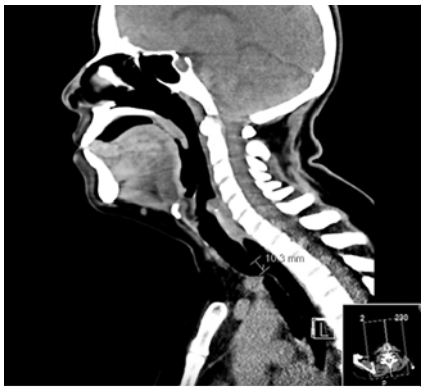
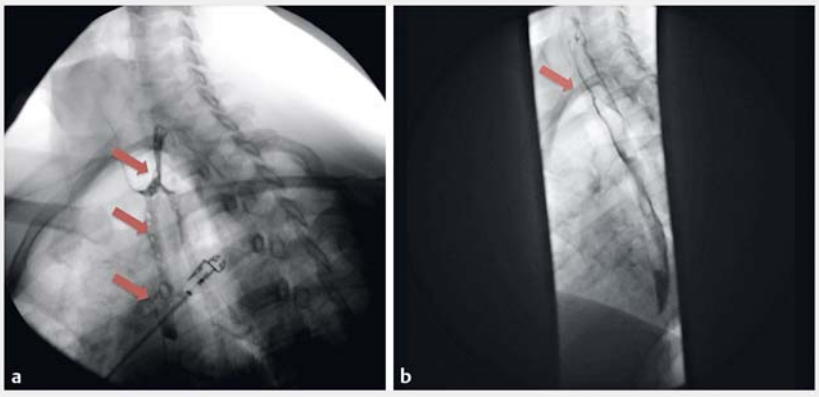
Endoscopic closure of a chronic tracheo-esophageal fistula with an over-the-scope suturing technique



▶ **Fig. 1** Tracheo-esophageal fistula at the level of T1, extending for 1 cm and measuring 4 mm in width.



▶ **Fig. 2** Barium swallow. **a** Pre-procedure barium swallow showed contrast in the lower trachea and left main stem bronchus (arrows). **b** Post-procedure barium swallow showed no evidence (arrow) of patent tracheo-esophageal fistula or contrast leakage.

Video 1 Endoscopic closure of a chronic tracheo-esophageal fistula with an over-the-scope suturing technique.

A 47-year-old Hispanic woman developed a tracheo-esophageal fistula (TEF) secondary to prolonged intubation for septic shock with multiple organ dysfunction. Upon extubation, the patient complained of persistent dysphagia, and a barium swallow showed a TEF, for which a temporary percutaneous gastrostomy tube was placed to prevent aspiration until surgical closure was performed. Unfortunately, the patient was lost to follow-up. A year later, she was admitted to our institution for leakage around the gastrostomy site and for closure evaluation of the TEF.

A computed tomography of the chest showed a TEF at the level of T1 and pulmonary bibasilar ground-glass opacities (▶ **Fig. 1**). A Barium swallow study showed contrast in the lower trachea and left main stem bronchus (▶ **Fig. 2 a**). Endoscopy showed a fistula at 19 cm from the incisors. After endoscopic ultrasound of the TEF showed no blood vessels in the immediate periphery, preparations were made for endoscopic closure of the TEF. Closure was accomplished with a combination of argon plasma coagulation of the edges and endoscopic suturing. The patient was discharged 2 days after the procedure (▶ **Video 1**).

At 8 weeks after hospital discharge, a barium swallow demonstrated no evidence of contrast leakage into the airway (▶ **Fig. 2 b**).

A TEF is a common complication resulting from prolonged endotracheal intubation [1, 2] and can lead to recurrent aspiration pneumonia and dysphagia. Traditional management of these fistulas has been surgery [2]. However, surgical procedures, though effective, should nowadays be considered second-line therapy for uncomplicated TEF. Current endoscopic equipment and techniques offer a less-invasive approach to treatment, with faster recovery times. Esophageal stent [3] and clip [4] placement are among the endoscopic techniques pre-

viously used to treat such fistulas. Endoscopic suturing, however, is emerging as an effective option.

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Competing interests

None

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Bibliography
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