

Case Report

Atrial Tachycardia Revealing Obstructive Left Atrial Myxoma. Case Report

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Abstract:

Myxomas are the most common primary cardiac tumors; the most common localization is the left atrium, and may cause mitral flow obstruction so their clinical presentation could mimic severe mitral stenosis; trans thoracic echocardiography allows the diagnosis; we report a case of left atrial myxoma revealed by atrial tachycardia concomitant with dyspnea and signs of chronic right heart failure; despite surgical resection of the tumor, our patient had developed tachycardiomyopathy with severe left ventricular dysfunction, which recovered two months later, after intensive administration of antiarrhythmic treatment.

Keywords: Left atrial myxoma, Atrial tachycardia, Tachycardiomyopathy.

Introduction

Myxoma is the most common primary cardiac tumor; its prevalence is about 0.03 % in the general population, the high annual incidence was reported in European population (2.1 per million) [1] [2]; it is most common in middle-aged women; female-to-male ratio is approximately 3:1 [3] cardiac myxoma may be sporadic in 95 % or familial in 5 % [4].

Left atrial localization is the most frequent and represents 75 %; the clinical symptoms are various and may vary from silent myxoma fortuitously discovered to very symptomatic form such as embolism, dyspnea, heart failure, palpitation, syncope and even cardiac arrest.

Echocardiography Doppler allows the diagnosis, provides details about size, number and location of the myxomas, and also shows their hemodynamic consequences

Occurrence of Atrial fibrillation in patients with left atrial myxoma is uncommon, [5] atrial flutter or atrial tachycardia are extremely rare [6].

Case presentation

A 63 years-old man, with no particular history, but he reported palpitations with concomitant progressive worsening dyspnea, for four months.

He was admitted in the cardiology department in February 8th 2023, for tachyarrhythmia, orthopnea, and signs of right heart failure (Jugular venous distension, Hepatojugular reflux, peripheral edema), cardiac auscultation revealed fast regular rhythm, arterial blood pressure: 100/60 mmHg; surface ECG showed, atrial tachycardia with fast ventricular conduction: 2/1, heart rate about 140 beats/min (Figure 1); chest X-rays showed convexity in the lower half of the right mediastinal cardiovascular border (Figure 2).

Transthoracic Echocardiography Doppler performed at admission, showed mobile homogeneous mass measured 27

mm x 29 mm, with regular contours, pedunculated and attached at the fossa ovalis, on the left side of the atrial septum (Figure 3), and causing severe obstruction of the mitral valve in diastole (Figure 4), left atrium diameter is 37 mm, left ventricular ejection fraction was about 42 %, systolic pulmonary artery pressure is about 55 mmHg (Figure 5).

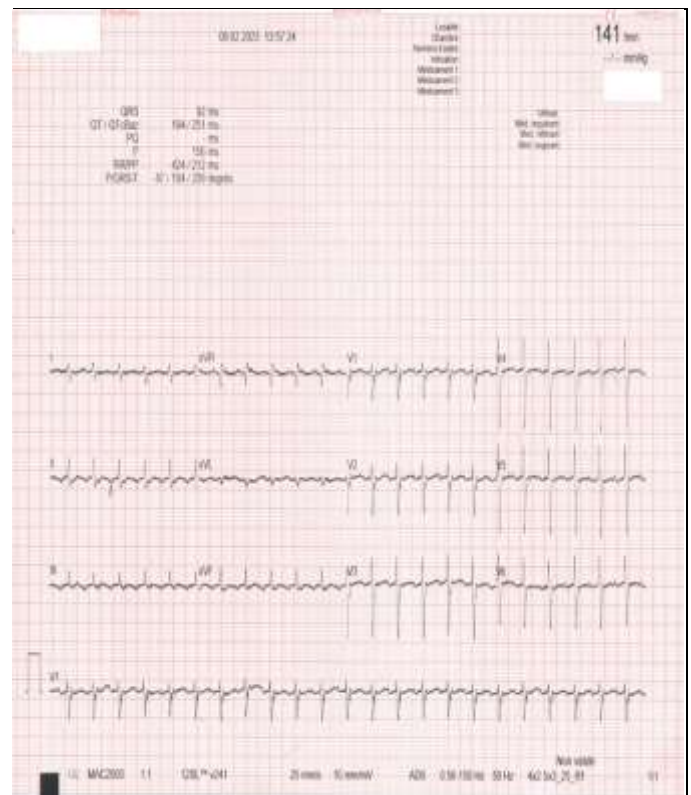


Figure 1: Surface ECG showed atrial tachycardia with fast ventricular conduction (2/1)



