Severe Heart Failure and Large Left Ventricular Thrombus Following Acute Myocardial Infarction

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Case Presentation

A 58 year-old man who recently underwent a left superficial femoral artery thrombectomy presented with a three-day history of worsening exertional dyspnea and bilateral pedal edema. His past medical history is significant for coronary artery disease, myocardial infarction, and insulin dependent diabetes mellitus. The patient initially presented to an outside hospital where he developed ventricular tachycardia that warranted cardioversion three times. Initial electrocardiogram showed inferior lead ST segment elevations and lateral lead ST depression. The patient underwent a cardiac catheterization that showed triple vessel disease with total occlusion of the RCA, 90% occlusion of the LAD, and 50% to 60% occlusion of left circumflex. The patient had an echocardiogram (Figures 1 and 2) that showed severe left ventricular dysfunction with an ejection fraction of 10% and a large mobile thrombus occupying 60% of the left ventricular cavity and was diagnosed with a dilated cardiomyopathy. The patient underwent left ventricular thrombectomy (Figure 3), coronary artery bypass graft (i.e., a saphenous vein graft to LAD) and installation of a left ventricular assist device. The patient currently is doing well and is awaiting heart transplantation.

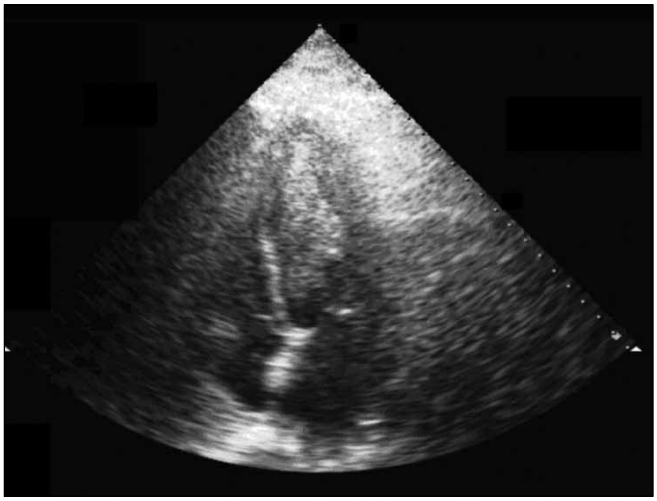

Figure 1. *Transthoracic echocardiogram shows a large mobile thrombus occupying 60% of the left ventricular cavity.*

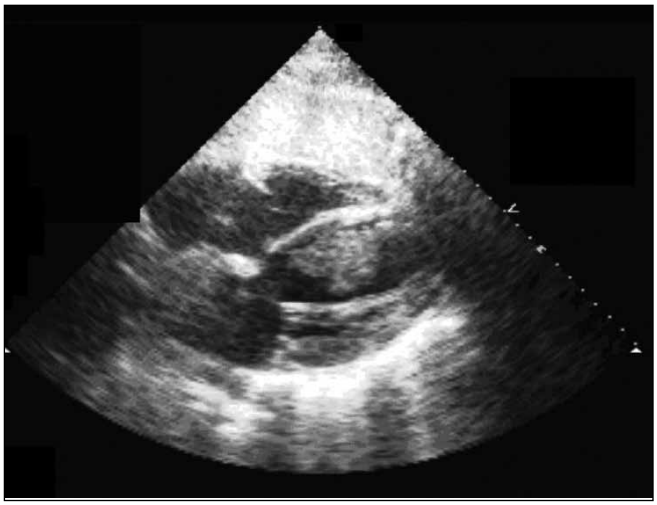

Figure 2. *In another view, the echocardiogram shows a large mobile thrombus within the left ventricular cavity.*

Discussion

An increased incidence of thromboembolism is seen in patients with left ventricular systolic dysfunction following myocardial infarction (MI).[1] Following an acute MI, the formation of a left ventricular (LV) thrombus is a significant complication. LV thrombus occurs in up to one-third of patients with anterior wall MI and is much more frequent in patients with a large anterior MI and subsequent heart failure.[2] The vast majority of LV thrombi are of the immobile mural type; unfortunately for our patient, he had the more rare mobile type which has a higher risk of embolism.[3] LV thrombus has been associated with

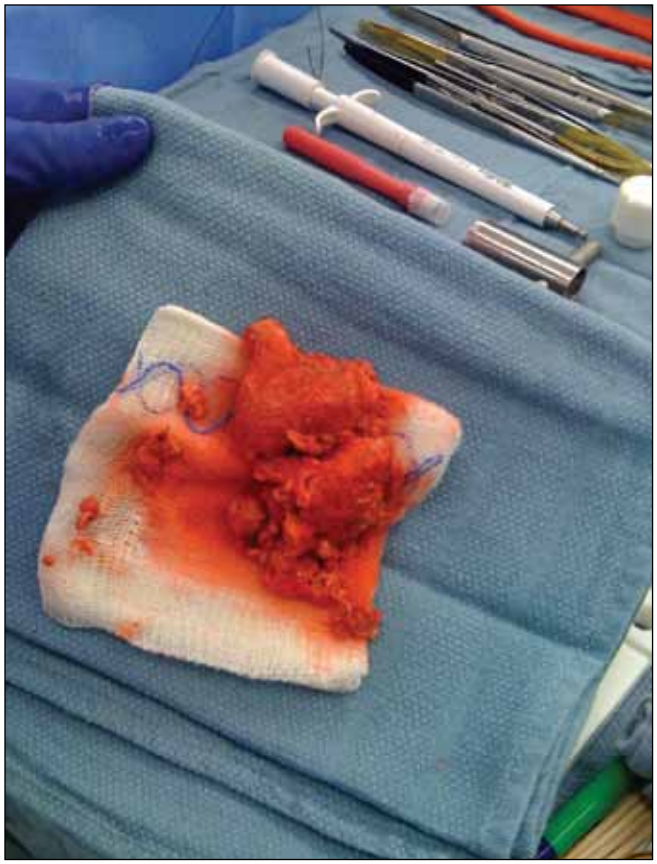

Figure 1. *Post-operative specimen of left ventricular thrombetomy.*

dilated cardiomyopathy which leads to increased morbidity and mortality.[4] The mechanism for the development of a mobile thrombus is not well understood. Moran *et al*[5] hypothesize that an apical infarction involves the detachment of one end of the trabecula of the left ventricle which acts as a nidus for thrombosis. Prompt surgery is warranted once a mobile thrombus is identified.[6] Left ventricular thrombectomy and coronary artery bypass graft surgery after an acute MI have increased risks. In order to improve the clinical status of our patient, he had a left assist device inserted during the surgery to help reduce the LV workload and provide a bridge to cardiac transplantation.

References

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