MYXOMAS
Myxomalar

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Cardiac myxoma is the most common primary tumor of the heart (1,2,4,5,7,9-11). The diagnosis of myxoma is rarely made on clinical grounds because there are no specific historical, physical examination, chest x ray, or electrocardiographic findings. Since the introduction of echocardiography, most cases of myxoma are diagnosed during life and potentially curative surgical extirpation is thus possible (5,9).

METHODS

Fourteen patients (8 women and 6 men) underwent operations for cardiac myxoma from January 1985 to December 1992 in Cardiovascular Surgery Deparmants of Ankara and Erciyes Universities. The average patient age at operation was 44 years (26 to 57). Eleven of the tumors (78.6%) were found in the left atrium, 3 (21.4%) in the right atrium. The majority of these tumors originated from the atrial septum or in the region of the foramen ovale.

The primary symptoms at presentation were shortness of breath in 11 pati- ents, palpitations in 8, syncope in 1, angina in 4, hemoptysis in 2, cough in 3, weight loss in 2, weakness in 3, fatigue in 2. Nearly every patient had multiple symptoms.

Clinical congestive heart failure was found in 8 patients (57.1%), 2 of whom were in New York Heart Association Class III or IV. Tachyarrhythmias were present in 8 patients (57.1%) and syncopal episodes were reported in 1 (7.1%), usu- ally in releation to postural changes. Constitutional symptoms were reported in 5 patients (35.7%). The most common symptoms of systemic illness were fever, loss of weight, weakness, fatigue (Table1).

Physical findings were generally nonspesific, but 10 patients had an audible murmur: systolic in 6 and diastolic in 4. In 3 patients there was a loud first sound (Table1).

Diagnosis were obtained by echocardiograpy or cardiac catheterization or both. Catheterization was made only in 2 cases. Neither chest radiography nor electrocardiography was determinant for the diagnosis, but they were very helpful because cardiac enlargement often present. Electrocardiography also showed signs of atrial hypertrophy in 5 cases, arrhythmias in 8. One patient had first-degree heart block before operation.

Three patients had anemia (hemoglobin level less than 10g/dl). An elevated sedimentation rate was noted in 9 of 14 patients.

Surgical technique: A median sternotomy incision was employed in all patients. Operation was performed with moderately hypothermic cardiopulmonary bypass, topical cooling and cold potassium cardioplegia. Both the superior vena cava and the inferior vena cava were routinely cannulated separately through the right atrium regardless of the position of the myxoma, with care taken to avoid any undue manipulation of the heart. Right

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atrial myxomas were resected through a right atriotomy. Most of the left atrial myxomas were excised through a left atriotomy. In 3 cases tumor resected both right and left atrial incision. En bloc excision with complete resection of the pedicle was performed in all patients (Fig. 1). Primary closure of the surgically created defect was done in 11 patients, whereas a dacron or goretex patch was used in the rest (Table1).

All surviving patients underwent physical examination, electrocardiography, and echocardiography.

RESULTS

Follow-up of patients was at a mean duration of 3 years (range, 6 months to 6 years) after myxoma resection. There were no operative death. Early morbidity included reversible neurological alterations in 1 patients (7.1%) and arrhythmic complications in 1 patients (7.1%).

Ninetyfive percent of the surviving patients were in New York Heart Association class I or II, and no recurrences have been documented after operation.

