A Study of the Patients Presenting with Cardiac Myxoma at a Tertiary Care Hospital in Eastern India

Santanu Dutta[1], Shilpa Basu Roy[2], Subesha Basu Roy[3], Shalini Dutta[4]

ABSTRACT

Introduction: Cardiac Myxoma is the most common tumour of the heart. It is a benign tumour and is more predominant in the females of 30-60 years. It is very often found in the left atrium and is usually attached to the Inter-atrial septum (IAS). In the present study we aimed to clinically evaluate this disease and understand the various treatment modalities available for it.

Material and methods: It was a retrospective observational study and statistical analysis was done wherever applicable. Present study comprised of 50 patients who attended with cardiac myxoma at our hospital during a span of 3 years.

Results: Females (58%) were more affected than the males and it was more commonly seen in the age group of 30-50 years. The most common symptoms were shortness of breath and chest pain. The mean duration of illness (in years) was 2.34 ± 1.06 (Mean ± SD). Transthoracic echocardiography (TTE) was done in all patients for confirming the diagnosis. In our study 64% patients had myxoma located in the right atrium and 76% had the myxoma-pedicle attached to IAS. The mean myxoma size was (in cm) 3.74 ± 1.32 (Mean ± SD). All patients were managed surgically which largely comprised of excision of the myxoma along with curettage of all the tissue around the site of attachment of its pedicle. Wherever an iatrogenic defect was created in the IAS, it was either closed by direct suturing or repaired with autologous pericardial patch. The distribution pattern of the observation on the association between the site of the myxoma attachment and the procedure done were compared statistically and the p-value: <0.0001 was found to be statistically significant. The overall peri-operative period was uneventful and there was no peri-operative morbidity or mortality in our study. The mean duration of discharge from hospital was (postoperative days) 4.36 ± 1.06 (Mean ± SD). The mean duration of follow-up (in months) was 22.75 ± 8.17 (Mean ± SD). Six patients were lost to follow up.

Conclusion: Transthoracic echocardiography is inevitable for the diagnosis of cardiac myxoma. Prompt surgery is the treatment modality of choice after initial stabilisation of the haemodynamically unstable patients who present with heart failure and optimisation of those who present with thrombocytopenia (platelet count <80,000/µL of blood). Overall prognosis of the cardiac myxoma patients after prompt surgical intervention is excellent.

Keywords: Cardiac Myxoma, Symptoms, Clinical Feature, Surgery, Recurrence

INTRODUCTION

The most common tumour of the heart is myxoma. The incidence of cardiac myxoma is around 50% amongst all cardiac tumours and are benign in nature. Although they can affect patients of any age, but commonly they are seen in the middle-aged people i.e. 30-50 years age group with a female preponderance. About 10% patients diagnosed with cardiac myxoma have history of familial myxoma which are due to an autosomal dominant transmission (familial myxomatous syndrome). In case of familial myxoma, the presenting age is often below 30 years. They are usually pedunculated masses of variable sizes and are more frequently found in the left atrium (80%) compared to the right atrium. The usual site of attachment of the tumour is around the fossa ovalis, but they could be also found to be attached at various other sites such as the inner walls of the atria and appendages, or rarely on the leaflets of the atrio-ventricular valves.[1] They are myxomatous masses having soft and gelatinous consistency. The patients with cardiac myxoma usually present with features of heart failure such as angina, bi-pedal oedema, shortness of breath (SOB), syncope or fatigue. Symptoms may also arise due to embolism of the tumour particles or thrombus. Many patients present with palpitation due to underlying atrial arrhythmias. Cardiac myxoma may be an incidental finding in asymptomatic patients.

