Facile and secure deployment of plastic stent through an endoscopic tapered sheath for endoscopic ultrasound-guided drainage

Endoscopic ultrasound (EUS)-guided drainage is a promising treatment for a variety of conditions, such as obstructive jaundice and peripancreatic fluid collection [1, 2]. Despite recent improvement in stents, EUS-guided drainage is often complicated because it is sometimes difficult to pass a plastic stent, especially a double pigtail stent, through a fistula even after dilation. Therefore, we used a newly developed endoscopic tapered sheath (EndoSheather; Piolax, Inc., Kanagawa, Japan) [Fig. 1, Fig. 2] [3] in two patients. This device allows fistula dilation and subsequent easy insertion of the plastic stent (up to 6Fr in diameter) through the indwelling outer sheath, which bridges to the target space, thereby eliminating the need to remove the device. Hence, this technique may improve the outcomes of EUS-guided drainage, especially when performed by novice interventional endoscopists.

Case 1: A 90-year-old man with hilar cholangiocarcinoma and obstructive cholangitis in the posterior segmental branches of the bile duct underwent EUS-guided hepaticoduodenostomy. The B7 bile duct was punctured from the duodenum using a 19-gauge needle, and a 0.025-inch guidewire was placed. Then, the endoscopic tapered sheath was inserted into the bile duct to dilate the fistula. The inner catheter was removed, and the outer sheath was left in place inside the bile duct. Finally, a 6Fr double pigtail plastic stent (Zimmon; Cook Medical Inc., Winston-Salem, North Carolina, USA) was deployed through the outer sheath [Fig. 3].

Case 2: A 74-year-old man with three cavities of infected walled-off necrosis underwent EUS-guided transmural drainage. Multiple plastic stents were deployed through the single gate [4]. The cavity was punctured using a 19-gauge needle, and a 0.025-inch guidewire was placed. Then, the endoscopic tapered...
The newly developed endoscopic tapered sheath allows fistula dilation and subsequent smooth insertion of a 6 Fr double pigtail plastic stent through the indwelling outer sheath for endoscopic ultrasound-guided drainage.

**Fig. 5** Fluoroscopic cholangiogram showing endoscopic ultrasound-guided transmural drainage (Case 2). Two 6 Fr double pigtail plastic stents (yellow and red arrowheads) were already deployed in the cavities with the corresponding color. A 6 Fr pigtail nasobiliary drainage tube (blue arrowhead) was inserted into the blue-colored cavity through the outer sheath of the EndoSheather (white arrowhead).

**Video 1** The newly developed endoscopic tapered sheath allows fistula dilation and subsequent smooth insertion of a 6 Fr double pigtail plastic stent through the indwelling outer sheath for endoscopic ultrasound-guided drainage.

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Endoscopy 2022; 54: E674–E675
DOI 10.1055/a-1747-3162
ISSN 0013-726X
published online 15.2.2022
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