



(CASE REPORT)



Intracardiac myxoma in the left ventricle: A case report with literature review

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International Journal of Science and Research Archive, 2025, 15(01), 697-702

Publication history: Received on 25 February 2025; revised on 05 April 2025; accepted on 07 April 2025

Article DOI: <https://doi.org/10.30574/ijrsra.2025.15.1.1004>

Abstract

The incidence of intra cardiac masses is low. They are primarily benign cardiac tumors, primary or secondary malignant tumors, or thrombi [1-2]. Seventy-five percent of primary tumors are benign, and more than half of these tumors are myxomas [3]. Cardiac masses can be symptomatic, discovered incidentally, or found at autopsy. Depending on the size and location of the tumor, the clinical presentation may manifest as non-specific heart failure symptoms, including dyspnea, fatigue, or orthopnea. They can also be revealed by thromboembolic complications such as strokes [4]. Echocardiography is useful for distinguishing the type of cardiac mass and its location. It is complemented by CT scans, MRI, and trans esophageal echocardiography, which help specify its location, characteristics, and appearance (echogenicity, mobility, calcification, etc.) and complete the staging workup. Surgical resection is the treatment of choice for cardiac myxomas, and anticoagulation is generally recommended for the initial treatment of intra cardiac thrombi [4, 5], not to mention the histo pathological study that helps determine the nature of the mass.

Keywords: Intra cardiac masses; Left ventricle; Cardiac imaging; Surgical resection

1. Introduction

Intracardiac masses are rare abnormal structures adjacent to a cardiac structure. They are primarily represented by myxomas, which are most often discovered incidentally, or sometimes revealed by an ischemic stroke. Transthoracic echocardiography is the examination of choice and the first-line method for making a positive diagnosis of the mass. The differential diagnosis with clots or vegetations can sometimes be challenging. Management should be multidisciplinary, but surgical excision is often the only possible treatment. We present a rare case of an intra-left ventricular cardiac tumor.

2. Clinical case

This is a 58-year-old patient with cardiovascular risk factors, including recently diagnosed hypertension under well-controlled dual therapy and a history of smoking cessation four months ago, admitted for the management of chest pain associated with NYHA stage II dyspnea.

The patient underwent a biological assessment that returned normal results with negative troponins, and an ECG showed no abnormalities.

A transthoracic echocardiogram (TTE) revealed a very mobile heterogeneous mass measuring 1.5 x 1.5 cm, pedunculated with a base of insertion at the apex of the infero lateral wall of the left ventricle, with good overall and segmental left ventricular kinetics and preserved ventricular function with an ejection fraction (EF) of 58%.

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A CT scan of the thorax, abdomen, and pelvis was performed to search for a primary tumor, which showed an intra-left ventricular tissue formation likely related to a myxoma.

Tumor markers returned normal.

After a multidisciplinary consultation with the surgeons, the patient underwent open-heart surgery via sternotomy under cardiopulmonary bypass with complete resection of the mass, and the pathological result was in favor of a myxoma without major form, with a normal initial echographic follow-up.

3. Discussion

Cardiac myxoma is the most common primary cardiac tumor. Most cardiac myxomas are located in the left atrium, while left ventricular (LV) myxomas are quite rare [6]. Unlike myxomas, cardiac fibromas typically form in the free wall of the LV [7].

Early diagnosis is challenging due to the symptoms and clinical signs. For LV myxomas [8], symptomatic patients may present a wide range of symptoms, including chest pain, dyspnea, palpitations, syncope, and emboli [9]. Embolic episodes are a major feature of cardiac myxomas due to their friable consistency and intra cavitory location. In our case, the patient presented with chest pain associated with dyspnea and discomfort, which motivated him to consult a cardiologist, without any other specific symptoms.

Transthoracic and transesophageal echocardiography, CT scans, and magnetic resonance imaging are the imaging modalities that allow for accurate diagnosis [10].

Regarding myxomas, typical echocardiographic characteristics present as a solitary, spherical, heterogeneous, mobile mass attached to the endocardial surface, with a broad pedicle. Sometimes, echogenic foci in the form of spots and lobular surface protrusions are observed in myxomas [11-12].

Cardiac fibromas always manifest as a solitary, homogeneous, solid, firm, or rubbery mass measuring between 2 and 10 cm [13-14], with well-defined or infiltrating borders, and are generally located on one of the free walls of the LV.

Compared to the myocardium in contrast echocardiography, a greater amount of contrast agent is observed in the myxomatous mass, while only a contrast agent is present in the fibromatous mass, which is primarily composed of collagen in adults [14-15-16].

In CT scans, the myxoma typically appears as a heterogeneous low-attenuation mass in the cardiac cavity, with a smooth, irregular, or villous surface, and heterogeneous enhancement [17-18]. Cardiac CT often shows a homogeneous low-density mass with partial calcifications in fibromas, while no contrast agent image is observed inside [19-20].

Accurate preoperative information about a myxoma concerning its size, shape, mobility, texture, number of lesions, and the attached portion is essential to determine the most appropriate surgical procedure.

