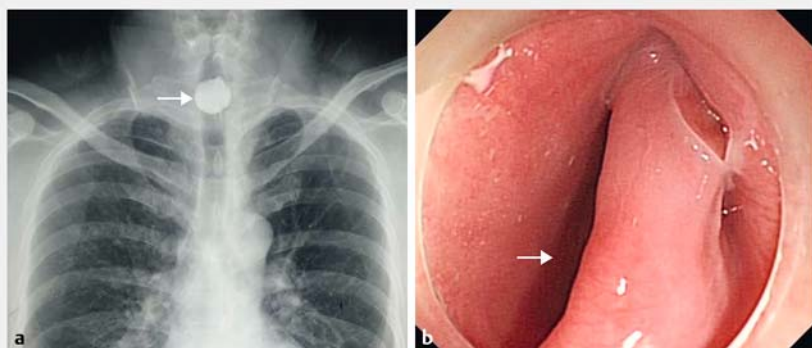


Magnet-assisted diverticuloplasty for treatment of Zenker's diverticulum



► **Fig. 1** A Zenker's diverticulum (arrows) was found 18 cm from the incisors. **a** Esophagography. **b** Upper endoscopy.



► **Fig. 2** The diverticulum did not disappear after initial diverticulotomy.



► **Video 1** Magnet-assisted diverticuloplasty for treating a Zenker's diverticulum in a 48-year-old man.

A 48-year-old man presented with a 1-year history of progressive dysphagia and regurgitation. Esophagography and upper endoscopy demonstrated a Zenker's diverticulum 18 cm from the incisors (► **Fig. 1**). Endoscopic diverticulotomy was performed, but, after 5 months, the diverticulum had not disappeared (► **Fig. 2**). Inspired by widespread use of magnets in the gastrointestinal tract in recent years [1], we performed a magnet-assisted diverticuloplasty (MAD) (► **Video 1**).

We introduced the endoscope and stabilized the first ring-shaped magnet in the esophagus 2 cm proximally from the base of the diverticulum using a clip. The string attached to this magnet was 3 cm long, and the magnet was pushed away from the diverticulum in order to avoid the two magnets from bonding before the septum between the diverticulum wall and esophageal wall could be sandwiched between them. Then, we used the same method to stabilize the second ring-shaped magnet at the base of the diverticulum; the string attached to this

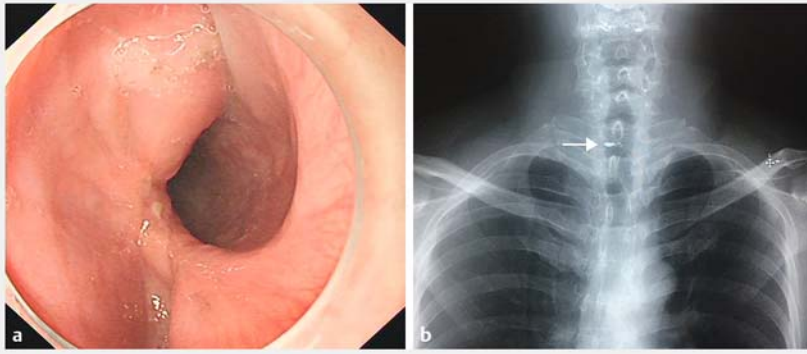
magnet was 1 cm long, which was helpful for embedding the magnet in the base of the diverticulum and achieving more complete compression of the septum. Finally, under direct endoscopic vision, we pulled back the first magnet using the releasing device of the clip until the two magnets were aligned. The magnets coupled together as a result of magnetic attraction, sandwiching the septum between them.

A fluid diet was resumed on postoperative Day 2, and dysphagia or regurgitation did not occur again during follow-up. Upper endoscopy and barium swallow at 1 month verified significant improvement of the diverticulum (► **Fig. 3**). Compared with conventional rigid or flexible endoscopic procedures, MAD takes advantages of its simplicity and low complication rates. If a connecting hole is formed, the remaining part of the septum proximally to the connection can be easily cut by regular methods without worries about perforation. If the diverticuloplasty is incomplete, repeated MAD can be performed easily.

Endoscopy_UCTN_Code_TTT_1AO_2AD

Competing interests

None



► **Fig. 3** Significant improvement of the diverticulum was seen after magnet-assisted diverticuloplasty at 1-month follow-up. **a** Upper endoscopy. **b** Esophagography (arrow shows site of previous diverticulum).

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