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Atrial Myxoma as a Cause of Acute Myocardial Infarction

Primary cardiac tumors are extremely uncommon and often asymptomatic with an incidence ranging from 0.0017% to 0.28%; (1) atrial myxomas are the most frequent benign primary cardiac tumors, and are mainly localized in the left atrium. They predominantly occur in women with an average age of onset in the 6th decade of life. (1, 2) According to their morphologic characteristics, two types of myxomas are described: type 1 myxomas are smooth and rounded, and of compact consistency; while type 2 myxomas are papillary and of fragile consistency, prone to embolization. Around 30% of the patients with myxoma present with signs and symptoms associated with secondary embolization in the territory of any peripheral artery; actually, it is the overlying thrombus on the surface of the tumor that presents greater embolization rather than the tumor itself, although this phenomenon may occur in type 2 myxomas. The risk for embolization increases with tumors <4.5 cm, especially affecting the central nervous system and retinal arteries. (2) Coronary embolism is rare, but isolated cases of ischemic heart disease secondary to this phenomenon have been reported in the presence of myxoma.

We describe the case of a 24-year-old female patient with left atrial myxoma who presented inferior wall ST-segment elevation acute myocardial infarction.

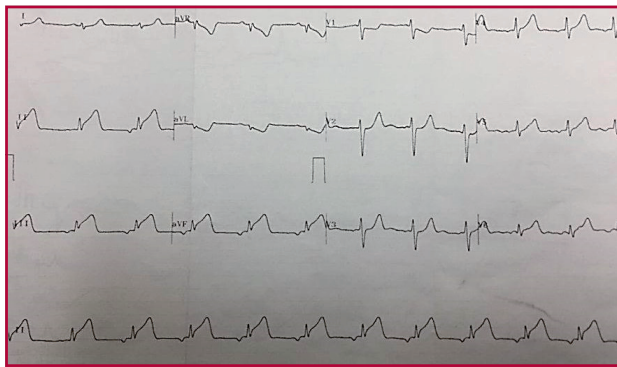


Fig. 1. ECG taken three hours after the onset of chest pain, showing low atrial rhythm and subepicardial lesion current in the inferior wall.

The patient had no history of cardiovascular diseases, and exhibited typical angina-like chest pain following moderate physical exertion. An ECG performed in another hospital revealed subepicardial lesion in the inferior wall, causing her transfer to our hospital 14 hours after the onset of pain.

On admission, the patient was asymptomatic, hemodynamically stable, with ECG signs of inferior necrosis and increased troponin levels. A diagnosis of evolving inferior ST-segment myocardial infarction was made and a coronary angiography showed normal coronary arteries. An echocardiogram reported a left atrial myxoma in the interatrial septum, protruding into the left ventricular chamber.

Laboratory results of lipid profile, collagen disease markers, and thrombophilia were negative. The patient was referred to cardiac surgery for myxoma resection. Resection of a 6 cm x 3.5 cm myxomatous tumor attached to the inferior left atrial wall and the interatrial septum was performed. The histopathological study confirmed the diagnosis of atrial myxoma with irregular surface.

Coronary embolization as complication of atrial myxoma is extremely rare; its incidence is only 0.06%, (3) due to the right angled junction of the coronary openings in the aortic root, the protection of the coronary arteries by the aortic valve cusps and the small diameter of the coronary sinuses. (4) There is no association with age or gender. In 48.8% of patients with coronary syndrome secondary to embolism due to myxoma, normal coronary arteries have been reported, especially in young patients. This finding has been associated with spontaneous recanalization, although its mechanism is still unclear. (4, 5) The inferior wall has been affected in 43.2% of the cases reported. (5) Transthoracic echocardiography is the study of choice for the diagnosis of atrial myxoma. In this case, the patient is young, without cardiovascular risk factors, with evidence of inferior wall ST-segment myocardial infarction and normal coronary arteries, and after ruling out prothrombotic disorders, we believe her condition was secondary to embolization of the atrial myxoma.

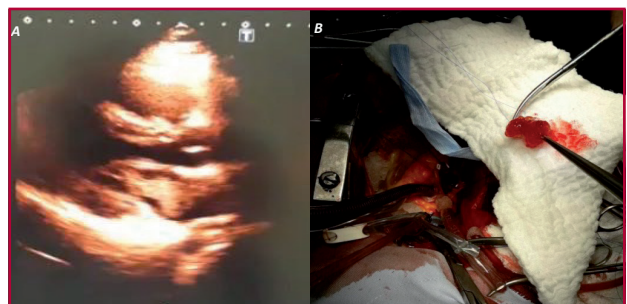


Fig. 2. A. Transthoracic echocardiography showing intra-atrial mass suggestive of myxoma. **B.** Image of surgically removed myxoma.

In conclusion, in young patients with no cardiovascular risk factors, the possibility of coronary embolization due to myxoma resulting in the development of an acute coronary syndrome should be considered. Therefore, transthoracic echocardiography is essential in the management of patients with ischemic heart disease.

Conflicts of interest

None declared.

(See authors' conflicts of interest forms on the website/Supplementary material).

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