Original Research

LEFT ATRIAL PEDUNCULATED MYXOMA WITH COMPLEX ATTACHMENT TO THE BASE OF INTERATRIAL SEPTUM AND MITRAL VALVE (ANTERIOR MITRAL LEAFLET): A CASE REPORT

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ABSTRACT
Cardiac myxomas are the most common benign primary cardiac tumors, typically arising from the interatrial septum. Rarely, they may demonstrate complex attachment involving both the interatrial septum (IAS) and mitral valve apparatus. We report a 60-year-old female presenting with exertional dyspnea. Echocardiography revealed severe mitral regurgitation, pulmonary hypertension, and a pedunculated mass (~1.3 × 1.5 cm) attached to the base of the IAS and anterior mitral leaflet (AML). The patient underwent successful mitral valve replacement with complete tumor excision.Histopathological examination confirmed cardiac myxoma. Postoperative imaging showed a well-functioning prosthetic valve with no residual mass. This case highlights a rare presentation of myxoma with dual attachment and its surgical implications.

Keywords: Cardiac Myxoma, Interatrial Septum, Anterior Mitral Leaflet, Mitral Regurgitation, Cardiac Tumor.

INTRODUCTION
Cardiac myxomas account for approximately 50% of primary cardiac tumors and are most commonly located in the left atrium arising from the interatrial septum. However, atypical presentations with complex or dual attachment to adjacent structures are rare. Such cases may lead to diagnostic challenges and significant hemodynamic compromise due to involvement of valvular structures.

Left atrial myxoma is the most common primary cardiac tumour in adults, accounting for approximately 50–75% of all benign cardiac tumours. Although histologically benign, it can produce significant morbidity and mortality due to its potential for intracardiac obstruction, systemic embolization, and constitutional symptoms caused by cytokine release [1]. Most myxomas originate from the interatrial septum, particularly near the fossa ovalis, and are typically pedunculated with a narrow stalk [2].

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However, atypical cases with unusual morphology and complex attachment sites have been increasingly reported. Left atrial myxomas with broad-based or multifocal attachment involving the interatrial septum and mitral valve apparatus are rare and pose significant diagnostic and therapeutic challenges [3]. When the tumour involves the anterior mitral leaflet, it may lead to dynamic left ventricular inflow obstruction, clinically mimicking mitral stenosis or intermittent mitral regurgitation. This can result in symptoms such as exertional dyspnoea, syncope, palpitations, or even sudden cardiac death. In addition, the highly mobile nature of pedunculated tumours increases the risk of systemic embolic events. Echocardiography, particularly transesophageal echocardiography, remains the diagnostic modality of choice for defining tumour morphology, mobility, and attachment. Early surgical excision is recommended to prevent complications, and careful intraoperative assessment is essential in cases with complex involvement of valvular structures to ensure complete resection and reduce recurrence risk.

Case Presentation
A 60-year-old female presented with progressive dyspnoea over two months. Examination revealed atrial fibrillation and a pan systolic murmur at the apex.

Transthoracic echocardiography demonstrated dilated cardiac chambers, Left Ventricular Dysfunction, severe mitral regurgitation, and

pedunculated mass measuring approximately 1.3 × 1.4 cm. The mass showed complex attachment to the base of the interatrial septum and anterior mitral leaflet. Transesophageal echocardiography confirmed dual attachment and mobility of the lesion. The patient underwent mitral valve replacement (25 mm bioprosthetic valve) with complete excision of the tumor. Intraoperatively, a 4 × 3 cm pedunculated mass with attachment to both IAS and AML was identified. Postoperative echocardiography showed a well-functioning prosthetic valve with no residual mass.

Histopathological Findings

Gross examination revealed tan-white soft tissue fragments measuring approximately 2 × 2 × 1 cm. Microscopy demonstrated stellate and oval tumor cells embedded in abundant myxoid stroma with prominent vascular channels.

Final diagnosis: Atrial myxoma.

DISCUSSION

Although cardiac myxomas most commonly originate from the interatrial septum near the fossa ovalis, as classically described in large clinicopathological studies, atypical growth patterns with extension or direct involvement of valvular structures remain rare [1,2]. Cardiac tumors in general demonstrate variable morphology and location, and myxomas, although benign, can exhibit highly heterogeneous anatomical behavior [3]. In the present case, the tumor demonstrated a unique dual attachment to both the base of the interatrial septum and the anterior mitral leaflet, representing an exceptionally uncommon configuration. Valvular myxomas, particularly those involving the mitral apparatus, have been rarely reported in literature, emphasizing the unusual nature of this presentation [4]. Such complex attachment has significant hemodynamic and clinical implications. The anterior mitral leaflet plays a critical role in maintaining effective valve coaptation, and its involvement by a tumor mass may lead to restricted leaflet mobility and incomplete closure, resulting in severe mitral regurgitation. Furthermore, pedunculated and highly mobile myxomas may intermittently prolapse through the mitral valve orifice during diastole, causing dynamic obstruction of left ventricular inflow. This can clinically mimic mitral stenosis and may also contribute to episodic hemodynamic compromise [5]. These pathophysiological mechanisms plausibly explain the patient's progressive dyspnea and atrial fibrillation, as atrial myxomas are known to produce both obstructive and embolic symptoms depending on mobility and size [6]. Echocardiography remains the cornerstone of diagnosis, with transesophageal echocardiography (TEE) providing superior spatial resolution for defining tumor morphology, mobility, and precise attachment sites compared to transthoracic imaging. Accurate preoperative characterization is essential for surgical planning, particularly in cases where valvular involvement is suspected, as it directly influences the operative strategy [7,8]. Intraoperative findings often provide further clarification regarding the true extent of attachment and help determine whether isolated excision is sufficient or whether concomitant valve repair or replacement is required for optimal functional outcome [9]. Complete surgical excision remains the definitive treatment for cardiac myxomas, with excellent long-term prognosis when total resection is achieved. However, in cases involving valvular structures, more extensive surgical intervention, including mitral valve repair or replacement, may be necessary to restore normal hemodynamics and ensure complete tumor removal with adequate margins, thereby minimizing the risk of recurrence [10].

