Case Report

Lipoma in the Interventricular Septum – Case Report

Lipoma no Septo Interventricular – Relato De Caso

Bruna Bonamigo Thomé[1], Laura Vilela Pazzini[1], Nathalia Regina Pavan[1], Estevan Vieira Cabeda[2], Tobias Sato de Almeida[1]

1University of Passo Fundo, Passo Fundo, RS; 2Kozma Clinic, Passo Fundo, RS, Brazil.

Abstract

Primary cardiac tumors are a rare but mostly benign pathology found in up to 0.03% of autopsies. Among these benign tumors, with an incidence of 8.5%, lipomas are often located in the interatrial septum. When located in the interventricular septum, they are considered an even more unusual pathology with an unknown real prevalence. In most cases, the diagnosis is made incidentally on cardiovascular imaging and confirmed by histopathological examination. They are more commonly asymptomatic or feature nonspecific symptoms, but these lipomas can progress with arrhythmias, valve dysfunction, heart failure, and death, which highlights the importance of cardiovascular imaging methods in the differential diagnosis and to guide appropriate therapy. This report describes the case of a patient with an incidental echocardiographic finding of a cardiac mass located in the interventricular septum, followed by cardiac magnetic resonance imaging to better characterize the lesion and demonstrate its characteristics compatible with lipoma.

Introduction

Primary cardiac tumors are rare pathologies found in 0.001–0.03% of all autopsies performed.[1] About 75% of cases are classified as benign,[1] with myxomas being the most common, and lipomas being the second most prevalent with an incidence of approximately 8.5%, followed by papillary fibroids and rhabdomyoma.[2]

Cardiac lipomas are encapsulated tumors composed of mature fat cells. They are most commonly located in the interatrial septum, with a rare occurrence of unknown prevalence in the interventricular septum.[3,4] Due to the absence of symptoms in most patients, the diagnosis of cardiac lipomas is usually made incidentally on complementary imaging tests such as echocardiography[5] with a subsequent anatomopathological study for diagnostic confirmation.

Keywords

Diagnostic cardiovascular techniques; Echocardiography; Heart neoplasms; Lipoma.

Mailing Address: Bruna Bonamigo Thomé •
Coronel Chicuta, 42, apto. 1.404 – Centro – Passo Fundo, RS, Brazil
E-mail: brunabthome@gmail.com
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Case report

A 68-year-old woman attended an outpatient clinic complaining of dyspnea on moderate long-term exertion associated with dry cough. She had a previous medical history of systemic arterial hypertension treated with captopril 50 mg twice a day and chronic obstructive pulmonary disease under no maintenance treatment. A physical examination revealed a good general condition, blood pressure of 150 × 100 mmHg, heart rate of 86 bpm; cardiac auscultation revealed a regular rhythm twice with normophonetic sounds and no audible murmurs; pulmonary auscultation revealed an evenly distributed vesicular murmur, no adventitious breath sounds, and wide and symmetrical peripheral pulses with no postural hypotension, jugular turgency, lower-limb edema, or other semiological changes.

The investigation started with electrocardiography showing sinus rhythm, heart rate of 80 bpm, and nonspecific ventricular repolarization changes. Simple chest radiography showed signs of chronic obstructive pulmonary disease and a normal cardiothoracic index. Transthoracic echocardiography showed a normal-sized left ventricle and concentric remodeling, 56% ejection fraction estimated by the Simpson method, mild mitral valve regurgitation, mild tricuspid valve regurgitation, mild pulmonary hypertension, and a hyperreflective nodular image in the middle portion of the interventricular septum facing the right ventricle (Figure 1).

Cardiac magnetic resonance imaging was performed to better characterize the mass in the interventricular septum and clarify the diagnosis. The image showed a mass located in mid- and apical inferoseptal topography, more precisely in the inferior interventricular junction, with the same characteristics of the epicardial fat found in the right coronary artery measuring 3.5 × 1.5 cm, with hypersignaling in T1- and T2-weighted spin-echo black-blood sequences and fat saturation in the same weighted sequences compatible with lipoma (Figures 2–4). The mass surrounded the upper border of the right coronary artery, causing a slight degree of extrinsic diastolic compression in the lower interventricular septum wall in the apical portion.

