

When Myxoma Meets Bicuspid Aortic Valve: A Rare and Unexpected Cardiac Association

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Abstract

Atrial myxoma is the most common primary cardiac tumor in adults. It is generally sporadic, although an embryological origin has been suggested, as tumor cells are thought to arise from mesodermal embryonic remnants trapped within the interatrial septum. Bicuspid Aortic Valve (BAV), on the other hand, represents the most common congenital valvular anomaly. The simultaneous association of these two entities is exceptional and rarely reported in the literature. We report the case of an adult patient without any known genetic syndrome in whom this coexistence was identified. This case raises etiological, diagnostic and therapeutic questions and highlights the importance of a comprehensive cardiovascular evaluation when multiple cardiac abnormalities are present.

Keywords: Cardiac myxoma • Bicuspid aortic valve • Cardiac tumor • Congenital malformation • Cardiac embryology

Introduction

Cardiac myxomas account for approximately 50% of primary cardiac tumors, with 75% located in the left atrium, most commonly arising from the region of the fossa ovalis. They are often discovered incidentally or following embolic or obstructive manifestations. Surgical resection remains the treatment of choice.

Bicuspid aortic valve, a congenital malformation present in 1–2% of the general population, is frequently associated with valvular complications (stenosis, regurgitation) and aortic disease (dilatation, dissection). Although each of these entities is well documented individually, their association remains a clinical rarity, raising the question of a shared embryological etiology vs. simple coincidence.

Case Presentation

We report the case of a 67-year-old patient with no remarkable family history and a background of chronic smoking, now discontinued. He was admitted for acute pulmonary edema associated with atypical chest pain. Cardiac auscultation revealed an ejection systolic murmur at the aortic area and a diastolic mitral opening snap. No signs of systemic disease were identified.

Electrocardiography showed atrial fibrillation with moderate left ventricular hypertrophy. Transthoracic echocardiography demonstrated severe aortic stenosis (valve area 0.6 cm², mean gradient 52 mmHg) on a heavily calcified bicuspid valve, associated with moderate dilatation of the ascending aorta (diameter 43 mm). The left atrium was markedly enlarged (area 52 cm²) and contained a mobile, myxoid-appearing mass measuring approximately 32 mm

in diameter, attached to the interatrial septum and prolapsing through the mitral valve during diastole, causing functional mitral stenosis without regurgitation.

Preoperative coronary angiography revealed diffuse atherosclerosis without significant stenosis. Emergency surgical intervention was performed, consisting of complete excision of the tumor mass measuring 45×38 mm, including its attachment base on the interatrial septum (Figure 1). The mitral valve was structurally and functionally intact. The aortic valve exhibited a symmetric bicuspid configuration without raphe, composed of two massively calcified anterior and posterior cusps (Figure 2). It was replaced with a size 25 pericardial bioprosthesis. The postoperative course was uneventful and no tumor recurrence was observed at one-year follow-up echocardiography.

Discussion

The association of left atrial myxoma with bicuspid aortic valve is exceptionally rare, with only a limited number of cases reported in the literature [1]. Although these two conditions are distinct in nature myxoma being a benign tumor and BAV a congenital malformation their coexistence may reflect a shared embryological mechanism rather than a coincidental finding.

Histopathological evidence suggests that cardiac myxomas originate from multipotent mesenchymal cells capable of endothelial and neuronal differentiation. These cells are thought to be mesodermal embryonic remnants trapped within the interatrial septum, retaining proliferative potential [2]. This embryological theory may explain the occasional association of myxomas with other cardiac or extracardiac malformations.

Similarly, cardiac valve development, particularly of the aortic valve, depends on mesoderm-derived cells interacting with cardiac neural crest cells. Epithelial-to-mesenchymal transition, a key step in valvulogenesis, enables endothelial cells to migrate into embryonic endocardial cushions to form valve cusps [3]. Disruption of these processes may result in abnormal cusp fusion and the formation of a bicuspid aortic valve.

Shared molecular pathways, including NOTCH1 and TGF- signaling, which play central roles in valvular morphogenesis and mesenchymal cell regulation, further support the hypothesis of a common pathogenetic mechanism [4]. Such abnormalities may remain localized without causing a syndromic phenotype, affecting only selected mesoderm-derived cardiac structures.

