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Left Atrial Mass during Angiography; Myxoma or Haemangioma? A Case Report

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Abstract

Introduction: Cardiac tumours are rare findings which can be manifested by different clinical features. Most of these tumours have similar imaging findings during the clinical work up of patients presenting with cardiac masses. Myxoma is a common tumour of the left atrium which also has less common differential diagnoses: haemangiomas and angiosarcomas. The final diagnosis of such atumouris made by pathology studies. However, in some cases, surgery to reveal the exact nature of the mass is not possible. Imaging procedures, such as trans-oesophageal echocardiography and cardiac magnetic resonance imaging (MRI), are considered reliable methods for excluding differential diagnoses.

Case Presentation: In this report, we will discuss a case of a left atrial mass which was first diagnosed as myxoma in angiography. During further imaging work ups, a cardiac MRI assisted in determining the exact nature and location of the tumour.

Conclusion: While myxoma is a common tumour of the left atrium, cardiologists should always consider haemangiomas as a differential diagnosis.

Keywords: Angiography, Heart neoplasms, Magnetic resonance imaging

1. Introduction

The autopsy incidence of primary cardiac tumours is reported to be less than 1%(1). Myxoma is the most common cardiac tumourand typically arises from left atrium(1). This cardiac tumour can be misdiagnosed as a less common tumour originating from the left atrium called ahaemangioma(2). Nevertheless, only 7% of cardiac haemangiomas arise from the left atrium, and this misdiagnosis may occur very rarely (3). Both of these tumours may share certain clinical manifestations, such as chest discomfort and dyspnea upon exertion (2,4). Additionally, myxoma and haemangioma of the left atrium may be confused for each other during diagnostic imaging procedures, such as transthoracic echocardiography(2,4). Magnetic resonance imaging (MRI) and angiography are the 2 main imaging modalities that can be useful in differentiating these tumours in clinical practice(5,6). In the present report, we will discuss a case of left atrial mass in a 59-year-oldfemale which was first diagnosed as myxoma by angiographybut confirmed to be haemangioma by magnetic resonance imaging.

2. Case Presentation

A 59-year-old female housewife was referred to our department because of typical chest pain and diaphoresis beginning one week prior to admission. The patient had a history of posterior ST-elevation myocardial infarction (STEMI) in the previous week and was admitted for probable percutaneous coronary intervention (PCI). She also had a history of hypertension and new onset diabetes mellitus. Vital signs were as follows: systolic blood pressure/ diastolic blood pressure: 110/70 mmHg, pulse rate: 60 bpm, respiratory rate: 10 breaths per minute, temperature: 37.3 °C (axillary). There were not any remarkable findingsfrom the patient's physical examination. A twelve-lead electrocardiogram was normal, and the patient was a candidate for coronary angiography. While the first transthoracic echocardiography which was performed by a cardiology resident was normal, an angiography was planned. Coronary angiography was performed via the right femoral artery. Proximal ectasia and moderate lesions at the middle portion of the left anterior descending artery were visualized. There were also significant lesions on the left circumflex and first obtuse marginal arteries. Additionally, a cardiac encapsulated mass was seen. The mass was large and well defined with coronary supply from the right coronary and conus arteries. The cardiac mass was most likely within the left atrium cavity attached to the left atrium roofwithouta significant compression effect on the pulmonary veins. The most likely diagnosis according to patient's angiography was cardiac myxoma. After the angiography, a trans-oesophageal echocardiography was ordered, and the encapsulated mass, which was attached to the left atrial roof with compression effect on pulmonary

veins and without invasion, was visible (Figure 1 and 2).To establish a more definite diagnosis,the patient underwent a cardiac MRI. According to the MRI result, the 34*31*29-mm cardiac mass was not located within the atrium (Figure 3). Instead, it was in the posterior mediastinum anterior to the thoracic spine and was separated by a well-defined wall from the left atrium. The atrium was compressed, but the cardiac blood flow was not affected. The mass was fixed, and a low signal density resembling calcificationwas prominent at the centre. After injection of contrast media and angiography of the pulmonary and aortic