Transthoracic echocardiography is the investigation of choice for confirmation of diagnosis. Transoesophageal echocardiography provides excellent peri-operative assessment of the cardiac myxoma. Excision of the tumour along with curating the base of the pedicle (stalk) is the treatment modality of choice. If the cardiac myxoma is originating from near the fossa ovalis, curating its pedicle often leads to creation of an atrial septal defect (ASD). The latter is either repaired with direct closure by suturing or by a pericardial patch depending on the size and extent of

[1]Associate Professor, Department of Cardiothoracic & Vascular Surgery, IPGMER & SSKM Hospital, Kolkata-700020, [2]Assistant Professor, Department of Cardiothoracic & Vascular Surgery, IPGMER & SSKM Hospital, Kolkata-700020, [3]Assistant Professor, Department of Gynaecology & Obstetrics, IPGMER & SSKM Hospital, Kolkata-700020, [4]B.Sc. Student, Department of Microbiology- Biotechnology, Sister Nivedita University, Kolkata

Corresponding author: Dr Shilpa Basu Roy, Residence Address- 46/1C, BT Road- Kolkata-700002, Office Address- Department of Cardiothoracic & Vascular Surgery, IPGMER & SSKM Hospital, Kolkata-700020

How to cite this article: Dutta S, Roy SB, Roy SB, Dutta S. A study of the patients presenting with cardiac myxoma at a tertiary care hospital in Eastern India. International Journal of Contemporary Medical Research 2021;8(1):A1-A4.

DOI: http://dx.doi.org/10.21276/ijcmr.2021.8.1.9

the defect. Complete removal of the tumour is necessary to prevent its recurrence. Recurrence of cardiac myxoma, although rare, is mostly seen in patients with familial myxomatous syndrome. Most patients with cardiac myxoma have a good prognosis. An early diagnosis followed by prompt surgical intervention is an important key for a favourable outcome in these patients.

Aims and Objectives

We aimed to determine the prevalence of cardiac myxoma patients and evaluate the different clinical features (signs and symptoms) of cardiac myxoma patients. We also observed the treatment modalities and prognosis of the patients.

MATERIAL AND METHODS

The present study was a retrospective observational study which was carried out at the Department of Cardiothoracic & Vascular Surgery, IPGMER & SSKM Hospital, Kolkata, during the period October 2016 to September 2019. Fifty patients presenting with cardiac myxoma were evaluated. All haemodynamically unstable patients and children below the age of 18 years were excluded from our study.

A detailed history including patients' age, sex, etc. were taken. They were interviewed and clinically examined for any symptoms such as shortness of breath (SOB), bi-pedal oedema, angina, palpitation, etc. The role of different investigation modalities such as the routine examination of blood, echocardiography, and cardiac computed tomography (CT) scan were evaluated. Patients were also evaluated based on the available treatment options with detailed clinical notes such as mode of treatment, details of operation done, site and size of myxoma, duration of hospital stay, follow-up etc.

Standard, appropriate statistical analysis of the observational data (such as history, clinical examination, Investigations done, nature of operation/ postoperative details, clinical notes) in the population under study was done. Statistical analysis had been done using the software SPSS Version-20/21. Appropriate statistical test was applied and p-value ≤ 0.05 was considered as statistically significant. There was no financial transaction in the study. This study was conducted after obtaining the necessary clearance from the institutional ethics committee.

RESULTS AND ANALYSIS

In our study, 12 patients (24%) were in the age group 21-30 years, 16 patients (32%) were in the age group 31- 40 years, 15 patients (30%) were in the age group 41- 50 years, and 7 patients (14%) were above 50 years of age. The mean age was 38.9 ± 9.11 (Mean ± SD) years and the range was 22-59 years. The median age was 39.50 years. Twenty-one (42%) were male patients while the remaining were females. The Male: Female Ratio was 1: 1.38. We found that 11 patients (22%) had a family history of cardiac myxoma.

Ninety-four percent of the patients in our study had complaints of shortness of breath (SOB), 60% presented with bi-pedal oedema, 24% of the patients had complained of palpitation while 44% had fatigue. As many as 64% of the patients complained of angina. Around 12 patients (24%) had concomitant cardiac arrhythmias. Thrombocytopenia was detected in 37 patients (74%). Fourteen patients (28%) were symptomatic for 1 year or less, 13 patients (26%) were symptomatic for 2 years, 15 patients (30%) were symptomatic for 3 years and only 8 patients (16%) had their symptoms for 4 years or more. The mean duration of illness (in years) was 2.34 ± 1.06 (Mean ± SD). The median duration of illness was 2 years, and the range was 1-4 years.