Figure 2: Chest X-rays showed convexity in the lower half of the right border



Figure 3: Echocardiography showed mobile homogeneous mass with regular contours, attached at the atrial septum



Figure 4: Echocardiography showed tumor mass engaged into the mitral orifice during diastole

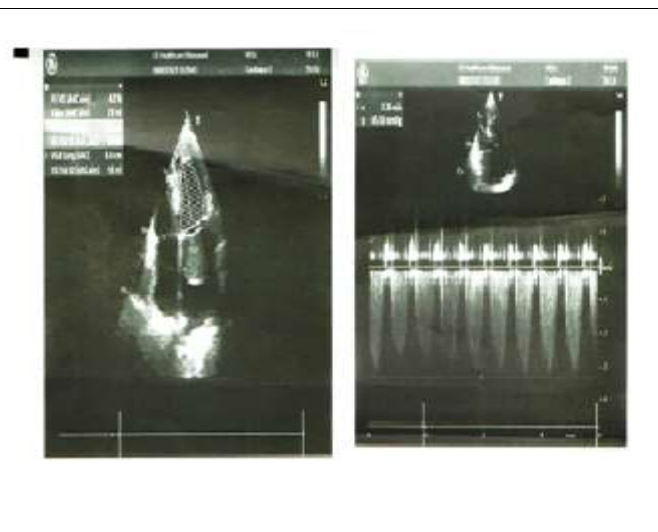


Figure 5: Echocardiography Doppler showed left ventricular ejection fraction was 42 % and systolic pulmonary artery pressure is 45 +10 mmHg,

Treatment of heart failure with Digoxin drugs were administered, and patient was referred for surgery; so surgical resection was performed, the tumor size was 06/04/02 cm and the benign character of this tumor was confirmed.

But eight months later, the patient was readmitted in cardiology department because of worsening of congestive heart failure, his surface ECG showed persistent atrial tachycardia with fast ventricular conduction, and Echocardiography Doppler showed severe systolic left ventricular dysfunction, with left ventricular ejection fraction about 26 % (Figure 6); intravenous treatment has been administered such as furosemide, Amiodarone and Digoxin.

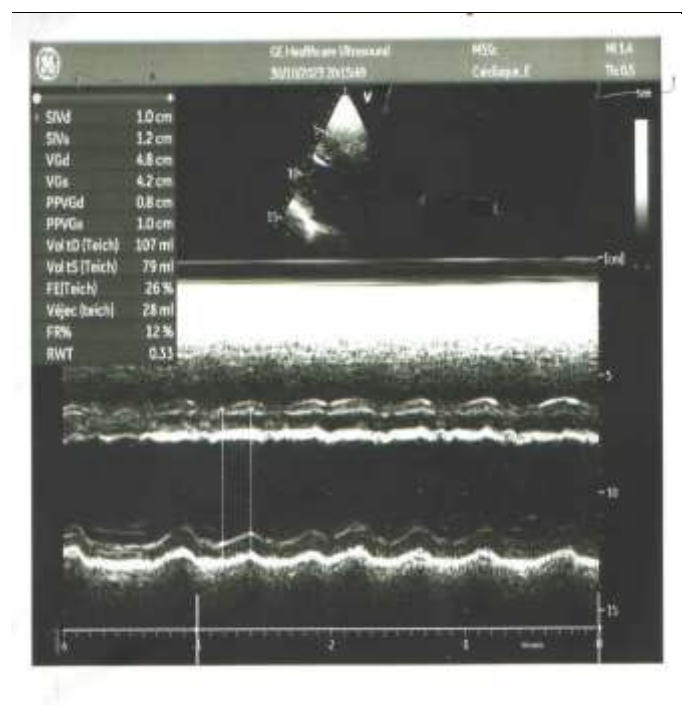


Figure 6: Echocardiography Doppler showed left ventricular ejection fraction about 26 %

After two weeks of intensive treatment, clinical improvement with decrease of heart rate ≈ 70 beats/min, were obtained (Figure 7), the patient was switched to oral treatment including

beta blockers, he was discharged with periodic surface ECG and echocardiography evaluation.

