Troubleshooting with a drill dilator for the stent-in-stent technique in malignant hilar biliary obstruction

The stent-in-stent (SIS) technique is often used for endoscopic treatment of malignant hilar biliary obstruction and has a high success rate [1]. While the technique allows for placement of three or more stents, passing delivery systems through the mesh of a previously placed self-expandable metal stent (SEMS) can be difficult [1, 2]. We report successful troubleshooting with Tornus ES, a drill dilator, during three-way SEMS placement (▶Fig. 1).

A 71-year-old woman with hilar cholangiocarcinoma presented with fever and jaundice. She had three plastic inside stents placed in the left, right anterior, and right posterior bile ducts 3 weeks prior. Endoscopic retrograde cholangiopancreatography (ERCP) was performed to replace the inside stents with three nasobiliary tubes. After resolution of cholangitis, a second ERCP session was planned to implant three SEMSs using the SIS technique (▶Video 1).

Uncovered SEMSs were first placed in the left and right posterior bile ducts. While a guidewire could be advanced through the mesh into the right anterior bile duct, an ERCP catheter, a balloon dilator, and a mechanical dilator all failed to pass through the mesh. Insertion of a nasobiliary tube also proved unsuccessful. We therefore decided to use the Tornus ES (Asahi Intec Co., Ltd., Aichi, Japan).

The drill dilator advanced smoothly with clockwise rotation and was removed with similar ease using counterclockwise rotation (▶Fig. 2a). The balloon dilator could now pass through the mesh. After balloon dilation, an additional SEMS was successfully deployed into the right anterior bile duct (▶Fig. 2b, c). Tornus ES was developed to dilate difficult strictures, and its use has been reported in pancreatic duct dilation and in endoscopic ultrasound-guided interventions [3–5]. The spiral design allows for smooth dilation by a simple rotation of the hand grip. The drill dilator may be an attractive option for endoscopic interventions requiring through-the-mesh delivery.

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▶Fig. 1 Tornus ES is a drill dilator with hydrophilic coating and a tapered tip, which facilitate advancement through stiff stenoses.

▶Video 1 Through-the-mesh dilation achieved with Tornus ES, a drill dilator, during three-way metallic stent placement using the stent-in-stent technique.

▶Fig. 2 a Upon reaching the mesh, the assistant turned the drill dilator clockwise, which proceeded through the mesh with no resistance. b A balloon dilator could now pass through the mesh, and the mesh was successfully dilated. c The delivery system of the uncovered metal stent passed smoothly through the mesh, and three-way metal stent placement using the stent-in-stent technique was successfully completed.
Competing Interest

The authors declare that they have no conflict of interest.

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