

Usefulness of a circumferential argon plasma coagulation probe in trimming a dislocated distal biliary metal stent

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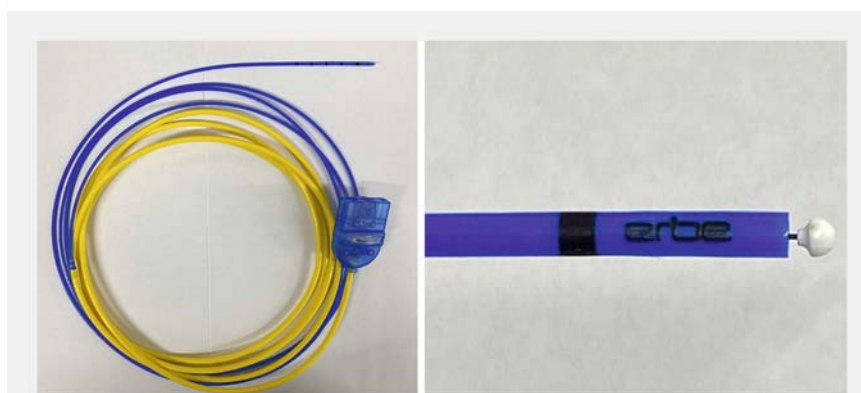
► **Fig. 1** Computed tomography image showing the occluded laser-cut fully covered self-expandable metal stent (yellow arrowheads).



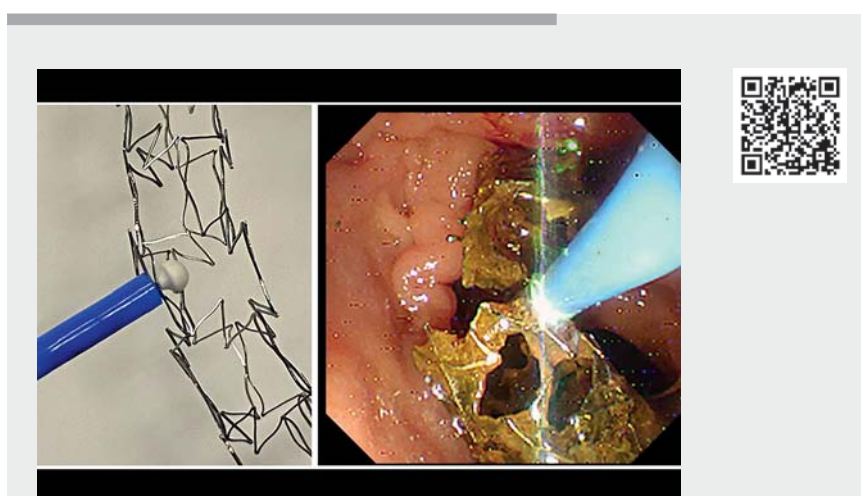
► **Fig. 2** Duodenoscopy image showing the extension of the stent into the duodenum after its attempted removal.

A 69-year-old man with unresectable cancer of the pancreatic head presented to our hospital with fever and jaundice. A laser-cut fully covered self-expandable metal stent (LC-SEMS; X-Suit NIR covered biliary metal stent; Olympus Medical Systems, Tokyo, Japan) and a duodenal metal stent (Niti-S pyloric/duodenal uncovered stent; Taewoong Medical, Seoul, South Korea) had been placed 12 months previously for malignant biliary and duodenal strictures, respectively.

A computed tomography scan revealed LC-SEMS occlusion (► **Fig. 1**). We therefore attempted to remove the stent using



► **Fig. 3** Photographs of the FiAPC probe (ERBE Elektromedizin, Tübingen, Germany).



► **Video 1** A laser-cut fully covered self-expandable metal stent is trimmed using a circumferential argon plasma coagulation probe.

a balloon catheter (Extractor ProRX; Boston Scientific, Marlborough, Massachusetts, USA) and a snare (SD-5U-1; Olympus Medical Systems); however, the stent could not be removed and broke, resulting in its dislocation to the duodenal side (► **Fig. 2**). We therefore abandoned stent removal and attempted to trim the LC-SEMS using a circumferential argon plasma coagulation (APC) probe (FiAPC probe; 80 W with a flow rate of 1.2 L/min; ERBE Elektromedizin, Tübingen, Ger-

many) (► **Fig. 3**). This APC probe has an insulator ball at the tip, similar to the insulated-tip knife used for endoscopic submucosal dissection [1]. We hooked the insulator ball onto the mesh of the LC-SEMS, and cut the stent by pulling the probe. The LC-SEMS was very easily trimmed, and the procedure was completed within 10 minutes without any complications (► **Video 1**). Later, a new LC-SEMS was placed over the previous one.


The application of APC to trim various SEMSs has been previously reportedly [2–4]. In the present case, the insulating ball allowed us to avoid damage to the duodenal mucosa and safely cut the LC-SEMS by pulling the probe. Moreover, the shortening of the procedure time can be expected to prevent mucosal damage of the bile duct from heat conduction during the APC [5]. The circumferential APC probe enables safe and easy trimming of biliary metal stents.

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Competing interests

The authors declare that they have no conflict of interest.

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