

LEFT ATRIAL MYXOMA WITH CORONARY ARTERY DISEASE: AN UNEXPECTED PREOPERATIVE FINDING

- Case Report -

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Abstract

We describe the case of a 54-year-old man with no symptoms of a cardiac disease who, in the preoperative assessment for eye surgery was diagnosed to have a left atrial myxoma coupled with coronary artery disease. After thorough investigations, the patient underwent resection of the left atrial tumor and coronary artery bypass grafting with a successful outcome. The histopathological examination revealed a myxoma. This case report highlights the importance of preoperative evaluation in patients with unsuspected coexisting cardiac diseases, treatment options and the anesthetic concerns.

Keywords: Myxoma; heart atria left; Myxoma/surgery; Coronary Disease/surgery.

Atrial myxomas are the most common benign primary tumours of the heart and sudden deaths probably related to coronary embolization have been described^{1,2}. This report is unusual on account of a rarely described concomitant presence of a left atrial {LA} myxoma with coronary artery disease [CAD] in an otherwise asymptomatic patient. The objective of this report is to highlight the importance of a thorough preoperative evaluation in the diagnosis of cardiac ailments even in asymptomatic patients. In addition, this report draws attention to conundrums like:

- a) Could the CAD be secondary to embolization from the LA myxoma
- b) What are the therapeutic options? When should coronary artery bypass surgery [CABG] be performed and
- c) What are the anesthetic challenges?

Case History

A large LA mass was incidentally found during a transthoracic echocardiography [TTE] examination when an asymptomatic 54 year old man with electrocardiogram [ECG] changes was undergoing a routine preoperative cardiological assessment for eye surgery. He was a diabetic with sedentary habits and belonged to ASA class III physical status [BMI >30]. All his hematological

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and biochemical markers were within normal limits except that he had dyslipidemia as well as an elevated fibrinogen level {4.31g/L[normal: 1.5 to 4.2]}.

ECG showed a sinus rhythm with left axis deviation, left ventricular hypertrophy with strain and a QS pattern in III,AVF. Chest radiography showed cardiomegaly with minimal left basal effusion. Transesophageal echocardiography (TEE) confirmed a large LA mass [5 cm x 3.5 cm] attached to fossa ovalis with specks of calcification. The mass was prolapsing into mitral valve during diastole [Fig. 1] and the mitral valve was normal. LA appendage had no thrombus but there was a 4 mm layered atheroma in the descending aorta.

Considering patients age, diabetic status, ECG showing old inferior wall myocardial infarction (MI) pattern and left ventricular dysfunction, a coronary angiography was performed which demonstrated an isolated 70% occlusion of the left anterior descending [LAD] artery.

Under general anesthesia with standard ASA monitoring intraoperative TEE guidance, the patient underwent resection of the LA mass and coronary artery bypass grafting with an anastomosis between the left internal mammary artery and the LAD artery on cardiopulmonary bypass [CPB]. Tables 1 and 2 show perioperative hemodynamic data and blood gas

parameters. The postoperative course was uneventful. The specimen weighed 47 grams (gms) and on histopathological analysis confirmed the diagnosis of a myxoma.

Discussion

Fifty percent of all primary cardiac tumors are myxomas with a majority arising in the LA^{3,4}. Approximately 10% of patients with atrial myxomas may be completely asymptomatic¹. Most often a thorough preoperative evaluation detects the underlying pathology in these asymptomatic patients when they undergo incidental non cardiac or cardiac surgery. Awareness of the clinical signs and symptoms produced by myxomas is essential to raise the suspicion of their presence.

Atrial myxomas can produce obstructive, constitutional, and embolic symptoms when they weigh greater than 70 gms⁵. As the myxoma in our patient weighed less probably he was asymptomatic.

Obstruction of mitral valve can mimic mitral stenosis⁶. Systemic manifestations like weight loss, arthralgias, fever, anemia etc might occur before obstructive or embolic events and might be due to microembolism or due to the triggering of immunologic responses by tumor fragmentation⁷.

*Fig. 1
Transesophageal
echocardiography in long-axis
view showing a large left atrial
myxoma attached
at fossa ovalis and prolapsing
into left ventricle during
diastole*

