MANAGEMENT OF LEFT ATRIAL MYXOMAS
AT CIVIL HOSPITAL, KARACHI

MUDASSIR IQBAL DAR, ABDUL BARI KHAN, SADQA AFTAB*, SHAMSUNNISA RASIDI*, SYED AFTAB MAHMOOD*
Department of Cardiac Surgery, Dow University of Health Sciences & Civil Hospital, Karachi
Department of Anaesthesiology, Dow University of Health Sciences & Civil Hospital, Karachi

ABSTRACT
Objective: To study the outcome of the management of left atrial myxoma.
Setting: Department of Cardiac Surgery, Civil Hospital, Karachi.
Patients: Twelve patients with left atrial myxomas.
Methodology: The diagnosis was made according to clinical presentation and echocardiographic examinations. Tumour excised under cardiopulmonary bypass using aortic and bicaval cannulation and moderate hypothermia. Variables noted were surgical approach, pathological findings and complications after surgery.
Result: Of the 12 cases, six were male and six female, with a mean age of 33.67±6.05 years. Fatigue and fever were the most common general symptoms, and dyspnoea the most common cardiac symptom. The pedunculated atrial tumours were excised by trans-septal approach; tumour size ranged between 1.5x1x0.7 cms to 9x8x6 cms and weight 3-140 gms. Histopathology confirmed the tumours as atrial myxomas. One patient died of cerebrovascular accident on the 3rd postoperative day. So far, there has been no recurrence of the tumours.
Conclusion: Surgical treatment with wide excision of left atrial myxomas by trans-septal approach is a suitable approach with negligible chances of recurrence.

KEY WORDS: Cardiac Tumours, Atrial Myxomas, Trans-Septal Approach

INTRODUCTION

Atrial myxomas are the most common primary heart tumours. Their early diagnosis is a challenge because of non-specific symptoms. They may or may not produce the characteristic findings on auscultation. Two-dimensional echocardiography is the diagnostic procedure of choice. Most atrial myxomas are benign and can be resected surgically.1

Myxomas account for 40-50% of the primary cardiac tumours. Approximately 90% are solitary and pedunculated, and 75-85% occurs in the left atrial cavity. Most cases are sporadic. Approximately 10% are familial and are transmitted in an autosomal dominant mode. Multiple tumours occur in approximately 50% of familial cases and are more frequently located in the ventricle (13% vs. 2% in sporadic cases).2

Myxomas are polypoid, round or oval, gelatinous with a smooth or lobulated surface and are usually yellowish, white or brown. The most common site of attachment is at the border of the fossa ovalis in the left atrium, although myxomas can also originate from the posterior atrial wall, the anterior atrial wall, or the atrial appendage. The mobility of the tumor depends upon the extent of attachment to the interatrial septum and the length of the stalk.3,4

Although atrial myxomas are typically benign, local recurrence due to inadequate resection or malignant change has been reported. Occasionally, atrial myxomas recur at a distant site because of intravascular tumour embolization. The risk of recurrence is higher in the familial

Correspondence:
Dr. Abdul Bari Khan, Associate Professor,
Department of Cardiac Surgery,
Dow University of Health Sciences, Karachi.
Phones: 021-2750591, 0333-2172322.
E-mail: abarikhan@hotmail.com
group of myxomas.

Symptoms are produced by mechanical interference with cardiac functions or embolization. Being intravascular and friable, myxomas account for most cases of (30-40%) tumour embolism. The site of embolism is dependent upon the location (left or right atrium) and the presence of an intra-cardiac shunt.5,6 This case series summarizes our experience with these tumors.

PATIENTS & METHODS

A total of 1754 cardiac surgical procedures were performed between April 2000 to April 2007 in the Dept. of Cardiac Surgery at Civil Hospital, Karachi. Amongst them 12(0.68%) patients were operated for primary intra-cardiac myxomas. In all patients the pre-operative diagnosis was made by clinical presentation and echocardiographic examination, that showed the characteristic tumour appearance. No patient had associated lesions.

All patients underwent surgery. The tumour was excised under cardiopulmonary bypass using aortic and bicalval cannulation and moderate hypothermia. Myocardial protection was achieved by antegrade blood cardioplegia. Care was taken not to manipulate the tumour before the aorta was cross clamped. Complete excision of the tumour with a cuff of interatrial septum was the basic principle of excision. All four cardiac chambers were thoroughly explored for additional myxomas.

The surgically created atrial septal defect was repaired directly in 8(66.6%) patients and with a dacron patch in 4(33.3%) patients. Copious irrigation of the atria and ventricle with cold saline solution was done to eliminate any loose tumour fragments that might have been dislodged during tumour removal.