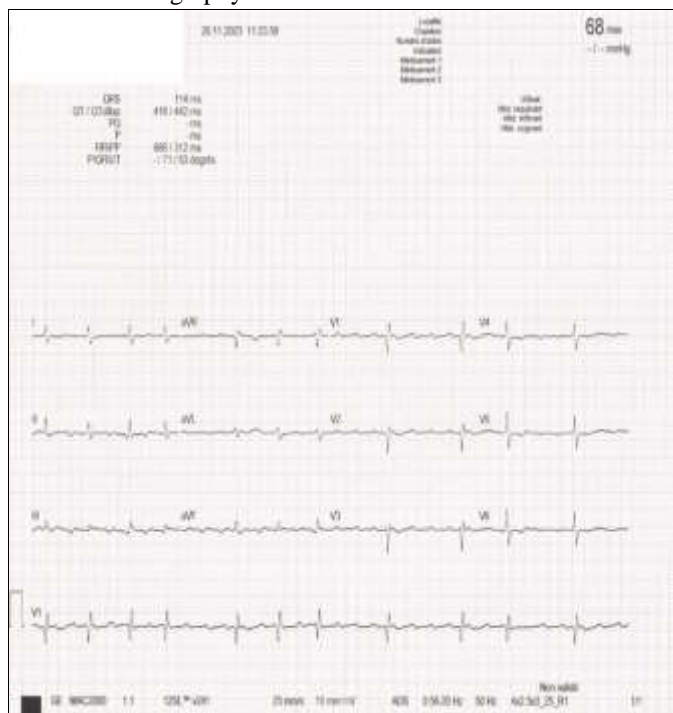


Figure 7: Surface ECG showed atrial tachycardia with variable ventricular conduction, Heart rate ≈70 beats/min

One month later, the systolic left ventricle function was improved with left ventricle ejection fraction between 40 and 45 %; after two months, left ventricular ejection fraction increased to 55 % (Figure 8) and remained stable, with good heart rate control (Figure 9); so we concluded to tachycardiomyopathy because of reversible left ventricular dysfunction after heart rate control.

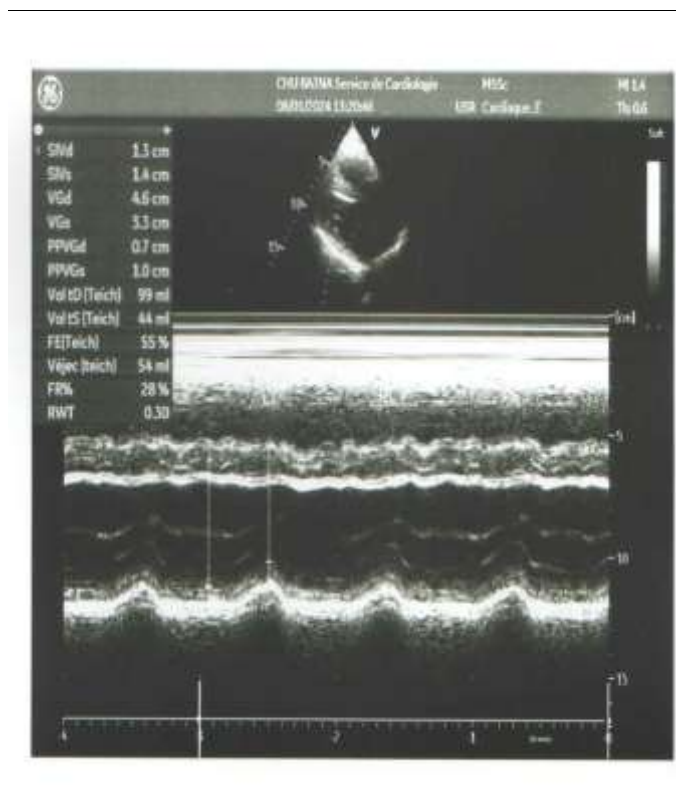


Figure 8: Echocardiography Doppler showed left ventricular ejection fraction about 55 %



Figure 9: Surface ECG showed atrial tachycardia with variable ventricular conduction, Heart rate ≈78 beats/min

Discussion

Myxoma is the most common primary cardiac tumor; its prevalence is about 0.03 % in the general population [1][2]; it occurs more frequently in woman, and often sporadic [3][4]; it may cause obstruction symptoms, embolic signs, or systemic manifestations [5].

