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A CLINICO PATHOLOGICAL STUDY OF CARDIAC MYXOMAS IN A TERTIARY CARE CENTRE

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ABSTRACT

Background: Primary cardiac tumors are rare, and myxomas make up most of these tumors accounting for 30-50% of all primary heart tumours [1]. These commonly affect individuals between 3rd to 6th decades and have a female preponderance [2]. Despite a preference for the left atrium, any of the cardiac chambers can be involved. Myxomas have varied clinical presentations with the unusual feature being its potential to embolise and cause organ infarction [3]. The aim of this study is to analyse the clinical profile and histopathology findings of cardiac myxomas.

Materials and Methods: This was a retrospective study done in the Department of Pathology, A. J. Institute of Medical Sciences & Research Centre, Mangalore for a duration of 8 years from January 2016 to December 2023. All the cases cardiac myxomas received in the histopathology laboratory were included in the study. Clinical history, radiology findings and histopathology of all the cases were reviewed and analysed.

Results: A total number of 14 cardiac myxomas were encountered in the study. Females were more commonly affected (69.23%). The mean age of patients was 47.7 years. Most

commonly patients presented with symptoms of cerebral infarction. Left atrium was the most common site followed by right atrium and interatrial septum. Myxomatous matrix and hemorrhage were the morphological features found in most cases.

Conclusion: Cardiac myxomas though benign can cause life threatening embolic events. Hence, high index of suspicion and timely diagnosis is of utmost importance because it offers a scope for definitive treatment, i.e. surgical excision.

KEYWORDS : Myxoma, atrial, cardiac tumors, embolisation

Introduction

Primary cardiac tumors are rare, and myxomas make up most of these tumors. These account for 30-50% of all primary heart tumours, with an annual incidence of 0.5 per million population [1]. Myxomas commonly affect middle aged individuals between 3rd to 6th decades and have a female preponderance [2]. Cardiac myxomas can affect any chamber of the heart, however left atrium is most commonly affected [3]. It can also originate from the ventricles in 3-4% of cases. The clinical presentation depends on their location, size and mobility and is typified by the triad of intracardiac obstruction, embolisation and constitutional symptoms such as fever, malaise, weight loss, anorexia, arthralgia, weight loss and dyspnoea. About 10% of cases are asymptomatic [4] Timely diagnosis and treatment are essential for the prevention of sometimes life-threatening complications. This study was undertaken with an aim to study the clinical profile and histopathology findings of Cardiac myxomas.

Material and methods

This was a retrospective study done in the Department of Pathology, A. J. Institute of Medical Sciences & Research Centre, Mangalore, for a duration of 8 years from January 2016 to December 2023. All the cases cardiac myxomas received in the histopathology laboratory were included in the study. Clinical history, radiology findings, gross and histopathology findings of all the cases were reviewed and analysed.

Results

A total number of 14 cardiac myxomas were encountered in the study. We found that females outnumbered the males as depicted in Figure 1. The age of patients ranged from 25 years to 64 years with mean age being 47.7 years.

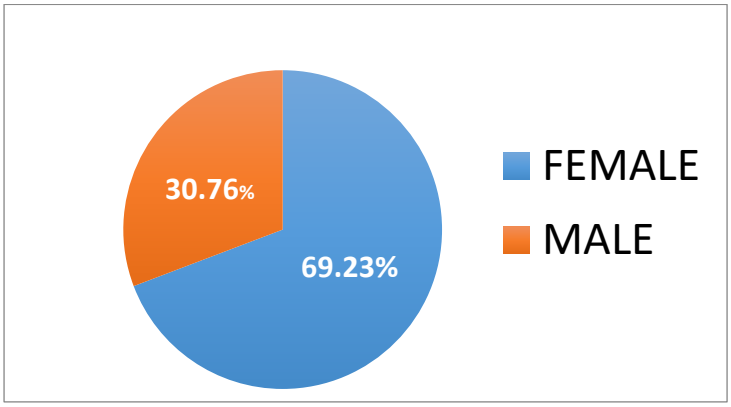

Figure 1 : Genderwise distribution of cases

The most common site of myxoma was left atrium (85.71% of the cases). Other sites included right atrium and interatrial septum (Table 1)

Table 1 : Site of Cardiac Myxomas

Site	No. of cases
Left atrium	12 (85.71 %)
Right atrium	1 (7.14 %)
Inter atrial septum	1 (7.14 %)
Total	14 (100 %)

Most common presenting compliant in our study was dyspnoea (57.14% cases) followed by features related to thromboembolism such as aphasia, one sided weakness and paraesthesia. Other constitutional symptoms included chest pain, cough, fever, weight loss. One case was incidentally detected on routine check up. We also had a rare case of patient with atrial myxoma with history of thromboembolism and persistent anemia, thrombocytopenia and positive antiphospholipid antibody (APLA).

