

Pulmonary embolism caused by thrombin-based haemostatic matrix

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DESCRIPTION

A 38-year-old woman underwent an outpatient L5/S1 discectomy. The procedure was complicated by intraoperative bleeding, and haemostasis was achieved using a thrombin-based haemostatic matrix (TBHM). She presented to our facility on postoperative day 5 with left-sided chest pain and dyspnoea. CT pulmonary angiography (CTPA) showed a heterogeneous filling defect with mixed attenuation and a 'pseudoair pattern' in the left main pulmonary artery (figure 1). Duplex ultrasound of the upper and lower extremities was negative for venous thrombus. An echocardiogram was normal. Pulmonary angiography showed occlusion of the basal branches of the left pulmonary artery (figure 2). Therapeutic anticoagulation with unfractionated heparin was started, and the patient was discharged home on warfarin. Repeat CT angiography 6 months later revealed no filling defect in the pulmonary arteries.

TBHM is a mixture of gelatin granules and human or bovine-derived thrombin. It can be deployed intraoperatively via a syringe over the haemorrhagic area. Haemostasis is achieved by activating factors V, VIII and XIII, and inducing platelet aggregation. TBHM has been implicated in pulmonary embolism by accidental injection into veins or through gradual uptake of the matrix into the venous system.¹ A 'pseudoair pattern' on CTPA is thought to be highly suggestive of TBHM embolism.² While the imaging pattern may also represent air that entered the vessel at the time of injury, the initial imaging was 5 days after the surgery, and the pulmonary angiogram was a day afterwards. Air would typically show some degree of resolution given the time span since the surgery.

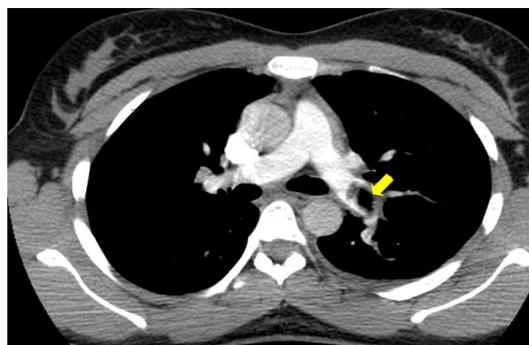


Figure 1 CT chest with contrast demonstrating the 'pseudoair' filling defect (arrow) in the left main pulmonary artery.



Figure 2 Near total occlusion of the left lower pulmonary artery with no perfusion of the left lower lobe.

Learning points

- ▶ Thrombin-based haemostatic matrix (TBHM) has been implicated in pulmonary embolism by accidental injection into veins or through gradual uptake of the matrix into the venous system.
- ▶ A 'pseudoair pattern' on CT pulmonary angiography is highly suggestive of TBHM embolism.

There are limited data on treatment of patients with pulmonary embolism related to TBHM, although a similar case described successful treatment with anticoagulation alone.³ Documented resolution of pulmonary embolism caused by TBHM following treatment with anticoagulation has not been described in the literature before. Our case suggests that anticoagulation may be an appropriate option when managing these patients.

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