In the present case, the absence of family history or known genetic syndrome favors an isolated defect in mesodermal differentiation. The myxoma

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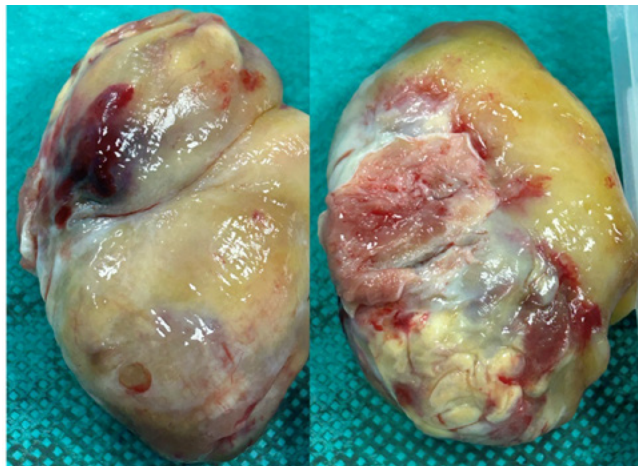


Figure 1. Surgically removed left atrial myxoma.

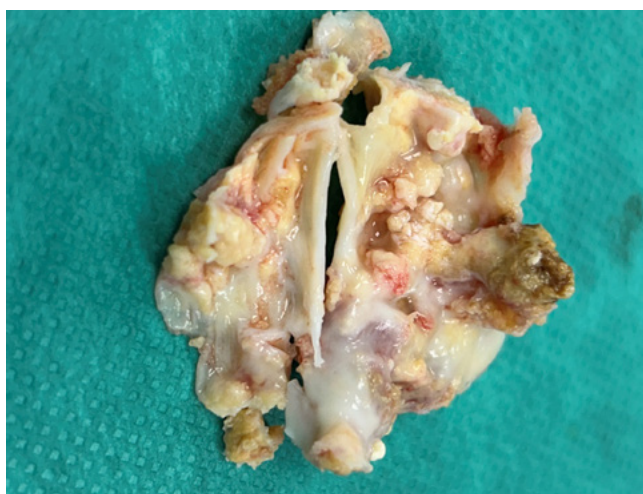


Figure 2. Excised calcified bicuspid aortic valve.

may thus represent a benign tumoral expression of a developmental anomaly, while the bicuspid valve constitutes its structural manifestation [5].

Conclusion

This case illustrates a rare clinical association between left atrial myxoma and bicuspid aortic valve, two conditions usually encountered independently. This coexistence raises questions regarding a potential embryological origin involving mesodermal cell migration and differentiation.

Beyond its rarity, this case emphasizes the importance of comprehensive cardiovascular evaluation when even a benign cardiac abnormality is identified. Echocardiography should be performed extensively to detect associated valvular, aortic, or intracavitary abnormalities.

It also highlights the necessity of long-term follow-up to anticipate complications related to each condition and to monitor for the development of secondary anomalies.

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Conflict of Interest

None.

Ethical Statement

I accept responsibility for the integrity of the work and attest that no disclosed authors have contributed to this article.

References

1. Niu, Kevyn, Manuel Torres Velez and Yizhi Lin. "Left atrial myxoma with aortic insufficiency leading to cerebrovascular accident." *Cureus* 15 (2023).
2. Pucci, Angela, Piervincenzo Gagliardotto, Cristina Zanini and Stefano Pansini, et al. "Histopathologic and clinical characterization of cardiac myxoma: Review of 53 cases from a single institution." *Am Heart J* 140 (2000): 134–138.
3. Martin, Peter S., Benjamin Kloesel, Russell A. Norris and Mark Lindsay, et al. "Embryonic development of the bicuspid aortic valve." *J Cardiovasc Dev Dis* 2 (2015): 248–272.
4. Parissis, J. T., D. Mentzikof, M. Georgopoulou and M. Gikopoulos, et al. "Correlation of interleukin-6 gene expression to immunologic features in patients with cardiac myxomas." *J Interferon Cytokine Res* 16 (1996): 589–593.
5. Buttan, Anshu K., George Panagiotides, Mary Jo Barnes and Gabriel Vorobiof, et al. "Multimodality imaging in the diagnosis of coexisting left atrial myxoma and aortic valve papillary fibroelastoma." *Circulation* 125 (2012): e1003–e1005.

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