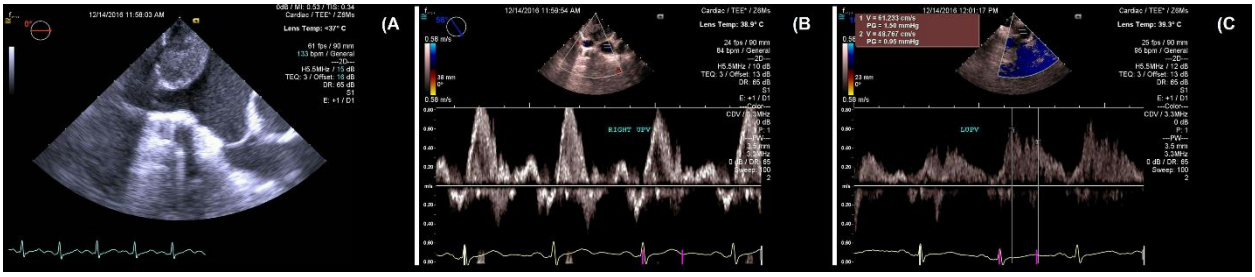

Figure 1. A) Encapsulated mass in the left atrium in the trans-oesophageal echocardiography view. B) Normal flow in the right upper pulmonary vein, not obstructed by the mass. C) Normal flow in the left upper pulmonary vein, not obstructed by the mass.

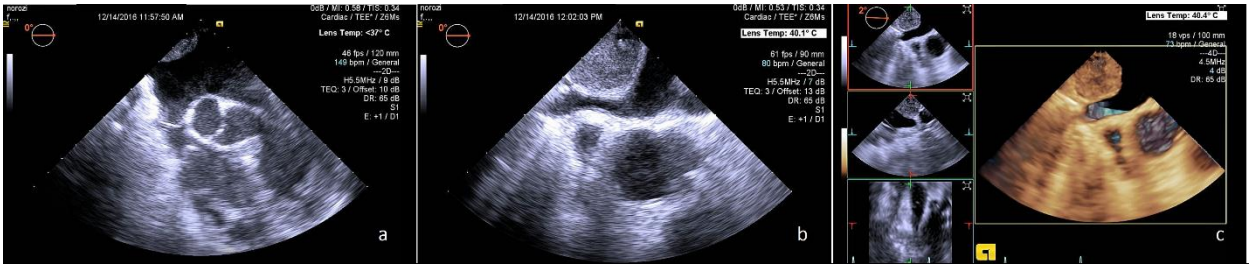

Figure 2. a) The 4 chamber view in trans-oesophageal echocardiography showing the mass, b) The pulmonary veins are compressed by the mass, c) The mass is attached to the left atrium roof.

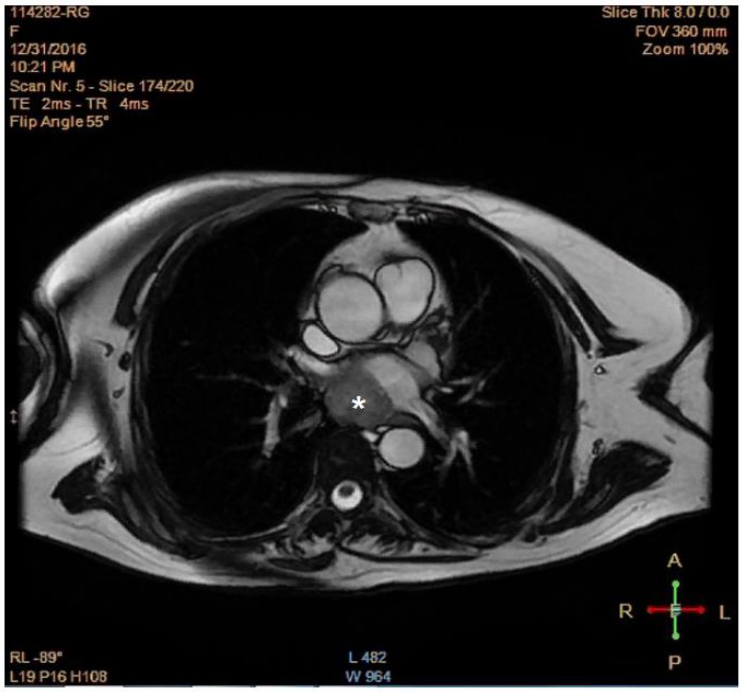

Figure 3. Cardiac magnetic resonance imaging(T1W) showing the tumour marked by (*).

systems, blood flow from the superior pulmonary artery became obvious. The inhomogeneous enhancement at the centre of the mass was prominent in late phases (10-15min). According to these findings, the mass was most likely a calcified high flow angioma instead of a myxoma. However, our patient did not agree to undergo cardiac surgery, and the definite diagnosis was made solely on the basis of the cardiac MRI results. The patient was symptom free during 6 months of follow up.

