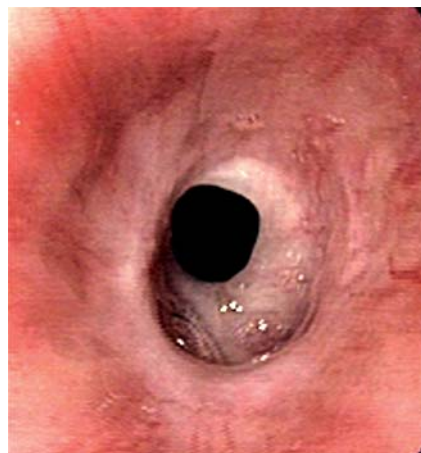


## A novel technique to prevent migration of esophageal stent

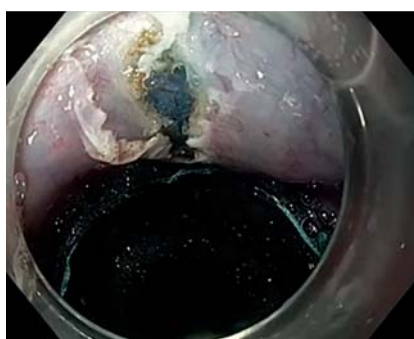


► **Fig. 1** Nonulcerated esophageal stricture in the lower part of the esophagus.

A 25-year-old man presented with a history of dysphagia after corrosive ingestion. Upper gastrointestinal (GI) endoscopy revealed a stricture in the lower esophagus (► **Fig. 1**), which persisted after repeated sessions of endoscopic dilatation. As a rescue treatment, a fully covered self-expandable metallic stent, 18 mm in diameter, was placed in the lower esophagus. To prevent slippage and migration of the stent, a novel technique was used to fix the stent to esophageal wall (► **Video 1**). The proximal end of the stent was fixed to the esophageal wall with clips. The procedure was performed under moderate sedation with Propofol. After submucosal injection with normal saline (stained with indigo carmine) at the proximal end of the stent, a vertical mucosal incision of 1 cm was made with a triangular tip knife (► **Fig. 2**), and the mucosa distal to the incision was fixed to the stent by application of a hemoclip (► **Fig. 3**). Two clips were applied, one each at the 12 and 6 o'clock position, which fixed the stent to the esophageal wall (► **Fig. 4**). The whole procedure was well tolerated without any complication. After 4 weeks of follow-up, the stent was in situ and the patient asymptomatic.



► **Video 1** Application of hemoclip to fix the self-expandable metal stent to the esophageal wall.



► **Fig. 2** Vertical mucosal incision at the 12 o'clock position.



► **Fig. 3** Application of hemoclip to fix the stent to the mucosa.



► **Fig. 4** Fixation of esophageal stent to the esophageal wall.

Fully covered metal stents are being increasingly used for the benign esophageal diseases [1], however stent migration is not uncommon, and a migration rate of more than 30% has been reported [2]. Various methods such as suturing [3], external fixation with snare [4], and nasal fixation with silk thread [5] have been described. Hemoclips have been used previously to prevent migration [2] and reduced migration to 13%. Fixing the clips after mucosal incision may better anchor the stent to the esophageal

wall and may further reduce the migration rate. Moreover, this technique can be performed with easily available equipment.

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### Competing interests

The authors declare that they have no conflict of interest.

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