The clinical history and complementary tests showed that the patient's symptoms were not related to the interventricular lipoma; rather, they were attributed to chronic obstructive pulmonary disease. Therefore, it was initially decided against an invasive biopsy procedure, which would normally be the method for diagnostic confirmation of the tumor, and instead maintain regular clinical follow-up with imaging and electrocardiography tests.

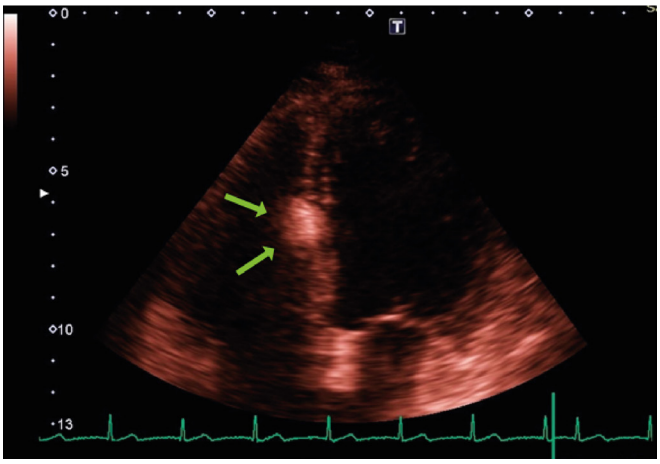
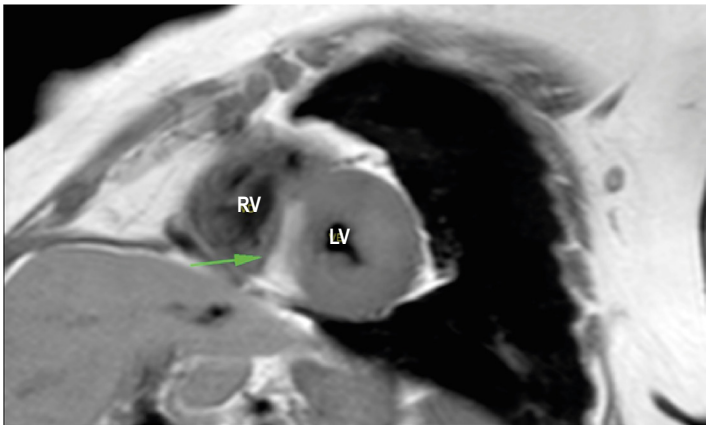
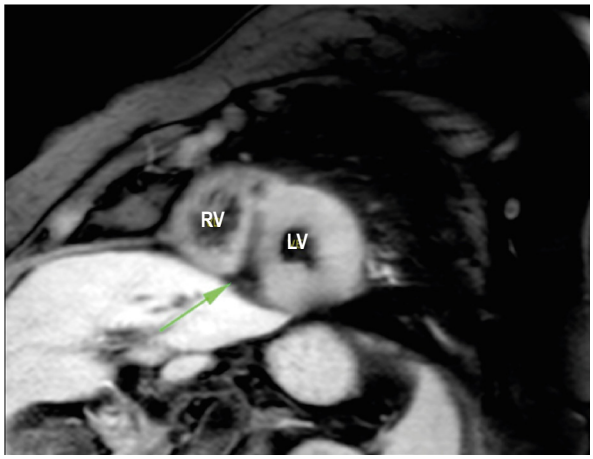


Figure 1 – *Apical four-chamber view showing a hyperreflective nodular image in the middle portion of the interventricular septum facing the right ventricle (arrows).*



RV, right ventricle; LV, left ventricle

Figure 2 – *T1-weighted black-blood sequence in short-axis view showing the focal area with hypersignaling in the mid-inferoseptal segment (arrow).*



