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Unusual Cause of Chest Pain Mimicking Acute Myocardial Infarction: Congenital Left Ventricular Aneurysm

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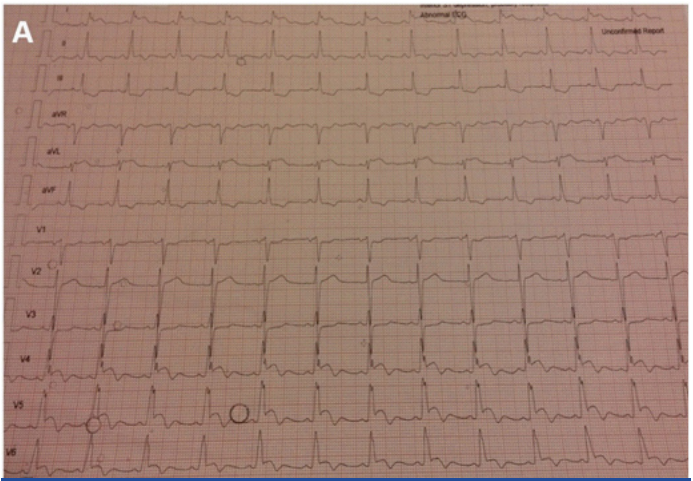
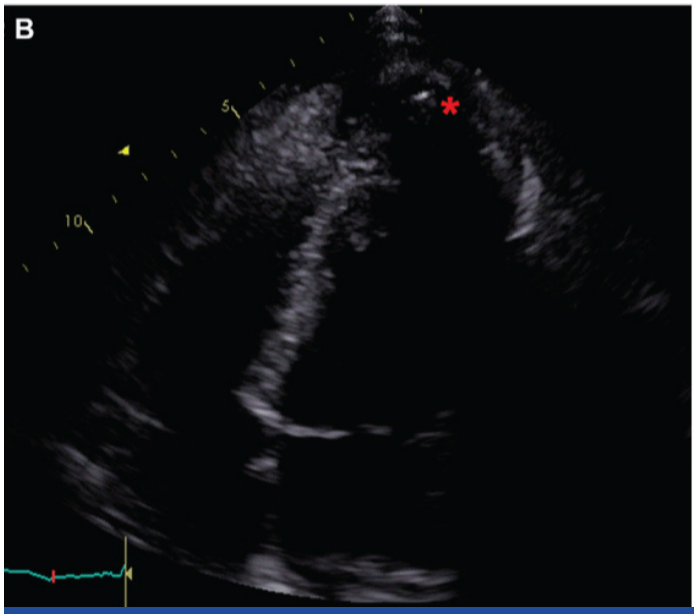
A 36-year-old man without any cardiac history presented to the emergency room with ongoing chest pain. The Electrocardiography (ECG) showed diffuse ST segment elevations on the anterior leads compatible with acute anterolateral wall myocardial infarction [Table/Fig-1]. The patient was a current smoker with a family history of coronary artery disease (CAD). He had a stable hemodynamic status with normal blood pressure and pulse rate. Initial examination revealed mild systolic murmur along the left sternal border as well as lateral displacement of the apical pulse. Lung auscultation was completely normal and all peripheral pulses were palpable. He was evaluated with transthoracic echocardiography that showed reduced ejection fraction of 38% with hypokinesis of the anterior wall along with a diffuse aneurysmal apical segment [Table/Fig-2]. Depending on the high clinical suspicion of acute myocardial infarction, the patient underwent emergency coronary angiography that revealed normal coronary arteries. In order to further define the anatomy, cardiac magnetic resonance imaging (MRI) was performed [Table/Fig-3], [Video-1 and 2]. Left ventricular cavity was seen to expand at the apical level associated with thinning of the myocardium concordant with a true aneurysm. The aneurysmal pouch had a size of 4x5 cm without any thrombus inside. The myocardium did not display contrast enhancement excluding evidence for fibrosis or scar tissue. The wall thickness at the apex was measured as 2 mm showing a risk for ventricular rupture. Since there was no history of trauma or recent infarction, the patient was estimated as having a congenital aneurysm. As the aneurysmal sac was a substrate for arrhythmia and thrombus formation, it was decided to be surgically repaired. The patient underwent a Dor procedure represented by reconstruction of the ventricular cavity with endoventricular patch-plasty [1]. Perioperative course was free of complications. The patient was discharged uneventfully provided that the left ventricular volumes were reduced along with improvement in systolic function.

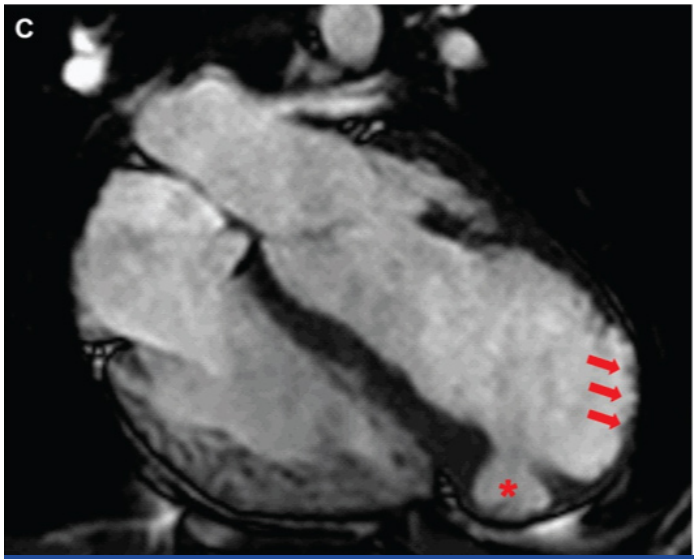
This case appears to call attention to a rare cardiac malformation that can present to the emergency room with typical signs and symptoms of acute myocardial infarction. In the literature, congenital left ventricular aneurysms have a wide-spectrum of presentations



[Table/Fig-1]: 12-lead ECG of the patient on presentation showing marked ST elevations on the D1-aVL and V4-6 derivations



[Table/Fig-2]: Transthoracic echocardiographic image of the apical aneurysm shown by asterisk in the apical four-chamber view



[Table/Fig-3]: Cardiac magnetic resonance image showing thinning of the myocardium at the apex (arrows) along with an aneurysmal pouch (asterisk)

[2,3]. Although mostly asymptomatic [4], life-threatening ventricular arrhythmias [5], embolic events due to thrombus formation [6] and sudden cardiac death due to rupture [7] have been reported so far. In our case, CAD risk factors of the patient as well as the ECG findings led to an initial misdiagnosis of acute myocardial infarction. The precise diagnosis of a congenital left ventricular aneurysm in such a case necessitates demonstration of the true aneurysm by cardiac MRI and exclusion of CAD by angiography.

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