Case Report

Surgical Management of a Symptomatic Cardiac Lipoma: A Case Report

Soha Sadeghpour tabaei[1], MD; Amineh Safavirad[1], MD; Ali Sadeghpour tabaei[1], MD; Mahshid Hesami[1], MD; Kourosh Tirgarfakheri[1], MD; Mohsen Ghiasi[1], PhD; Maryam Ghanbari Garekani[1*], MD

ABSTRACT

Introduction: Lipomas are benign tumors that originate from mature adipose tissue. Their occurrence in the heart is rare. Although these tumors are noncancerous and slow growing, depending on their size and location they can cause significant clinical problems. Patients may present with symptoms such as dyspnea, arrhythmias, conduction disorders, or hemodynamic compromise because of blood flow obstruction.

Case Presentation: We describe a 54-year-old woman with a history of hypertension who presented with shortness of breath. Her symptoms had gradually progressed over several months and had significantly affected her daily activities. She was initially diagnosed with a cardiac mass by echocardiography and subsequently underwent cardiac magnetic resonance imaging, which revealed a cardiac lipoma. Because of the complexity of the case, she underwent surgery to remove the tumor. ***(Iranian Heart Journal 2026; 27(3): 76-80)***

KEYWORDS: surgery; lipoma; cardiac tumor; cardiac MRI

[1] Cardiovascular Research Center, Rajaie Cardiovascular Institute, Tehran, Iran.

*** Corresponding Author:** Maryam Ghanbari Garekani, MD; Cardiovascular Research Center, Rajaie Cardiovascular Institute, Tehran, IR Iran.
Email: dr.maryamGhanbari@rhc.ac.ir **Tel:** +989122500943

Received: February 17, 2026 **Accepted:** May 9, 2026

Lipomas are composed of mature adipocytes and can form anywhere in the body where there is adipose tissue. Nonetheless, development of lipomas in the heart is rare, accounting for approximately 10% of all primary cardiac tumors. Overall, the prevalence of primary cardiac tumors has been reported to be approximately 0.001% to 0.03%, with 84.6% being benign.[1, 2] Cardiac lipomas can arise from any layer of the heart wall (endocardium, myocardium, and epicardium) or the pericardium. Regarding location, the right atrium and left ventricle are more commonly involved than other sites.[3] Most cardiac lipomas are asymptomatic and are often discovered incidentally during medical examination. The exact cause of lipomas is unknown, although one study[4] has suggested that lipomas are associated with genetic abnormalities of chromosome 12.

In general, symptoms caused by cardiac tumors are due to their physical effects,

including obstruction of blood flow, compression of heart tissues, and disruption of the heart's electrical activity, potentially resulting in arrhythmia or blockage of the outflow tracts.[5, 6]

This case report describes a rare cardiac lipoma in a 54-year-old woman with a history of hypertension who underwent complex surgery.

CASE PRESENTATION

A 54-year-old woman with a history of hypertension who was taking Valzomix presented to the institute's emergency department with shortness of breath. She underwent angiography because of a suspected tricuspid valve mass; the coronary arteries were normal. With a presumed diagnosis of atrial septal defect (ASD) and right atrial cardiac mass, the patient was admitted to this center for mass resection.

The patient's magnetic resonance imaging demonstrated normal left ventricular size and ejection fraction (ejection fraction = 57%), with no left ventricular hypertrophy. Right ventricular size and ejection fraction were also normal (ejection fraction = 52%). Lipomatosis hypertrophy of the interatrial septum was noted. No evidence of myocardial inflammation or edema was found, nor was there significant myocardial fibrosis or infarction. Fat accumulation in the right atrioventricular groove protruding into the lateral tricuspid valve annulus was interpreted as an anatomic variant, with no compression effect (tricuspid valve annulus at diastolic phase = 26 mm). A patent foramen ovale or small ASD was present with no significant left-to-right shunt (pulmonary-to-systemic flow ratio = 1.25) (Figure 1).

