Pulmonary embolism as an early sequel of per oral endoscopic myotomy (POEM) for treatment of achalasia : to anticoagulate or not?

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To the Editor,

Per Oral Endoscopic Myotomy (POEM) was introduced by Inuoe *et al* as a treatment of achalasia in 2010 (1). Several long-term outcome studies showed satisfactory results for POEM; technical success was approximately 97%, and clinical success ranged from 93% to 98% (2). The complications encountered usually represent a small percentage in various studies ranging from 0% to 13% (3). The complications are mostly related to air leak during the myotomy step, presenting as subcutaneous emphysema, pneumoperitoneum, pneumomediastinum or less likely pneumothorax (4). They may also be related to injuries during the procedure, including mucosal injury, significant bleeding or, less likely, oesophageal perforation (5).

We report here a 47-year-old female patient who presented with a two-year history of progressive dysphagia, weight loss and recurrent attacks of choking. Upper endoscopy was performed, revealing dilated oesophagus with residual food particles and a tight cardia. Barium swallow revealed smooth tapering of the lower end of the oesophagus. Oesophageal manometry was performed, showing a lower oesophageal sphincter (LES) pressure of 44 mmHg (N: 15-40) and incomplete relaxation with swallows of 59% (N: 85-100%), which describes achalasia of the cardia.

Pneumatic balloon dilatation was performed twice, one year apart. Nevertheless, the symptoms recurred. POEM was planned for the patient. POEM was completed without any significant complications, and the procedure took approximately 90 minutes (Figure 1).

The patient experienced high-grade fever starting on the second day after the procedure, reaching 40 degrees centigrade. The chest X-ray and abdominal X-ray were unremarkable. The usual regimen of antibiotics was changed from 3rd generation cephalosporins to imipenem and vancomycin. The patient's fever started to subside within 4 days after the procedure. The patient was tachycardic disproportionate to the fever, and she developed attacks of palpitations and dyspnoea. ECG showed sinus tachycardia, and arterial blood gases showed PO_2 ranging from 60 to 70 mmHg, while the SO_2 ranged from 90–93% on room air. A high suspicion of pulmonary embolism was raised. Therefore, CT pulmonary angiography was planned. This revealed bilateral pulmonary artery thromboembolism, primarily segmental and subsegmental. In addition, lower limb venous duplex was performed, revealing bilateral acute deep venous thrombosis of both calf veins. The patient had no pre-existing risk factors for pulmonary embolism; a thrombophilia profile was checked, and it was normal.
The debate was whether or not to start anti-coagulation early (4 days) after the POEM procedure. After reviewing the literature, no clues were found because

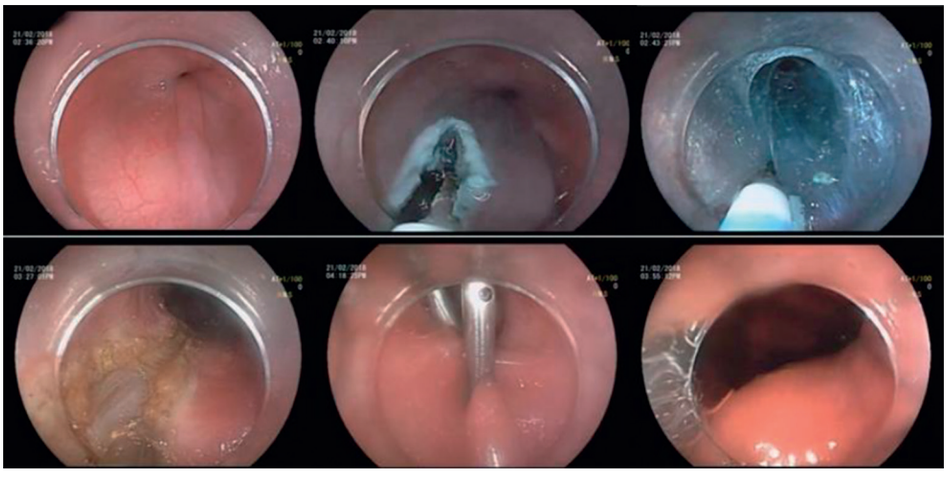

Fig. 1.

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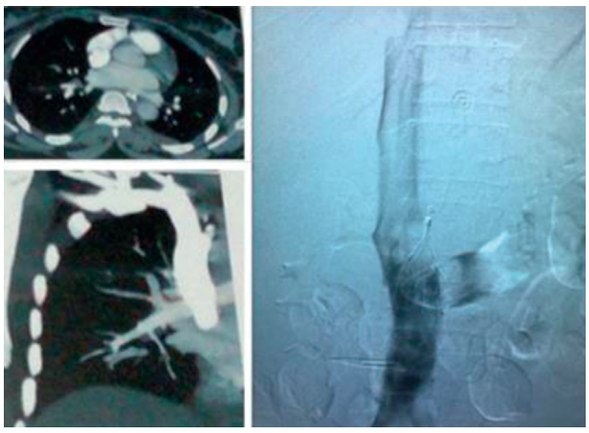

Fig. 2.

pulmonary embolism is rather a rare complication of POEM. However, what was most feared was that starting anticoagulation can precipitate delayed bleeding. The incidence of delayed bleeding is very low, ranging from 0% to 0.7% (6). The maximum number encountered was 3 patients out of 428 (0.7%) in one study (6). The patients experienced significant bleeding, of whom 2 were successfully managed endoscopically. In one patient, the source of bleeding could not be identified, and a Sengstaken–Blakemore tube was applied to control the bleeding.

The multidisciplinary team decision was to place an inferior vena cava (IVC) filter to prevent further pulmonary embolism as a bridge until the start of oral anticoagulation therapy. Oral anticoagulation treatment was started 10 days after the procedure. The patient had her INR (international normalized ratio) controlled within the therapeutic range. Her dysphagia and dyspnoea had markedly improved. The IVC filter was planned to be removed after 3 months (Figure 2).

We present here a rare sequel after POEM, for which further studies are needed to address the proper timing of anticoagulation for more urgent indications.

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