Trans-thoracic echocardiogram (TTE) was done in all patients for confirming their diagnosis. Cardiac computed tomography (CT) was required in 10 patients (20%) to evaluate the presence of any suspected associated cardiac anomaly. Intraoperative trans-oesophageal echocardiogram (TEE) was done in all the patients just before incision to further re-confirm the diagnosis as well as delineate the exact location, site of attachment & size of the myxoma. In our study the myxoma was commonly found in the right atrium (64%, i.e., in 32 patients). In 76% of the patients, the pedicle of the myxoma was attached to the inter-atrial septum (IAS) while the remaining 24% were attached to other areas including the atrial appendage and the tricuspid annulus. About 14% of the patients had a myxoma with diameter of 2cm or less, 62% had myxoma of size 4-5 cm in diameter and the remaining 8% patients had large myxoma having a diameter of 6cm or more. The mean myxoma size was (in cm) 3.74 ± 1.32 (Mean ± SD). The median size of the myxoma was 4 cm and the range was 1-7 cm.

All the patients were managed surgically. Simple excision of the myxoma with curettage of the tissue at the attachment site, was done in 12 patients. The remaining patients required excision of myxoma along with part of the inter-atrial septal tissue around the site of attachment of the pedicle, creating an iatrogenic atrial septal defect (ASD). In 23 patients (46%) the ASD was closed by direct suturing (in case of small defects) while in 15 patients (30%) the ASD was closed using autologous pericardial patch (in case of large defects). The distribution pattern of the observation on the association between the site of the myxoma attachment and the surgical procedure done were compared statistically (Table-1). The p-value: <0.0001 was statistically significant.

The overall peri-operative period was uneventful in all the patients. Eleven patients (22%) were discharged from hospital on the 3rd postoperative day (POD) whereas another 21 patients (42%) were discharged on the 4th POD. The remaining patients were discharged on the 5th POD (7 patients; 14%) and on the 6th POD (11 patients; 22%). The distribution of mean discharge from hospital (in POD) was 4.36 ± 1.06 (Mean ± SD). The median discharge from hospital (in POD) was 4, and the range was 3rd -6th POD. The distribution pattern of the observation on mean discharge from hospital (POD) and the surgical procedure done was compared and the p-value: 0.59 was statistically not significant (Table-2).

There was no peri-operative morbidity or mortality in our study. The mean duration of follow-up (in months) was 22.75 ± 8.17 (Mean ± SD). The median follow-up was 22.5 months, and the range was 6 - 36 months. Six patients were lost to follow-up. The distribution pattern of the observation

Total number of cases in study group: n=50				
	Procedure done			
Myxoma Attachment Site	**Excision of Myxoma**	**Excision of Myxoma + Direct Closure of ASD**	**Excision of Myxoma + Patch Closure of ASD**	**Total**
IAS	0	23	15	38
Row %	0.0	60.5	39.5	100.0
Col %	0.0	100.0	100.0	76.0
Other Sites	12	0	0	12
Row %	100.0	0.0	0.0	100.0
Col %	100.0	0.0	0.0	24.0
Total	12	23	15	50
Row %	24.0	46.0	30.0	100.0
Col %	100.0	100.0	100.0	100.0
Chi-square value: 50.0000; p-value: <0.0001				

Table-1: Distribution pattern on the observation on the association between myxoma attachment and the surgical procedure done

Total number of cases in study group: n=50								
		Number	**Mean**	**SD**	**Minimum**	**Maximum**	**Median**	**p-value**
Discharge (POD)	Excision of Myxoma	12	4.0833	.9003	3.0000	6.0000	4.0000	0.5938
	Excision of Myxoma + Direct Closure of ASD	23	4.4348	1.2368	3.0000	6.0000	4.0000	
	Excision of Myxoma + Patch Closure of ASD	15	4.4667	.9155	3.0000	6.0000	4.0000	

