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Case Report

Left Atrial Reconstruction after the Excision of a Giant Myxoma

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Abstract

Myxomas are the most common primary cardiac tumors, usually located in the left atrium. Although they may occur in both sexes at any age, they are twice or even three times more common in women than in men. The classical tetrad of myxomas' clinical presentation might involve arrhythmias, intracardiac flow obstruction, embolic phenomena and a variety of nonspecific constitutional symptoms. Although surgical resection has been established as the treatment of choice, surgical methodology concerning tumor excision and heart reconstruction are still under discussion. Resection of the septum and partial excision of the left atrial roof warrants complete tumor removal. Reconstructive procedures to restore cardiac structures are frequently necessary after cardiac mass excision. We present a case of a patient who underwent urgent surgical resection of a large left atrial myxoma with partial reconstruction of the left atrium. A combination of a pericardial patch and a Dacron patch were used for this reason. In the reviewed literature there has not been described any similar approach towards the atrial reconstruction technique. Patient recovery was uneventful. The four-year follow up revealed that the patient is in excellent clinical status and remains asymptomatic.

Keywords: *Cardiac Tumors; Myxoma; Left Atrial Reconstruction*

Introduction

Myxomas are the most common type of primary endocardial tumor accounting for 50 - 80% of all primary cardiac tumors and can arise in any of the heart chambers, although the left atrium is the one most commonly involved (70 - 80%) [1-3]. In rare occasions, myxomas can be found in more than one chamber [4]. Although they may occur in both men and women at any age, they are more frequent among 30 - 60 year-old people, and approximately three times more prevalent in women than in men [2,5]. The treatment of choice is surgical resection with high success rates, recurrences are rare, while reconstructive procedures to restore cardiac structures are frequently necessary [6].

Case Presentation

A 43 year old woman from a rural region of Greece, presented with complaints of multiple syncopal episodes during a six month period. Even though she underwent a number of tests, diagnosis was achieved after echocardiographic assessment. It revealed a severe dilatation of the left atrium with an enormous mass attached to the interatrial septum extending to the atrial surface of the mitral valve (Figure 1A and 1B). The CHA2DS2-VASc score (Birmingham 2009) was assessed as 2 (moderate-high risk). The patient underwent urgent surgical resection preceded by a coronary angiography, which was negative for CAD.

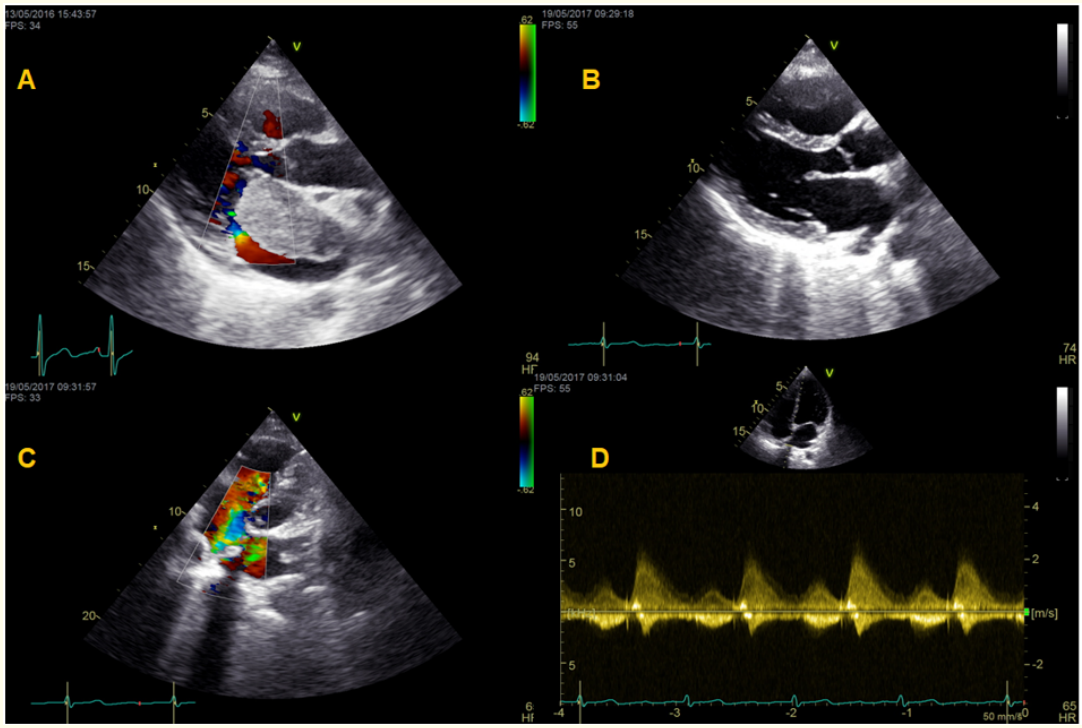

Figure 1: *Preoperative echo.*

A: Parasternal long axis view: Diastolic frame. A cardiac tumor is moving through the mitral ovifice, creating a significant mitral stenosis.

B: Parasternal long axis view. Postoperative diastolic frame after excision of the myxoma.

C: Modified apical turbulent flow of the right upper pulmonary vein (RUPV) to the LA indicating the RUPV stenosis after the myxoma's excision and LA reconstruction.

D: Apical 4ch view. Continuous wave Doppler indicating a 23 m/sec inflow velocity to the LA.