Left atrial localization is the most frequent and represents 75 % with predilection for limbus fossa ovalis of the interatrial septum. [7]

The myxoma genesis is poorly understood; however, most opinions were in favor of origin from primitive pluripotent mesenchymal cells. [8]

When atrial myxoma causes mitral flow obstruction, its clinical manifestation could mimic severe mitral stenosis, but trans thoracic echocardiography allows the diagnosis.

Occurrence of Atrial fibrillation in patients with left atrial myxoma is uncommon [5][7], whereas atrial flutter or atrial tachycardia is extremely rare. [6]

Atrial flutter or atrial tachycardia is characterized by organized atrial deflections, in contrast with atrial fibrillation, in which atrial rhythm is completely chaotic.

Atrial tachycardia originates from an ectopic site in any part of the atria outside the sinus node.

We report a case of obstructive left atrial myxoma revealed by atrial tachycardia concomitant with dyspnea and signs of chronic right heart failure; in our patient this arrhythmia could be related to atrial distension, heart failure or the site anomaly of the tumor insertion.

But despite surgical resection of the tumor, atrial tachycardia had persisted and our patient had developed

tachycardiomyopathy with severe left ventricular dysfunction, which recovered two months later, after intensive administration of antiarrhythmic treatment. Because of the reversibility of the left ventricle dysfunction after heart rate control, so we concluded to tachycardiomyopathy.

According to the literature, surgical resection of myxomas is associated with an excellent outcome with low recurrence rate at 0.5 (95% CI = 0.0-1.1) per 1000 person-years, and also low mortality [9]

The mainly post-operative complications are infection and bleeding, but tachycardiomyopathy has never been reported.

Conclusion

Myxomas are the most common primary cardiac tumors; the most common localization is the left atrium, clinical manifestations are commonly represented by obstructive, embolic, or systemic signs; in our patient, myxoma was revealed by atrial tachycardia, which is an extremely rare arrhythmia; several months after surgical resection of the tumor, our patient had developed severe left ventricular dysfunction which recovered two months later, after heart rate control; To our knowledge, tachycardiomyopathy has never been reported as a late post-operative complication of myxoma resection.

Bibliography

1. Grebenc ML, Rosado de Christenson ML, Burke AP. Primary cardiac and pericardial neoplasms: radiologic-pathologic correlation. *Radiographics*. 2000;20:1073–103; quiz 1110.
2. Pérez-Andreu J, Arribas Leal JM, Gervase G. Epidemiology of Cardiac Myxoma in a Spanish Population. A 30-year Surgical Series. *Rev Esp Cardiol (Engl Ed)* 2019;72: 685–686.

3. Yoon DH, Roberts W. Sex distribution in cardiac myxomas. *Am J Cardiol*. 2002; 90: 563–565.
4. Reynen K. Cardiac myxomas. *N Engl J Med*. 1995;333:1610–1617
5. PINEDE, LAURENT; DUHAUT, PIERRE; LOIRE, ROBERT. Clinical Presentation of Left Atrial Cardiac Myxoma A Series Of 112 Consecutive Cases. *Medicine* 80(3):p 159-172, May 2001.
6. Eamon P. McCarron, Aoibhinn Clinton, Brian Herron. Atrial Flutter with Underlying Left Atrial Myxoma. *The American journal of medicine*, July 25, 2019. DOI:<https://doi.org/10.1016/j.amjmed.2019.07.011>
7. A K M Monwarul Islam. Cardiac myxomas: A narrative review. *World J Cardiol* 2022 April 26; 14(4): 206-219. DOI: 10.4330/wjc.v14.i4.206.
8. Di Vito A, Mignogna C, Donato G. The mysterious pathways of cardiac myxomas: a review of histogenesis, pathogenesis and pathology. *Histopathology* 2015; 66: 321-332 DOI: 10.1111/his.12531
9. Yudi Her Oktaviono, Pandit Bagus Tri Saputra, Jannatin Nisa Arnindita. Clinical Characteristics and Surgical Outcomes of Cardiac Myxoma: A Meta-Analysis of Worldwide Experience. *European Journal of Surgical Oncology*. DOI: <https://doi.org/10.1016/j.ejso.2023.107940>

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