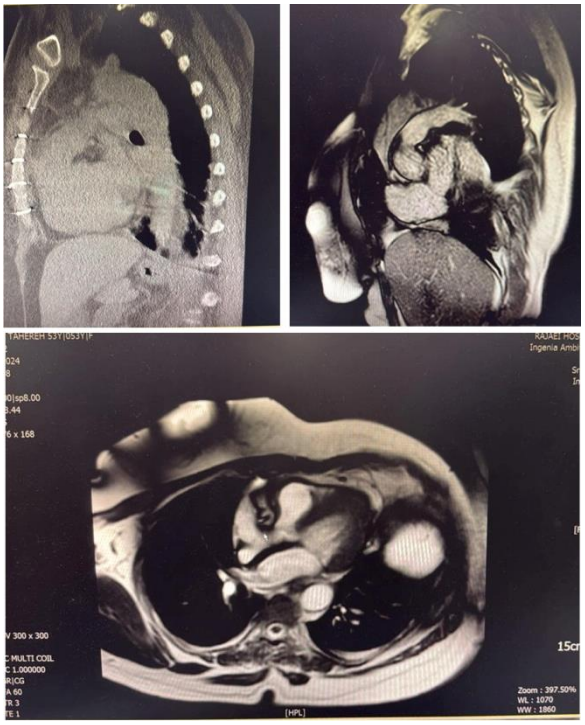

Figure 1. Cardiac magnetic resonance imaging of the patient

Postpump intraoperative transesophageal echocardiography was performed in a 54-year-old woman who underwent patent foramen ovale or small fenestration closure and partial excision of lipid accumulation around the coronary sinus, with blood pressure of 100/80 mm Hg and heart rate of 86 beats per minute. The examination revealed normal left ventricular size with preserved left ventricular systolic function (ejection fraction = 50%–55%), no left ventricular hypertrophy, and no left ventricular clot. Right ventricular size was normal with mild right ventricular systolic dysfunction. Both atria were normal in size. No smoke or clot was observed in the left atrium or left atrial appendage (left atrial appendage emptying velocity = 46 cm/s). Drainage of all pulmonary veins to the left atrium was normal, with S less than D in all pulmonary veins. The tricuspid and aortic valves were mildly thickened, with no aortic stenosis, mild aortic insufficiency, and normal size of the ascending aorta (2.9 cm), sinus of Valsalva (3 cm), and sinotubular junction (2.4

cm). The mitral valve and left ventricular outflow tract were normal, with no mitral stenosis and mild mitral regurgitation. Lipomatous hypertrophy of the lateral tricuspid valve annulus was noted with no compressive effect. The tricuspid valve was normal, with no tricuspid stenosis (mean gradient = 1 mm Hg) and mild to moderate tricuspid regurgitation. The pulmonic valve was normal, with no pulmonic stenosis and mild pulmonic insufficiency. Lipomatous hypertrophy of the interatrial septum was present without noticeable residual flow from the interatrial patch.

The pathology specimen consisted of pieces of creamy yellowish tissue with total dimensions of 2 × 1.5 cm; the specimen was entirely embedded. The diagnosis was a mixture of mature adipose tissue, a few brown fat cells, and a significant proportion of cardiac myocytes, without cellular atypia. The histological findings were most consistent with a cardiac lipoma with admixed myocardial tissue or lipomatous hypertrophy of the myocardium (Figure 2).

