

Clot in transit: a case of acute pulmonary embolism

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DESCRIPTION

A 53-year-old woman with a previous medical history of hypertension presented to the hospital with shortness of breath for 2 weeks. Transthoracic echocardiogram (TTE) revealed findings suggestive of chronic cardiomyopathy with decreased left ventricular systolic function. Right ventricle was enlarged and hypokinetic. TTE also revealed a long serpiginous echogenic density suggestive of a thrombus in the right atrium (figure 1). In subsequent images, the thrombus transits through the tricuspid valve into the right ventricle (online supplementary video S1). CT angiography revealed acute pulmonary embolism (PE) in the upper lobe of the left lung and for that reason, anticoagulation with heparin was initiated. She remained haemodynamically stable and underwent hypercoagulable workup, which was negative. Patient was managed with apixaban along with guideline-based therapy for chronic cardiomyopathy and was subsequently discharged home.

PE is a common condition with an annual rate of 1–2 per 1000¹ and is associated with high morbidity and mortality. CT pulmonary angiography is the current standard of care for diagnosis with a sensitivity of 83% and specificity of 96%.² TTE for diagnosis of PE is usually of limited value, however, it can be useful for classification and prognosis. This case represents an exceptionally rare finding of capturing a thrombus in real time as it makes its way from right atrium to the right ventricle through the tricuspid valve. This phenomenon has been referred to as a ‘clot

in transit’, which is defined as a right heart thrombus that is not attached to any intracardiac structure.³ It is a unique finding that is rarely documented on imaging studies. When present, it is almost uniformly diagnosed with echocardiography. It is an important clinical entity as it carries an in-hospital mortality rate of 45%, usually from a subsequent PE, or in rare cases a systemic emboli when intracardiac shunt is present.³ Treatment should be focused on treating PE with anticoagulation therapy for at least 3–6 months, although in some cases depending on clot burden and patient haemodynamics, surgery or thrombolytics may be more appropriate.³ This case demonstrates the benefit of multimodal imaging in the diagnosis and treatment of PE, and the unique phenomenon is known as clot in transit.

Learning points

- ▶ This case demonstrates a venous thromboembolism as it transits from the right atrium to the right ventricle on its way to the pulmonary artery. This unique video is a rare, real-time look at this process that has been identified as a clot in transit.
- ▶ Multimodal imaging should be used in order to not only diagnosis pulmonary embolism (PE) but also to risk stratify and classify severity of PE in order to more appropriately treat these patients.

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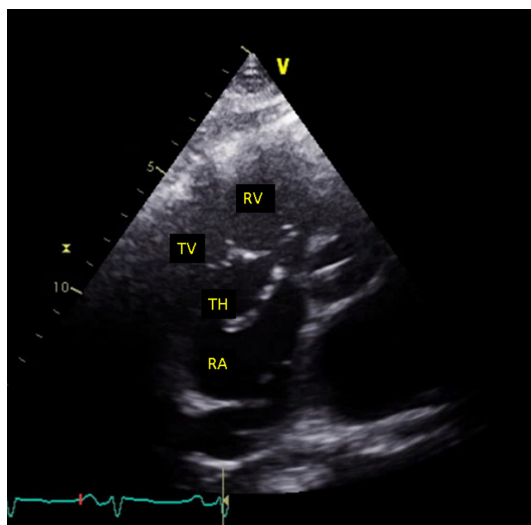


Figure 1 Transthoracic echocardiogram; subcostal view: this image reveals a long, serpiginous echogenic density in the right atrium. RA, right atrium; RV, right ventricle; TV, tricuspid valve; TH, thrombus.



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