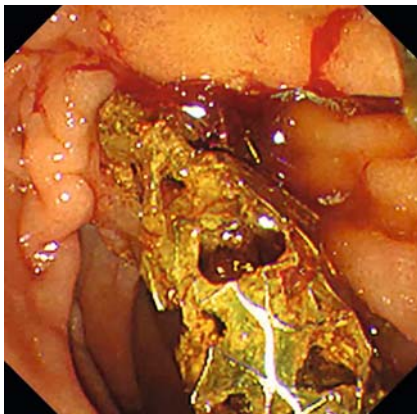


Usefulness of a circumferential argon plasma coagulation probe in trimming a dislocated distal biliary metal stent

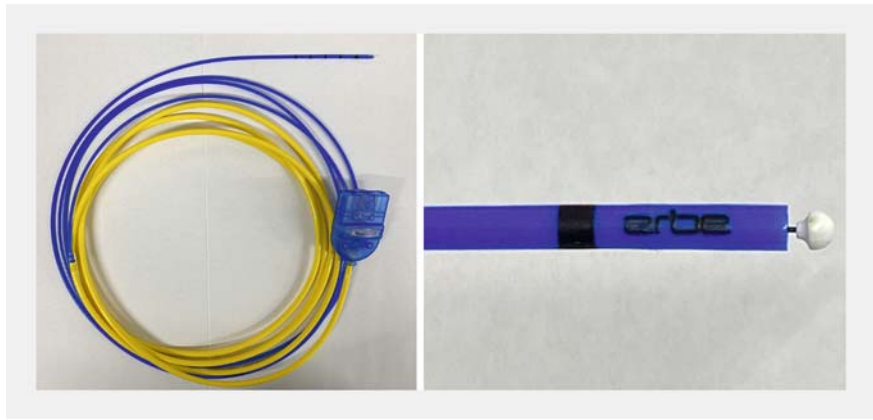
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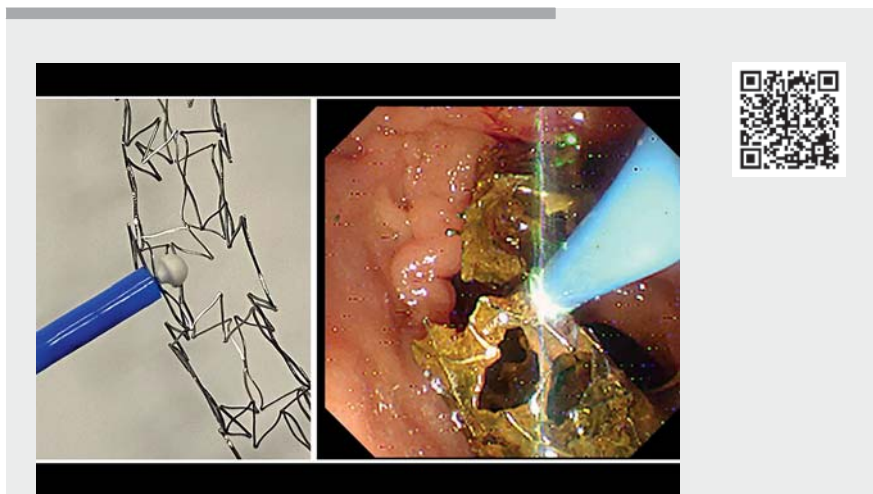
► **Fig. 1** Computed tomography image showing the occluded laser-cut fully covered self-expandable metal stent (yellow arrowheads).



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



► **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 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

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; 80W 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.

The authors

Masataka Yokode, Tomoaki Matsumori 
Norimitsu Uza, Takeshi Kuwada, Masahiro Shiokawa, Takahisa Maruno, Hiroshi Seno
Department of Gastroenterology and Hepatology, Graduate School of Medicine, Kyoto University, Kyoto, Japan

Corresponding author

Tomoaki Matsumori, MD, PhD
Department of Gastroenterology and Hepatology, Graduate School of Medicine, Kyoto University, 54 Kawara-cho, Shogoin, Sakyo-ku, Kyoto, Japan
tom.matu@kuhp.kyoto-u.ac.jp

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