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Acute Myocardial Infarction: Mode of Revelation of a Left Atrium Myxoma

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Abstract

True, cardiac myxoma is a benign tumor. On the other hand, it is serious by its complications, in particular embolic. The diagnosis of acute coronary syndrome in connection with a myxoma of the left atrium is retained before the association of an emboligenic intracardiac myxoma and an acute coronary syndrome in the absence of atherosclerotic lesions and the absence of intracardiac thrombus. We report a case of left atrium myxoma complicated by acute coronary syndrome in a 50-year-old patient operated on in our department and we will review the literature.

Keywords

Cardiac Myxoma, Embolism, Acute Coronary Syndrome, Cardiac Surgery

1. Introduction

Myxoma accounts for 50% of primary cardiac tumors [1]. True, it is a mild disease. On the other hand, it constitutes a formidable tumor due to its embolic complications. These occur in 45 to 60% of cases and can affect the coronaries, brain, kidneys, spleen, limbs [2] [3] [4].

Arterial embolisms from myxoma concern the coronary network in 10% of cases [5] [6] and the cerebral arterial network in 50% of cases [7]. Emboli correspond to tumor fragments or thrombi formed on its surface. Echocardiography is the key test for positive diagnosis. It has a sensitivity of 93% for the transthoracic route and a sensitivity of 97% for the transesophageal route [3].

Echocardiography can also predict the embolic risk of myxoma. Indeed, the

morphology of the myxoma is correlated with the embolic risk. Thus, villous and polypoid tumors are more fragile and embolized more often than those with a smooth and regular surface [8]. The size of the myxoma, which can range from a few millimeters to more than 15 cm [9], is not correlated with the embolic risk [8].

The treatment of myxoma is surgical resection under extracorporeal circulation, with a 2% risk of late recurrence [10].

We report a case of myxoma discovered by myocardial infarction.

2. Observation

Sir L. G, 50 years old, with no notable history, was admitted for an acute coronary syndrome with ST segment elevation.

The anamnesis revealed a notion of chest pain of sudden onset, more marked on exertion radiating into the interscapular space then to the left arm, accompanied by nausea and vomiting.

Physical examination found blood pressure asymmetry with blood pressure at 110/70mmHg in the right arm and 90/60mmHg in the left arm, heart rate at 130 beats per minute and tympanic temperature at 37˚C.

The ECG showed an extended anterior ST segment elevation (**Figure 1**).

Coronary angiography revealed a single-vein lesion with a longue occlusion of the proximal anterior descending artery with a thrombotic appearance (**Figure 2**). Thrombo-aspiration brought back red thrombus at the first aspiration, then "white thrombus" type material with a "gelatinous" consistency. There was no underlying stenosis but persisted distal occlusion of the first diagonal (**Figure 3**).

The patient presented with a worsening of his hemodynamics leading to the placement of an intra-aortic counterpulsation balloon.

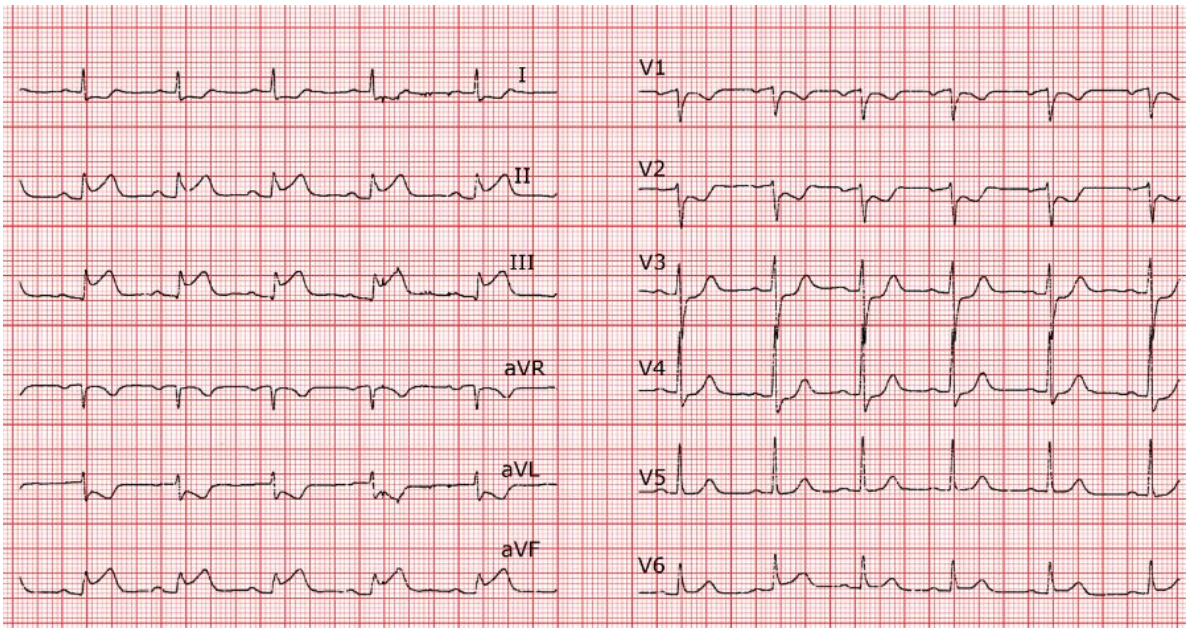

Figure 1. ST segment elevation in extended anterior.

