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Case Report

Right Ventricular Mural Thrombus With Constrictive Pericarditis

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ABSTRACT

Thrombus formation within the left ventricular apex is a well-known clinical condition that is often associated with underlying myocardial diseases, whereas thrombus formation in the right ventricle (RV), albeit a potentially fatal clinical condition, is not very well known. Thrombus formation around the heart cavities is dangerous since it may lead to systemic and pulmonary embolism. Hypercoagulation states, RV infarction, pulmonary embolism, autoimmune diseases, and dilated cardiomyopathy are some other potential risks. Transthoracic echocardiography is the modality of choice for the diagnosis and characterization of such thrombi in that it allows differentiation between various types of thrombi. We herein describe a patient with an unknown history of constrictive pericarditis and a concomitant RV mass in the RV apical aneurysm, which was initially suspected to be a thrombus. We learned from the patient's history that he had previously received irregular treatment for tuberculosis. ***(Iranian Heart Journal 2021; 22(3): 128-130)***

KEYWORDS: Thrombus, Constrictive pericarditis, Right ventricle

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Isolated right ventricular (RV) thrombi without concomitant left ventricular thrombi are extremely rare. Thrombi originating from the right and left heart can cause serious embolism. The case we present herein is a patient who had an unknown history of constrictive pericarditis with an isolated RV thrombus.

Patient and Observation

A 12-year-old Somalian boy was referred to our center from another hospital with dyspnea, significant weight loss, and severe bilateral lower extremity edema. Physical findings were unremarkable without any abnormal vital signs. Electrocardiography revealed sinus rhythm at a rate of 70. For further evaluation, echocardiography was performed, and apical aneurismal cavity imaging revealed a 25 × 30 mm mass suspected to be a thrombus in the RV (Fig. 1 & video 1). Septal bounce movements consistent with constrictive pericarditis were observed. Respiratory changes were detected in the inflow flows of the mitral valve (Fig. 2). Tissue Doppler showed a high mitral e' velocity (14 cm/s) and a low lateral e velocity. In the tissue Doppler examination, the lateral annulus S wave was found to be more than the medial annulus S wave (ie, annulus reversus) (Fig. 3). The inferior vena cava was dilated in the subcostal view, and respiratory changes were less than

50% (Fig. 4). An oral anticoagulant was started. He was called for clinical controls.

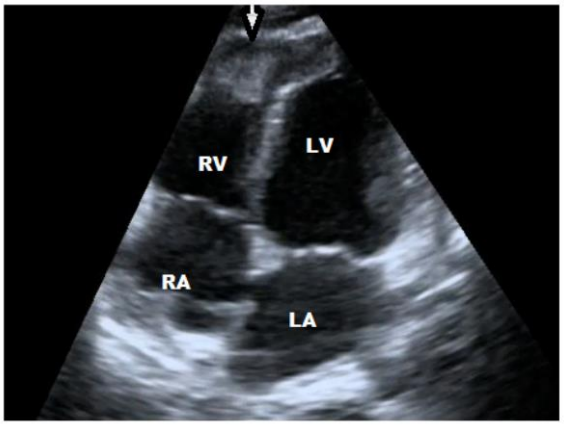

Figure 1. The apical 4-chamber view shows a large (25 × 35 mm) thrombus, originating from the RV apex.
LV, Left ventricle; RV Right ventricle; LA left atrium

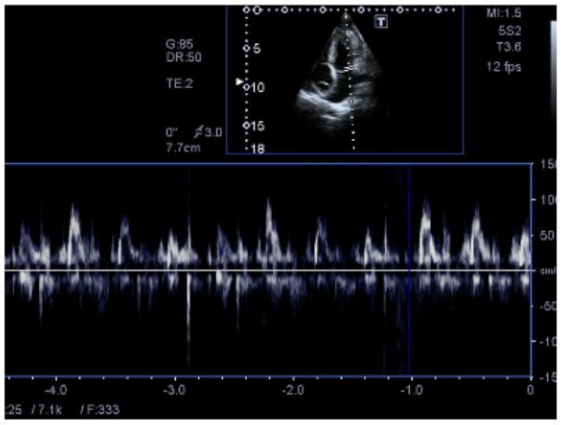

Figure 2. Transmitral flow velocity recording shows a characteristic inspiratory decrease in the early diastolic inflow velocity.

