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Case Report

Multifocal Cardiac Fibroma Discovered During Pregnancy: A Case Report

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INTRODUCTION

Cardiac fibromas are rare, benign primary cardiac tumors composed of fibroblasts and connective tissue. They represent the second most common cardiac neoplasm in the pediatric population, after rhabdomyomas.[1,2] However, cardiac fibromas in adults are exceptionally rare. A recent large institutional series demonstrated that although these tumors predominantly affect children, more than half (54%) of diagnosed cases at tertiary care centers occurred in adults.[3] This finding likely reflects referral-center ascertainment bias rather than true population-level epidemiology. Clinical presentation varies considerably depending on tumor size, location, and involvement of the cardiac conduction system.

Approximately two-thirds of pediatric patients remain asymptomatic.[1] When symptoms occur, they may include palpitations (31%), syncope (15%), chest pain (15%), and heart failure (12%).[3] Unlike cardiac rhabdomyomas, fibromas do not undergo spontaneous regression and are associated with a significant risk of life-threatening ventricular arrhythmias, with ventricular tachycardia reported in 31-64% of symptomatic patients.[3,4] The associated risk of sudden cardiac death underscores the importance of early diagnosis and appropriate management.[2,5]

These tumors most commonly arise in the left ventricular free wall (57%) and have a mean diameter of approximately 5 cm, although they may exceed 10 cm.[3,6] Cardiac magnetic resonance imaging (MRI) typically demonstrates characteristic T2 hypointensity and delayed gadolinium enhancement, reflecting the tumor's high fibrous tissue content.[7] The substantial hemodynamic changes of pregnancy, including 40-50% increases in blood volume and cardiac output, may unmask previously asymptomatic cardiac masses.[8] While fetal cardiac tumors are well described,[9] maternal cardiac tumor presentation during pregnancy remains poorly characterized.

We present an exceptional case of a large, multifocal left ventricular fibroma in a young adult woman, discovered following syncope during the third trimester of pregnancy. This case is notable for the rarity of cardiac fibroma in adulthood, its presentation during pregnancy-related hemodynamic stress, and a substantial tumor burden exceeding 6 cm with two distinct nodules. Additionally, the patient's reported history of "myocardial infarction" at age 17 may represent an earlier manifestation of the disease. This report highlights the diagnostic challenges of cardiac masses in pregnancy, the critical role of multimodality imaging, and successful management through delayed surgical resection with favorable maternal and fetal outcomes.

CASE REPORT

A 25-year-old woman at 32 weeks' gestation presented to the cardiology clinic following an episode of syncope that began during her second trimester. Initial evaluation at an outside hospital revealed a large right-sided cardiac mass on echocardiography. She reported intermittent left-sided chest pain lasting a few seconds and occasional dyspnea but denied palpitations, orthopnea, or recurrent syncope. Her past medical history was notable for a reported "myocardial infarction" at age 17; however, no cardiac testing or documentation from that event was available.

Physical examination revealed a well-appearing woman with a blood pressure of 94/50 mmHg, heart rate of 66 bpm, and oxygen saturation of 97%. Cardiovascular examination demonstrated a regular rhythm with a soft systolic murmur, without heaves, thrills, or jugular venous distension. The lungs were clear bilaterally, and there was no peripheral edema. Electrocardiography showed normal sinus rhythm with nonspecific ST-T wave abnormalities.

Initial transthoracic echocardiography demonstrated a preserved left ventricular ejection fraction (LVEF) of 60% and a 4.2 × 2.8 cm mass attached to the posteromedial papillary muscle, concerning for tumor versus myxoma. At approximately 35 weeks' gestation, repeat echocardiography performed at another facility approximately three weeks later demonstrated interval increase in the size of the left ventricular mass to 5.3 × 2.6 cm; however, this apparent change may reflect differences in imaging planes rather than true tumor growth. Cardiac MRI with contrast was recommended but deferred until after delivery due to concerns regarding gadolinium exposure during pregnancy.

The patient subsequently underwent a scheduled cesarean delivery of a healthy infant at 39 weeks' gestation. Postpartum, she reported worsening and more persistent atypical chest pain. Cardiac MRI was then performed for further characterization, revealing a large multilobulated mass involving the inferior wall of the left ventricle, extending approximately 6.1 cm from near the apex to the base (3.3 cm craniocaudal × 4.1 cm anteroposterior). The lesion was hypointense on T2-weighted imaging (Figures 1a–b) and isointense to myocardium on T1-weighted imaging. First-pass perfusion demonstrated minimal enhancement, whereas delayed post-contrast imaging showed prominent, heterogeneous delayed gadolinium enhancement, findings most consistent with cardiac fibroma.

No atrial mass was identified on MRI, suggesting that the previously reported right-sided mass on echocardiography likely represented mislocalization of the left ventricular tumor. The LVEF was 53% (low-normal), with no regional wall motion abnormalities despite the large tumor burden. Right ventricular ejection fraction was borderline low-normal at 42%, without right ventricular dilation or evidence of right-sided heart failure.

The patient underwent surgical resection of the cardiac mass via median sternotomy with cardiopulmonary bypass. Intraoperatively, two rubbery, tan-pink-white masses were identified and completely excised, measuring 6.5 × 5.5 × 3.1 cm in aggregate and weighing 50 grams. The smaller component demonstrated moderate calcification on ex vivo radiographic examination of the resected specimen. Histopathologic analysis confirmed cardiac fibroma, revealing two well-circumscribed nodules composed of paucicellular fibrous tissue with areas of calcification. Tumor involvement at the myocardial interface was noted, consistent with the infiltrative nature of cardiac fibromas.