RV, right ventricle; LV, left ventricle

Figure 3 – *T2-weighted black-blood sequence with fat saturation (short tau inversion recovery) showing focal hyposignaling in the mid-inferoseptal segment (arrow).*

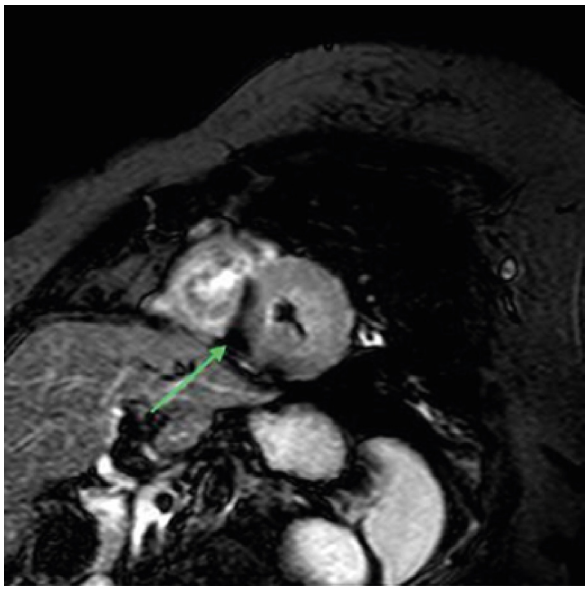


Figure 4 – *T2-weighted black-blood sequence with fat saturation (short tau inversion recovery) showing focal hyposignaling in the mid-inferoseptal segment (arrow).*

Discussion

Heart lipomas are rare tumors, an even more infrequent pathology when located in the interventricular septum.[1] Lipomas occur in all age groups and at the same frequency in both sexes.[5] Certain cardiac tumors are usually asymptomatic or have nonspecific symptoms. However, depending on their size, growth progression, and location, they can trigger variable presentations, such as valve dysfunction symptoms, heart failure, cardiac arrhythmias, extrinsic coronary vessel compression, and syncope.

Since most cases are asymptomatic, the diagnosis is usually made incidentally on echocardiography, computed tomography, or cardiac magnetic resonance, with the gold standard being the histopathological study of the lesion.[3] It is essential to emphasize that improved echocardiographic tests improve the diagnosis of cardiac tumors. Transthoracic echocardiograms are used to determine tumor location, size, shape, and mobility, while transesophageal echocardiograms are particularly useful to evaluate the insertion site and morphological characteristics of atrial and ventricular tumors.[1] In addition, the echocardiographic contrast can be greatly useful in the differential diagnosis of the mass since hypervascularization is more closely associated with malignancy.[6] Cardiac magnetic resonance imaging can characterize the tumor tissue though a sequence of specific electromagnetic pulses in addition to analyzing the degree of intramyocardial extension, tumor delimitation borders, and the relationship with adjacent higher-definition cardiac structures.[7] It is as acute as histopathology in the differential diagnosis of primary cardiac tumors since the masses often have a characteristic tissue composition[7] as in the case of lipomas (fat saturation).

The treatment of cardiac lipoma remains controversial,[8] with surgery being the method of choice for symptomatic patients, whereas conservative management is recommended for other patients[9] since it is associated with clinical monitoring and imaging tests to evaluate possible progression and adjacent structure invasion.

Modern cardiovascular imaging techniques allow for an earlier diagnosis of cardiac neoplasms, which are measured in the early stages, thus reducing the risk of complications. However, the treatment of cardiac lipomas located in the interventricular septum remains unclear, highlighting the importance of imaging tests in monitoring and decision-making. Thus, the present case contributes to the literature by reporting the clinical characteristics of a rare tumor in an unusual location.

Authors' contributions

Research concept and design: Thomé BB and Pazzini LV; data collection: Thomé BB and Pavan NR; manuscript writing: Thomé BB, Pazzini LV, and Almeida TS; critical review of the manuscript for important intellectual content: Almeida TS and Cabeda EV.

Conflict of interest

The authors have declared that they have no conflict of interest.

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