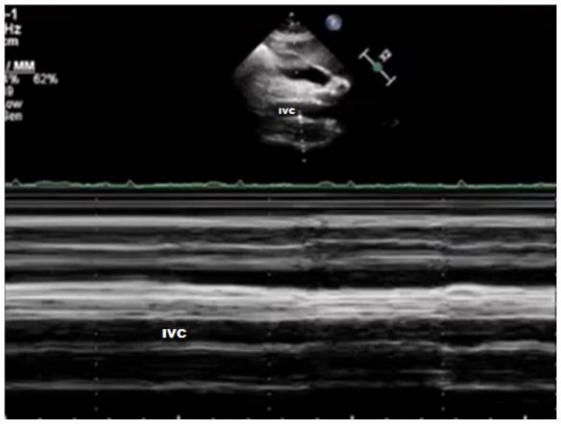

Figure 4. The M-mode image shows that the IVC is dilated (25 mm), and there is no normal inspiratory collapse.
IVC, Inferior vena cava

DISCUSSION

Conditions causing thrombi in the RV have been reported in the literature. Pulmonary embolism, autoimmune diseases such as Behçet's disease, d[1] conditions that predispose to coagulation such as nephrotic syndrome, [2], RV pacing and catheter ablation, [3] RV infarction, and arrhythmogenic RV cardiomyopathy [4] are among the leading causes. The link between endothelial damage and RV mural thrombi after radiofrequency ablation has been reported in several publications. [5] In addition to thrombus susceptibility, the underlying mechanisms leading to the thrombosis process are thought to be coagulation due to endocardial damage and inflammation, especially in aneurysmal regions after prolonged radiofrequency ablation. [6, 7] To our knowledge, this is the first case report of an isolated RV thrombus with a history of constrictive pericarditis.

CONCLUSIONS

Mural thrombus formation in the RV apex is a very rare clinical condition. Although conditions causing thrombi in the RV have been reported, the existing literature offers no case of an RV apical thrombus accompanied by constrictive pericarditis. Therefore, our case has clinical significance.

Conflict of Interest

The authors declare no competing interests.

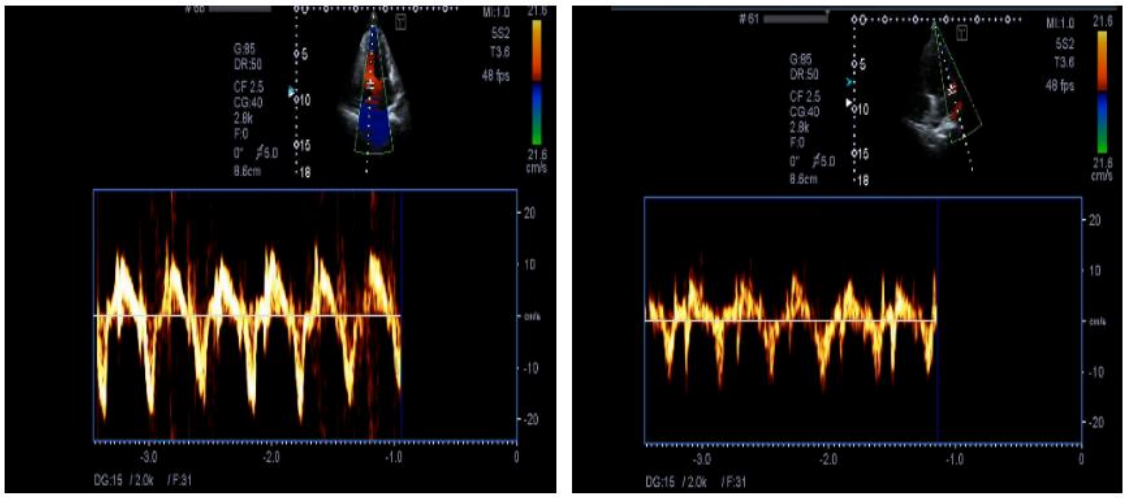

Figure 3. The averaged lateral e' velocity is lower than the medial e' velocity (ie, annulus reversus). Tissue Doppler imaging at the medial annulus and the lateral tricuspid annulus is presented herein.

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