Purse-string suture combined with titanium clips using a single-channel gastroscope for the closure of postintubation tracheoesophageal fistula

A 72-year-old woman was treated with endotracheal intubation and mechanical ventilation for shock caused by herbicide poisoning. After extubation she presented with cough. Tracheoscopy and gastroscopy both showed a perforation measuring about 1 cm (▶ Fig. 1a, b). The tracheoesophageal fistula (TEF) was treated with a purse-string suture via a gastroscope (GIF-Q260J; Olympus, Tokyo, Japan) (▶ Video 1). In brief, an endoloop (Leo Medical, Changzhou, China) was inserted by forceps and anchored onto the full thickness of the edge of the fistula, including both the esophageal wall and the tracheal wall, with a titanium clip (Micro-Tech, Nanjing, China) (▶ Fig. 1c). After adjustment of the angle, three additional repositionable clips were used to secure the endoloop on different sides of fistula. The removable hook was then inserted and connected with the ring on the tail of the endoloop, which was tightened to pull the edges of the fistula together. The hook was then removed and the TEF was closed (▶ Fig. 1d). To further strengthen the closure of the fistula, an endoclip was added to clamp the still visible small hole (▶ Fig. 1e). The patient was put on nasal feeding after operation and her cough took a turn for the better. One month later, gastroscopy showed that the endoclips and endoloop had fallen off and the fistula was reduced to 0.3 cm (a), which was clamped with three clips (b).

Follow-up after 1 month. Gastroscopy showed that the endoclips and endoloop had fallen off and the fistula was reduced to 0.3 cm (a), which was clamped with three clips (b).

Follow-up at 4 months. a Endoscopy showed a closed fistula. b Upper gastrointestinal radiography showed no extravasation of contrast medium.
fallen off and the fistula was reduced to 0.3 cm, which was clamped with three clips (▶ Fig. 2). Another 3 months later, gastroscopy and upper gastrointestinal radiography revealed the fistula to have closed (▶ Fig. 3).

TEF is a severe complication of endotracheal intubation [1]. Owing to the high position of postintubation TEF, it is difficult to place a tracheal or esophageal stent, and surgical correction is usually the only solution [2]. In our case, we performed a purse-string suture to reduce the fistula, and then successively closed the reduced fistula with titanium clips. This endoscopic procedure may be an alternative to surgery for postintubation TEF.

Competing interests

The authors declare that they have no conflict of interest.

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Endoscopy
DOI 10.1055/a-1769-4481
ISSN 0013-726X
published online 2022
© 2022. Thieme. All rights reserved.
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

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