Chronic esophagotracheal fistula secondary to esophageal diverticulum successfully treated by endoscopic submucosal dissection and dual action tissue clip

Esophagotracheal fistula secondary to esophageal diverticulum is rare but challenging to treat [1]. Some cases of esophagotracheal fistula successfully treated by endoscopic submucosal dissection (ESD) have been reported [2–4], but to our knowledge we report the first case of esophagotracheal fistula secondary to esophageal diverticulum successfully treated by ESD and clip closure.

We present the case of a 64-year-old man who contracted recurrent pulmonary infections over 2 years. The upper digestive tract showed a niche formation in the right wall of the esophagus at the T7 vertebral body level, but no obvious leakage of contrast agent was found (▶ Fig. 1a). Computed tomography (CT) scan showed inflammation in the right lower lobe, with partial atelectasis (▶ Fig.2a). Gastroscopy revealed a diverticulum in the right lateral wall of the esophagus and a 5-mm fistulous orifice inside the diverticulum (▶ Fig.3a). After anti-infective treatment for 3 days, we performed ESD for the esophagotracheal fistula and esophageal diverticulum (▶ Video 1).

After marking the surrounding mucosa of the esophageal diverticulum and injecting the submucosal layer, we dissected the mucosal and submucosal layers inside the diverticulum (▶ Fig.3b, c, d). Then, a coagulation forceps was used to dissect the mucosal patch surrounding the fistulous orifice to increase the chances of successful scarring (▶ Fig.3e). Furthermore, we resected part of the muscularis propria inside the diverticulum to prevent incomplete closure of the diverticulum (▶ Fig.3f). Finally, two Dual Action Tissue clips (Micro-Tech Endoscopy, USA Inc., Ann Arbor, Michigan, USA) and three SureClips (Micro-Tech Endoscopy, USA Inc.) were used to close the exposed area (▶ Fig.3g, ▶ Video 1). The patient successfully restarted oral food intake and was discharged.

Repeat upper gastrointestinal radiography showed resolution of the esophageal diverticulum (▶ Fig.1b), and CT scan showed resolution of the pulmonary inflammation (▶ Fig.2b). Repeat gastroscopy confirmed the closure of the orifice during the subsequent 3 months (▶ Fig.3h).
This case demonstrates that ESD and diverticulum closure by clips can be a valuable procedure for treating chronic esophagotracheal fistula secondary to esophageal diverticulum.

Competing interests

The authors declare that they have no conflict of interest.

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Video 1 The endoscopic submucosal dissection procedure was performed to dissect the mucosal and submucosal layers inside the diverticulum, followed by clip closure.

Fig. 3 Endoscopic images showing the endoscopic submucosal dissection procedure. a A diverticulum in the right lateral wall of the esophagus and a fistulous orifice inside the diverticulum. b Marking the surrounding mucosa of the esophageal diverticulum. c Dissecting the mucosal and submucosal layers inside the diverticulum. d Excision of the mucosal and submucosal layers with a snare trap. e Dissecting the mucosal patch surrounding the fistulous orifice. f Cutting off part of the muscularis propria inside the diverticulum. g Closure of the exposed area with Dual Action Tissue clips and SureClips (Micro-Tech Endoscopy, USA Inc., Ann Arbor, Michigan, USA). h Gastroscopy showed that the esophagotracheal fistula was healed after 3 months.
References


Bibliography

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