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Large left atrial myxoma with functional mitral stenosis: a case report

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Abstract

Background Left atrial myxomas are rare, potentially life-threatening benign cardiac tumors. Early surgical excision is recommended to prevent embolic events, obstruction, and sudden death.

Case summary A 72-year-old Turkish woman presented with exertional dyspnea and palpitations. Transthoracic echocardiography demonstrated a 4.7 cm × 2.7 cm mobile left atrial mass attached to the interatrial septum and prolapsing into the mitral orifice with a mean transmitral gradient of 9 mmHg and no evidence of embolization. Elective median sternotomy under cardiopulmonary bypass via a right atriotomy–transseptal approach enabled en bloc excision with primary septal closure. Postoperative transesophageal echocardiography confirmed complete resection with preserved mitral valve function, and the mean transmitral gradient fell immediately to ~1.3–1.4 mmHg, indicating prompt hemodynamic normalization. Recovery was uneventful, and the patient was discharged on postoperative day 8.

Discussion This case demonstrates the rapid reversal of myxoma-related functional mitral stenosis following valve-sparing transseptal excision, with immediate normalization of the mean transmitral gradient.

Keywords Myxoma, Transthoracic echocardiography, Cardiopulmonary bypass

Introduction

Cardiac myxomas account for approximately 50–75% of all primary cardiac tumors and are most commonly located in the left atrium, typically attached to the interatrial septum [1, 2]. Although benign, they may cause severe complications, including systemic embolization, obstruction of intracardiac blood flow, and sudden cardiac death. Beyond embolic risk, left atrial myxomas can cause functional mitral stenosis by prolapsing into the mitral orifice, producing significant transmitral gradients despite structurally standard leaflets. We report a large left atrial myxoma presenting with functional mitral stenosis and its prompt hemodynamic reversal following valve-sparing, right atriotomy–transseptal excision.

Case presentation

A 72-year-old Turkish woman (146 cm, 66.3 kg) presented with progressive exertional dyspnea and palpitations. Preoperative evaluation excluded alternative causes of dyspnea. The complete blood count showed no anemia, thoracic computed tomography (CT) revealed normal lung parenchyma without evidence of pneumonia, and clinical/laboratory assessment did not suggest pulmonary embolism. The patient's symptoms were therefore attributed to the obstructive effect of the left atrial mass causing functional mitral stenosis, as confirmed by echocardiography. Physical examination was unremarkable.

Preoperative transthoracic echocardiography revealed a mobile, heterogeneous mass measuring approximately

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4.7 cm × 2.7 cm, attached to the interatrial septum, prolapsing into the mitral orifice during diastole, with a mean transmitral gradient of 9 mmHg (Fig. 1).

There was no evidence of systemic embolization. Written informed consent was obtained from the patient. The patient was scheduled for elective surgical excision via median sternotomy under cardiopulmonary bypass. Aortic cannulation was performed with a 22 F cannula, and bicaval venous cannulation was used (superior vena cava [SVC]: 22 F; inferior vena cava [IVC]: 24 F). Myocardial protection was achieved with del Nido cardioplegia. A right atriotomy with transseptal incision was performed, providing optimal exposure of the tumor and its attachment. The myxoma was excised en bloc with its stalk from the interatrial septum (Fig. 2, white arrow). The septal defect was closed primarily.

The resected tumor measured approximately 5 cm in length (Fig. 3).

The patient was weaned from cardiopulmonary bypass uneventfully, and postoperative transesophageal echocardiography confirmed complete resection with no residual mass (video 1) or mitral valve dysfunction (Fig. 4). The postoperative course was uneventful, and the patient was discharged on postoperative day 8. Histopathological examination of the resected specimen confirmed the diagnosis of cardiac myxoma.

