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Case Report

A Complete Resolution of Left Ventricular Thrombus in A Patient with Myocarditis

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Abstract

Left ventricular thrombi are more prevalent in dilated cardiomyopathy (39%) followed by ischemic heart disease. We present a case of 45-year-old man, with history of 3-months progressive exertional dyspnea and leg swelling. The echocardiography showed left ventricular dilation with Left Ventricular Ejection Fraction (LVEF) of 23%, moderate to severe tricuspid and mitral regurgitation, diastolic dysfunction grade III and left ventricular thrombus and the MRI revealed lineal intramyocardial late gadolinium enhancement (septal and infero-lateral wall), severe biventricular systolic dysfunction. In the one-month follow-up in treatment with warfarin (INR-2.5), the echocardiogram showed a complete disappearance of thrombus and improvement of LVEF.

Keywords: Thrombus; Echocardiography; Magnetic Resonance Imaging; Myocarditis

Male 45-year-old, with history of systemic hypertension, presenting a 3-months progressive exertional dyspnea and leg swelling. Physical examination was notable for jugular venous distention, apical impulse to the left midclavicular line at the 6th intercostal space, mitral and tricuspid regurgitation (II/IV), diminished bibasal respiratory sounds and edema of both legs ++/+++.

The chest X-ray showed cardiomegaly and lung congestion. Transthoracic echocardiography demonstrated left ventricular dilation with Left Ventricular Ejection Fraction (LVEF) of 23%, moderate to severe tricuspid and mitral regurgitation, diastolic dysfunction grade III and Left Ventricular Thrombus (LVT), (Figure 1A-1E). Coronary angiography showed slow flow in the 3 major epicardial arteries, without significant obstructive lesions. Magnetic resonance revealed lineal intramyocardial late gadolinium enhancement (septal and infero-lateral wall), severe biventricular systolic dysfunction (LVEF 15%, RVEF 11%, Figure 1F-1I), pericardial effusion and four left ventricular masses with low signal intensity on T1 and T2 weighted sequences without gadolinium enhancement consistent with thrombus, the largest one of 52x13mm, attached to anterior and anteroseptal LV wall.

In the one-month follow-up in treatment with warfarin (INR-2.5), he is in NYHA functional class II and the control echocardiogram showed a complete disappearance of thrombus and improvement of LVEF to 34%, (Figure 1J-1M).

Left ventricular thrombi are more prevalent in dilated cardiomyopathy (39%) followed by ischemic heart disease [1]. The associated left ventricular wall motion abnormality in myocarditis produces stasis that leads to thrombus formation. LVEF < 30%, thrombus mobility and its protrusion are high risk signs for embolization. In these cases, surgical removal can be considered, nevertheless anticoagulation for at least 3 months is generally the therapy of choice (target INR 2-3) [2]. The



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most important predictor of resolution is the absence of apical dyskinesia as occurred in our patient. Thrombus resolution after myocarditis hasn't been previously described, but in ischemic etiology it is seen in 47%, after 6 months of treatment.

The non-invasive imaging plays a very important role in establishing the diagnosis and follow-up of this patient.

