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Peri-Operational Hemodynamic Changes of Left Atrial Myxoma: A Case Report

Fomukong Tasinda Raphael, Liu Zhi Yong*, He Wei, Hu Ruo Yu, Fang Lei, Abdoulaye Idriss Ali

Department of cardiothoracic surgery, the Southeast University Affiliated Zhong Da Hospital, No. 87 Dingjiaqiao, Nanjing 210009, Jiangsu Province, China

Abstract
Atrial myxomas are benign tumors that be found in the left and right atrium of the heart and mostly attached to the atrial septum and rarely found in the ventricles. Prompt diagnosis maybe challenging. Diagnosis might fail on auscultation, echocardiography should be considered. We are reporting a case of a female of Asian origin, 46 years of age with a huge neoplasm presumably atrial myxoma in the left atrium that was previously misdiagnosed as interstitial pneumonia.
Keywords: Neoplasm, atrial myxoma, prompt diagnosis, interstitial pneumonia.

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***Correspondence:** Liu Zhi Yong **Email** zyliu3@seu.edu.cn, **Contact**: +86 13705185166

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Introduction

Atrial myxomas are non-cancerous and surgical resection is the best option. About 75% of myxomas has been diagnosed in the left atrium of the heart[1]. Atrial myxomas are sometimes accompanied with tricuspid stenosis, mitral stenosis and atrial fibrillation and more common in women. About 1 in 10 myxomas are passed down through families called familial myxomas [1]. Myxoma rarely affects children and infants [2]. Sometimes, symptoms from atrial myxoma are easily diagnosed when the myxomas are left-sided more than 5 cm in diameter [3].Coronary and /or systemic embolization or by obstruction of blood flow at the valves sometimes leads to death. Morbidity is sometimes related to symptoms outcome by tumor embolism, heart failure, mechanical valvular obstruction, and other constitutional symptoms. Here is a case of misdiagnosis, bringing more light in solving similar cases.

Materials and methods

We are presenting a case of a 46-year old female of Asian origin retired due to unstable health. She visited the outpatient department for medical checkup after catching cold, shortness of breath, fatigue, and cough with a white yogurt-like mucus. No history of fever, No history of surgery, no abnormal eating, drinking and smoking habit, no diabetes. Vitals were: blood pressure 115/80mmHg, heart rate 92/min, respiratory function 20/min, temperature 36.9 ^{0} C.A detailed neurologic examination showed no focal neurological deficits. Chest x rays revealed Pneumoedema (**Figure 1**). Ectrocardiography (ECG) revealed Sinus Tachycardia (SB) 101bpm and right electric axis deviation.

A Computed Tomography (CT) showed a frosted glass nodule and signs of pneumoedema. The patient was diagnosed with interstitial pneumonia and underwent home treatment using antibiotics (Azithromycin and levofloxacin) for 5 days. The cough, fatigue and sputum were relieved and the patient felt better.

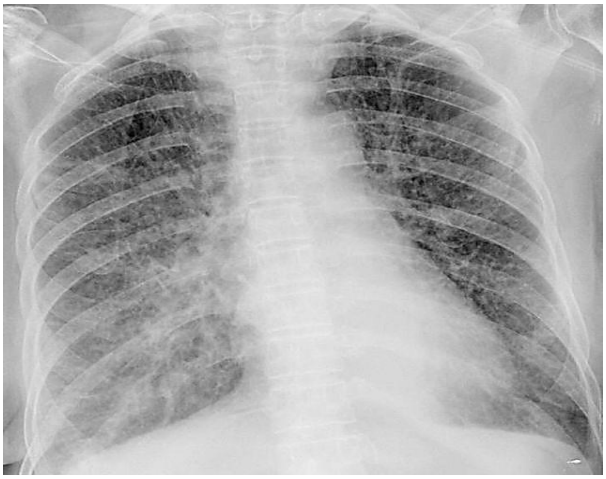

Figure 1: Three months later there was recurrence of shortness of breath, cough and sputum in a much more severe manner. The patient was admitted in the respiratory department.

