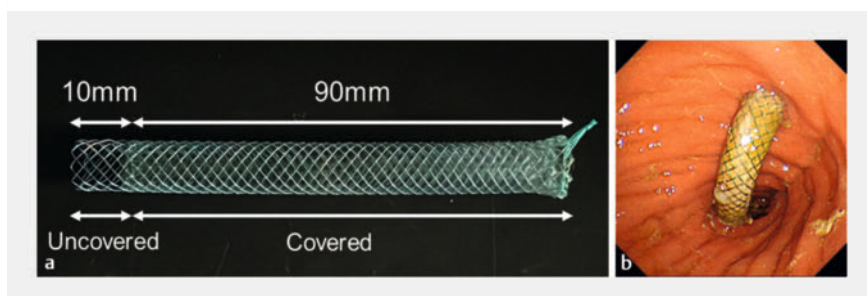
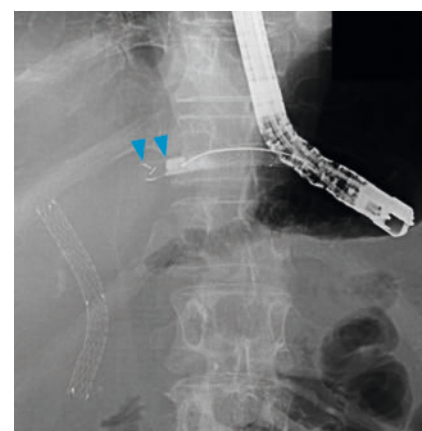




## Piercing technique for mucosal hyperplasia at an uncovered part of a partially covered stent after endoscopic ultrasound-guided hepaticogastrostomy



**► Fig. 1** **a** A partially covered self-expandable metal stent (Modified Giobor Stent; Taewoong Medical, Seoul, South Korea) made of braided nitinol wire partially covered by a silicone membrane. The proximal end has a 10-mm uncovered portion. **b** Endoscopic view of the partially covered metal stent in the gastric lumen after endoscopic ultrasound-guided hepaticogastrostomy.



**► Fig. 2** The uncovered part of the partially covered metal tent was not imaged by contrast medium injection (arrowheads), indicating a complete recurrent biliary obstruction due to hyperplasia.

A partially covered self-expandable metal stent (PCSEMS) is preferred in endoscopic ultrasound-guided hepaticogastrostomy (EUS-HGS) to prevent stent dislocation and branch duct occlusion [1, 2]. A PCSEMS with a 10-mm uncovered part on the proximal end (Modified Giobor Stent; Taewoong Medical, Seoul) (► Fig. 1a) has been used frequently [2, 3]; however, tissue hyperplasia occurs around the uncovered part, leading to recurrent biliary obstruction (RBO) [2, 3]. RBO due to hyperplasia is sometimes hardened with abundant fibrosis, resulting in failed guidewire passage during endoscopic reintervention [3,4]. Here, we present a novel technique to regain biliary access after EUS-HGS with subsequent hyperplasia with the uncovered portion of the PCSEMS.

A 67-year-old male with a history of distal gastrectomy with Roux-en-Y reconstruction was admitted due to jaundice. The patient had undergone EUS-HGS with the PCSEMS for biliary obstruction due to lymph node metastasis 8 months before admission (► Fig. 1b). To relieve

jaundice, reintervention via the distal end of the PCSEMS was performed. A cannulation catheter was inserted from the distal end of the PCSEMS, but a 0.035-inch guidewire (Jagwire; Boston

Scientific, Natick, Massachusetts, United States) could not be advanced beyond the PCSEMS. The uncovered part of the PCSEMS was not imaged by contrast medium injection, indicating a complete

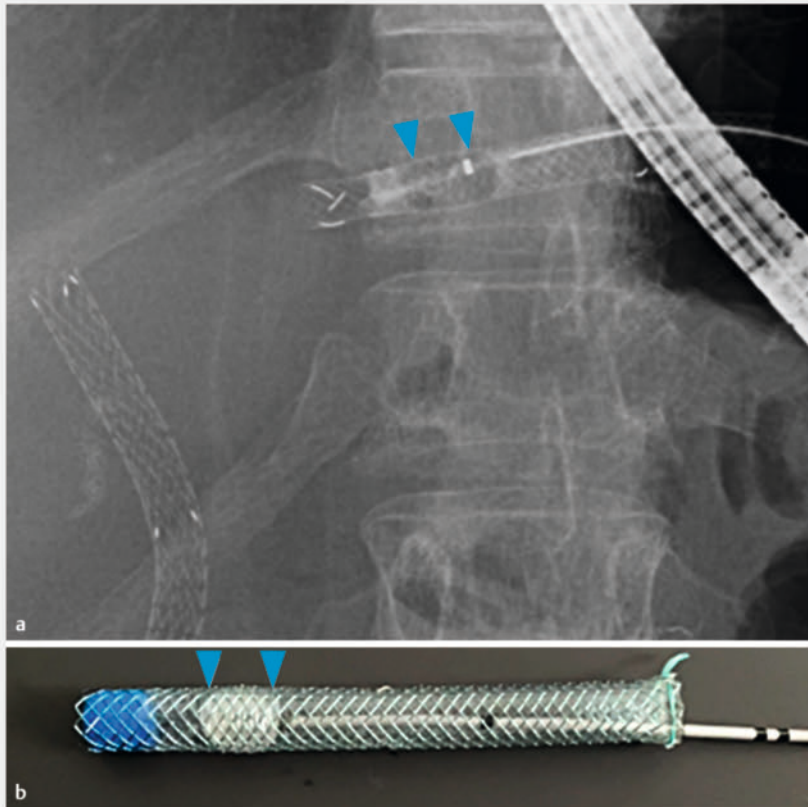
**▶ VIDEO**

Piercing technique for mucosal hyperplasia at an uncovered part of a partially covered metal stent after endoscopic ultrasound-guided hepaticogastrostomy

