ATRIAL MYXOMA: AN EXPERIENCE IN A TERTIARY CARE CENTER

Abdul Malik, Syed Murad Ali Shah, Muhammad Asghar Khan, Muhammad Amin, Nayyar Waseem, Ashab Noor, Riaz Anwar Khan

Department of Cardiovascular Surgery and Cardiology,
Lady Reading Hospital, Peshawar - Pakistan

ABSTRACT

Objective: *To assess the success rate of surgical excision, complications and midterm follow up of patients with atrial myxoma in our center.*

Methodology: *In this retrospective case record study, all patients of atrial myxoma since January 1993 till December 2009 admitted in the department of Cardiovascular Surgery, Lady Reading Hospital Peshawar for surgical excision were assessed for operative success rate, peri-operative complications and midterm follow up for 6 months.*

Results: *A total of 57 patients underwent surgical excision for atrial myxoma. Mean age of the sample was 35.2±16.7 Years. There were 37(64.91%) female patients. Forty five (78.94%) patients had palpitations while 38(66.66%) patients reported shortness of breath and 5 (8.77%) patients had atrial fibrillation preoperatively. Diagnosis of atrial myxoma was made with transthoracic echocardiography in 50 (87.71%) patients. Fifty (87.71%) patients had myxoma located in the left atrium while five (8.77%) patients had myxoma in the right atrium and two (3.5%) patients had the myxoma attached to the mitral valve leaflets. Only 2 patients had embolic phenomenon; one recovered completely in two weeks time while the other undergone successful embolectomy. There was no intraoperative mortality and only one patient died post operatively due to multi organ failure. On six month follow up, there was no local recurrence while 8 (14.03%) patients had atrial fibrillation. Only two patients (3.5%) were lost to follow up.*

Conclusion: *Our experience with surgical excision of atrial myxoma suggests that it is curative with minimum complications and recurrence rate.*

Key words: *Atrial Myxoma, Carney Complex, Benign Cardiac Neoplasm.*

INTRODUCTION

Primary cardiac neoplasms are rare entities with an autopsy frequency of 0.001--0.03%, accounting for < 5% of all cardiac tumors[1, 2]. It is estimated that more than 75% of the primary cardiac neoplasms are benign and nearly half of the benign tumors are myxomas[3].

Although atrial myxomas do not metastasize, they can have catastrophic effects due to impairment of cardiac structure and function, including the precipitation of arrhythmias or embolism. They demonstrate female predominance[4,5]. The age range of presentation varies from 9-60 years[6,7]. Atrial myxomas are rarely diagnosed in childhood, except when they are part of the Carney complex[8, 9].

Atrial myxomas have many clinical presentations and are known to be great mimickers[4,7]. The classic clinical triad of constitutional symptoms of fever, malaise, valvular obstruction and embolic phenomenon are rare to some degree in most cases[4].

Myxomas are located in the left atrium in about 75 to 80% of the cases, usually attached to the fossa ovalis and are solitary tumours. About 15 to 20% of the myxomas arise in the right atrium. Only 2% of the myxomas arise in the ventricles. They are always intracavitory in location[10].

To assess the operative outcome and complication of surgical excision of atrial myxoma, we reviewed the record of our seventeen years of experience with surgical excision of cardiac myxomas at a single center tertiary care teaching hospital.

METHODOLOGY

This retrospective case record study was conducted at the department of cardiovascular surgery, Lady Reading Hospital Peshawar from January 1993 to December 2009. This is the only department in the public sector in the whole province which on average operates 4 to 5 cases of atrial myxomas per year. For this study, all the diagnosed cases of atrial myxomas on echocardiography admitted in this department during the study periods were included. The pre operative diagnostic workup consisted of routine blood investigations including, complete blood picture, ESR, C-reactive protein, hepatitis and HIV screening. Chest X-Ray, ECG and transthoracic echocardiography were done routinely. Transesophageal echocardiography was performed in selected cases. No additional diagnostic work up such as CT scan, MRI, Cardiac catheterization was performed. All patients of atrial myxoma above the age of 45 years underwent coronary angiography to rule out associated coronary artery disease. The demographic data including gender, age, clinical presentations, site of myxomas, associated complications, operative details, perioperative morbidity and mortality were recorded was recorded on the preformed Performa. The patients were followed up for 6 months and the follow up data was collected from the admission charts and from patient visits to the out-patient department after surgery.

