

# Pedunculated Giant Left Atrial Mass: tumor or thrombus?

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The authors present a case of 65 years old woman with history of dyspnoe and syncope, showing the important role of transoesophageal echocardiography, and the complementary role of magnetic resonance imaging in distinguishing thrombus in left atrium from tumor, and in helping to characterize size, shape, and surface features, and especially tissue composition. After anticoagulant therapy the thrombus in left atrium disappeared and the patient was not indicated to operative therapy.

**Key words:** left atrial mass, myxoma, thrombus – echocardiography, cardiac magnetic resonance and anticoagulant therapy.

## Stopkatý velký útvar v levé síni

V této kazuistice autoři prezentují případ 65leté ženy s anamnézou dušnosti a kolapsů. Echokardiografickým vyšetřením byl zjištěn velký tumor v levé síni, velmi suspektní jako myxom. Magnetická rezonance potvrdila morfologii a tvar útvaru, jehož tkáňová charakteristika byla při vyšetření diagnostikována jako trombus. Po antikoagulační léčbě došlo k vymizení útvaru. Kazuistikou chceme dokumentovat důležitost včasného echokardiografického vyšetření a následně magnetickou rezonancí, která může určit i tkáňovou charakteristiku útvaru.

**Klíčová slova:** trombus levé síně, myxom, echokardiografie, magnetická rezonance srdce, antikoagulační léčba.

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## Introduction

Intracardiac masses in the left atrium are rare in comparison with other forms of heart disease.

Primary cardiac tumors occur 30 times less frequently than cardiac metastases (1). The common benign tumors are myxomas, lipomas, whereas the primary malignant tumors are always sarcomas. The left atrial thrombus also is very infrequently detected in the presence of sinus rhythm (2). The exact diagnosis of left atrial mass with a stalk is sometimes very challenging. In this case report, the authors present a case, where it shows the important role of echocardiography and complementary role of magnetic resonance imaging in distinguishing thrombus from tumor, to characterize size, shape and surface features, and especially composition.

## Case report

A 65-year old female with the history of cardiovascular disease was presented to the Emergency Department with dyspnea, heart failure and exacerbation of chronic pulmonary obstructive disease. She had two episodes of severe syncope during few weeks before the presentation. She was admitted to the coronary care unit. The transthoracic echocardiogram shows the systolic dysfunction of left ventricle (ejection fraction 40%), and suprisingly finding of giant left atrial mass attached to the posterior part of the left atrium by a stalk. The transoesophageal echocardiogram was immediately done (figure 1). The pedunculated mass was inhomogeneous, immobile, with tumor like movement

and the size of mass was 24x34mm<sup>2</sup>, which supported the diagnosis typically of myxoma.

On physical examination, there was no accentuated first heart sound, an opening snap, and a mid-diastolic rumble, which excluded any obstruction of mitral valve imitating mitral stenosis.

The electrocardiogram showed sinus rhythm with left bundle branch block of unknown duration, but there was no elevation of cardiac markers (figure 2).

The elective coronary angiography was performed with normal coronary arteries findings.

As there was no pathological findings in the mitral valve and no presence of any abnormal doppler pressure measurements, the right heart catheterization was not performed.

She became delirious and agitated while in the coronary care unit, the planned operation was delayed. The computer tomography scan of the head was performed with normal findings.

The magnetic resonance imaging (MRI) was performed, which showed the character of the thrombus with the size of 28x13x13mm<sup>2</sup> (figure 3). In our case, in the MRI, there was evident of perfusion defect in the left atrium attached with a narrow stalk to the posterior part of interatrial septum and the mass did not demonstrate any late enhancement.

The risk of systemic embolization is very high among patients treated only with low-molecular-weight heparin, but, because of the condition of our patient, she was started immediately

ly on subcutaneous enoxaparin of 60mg twice daily, and continued for two weeks.

Then transesophageal echocardiography follow-up with patient on anticoagulant therapy was done, there was significant regression in thrombus size with little remnant mass in the left atrium, the size being only 3x4 mm<sup>2</sup> (figure 4).

