



Clinical Case Report: Cardiac Myxoma in Pregnancy

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Abstract

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BACKGROUND: This article describes cardiac myxoma in a pregnant woman at 15 weeks of gestation.

CASE PRESENTATION: A large left atrial myxoma, despite the asymptomatic clinical presentation, was diagnosed during echocardiography. Given the significant risk of cardiac complications, the tumor was surgically removed at 19 weeks gestation. The postoperative period as well as the second and third trimesters of pregnancy were uneventful. At 40 weeks of gestation, live full-term baby was born by vaginal birth mode of delivery without any apparent pathology.

CONCLUSION: This case demonstrates the significance of timely diagnosis and treatment of myxoma as well as the need for continuous monitoring at different stages of pregnancy and their positive impact on disease outcome.

Introduction

Benign tumors make up 75% of all primary cardiac tumors, and half of them are myxomas. Myxomas are rare benign tumors (0.5–1 case per million population per year), which account for 40% of all cardiac tumors and are most often localized in the left atrium (>85%) [1]. The incidence of myxoma during pregnancy is extremely low. According to Brazilian researchers, only 51 cases have been described in the literature to date [2]. Given the high risk of complications, and the most severe one is an arterio-arterial embolism, which in turn leads to acute arterial blood flow disorders, these patients have a high risk of developing acute cardiogenic shock or sudden cardiac death [3].

This article presents a clinical case of the surgical treatment of a woman at a gestational age of 15 weeks, who underwent heart surgery – resection of the left atrial myxoma under cardiopulmonary bypass. This case from clinical practice reported in this article will contribute to the understanding of the optimal diagnosis and treatment of myxoma in a pregnant woman.

Clinical Case Description

A 42-year-old woman at 15 weeks of gestation was not placed on a register in the cardiology department earlier. Examination of the patient for the pathologies of the cardiovascular system revealed an abnormal (ECG) electrocardiography result (sinus tachycardia and sinus arrhythmia), therefore physician decided to order echocardiography (May 21, 2021), as a result of which a myxoma of large size – up to 4 cm was found out. In this regard, the patient was recommended to terminate the pregnancy, and this recommendation was totally refused.

As a result of the subsequent examination by a cardiac surgeon as well as a multidisciplinary team, it was concluded that, given the high risk of possible cardiovascular complications, the patient would be scheduled for planned myxomectomy from the left atrium. The patient received detailed information about her disease and agreed to surgery with the continuation of pregnancy. The patient signed informed consent. The obstetric history of the patient is the following: gravidity – 4, parity – 3, and the current pregnancy is the fourth one. Previous pregnancies and labors were uneventful, with the vaginal mode of delivery at term.

Other clinical and laboratory data from the patient's medical file: ECG results at 15 weeks of pregnancy: sinus rhythm, heart rate – 78–95 beats per minute. The axis of the ECG is normal.

Echocardiography results are presented in Table 1.

Echocardiography report during an outpatient examination at 15 weeks (Figure 1) is as follows: a mobile, rounded formation 2.6 × 3.1 cm in size is visualized in the left atrium cavity, attached to the interatrial septum with prolapse during systole into the left ventricle cavity. Report conclusion: myxoma of the left atrium. Mild mitral valve insufficiency.

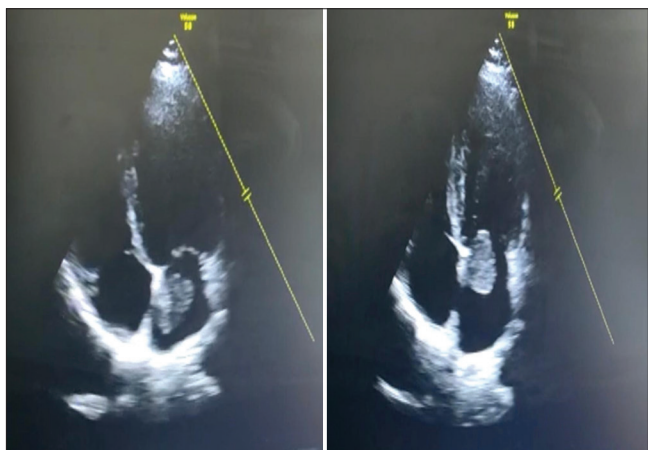


Figure 1: Echocardiography (May 21, 2021). Apical four-chamber view: myxoma in the left atrium

Transesophageal echocardiography data (June 6, 2021) demonstrated the presence of grade I mitral valve insufficiency. In the left atrium, a myxoma up to 3.5 cm in diameter was located on a wide stalk, fixed to the fossa ovalis.