Postoperative recovery was uncomplicated. At three-month follow-up, the patient remained asymptomatic with improved exercise tolerance. Follow-up echocardiography demonstrated no evidence of tumor recurrence and stable ventricular function. She continues to undergo serial imaging surveillance.

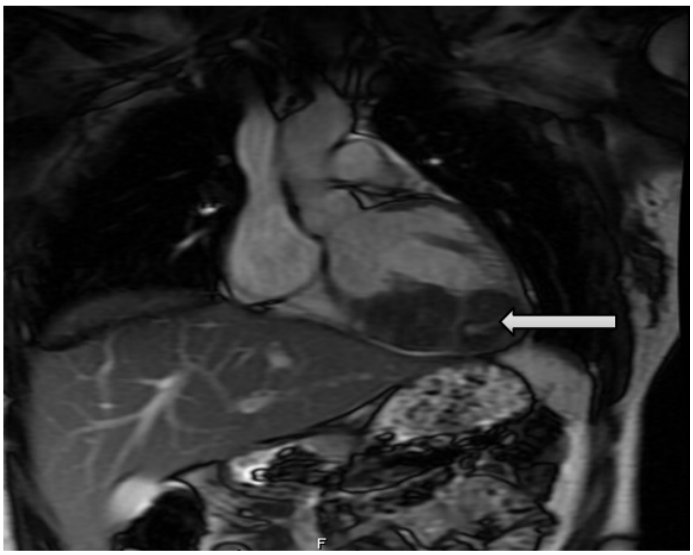

Figure 1. Cardiac MRI showing T2 hypointensity (white arrow), suggestive of fibrosis (cardiac fibroma).

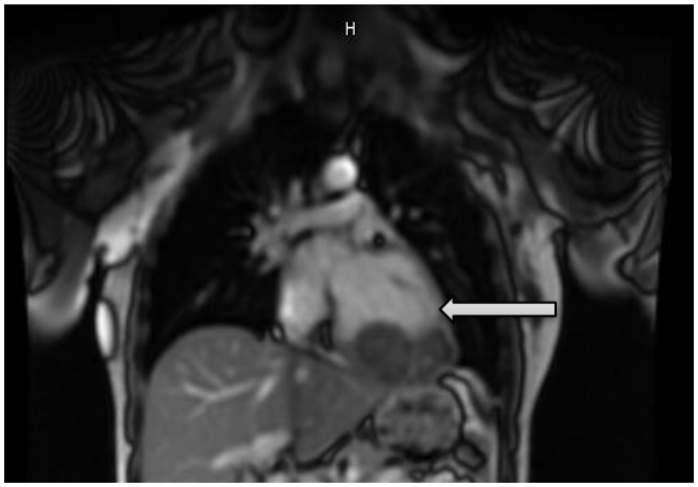

Figure 2. Cardiac MRI showing T2 hypointensity (white arrow), suggestive of fibrosis (cardiac fibroma).

DISCUSSION

This case represents a rare presentation of multifocal cardiac fibroma in a young adult woman. Although typically considered a pediatric tumor, recent data indicate that more than half of cases reported at tertiary centers occur in adults, challenging this traditional view.[3] Its discovery during pregnancy underscores how physiologic cardiovascular adaptations can unmask previously occult pathology.

This case highlights the central role of multimodality imaging. Transthoracic echocardiography enabled initial detection, albeit with inaccurate localization, and longitudinal assessment, while cardiac MRI provided definitive tissue characterization. The lesion demonstrated classic fibroma features, including T2 hypointensity, isointense T1 signal, and prominent delayed gadolinium enhancement.[7] These findings distinguished fibroma from myxoma and thrombus[3] and informed surgical planning.

The patient's reported "myocardial infarction" at age 17, in the absence of risk factors or documentation, may represent an earlier manifestation of the tumor, possibly due to coronary compression, arrhythmia, or misdiagnosed chest pain. Given the arrhythmogenic potential of cardiac fibromas, initial evaluation appropriately included electrocardiography, which showed nonspecific ST-T abnormalities. Although ambulatory monitoring was not performed at presentation, it may be warranted after diagnosis, particularly in patients with syncope. This case emphasizes the importance of considering cardiac tumors in young patients with unexplained cardiac symptoms.

Deferral of surgery until after delivery was appropriate given stable hemodynamics and absence of malignant arrhythmias. Although cardiac surgery during pregnancy is feasible, it carries significant maternal and fetal risk.[9] Close surveillance allowed safe cesarean delivery at 39 weeks' gestation, followed by definitive postpartum resection, an approach that minimized maternal risk and avoided fetal exposure to cardiopulmonary bypass.

CONCLUSIONS

Cardiac fibromas should be considered in young adults with unexplained cardiac symptoms, particularly when pregnancy unmasks disease. Multimodal imaging is necessary for diagnosis and management, and surgical resection offers an excellent prognosis. Long-term surveillance remains important given rare recurrence. This case further underscores the value of a multidisciplinary cardio-obstetric approach to optimize maternal and fetal outcome.

ARTICLE INFORMATION

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