Over-the-scope clip (OTSC) closure of a gastrobronchial fistula after esophagectomy

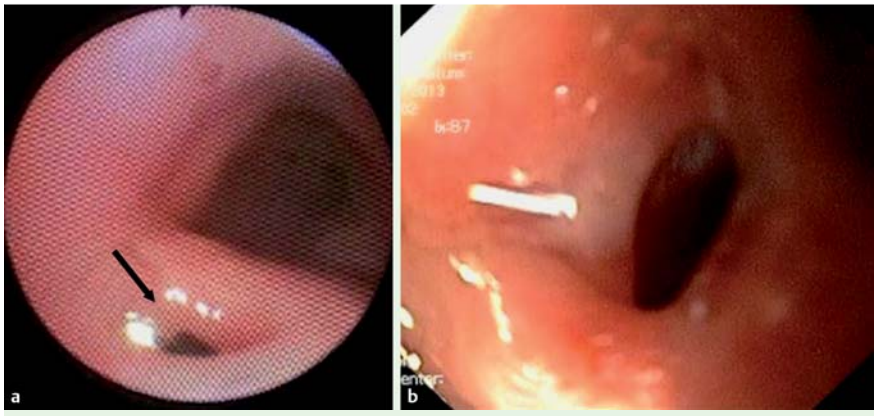

Fig. 1 Gastrobronchial fistula in a 60-year-old man. **a** Bronchoscopy showing the bronchial fistula opening (arrow). **b** Esophagogastroduodenoscopy shows the fistula opening in the fundus hemiplication of the gastric conduit.

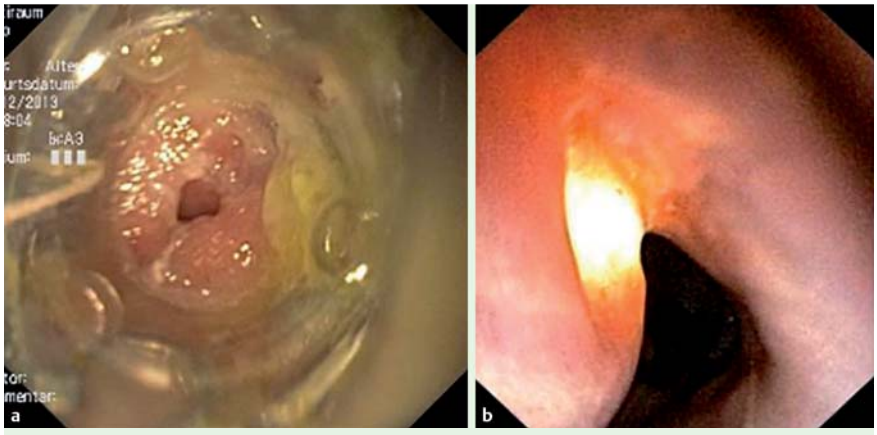

Fig. 2 Over-the-scope clip (OTSC) closure of the gastrobronchial fistula. **a** Endoscopic view through the 11/6 t OTSC just before fistula closure. **b** Simultaneous bronchoscopy: No narrowing of the bronchial lumen was seen during clip application. The diaphanoscopy of the gastroscope is clearly visible.

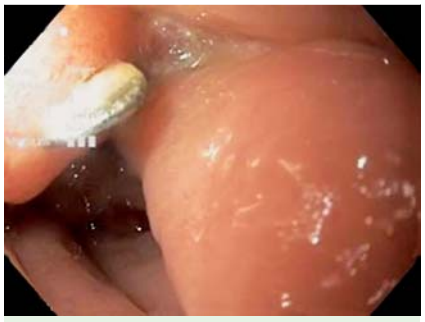

Fig. 3 Follow-up of the gastrobronchial fistula after over-the-scope clip (OTSC) closure. The clip is still in place surrounded by some granulation tissue 7 months after OTSC closure.

A 60-year-old man with Barrett carcinoma underwent thoracoabdominal esophagectomy with reconstruction by gastric pull-up and tubularization of the gastric conduit. The ventral part of the esophagogastrostomy was covered with the remnant gastric fundus as an anterior hemiplication. One year later, the patient developed a persistent cough, especially in a recumbent position. Assessments by endoscopy (gastroscopy, bronchoscopy) and computed tomography (CT) scan did not reveal any evidence of an intestinobronchial fistula. Finally, the patient was treated for psychogenic coughing.

During an operation for an incisional hernia 2 years after the esophageal resection, the anesthesiologist presumed the existence of an intestinobronchial fistula because of respiratory deterioration with simultaneous ascension of gastric juice through the tracheal tube.

We therefore performed simultaneous gastroscopy and bronchoscopy immediately after the operation in the ICU. The initial gastroscopy did not reveal any signs of fistula but bronchoscopy clearly showed a fistula opening in the right main bronchus approximately 2 cm distal to the tracheal bifurcation (▶ **Fig. 1 a**). Detailed gastroscopic examination finally showed the fistula in a position that was very difficult to visualize, originating from the hemiplication formed by the gastric fundus (▶ **Fig. 1 b**). The thickness of the fistula wall was not more than 1 – 2 mm.

After intense discussion, we decided to attempt endoscopic fistula closure with an over-the-scope clip (OTSC), although there were no positive literature reports of such an approach with a gastrobronchial fistula.

The procedure was performed under general anesthesia. An 11/6 t OTSC (Ovesco Endoscopy, Tübingen, Germany) was chosen. No grasper or anchor could be used owing to the narrow conditions in the small gastric plication. The fistula opening was only aspirated in the OTSC cap (▶ **Fig. 2 a**). Simultaneous bronchoscopy confirmed no narrowing of the bronchial lumen during clip application (▶ **Fig. 2 b**).

After the procedure, the patient reported being symptom free. Endoscopic control 3 weeks later showed the OTSC in the gastric plication surrounded by granulation tissue. On bronchoscopy, the fistula had completely healed. The clip was still in situ 7 months later and the patient free of symptoms (▶ **Fig. 3**).

To our knowledge, this is the first report of successful gastrobronchial fistula closure with an OTSC. There are only two cases of successful OTSC fistula closures (one esophagobronchial and one esophagotracheal) [1,2] and one describing a combined approach (OTSC and self-expandable covered metal stent) [3]. In our case, the clip may have grasped not only the thin fistula wall but also well-perfused tissue of the gastric plication. This might have promoted healing of the fistula.

In conclusion, the use of an OTSC is justified when attempting gastrobronchial fistula closure.

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Competing interests: None

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Bibliography

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