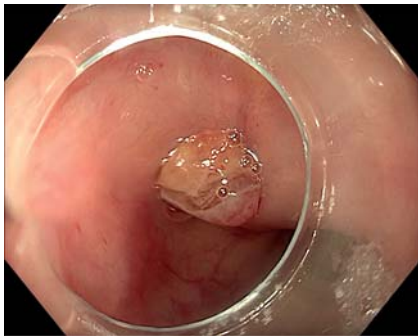


## Refractory aortooesophageal fistulas after aortic stenting successfully closed using endoscopic submucosal dissection with clip closure

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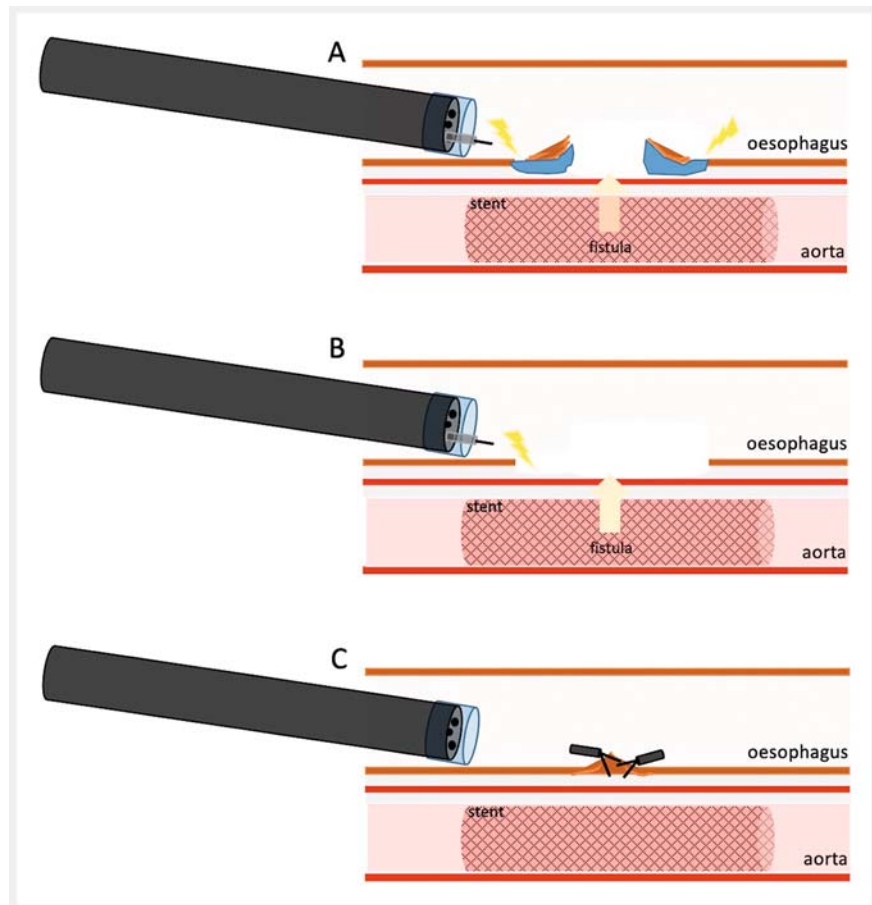


► **Fig. 1** Endoscopic view of aortooesophageal fistula.

A gastrointestinal (GI) fistula is a chronic, life-threatening condition and a therapeutic challenge [1]. Endoscopic closure requires combined approaches with both mucosal ablation and mechanical closure of the fistulous tract [2]. As we recently reported in a multicenter cohort study, the novel strategy of fistula endoscopic submucosal dissection with clip closure (FESDC) is safe and feasible for permanent closure of GI fistulas [3]. This technically demanding procedure could be added to standard endoscopic strategies in first-line treatment or could be proposed as a second-line therapy when the fistula remains refractory to other current approaches [4].

This could be the case in the exceptional occurrence of an aortic fistula at the thoracic level, where surgical management (most frequently performed by the endovascular route) is an immediate emergency but remains poorly codified, with a poor prognosis [5]. When the aortic hole is closed using the endovascular approach, closure of the digestive defect remains a challenge with no previous published case of success.

We herein report the case of three patients with aortooesophageal fistulas following aortic surgery and stenting for aortic dissection. Their evolution was marked by infection of the prosthetic material, and the fistulas recurred de-



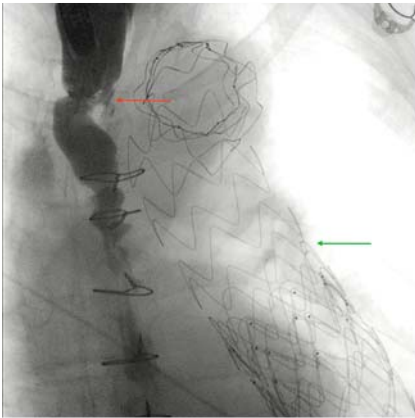
► **Fig. 2** Schematic of refractory aortooesophageal fistula closure with fistula endoscopic submucosal dissection with clip closure (FESDC). **a** Dissection of the mucosal flap made by circular incision of the mucosal patch surrounding the fistulous orifice. **b** Dissection of internal orifice. **c** Edge apposition of the dissected fistula tract by clipping.

spite multiple surgical treatments. We therefore decided to perform FESDC.

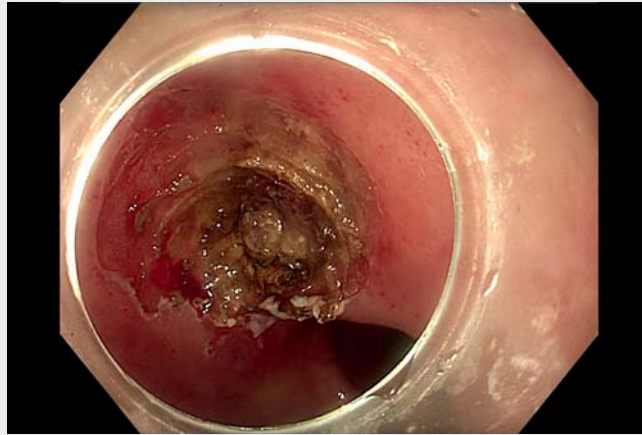
After dissection of the internal fistulous orifice, edge apposition of the dissected fistula tract was obtained by clipping using standard hemostatic clips (► **Fig. 1**, ► **Fig. 2**, ► **Fig. 3**). For all patients, technical success, defined as a tight seal of the orifice confirmed by opacification at the end of the procedure, was achieved (► **Fig. 4**). Long-term success, defined as sustainable healing of the fistulas without symptoms or leakage on computed tomography scan after 3 months, was ob-



► **Fig. 3** Endoscopic view of closed fistula after FESDC.



► **Fig. 4** Radiological opacification in esophagus showing tight sealing of the fistulous orifice (red arrow shows the original fistula position; green arrow shows the aortic prosthesis).



► **Video 1** Refractory aorto-esophageal fistulas after aortic stenting successfully closed using endoscopic submucosal dissection with clip closure.

tained, after one single procedure in one case and two procedures in the second case (► **Video 1**). One patient could not achieve long-term success despite two procedures, probably due to persistent infection.

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### Competing interests

The authors declare that they have no conflict of interest.

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