

Endoscopy-guided surgery of an atrio-esophageal fistula after failure of self-expandable metal stents

A 34-year-old man presented at the emergency department with syncope and atrial fibrillation. He had undergone atrial fibrillation ablation 3 weeks earlier. He was initially treated with anti-arrhythmic agents but developed seizures. A computed tomography scan revealed air embolisms on the brain and an atrio-esophageal fistula in the mediastinum (► **Fig. 1**). Because of hemodynamic instability, surgeons asked the Gastroenterology Department to place an esophageal stent.

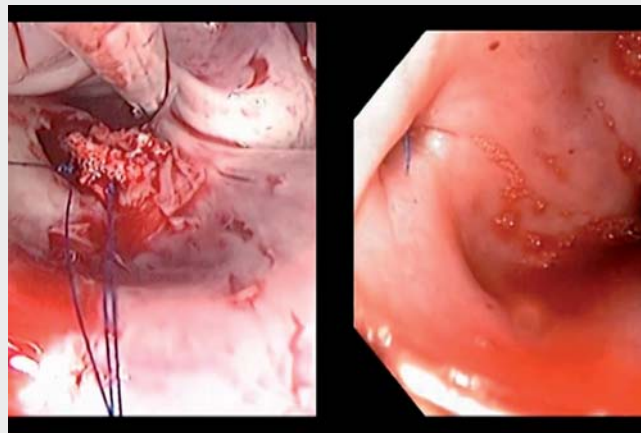
A pediatric gastroscope was used to pass the guidewire. A completely covered self-expandable metal stent (Boston Scientific, Marlborough, Massachusetts, USA) was placed using only radiological guidance. The insufflation bottle was disconnected to avoid unnoticed insufflation. Two days later a coaxial stent was placed because the first stent had migrated proximally (► **Fig. 2**). Seven days later, after initial improvement, the second stent also migrated proximally. The patient's condition continued to worsen, so it was decided to close the fistula surgically.

Surgery was performed with extracorporeal circulation. Cardiovascular surgeons repaired the defect in the atrium (► **Fig. 3 a**) with endoscopic guidance from the esophagus (► **Fig. 3 b**). Endoscopy discovered another previously undetected fistula. A new completely covered metal stent was placed to protect the esophagus at the end of the procedure (► **Video 1**). The following day, the patient developed cardiac and renal failure. The patient's condition deteriorated and he consequently died.

Atrio-esophageal fistula is a rare but serious complication of atrial fibrillation ablation [1, 2]. Patients are at risk of air embolism and mediastinitis. For this reason, endoscopy is contraindicated and urgent surgery is preferred as treatment. Endoscopy can be helpful to guide treatment during surgery, and in this case, a hidden



► **Fig. 1** Computed tomography showing air in the mediastinum caused by an atrio-esophageal fistula.



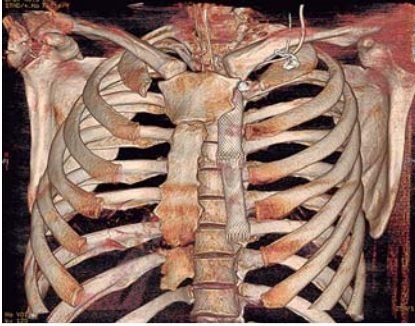
► **Video 1** Computed tomography revealed air in the mediastinum after atrial fibrillation ablation. After migration of two metal stents, it was decided to operate on the patient with endoscopic guidance.

fistula was discovered. Previous cases describing endoscopic treatment with stents with fatal result have been reported [3, 4]. Successful treatment of other complications of atrial fibrillation ablation, such as esophageal perforation or esophago-pericardial fistula with stents, has been described.

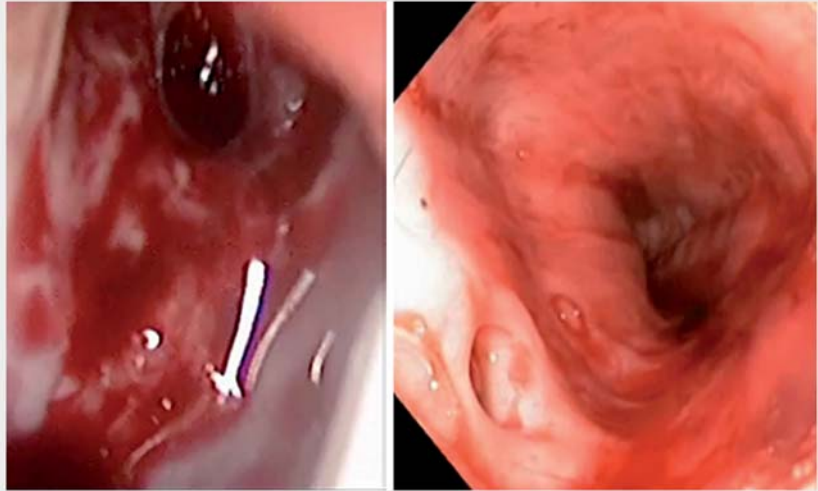
Endoscopy_UCTN_Code_CCL_1AB_2AC_3AH

Competing interests

None



► **Fig. 2** Reconstruction of the two metal stents covering the atrio-esophageal fistula.



► **Fig. 3** Surgery to repair the atrio-esophageal fistula. **a** The view of the defect from the heart. **b** The view of the fistula from the esophagus.

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