

## Endoscopic stag beetle knife treatment for symptomatic Zenker's diverticulum

Zenker's diverticulum is a pulsion diverticulum that develops through Killian's triangle, an area of weakness of the posterior hypopharynx. The reported prevalence of Zenker's diverticulum is between 0.01% and 0.11%, and it is typically seen in middle-aged and older male patients in their seventh or eighth decade of life [1]. Diagnosis is based on clinical symptoms such as dysphagia, the predominant symptom in 80% to 90% of patients. The diagnosis of Zenker's diverticulum is made on a barium swallow examination. Upper endoscopy is not required to confirm the diagnosis but is recommended to exclude malignancy [2].

Flexible endoscopic treatment, preferred over open surgical treatment, is the first-line therapy for patients with a symptomatic Zenker's diverticulum of any size [3]. In all, three options are available for treatment: open surgery, rigid endoscopy, and flexible endoscopy. Thanks to flexible endoscopy, many techniques have emerged in recent years, such as Zenker's diverticulum peroral endoscopic myotomy (Z-POEM). Besides that, some tools have been adapted to perform safe and effective septotomy.

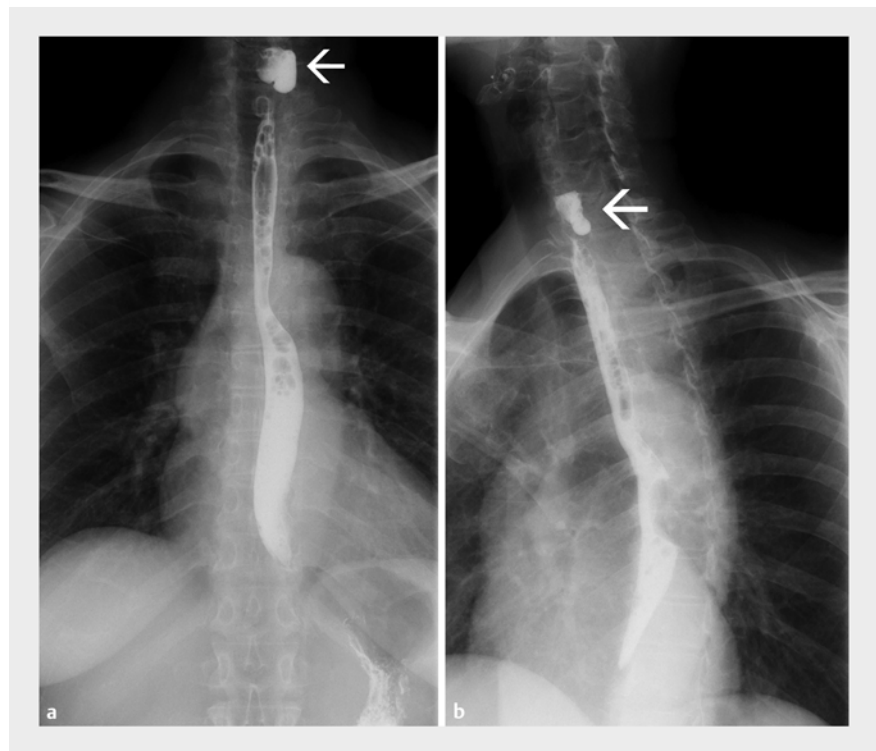
The stag beetle (SB) knife (Sumimoto Bakelite Ltd.) is a scissor-shaped, rotating device with two insulated monopolar blades designed primarily for endoscopic submucosal dissection (ESD). Battaglia et al. [4] and Goelder et al. [5] demonstrated that the SB knife is a safe and effective

alternative for treating symptomatic Zenker's diverticulum.

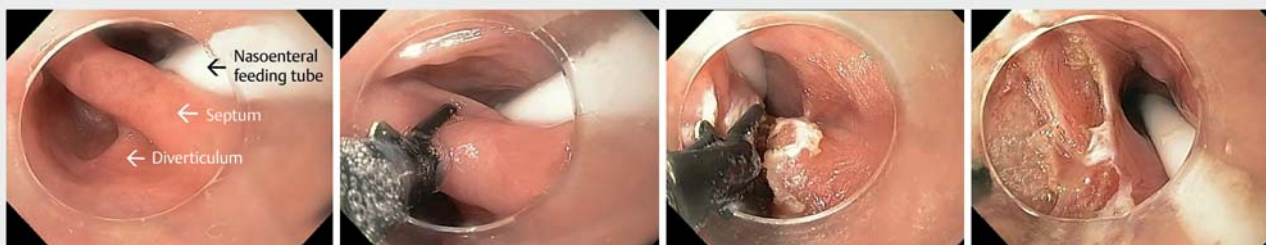
A 69-year-old woman presented with dysphagia. Her symptoms had started 3 years earlier. A barium swallow examination was performed and Zenker's diverticulum was diagnosed (► Fig. 1). Zenker's diverticulotomy was performed

with the patient under general anesthesia. We used a 9.8-mm diameter endoscope, an SB knife, a distal attachment cap, a metallic clip (HX-610-135; Olympus, Japan), and a nasoenteral feeding tube.

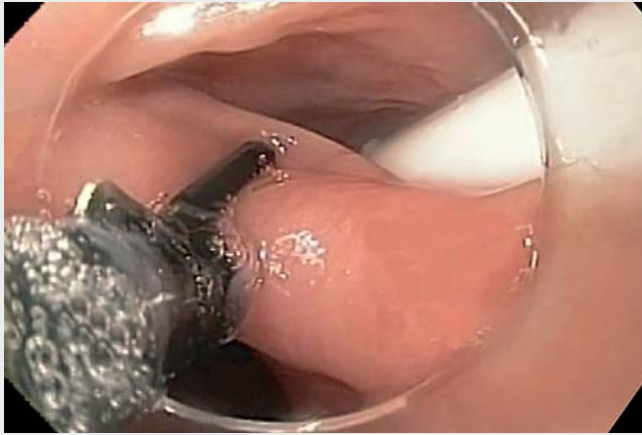
First, we passed the nasoenteral feeding tube through the esophagus. After grasp-



► Fig. 1 Barium study demonstrates a 1.7-×1.0-cm diverticulum arising from the posterior wall of the upper esophagus.



► Fig. 2 Endoscopic views, left to right: before the procedure; stag beetle (SB) knife grasping the septum; septum division using the SB knife; after septum division.



**Video 1** Endoscopic stag beetle knife treatment for symptomatic Zenker's diverticulum: a safe and feasible approach.

ing the mucosa, we applied a burst of coagulation current before grasping the tissue and dissecting it with Endo Cut Q, effect 3 (Erbe V300D). We deployed the clip to prevent mucosal dissection and perforation (► **Fig. 2**). The procedure was completed without adverse events (► **Video 1**). The patient was discharged on the first postoperative day receiving liquids and enteral nutrition. After 7 days, the nasoenteral feeding tube was removed and the patient started a soft diet with no symptoms, and she remains without symptoms until the present date.

Endoscopy\_UCTN\_Code\_TTT\_1AO\_2AN

### Competing interests

The authors declare that they have no conflict of interest.

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Endoscopy 2021; 53: E318–E319  
**DOI** 10.1055/a-1273-7390  
**ISSN** 0013-726X  
**published online** 19.10.2020  
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