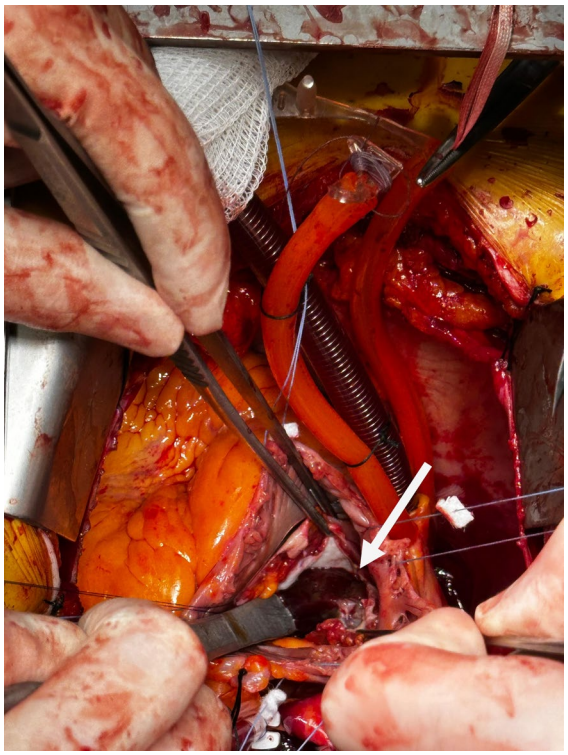


Fig. 2 Intraoperative view showing right atriotomy with transseptal exposure of the left atrial myxoma and its stalk on the interatrial septum prior to en bloc excision

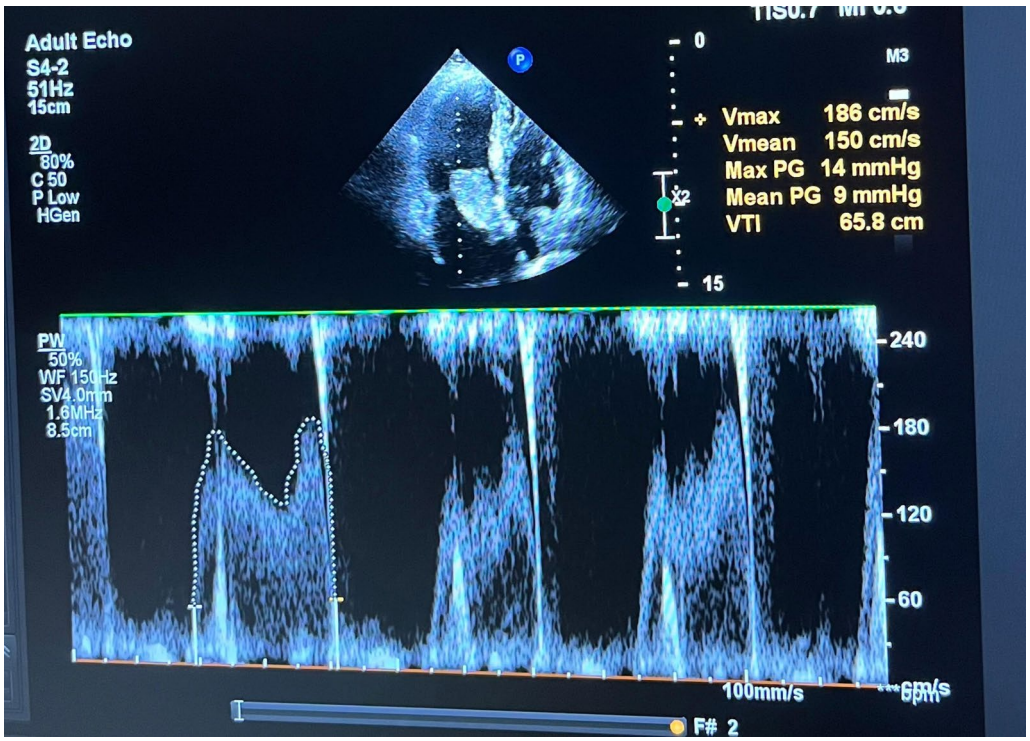


Fig. 1 Preoperative transthoracic echocardiography demonstrating a mobile, heterogeneous left atrial mass (~4.7 cm × 2.7 cm) attached to the interatrial septum and prolapsing into the mitral orifice during diastole; mean transmitral gradient 9 mmHg

