CASE REPORT

Atrial myxoma related myocardial infarction: Case report and review of the literature

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Atrial myxomas are the commonest primary cardiac tumors and usually affect the left atrium. Patients with atrial myxomas present with intracardiac obstruction, embolization to the pulmonary and systemic circulation, or constitutional symptoms.

The coronary arteries' involvement in myxomatous embolization, although rare, has been described to cause acute myocardial infarction (AMI). We report a case of atrial myxoma associated MI and present the clinical and echocardiographic features of this presentation followed by review of the English literature for the association of atrial myxomas and acute myocardial infarctions (AMI).

Keywords: Myocardial infarction, Myxoma

Case report

We present a case of 22 years old Saudi male who came to a peripheral hospital complaining of central chest pain which was not associated with palpitation, nausea or vomiting. He was sweaty on arrival to the ER and was found to have acute inferior myocardial infarction based on clinical presentation, an electrocardiograph (ECG) showing ST elevation in the inferior leads and high cardiac enzymes. He was admitted to the coronary care unit and treated with intravenous thrombolytic as per-protocol with heparin, Aspirin, Plavix and other anti-ischemic medications.

During his stay, a transthoracic echocardiogram [Fig. 1] was done which showed a 2.5 × 1.8 cm left atrial mass – wide based and attached to the mitral valve and the interatrial septum with inferior wall hypokinesia.

The patient was referred the regional cardiothoracic center for further management. On arrival he was pain free, cardiac examination showed normal S1 and S2, no added sounds.

A repeated echo confirmed the presence of the mass and our cardiothoracic team suspected that it might be a myxoma rather than a thrombus.

An ECG showed resolution of the ST elevation in the inferior leads. The coronary angiogram showed normal coronary arteries. His blood investigations on arrival showed: troponin level

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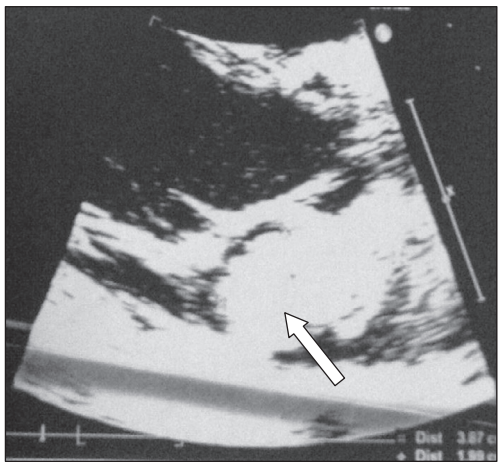

Figure 1. Transthoracic echocardiogram: the long axis left parasternal view showing the hypoechoic mass in the left atrium which was wide based and attached to the mitral valve and the interatrial septum. (Arrow).

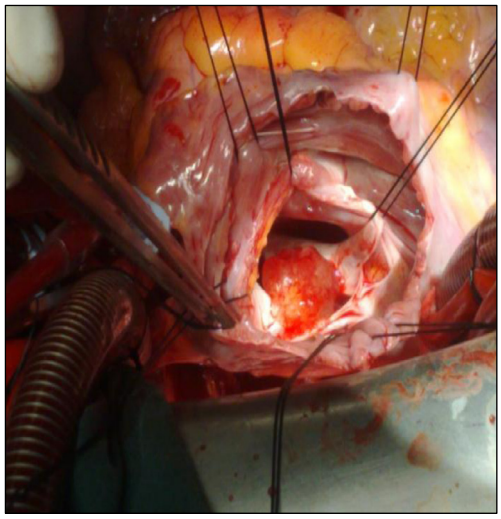

Figure 2. The right atrium is opened and the interatrial septum is also opened to show the myxoma attached to the interatrial septum.

of 9.5, lactate dehydrogenase 1171, creatine kinase 179 CK-MB 4.5.

CBC, RFT and liver enzymes were normal (Except LDH which was high). His lipid profile and thrombophilia screen were negative.

The patient was referred to the cardiothoracic surgery where a resection of a large left atrial myxoma (Fig. 2) was done through biatrial approach and the defect was closed by bovine patch.

He had uneventful recovery and was discharged home.

Discussion

Myxomas represent more than two thirds of primary cardiac tumors, and mostly seen in the left atrium [1]. They have female preponderance, usually presenting in the fourth to seventh decades with most cases being sporadic [2]. Echocardiography has sensitivity of 95% for transthoracic echocardiography and 100% for transeosophageal echocardiography for the diagnosis of myxomas [1]. Pinede et al. [3] found that 67% of 112 patients with left atrial myxoma presented with cardiovascular symptoms of heart failure or syncope as a result of intracardiac obstruction and 29% of them presented with systemic embolization. The treatment is surgical excision. Sporadic atrial myxomas rarely recur in less than 3%.

The coronary artery embolization secondary to myxoma, although rare, has been described well to cause AMI. Braun [5] reviewed 40 cases of MI due to left atrial myxoma from 1970–2002 .The mean age in his review was around 50 years. He found that the right coronary artery was the common culprit with inferior myocardial infarction seen in most of the cases. In 33% of the documented coronary angiogram it was found to be normal.

The current authors reviewed the English literature for reported cases of atrial myxoma associated myocardial infarctions from 2003 to 2013 and found 16 cases. The characteristics of the cases reported and including our patient are shown in Table 1.

Despite the greater frequency of myxomas in women, there is equal female: male ratio in those presenting with AMI. The patients' age ranged between 9 and 64 years with a mean age of 41 years. The inferior wall has been affected in 53% of the cases. Ten cases out of 17 (59%) had normal Coronary angiogram. The majority of those with normal angiogram (70%) were below the age of 45 years.

Lehrman et al. [4] suggested that the coronary artery embolization is rare in myxoma due to the right angled junction of the coronary apertures within the aortic root, the protection of the coronaries by the aortic valve cusps and the small diameter of the apertures.

Normal coronary angiogram has been found in only 18% of general young AMI patients and only 3% in older patients presenting with MI [6]. The reason behind having normal coronary angiogram in patients with atrial myxoma and AMI is still not clearly known. Soejima [22], Rath [23] and Hashimoto [24] suggested that it is due to high rate of spontaneous recanalization after the myxomatous embolization from myxoma as a probable cause.

In summary, myxomas are easily misdiagnosed and should be considered in young patients with