After preoperative preparation, surgical treatment was carried out on June 3, 2021 – removal of a myxoma from the left atrium, reconstructive surgery of the interatrial septum under cardiopulmonary bypass, and normothermia with the use of endotracheal anesthesia. A median longitudinal sternotomy was performed. During the operation, the myxoma measuring 3.5 × 2.5 cm of a loose consistency, the stalk of which originated from the

interatrial septum in the region of the fossa ovalis, about 2.0 cm wide, was found in the left atrial cavity. The latter was removed along with the adjacent endocardium. The surgery was completed by performing atrial septal defect repair using an autopericardial patch.

During the postoperative period, the patient stayed in the ICU for 24 h. After stabilization of the general state and hemodynamic parameters, on June 4, 2021, she was transferred to the specialized department.

Echocardiography report in the postoperative period (June 9, 2021): Myxomectomy. Left atrium dilatation. Systolic left ventricular function is satisfactory. Additional formations in the cavities of the heart were not found. The left atrial septal patch is sealed. The pericardium is normal (Figure 2).

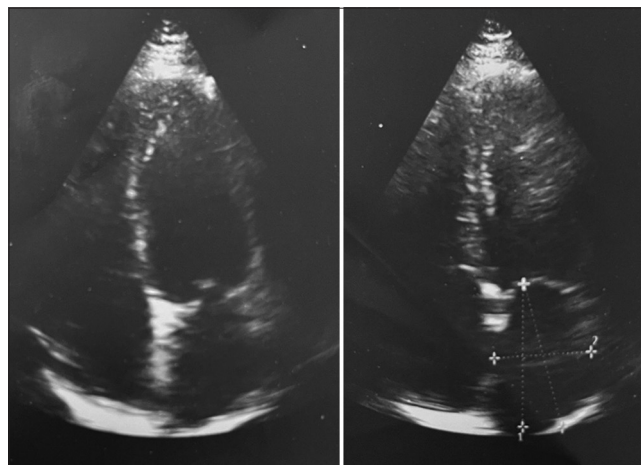


Figure 2: Echocardiography (September 10, 2021). Apical four-chamber view: Myxomectomy. Regression of the dilated cavity of the left atrium

After 12 days of inpatient care, the patient was discharged for outpatient observation in a satisfactory condition. ECG results (June 20, 2021): sinus rhythm and heart rate 90 beats/min. The axis of the ECG is normal.

At 40 weeks, a live full-term baby was born by vaginal mode of delivery without apparent pathologies with an Apgar score of 7–8 points: weight – 2630.0 g; length – 49 cm.

In the early postpartum period, according to echocardiography (December 10, 2021), the heart cavities are not dilated, and no other formations were detected.