Table 1. Summary of patient in formation

Patient No	Age	Sex	Mode of presentation	Findings	Location	Operation
1.	42	F	dispnea, palpitation angina	sist α diast murmur	right atrium	right atriotomy + excision
2.	51	M	dispnea, palpitation	sist α diast murmur	right atrium	right atriotomy + excision
3.	26	M	dispnea, palpitation, angina	sist. murmur	left atrium	left atriotomy + excision
4.	35	F	dispnea, palpitation	sist α diast mumur	left atrium	left atriotomy + excision
5.	55	F	dispnea, palpitation	normal	left atrium	left atriotomy + excision + dacron patch
6.	54	F	dispnea, angina, syncope	loud 1st sound	left atrium	left atriotomy + excision
7.	46	M	dispnea, palpitation, fatigue	loud 1st sound	left atrium	left atriotomy + excision
8.	54	M	palpitation, weight loss, weakness	loud 1st sound	left atrium	left atriotomy + right atriotomy, excision + dacron patch
9.	40	F	dispnea, cough, hemoptysis	normal	left atrium	left atriotomy + right atriotomy + excision
10.	57	F	dispnea, cough hemoptlsis	sist murmur	left atrium	left atriotomy + right atriotomy + excision
11.	44	M	dispnea, fever weight loss	normal	left atrium	left atriotomy + excision
12.	35	F	palpitation, angina fatigue	sist murmur	left atrium	left atriotomy + excision
13.	46	F	cough, weakness fever	normal	left atrium	left atriotomy + excision + dacron patch
14.	36	M	dispnea, weakness	diast murmur	right atrium	right atriotomy + excision

Figure 1. Photograph of one of the resected left atrial myxomas

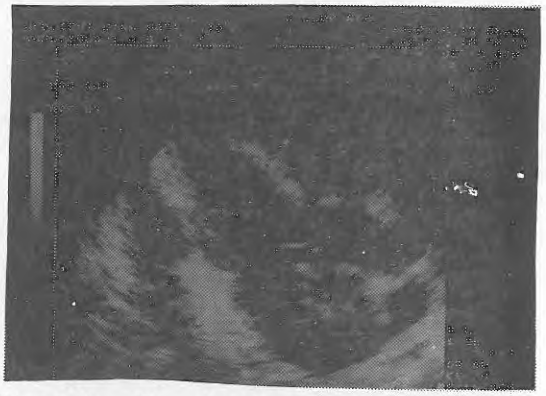

Figure 3. Two dimensional sistolic 2 chamber echocardiographic view of large left atrial myxoma

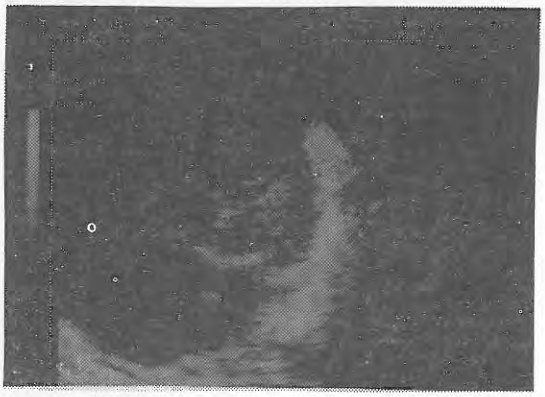

Figure 2. Two dimensional diastolic 4 chamber echocardiographic view of a large left atrial myxoma

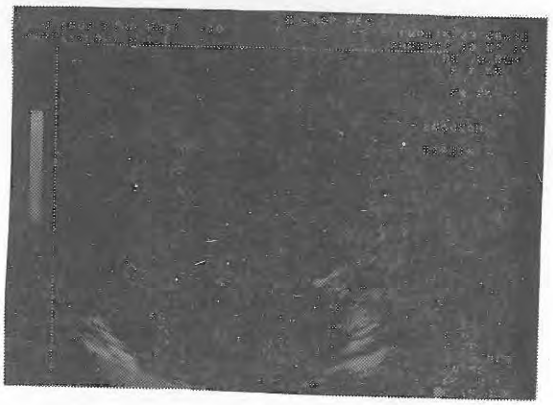

Figure 4. Two dimensional diastolic 4 chamber echocardiography after excision of myxoma in the same patient

DISCUSSION

Cardiac myxoma is the most common primary benign cardiac tumor and accounts for approximately 50% of all such lesions (1,2,4,5,7,9-11). These tumors have been encountered in all age-groups; the majority, however, are diagnosed between the third and sixth decades of life (5,9,11). They seem to occur more frequently in women and are rare in children (5,9). Familial myxomas have been reported (5,8,9). In our cases male-to-female ratio was 6/8 and 10 of the patients are diagnosed between the fifth and sixth decades.

