Successful endoscopic three-branch self-expandable metallic stent placement using a novel device delivery system for malignant hilar biliary stricture

Endoscopic bilateral drainage of high-grade hilar malignant biliary obstruction (HMBO) is technically challenging, even for experienced endoscopists [1]. A novel device delivery system was recently developed, originally intended for placement of a plastic stent in the bile duct. It comprises a slim-tip guide catheter (diameter 1.13 mm) and pusher tube, which facilitate the insertion of devices up to 1.9 mm in diameter [2–5]. We successfully placed an endoscopic three-branch self-expandable metallic stent (SEMS) using this novel device delivery system with partial stent-in-stent (SIS) for a patient with HMBO.

A 74-year-old man presented to our hospital with jaundice. Contrast-enhanced computed tomography showed that the hilar part of the tumor had spread to the umbilical portion of the portal vein with right hepatic artery involvement (Fig. 1). A cholangiogram showed hilar biliary stricture (Bismuth type IIIa) (Fig. 2). The pathological diagnosis with brush cytology was adenocarcinoma, so we planned multiple stenting using SEMSs with the SIS method.

We placed the initial uncovered SEMS (10 × 80 mm, BileRush Selective; Piolax, Kanagawa, Japan) at the left bile duct and then inserted the second SEMS into the right posterior branch through the mesh. We sought the right anterior branch with a 0.025-inch hydrophilic guidewire (Radifocus; Terumo, Tokyo, Japan) and followed the tapered tip catheter (PR-220Q; Olympus Medical, Tokyo, Japan) after the guidewire, switching the hydrophilic guidewire to a 0.025-inch versatile guidewire (Endoselector; Boston Scientific, Tokyo, Japan). We inserted a third SEMS over the guidewire, but it could not be passed through the mesh (Fig. 3). We thus inserted the novel delivery system (EndoSheather; Piolax) over the guidewire, allowing smooth passage through the mesh (Fig. 4). After removing the inner catheter, we delivered the third SEMS (10 × 60 mm; BileRush Selective) through the outer sheath (arrow, tip of the stent; arrowhead, proximal side of the stent) (Fig. 5, Video 1).
The authors declare that they have no conflict of interest.

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Video 1 Successful endoscopic three-branch metallic stent placement using a novel device delivery system for malignant hilar biliary stricture.