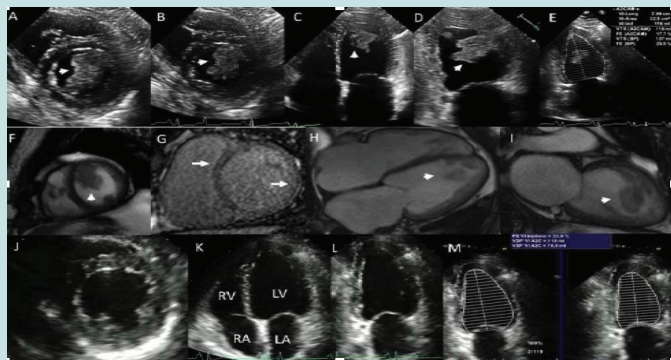


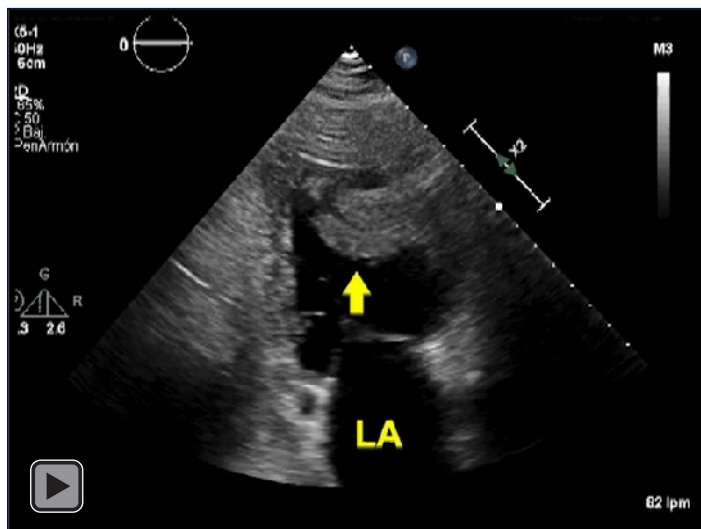
Figure 1: Echocardiogram A-B) Short axis view at level of papillary muscle, C) Four chambers view, D) Two chambers view showing the intracavitary LVT (head arrow). E) LVEF 23%. MRI F) short axis with LVT (head arrow), G) Lineal intramyocardial late gadolinium enhancement (septal and infero-lateral wall, arrow), H) four chambers, I) Two chambers with LVT (head arrow). Echocardiogram: J) short axis K) four chambers, L) two chambers with complete resolution of thrombus, M) improvement of LVEF (34%).

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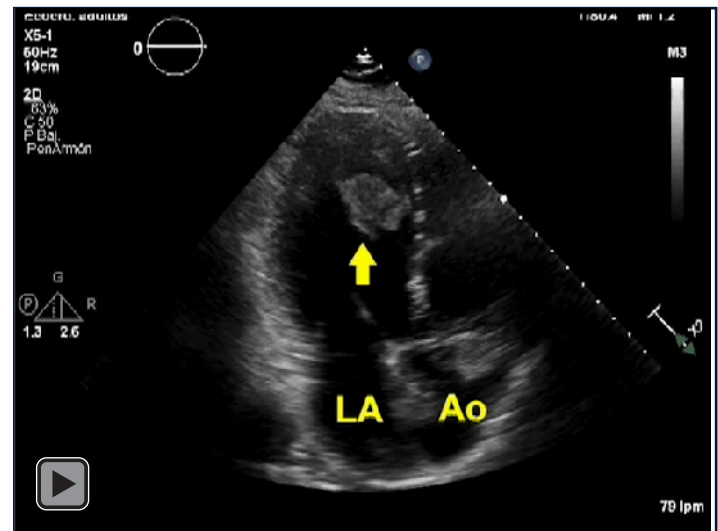
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Supplementary Information

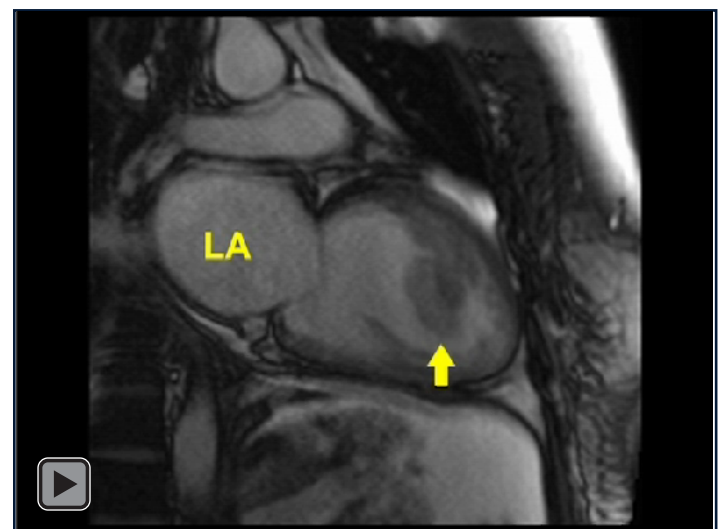
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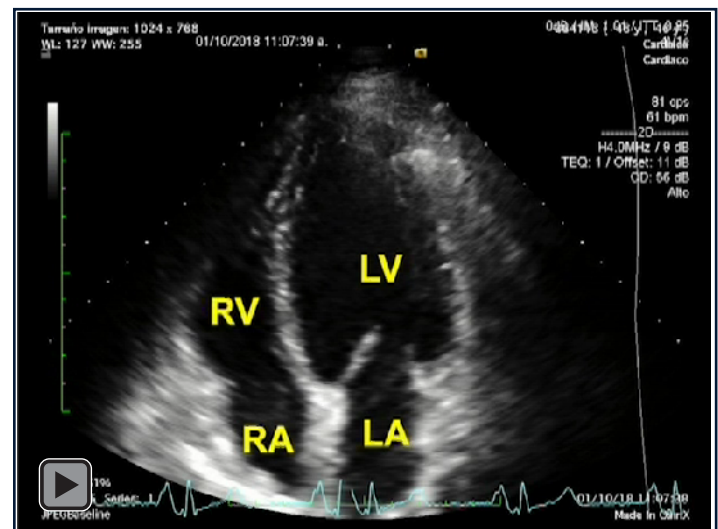
Clip 2:



Clip 3:



Clip 4:



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