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Acute pulmonary embolus with visible right heart thrombus in transit

Michael Thomas Debney

Cardiology Department, Imperial College NHS Healthcare Trust, London, UK

Correspondence to Dr Michael Thomas Debney, mikedebney@googlemail.com

DESCRIPTION

A 29-year-old woman presented to our emergency department with syncope, acute chest pain and circulatory collapse. She had a tachycardia of 135 bpm, blood pressure of 77/55 mm Hg and a profound metabolic acidosis (pH 7.07, lactate 10, base excess -20). A 12-lead ECG (figure 1) showed sinus tachycardia with right axis deviation, large p waves and poor R wave progression across the chest leads, suggestive of acute right heart strain. A D-dimer was elevated at 15984 µg/l (reference range 0–200 µg/l); a plain anteroposterior chest radiograph was unremarkable. Bedside transthoracic echocardiography showed a dilated, poorly functioning right ventricle with visible thrombus prolapsing across the tricuspid valve as demonstrated in figure 2 and video 1. These findings confirmed the clinical suspicion of acute massive pulmonary embolus causing circulatory collapse and intravenous thrombolysis was successfully administered. Once haemodynamic stability had been restored, CT pulmonary angiography confirmed

massive bilateral pulmonary emboli. Acute pulmonary embolus with visible right-heart thrombi is a rare phenomenon¹ associated with a poor prognosis.² Bedside transthoracic echocardiography is important in the visualisation of the right ventricle in the setting of circulatory collapse and can be used to identify thrombus in-transit.³ European Society of Cardiology guidelines⁴ state that unstable patients with high-risk pulmonary embolism (shock, hypotension) and echocardiography signs of right ventricle overload should be considered for thrombolysis as an emergency, life-saving treatment, as demonstrated in our case. The patient made an uneventful recovery and was discharged home on oral anticoagulant 8 days later. No obvious cause or specific risk factors for pulmonary embolus have yet been identified, although a full haematological assessment is pending.

Video 1 Apical four chamber view showing visible clot prolapsing across the tricuspid valve from right atrium into right ventricle.

Figure 1 12-lead ECG showing sinus tachycardia, right axis deviation, large p waves and poor r wave progression across the chest leads, consistent with right heart strain.

Figure 2 Apical four chamber view with visible clot (arrow) prolapsing across the tricuspid valve from right atrium into right ventricle. RA – Right Atrium, RV – Right Ventricle, LV – Left Ventricle.

Competing interests None.

Patient consent Obtained.

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