

McConnell's sign: an early and specific indicator of acute pulmonary embolism

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DESCRIPTION

A 76-year-old woman was admitted with acute onset of breathlessness with lethargy since the last 3 days. She was a known patient with hypertension and diabetes. On clinical examination, she had an engorged neck vein, tachycardia and tachypnoea, hypotension, oxygen saturation of 92% in room air and right ventricular S3 gallop with pansystolic murmur in the left lower parasternal area. ECG showed sinus tachycardia with an S1Q3T3 pattern. Chest X-ray did not reveal any significant abnormality. There was no elevation of cardiac biomarkers. Echocardiography revealed the presence of right atrial and ventricular dilation, moderate tricuspid regurgitation, severe right ventricular dysfunction, regional wall motion abnormality of the basal and mid right ventricular free wall with apical hyper contractility (McConnell's sign), paradoxical septal motion and dilated inferior vena cava (figure 1A–C; videos 1–3). The CT pulmonary angiogram was suggestive of acute pulmonary embolism (APE) (figure 2). She was treated with infusion of streptokinase for 48 h, followed by an oral anticoagulant.



Video 1 Paradoxical long axis view demonstrated dilated right atrium & ventricle with hyper contractile right ventricular apex with left ventricle.

McConnell's sign is the most distinct echocardiographic finding described in patients with APE.¹ There is a regional pattern of right ventricular dysfunction, with akinesia of the mid free wall and hyper contractility of the apical wall.¹ McConnell's sign is considered as a specific sign of APE.² Though echocardiography has poor sensitivity, it

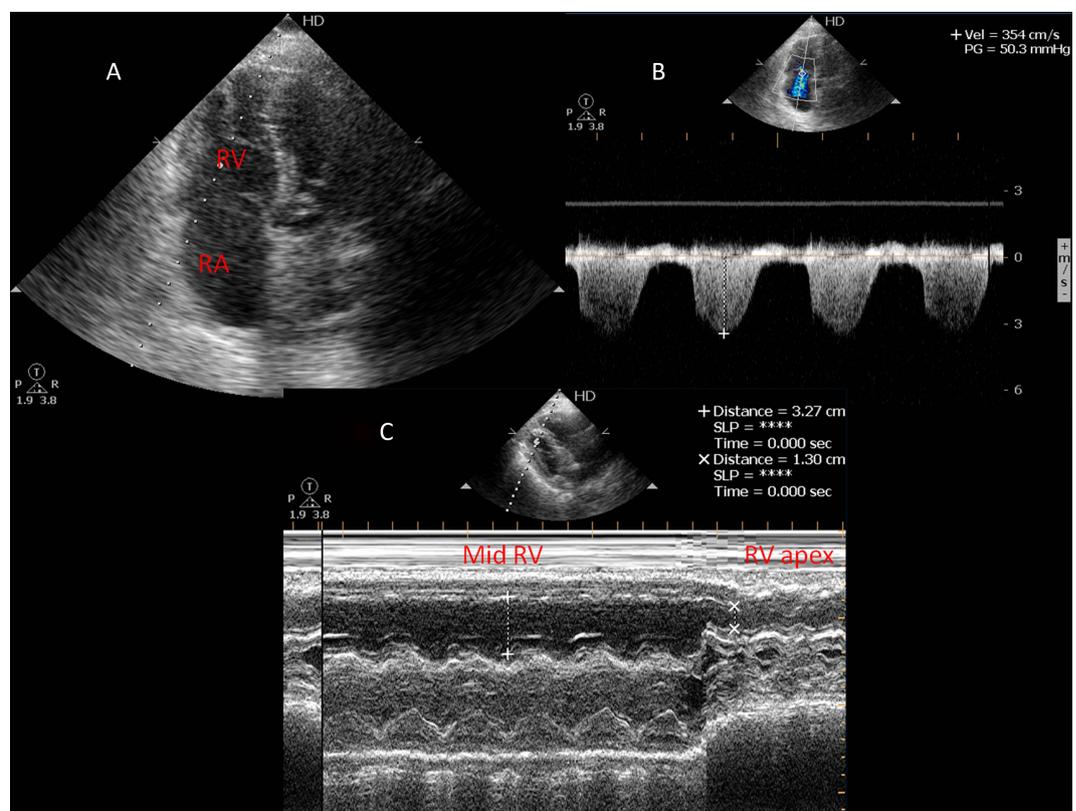
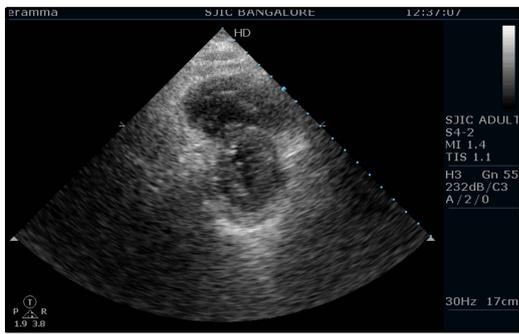


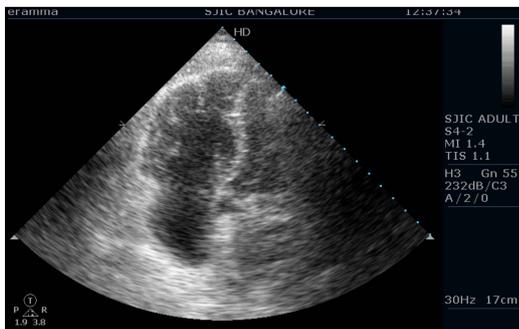
Figure 1 (A–C) Echocardiography revealed a dilated right atrium and ventricle, moderate tricuspid regurgitation and M-mode echocardiography revealed an akinetic mid-right ventricular free wall with a hyper contractile right ventricular apex (McConnell's sign).



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Video 2 Parasternal short axis view showed paradoxical septal motion.



Video 3 Apical 4-C view showed dilated right atrium & ventricle with regional wall motion abnormality of right ventricular free wall at mid & basal segment with apical hyper contractility.

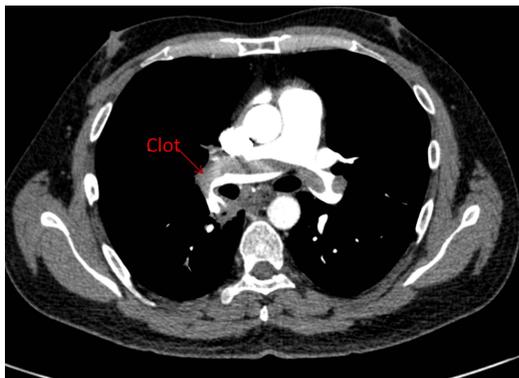


Figure 2 CT pulmonary angiogram revealing the features of acute pulmonary embolism.

may be useful in cases of massive pulmonary embolism in which a rapid presumptive diagnosis is required to justify the use of thrombolytic therapy.

Learning points

- ▶ McConnell’s sign is a distinct echocardiographic feature of acute massive pulmonary embolism.
- ▶ It is defined as a regional pattern of right ventricular dysfunction, with akinesia of the mid free wall and hyper contractility of the apical wall.
- ▶ In a case of acute pulmonary embolism, we should try to elicit this echocardiographic sign and if it is seen, then thrombolytic therapy should be started.

Contributors SP, RSM, RKS and NA were involved in the management of the patient.

Competing interests None.

Patient consent Obtained.

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