Table-2: Distribution pattern on the observation on the association between mean discharge (pod) and the surgical procedure done

Total number of cases in study group: n=50								
		Number	**Mean**	**SD**	**Minimum**	**Maximum**	**Median**	**p-value**
Follow-up (in months)	Excision of Myxoma	11	19.7273	7.6953	8.0000	34.0000	17.0000	0.3618
	Excision of Myxoma + Direct Closure of ASD	21	24.0476	8.5468	6.0000	36.0000	25.0000	
	Excision of Myxoma + Patch Closure of ASD	12	23.2500	7.8523	13.0000	35.0000	23.0000	

Table-3: Distribution pattern on the observation on the association between mean follow-up (in months) and the surgical procedure done

on the association between mean follow-up (in months) and the surgical procedure done was compared statistically. The p-value: 0.36 was not significant statistically (Table-3).

DISCUSSION

In our study, the maximum incidence was found in the age group of 30-50 years, i.e. 62%. The mean age was 38.9 ± 9.11 years, the minimum age was 22 years, and the maximum age was 59 years. Studies have shown that atrial myxomas commonly occur between the 4th & 6th decades of life.[2,3] The majority (58%) of our patients were females. Eleven patients (22%) had a known family history of cardiac myxoma disease. The female to male ratio of 2:1 has been concluded in many studies.[4,5]

SOB and chest pain were the commonest presenting complaints of our patients. Cardiac arrhythmias and thrombocytopenia were the associated abnormalities seen in 24% and 74% patients, respectively. Several studies have concluded that patients present with nonspecific symptoms depending on the site of the tumour and its attachment.[6-8]

Most of our patients were symptomatic for 2 years or more. About one-fourth had symptoms for less than 1 year. The mean duration of illness in our study was 2.34 ± 1.06 (years). TTE was done in all our patients for confirmation of diagnosis, accurate localization & determination of the size of the myxoma and any other cardiac abnormality. Transthoracic echocardiography has been the established investigation of choice for the diagnosis and detailed evaluation of cardiac myxoma since the last three decades.[9-10]

The myxoma was commonly found in the right atrium in our study (64%) and the majority of the myxomas were attached to the IAS. About 62% had a large myxoma of size 4-5 cm. In general, myxomas are more common in the left atrium and they originate from the IAS.[2,11] Reynen et al had elaborated in their article that the myxoma may be highly variable in size but usually ranges from 2 to 6 cm.[12]

All our patients were operated promptly after initially stabilising the sick patients who presented with heart failure. Patients with thrombocytopenia having platelet count of <80,000/ µl of blood were optimised before surgery. The

surgical intervention comprised of excision of the myxoma with curettage of the tissue surrounding the site of pedicle attachment. Often, that led to creation of an iatrogenic ASD which was either closed by direct suturing or by autologous pericardial patch, depending on the size of the defect. The distribution pattern of the observation on the association between the site of attachment of the myxoma and the procedure done was statistically significant (Table-1). It has been well established in literature that prompt surgical intervention is indicated for all tumours in the heart because of the high risk of secondary complications.[6-8]

The mean discharge from hospital (in POD) was 4.36 ± 1.06 days and the range was 3rd to 6th POD. The distribution pattern of the observation on mean discharge from hospital (POD) and the surgical procedure done was compared and it was found to be statistically not significant (Table-2). There was no peri-operative morbidity in our study group. We had no mortality. The mortality rate has been reported to be less than 5% and an increased rate has been reported with myxomas occurring in the ventricles which is exceedingly rare.[13] The mean follow-up in months was 22.75 ± 8.17 (Table-3). All the patients were evaluated with yearly transthoracic echocardiogram which showed improved cardiac functions without any evidence of recurrence of myxoma. Amongst the follow-up patients, none had thrombocytopenia and most had their arrhythmias resolved. We had six patients who were lost to follow-up. Recurrence has been reported to be around 5% in several literatures.[14,15] It is most commonly due to incomplete resection or tumour seeding during intra-operative manipulation of the mass.[16] Tansel et al in their 14 years' experience with cardiac myxoma concluded that the recurrence rate in the patients with papillary myxoma was higher than in those with solid myxoma.[17]

CONCLUSION

It is evident from this study that cardiac myxoma is commonly seen in the 30-50 years age group with a slight female preponderance. The most common presenting complaints were SOB and angina. They were often associated with concomitant cardiac arrhythmia and thrombocytopenia. Transthoracic echocardiography was the investigation of choice for confirmation of diagnosis. Patients had excellent prognosis after prompt surgical intervention.