On physical checkup, a characteristic "*tumor plop*" in early diastole is noticed [4, 5]. The hemoglobin value was 11.6g/dl and the erythrocyte sedimentation rate (ESR) was 38mm/h.

Echocardiography was done and pericardial and pulmonary effusion was identified and a large neoplasm was identified in the left atrium showing multi-centric mass (10x6x2cm) there was also a diastolic protrusion of neoplasm via mitral valve with obstruction during diastole (**Figure 2**).

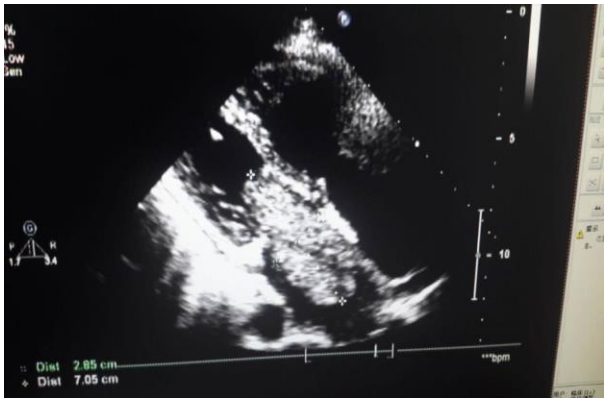

Figure 2: Echocardiography of pericardial and pulmonary effusion and identification of a large neoplasm in the left atrium showing multi-centric mass (10x6x2cm). A diastolic protrusion of neoplasm via mitral valve with obstruction during diastole was also observed.

Patient quickly underwent resection of the neoplasm and mitral valve repair under Cardiopulmonary bypass. The neoplasm was resected completely with good surgical margins. Pathological examination was consistent with myxoma (**Figure 3**).

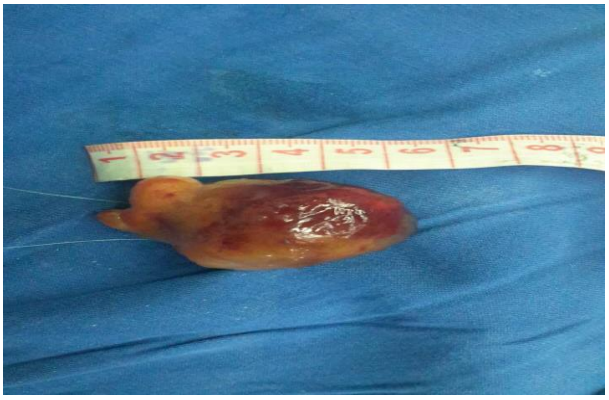

Figure 3: Atrial myxoma tumor with pedicle attachment.

The patient was monitored in the intensive care unit ICU and transferred 24 hours later to the ward. Post-operative ECG revealed Normal Sinus Rhythm at 80bpm, echocardiogram revealed no intra-cardiac mass in the left atrium with a ventricle ejection fraction rate of 68%. Patient was put on anticoagulation regiment and is being monitored. A week later the patient was discharged after physical and echocardiography findings showed no signs of tumor. The Ejection fraction was boosted from normal to excellent and the size of the the left ventricle increases and left atrium decreases **(Table 1).** A year later, physical and echocardiography findings showed no sign of myxoma on the atrial septum and no pericardial and pulmonary effusion.

Discussion

Surgical resection is the best techniques for treating atrial Myxoma. The patient was presented with nonspecific chest pain on onset.Likely symptoms and signs are shortness of breath, cold, cough with a white yogurt-like mucus and fatigue which lead to a wide differential diagnoses, making it critical to consider interstitial pneumonia at first sight as likely diagnosis. Cardiac myxoma produces changeable clinical manifestations that hardly include cardiac signs and symptoms. Echocardiography should have been considered in part of the evaluation to avoid missed diagnosis. Echocardiography if available, provides the best choice for the initial evaluation and diagnosis. Echocardiography images of myocardium and cardiac chambers can easily identify the presence of neoplasms. In addition, echocardiography may provide information about any stenosis to circulation, as well as the likelihood that the neoplasm could be a source of an emboli [6].