A median sternotomy was performed and cold blood antegrade and retrograde cardioplegic arrest was induced. The right atrial cavity was entered through a limited incision joining the free atrial wall with the interatrial groove. The interatrial septum was exposed. The left atrial cavity was entered through a vertical incision of the septum joining the entrance of the right superior pulmonary vein. Retraction of the septum allowed visualization of the myxoma which was attached with a wide base to the septum and in part to the free roof of the left atrium. We secured the mass (myxoma) with a spoon to avoid any fragmentation. Great attention was paid not to injure the anterior mitral valve attachment. The surface of the myxoma was covered by a recent and an already existing thrombus. The whole base of the tumor with a 1 cm margin of healthy tissue was carefully removed with scissors (sized 7 cm x 5 cm) (Figure 2). A 4 x 4 cm deficit of atrial wall tissue was created extending between the anterior mitral valve leaflet and the superior wall (roof) of the right superior vein. Thus, the created deficit included almost the entire interatrial septum and part of the atrial wall and was reconstructed by suturing an oval shaped piece of autologous pericardium using a continuous 5.0 prolene suture. Part of the left atrial roof was now comprised of the inserted pericardial patch. The interseptal deficit and the right atrial deficit were reconstructured using a Dacron patch placed with a 4.0 prolene suture. Intraoperative transesophageal echo revealed no leakage of the sutured surfaces, normal mitral valve function and the patient had an uneventful postoperative course. Histology showed myxomatous tissue without evidence of malignancy.

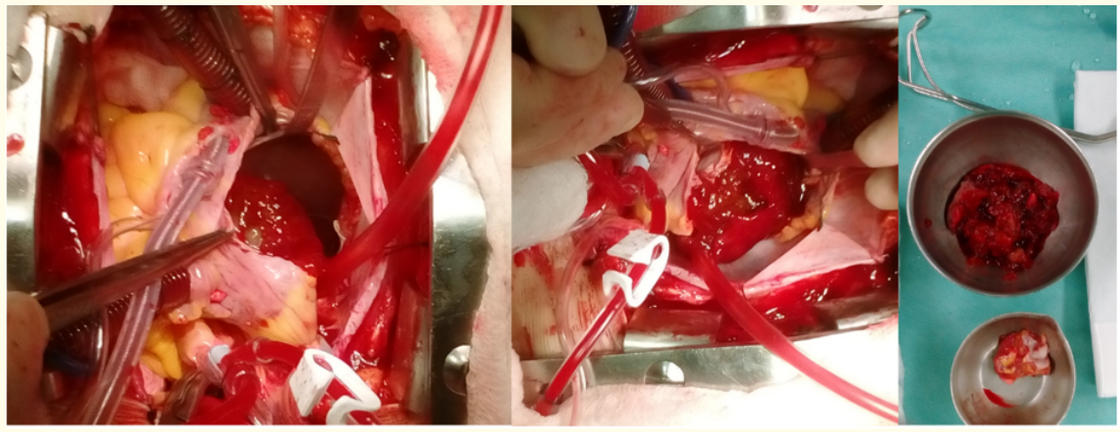

Figure 2: *Surgical approach, tumor, septum and part of left atrium excision.*

Discussion

The classical tetrad of cardiac myxoma's clinical presentation is characterized by arrhythmias, intracardiac flow obstruction, embolisms (peripheral or cerebral) and a variety of constitutional symptoms [3]. However, their widely acknowledged multifaceted presentation might include syncope or even sudden death, as it has previously been reported [6,7]. In our case, a six month delay of the diagnosis was due to the nonspecific symptoms and the lack of echocardiographic assessment during that period. Since surgical resection is the treatment of choice, early diagnosis is mandatory in order to relieve patient symptoms and avoid complications [3]. In our case we calculated the CHA2DS2-VASc score since it has been proposed as a risk assessment tool for the prediction of perioperative embolic events in patients with myxomas [1].

Complete resection of the pedicle of the myxoma's attachment seems to be crucial to prevent tumor recurrence. Resection of the septum and a part of the roof of the left atrium warrants achieving a complete tumor removal. In such operations, it is crucial to select an appropriate method of atrial reconstruction, suitable for the operative atrial defect created by the tumor excision. Default closure is, most commonly, performed by patch repair according to various methods which have been reported [8].

In our case, even though the base of the myxoma emerged from the interatrial septum, the tumor itself was also attached on the free upper wall of the left atrium. Thus, we decided that radical resection of both sites of attachment was necessary in order to avoid any recurrence.

Most commonly, patch repairs are required to close the defect and many methods have been reported [9]. In the present case, due to the large size of the created defect, two patches (a pericardial and a Dacron one) were required for individual reconstruction of the left atrium and the atrial septum, respectively. In the reviewed literature there has not been described any similar approach of atrial reconstruction. We strongly believe that this method is beneficial in cases of tumors which need extensive resection leaving large tissue defects. Recently introduced types of patches such as extracellular matrix might be advantageous [10]. The only noticeable echocardiographic finding was a turbulent flow of the right upper pulmonary vein (RUPV), indicating the RUPV stenosis after tumor excision and LA reconstruction (Figure 1C and 1D). However, four years after the operation the clinical status of the patient has not been affected; she is in excellent condition and remains free of any recurrence symptoms including arrhythmias.

Conclusion

The complete removal of the myxoma stands as the treatment of choice. However, reconstructive procedures to restore cardiac structures are frequently necessary after cardiac mass excision. A combination of a pericardial patch and a Dacron patch can be a beneficial approach.

Conflict of Interest

We state no financial interest or any conflict of interest exists.

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