Surgery is one of the most effective treatments for cardiac myxoma. Complete surgical resection is strongly recommended, as cases of recurrence of cardiac myxoma can occur, most often caused by incomplete removal of the tumor [21]. Additionally, regular follow-up with transthoracic echocardiography is necessary to detect any potential recurrences of this type of cardiac tumor. During the annual follow-up, our patient did not have any recurrence of the tumor.

Pathology is the gold standard for the diagnosis of cardiac tumors.

Macroscopically, cardiac myxoma typically presents as a single, pedunculated, fragile lesion with an irregular shape and an intact capsule, while cardiac fibroma is a solitary, circumscribed, firm neoplasm, gray-white in color and partially calcified, without a capsule [22].

Histologically, cardiac myxoma is characterized by irregular or star-shaped cells loosely dispersed in a mucoid ground substance [23]. In contrast, cardiac fibroma is primarily composed of collagen in adults [14]. In our case, the surgical sample, which is gray-white, firm, polyp-like, and composed of irregular tumor cells surrounded by voids and scattered

with interstitial rarity, is similar to cardiac fibroma at the macroscopic level but confirms cardiac myxoma at the histological level.



Figure 1 Echocardiographic image in apical four chambers showing a heterogeneous mass measuring 1.5 x 1.5 cm



Figure 2 Echocardiographic image in apical two chambers showing the myxoma



Figure 3 Echocardiographic image in apical three chambers showing the myxoma

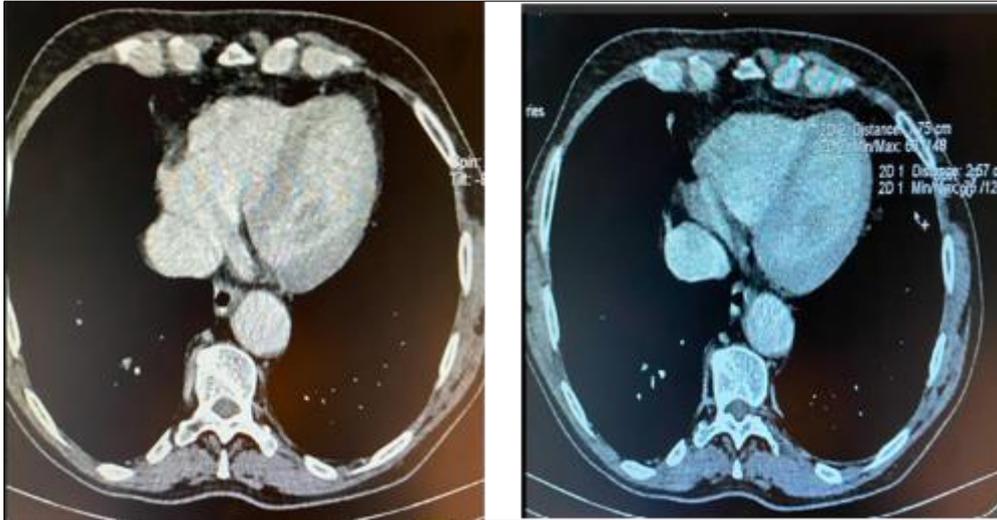


Figure 4 CT scan of the chest and abdomen showing the intra-left ventricular mass

4. Conclusion

Left ventricular myxomas are exceedingly rare cardiac tumors, representing an unusual location for a typically atrial neoplasm. This case highlights the diagnostic challenge posed by such tumors, particularly when clinical presentation mimics other cardiovascular or embolic pathologies. Early diagnosis through appropriate imaging—particularly echocardiography—is essential to prevent potentially severe complications such as systemic embolization or sudden cardiac death.

Surgical excision remains the treatment of choice, with excellent prognosis when performed promptly and completely. Our review of the literature confirms that although left ventricular myxomas are rare, they should be considered in the differential diagnosis of unexplained cardiac symptoms or embolic events, especially in younger patients with no significant cardiovascular risk factors.

This case reinforces the critical role of clinical vigilance and multimodal imaging in identifying rare cardiac tumors, and supports the need for continued reporting and documentation to improve understanding, guide management strategies, and contribute to the sparse but growing body of literature on this atypical presentation of cardiac myxoma.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Author contribution

- MB: Study concept, Data collection, Data analysis, writing the paper.
- RL: Study concept, Data collection, Data analysis.
- RF: Study concept, Data analysis, writing the paper.
- NM: Supervision and data validation
- IA: Supervision and data validation
- AB: Supervision and data validation
- All authors reviewed the final manuscript.

Funding Sources

There are no funding sources to declare.

Statement of informed consent

The authors confirm that written consent for the submission and publication of this case, including images, has been obtained from the patients in line with the Committee on Publication Ethics (COPE) guidance.

Availability of Data and Materials

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Consent for publication

Written informed consent was obtained from the patients for publication of this cases report.

Provenance and peer review

Not commissioned, externally peer-reviewed.

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