CASE PRESENTATION

Large left atrial myxoma with left ventricle inflow obstruction

Teodora Nita¹, Paula Gocan¹, Ioana Dregoesc¹, Svetlana Encica², Lucian Stan³, Ruxandra Beyer¹

Abstract: Cardiac myxomas are rare benign tumors generally located at the border of fosa ovalis in the left atrium. Clinical presentation may vary and overlap with other cardiovascular diseases, so echocardiography is necessary for diagnosis. We describe the clinical case of a 58-year-old woman with chronic exertional dyspnea diagnosed with left atrial myxoma based on transthoracic echocardiography. Severe mitral valve obstruction and regurgitation by the large tumoral mass had important hemodynamic consequences leading to severe pulmonary hypertension. Complete surgical resection was performed and histopathological examination confirmed the diagnosis.

Keywords: left atrial myxoma, dyspnea, echocardiography, mitral valve

INTRODUCTION

The heart is the source of both primary and secondary tumors. Any form of cancer can determine metastases in the heart, 20 to 40 fold more frequent than primary tumors¹. About 75 percent of primary tumors are benign, the most frequent are myxomas with typical localization in the left atrium². Other localization of myxomas have been described: right atrium³, ventricles⁴, inferior and superior cava veins⁵, Eustachian valve⁶, femoral vein⁷.

CLINICAL MANIFESTATIONS

Clinical manifestation depend on the size and position of the tumor and can be classified as follows: symptoms due to mechanical obstruction and/or valve involvement, as well as due to the direct invasion of the myocardium (cough, dyspnea, thoracic pain, dizziness, palpitations, syncope, circulatory collapse), constitutional symptoms (weight loss, pyrexia of unknown origin, malaise) and embolic symptoms mainly in the central nervous system⁸.

CASE REPORT

A 58 year-old woman with medical history of hypothyroidism presented in the outpatient department for chronic exertional dyspnea. Clinical examination revealed blood pressure 100/80 mmHg, pulse rate 101 bpm and a holosystolic murmur at the apex of the heart. Auscultation of the lung was normal bilaterally and no jugular vein distention was presented. Pulses were intact bilaterally with no peripheral oedema and there were no neurological deficits. Electrocardiogram revealed normal sinus rhythm with minor right bundle branch block (Figure 1). Transthoracic echocardiogram showed a large echogenic mass of 53/31 mm in the enlarged left atrium (54/81 mm) attached to interatrial septum (Figure 2). The tumor area was 16.8 cm², homogeneous and mobile with protrusion into

¹ Department of Cardiology, Heart Institute “Niculae Stancioiu”, Cluj-Napoca, Romania
² Department of Anatomic Pathology, Heart Institute “Niculae Stancioiu”, Cluj-Napoca, Romania
³ Department of Cardiovascular Surgery, Heart Institute “Niculae Stancioiu”, Cluj-Napoca, Romania

Contact address:
Teodora Nita, Heart Institute “Niculae Stancioiu”, Cluj-Napoca, Romania.
E-mail: caleanteodora@yahoo.com
the left ventricle during diastole, causing severe mitral regurgitation and stenosis (Figure 3). The left ventricle ejection fraction was normal. The right ventricle was slightly enlarged, the systolic pulmonary pressure was estimated at 70 mmHg.

The patient was referred to another hospital for further investigations and surgical treatment. On admission, laboratory findings were near normal: WBC 115 x 10^3/μl, Hb – 13.3 g/dl, Hct – 39.6%, Platelets – 161 x 10^4/μl, Na – 145 mmol/l, K – 5 mmol/l, Urea – 31.1 mg/dl, Creatinine – 0.75 mg/dl, ALT – 15UI/l, AST – 23UI/l, TSH – 1.45 μU/ml, FT4 – 0.98 ng/dl, prothrombin time – 12.4 sec. The coronary angiography was normal. The patient was promptly transferred to Cardiovascular Surgery Department and underwent resection of the left atrium tumor. Intraoperative the heart motion was adequate with enlarged left atrium. The tumor was friable, implanted on the interatrial septum, had 60/40 mm diameters, suggesting an atrial myxoma (Figure 4). The atrial wall was reconstructed with a bovine pericardial patch. The diagnosis of myxoma was confirmed by the histological exams (Figure 5 and 6). Early postoperative recovery was good, with removal of the drainages the following day. Five days later the patient presented rapid onset of palpitations, dyspnea with orthopnea. Electrocardiogram showed atrial fibrillation. Conversion to normal sinus rhythm was obtained using intravenous amiodarone. Chest X-Ray revealed moderate right pleural effusion and pleural drainage was made for 24 hours. After 13 days the patient was discharged asymptomatic on beta-blocker, propafenone, diuretics, H2-blocants, levothyroxine and vitamin K antagonists.