The ejection fraction was boosted from normal to excellent after resection (Table 1). The ejection fraction is just one factor of heart function as a normal ejection fraction (EF) function may not be normal as is the case with our patient.

Once a diagnosis of myxoma has been made on echocardiography studies, urgent resection is required because of the risk of embolization or other cardiovascular complications, including sudden death or stroke. Results of most surgical resection are generally successful, with most sequences reporting an operative mortality rate of less than 5 percent [7]. Cardiac transplantation has been reported for multiple and recurrent atrial myxomas [8].

Prognosis for postoperative recovery is generally fast. However, atrial arrhythmias or atrio-ventricular conduction abnormalities were noticed postoperatively in 26 percent of patients in one reporting [9]. Furthermore, some patients carry the risk of recurrence of the myxoma or the growth of additional lesions. In one large reporting, 5 percent developed recurrent myxoma, so there is need for a

Table 1: Patient's relevant laboratory results (pre-operation/post-operation/follow up echocardiograph)

Patient	LA(cm)	RA(cm)	LV (cm)	RV (cm)	MV (m/s)	PA (cm)	TR (m/s)	EF(m/s)
Before	4.5	4.81x6.05	3.33	2.94	3.3PG=44mmHg	2.95	4.75PG=84mmHg	0.61
After	3.0	3.6	4.1	2.3	N/A	2.0	2.74PG=30mmHg	0.68
Follow up	3.4	3.6	4.4	2.1	N/A	1.9	2.3PG=22mmHg	0.72

Abbreviations: LA=Left Atrium; RA=Right Atrium; MV=Mitral Valve; TR=Tricuspid Regurgitation; LV=Left Ventricle; RV=Right Ventricle; PV=Pulmonary valve; EF=Ejection Fraction; N/A=Not available). Follow up 24 months later careful follow-up.

a careful follow-up. Growth of second primary myxoma may be more common in patients with familial myxoma [10, 11].

Relevant information

Clinical manifestations of atrial myxoma fall into three classifications: tumor-related obstruction to intra-cardiac blood flow, tumor-related embolic events, and systemic symptoms. Presenting symptoms are caused by obstructed cardiac blood flow, and the severity of the symptoms is mostly affected by the size, position, and mobility of the tumor. The most commonly obstructed area is the mitral valve. Abnormal heart sound or murmur maybe heard and the sound may change with body positions.

Hydro-pericardium is not a disease of itself, but is always a secondary indication; therefore a varied condition is present. Lung congestion makes the lungs vulnerable to bacterial infection. It may be an indication of disease of the heart, liver and spleen.

Laboratory test are not diagnostic although it's a prerequisite. So far echocardiography is the best examination for atrial myxoma and a good way for long term follow up. MRI and CT scan test can also be used. Once the diagnosis is confirmed, surgical resection should be done so as to prevent other complications such as heart attack, stenosis, embolism, metastasis of tumor, blockage of mitral valve, pulmonary edema. There is risk of stroke, either in the brain or lower extremities or gut.

Tumors vary in sizes, ranging from 1-15 cm in diameter [12]with varying growth rate. Rate of growth is not exactly known. A growth rate of 1.36 X 0.03 cm/mo has been reported[12].

Conclusions

Myxomas carry the risk of severe complications such as arrhythmia, pulmonary edema, and blockage of the mitral valve and metastasis of the tumor. Surgical excision is the main option yielding excellent outcome with the exception of hereditary myxomas. Echocardiography is the best diagnostic tool for evaluation and follow up for atrial myxoma.

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