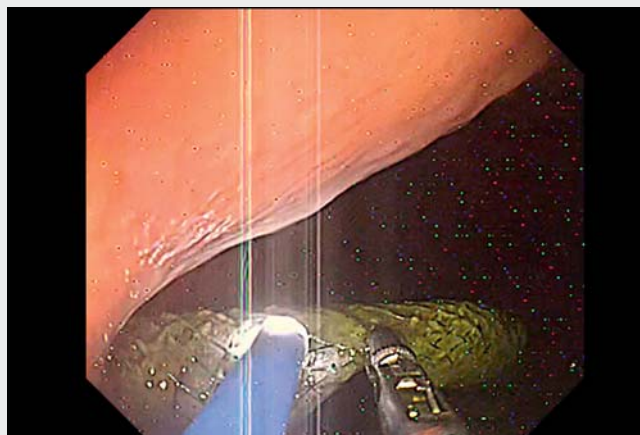


Two-channel endoscope re-intervention for stent dysfunction after interventional endoscopic ultrasonography: forceps stabilization of stent for cutting by argon plasma coagulation

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► **Fig. 1** Two-channel endoscope setup. The two-channel endoscope (GIF-2TQ260 M, Olympus, Japan); a forceps can be deployed from one channel to grasp the metal stent, and an argon plasma coagulation (APC) probe can be deployed from the other channel to trim the stent.



► **Video 1** A novel re-intervention technique for metal stent dysfunction following interventional endoscopic ultrasonography (EUS)-guided procedures: a two-channel scope is used, with a forceps stabilizing the stent position as it is trimmed using argon plasma coagulation (APC).



► **Fig. 2** Case 1. Trimming of an end-bare self-expandable metal stent (SEMS) deployed in the B3 liver segment during endoscopic ultrasound (EUS)-guided hepaticogastrostomy. A two-channel endoscope is being used, so that the gastric end of the SEMS can be held in the required position with forceps whilst cutting is done by argon plasma coagulation (APC).

As interventional endoscopic ultrasonography (EUS) has become widely performed, occasions for re-intervention because of stent dysfunction are increasing and several re-intervention methods have been reported [1–5]. We introduce here a novel technique utilizing a two-

channel endoscope (GIF-2TQ260M; Olympus, Japan), in which a forceps is used to hold a stent in the required position whilst it is trimmed using argon plasma coagulation (APC) (► **Fig. 1**).

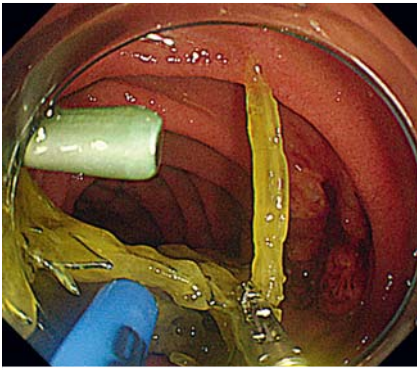
Case 1. A 91-year-old woman had undergone an EUS-guided hepaticogastrostomy in which an end-bare self-expandable metal stent (SEMS) was deployed in the B3 segment. However she experienced cholangitis due to obstruction of the SEMS. For biliary access and biliary drainage, the gastric end of the stent was trimmed using APC. Use of the two-channel scope enabled grasping of the end of the SEMS with forceps to hold it in place whilst trimming with APC was done (► **Fig. 2**). By grasping the end of the stent and applying traction, efficient and rapid SEMS cutting was achieved with a stable view and fixation of the area where APC was applied (► **Fig. 3**, ► **Video 1**).

Case 2. A 48-year-old man with an advanced pancreatic cancer suffered from jaundice. Despite needle-knife precut-

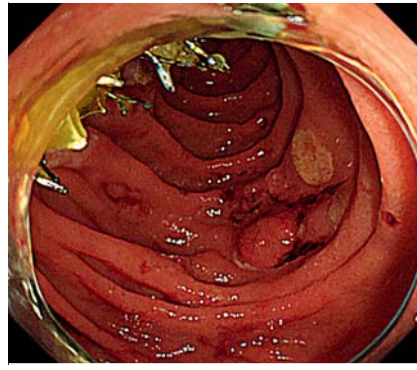


► **Fig. 3** Case 1. Endoscopic view of the trimmed SEMS. The stent cross-section was clean because of the stable positioning for APC cutting.

ting, biliary cannulation was challenging and EUS-guided antegrade stenting had been performed, deploying an uncovered laser-cut type SEMS across the papilla. The stent contacted the duodenal wall, leading to duodenal ulcer, stent occlusion, food impaction, and cholangitis. Therefore we trimmed the SEMS, using the two-channel scope. Laser-cut type



► **Fig. 4** Case 2. Trimming of SEMS. Laser-cut type SEMS are brittle and easily tangled during trimming. Use of the forceps with the two-channel scope allowed the stent to be left in place while retaining its shape.



► **Fig. 5** Case 2. The trimmed SEMS. Because the stent was cut to the appropriate length, it no longer interfered with the passage of food residues or came in contact with the duodenal mucosa.

SEMS are brittle and easily tangle when trimmed with APC, making it difficult to cut the stent as desired. Use of the two-channel scope enabled fixing the position of the SEMS, by grasping with forceps, during the APC cutting (► **Fig. 4**). Thus the stent could be cleanly trimmed while avoiding cauterization of the duodenal mucosa (► **Fig. 5**, ► **Video 1**).



If the target SEMS can be accessed by a two-channel scope, this may be a useful re-intervention technique for trimming SEMS.

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Competing Interests

Dr. Katanuma received honoraria as a lecture fee from Olympus Co., Tokyo, Japan, and is an associate editor of *Digestive Endoscopy*. The other authors have no conflicts of interest to declare.

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