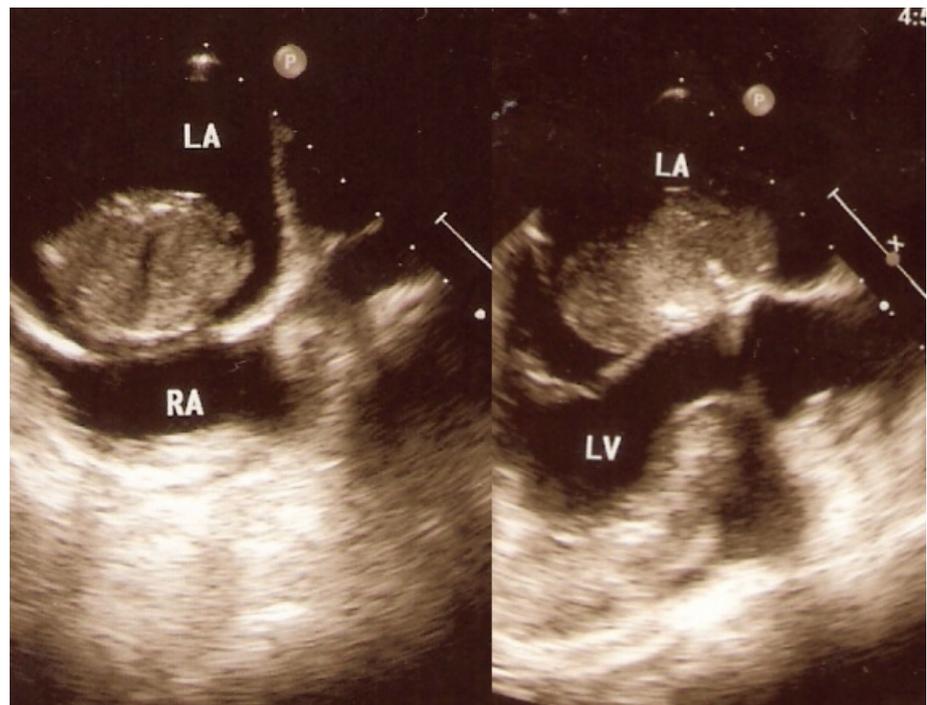


Table 1
Perioperative hemodynamic parameters

	8:00 - 8:30 am	8:30 - 9:00 am	9:00 - 9:30 am	9:30 -10:00 am	10:00 -10:30 am	10:30 -11:00 am	11:00 -11:30 am	11:30 - 12:00 am	12:00 - 12:30 am
PAP [mm Hg]			26/14	CPB Started at 9:42 am Ended at 11:10 am				25/15	
CVP [mm Hg]	8	7	7				8	9	
ETCO ₂ [mm Hg]	32	32	34				34	34	
SaO ₂	100	100	100				100	100	100
Arterial Blood pressure[mm Hg]	150/80	100/65	105/ 65				125/55	125/ 60	105/ 50

Table 2
Blood gas analysis values of arterial and mixed venous blood

Arterial Blood Gas / Electrolytes	arterial sample [8:42am]	venous sample [9:40am]	venous sample [10:30am]	arterial sample [10:32am]	venous sample [10:56am]	venous sample [11:35am]
PH (7.35 - 7.45)	7.548	7.435	7.404	7.431	7.375	7.460
PCO ₂ mmHg	35.6	38.5	38.4	36.4	39.2	36.4
PO ₂ mmHg	174.7	41.7	47.5	190.9	42.6	37.3
HCO ₃ std mmol/L	23.5	23.8	23.4	23.2	22.1	21.9
tCO ₂ mmol/L	19.9	24.4	24.6	23.4	23.6	21.3
Base Excess	-1.3	-0.4	-1.1	-1.5	-2.5	-2.7
Na ⁺ (135.0 - 148.0mmol/L)	134.6	135.5	136.8	138.6	135.2	139.7
K ⁺ (3.5 – 5.3 mmol/L)	3.14	3.14	4.36	4.34	4.2	3.48
Ca ⁺⁺ (1.13 – 1.32mmol/L)	0.8	0.8	1.11	1.10	1.11	0.94
Cl ⁻ (98 – 106 mmol/L)	106	101	107	107	107	105
Anion Gap [mmol/L]	12.5	14.3	4.7	5.6	6.0	10.7

Screening for myxomas should involve a thorough history, physical examination and echocardiography [TTE: 95% sensitivity, TEE: 100% sensitivity]⁸.

The age at presentation and the symptoms of atrial myxomas and CAD can be similar. At times, the two lesions coexist as seen in our patient. A high index of suspicion remains the key element in making a combined diagnosis⁹.

Is the CAD in this patient secondary to embolization from the myxoma or a coexisting condition secondary to atherosclerosis or both? Coronary artery embolization, albeit a lethal complication of atrial myxomas, is extremely rare [0.6%]¹⁰. The low rates might be because emboli are less likely to enter the coronary arteries¹¹. There is a tendency for embolism into the right coronary artery due to its conducive

position.

Villous or polypoidal myxomas are fragile and embolize easily¹². Tumors with an irregular and friable surface have a higher incidence of embolization⁷.

Even though, the myxoma in this patient was not villous, it could have been the source of right coronary artery embolization with subsequent recanalization. This was seen as QS waves in the inferior wall leads in the ECG as well as an akinetic segment on TTE. But, coronary angiography that was performed a few days later revealed a normal right coronary artery suggesting a possible recanalization. The rate of recanalization is high for coronary embolism from myxomas^{13,14,15}. We believe that the CAD in this patient was due to both atherosclerotic disease as well as due to a previous tumour emboli.

As regards the therapeutic options, in cases of atrial myxoma presenting with acute MI, coronary angiography is mandatory¹². Thrombolytic therapy usually is not recommended for patients with cardiac myxomas and MI, because of the risk of tumor embolisation^{16,17}.

Following diagnosis of an atrial myxoma, immediate operative removal is advisable. Patients with associated CAD should undergo CABG during tumor removal. If the excision of the myxoma is to be delayed in patients with atrial myxoma and MI, it would be advisable to repeat coronary angiography

immediately before the operation, because of the tendency for spontaneous recanalization.

The anesthetic concerns for patients with a LA myxoma are similar to those with mitral stenosis. Occasionally, atrial fibrillation might warrant heart rate control with pharmacologic therapy perioperatively. Postural hypotension can occur due to prolapse of the tumor mass into a valve orifice. Entrapment of the myxoma in the mitral valve during the course of anesthesia can result in a cardiac arrest. Placing the patient in the right lateral decubitus position with a head down tilt and vigorously shaking the chest might aid in dislodging the tumor from the mitral valve¹⁸.

In conclusion, patients with atrial myxoma are either asymptomatic or often present with non specific symptoms that are often overlooked in the absence of a supporting cardiac history. This makes an early diagnosis challenging. Although atrial myxomas are very rare, their presence should be considered, particularly in young patients without cardiac risk factors who present with either acute or old MI. Echocardiography is a reliable diagnostic tool that helps in the differential diagnosis and decision-making. Surgery should not be delayed in patients with polypoid-type LA myxomas because of the high incidence of embolism. For patients aged above 40 years and without cardiovascular risk factors, it is advisable to perform coronary angiography preoperatively to identify the presence of a concomitant CAD.

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