One patient had degenerative changes in the mitral valve and needed replacement with St. Jude’s bileaflet prosthetic valve. All the patients were followed up in the outpatient clinic at regular intervals. They underwent clinical examination, roentgenography, electrocardiography and echocardiography. Transthoracic echocardiography was performed routinely prior to discharge and then subsequently every six months. Transesophageal echocardiography was done in all patients during surgery.

RESULTS

Out of the total 12 patient, six were male and six female, with a mean age of 33.67±6.05 years (Table I). All were left atrial myxomas. None of them were familial. Their clinical presentation is depicted in Table II. The duration of symptoms ranged from 11 to 15 months. All patients were in New York Heart Classification II. Physical examination indicated mitral stenosis in 6(50%) patients, and mitral stenosis and regurgitation in 2(16%) cases. Changing cardiac murmurs and early diastolic tumour “plop” were heard in 4(33%) patients.

All (100%) patients had a pedunculated tumour, that was attached to the fossa ovalis. The tumor ranged in size between 1.5x1x0.7 cms to 9x8x6 cms and weighed between 3-140 gms. Histopathological examination confirmed the diagnosis of myxomas in every instance.

Eleven (91.6 %) patients survived the operation; one died of cerebrovascular accident. Continuous follow-up of the cases has been done over the last seven years; no patient was lost to follow-up. There was no late death and no recurrence so far. All eleven patients are in New York Heart Classification I. Trivial mitral regurgitation was present in three patients and mild regurgitation in one.

DISCUSSION

Cardiac myxomas are benign intracavity neoplasms. Their incidence in cardiac surgery is between 0.0013% and 0.005%.7,8 The exact incidence in Pakistan is not known, but these tumors were the cause of 0.68% of all cardiac operations performed at our institution. This incidence is higher than that (40%) quoted in the literature but agrees with the figures reported by Miralles

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<th>Table I. Age Distribution (n=12)</th>
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<td><strong>Age Group</strong></td>
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<th>Table II. Clinical Presentation (n=12)</th>
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<td><strong>Symptoms</strong></td>
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<td>Cardiac Dyspnoea</td>
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and colleagues.\textsuperscript{8,9}

Echocardiography is currently the most important diagnostic modality available for imaging cardiac tumors. It is non invasive and does not pose the risk of tumor embolization.\textsuperscript{10} Echocardiography allows a preoperative diagnosis with a good degree of accuracy. Two dimensional echocardiography can quantify tumour size, its shape, attachment and mobility and can screen other cardiac chambers for additional tumors. It provides a better imaging of the right heart tumours and may preempt the need for cardiac catheterization.\textsuperscript{11-13}

Trans-oesophageal echocardiography has increased the specificity and sensitivity of the diagnosis especially in patients who have a poor transthoracic echocardiographic window. In our series, echocardiography was uniformly successful in diagnosing the tumour.

Although little is known about the course of myxomas before their symptomatic period, we agree with other investigators\textsuperscript{14-17} that they grow fairly rapidly, as evidenced by the high mitral valve gradient without appreciable enlargement of the atrium on X-ray chest and echocardiography. Besides, the duration of symptoms in our patients ranged from only 2-8 months. More than half of our patients had class IV symptoms.

Surgical excision of cardiac myxomas must be done as soon as possible after the diagnosis is established due to the high risk of valvular obstruction or systemic embolization. Although no recurrences have been reported in patients treated with conservative resection, a wide excision with a large cuff of atrial septum is preferable in most cases.\textsuperscript{9,14} Lesser resections are justified only in cases where wide resection and reconstructing may be difficult\textsuperscript{11}, as when the myxoma is attached to the posterior wall of the left atrium and near the atrio-ventricular groove. In our experience, trans-septal approach, like a bilateral incision, also allows good exposure with the ease of resection and visualization of all the cardiac chambers for any concomitant tumour. We routinely explore all the cardiac chambers for additional tumour, as it can be missed by preoperative studies.

The potential for recurrence has been reported by Gerbode and colleagues.\textsuperscript{2} Recurrence can be due to inadequate resection, intraoperative implantation, embolization, or multicentric growth.\textsuperscript{18-24} None of the sporadic cardiac myxomas in our series recurred. We think that complete excision of the tumor and its pedicle with a cuff of surrounding normal tissue and copious irrigation of cardiac chambers to remove tumour debris may help avoid recurrence. In addition, careful handling of the myxoma itself may prevent intracardiac implantation or peripheral embolization of tumour fragments.\textsuperscript{17,18}

**CONCLUSION**

Surgical intervention with wide excision, probably offers a cure for patients with sporadic intra-cardiac myxomas.

**REFERENCES**

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