Operative technique

After general anesthesia, median sternotomy was performed. Aorto and bicaval cannulation were done according to the standard protocols. Caval snares were placed. Procedure was performed under moderate hypothermia with antegrade cold blood cardioplegia administered. Blood in left atrium sucked with wall suction and myxoma identified and excised. The site of myxoma attachment was diathermiazed, left atrium closed, Heart de-aired and patient taken off bypass. Similar technique was used for right atrial myxoma excision.

RESULTS

A total of 57 patients underwent surgical excision for atrial myxoma. Out of 57 patients, 37(64.91%) were females. Mean age of the sample was 35.2$\pm$16.7 Years. Forty five (78.94%) patients were complaining of palpitations. Shortness of breath was the presenting complaint of 38 patients (66.66%). Atrial fibrillation was present in 5 (8.77%) patients preoperatively. Two (3.5%) patients presented with congestive heart failure. Twenty patients (35%) had constitutional symptoms of fever, arthralgias, fatigue and weight loss (Table 1).

Diagnosis of atrial myxoma was made in fifty patients with transthoracic echocardiography. Only seven patients required transesophageal echocardiography.

Fifty (87.71%) patients had myxoma located in the left atrium attached to the inter-atrial septum while five (8.77%) patients had myxoma in the right atrium and two (3.5%) patients had the myxoma attached to the mitral valve leaflets (Table 2).

Table 1: Clinical presentation of patients with atrial myxoma pre operatively

Clinical presentation	No. of patients	Percentage
Palpitations	45	78.94%
Shortness of breath	38	66.6%
Atrial Fibrillation	5	8.77%
Congestive heart failure	2	3.5%
Constitutional symptoms	20	35%

Table 2: Location of atrial myxoma

Location of myxoma	No. of patients	percentage
Left Atrium	50	87.71%
Right Atrium	5	8.77%
Mitral valve leaflets	2	3.5%

Table 3: In hospital complication of atrial myxoma

Complications	No. of patients	Percentage
Cerebral embolism	1	1.7%
Peripheral embolism	1	1.7%
Intra operative mortality	0	0
Post operative mortality	1	1.7%
New onset Atrial Fibrillation	3	5.26%

Table 4: Six Month Follow Up of patients of atrial myxoma

Complications	No. of patients	Percentage
Local Recurrence	0	0
Atrial Fibrillation	8	14.03%
Lost to Follow Up	2	3.5%

In our study, only 2 (3.5%) patients had embolic phenomenon. One had cerebral embolism that recovered completely in about two weeks time while the other had embolism to lower limb. Successful embolectomy was performed in the second patient. There was no intraoperative mortality while one patient died post operatively due to multi organ failure. Three (5.26%) patients developed new onset atrial fibrillation postoperatively (Table 3).

On six month follow up, there was no loxcal recurrence while 8 (14.03%) patients had atrial fibrillation. Only two (3.5%) patients were lost to follow up (Table 4).

DISCUSSION

In this large series all the cases were benign atrial myxomas. Recently, Yu et al., in a surgical case series, reviewed 33108 patients submitted to cardiac surgery and found 234 cases with a confirmed diagnosis of primary heart tumor (0.71%). Myxoma was found in 184(78.6%) patients. However, right atrial localization was observed in only 12 of those cases (6.5%)[11]. Fifty-two of the patients 87.71% in our series had myxoma located in the left atrium attached to the inter atrial septum consistent with published literature of 75%. Similarly our frequency of myxoma in the right atrium had consistency with the international data. Five patients (8.77%) in our study had right atrial myxoma. The attachment of myxoma to valve leaflet has been reported. In our study two patients (3.5%) had the myxoma attached to the mitral valve leaflet.

