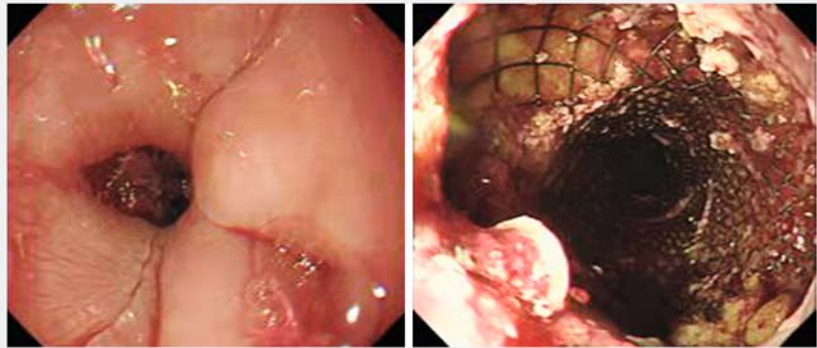


Endoscopic removal of a migrated esophageal covered self-expandable metal stent: the nylon loop pusher-assisted method

Covered self-expandable metal stents (SEMSs) can migrate, with an incidence of more than 30% [1]. Various techniques for removal of migrated SEMSs have been reported [2–4]. However, the nylon loop pusher-assisted approach for removal of a distally migrated SEMS has not been reported previously.

A 78-year-old man presented with dysphagia and was eventually diagnosed with a refractory esophageal stricture after endoscopic submucosal resection for an early esophageal cancer. We inserted a fully covered SEMS (20×80 mm; Nanjing Minimally Invasive Medical Technology Co., Ltd., Nanjing, China) across the stricture to relieve symptoms. The patient was readmitted after 6 months because of recurrent dysphagia. Gastroscopy using a GIF-H290 endoscope (Olympus, Tokyo, Japan) showed that the stent had migrated distally, with there being a stenosis above the proximal end of the SEMS (► Fig. 1). Repeated conventional attempts at removal using a biopsy clamp failed both to grasp the body of the stent and to tighten the upper edge of the stent with a recyclable line.

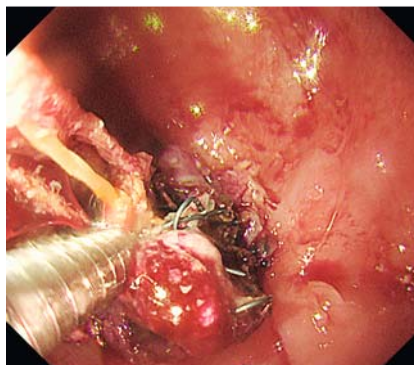
We therefore moved to the nylon loop pusher-assisted approach. Slight resistance was encountered when passing the gastroscop (9.8 mm) through the stenosis. The lower edge of the stent was grasped with the metal hook of a nylon loop pusher (Leo Med, Changzhou, China) (► Fig. 2) and pushed towards the distal esophagus, resulting in the upper edge of the stent becoming separated from the narrow tissue, as expected. After this, we were able to easily grasp the upper edge of the stent again with the metal hook of the nylon loop pusher, and compress the stent (► Fig. 3). Finally, the stent was gently removed through the esophageal stricture. Post-procedural gastroscopy revealed mild bleeding from the surface of the stricture and par-



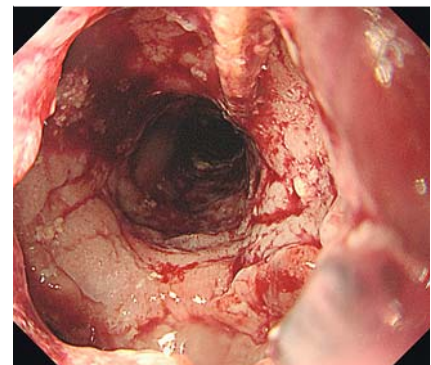
► Fig. 1 Gastroscopic images showing that the self-expandable metal stent (SEMS) had distally migrated with a stenosis above the proximal end of the SEMS as a result of epithelial hyperplasia and partial mucosal ulceration.



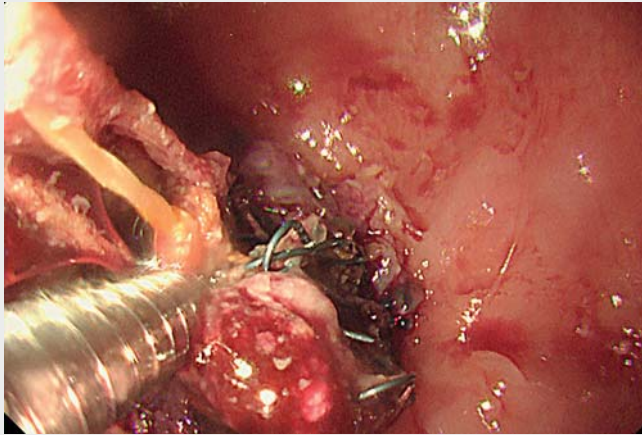
► Fig. 2 Photographs of the nylon loop pusher.



► Fig. 3 Endoscopic image showing the upper edge of the stent being grasped with the metal hook of the nylon loop pusher, which allowed the stent to be compressed.



► Fig. 4 Post-procedural gastroscopic image showing mild bleeding from the surface of the stricture and partial mucosal ulceration.



▶ Video 1 A new safe and effective method using the metal hook of a nylon loop pusher is demonstrated for removal of the migrated esophageal covered self-expandable metal stent.

tial mucosal ulceration, but no evidence of lesions elsewhere (▶ **Fig. 4**; ▶ **Video 1**). Fully covered SEMSs are being increasingly used for the benign esophageal diseases, and stent migration is a common complication. Here we provide a new safe and effective method using the metal hook of a nylon loop pusher for when removal of a migrated stent is difficult.

Endoscopy_UCTN_Code_TTT_1AO_2AL

Competing interests

The authors declare that they have no conflict of interest.

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Endoscopy 2022; 54: E744–E745

DOI 10.1055/a-1738-9465

ISSN 0013-726X

published online 17.3.2022

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Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

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