3. Discussion

While cardiac masses might be raised from every distanced organs with different manifestations, paying attention to patient's symptoms will be the first step in evaluation of cardiac tumours (7). Haemangioma is one of such astumours which can be manifested by different findings. There are three major types of cardiac tumours that should be considered differential diagnoses of atrial haemangioma, namely, fibroma, angiosarcoma and myxoma. Atrial haemangiomas originating from the interatrial septum are more likely to be misdiagnosed as myxoma(4). Clinical manifestations of thesetwo tumours vary according to their locations and size. Cardiac tumours such as myxoma and haemangioma may present as chest pain and dyspnea(2,4). While coexistence of these tumours and coronary stenosis are common, explaining the exact aetiology of the commonly found chest painmay be difficult(2,4). Coronary artery stenosis and cardiac steal syndrome caused by these tumoursare two possible causes of pain and dyspnea in these patients(2). As with other cardiac complaints, a brief physical examination and patient history are mandatory for establishing a definite diagnosis, but are not usually enough. The non-invasive, most accurate and frequently available imaging technique for detecting cardiac tumoursis the echocardiogram(5). However, haemangioma and myxoma, which are visualized via transthoracic echocardiography, can be misdiagnosed according to their locations. Other imaging modalities, such as computed tomography, magnetic resonance imaging and angiography, can be used in special cases(5). Chiappini et al. reported a case of a cardiac mass in the left atrial free wall which was diagnosed by transthoracic echocardiography(8). A computed tomography study showed a mass which probably arose from the left lung, and an accurate determination of the mass location was difficult. The intrapericardial location was determined by performing trans-oesophageal echocardiography while the blood supply was locatedusing angiography(8). Bandyopadhyay et al. reported a case of left atrial haemangioma misdiagnosed as cardiac myxoma. The diagnosis of myxoma was made by transthoracic echocardiography, and because of chronic exertional dyspnea and associated chest pain, their patient was a candidate for surgical excision of the mass. After angiography revealed an 80% ostial stenosis of the ramus intermedius and a large abnormal vessel supplying the tumour, they decided to modify their surgical plan by performing coronary artery bypass grafting. They resected a 5*4-cm encapsulated spherical tumour mass which pathological examination suggested was a cavernous haemangioma (2). Additionally,Han et al. reported a similar case which was the first diagnosed by transthoracic echocardiography as a left atrial myxoma. As Bandyopadhyay et al. report, they decided to perform both a coronary artery bypass graft and mass excision after angiography revealed a 50% stenosis of the left anterior descending artery (4). Similar to these reports, a suspicious diagnosis of myxoma was made by angiography and echocardiography in our patient. After performing angiography, we decided to confirm our diagnosis by echocardiography and a cardiac MRI. The diagnosis was changed according to theMRI imaging results. Cardiac magnetic resonance imaging can provide accurate diagnosis for haemangiomas(6). Gradual centripetal contrast enhancement and high intensity on T2 weighted images are characteristic findings for haemangiomas(6).

Simple surgical resection of cardiac haemangiomas remain the treatment of choice; however, in some patients, such as ours, surgical resection might be impossible. In such cases, close follow up will be the wisest choice. Botha et al. reported a case of unrespectable haemangioma due to extensive involvement of the coronary artery system(9). They decided to follow their patient by magnetic resonance imaging(9). They stated that in case of possible rapid deterioration, orthotopic heart transplantation is the best option for unresectable tumours(9). Beebeejaoun et al. decided to manage their patient conservatively, as the patient didnot have any symptoms of acompressing effect(10).Since our patient did not agreeto surgery, we decided to manage our patient conservatively by routine follow up visits.

6. Conclusion

Cardiac tumours are rarely found in the general population, but they can still be misdiagnosed and confused with each other. While myxoma is a common tumour of the left atrium, cardiologists should always consider haemangiomas as a differential diagnosis. In patients who are not willing to undergo surgery, close follow up is the best choice for monitoring a patient's condition.

Acknowledgments

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