

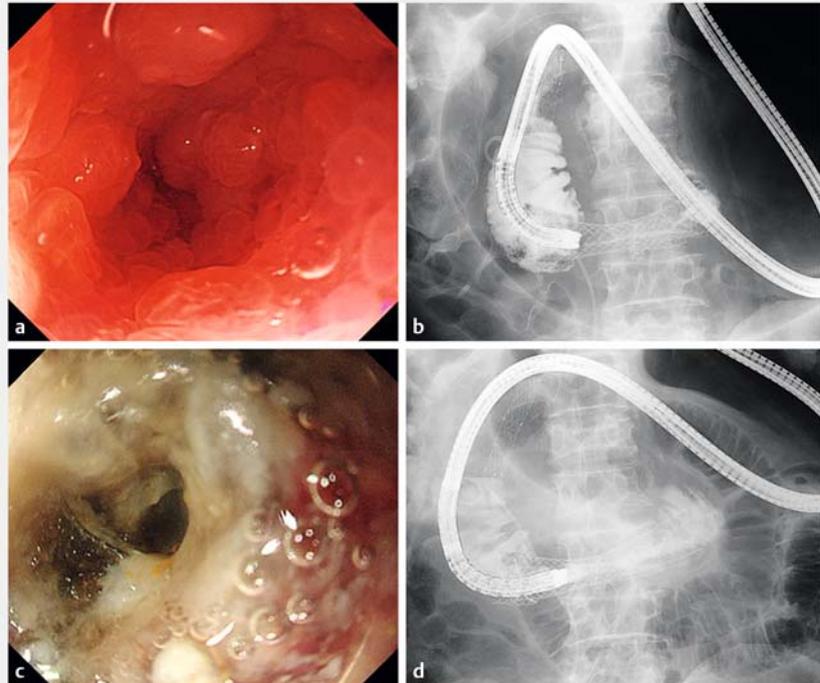
## Argon plasma coagulation performed as a treatment for restenosis after placement of two duodenal self-expandable metallic stents



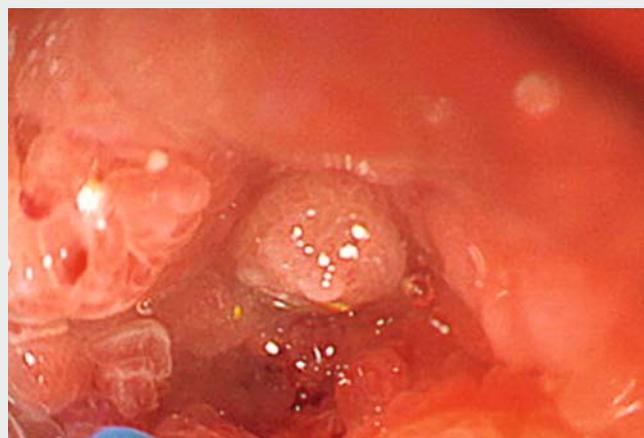
► **Fig. 1** Computed tomographic finding in an 82-year-old man with recurrent gastric outlet obstruction after placement of two SEMS. The first stent (WallFlex duodenal stent, 22 mm × 6 cm, uncovered type) was inserted into the third portion of the duodenum. The second duodenal stent (WallFlex duodenal stent, 22 mm × 9 cm, covered type) was inserted as a stent-in-a-stent for obstruction of the first SEMS due to tumor ingrowth.

Malignant gastroduodenal outlet obstruction (MGOO) is occasionally seen in patients with advanced pancreatic cancer. The endoscopic placement of self-expandable metallic stents (SEMS) has proven to be an effective treatment for MGOO [1,2]. However, the optimal treatment for MGOO that recurs after the placement of a duodenal SEMS remains unknown. Although a few reports have shown argon plasma coagulation (APC) to be effective for treating stenosis of metallic esophagogastric stents [3–5], the application of APC to malfunction of a duodenal SEMS has not yet been reported. Hence, we are the first to report the case of a patient who underwent APC for recurrent MGOO after placement of two duodenal SEMS.

An 82-year-old man with unresectable locally advanced pancreatic cancer underwent gemcitabine monotherapy after insertion of a duodenal SEMS for MGOO



► **Fig. 2** a, b Before the argon plasma coagulation treatment, imaging confirmed recurrent obstruction of the duodenal SEMS: a endoscopic findings, b fluoroscopic findings. c, d After the procedure, the duodenal lumen was visible: c endoscopic view, d fluoroscopic view.



► **Video 1** Argon plasma coagulation performed as a treatment for restenosis after placement of two duodenal self-expandable metallic stents.

and endoscopic ultrasound-guided choledochoduodenostomy for obstructive jaundice. A year later, when MGOO recurred, an additional duodenal SEMS was inserted to treat it. Approximately 2 months after the second SEMS placement, the patient was admitted to our hospital with vomiting. Computed tomography revealed the SEMS to be obstructed by tumor ingrowth (► Fig. 1). Insertion of a third SEMS seemed contraindicated on the grounds of cost and the patient's overall poor prognosis. We therefore attempted to treat the duodenal SEMS malfunction using a 2.3-mm axial APC probe at the following settings: gas flow rate 1 L/min, current 40–50W, effect 2 (► Video 1). Although we were able under endoscopic guidance to cauterize the hyperplastic mucosa in the proximal part of the SEMS, the vomiting showed no improvement. The APC treatment was repeated 4 days later. In addition, under fluoroscopic guidance cauterization was performed along the guidewire in the distal part of the SEMS without any complications (► Fig. 2). GOO-induced symptoms were not observed for 4 months after the APC treatment. After that, the patient died from pancreatic cancer progression. APC may be an effective treatment for recurrent duodenal obstruction after SEMS placement.

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## Competing interests

The authors declare that they have no conflict of interest.

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