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Atrial Myxoma: A Rare Cause of Acute Myocardial Infarction

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Abstract: ***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).***

Keywords: Atrial myxoma; Acute myocardial infarction; Transthoracic echocardiogram

1. Case Report

Case of 73 Yr old male known hypertensive and chronic smoker presented with complaints of typical chest pain and shortness of breath on exertion. He was found to have Evolved anterior wall MI on ECG and high cardiac enzymes (CK - MB: 89U/L, CPK: 284 U/L, Trop I: 1.5 pg/ml)

He was treated with low molecular weight heparin, and antiplatelet drugs.

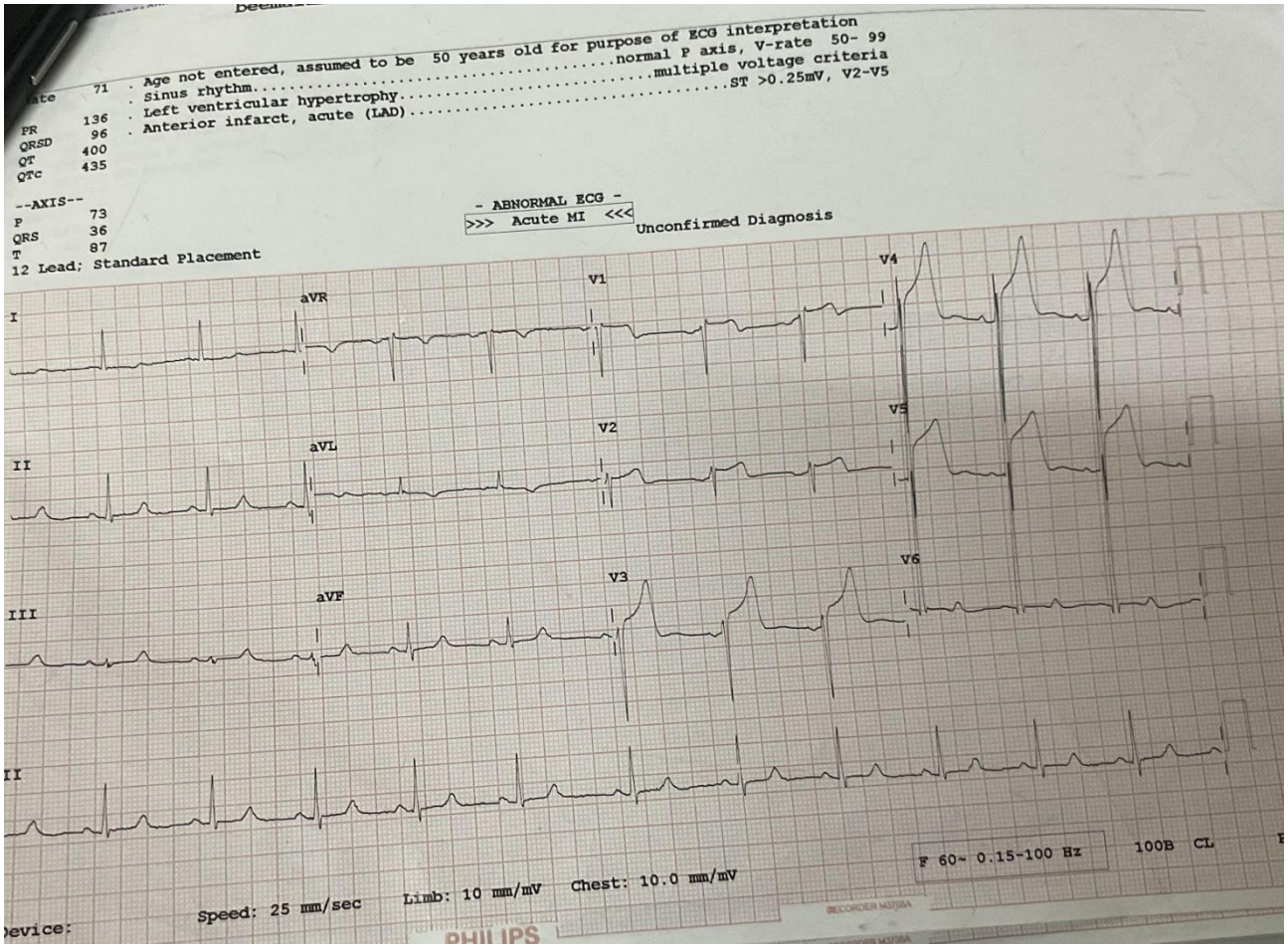

Figure 1: ECG showing changes of Evolved AWMI

During the hospital stay, two dimensional transthoracic echocardiogram was done which showed large freely mobile mass of size 3*2*2 cms attached to interatrial septum with apex, distal septum, anterior wall hypokinesia