Twenty patients (35.8%) were having constitutional symptoms like fatigue, arthralgias, weight loss and fever. Shortness of breath is thought to be due to mechanical obstruction of the atrioventricular valve. Its frequency has been reporteD to be 38 to 80 percent[4]. Thromb-oembolism is the most lethal complication of this condition. In which tumour fragments can be found embolised in about 40% of cases[12-14]. In more than 50% of the cases the embolism is cerebral[15, 16]. Tumor fragment can also involve the coronary arteries and can cause ischemia and infarction. It can also cause pulmonary embolism, pulmonary infarction and sudden death. Fatheh Ali Tipu and colleagues reported 64% of embolic phenomena[17]. Case report of myxoma with multiple emboli to cerebral, renal, coronary and mesenteric artery in a single patient has been reported[18]. Polypoid tumors are more notorious for embolic phenomena as compare to sessile tumours[19]. In our study the frequency of embolism was 3.5 % consistent with published data.

Although constitutional symptoms are more frequent, myxoma can be asymptomatic. Atrial fibrillation has variable frequency in different studies ranging from 2.4 to 36%[17]. In our study five patients (8.77%) had preoperative atrial fibrillation. All our study patients were diagnosed with echocardiography and no additional imaging modality was needed. Recently other diagnostic imaging modalities like CT scan and Cardiac MRI are frequently used in the evaluation of patients with atrial myxoma. Sixteen of our patients underwent coronary angiography that is the standard recommendation in patients above the age

of 45 years. All angiograms were reported normal.

Surgical excision of the myxoma has been the only curable option since Crafford's first attempted to remove left atrial myxoma in 1954[20]. On the basis of experience with the surgical management of myxoma, we recommend that aggressive surgical management yields satisfactory results. Surgical excision must be immediately arranged once the diagnosis is made to avoid complications such as systemic embolization, vavular destruction, congestive heart failure, dyspnea and constitutional symptoms. Different surgical approaches like left atrial, transseptal or bi atrial were adopted to excise the myxoma[21, 22]. We adopted left atrial or right atrial approach depending upon the location of the myxoma. Another important issue is the excision of the attachment site of myxoma. Some authors argue wide excision of the attachment site and then repair with Gortex patch[23]. While other authors advocate simple excision of the tumour attachment site and have observed the patients for a period of 4—10 years without evidence of recurrence[24]. We in our centre do simple excision and diathermize the attachment site with excellent results. There was complete resolution of symptoms in 55 out of 57 patients after surgery in our study.

Arrhythmias and other conduction alteration are frequent in the immediate post operative period and later on[25]. In our experience atrial fibrillation after myxoma excision appeared in the immediate post operative period in 3 patients (5.26%) without hemodynamic compromise. Sinus rhythm was obtained with intravenous infusion of amiodarone with no need for further oral maintenance therapy. In our study one patient had lower limb embolism, the limb was successfully saved with embolectomy. Such complication during the perioperative period has not been reported in the literature so far. Surgery related mortality is reported to be less than 5% from myxoma[26-31]. In our series one patient died (1.75%) due to postoperative hepatic failure and later on due to multi-organ failure. All current surgical techniques seem to provide low recurrence rate.

Late recurrences have been reported to occur in 0.425% of surgically treated patients after 22 years of operation. However, 40% of patients with familial myxomas experience recurrence[32]. atrial myxoma seems to recur in patient with incomplete excision, multifocal lesions, tumour fragment shedding during operation and in patients with strong family history of myxoma[33].

In our midterm follow up for 6 months, no recurrence has been demonstrated. All our patients had sporadic and non familial myxomas. Our study in general supports the case for aggressive surgical intervention which is a safe and excellent form of treatment and without surgery; the outcome is poor and may be lethal.

CONCLUSION

The experience with surgical excision of atrial myxoma shared through this study suggests that it is curative with minimum complications and recurrence rate.

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Address for Correspondence:
Dr. Abdul Malik
Assistant Professor
Department of Cardiovascular Surgery,
Lady Reading Hospital, Peshawar - Pakistan