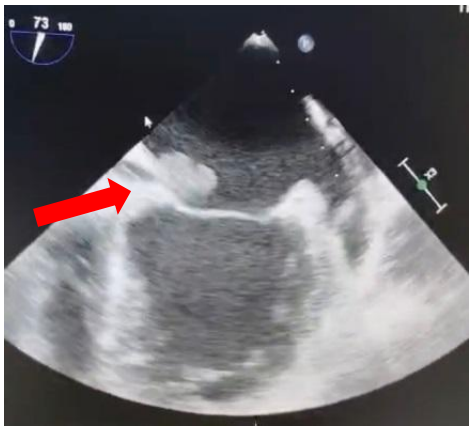
CONCLUSION

Left atrial myxomas with dual and complex attachment involving both the interatrial septum and mitral valve apparatus are extremely rare clinical entities. Such unusual anatomical involvement may lead to significant valvular dysfunction, including severe mitral regurgitation and features of cardiac obstruction, resulting in symptomatic deterioration.Early recognition through echocardiographic evaluation, especially TEE, is essential for accurate diagnosis and surgical planning. Prompt surgical excision with appropriate management of the affected valve remains the cornerstone of treatment and is associated with excellent postoperative outcomes. This case emphasizes the importance of considering atypical attachment patterns in cardiac myxomas and highlights the role of comprehensive imaging and surgical intervention in achieving successful management.

Figures 1.

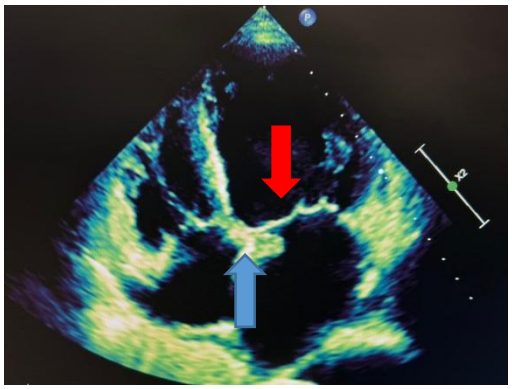
- Transthoracic Echocardiography showing Pedunculated left atrial mass measuring (1.3X1.4cm) attached to the lower IAS & extending to the Mitral valve (Anterior Mitral Annulus)

Figures 2.



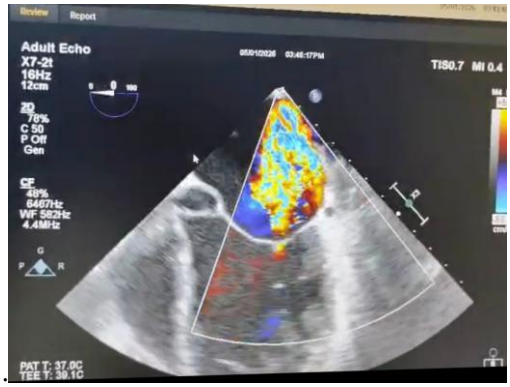
- Transosephageal Echocardiography showing mass involving both mitral valve (anterior mitral leaflet) & lower Inter atrial septum (Red Arrow)

Figures 3.



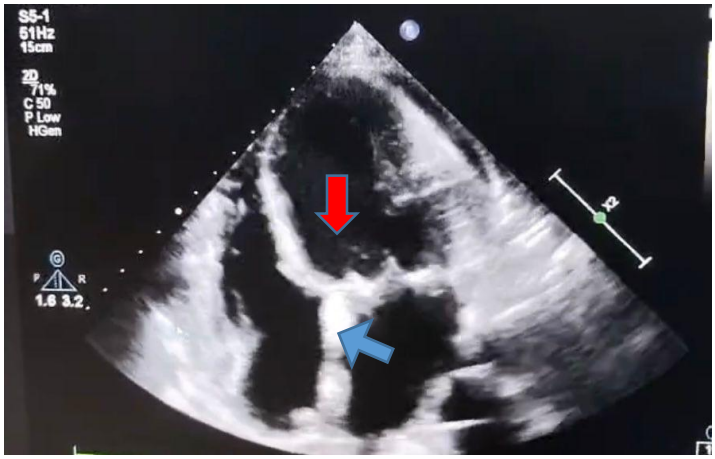
- Transthoracic Echocardiography image showing, prolapsing (Red Arrow) mitral orifice due to mass (Blue Arrow).

Figures 4.



- Transosephageal Echocardiography showing of severe mitral regurgitation (eccentric jet towards posterior).

Figures 5



- Post-Operative Transthoracic Echocardiography image showing no mass attached to lower inter atrial septum(Blue Arrow) with Bioprosthetic mitral valve (Red Arrow).

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