The literature frequently quotes a 75% incidence of left atrial myxomas, a 20% incidence of right atrial myxomas and a 5% incidence of ventricular myxomas (1,3-5,7,9). Our data also confirms these findings. Myxomas were 78.6% (11) in the left at-

rium and 21.4% (3) in the right atrium in our cases. Myxomas are usually single but multiple tumors have been reported and multiple chambers may be involved (5,7,9). Their size has varied from several millimeters to over 10 cm in diameter (7,9).

The classic triad of symtoms relates to the obstructive, embolic, and constitutional effects of the tumor (4,5,9). The duration of symptoms depends on the rate of growth of the tumor (9).

Obstructive symptoms occur in 54 to 95% of patients symptoms include positional dyspnea, orthopnea, paroxymal nocturnal dyspnea, and fatigue. Syncope is rarely seen and may be the result of complete transitory obstuction of the cardiac valve (5,7,9). On physical examination, the signs of left atrial myxoma also mimic mitral stenosis (9).

Systemic emboli are the second arm of the classic triad and occur in 20 to 60% of patients with myxomas (5,9). Fifty percent of myxomatous emboli from the left heart go to the central nervous system, but they can embolize to any arterial bed. The symptoms and signs are related to the vascular bed that is occluded and can not be distinguished from acute arterial insufficiency of other etiologies. The diagnosis of a myxoma can be made by histologic examination of the removed embolized material (5,9). There were no symptoms and signs of emboli due to myxoma in our cases.

The constitutional manifestations, which occur in over 90% of patients, are due to the presence of the tumor and are independent of the location of the tumor (5,9). These signs and symptoms include myalgia, muscle weakness artralgia, fever, weight loss, fatigue, Raynoud's phenomenon, clubbing, leukocytosis, thrombocytopenia, anemia, an elevated sedimentation rate, increased serum gammoglobulins (5,9). Fever, weight loss, weakness, fatigue and anemia were the constitutional symptoms in our patients.

The chest roentgenogram and the electrocardiographic findings in patients with myxoma are nonspesific and reflect changes in chamber size and hypertrophy of the chamber walls.

The majority of the patients are in normal sinus rhythm, although atrial fibrillation or flutter, low voltage, right bundle branch bloch are sometimes encountered (5,9).

Echocardiography presently is the most preferred laboratuary technique for diagnosis of cardiac myxomas (Fig. 2,3,4). Angiocardiography is rarely required for diagnosis or for preoperative surgical guidance (5,9).

Myxomas are potentially lethal benign neoplasm that may be associated with local and systemic complications (5). Because rapid deterioration and sudden death may occur early, surgical removal is indicated once the diagnosis of myxoma is made (7,10).

The treatment of chose is promt surgical resection, both for symptomatic improvement and to avoid complications (9). To avoid recurrences, the aim of operation should be to remove not only whole mass but also its base of attachment (1).

Myxomas are easily resectable, and the surgical mortality in many studies has fallen below 5% (2-4,6,7,11). There were no operative deaths nor were the important postoperative complications in our cases. Ninetyfive percent of the surviving patients were in New York Heart Association class I or II after operation.

Intracardiac recurrence of myxoma has been reported at rate of 0 to 14% (4,5,7,9,11). Periodic echocardiography is recommended for follow-up to screen for intracardiac recurrence. No patient has developed clinical signs of myxoma recurrence in our cases.

In conclusion, the extended follow up of patients with myxomas shows that excision of such tumor is curative and the longterm outcome excellent. Regard-less of their location, myxomas should always be resected.

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