



RESEARCH ARTICLE

FREE FLOATING THROMBUS IN RIGHT HEART: A THERAPEUTIC DILEMMA

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INTRODUCTION

Free floating thrombus in the right heart is quite rare and represents travelling clot from venous system to the lung. In view of reported high mortality, it constitutes medical emergency and requires immediate treatment. (Naeem, 2015) We hereby report a case of free floating right heart thrombus in young patient who presented to us with features of pulmonary embolism.

Case Report

A 21 year old male who had past history of surgery for right atrial myxoma 1 year ago presented to us with history of left lower limb swelling and acute onset dyspnea of 2 days duration. On examination, patient had left lower limb edema, hypotension, patient was tachypneic with a room air saturation of 76%. He had elevated JVP and a pan systolic murmur at left lower sternal border. ECG showed sinus tachycardia with a rsR' pattern in V1 (Fig.1). Echocardiogram revealed dilated right sided chambers, moderate tricuspid regurgitation with pulmonary artery systolic pressure of 70 mmHg. RV Dysfunction was evident.

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ABSTRACT

Free floating thrombus in the right heart is a medical emergency and is referred to as 'Thrombus in transit'. The condition is underdiagnosed and transthoracic echocardiography is a good diagnostic tool to detect it. In our patient who had free floating thrombus in right heart with pulmonary embolism was treated with thrombolysis and made a good recovery.

Neither thrombus nor a residual myxoma was observed in right heart or in the pulmonary artery. CT pulmonary angiogram showed evidence of pulmonary thromboembolism (Fig.2) Patient was thrombolysed with streptokinase 2.5 lakhs unit bolus followed by 1 lakh / hour infusion. After 8 hours of infusion, patient suddenly had cardiac arrest. Patient was intubated and connected to ventilator. Streptokinase was withheld in view of questionable neurological status (? Intra cranial haemorrhage). Patient was on high inotropic supports. Subsequently, on Day 2 patient made a recovery and he was weaned off the ventilator and also the inotropes. No neurological deficits were observed and anticoagulation was started.

On Day 3, however, patient had clinical deterioration he became tachypneic and blood pressure dropped down to 70 mm systolic. Patient was again started on inotropes and was intubated & connected to ventilator. Echocardiogram done at this point of time showed a floating thrombus in right atrium through tricuspid valve into the right ventricle - a serpentine thrombus (Fig.3, 4. Video.1, 2). Patient was restarted with thrombolysis and was continued for 24 hours. Repeat echocardiogram after 24 hours showed that right heart was free of thrombus (Fig.5, Video.3). Subsequently patient clinically also made a good recovery and was discharged on oral anticoagulants after one week.

