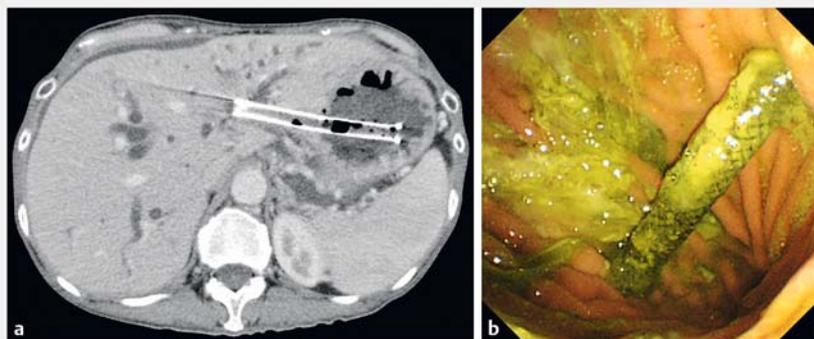
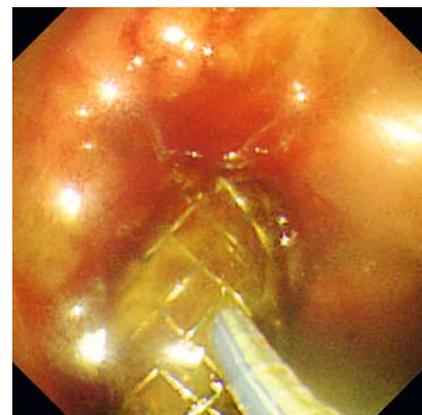


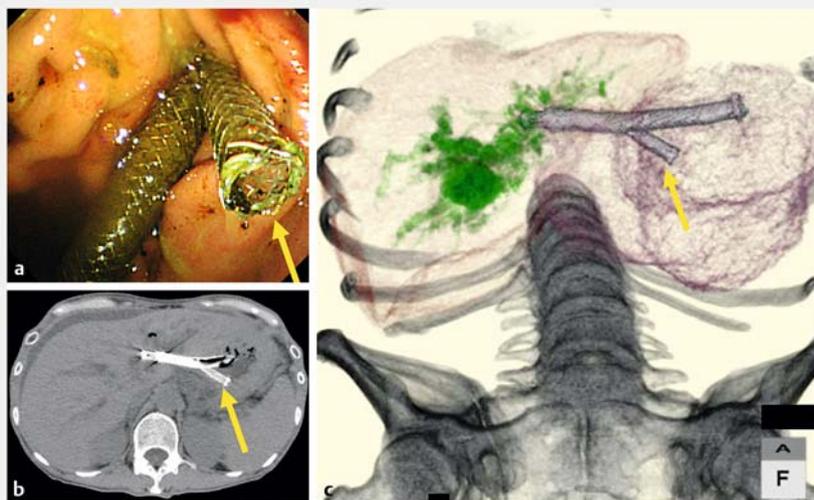
## Re-intervention for recurrent biliary obstruction after endoscopic ultrasound-guided hepaticogastrostomy with partially covered self-expandable metal stent



► **Fig. 1** Recurrent biliary obstruction after endoscopic ultrasound-guided hepaticogastrostomy shown on: **a** computed tomography image; **b** endoscopic view.



► **Fig. 2** Endoscopic view showing a 0.025-inch guidewire and a catheter penetrating through the mesh of the previously placed hepaticogastrostomy stent near the stomach wall.



► **Fig. 3** A fully covered self-expandable metal stent (arrow) is positioned through the previously placed stent, as shown on: **a** endoscopic view; **b** computed tomography (CT) image; **c** reconstructed CT image.

The use of the endoscopic ultrasound-guided hepaticogastrostomy (EUS-HGS) method for malignant biliary stricture has increased. A partially covered self-expandable metal stent (PCSEMS) is often selected for the procedure, and re-intervention is challenging because of the long length of stent protrusion inside the stomach. Several re-intervention methods, including trimming and stent

penetration using electrical devices, have been reported [1–4]; however, the complexity and time-consuming nature of these procedures pose limitations. Here, we report the simplest of novel re-intervention methods for PCSEMS dysfunction after an EUS-HGS.

A 65-year-old woman with unresectable pancreatic cancer and duodenal obstruction underwent EUS-HGS using a PCSEMS

(Niti-S biliary S-type; 8-mm × 10-cm covered stent with a 1-cm uncovered portion; Taewoong Medical, Seoul, South Korea). After 8 months had passed, recurrent biliary obstruction occurred due to bile duct hyperplasia at the stent edge (► **Fig. 1**). Stent removal with a grasping forceps was not possible because it was firmly anchored by the overgrown tissue. Inserting a guidewire and a catheter parallel to the stent to access the bile duct was also not feasible.

We therefore penetrated the stent mesh close to the stomach wall with a guidewire (Visiglide2; Olympus, Tokyo, Japan) and a catheter (Tandem XL ERCP Cannula; Boston Scientific Corporation, Marlborough, Massachusetts, USA). These devices were advanced into the stent (► **Fig. 2**), and bypassed the stricture allowing access to the bile duct. The biliary stricture and the stent mesh, at the entry point of the wire and catheter, were dilated with a balloon catheter (REN; 8-mm wide; Kaneka Medix Corporation, Tokyo). A fully covered SEMS (Niti-S biliary S-type; 6-mm × 8-cm long covered stent; Taewoong Medical) was threaded through the dilated tract and successfully de-



**▶ Video 1** The video shows a novel re-intervention method for recurrent biliary obstruction after endoscopic ultrasound-guided hepaticogastrostomy with a partially covered self-expandable metal stent.

ployed (▶ **Fig. 3**, ▶ **Video 1**). This procedure was completed without any adverse events.

This novel re-intervention method involving penetration of the stent mesh near the stomach wall is simple, safe, and efficient.

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### Competing interests

None

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