Table 1: Follow-up echocardiography parameters

| Parameter | May 19, 2021 (15 weeks of gestation) | June 3, 2021 –The day of surgery (17 weeks of gestation) | June 9, 2021 6 days post-operative (18 weeks of gestation) | June 22, 2021 (20 weeks of gestation) | September 10, 2021 (32 weeks of gestation) | December 10, 2021 (postpartum period) |
|----------------------------------|--------------------------------------|--|--|---------------------------------------|--|---------------------------------------|
| BSA (m ²) | 1,76 | 1,78 | 1,75 | 1,77 | 1,8 | 1,89 |
| LVEDd/index (cm/m ²) | 4,7/2,75 | 4,7/2,66 | 4,6/2,62 | 4,6/2,59 | 4,8/2,66 | 4,3/2,27 |
| LVEDs/index (cm/m ²) | 3,6/2,11 | 3,5/1,96 | 3,1/1,7 | 3,0/1,6 | 2,9/1,6 | 3,2/1,6 |
| SV (ml) | 63 | 56 | 59 | 57 | 49 | 62 |
| EF (%) | 60 | 61 | 61 | 60 | 62 | 60 |
| LAV/LAVI (ml/m ²) | 64/37 | 59/34 | 58/33 | 57/32 | 50/29 | 58/30 |
| RAV/RAVI (ml/m ²) | 39/11,2 | 36/20 | 33/18 | 34/19 | 32/17 | 33/17 |
| EMV (cm/s) | 97 | 98 | 89 | 102 | 109 | 90 |
| AMV (cm/s) | 75 | 77 | 76 | 91 | 87 | 76 |
| e'med | 7,9 | 7,8 | 7,6 | 7,8 | 7,0 | 7,9 |
| a'med | 11,9 | 11,9 | 10,2 | 11,2 | 10,6 | 10,4 |
| MR | + | + | + | + | + | + |
| RWT | 0,3 | 0,38 | 0,39 | 0,4 | 0,41 | 0,37 |
| LVMMI (grams/m ²) | 75 | 80 | 81 | 76 | 83 | 81 |

LVEDd: Left ventricular end-diastolic dimension, LVEDs: Left ventricular end-systolic dimension, SV: Stroke volume, EF: Ejection fraction, LAV: Left atrial volume, LAVI: Left atrial volume indexed, RA/RAVI: Right atrial volume, RAVI: Right atrial volume indexed, EMV: Transmittal peak E, AMV: Transmittal Peak A, MR: Mitral regurgitation, RWT: Relative wall thickness, LVMI: Left ventricular mass indexed.

Discussion

Myxoma during pregnancy is extremely rare; some individual cases are described in the literature [2], [4]. Pregnant women are a vulnerable group. The diagnosis and treatment of women during the first and second trimesters of pregnancy present certain difficulties. The strategy of myxoma treatment diagnosed in women at different stages of pregnancy depends on the volume of the tumor, the pregnancy term, the presence of comorbidities, and the severity of hemodynamic disorders of cardiac function. All of the above factors pose a serious threat to both mother and fetus [5], [6].

The clinical course of the described case was unusual. Despite the large size of the tumor, the clinical presentation was asymptomatic. The changes revealed by the ECG study and the age of the patient prompted us to further diagnostic search, which resulted in the diagnosis of myxoma.

A review of publications describing cases of observation of pregnant women with myxoma of the heart has demonstrated the detection of sinus arrhythmia (tachycardia/bradycardia) in 60% of cases, extrasystole (atrial/ventricular) in 19% of cases, and supraventricular tachycardia in 14% of cases. Rare cases of atrial fibrillation have also been described in the absence of underlying heart disease (1%) [2], [7].

Palpitations are quite common in pregnant women, but as an isolated symptom, tachycardia is quite rare in patients with myxoma. According to the research, 79.5% of patients have circulatory disorders due to intracardiac obstruction, embolic, and constitutional symptoms, which are closely correlated with heart failure and valvular pathology [1].

Diagnosis of myxomas is based on transthoracic echocardiography, which in this case has demonstrated high sensitivity and specificity. In cases of atypical location or in doubtful cases, magnetic resonance imaging comes to the aid of the physician [8]. In the case described by us, echocardiographic examination made it possible to make a definite preoperative diagnosis and determine the indications for surgical intervention, taking into consideration the high risk of thromboembolism, as well as the obstetric status of the woman.

Management strategies for this type of patient should take into account the risk of complications and mortality for both the mother and the fetus. Previously reported cases describe treatment options such as abortion, tumor resection during pregnancy, or delayed heart surgery until delivery to ensure fetal maturity. Currently, surgical removal of the myxoma during pregnancy is preferably performed between 19 and 28 weeks of gestation to avoid teratogenic risk to the fetus in the first trimester and the risk of miscarriage after 28 weeks of gestation [5], [9].

Conclusion

The reported clinical case demonstrates the need for an echocardiography of a pregnant woman; even the changes in cardiac activity are physiological for pregnant women. This case demonstrates the significance of timely diagnosis and treatment of myxomas as well as the need for continuous monitoring at different stages of pregnancy and their positive impact on disease outcome.

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