

Title:

Successful use of Amplatzer plug Type 4 and Onyx to treat a chronic troublesome broncho-oesophageal fistula.

Author:

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Case History:

An 83-year old female originally presented to the Accident and Emergency department with chest pain and vomiting following a coach trip. The initial differential included pulmonary embolism (PE) and a CT Pulmonary Angiogram was performed. This showed no PE but significant pneumomediastinum and increased density in the mediastinum. A subsequent contrast swallow confirmed a large leak from the right side of the oesophagus (Fig. 01).

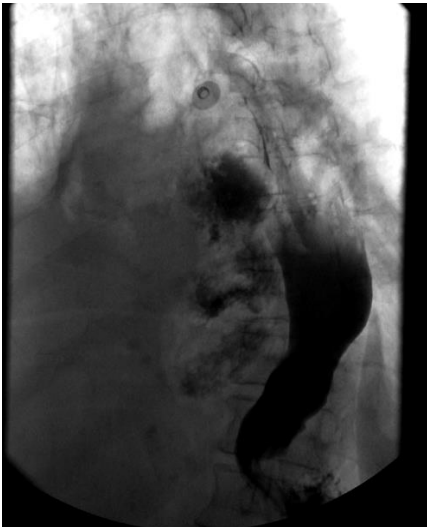


Figure 1.

The patient underwent a primary surgical repair within 24 hours of presentation which confirmed a large 10 cm tear. Her postoperative course was complicated by a subsequent PE and an ongoing leak confirmed on a repeat swallow on day 10. Supportive treatment was continued initially with total parenteral nutrition followed by naso-jejunal feeding and antimicrobial therapy. Five weeks after her initial presentation an oesophageal stent was placed and she was discharged home. The oesophageal stent was removed after 16 months as the patient had repeated vomiting though to be due to stent intolerance. Approximately five months after removal she was admitted to hospital with recurrent chest infections and a cough producing bilious sputum. A further contrast swallow demonstrated a large broncho-oesophageal fistula with contrast leaking from the oesophagus into a bi-lobed mediastinal cavity which communicated with the bronchi of the right lower lobe (Fig. 02).



Figure 2. (Arrow indicates bi-lobed cavity)

After discussion it was decided to try a novel non-surgical technique to occlude the troublesome fistula. This was a joint procedure performed in the Interventional Radiology Suite under general anaesthesia. The initial endoscopy confirmed the position of the oesophageal defect but was not used to cannulate the fistula. A 5F C2 catheter (Cook, Bloomington, IN, USA) and a 0.035-inch hydrophilic guide wire (Radiofocus, Terumo, Tokyo, Japan) were used to cannulate the fistula and obtain a stable position with the tip of the wire in the endotracheal tube. This allowed the insertion of a 5F Pinnacle Destination sheath (Terumo, Tokyo, Japan). A 7 mm Amplatzer Vascular Plug type 4 (St Jude Medical, Plymouth, MN, USA) was deployed in the distal bronchus (Fig. 03).

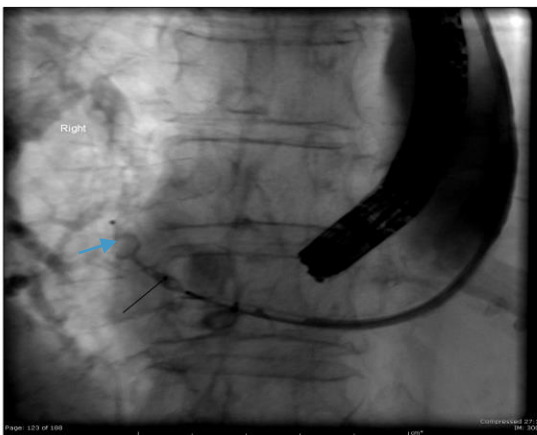


Figure 3. (Arrows indicate Amplatzer plug)

A Progreat microcatheter (Terumo, Tokyo, Japan) was then inserted into the cavity before approximately 4-5ml of Onyx (ev3 Neurovascular, Irvine, CA, USA) was injected. Onyx was seen to track half way along the Amplatzer plug as well as along an apparent second fistulous connection (Fig. 04).



Figure 4 (Amplatzer plug - block arrow, Onyx tracking along Amplatzer plug - short arrow, second fistulous track arising from the lower part of the cavity- long arrow)

Excess Onyx was removed endoscopically before a gauze plug was placed into the oesophageal defect. The patient had an uneventful recovery. Follow up endoscopies, CT and chest radiographs confirm a stable appearance of the Onyx as well as a gradual reduction in size of the oesophageal defect.

#### Discussion

Broncho-oesophageal fistulation is a known but infrequent complication of spontaneous oesophageal rupture. They are usually managed either surgically or endoscopically. We describe a novel use of Onyx and an Amplatzer plug to occlude a troublesome fistula transforming the patient's quality of life who remains asymptomatic to this day.