**DISCUSSION**

Clinical presentation, diagnosis and treatment of cardiac tumors can be very challenging.
Large left atrial myxoma with left ventricle inflow obstruction

Teodora Nita et al.

In our patient, the TTE was sufficient in confirming the diagnosis. Differential diagnosis must be primarily made with thrombus. Contrast computed tomography (CT), cardiac magnetic resonance imaging (MRI) and positron emission tomography-CT may be useful in this situation. Once the presumptive diagnosis of atrial myxoma has been made prompt surgical resection is the best option because of the risks of serious complications like embolization or sudden death. Preoperative coronary angiography is indicated in selected patients (coronary artery disease suspected, age over 40 years, etc.) to assess the coronary arteries. Postoperative recovery is usually good. However, early complications can occur. Supraventricular arrhythmias (premature heart beats, short-lasting atrial fibrillation), atrio-ventricular blocks, pneumonia, pleural effusion, wound infection have been described.

Postoperative early and late mortality ranges from 0 to 7.5%. Damaged valve may require repair or replacement, but it was not necessary in this case. One month after discharge the anterior mitral valve was thickened possibly due to chronic tumoral injury, with moderate regurgitation and slight pulmonary hypertension (the right ventricle to an atrium gradient of 29 mmHg) (Figure 7). Three months after the operation the patient is recovered with no signs of recurrence. The prognosis in our patient is good, but follow-up is necessary because of the risk of recurrence which can be as high as 13%.

The particularity of this case is the high impact given by the tumor obstruction of the left ventricle inflow, resulting in very poor exercise capacity with chronic exertional dyspnea which was initially considered to be due to hypothyroidism.

Figure 5. Macroscopic view of myxoma. The tumor is very well delimited, oval-shaped, elastic consistency, smooth surface and brownish yellow with purplish areas color.

Figure 6. Photomicrograph of myxoma. The fragment is represented by a mixoid tissue which consist of elongated cells with reduced pale eosinophilic cytoplasm and hyperchromatic nuclei. The cells are disposed in groups and rows. The mixoid stroma consists of linear deposits of calcium and iron (Gandy-Gamma bodies) and reduced lymphocytic inflammatory infiltrate (Hematoxylin and eosin).

Cardiac myxoma. In our patient, the TTE was sufficient in confirming the diagnosis. Differential diagnosis must be primarily made with thrombus. Contrast computed tomography (CT), cardiac magnetic resonance imaging (MRI) and positron emission tomography-CT may be useful in this situation. Once the presumptive diagnosis of atrial myxoma has been made prompt surgical resection is the best option because of the risks of serious complications like embolization or sudden death. Preoperative coronary angiography is indicated in selected patients (coronary artery disease suspected, age over 40 years, etc.) to assess the coronary arteries. Postoperative recovery is usually good. However, early complications can occur. Supraventricular arrhythmias (premature heart beats, short-lasting atrial fibrillation), atrio-ventricular blocks, pneumonia, pleural effusion, wound infection have been described.

Postoperative early and late mortality ranges from 0 to 7.5%. Damaged valve may require repair or replacement, but it was not necessary in this case. One month after discharge the anterior mitral valve was thickened possibly due to chronic tumoral injury, with moderate regurgitation and slight pulmonary hypertension (the right ventricle to an atrium gradient of 29 mmHg) (Figure 7). Three months after the operation the patient is recovered with no signs of recurrence. The prognosis in our patient is good, but follow-up is necessary because of the risk of recurrence which can be as high as 13%.

The particularity of this case is the high impact given by the tumor obstruction of the left ventricle inflow, resulting in very poor exercise capacity with chronic exertional dyspnea which was initially considered to be due to hypothyroidism.

Figure 7. Parasternal long axis.
CONCLUSIONS

In summary, cardiac myxomas are rare condition in clinical practice. High index of suspicion is mandatory for diagnosis and prompt therapy. Urgent surgical resection is indicated because of the high risk of complications and of sudden death, with low procedural mortality and morbidity.

Conflict of interest: none declared.

References