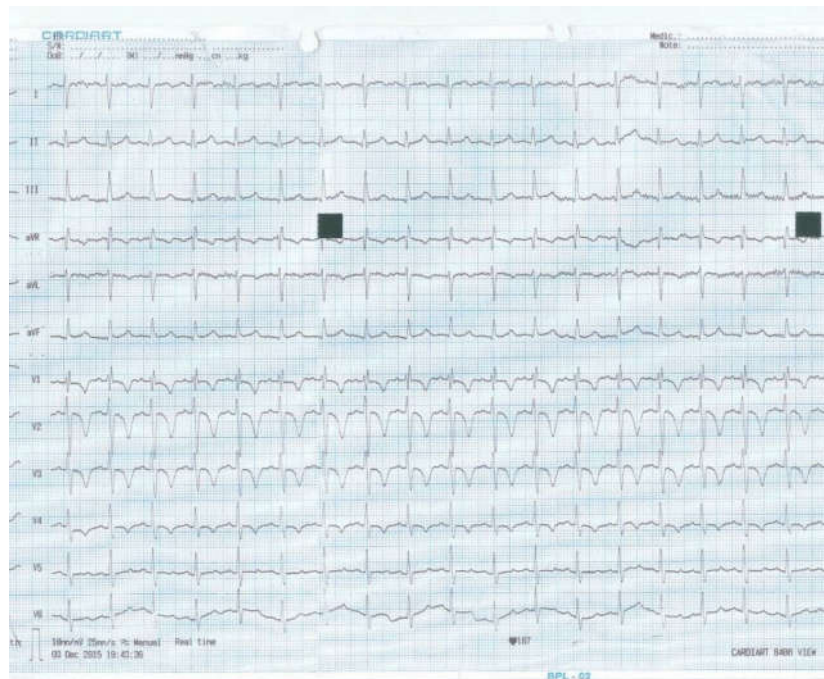


Fig. 1. ECG showing sinus tachycardia and rsR' in V1

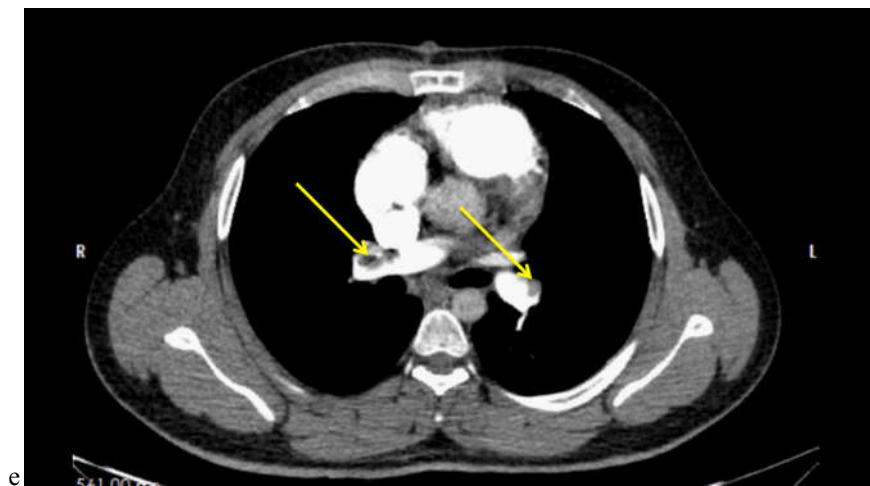


Fig. 2. CT Pulmonary Angiogram showing evidence of pulmonary thrombo embolism

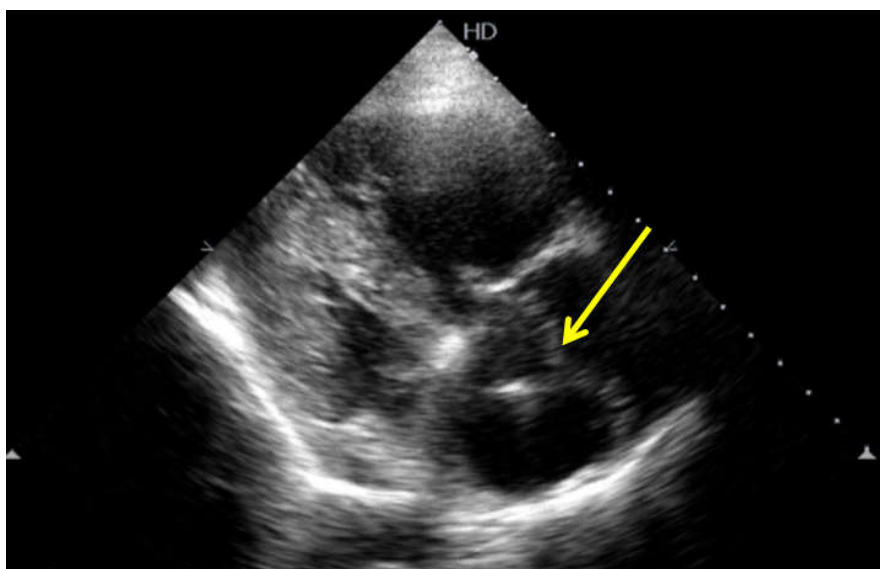


Fig. 3. Transthoracic echocardiography showing thrombus in right atrium

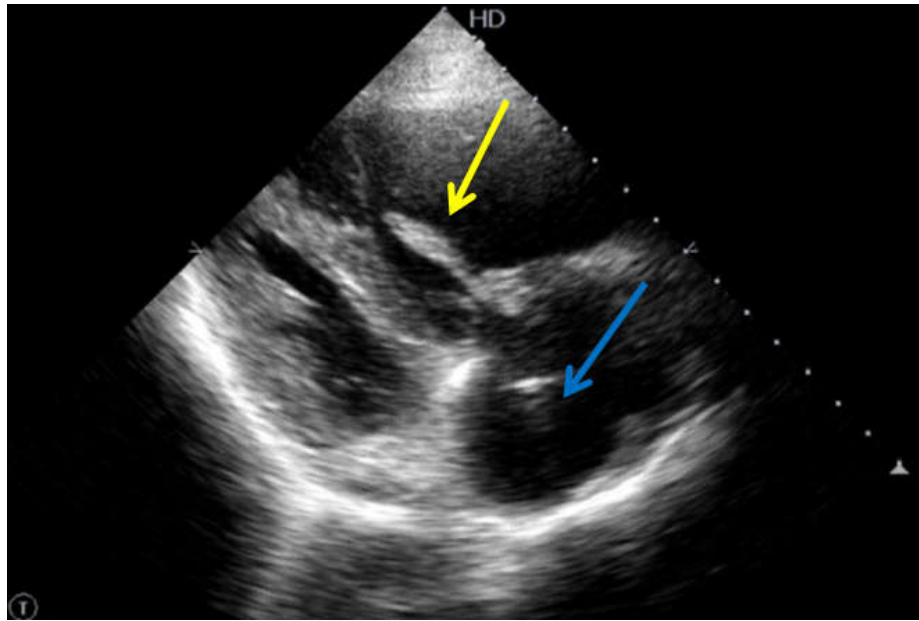


Fig. 4. Transthoracic echocardiography showing serpentine thrombus in right ventricle