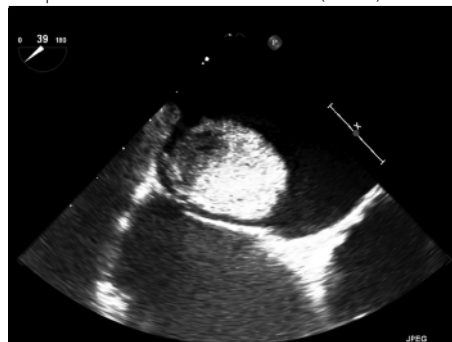
The conclusion of thrombus that has melted away was done. The patient was discharged cardiopulmonary compensated on oral anticoagulant therapy. In this particular case, the delay in operation because of transient delirious state of patient on therapy with low-molecular weight heparin prevented her undergoing surgery.

## Discussion

Cardiac myxomas are the most common benign primary tumor of the heart, on echocardiography myxomas appear as mobile masses attached to the endocardial surface by a stalk, usually arising from fossa ovalis (3). A left atrial mass can be diagnosed as thrombus if it is associated with atrial fibrillation, dilated left atrium, mitral or tricuspid stenosis, low ejection fraction, prosthetic mitral or tricuspid valves, spontaneous atrial contrast echoes, hypertrophic cardiomyopathy, or infective endocarditis. Atrial fibrillation is almost always an accompanying finding, the etiology in cases without atrial fibrillation or additional cardiac disorders is not clear.

The differentiation between myxomas and thrombi is sometimes difficult, but is critical in making the right therapeutical decision.

**Figure 1.** Transesophageal echocardiogram with the pedunculated left atrial mass (arrow)



**Figure 3.** Magnetic resonance imaging showing the left atrial mass with a stalk



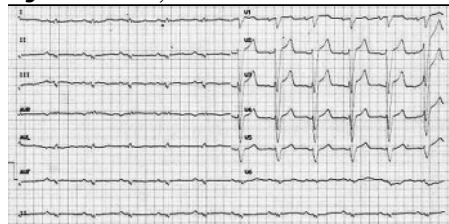
When the thrombus moves free in the cardiac cavity the diagnosis is relatively simple. In some patients, atrial thrombi may have a stalk and may be mistaken for myxomas, which can lead to unnecessary and potential harmful surgery.

The pathophysiology may be growth of the thrombus in the left atrium and taking on the shape of the cavity, and then becoming a pedunculated mobile mass (4).

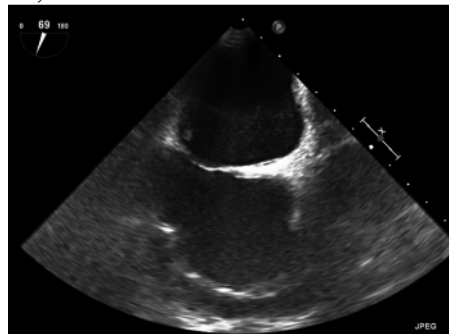
In our particular case, we further did magnetic resonance imaging of the heart (MRI), which plays important role in diagnosing the mass as thrombus.

Echocardiography has been the mainstay for thrombus detection, but its prevalence varies considerably among echocardiographic studies because of modest image reproducibility and poorer spatial and soft-tissue resolution than cardiac MRI.

**Figure 2.** Sinus rhythm with left bundle branch block



**Figure 4.** Transesophageal echocardiogram showing only the remnants of the thrombus



Magnetic resonance imaging allow useful differentiation between tumor and thrombus (5–8).

Thrombus in T2-weighted sequences and in TrueFISP (true fast imaging with steady-state precession) sequence appears significantly homogeneously hypointense/dark/. The vascular supply of myocardial thrombi is poor, so that the thrombus do not enhance after the administration of gadolinium contrast material. The thrombus is mostly sessile and immobile.

T2-weighted images of myxoma show variable signal intensity. The most typical feature of myxoma is an increase in signal after application of contrast medium during perfusion examination. Furthermore, unlike the thrombus, the myxoma typically has a heterogeneous appearance. It is mostly pedunculated and mobile.

## Conclusion

In this particular case, the advantage of magnetic resonance imaging of the heart was shown when accurate diagnosing of the pedun-

culated left atrial mass in doubt using the transesophageal echocardiography.

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