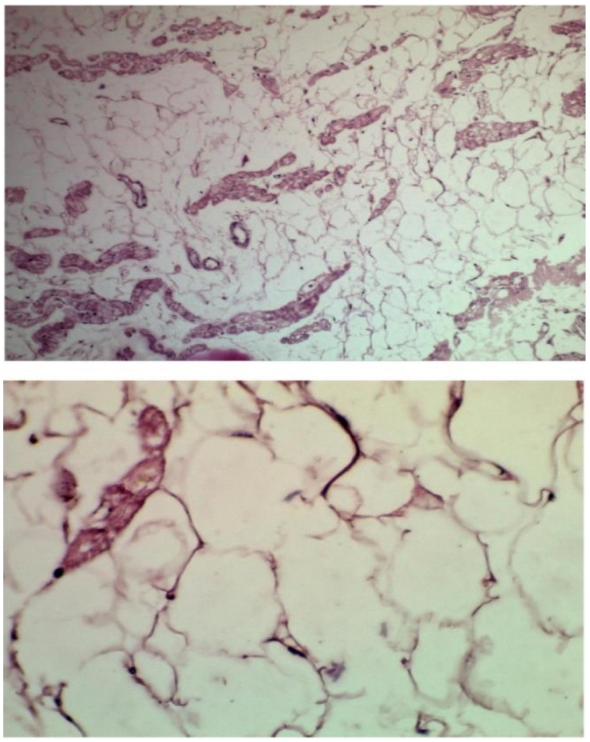

Figure 2. Gross examination of the cardiac mass shows fragments of creamy yellow tissue with fatty consistency measuring 2 × 1.5 cm. Histopathologic features reveal mature adipose tissue with entrapped cardiomyocytes. No lipoblasts, cellular atypia, necrosis, or mitotic activity are identified.

Following comprehensive monitoring, establishment of adequate intravenous access, and arterial line placement, the patient was placed under general anesthesia. Anesthesia was induced with 10 mg of midazolam, 500 µg of fentanyl, and 20 mg of cisatracurium. Monitoring included bispectral index and cerebral oximetry. The patient was intubated with a 7.5-mm endotracheal tube; correct placement was confirmed, and the patient was connected to the mechanical ventilator. A right internal jugular central venous line was placed and fixed at a length of 14 cm.[7] Her vital signs were stable throughout the procedure, and no problems occurred. After preparation and draping, the sternum was opened with an incision. Thereafter, sternotomy, pericardectomy, and thymectomy were performed. Heparin was then injected, aortic cannulation was performed, cardiopulmonary bypass was established, and the patient was cooled to 27 °C (deep hypothermia). The right atrium was opened. A lipoma was identified on the right side of the coronary sinus with extension to the extracardiac region. The mass was shaved as much as possible and sent to pathology. The ASD was then closed with a pericardial patch. After ventilation and suturing of the right atrium, the patient's heart resumed beating, and she was easily weaned from bypass. Following protamine injection, decannulation, hemostasis, and placement of drains, the chest wall was closed. The patient was transferred to the intensive care unit after the operation with stable hemodynamics. After 6 hours, she was extubated and transferred to the ward on the third day, and then discharged from the institute in good general condition.

DISCUSSION

There are no established guidelines for the treatment of cardiac lipomas. Since the first report[8] of successful removal of a pericardial lipoma in 1952, an increasing number of symptomatic cardiac lipomas have been resected, particularly after the introduction of cardiopulmonary bypass techniques in cardiac surgery. Radical resection has been adopted to relieve symptoms caused by cardiac lipomas in most patients.[9, 10] Among existing reports, most symptomatic patients (83.7%, 123/147) underwent resection of their cardiac lipomas. Although conservative management may be pursued in patients without symptoms related to the cardiac lipoma, 56 patients (68.3%, 56/82) with asymptomatic cardiac lipomas also underwent prophylactic resection. Recurrence of cardiac lipomas after surgical resection is very rare but has been reported in a few cases.[11, 12] In such instances, incomplete resection because of diffuse infiltration into the myocardium appears to be a contributing factor. Resection of a recurrent lipoma is highly challenging, and heart transplantation may be the ultimate solution.

Overall, radical resection should be considered for all patients with a cardiac lipoma, as asymptomatic lipomas may undergo excessive growth and myocardial infiltration, which could lead to unfavorable outcomes postresection. Furthermore, close follow-up with imaging should be performed for all patients to monitor for excessive growth or lipoma recurrence.[13, 14] A cardiac lipoma is a benign primary tumor of the heart. Nevertheless, its presence has the potential to disrupt cardiac function. A lipoma can present with highly variable symptoms, ranging from mild discomfort to syncope. Excessive growth of the lipoma and infiltration into the myocardium may indicate more severe clinical manifestations and an adverse prognosis. Accurate diagnosis and comprehensive assessment of a cardiac lipoma are highly dependent on multimodality imaging techniques. Radical resection of the lipoma is the optimal treatment method for symptomatic patients. Conservative management may be appropriate for asymptomatic cardiac lipomas, but prophylactic resection should also be considered.