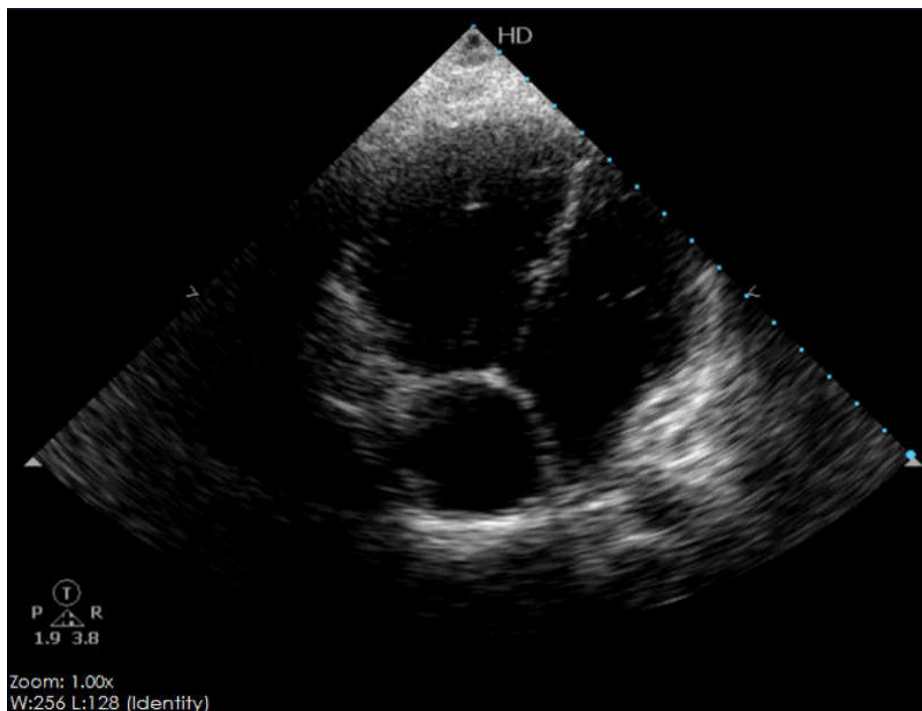


Fig. 5. Transthoracic echocardiography showing right heart free of thrombus after thrombolysis

DISCUSSION

Free floating heart thrombi are quite rare and generally represent travelling thrombus from venous system of lower limbs to the pulmonary vasculature and are referred to as 'Thrombi in transit'. They are seen in 4- 18 % of patients presenting with acute pulmonary embolism. (Goldhaber *et al.*, 1999; Torbicki *et al.*, 2003; Chartier *et al.*, 1999) Despite their frequent occurrence in patients with pulmonary embolism, they are commonly underdiagnosed. In this setting, echocardiography serves as a useful diagnostic tool. Morphologically, the right heart thrombi are divided into two types TYPE A and TYPE B. TYPE A thrombus have a worm-like shape, are extremely mobile and mostly represent

peripheral venous clot. TYPE B thrombi are less mobile, attach to the right atrial or ventricular wall and have broad based attachment. (Kronik, 1989) In our patient, we had a therapeutic dilemma as to whether patient should be subjected to surgery or should be given trial of thrombolysis. Since patient was hemodynamically unstable with a blood pressure of 70 mm systolic and was on ventilatory support, we took the option of thrombolysing the patient. The advantages of thrombolysis are numerous. (Levine, 1993; Goldhaber, 1991) It accelerates lysis of thrombus and pulmonary reperfusion, reduces pulmonary hypertension, improves right ventricular function and hence improves right and left ventricular output by reducing RV-LV interdependence. (Jardin *et al.*, 1987) Moreover it may dissolve the clot at three locations at the same time. The intracardiac

thrombus, the pulmonary embolism and venous thrombosis. Finally it is a simple, rapid and widely applicable treatment that can be administered at the bedside. Ferrari showed after thrombolysis 50 % of the clots disappeared within 24 hours whereas remaining disappeared within 12 – 24 hours. (Ferrari *et al.*, 2005) In our patient, thrombolysis worked very well and hemodynamics became stable within 24 hours and he was discharged subsequently on anticoagulants after a week.

Conclusion

Free floating thrombus in the right heart with pulmonary thromboembolism is a therapeutic emergency. Echocardiography served as a useful diagnostic tool in identifying the problem. Thrombolysis is a good therapeutic armamentarium in this setting.

Conflicts of interest

All authors have none to declare.

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