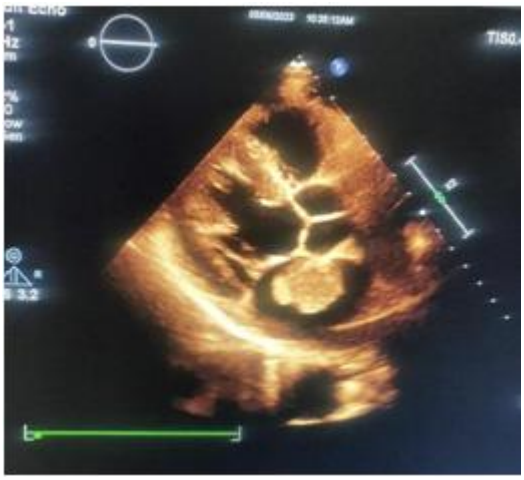

Figure 2 (a): Two dimensional echocardiographic examination showing freely movable mass attached to interatrial septum

The coronary angiogram showed single vessel disease (LAD 99 %). Other blood and radiological investigations are normal. Patient was referred to cardio thoracic surgery where excision of large left atrial myxoma with on pump CABG (1 graft: SVG —> LAD). Patient had an eventful recovery with stable hemodynamics.

Biopsy revealed partially encapsulated lesion composed of spindle to stellate cells in myxoid matrix, peripheral lesion shows bundles of cardiac myocytes which are consistent with atrial myxoma.

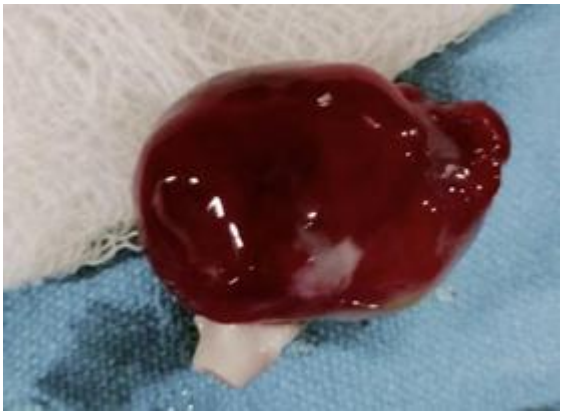

Figure 2 (b): Gross pathology of myxoma are reddish brown to white colour, pedunculated with narrow stalk

2. Discussion

Myxomas are the most common, primary, cardiac benign tumors of the heart. Approximately 90% of the cardiac tumors are benign of which 75 - 80% of them are atrial myxomas. Of those 75% of atrial myxomas occur in the left atrium and 20% in the right atrium, remaining 5% in both atria and ventricles (3). These have female predominance commonly presenting in the fourth to seventh decade of life. They are usually sporadic of solitary type presenting in older ages, where as familial myxomas constitute less than 10% multifocal and associated with the Carney complex (4) having higher rate of recurrence after appropriate surgical intervention (1).

Two - dimensional echocardiography is the imaging modality of choice, classically revealing a mobile tumor connected to the interatrial septum by a narrow stalk (5).

The 95%sensitivity is for transthoracic echocardiography and 100% sensitivity for Transesophageal echocardiography (2). Sometimes it can be difficult to differentiate a myxoma from a thrombus or tumor and the only key differentiating feature between a thrombus and myxoma is that the thrombus does not have a stalk.

The clinical manifestations of an atrial myxoma can vary greatly depending on the location, size, and mobility of the mass, and patients may present with tetrad of symptoms such as arrhythmias, intracardiac flow obstruction, embolic phenomena (stroke or TIA in 40 - 50% and even other organs) (7) and constitutional symptoms (fatigue, fever, weight loss, arthralgia, myalgia, erythematous rash) which are usually resolved after resection of tumor (6). Left atrial myxoma may mimic other valvular abnormalities, such as mitral stenosis, mitral regurgitation, pulmonary embolism, tricuspid stenosis, and tricuspid regurgitation, and about 36% of patients do not have any murmur on auscultation despite having underlying valvular pathology. A mitral stenosis murmur has been reported in only 54% of patients with atrial myxoma. (8)

Myocardial infarction (MI) secondary to atrial myxoma is extremely rare, with the reported incidence about 0.06%. This is explained with the fact that coronary apertures form a right - angled junction within the aortic root, thus providing protection to the coronary arteries through the aortic valve cusps (9). The incidence of acute myocardial infarction (AMI) was equal in males and females despite the fact that women has greater frequency for myxomas and the patients' age ranged between nine and 64 years. The most commonly affected wall in patients was the inferior wall, which was affected in 53% of the cases and 10 cases out of 17 had normal coronaries. The reason behind having normal coronary angiogram in patients with atrial myxoma and AMI is still not clearly known. Few case studies suggested that it is due to high rate of spontaneous recanalization after the myxomatous embolization from myxoma as a probable cause (9).

3. Conclusion

In conclusion, cardiac tumors are mostly benign, and atrial myxomas are the most common tumors. The presentation may vary, ranging from embolic phenomenon to acute myocardial infarction, fever, valvular regurgitation, heart failure, syncopal episodes, arrhythmia, and pulmonary embolism. An echocardiogram is useful in the diagnosis. Our patient presented with typical chest pain secondary to evolved anterior wall myocardial infarction. It is therefore important to be aware of the varied presentation of AM, and to be considered in patients with atypical presentation and atrial fibrillation as well. Early diagnosis using a bedside echocardiogram and quick surgical intervention is essential to reduce morbidity and prevent complications.

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