Echocardiography is the main tool for pre operative diagnosis. Cardiac CT/MRI provides accurate assessment of location, attachment, site and functional impact of cardiac myxomas. Figure 2 shows the radiology findings of one of the cases with left atrial myxoma.

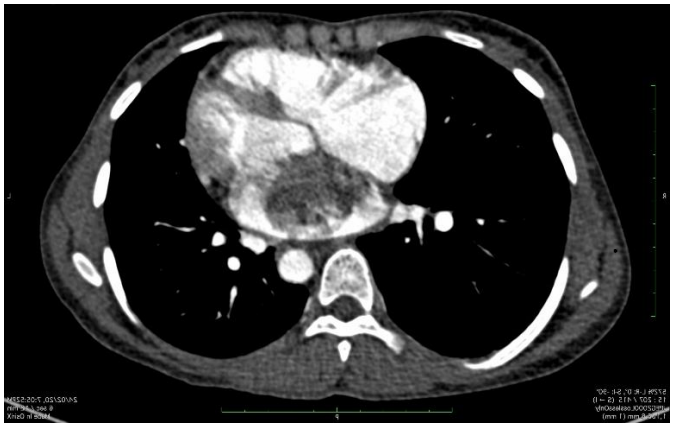

Fig 2 : Axial contrast enhanced CT image in four chamber view showing mildly enhancing ill defined hypodense lesion in left atrium

Grossly, the tumors ranged in size from 1.8 to 7 cm with mean size being 4.6 cms. Cut surface showed a smooth with pale yellow gelatinous glistening appearance with few showing areas of hemorrhage. (Figure 3)

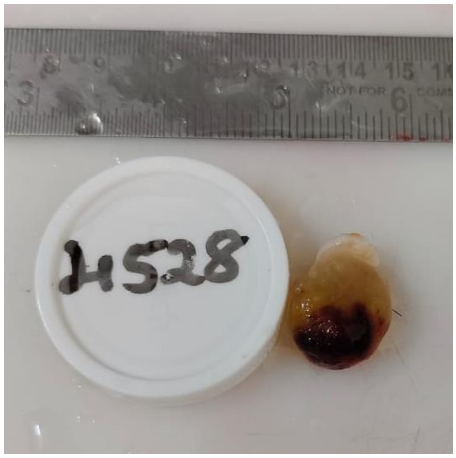

Fig 3 : Gross appearance of Myxoma

Microscopically, the most consistent finding was presence of stellate and elongated myxoma cells embedded in a loose myxoid matrix. Some other secondary changes included calcification, necrosis and hemorrhage. Details of microscopic findings in this study is depicted in Figures 4 & 5.

