

Endoscopic hand suturing of a covered self-expandable metal stent to prevent migration in malignant gastric outlet obstruction

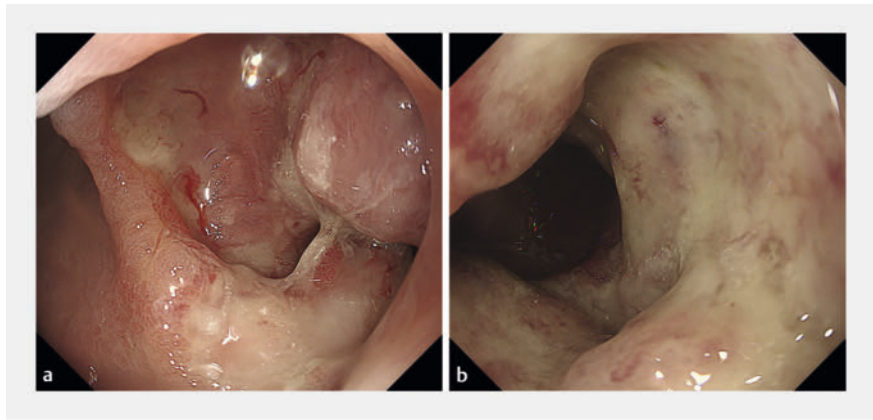
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Self-expandable metal stents (SEMSs) have been shown to be safe and effective palliative treatments for malignant gastric outlet obstruction (GOO) [1]. Both covered SEMSs (CSEMSs) and uncovered SEMSs (USEMSs) have been used, with no observable differences in clinical outcomes demonstrated; however, tumor in-growth is a concern with USEMSs, whereas migration is an issue for CSEMSs [2]. We used an endoscopic hand-suturing device to fix a CSEMS that was placed to prevent bleeding from malignant GOO, to avoid stent migration.

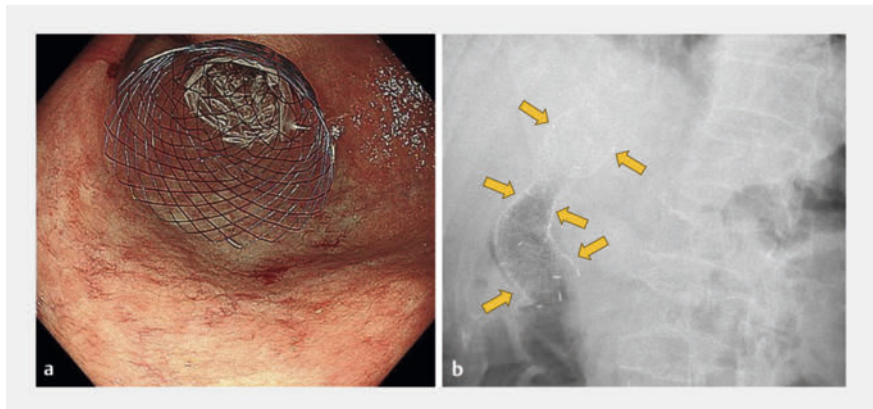
An 85-year-old woman presented with anemia and malignant GOO caused by bleeding from a duodenal cancerous mass (► **Fig. 1**). Aggressive treatment was not appropriate because of her poor performance status. We therefore performed palliative treatment using a CSEMS (HANAROSTENT Naturfit Flare duodenum/pylorus stent; Boston Scientific, Marlborough, Massachusetts, USA) to prevent bleeding and relieve the stenosis. Because the stenosis of the duodenum was mild, we were concerned about possible stent migration. The uncovered proximal flare remained in the pyloric canal (► **Fig. 2**) and was sutured using an endoscopic hand-suturing device (SutuArt; Olympus Medical Systems, Tokyo, Japan) and a suture needle with barbed thread (V-Loc; Medtronic, Dublin, Ireland), which can be fixed simply by pulling the thread, without any need for knotting, owing to the barbs (► **Fig. 3**; ► **Video 1**).

The procedure was completed without any major adverse events, and radiographic imaging 2 weeks later detected no evidence of stent migration (► **Fig. 4**). The patient had been requiring blood transfusions before the procedure, but her anemia was substantially improved postoperatively, with transfusions no longer required.

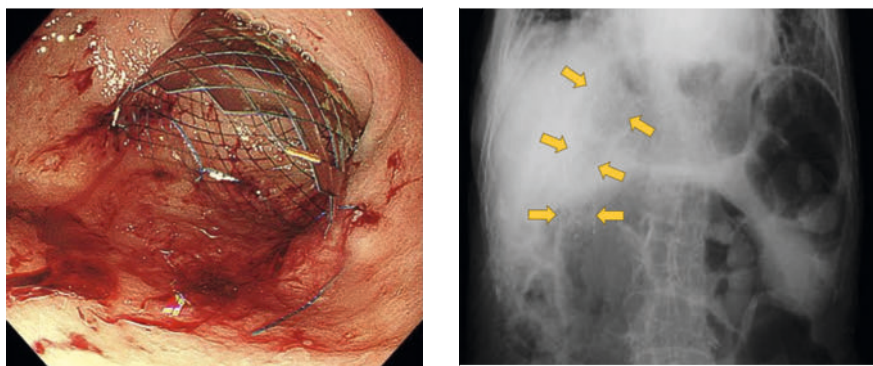
The fixation of SEMSs to the digestive tract has been reported using various



► **Fig. 1** Endoscopic images showing stenosis and bleeding caused by a duodenal cancerous mass.

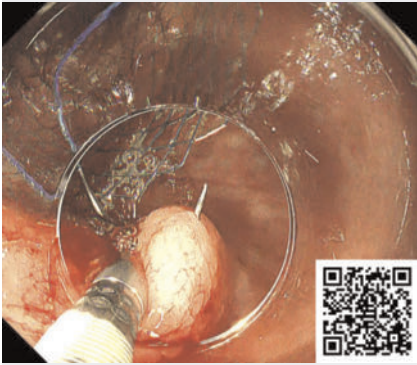


► **Fig. 2** A duodenal covered self-expandable metal stent placed with the uncovered proximal flare remaining in the pyloric canal is seen on: **a** endoscopic view; **b** radiographic



► **Fig. 3** Endoscopic image showing the duodenal stent after fixation using the endoscopic hand-suturing device.

► **Fig. 4** Radiographic image taken 2 weeks later showing no evidence of stent migration.



Video 1 Endoscopic hand suturing was used to fix a covered self-expanding metal stent that was being placed as a palliative treatment to prevent bleeding and consequent anemia in a patient with malignant gastric outlet obstruction.

clips [3,4]. Our case demonstrates that endoscopic hand suturing with SutuArt and V-Loc is simple, with the fixation being easy to remove by cutting the thread. This approach might be useful for SEMS fixation in the palliative treatment of malignant GOO.

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Conflict of Interest

H. Inoue has received grants from Olympus Corporation and Takeda Pharmaceutical Company and is an advisor for Olympus Corporation and Top Corporation. D. Shiomi, K. Sumi, Y. Kawasaki, N. Nomura, J. Ushio, and T. Ito declare that they have no conflicts of interest.

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