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**Original article:**

# A 5 Year Single Tertiary Care Centre Experience on Cardiac Myxomas

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**Abstract:**

Cardiac myxomas, the most frequent primary benign cardiac tumors, present with a myriad of clinical manifestations, posing diagnostic challenges. This study reviews 38 patients with cardiac myxomas operated on at GB Pant Hospital in Delhi over the last five years. Patients primarily exhibited dyspnea on exertion, chest pain, palpitations, or were asymptomatic, with associated comorbidities like diabetes, hypertension, and coronary artery disease. Echocardiography played a pivotal role in diagnosis.

Surgical resection, through median sternotomy and cardiopulmonary bypass, was performed meticulously to prevent tumor fragmentation and systemic embolization. Postoperative complications were minimal, with no recurrence during a five-year follow-up. Elective surgery was found to have no greater mortality or morbidity compared to urgent procedures.

In conclusion, timely diagnosis, thorough surgical excision, and adequate follow-up can lead to excellent postoperative outcomes in patients with cardiac myxomas. The study emphasizes the importance of echocardiography in diagnosis and underlines that cardiac myxomas, although rare, should be considered in the

differential diagnosis of cardiac masses. These findings contribute to the understanding and management of this infrequent yet potentially life-threatening condition.

**Keywords:** Cardiac myxoma, surgical resection, echocardiography, postoperative outcomes.

## Introduction

Cardiac tumors are a rare entity with an incidence of 0.02% (1) . Myxomas are the most common primary cardiac tumors. They are benign, usually reported in both sexes and in all age groups. They are usually sporadic but in 7% occurs as a part of autosomal dominant syndrome called Carney Complex (2) . It is associated with spotty pigmentation of skin and endocrine hyperactivity. Myxomas are generally polypoid, pedunculated lesions with a smooth surface, size varying from 1 to 15 cm. Myxomas may present with symptoms of haemodynamic derangement from obstruction of flow within cardiac chambers or deformation of valve, embolization and rarely with constitutional symptoms.

## Methodology:

| VARIABLES | | 38 (Total Patients) | |
|---|---|---|---|
| AGE | | 17-73 years(59.5yrs) | |
| | MALE | 25 | 66% |
| | FEMALE | 13 | 34% |
| PAST MEDICAL HISTORY | | | |
| | DIABETES | 9 | 23% |
| | HYPERTENSION | 13 | 34% |
| | CAD | 2 | 5% |
| PRESENTING SYMPTOMS | | | |
| | DYSPNOEA ON EXERTION | 25 | 65% |
| | CHEST PAIN | 7 | 18% |
| | PALPITATION | 12 | 31% |
| | FEVER | 2 | 5% |
| | ASYMPTOMATIC | 8 | 21% |
| OTHER ASSOCIATED FACTORS | | | |
| | ATRIAL FIBRILLATION | 8 | 21% |
| | CHF | 4 | 10% |
| | SEVERE PAH | 4 | 10% |
| | SEVERE TR | 2 | 5% |
| NYHA | | | |
| | I | 10 | 26% |
| | II | 16 | 42% |
| | III | 8 | 21% |
| | IV | 4 | 10% |
| INVETSIGATION | | | |
| | CHEST CT ANGIO | 22 | 57% |
| | CATHEETERISATION | 18 | 47% |
| | | | |

**Table 1. Preoperative characteristics of the patients with cardiac myxoma.**

| | | | |
|---|---|---|---|
| INTRA-OP FINDINGS | | | |
| SIZE | SIZE | | |
| | >2 | 38 | 100% |
| | >4 | 32 | 84% |
| | >6 | 6 | 15% |
| LOCATION | | | |
| | LEFT ATRIUM | 27 | 71% |
| | RIGHT ATRIUM | 9 | 29% |
| | TUMOR PROTRUDING THROUGH MITRAL VALVE | 5 | 13% |
| | PEDUNCLATED | 13 | 34% |
| CONCOMITATNT SURGERIES | | | |
| | VALVE SURGERY (MVR) | 3 | 8% |
| | PFO PERICARDIAL CLOSURE | 24 | 64 % |
| | TV ANNULOPLASTY | 2 | 5% |
| | BIVENTRICULAR PACING | 1 | 2.6% |
| CPB | | | |
| | MEAN AORTIC CROSS CLAMP TIME | 48min | |
| | MEAN CPB TIME | 98min | |
| CARDIOPLEGIA | | | |
| | ST THOMAS | 24 | 64% |
| | DELNIDO | 14 | 36% |
| | | | |
| | | | |
| COMPLICATIONS | | | |
| | PAROXYSMAL AF | 12 | 31% |
| | RENAL IMPAIREMENT | 2 | 5% |
| | WOUND INFECTION | 4 | 10% |
| | RECURRENCE | 0 | |
| | | | |

**Table 2. Intraoperative and postoperative results of operated patients with cardiac myxoma.**

**Patients And Methods**

All patient, who were operated in GB Pant hospital Delhi, in last 5 years, (5,473 of major surgeries) 38 patients were operated for myxoma (0.7%). Mean age at time of surgery was 59 years ranging from 17 to 73 years (Table2). 25(66%) patients were male and 13 (33%) were female. Dyspnoea on exertion was most common presentation, seen in 25 patients, 7 patients had chest pain and 12 patients had palpitations. In 8 patients, myxoma was accidentally found and were asymptomatic.

