

A 59-year-old woman underwent subtotal stomach-preserving pancreatoduodenectomy for ampullary carcinoma of the duodenum, and MHBO (Bismuth type 3a) due to recurrent tumor at the cholangiojejunostomy anastomosis was clinically suspected. Therefore, retrograde drainage was performed. A colonoscope was inserted into the anastomosis site (► **Fig. 1**). The left hepatic duct and right anterior hepatic duct were visualized using contrast agent and guidewires were placed; however, the right posterior hepatic duct was completely obstructed and could not be approached (► **Fig. 2**). Therefore, we decided that retrograde drainage was indicated for the left hepatic duct and right anterior hepatic duct, and EUS-HJS for the right posterior hepatic duct.

First, fully covered self-expandable metal stents (FCSEMSs, 6 mm × 6 cm) (EGIS braided 6; S&G Biotech Inc., Yongin-si, Korea) were placed retrogradely in the left hepatic duct and right anterior hepatic duct (► **Fig. 3**). Then, a forward-viewing echoendoscope (TGF-UC260J; Olympus, Tokyo, Japan) was inserted, and the dilated right posterior hepatic duct, infraportal type, was shown near the anastomosis. This was punctured with a 19-gauge needle (EZ Shot 3 Plus; Olympus, Tokyo, Japan) and confirmed as the dilated right posterior hepatic duct by contrast enhancement (► **Fig. 4**). The fistula was dilated with an electrocau-



► **Video 1** Total liver drainage without the need for percutaneous drainage was successfully performed using transanastomotic biliary drainage combined with endoscopic ultrasound-guided hepaticojejunostomy of the right posterior hepatic duct using a forward-viewing echoendoscope.



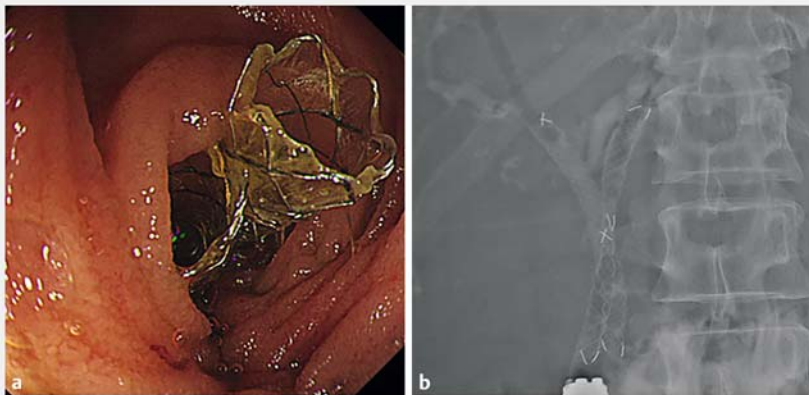
► **Fig. 1 a** In a 59-year-old woman with previous subtotal stomach-preserving pancreatoduodenectomy for ampullary carcinoma of the duodenum, a colonoscope was inserted into the cholangiojejunostomy anastomosis. Endoscopically, anastomotic stenosis (arrow) caused by recurrent tumor was observed. **b** A catheter was inserted for contrast enhancement.

tery dilator (Fine025; Medico's Hirata, Osaka, Japan), after which a FCSEMS (6 mm × 6 cm; Hanarostent Biliary Full Cover Benefit; Boston Scientific, Tokyo, Japan) was placed (► **Fig. 5**).

No adverse events occurred postoperatively, and the patient was discharged 2 days later. No stent dysfunction was observed before death, which occurred 47 days after the procedure owing to exacerbation of the underlying recurrent disease.



► **Fig. 2** a, b The left hepatic duct and right anterior hepatic duct were successfully enhanced and guidewires were placed. However, the right posterior hepatic duct was completely obstructed and could not be enhanced.



► **Fig. 3** a, b Fully covered self-expandable metal stents (6 mm × 6 cm) were placed retrogradely in the left hepatic duct and right anterior hepatic duct in a side-by-side manner.



► **Fig. 4** a The dilated right posterior hepatic duct was shown near the anastomosis. b The dilated right posterior hepatic duct was punctured with a 19-gauge needle. c The dilated right posterior hepatic duct was confirmed by contrast enhancement and a guidewire was placed.

EUS-HJS is useful as rescue drainage for MHBO in cases where the right posterior hepatic duct is unapproachable retrogradely.

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Competing interests

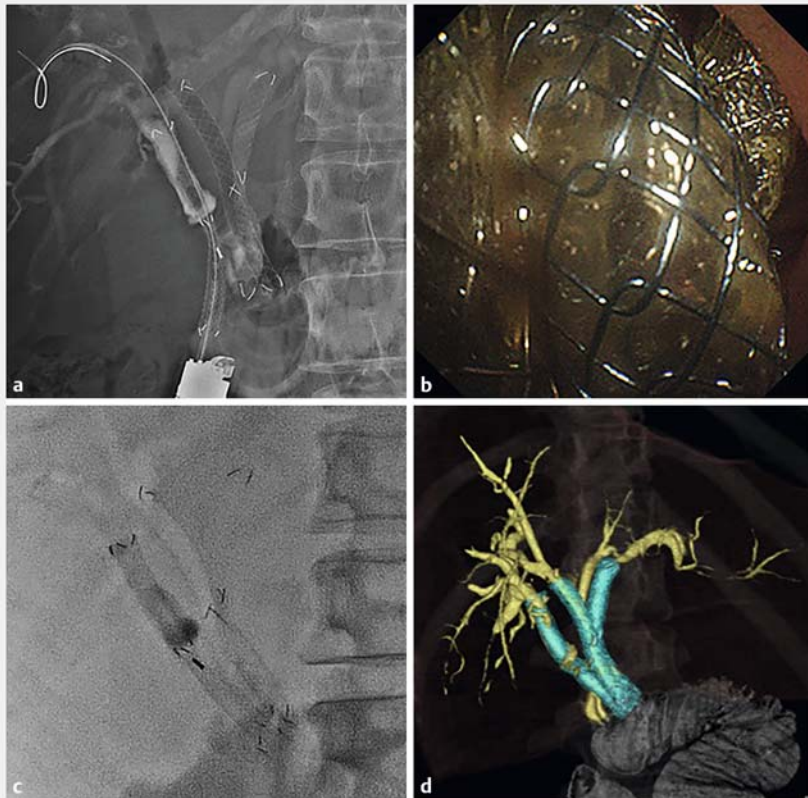
The authors declare that they have no conflict of interest.

The authors

Kotaro Takeshita¹, Susumu Hijioka¹, Yuki Kawasaki¹, Yuta Maruki¹, Yoshikuni Nagashio¹, Takuji Okusaka¹, Yutaka Saito²

1 Department of Hepatobiliary and Pancreatic Oncology, National Cancer Center Hospital, Chuo-ku, Tokyo, Japan

2 Endoscopy Division, National Cancer Center Hospital, Chuo-ku, Tokyo, Japan



► **Fig. 5 a–c** A fully covered self-expandable metal stent (6 mm × 6 cm) was placed in the completely obstructed right posterior hepatic duct. **d** Computed tomography confirmed that total liver drainage was achieved after the procedure.

Corresponding author

Susumu Hijioka, MD

Department of Hepatobiliary and Pancreatic Oncology, National Cancer Center Hospital, 5-1-1 Tsukiji, Chuo-ku, Tokyo 104-0045, Japan
shijioka@ncc.go.jp

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Bibliography

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