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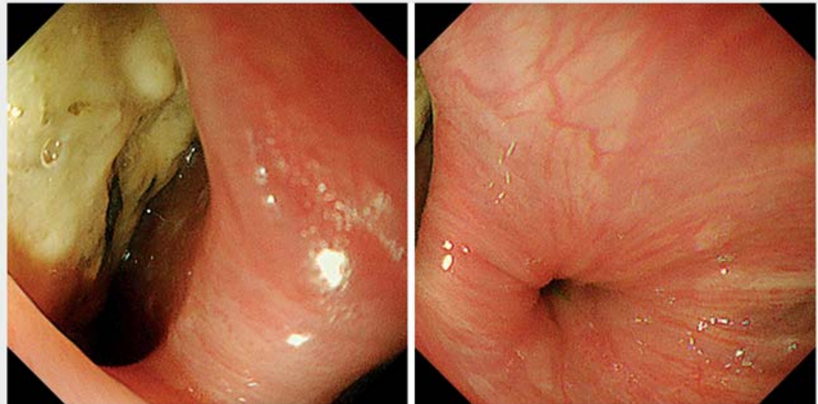
Guidewire-assisted technique for gastroscope insertion through stricture of Zenker's diverticulum for esophageal endoscopic submucosal dissection

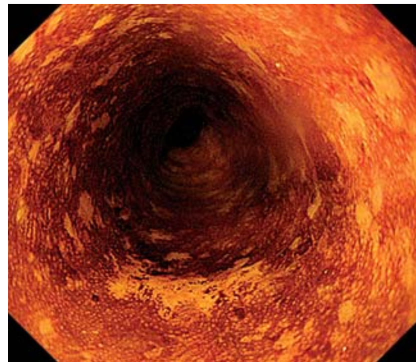
A 65-year-old asymptomatic man underwent screening esophagogastroduodenoscopy before treatment for tongue cancer. Standard gastroscopes (GIF-H290Z and GIF-H290; Olympus) could not pass through the cervical esophagus. However, an ultra-slim gastroscope (GIF-XP290N; Olympus) was able to pass through and revealed a Zenker's diverticulum (▶ **Fig. 1 a, b**). A superficial esophageal cancer was detected in the upper thoracic esophagus (▶ **Fig. 2**). Biopsy specimens from the lesion showed squamous cell carcinoma. The patient opted for endoscopic submucosal dissection (ESD), which requires standard gastroscope insertion (▶ **Video 1**).

An ultra-slim gastroscope was introduced through the stricture of the Zenker's diverticulum. A 0.035-inch guidewire (Hydra Jagwire; Boston Scientific Corporation, Marlborough, Massachusetts, USA) was advanced and kept in the stomach through the accessory channel of the ultra-slim gastroscope after its withdrawal (▶ **Fig. 3**). Subsequently, a straight catheter was placed in the accessory channel of the standard gastroscope. The guidewire was inserted from the tip of the gastroscope through the catheter in a retrograde fashion. This procedure allowed for scope exchange. The standard gastroscope passed the stricture of the diverticulum through the guidewire, but the gastroscope was not able to pass through even with an endoscopic cap. Thus, ESD was performed without the endoscopic cap using ESD knives (Dual Knife J and IT-knife nano; Olympus). The lesion was successfully resected en bloc uneventfully (▶ **Fig. 4**, ▶ **Fig. 5**).

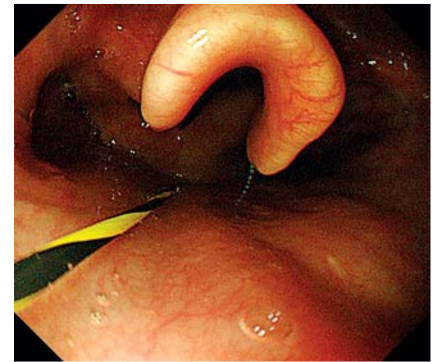
Zenker's diverticulum is a rare anatomic defect characterized by herniation of the mucosa and submucosa through the Killian triangle located in the esophageal cervical region. They are usually asymptomatic, but dysphagia, aspiration pneumonia, and stricture may occur as the diverticulum expands. Endoscopic diver-



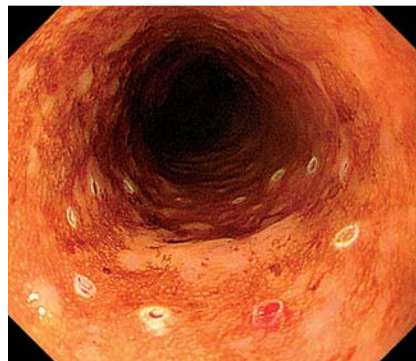
▶ **Fig. 1 a, b** Zenker's diverticulum on the left wall of the cervical esophagus.



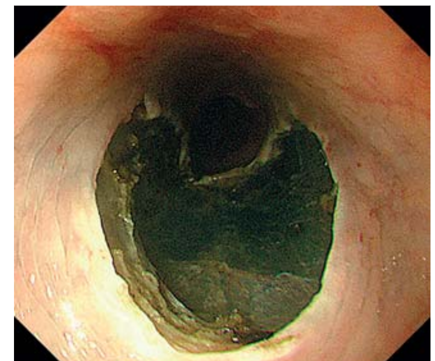
▶ **Fig. 2** A slightly elevated iodine-unstained lesion in the esophagus on the anal side of the Zenker's diverticulum.



▶ **Fig. 3** A 0.035-inch guidewire was advanced and kept in the stomach through the accessory channel of the ultra-slim gastroscope and the gastroscope withdrawn.



▶ **Fig. 4** Endoscopic peripheral markings were performed around the lesion.



▶ **Fig. 5** The lesion was resected en bloc uneventfully.

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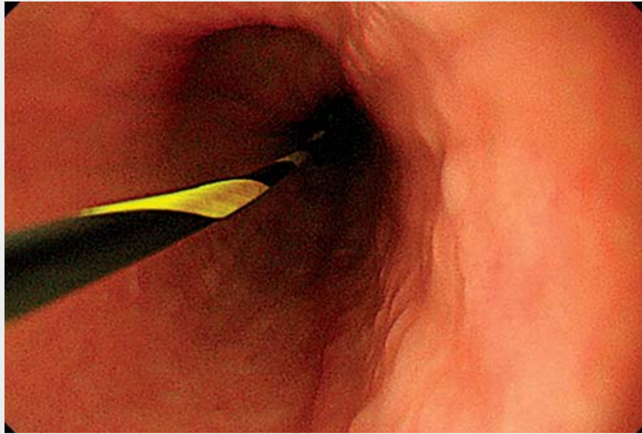

Video 1 Demonstration of guidewire-assisted technique for standard gastroscope insertion through Zenker's diverticulum for esophageal endoscopic submucosal dissection.

ticulotomy has been indicated for symptomatic Zenker's diverticulum [1, 2]. In our case, the standard gastroscope could access the lesion beyond the Zenker's diverticulum, and ESD was performed without endoscopic diverticulotomy. We demonstrate a method that could be utilized for advanced endoscopy in patients with asymptomatic Zenker's diverticulum [3].

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Competing interests

The authors declare that they have no conflict of interest.

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