REFERENCES

1. Wani M, Ahangar A, Singh S, Wani M, Ahangar A, Singh S. Anterior mitral leaflet myxoma: A rare occurrence. Ann Card Anaesth 2013; 16:304-5.
2. Yu K, Liu Y, Wang H, Hu S, Long C. Epidemiological and pathological characteristics of cardiac tumors: a clinical study of 242 cases. Interact Cardiovasc Thorac Surg. 2007;6:636-9.
3. A. W. Elbardissi, J. A. Dearani, R. C. Daly et al., "Survival after resection of primary cardiac tumors: a 48-year experience.," Circulation, vol. 118, no. 14, pp. S7–15, 2008.
4. Aggarwal SK, Barik R, Sarma TC, et al. Clinical presentation and investigation findings in cardiac myxomas: new insights from the developing world. Am Heart J. 2007; 154:1102–7.
5. Larsson S, Lepore V, Kennergren C. Atrial myxomas: results of 25 years' experience and review of the literature. Surgery. 1989; 105:695–8.
6. Hoppe UC, La Rosee K, Beuckelmann DJ, Erdmann E: Herztumoren – Manifestation durch uncharakteristische Symptomatik. Heart tumors—their manifestation through uncharacteristic symptoms. Dtsch Med Wochenschr 1997; 122: 551–7.
7. Just S, Schubel B, Minden HH: Tumoren des Herzens: herzchirurgisches Handbuch: Berlin: Verlag HJB 2002.
8. Strotmann J: Kardiale Tumoren – Klinik, Diagnostik und Therapie. Cardiac tumors—clinical symptoms, diagnostic approaches, and therapeutic aspects. Med Klin 2008; 103: 175–80.
9. Finegan R, Harrison D. Diagnosis of left atrial myxoma by echocardiography. N Engl J Med. 1970; 282: 1022-1023.
10. Popp R, Harrison D. Ultrasound for the diagnosis of atrial tumor. Ann Intern Med. 1969; 71: 785-787.
11. Natale E., Minardi G., Casali G., Pulignano G., Musumeci F. Left ventricular myxoma originating from the interventricular septum and obstructing the left ventricular outflow tract. European Journal of Echocardiography. 2008;9:84–85.
12. Reynen K. Cardiac myxomas. N Engl J Med 1995; 333:1610-7.
13. Garatti A, Nano G, Canziani A, Gagliardotto P, Mossuto E, Frigiola A, et al. Surgical excision of cardiac myxomas: twenty years experience at a single institution. Ann Thorac Surg. 2012; 93:825–31.
14. Garatti A, Nano G, Canziani A, Gagliardotto P, Mossuto E, Frigiola A, et al. Surgical excision of cardiac myxomas: twenty years experience at a single institution. Ann Thorac Surg. 2012; 93:825–31.
15. Jones DR, Warden HE, Murray GF, Hill RC, Graeber GM, Cruzzavala JL, et al. Biatrial approach to cardiac myxomas: a 30-year clinical experience. Ann Thorac Surg. 1995; 59:851–5.
16. Shinfeld A, Katsumata T, Westaby S. Recurrent cardiac myxoma: seeding or multifocal disease? Ann Thorac Surg. 1998; 66:285–8.
17. Tansel T, Harmandar B, Ugurlucan M, Nisli K, Eker R, Sozen AB, et al. Over 14 years of experience with cardiac myxomas. Acta Cardiol. 2006; 61:285–8

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 03-11-2020; **Accepted:** 01-12-2020; **Published:** 28-01-2021