Statements

Ethical Approval

This study was approved by the Ethics Committee of the Cardiovascular Research Center, Rajaie Cardiovascular Institute, Tehran, Iran (IR.RHC.REC.1404.195).

Informed Consent

The patient provided informed consent prior to inclusion in this case report.

Statement of Human and Animal Rights

Not applicable.

Data Availability Statement

Data sharing is not applicable to this article because no new data were created or analyzed in this study.

Funding Statement

No funding was received in relation to this work.

Conflict of Interest

The authors of this article have no conflicts of interest to declare.

REFERENCES

1. Rahouma M, Arisha MJ, Elmously A, Ahmed MME-S, Spadaccio C, Mehta K, et al. Cardiac tumors prevalence and mortality: a systematic review and meta-analysis. International journal of surgery. 2020; 76:178-89.

2. Poterucha TJ, Kochav J, O'Connor DS, Rosner GF. Cardiac tumors: clinical presentation, diagnosis, and management. Current treatment options in oncology. 2019; 20(8):66.

3. Ismail I, Al-Khafaji K, Mutyala M, Aggarwal S, Cotter W, Hakim H, et al. Cardiac lipoma. Journal of Community Hospital Internal Medicine Perspectives. 2015; 5(5):28449.

4. Italiano A, Ebran N, Attias R, Chevallier A, Monticelli I, Mainguené C, et al. NFIB rearrangement in superficial, retroperitoneal, and colonic lipomas with aberrations involving chromosome band 9p22. Genes, Chromosomes and Cancer. 2008; 47(11):971-7.

5. Zhu X, Cheng Z, Wang S, Chen X, Lu G, Li X. The characteristics of invasive cardiac lipoma: case report and literature review. Frontiers in Cardiovascular Medicine. 2023; 10:1195582.

6. Shu S, Wang J, Zheng C. From pathogenesis to treatment, a systemic review of cardiac lipoma. Journal of cardiothoracic surgery. 2021; 16(1):1.

7. Garekani MG, Poopak A, Pouraliakbar H, Barghi A, Omidvar R, Totonchi Z. Is peres formula reliable for determination of proper position of central venous catheter tip in Iranian population? Journal of Cardiovascular and Thoracic Research. 2025; 17(2):97.

8. Maurer ER. Successful removal of tumor of the heart. Journal of Thoracic Surgery. 1952; 23(5):479-85.

9. Miralles A, Bracamonte L, Soncul H, del Castillo RD, Akhtar R, Bors V, et al. Cardiac tumors: clinical experience and surgical results in 74 patients. The Annals of thoracic surgery. 1991; 52(4):886-95.

10. ElBardissi AW, Dearani JA, Daly RC, Mullany CJ, Orszulak TA, Puga FJ, et al. Survival after resection of primary cardiac tumors: a 48-year experience. Circulation. 2008; 118(14_suppl_1):S7-S15.

11. Zhu J, Liu Y, Xi E-P, Zhu S-B. A giant symptomatic cardiac lipoma recurring at the fifth year. International Journal of Clinical and Experimental Medicine. 2015; 8(8):14173.

12. Zeng LJ, Huang LH, Tan H, Zhang HC, Mei J, Shi HF, et al. Stereotactic body radiation therapy for refractory ventricular tachycardia secondary to cardiac lipoma: a case report. Pacing and Clinical Electrophysiology. 2019; 42(9):1276-9.

13. Hananouchi GI, Goff II WB. Cardiac lipoma: six-year follow-up with MRI characteristics, and a review of the literature. Magnetic resonance imaging. 1990; 8(6):825-8.

14. Al-Sabeq B, Autry K, Nabi F. Do I look fat in this? Multimodality imaging findings of a cardiac Lipoma. Methodist DeBakey cardiovascular journal. 2019; 15(2):156.