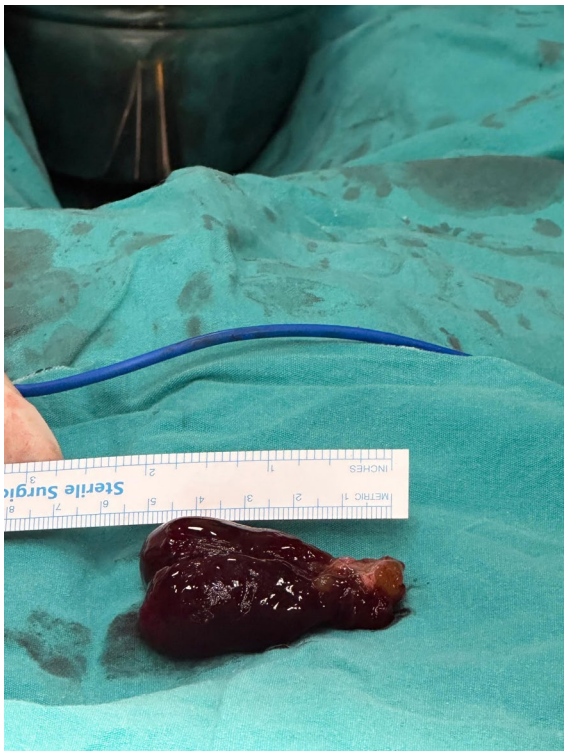


Fig. 3 Gross specimen of the excised left atrial myxoma measuring approximately 5 cm in length

Commentary

Cardiac myxomas represent the most frequent form of primary benign cardiac neoplasms, accounting for approximately half of all primary cardiac tumors, with a marked predilection for the left atrium and a higher prevalence among women [1]. Despite their benign histology, myxomas may give rise to potentially fatal complications, including systemic embolization, intracardiac obstruction, and sudden cardiac death [2]. The estimated incidence in autopsy series ranges from 0.0017% to 0.19%, underscoring their rarity in clinical practice [1].

The clinical presentation is heterogeneous but is classically described as a triad of obstructive cardiac symptoms, embolic phenomena, and constitutional manifestations [2]. Obstructive symptoms such as exertional dyspnea, syncope, and pulmonary edema are attributable to mechanical interference with atrioventricular valve function. Embolic events, reported in 10–30% of patients, may involve the cerebral, peripheral, or coronary vasculature [2, 3]. Constitutional manifestations, including fever, weight loss, and malaise, are primarily mediated by interleukin-6, which is secreted by tumor cells [4]. Notably, atypical presentations have been reported, such as isolated gastrointestinal complaints in the absence of embolization [4] or incidentally detected large myxomas in otherwise asymptomatic individuals [5].

Tumor size, morphology, mobility, and site of attachment are critical determinants of both symptomatology and the risk of complications. While the majority of left atrial myxomas originate from the fossa ovalis region of the interatrial septum, atypical sites such as the atrial roof, posterior wall, pulmonary vein ostia, or mitral annulus have also been described [6]. Giant myxomas (>5 cm) are uncommon but may cause significant hemodynamic compromise, even when symptoms are subtle.

Prompt surgical excision remains the definitive therapy and is recommended immediately after diagnosis to avert catastrophic sequelae. According to current expert opinion, our patient's symptomatic presentation, tumor size, and functional mitral stenosis justified appropriately timed surgical resection. Standard management involves median sternotomy and cardiopulmonary bypass, although minimally invasive and robotic-assisted approaches have been successfully employed in selected cases [7]. Complete resection is associated with excellent long-term survival, with recurrence rates ranging from 1% to 6%. Documented risk factors for recurrence include familial myxomas, Carney complex, and tumors with friable or papillary morphology [3].

This case highlights the successful en bloc transseptal excision of a large symptomatic left atrial myxoma with preservation of mitral valve function and prompt reduction in the mean transmitral gradient. Most published series originate from high-volume tertiary referral centers. Nevertheless, as demonstrated in complex scenarios, including atypical tumor extension, massive tumor burden, or concomitant coronary artery disease necessitating revascularization, meticulous preoperative planning, comprehensive multimodality imaging, and coordinated multidisciplinary collaboration can facilitate safe and effective surgical outcomes, even in resource-limited environments [2, 8].

This experience highlights that timely diagnosis and surgery can completely and rapidly reverse myxoma-related functional mitral stenosis, as evidenced by an immediate decrease in the mean transmitral gradient with preserved valve function. An overview of the diagnostic and therapeutic pathway is provided in the Supplementary Summary Figure.