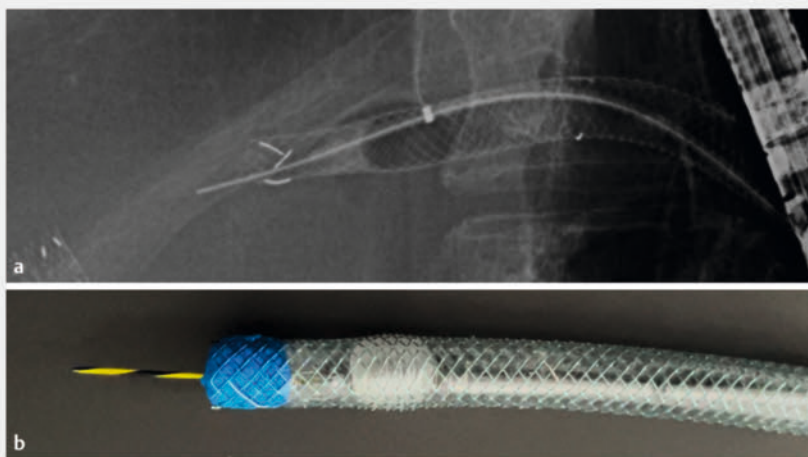
▶ **Video 1** Endoscopic reintervention using a “piercing technique” for mucosal hyperplasia after endoscopic ultrasound-guided hepaticogastrostomy.

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► **Fig. 3** A stone extraction balloon (Fusion Extraction Balloon; Cook Medical, Bloomington, Indiana, United States) was inflated inside the partially covered metal stent to allow passage of the guidewire through the center of the stent (**a** fluoroscopic view, **b** diagram).





► **Fig. 4** In a “piercing technique,” the stiff back end of a 0.035-inch guidewire (Jagwire; Boston Scientific, Natick, Massachusetts, United States) was used, which enabled the smooth advancement of the guidewire beyond the hyperplasia at the proximal end of the stent (**a** fluoroscopic view, **b** diagram).

RBO due to hyperplasia (► **Fig. 2**). Next, a stone extraction balloon was inflated inside the PCSEMS to allow passage of the guidewire through the center of the PCSEMS (► **Fig. 3**). However, the hyperplasia was too stiff. Finally, a “piercing technique” using the stiff back end of the guidewire [5] was performed, which allowed the guidewire to smoothly advance the stricture (► **Fig. 4**, ► **Video 1**). After dilating the uncovered part with an 8-mm balloon dilator, a dedicated plastic stent was successfully deployed through the PCSEMS (► **Fig. 5**). The patient’s jaundice resolved after endoscopic revision and was discharged 6 days after admission.

### Conflict of Interest

The authors declare that they have no conflict of interest.

### The authors

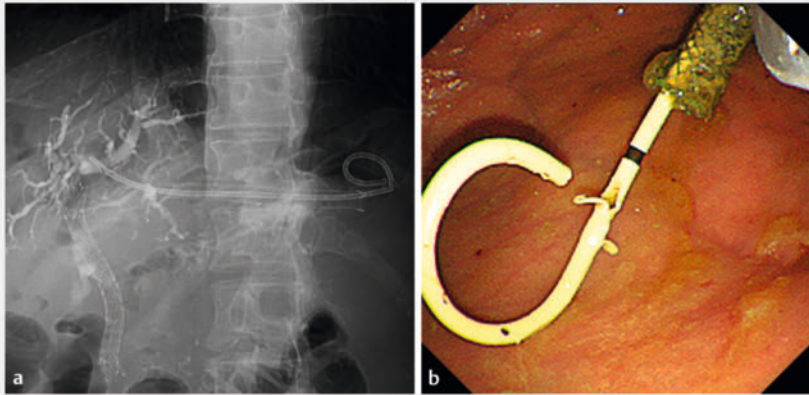
Yasuo Otsuka<sup>1</sup>, Kosuke Minaga<sup>1</sup> , Akane Hara<sup>1</sup>, Yasuhiro Masuta<sup>1</sup>, Mamoru Takenaka<sup>1</sup> , Masatoshi Kudo<sup>1</sup>

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► **Fig. 5** A dedicated 7F × 14-cm plastic stent (TYPE-IT Stent; Gadelius Medical, Tokyo, Japan) was successfully deployed through the existing partially covered metal stent (**a** fluoroscopic view, **b** endoscopic view).

## Bibliography

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