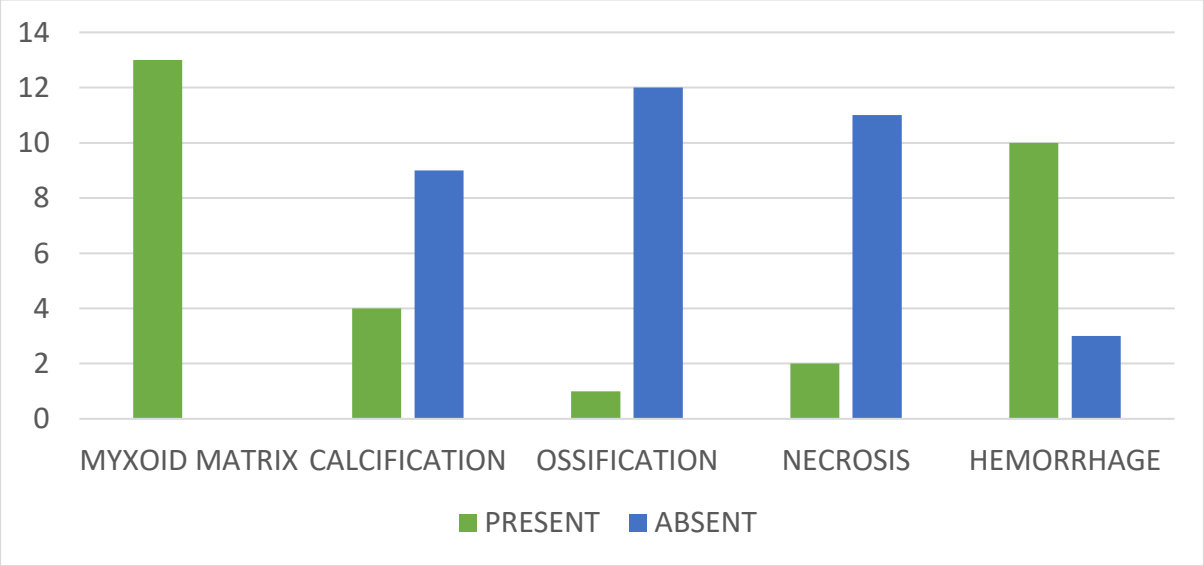

Fig 4 : Microscopic findings in Cardiac myxomas

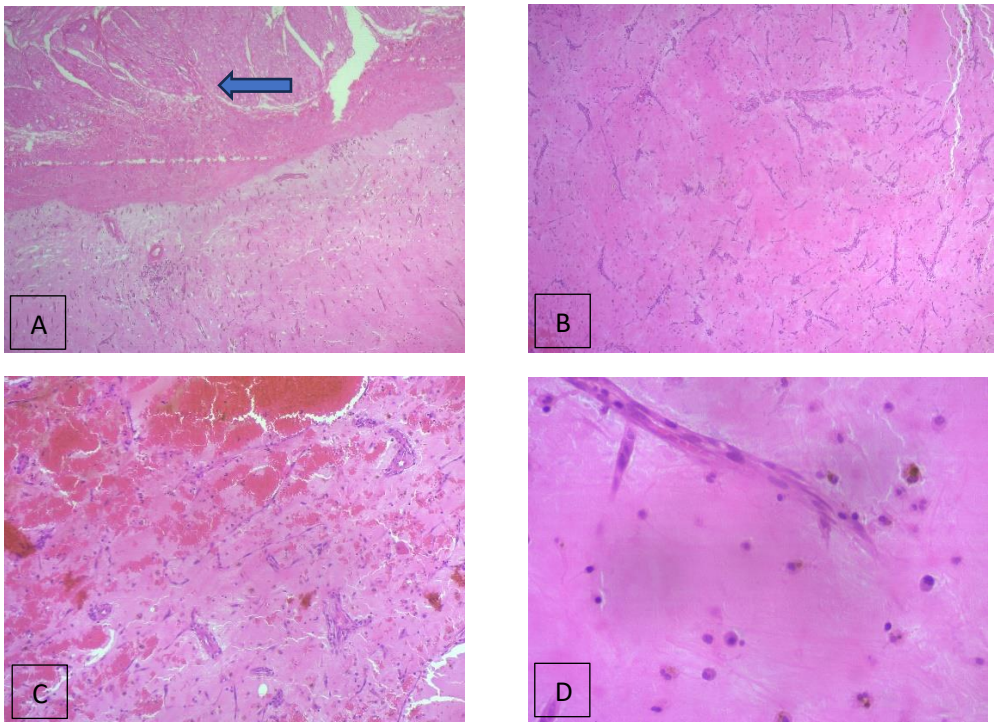

Fig 5 A) Interface of Cardiac myxoma with cardiac muscle (arrow) (H&E, 100x) B) Cardiac myxoma showing stellate cells embedded in a myxoid matrix (H&E, 100x) C) Myxoma with areas of hemorrhage (H&E, 100x) D) Myxoid matrix and few hemosiderin laden macrophages (H&E, 400x)

Discussion

Cardiac myxoma is a rare disease; however, the exact prevalence is unknown. In the present study, we found that females were more commonly affected than males which was in concordance with the studies done by Vroomen et al. [5] and Jiang et al. [6] The mean age at presentation in this study was 47.7 years which was comparable to the study done by Vroomen et al.[5] However, Jiang et al [6] found the mean age to be higher than our study i.e. 61.3 years. The commonest location of myxoma in our study was left atrium which was in accordance with the studies done by Vroomen et al [5], Jiang et al [6], Siminelakis et al [7] and Owers et. al [8]. The common clinical signs and symptoms that the patients presented with were dyspnoea, chest pain, cough, fever, weight loss, anaemia, elevated ESR, thrombocytopenia, which was comparable to the study done by Vroomen et al [5] and Wang et. al [9]. Commonly myxomas are globular in shape, have a soft, gelatinous consistency, exhibit a yellow-brown or greenish hue and often contain areas of hemorrhage and necrosis.[10] In the present study, we found that all cases had myxoid matrix with stellate cells which was comparable to the studies done by Anvari et al[11], Wang et al [9] and Mir et al [10]. The other common histopathological findings include foci of calcification and ossification, hemosiderin-laden macrophages which was similar to the studies done by Wang et al [9] and Mir et al [10]. In the present study, necrosis was seen in 15.38% of cases which was in concordance to the study done by Wang et al [9].

Conclusion

Cardiac myxomas, a rare disease, though histologically benign, are prone to cause intracardiac obstruction and embolisation. The associated constitutional features may mimic a connective tissue disorder or an inflammatory pathology leading to diagnostic dilemmas. Surgery is the mainstay of treatment with an excellent prognosis. Long-term follow-up is often needed to look for recurrence. A high index of suspicion and early surgical excision followed by histopathological examination will result in a good outcome and reduce the morbidity and mortality of cardiac myxoma patients.

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