Conclusion

Valve-sparing transseptal excision of left atrial myxoma can reverse myxoma-related functional mitral stenosis, with immediate hemodynamic normalization and preserved mitral valve function on postoperative echocardiography. Early recognition of functional obstruction

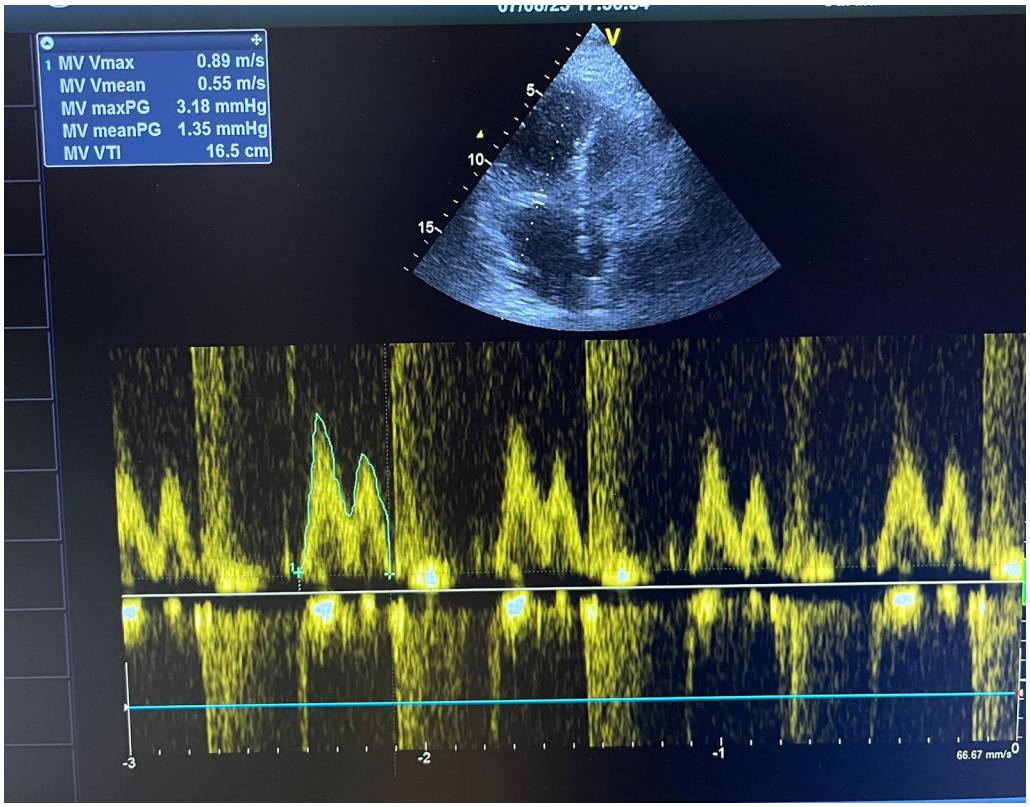


Fig. 4 Postoperative transthoracic echocardiography demonstrating absence of residual mass and preserved mitral valve function; mean transmitral gradient ≈1.3–1.4 mmHg (preoperative 9 mmHg)

and a standardized surgical approach are key to restoring physiological mitral inflow.

Learning points

Left atrial myxoma can cause functional mitral stenosis despite normal-appearing mitral leaflets.

Valve-sparing transseptal excision promptly reverses the obstruction with immediate Doppler normalization.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s13256-026-05883-6.

Supplementary Material 1. Summary Figure. Diagnostic workflow and surgical management of functional mitral stenosis secondary to left atrial myxoma

Supplementary Material 2. Video 1. Postoperative transesophageal echocardiography confirming complete resection with no residual intracardiac mass

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Not applicable.

Author contributions
BB (corresponding author): conceptualization and manuscript drafting and editing. BDŞ: acquisition of transthoracic echocardiography images and preparation of related figures. GGE: critical review and revision of the manuscript. ÜY: literature search and acquisition of references; contribution to background/discussion, English language editing, and final linguistic review. All authors read and approved the final version and agree to be accountable for all aspects of the work.

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Data availability
Available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
Not applicable.

Consent for publication
Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interest
The authors declare no conflicts of interest.

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