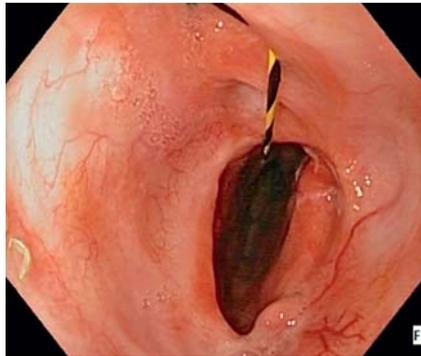


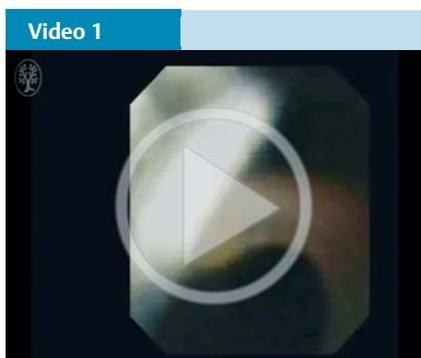
## Successful endoscopic closure of multiple tracheo-esophageal fistulas following implantation of two atrial septal defect occluders



**Fig. 1** Endoscopic view from the esophagus showing the two tracheo-esophageal fistulas.



**Fig. 2** Endoscopic view from the trachea showing the atrial septal defect occluder (Amplatzer; AGA Medical Corporation, Golden Valley, Minnesota, USA) device deployed across the tracheo-esophageal fistula.



Endoscopic closure of two tracheo-esophageal fistulas using atrial septal defect occluders.

Chronic tracheo-esophageal fistulas [TEFs] represent one of the greatest challenges for endoscopists [1]. A 63-year-old man diagnosed with adenocarcinoma of the esophagogastric junction was treated with neoadjuvant chemoradiotherapy and esophagectomy. He developed two TEFs, which required the implantation of two self-expandable stents and a feeding jejunostomy. The prostheses were withdrawn 3 months later, and a tracheal prosthesis was put in place.

Given the persistence of the fistulas, the patient was referred to our center. Endoscopy and bronchoscopy revealed two fistulous orifices, 8 mm in diameter and 1 cm apart (● Fig. 1).

The fistulas were closed using two atrial septal defect occluders (ASDO, Amplatzer-type prosthesis; AGA Medical Corporation, Golden Valley, Minnesota, USA), which are normally used for closure of interauricular septal defects [2]. A pediatric endoscope was inserted into the trachea and the two fistulous orifices were identified. Through one of these, access was gained to the lumen of the esophagus and the gastric plasty by inserting a 0.035-inch guidewire. Once the pediatric endoscope had been withdrawn from the trachea, and under endoscopic vision from the esophagus, an ASDO with an 8-mm neck and two flaps was placed from the trachea, over the guidewire, and into the esophagus to seal off the fistulous tract between the lumen of the trachea and esophagus (● Fig. 2 and ● Fig. 3).

Three weeks later, the procedure was repeated using a second ASDO with a 4-mm neck and 13-mm diameter flaps, which occluded the esophageal and tracheal lumen of the other fistula (● Fig. 4, ● Fig. 5, ● Video 1). The patient resumed oral feeding.

Endoscopic reviews at 3 and 4 months confirmed healing of the fistulas.

Since the description by Rabenstein of the use of ASDOs in the treatment of TEFs, several authors have confirmed the safety and efficacy of this procedure in TEFs [3–5].

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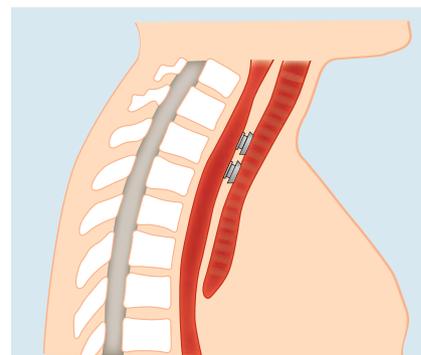
**Competing interests:** None



**Fig. 3** Three weeks after the first procedure, a second atrial septal defect occluder (Amplatzer; AGA Medical Corporation, Golden Valley, Minnesota, USA) was placed, sealing off the second tracheo-esophageal fistula.



**Fig. 4** Endoscopic view from the esophagus showing complete healing of two tracheo-esophageal fistulas.



**Fig. 5** Schematic drawing of a sagittal view showing the two septal occluders sealing off the fistulas.

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