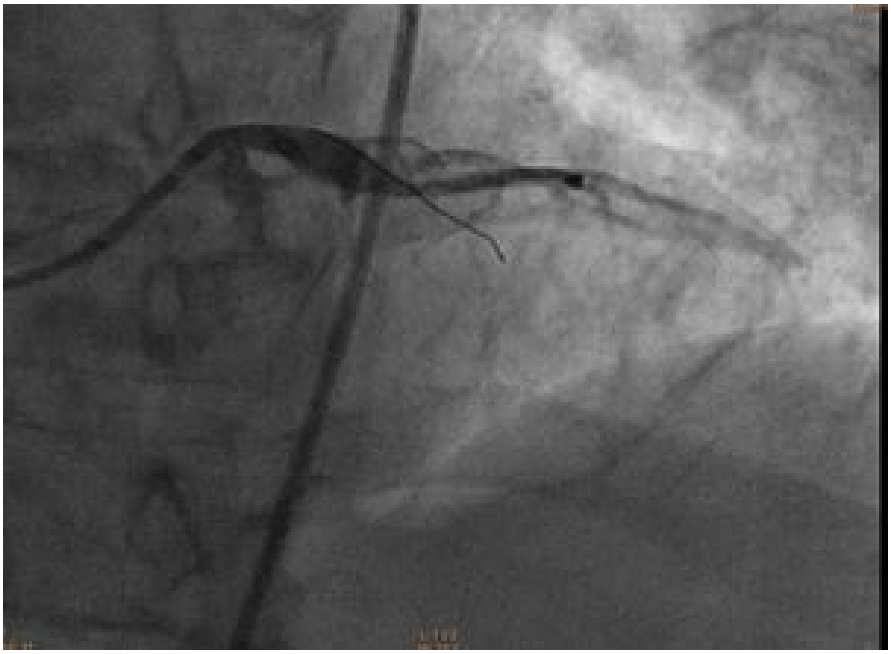

Figure 2. Single vessel lesion with a long occlusion of the proximal anterior descending artery with a thrombotic aspect.

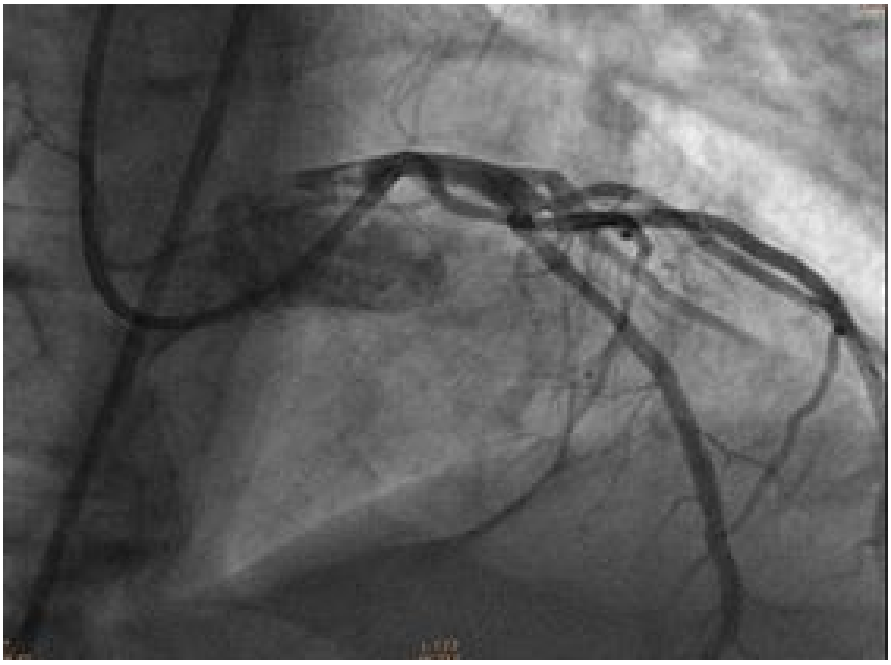

Figure 3. Distal occlusion of the first diagonal after thrombo-aspiration

Transthoracic echocardiography showed extensive anterior akinesia and a polypoid mass, left atrial, irregular contours, very mobile inserted on the interatrial septum and prolapsed in the mitral valve in diastole (**Figure 4**). This mass initially evoked a myxoma of the left atrium.

Arterial echodoppler of the supra-aortic trunks objectified an atheromatous overload without significant stenosis.

