JACC: CASE REPORTS VOL. 28, 2023

IMAGING VIGNETTE

CLINICAL VIGNETTE: CARDIO-OBSTETRICS 2023

A Case of a Cardiac Hamartoma in Pregnancy

Preconception Through Delivery

Jaya Batra, MD,[a] Jennifer Haythe, MD,[a] Stephanie Purisch, MD[b]

ABSTRACT

A 32-year-old woman with a large cardiac hamartoma was referred to our institution's cardio-obstetrics group for preconception counseling. Results of hemodynamic testing revealed restrictive physiology. This case highlights the role of multimodality testing in predicting the hemodynamic consequences of pregnancy in the setting of high-risk cardiovascular conditions. (J Am Coll Cardiol Case Rep 2023;28:102128) © 2023 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

CASE PRESENTATION

A 32-year-old gravida 0 para 0 woman was referred to our institution's cardio-obstetrics service for preconception counseling regarding a diagnosis of cardiac hamartoma. The mass had been discovered when the patient was 3 years of age. At that time, surgical resection had been attempted, but the mass was ultimately deemed to be too large and complex to be safely resected. Biopsy results confirmed the diagnosis of cardiac hamartoma. The patient had no other significant medical history. She worked full-time at a job that involved light-intensity physical activity and denied exertional chest pain, symptoms of heart failure, or a history of syncope.

On presentation, the patient's blood pressure was 100/60 mm Hg, her heart rate was 65 beats/min, and her oxygen saturation was 98% on ambient air. Her physical examination was notable for a grade II/VI systolic murmur along the left upper sternal border, clear lung fields bilaterally, and warm extremities without edema. A cardiac magnetic resonance imaging scan showed a large intramyocardial mass measuring up to 5.4 × 4.0 cm in its largest dimensions that extended from the level of the mitral valve annulus to the mid-cavity (**Figure 1**). A transthoracic echocardiogram revealed, in addition to the known cardiac hamartoma, normal left and right ventricular function without left ventricular outflow tract obstruction and normal atria (**Figure 1**, Video 1).

A right heart catheterization with volume loading was recommended to assess the impact of the hamartoma on hemodynamic variables (Supplemental Figure 1). The right atrial (RA) pressure was 3 mm Hg, the pulmonary artery pressure was 19/7/12 mm Hg, the pulmonary capillary wedge pressure (PCWP) was 9 mm Hg with a v wave to 16 mm Hg, pulmonary artery saturation was 75%, cardiac output was 4.9 L/min, and the cardiac index

From the [a]Division of Cardiology, Department of Medicine, Columbia University Vagelos College of Physicians and Surgeons, New York, New York, USA; and the [b]Department of Obstetrics and Gynecology, Columbia University Vagelos College of Physicians and Surgeons, New York, New York, USA.

The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the Author Center.

Manuscript received July 9, 2023; revised manuscript received October 25, 2023, accepted October 31, 2023.

ISSN 2666-0849 https://doi.org/10.1016/j.jaccas.2023.102128

ABBREVIATIONS AND ACRONYMS

PCWP = pulmonary capillary wedge pressure

RA = right atrial

was 2.7 L/min. A steep y-descent was noted in both the RA and PCWP waveforms, consistent with restrictive hemodynamics. A 1,500 mL fluid bolus was given to mimic the loading conditions of pregnancy, and repeat hemodynamics showed an increase in filling pressures with an RA pressure of 8 mm Hg, pulmonary artery pressure of 26/12/19 mm Hg, PCWP of 17 mm Hg with a v wave to 30 mm Hg, pulmonary artery saturation of 74%, cardiac output of 4.7 L/min, and cardiac index of 2.6 L/min.

Due to restrictive physiology secondary to the hamartoma, there was a theoretical concern regarding the inability to adequately augment cardiac output in pregnancy, which could result in intrauterine growth restriction. In a shared decision-making conversation, the patient was counseled extensively by the cardio-obstetrics team and elected to proceed with the pregnancy. She was advised to stay hydrated, and negative chronotropic medications were avoided. Serial transthoracic echocardiograms and N-terminal pro-B-type natriuretic peptide levels were monitored throughout pregnancy and remained stable. Screening Holter monitors were used throughout pregnancy and following delivery to monitor for malignant arrhythmias. The patient delivered vaginally at 37 weeks' gestation without complication.

DISCUSSION

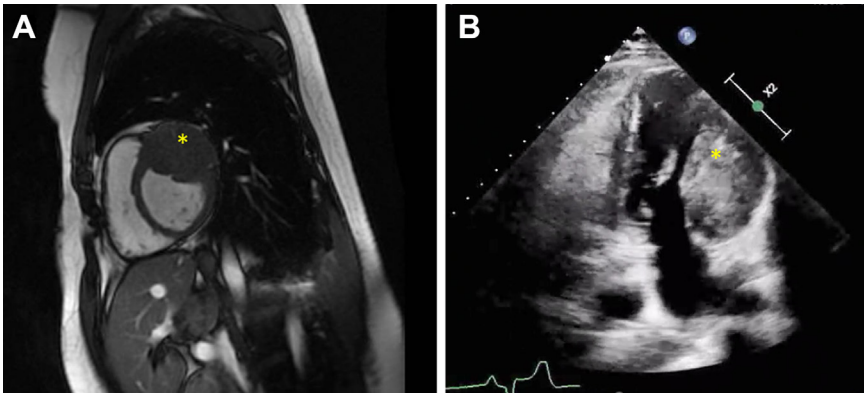
Cardiac hamartomas are exceedingly rare, benign cardiac tumors of mature cardiac myocytes.[1] In this unusual case, a large hamartoma in the left ventricle was associated with restrictive physiology. There are few guidelines available to direct clinicians and patients on the clinical course of pregnancy in the setting of restrictive physiology. Expert consensus advises against pregnancy in symptomatic individuals.[2] For asymptomatic women, hemodynamic assessments such as right heart catheterization with fluid challenge and noninvasive modalities such as exercise stress echocardiography and cardiopulmonary exercise testing can provide some insight into how pregnancy may be tolerated.

FUNDING SUPPORT AND AUTHOR DISCLOSURES

The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

ADDRESS FOR CORRESPONDENCE: Dr Jennifer Haythe, Division of Cardiology, Department of Medicine, Columbia University Vagelos College of Physicians and Surgeon, 622 West 168th Street, PH 12, New York, New York 10032, USA. E-mail: jhh28@cumc.columbia.edu. @drjennhaythe.

FIGURE 1 Multimodality Imaging of Cardiac Hamartoma



(A) Cardiac magnetic resonance bright blood imaging, short-axis. Asterisk denotes large intramyocardial enhancing mass, predominantly involving the anterior/anterolateral segments from base to mid cavity and the anterior/septal apical segments. (B) Transthoracic echocardiogram, 4-chamber view. Echogenic mass, denoted with asterisk, visualized at the base and mid-level of the lateral wall.

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KEY WORDS cardiac hamartoma, preconception counseling, pregnancy, restrictive cardiomyopathy

APPENDIX For a supplemental figure and video, please see the online version of this paper.