

## Simultaneous endoscopic ultrasound-guided hepaticogastrostomy and bridging stenting with partial stent-in-stent method

Endoscopic ultrasound-guided hepaticogastrostomy (EUS-HGS) is used increasingly worldwide as an alternative to endoscopic retrograde cholangiopancreatography (ERCP) for biliary drainage. The HGS route is used for drainage in cases of hilar malignant biliary obstruction [1–4]. However, no studies have reported on drainage of all hilar branches via the HGS route in cases that require stenting of the right anterior and right posterior sectional ducts.

We report on a patient with inoperable gallbladder cancer causing hilar obstruction in whom ERCP was not possible. In a single procedure, we performed EUS-HGS and hilar stenting of the right anterior and right posterior sectional ducts using the partial stent-in-stent method (▶ **Video 1**).

A 66-year-old woman with unresectable gallbladder cancer had duodenal and biliary obstruction. After placing a metal duodenal stent, we performed EUS-HGS. After puncturing the B3 segment using EUS, bile duct enhancement showed hilar obstruction (Bismuth type IIIa) (▶ **Fig. 1**).

Therefore, we performed simultaneous drainage of all branches through the HGS route. We inserted guidewires (Visiglide2; Olympus, Tokyo, Japan) into B8 and B6 in parallel. We then inserted the first stent (8×60 mm uncovered, self-expandable metal stent [SEMS]; Zeo stent V; ZEON Medical Inc., Kawasaki, Japan) from B8 to the left hepatic duct. We then manipulated the guidewire for the first stent through the stent mesh and into B6, running parallel with the existing B6 guidewire. The deployed first stent was dilated using a balloon dilator (REN, 8-mm wide; Kaneka Medix Corporation, Tokyo, Japan), and then the second stent (8×60 mm uncovered SEMS; Zeo stent V) was deployed from B6 to the left hepatic duct using a partial stent-in-stent method (▶ **Fig. 2**). Finally, we inserted the third stent (8×80 mm fully covered SEMS; X suit NIR; Olympus) from B3 to the stomach through the HGS route (▶ **Fig. 3**). No adverse events occurred during the procedure.

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### Competing interests

The authors declare that they have no conflict of interest.

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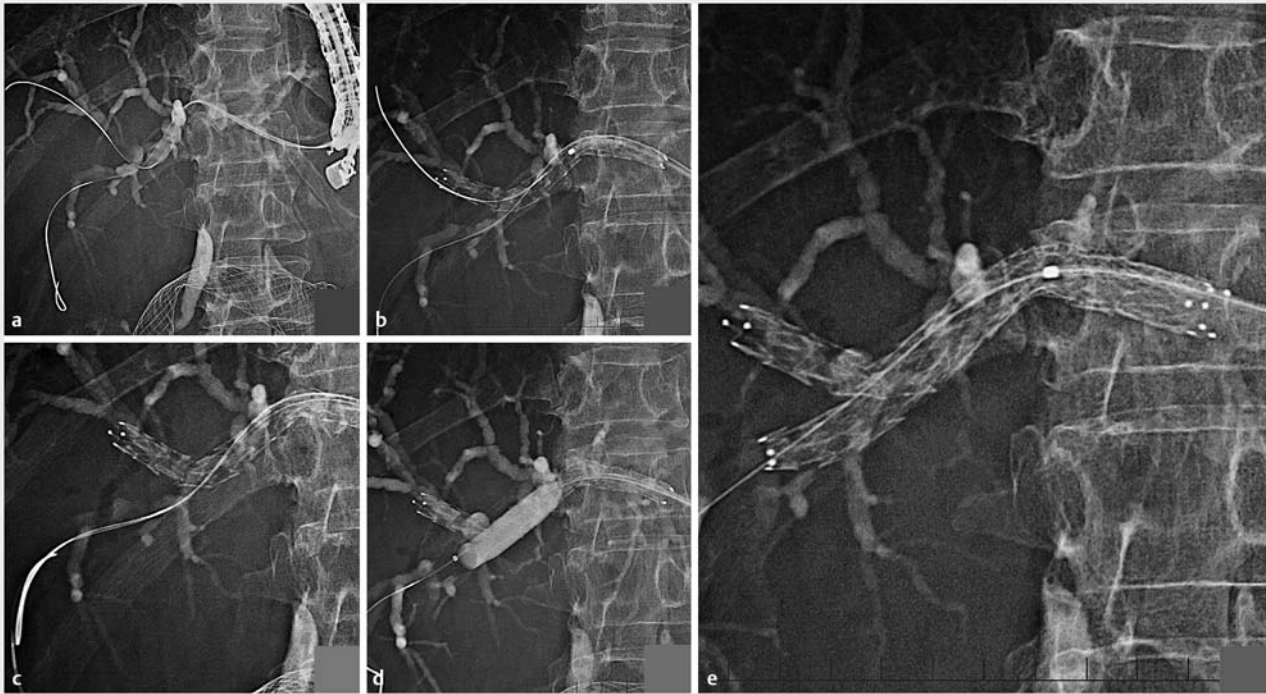
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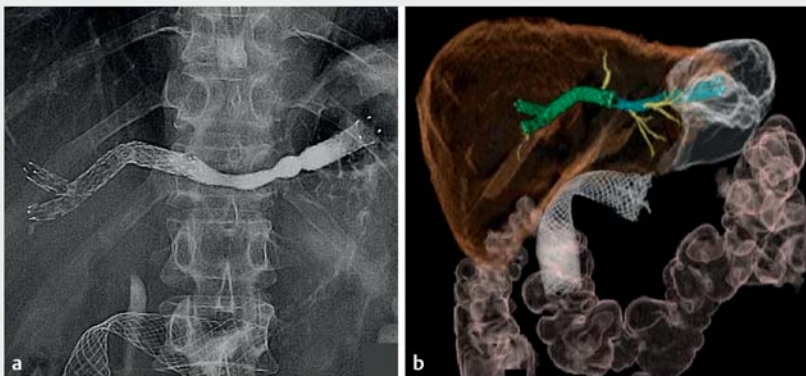
▶ **Video 1** Novel simultaneous drainage of all branches for hilar malignant obstruction using endoscopic ultrasound-guided hepaticogastrostomy and bridging stenting with a partial stent-in-stent method.



▶ **Fig. 1** Bile duct enhancement via the hepaticogastrostomy route showed hilar malignant biliary obstruction (Bismuth type IIIa).



► **Fig. 2** Bridging stenting using a partial stent-in-stent method via the hepaticogastrostomy route. **a** Inserting the guidewires into the B6 and the B8 in parallel. **b** Deployment of the first stent from the B8 to the left hepatic duct. **c** Inserting the guidewire into the B6 from inside the first deployed stent through the stent mesh. **d** Balloon dilation of the stricture and stent mesh. **e** Deployment of the second stent from the B6 to the left hepatic duct using a partial stent-in-stent method.



► **Fig. 3** Simultaneous drainage of all branches was accomplished using endoscopic ultrasound-guided hepaticogastrostomy and bridging stenting with a partial stent-in-stent method. **a** In fluoroscopy. **b** In 3D reconstruction.

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