Diabetes was found in 9 patients and 13 patients had hypertension and were on medications. Two patients had having coronary artery disease at time of diagnosis and were on medical management.

All patients were diagnosed using trans-thoracic echocardiography. Of them, 22 patients underwent CT heart and great vessels. 18 Patients underwent conventional angiography to rule out any coronary lesions. None of our patients had any significant lesion and did not need grafting.

On trans thoracic echo, 2 patients had severe tricuspid regurgitation. Four patients had severe PAH. Four patients had history of chronic heart failure treated medically and 8 patients had atrial fibrillation.

**Surgical Technique**

All patients were operated using a median sternotomy approach on cardiopulmonary bypass with bicaval canulation and snugging and ascending aorta canulation with moderate hypothermia. Cardio protection was done through ante-grade cold blood cardioplegia with topical cooling. Minimal manipulation of heart was done to avoid tumor fragmentation and systemic embolization. Left atrium vent was not used.

Left atrial myxoma was routinely removed from left atrium opened posterior to inter-atrial grove. The objective was complete full thickness resection of base and cuff of inter atrial septum. All four chamber were thoroughly explored irrigated to rule out any residual tumor and risk of embolism. Mitral valve and tricuspid valve was routinely tested using syringe saline test.

For right atrial myxomas, RA was opened via oblique incision. Tumor was excised with adjacent portion of non involved atrial septum. Left atrium was looked into to rule out any tumor. 9(29%) patients had right atrial tumor. In 13 pattients tumor was pedunclated and 5 patients had tumor protruding through mitral valve. 4 patients had bi atrial tumor. In 10 patients both RA and LA was opened for tumor removal.

Mean cardiopulmonary bypass time was 48 minutes and aortic cross clamp time was 98 mins. In 24 patients St Thomas cardioplegia was used and in remaining 14 patients delnido was used. 3 patients underwent concomitant valve surgery with mitral valve replacement and in two patients tricuspid valve annuloplasty was done. In 24 patients PFO was closed by pericardial patch. Intra operative trans esophageal echo was routinely done for cor-relation of thoracic echo findings. (Fig. 1)

**Discussion**

Myxoma is the most common primary benign cardiac tumor, that originates from stromal cells and differentiates along endothelial lines (3) . They usually occur in left atrium but have been described in the right atrium, right ventricle, mitral and tricuspid valve. Females in age group of 40-60 are more frequently affected except for familial types which are common in young aged individuals.The most common presentation is with haemodynamic abnormality due to embolization and tumor obstruction (4) . Alongside several constitutional symptoms may be observed like dyspnoea, palpitation, fever and weight loss. (5)

The risk of recurrence ha been documented to be 5 to over 14 % (6) . In our case series of 38 patients, no recurrence has been documented during a maximum follow-up of 5 years. To avoid recurrence, myxoma should be completely removed with the base and a portion of surrounding inter-atrial septum. Several factors like family history, young age and multi focal location are risk factors for recurrence. Long follow up and more cases are needed to quantify recurrence rate.

Myxomas are associated with a mortality rate of 2.7 and 5%, major risk factors being embolization and obstruction (7) . Total resection and irrigation decrease the incidence of embolization and obstruction. In our case series, we had only one death due to respiratory complications pneumonia and ARDS.

Historically, it was considered an urgent procedure due to the risk of embolism or syncope, because it had been noted that 8% to 10% of patients died of embolic complications while awaiting operation. However, more

recent experience suggests that elective operation (as opposed to urgent) has resulted in no greater mortality or morbidity.

**Conclusion**

Myxoma though rare, it is most common primary tumor. Trans-thoracic echo is the best to diagnose myxoma and identify its location and valvular status. Excision of pedicle with surrounding tissue ensures good resection. Myxoma can be life threatening and have morbid complications but when timely diagnosed and treated surgically, have good post-op results with low recurrence rate.

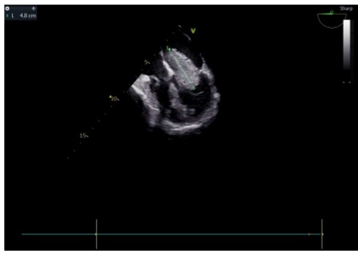

**Figure 1: Intraoperative transesopphageal echocardiography showing left atrial myxoma.**

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