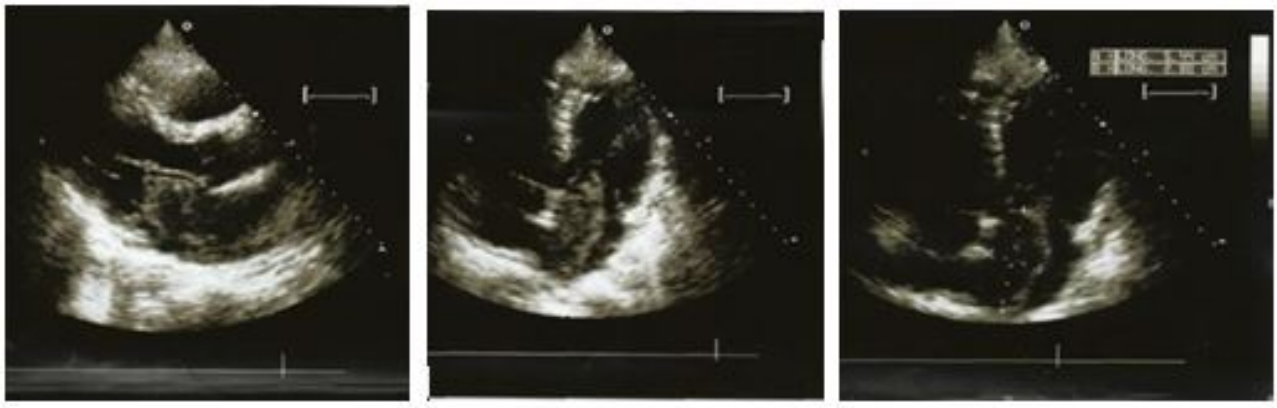

Figure 4. Polypoid mass, left atrial, with irregular contours inserted on the interatrial septum and prolapsed in the mitral valve in diastole.

Biology objectified an enzymatic movement with Troponins at 0.12 and CK at 255, a CRP at 28 mg/l.

The patient was operated under extracorporeal circulation. Tumor excision was performed. The operating suites were enamelled by

- significant vasoplegia requiring the administration of large doses of norepinephrine.
- Ventricular tachycardia followed by resolving cardiac arrest after external cardiac massage,
- PAH requiring the introduction of nitric oxide.
- Ineffectiveness of the intra-aortic counterpulsation balloon with signs of limb ischemia.
- A rise in troponin and a deterioration in PAH with a cardiac index of 2 L/min/m^2.
- The death of the patient in a context of multiorgan failure.

Histological examination of the surgical specimen confirmed the myxomatous nature of the tumour.

3. Comment

Most patients with myxoma present with one or more elements of the clinical triad comprising impairment of general condition, embolic events and syndromes of valvular obstruction or cardiac chambers.

Our patient presented with two of the clinical elements of the functional myxoma triad. Indeed, he had mitral valve obstruction syndrome and also had an embolic accident such as myocardial infarction following the occlusion of the anterior descending artery by a fragment of the myxoma.

Cases of completely asymptomatic myxomas have been reported and their frequency varies between 1% and 15% [3] [7]. These asymptomatic forms are often cases where the myxoma is small and/or located far from the valvular structures.

The myxoma can be revealed following complications which are dominated

by embolic accidents which can affect all the arterial territories with a predilection for the cerebral arteries. The frequency of these embolic forms is estimated at 45% [4].

Left atrium myxoma is most often discovered by dyspnea or systemic embolization occurring in 30 to 40% of patients [1]. The incidence of coronary embolization is around 0.06% [2].

This very low incidence of coronary embolization could be explained on the one hand by the perpendicular arrangement of the coronary ostia with respect to the aortic flow and on the other hand by the protection of these by the valve leaflets during systole. It could also be explained by the absence of data concerning fatal myocardial infarction.

Aristotelis P *et al.* [7] reported 26 cases of myocardial infarction following left atrium myxoma. They were 15 men and 11 women and the average age was 42.7 years. The diagnosis of myxoma was made by transthoracic echocardiography in 100% of cases. The infarction was inferior in 63.6% of cases, anterior in 22.7% and posterior in 9.1%.

Coronary angiography revealed embolization of the right coronary artery in 47.6% of cases, of the anterior descending artery and of the circumflex artery in 19% and 9.5% of cases respectively.

Our patient was male and 50 years old. Its epidemiological profile is consistent with data from the literature. Indeed, Braun S [3] *et al.* reported a male predominance and an average age of 48 years.

Aristotelis P *et al.* [7] also reported in their study of 26 cases of myocardial infarction following myxoma of the left atrium, a male predominance and an average age of 42.7 years.

According to the literature, coronary embolization predominates on the right coronary network, which could be explained by its anatomy.

In our case it was the anterior descending artery which was embolized by a fragment of the myxoma. This situation has been reported by several authors [3] [7].

Once the diagnosis of myxoma is confirmed cardiac surgery for tumor resection is the only effective treatment. Tumor resection must be complete, taking away the myxoma, its pedicle and its implantation base, all with a minimum of manipulation in order to avoid any fragmentation and any risk of embolic migration.

This risk is major in gelatinous and soft forms.

4. Conclusion

Coronary artery embolization by myxoma is a rare condition and should be considered in any middle-aged patient without cardiovascular risk factors who presents with signs and symptoms of acute myocardial infarction. Echocardiographic evaluation is the gold standard for the diagnosis of left atrial myxoma and surgical resection of the tumor is the appropriate treatment.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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