

Ultrasound Assessment in a Pregnant Woman? Not just for the Fetus

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Abstract

Pericarditis is a relatively common diagnosis worldwide; however, there are few data published on the frequency, diagnosis, and management of pericardial diseases in pregnant women. Ultrasonography has established its utmost importance and is worldwide recognized in pregnancy and fetal evaluation. Moreover, point-of-care ultrasonography of pregnant women, guided by clinical examination and history, can play an equally fundamental role. We present a case of a 37-year-old pregnant woman who presented at the emergency department with pleuritic chest pain, fever, and cough. Bedside point-of-care ultrasonography confirmed pericarditis revealing an organized pericardial effusion, leading to patient hospitalization and initiation of therapy. The importance and acknowledgment of portable and hand-held ultrasonography devices are growing since it enables physicians not only to make a fast and accurate diagnosis but also to access evolution in inpatient and outpatient settings.

Keywords: Pericarditis, point-of-care ultrasound, pregnancy

INTRODUCTION

Pericarditis is a relatively common diagnosis worldwide; however, there are few data published on the frequency, diagnosis, and management of pericardial diseases in pregnant women.

Pericardial disease is sporadic in pregnant women and usually presents as hydropericardium by the third trimester.^[1,2] Most commonly, the effusion is asymptomatic, and electrocardiogram does not present ST-T changes.^[2] Pericarditis is the most common pericardial disease requiring treatment. Description of pericarditis on the 1st and 2nd trimesters is rare.

The diagnostic workup and management of pericarditis during pregnancy present a demanding challenge.

Ultrasonography has established its utmost importance and is worldwide recognized in pregnancy and fetal evaluation. Moreover, point-of-care ultrasonography of pregnant women, guided by clinical examination and history, can play an equally fundamental role in enabling a quick diagnosis and prompt treatment initiation.^[3]

The overall treatment is like that of nonpregnant women, but specific attention is required regarding drug safety and lactation. Nonsteroidal anti-inflammatory drugs (NSAIDs) can be used until 20 weeks of gestation. Beyond the 20th week of gestation, all NSAIDs (except Aspirin <100 mg/day) should be c.^[2,4-6] Low-dose prednisolone (2.5–5 mg/day) is safe and can be used throughout pregnancy and breastfeeding.^[4,5] Colchicine is generally contraindicated, but can be used safely in some settings as in the case of recurrent pericarditis or familial Mediterranean fever.^[1,5] In general, the prognosis is favorable when these women are followed by a multidisciplinary team.

CASE REPORT

We present a case of a 37-year-old woman who presented at the emergency department with pleuritic chest pain. Symptoms started 1 week earlier with mild chest pain that alleviated in

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Received: 24-05-2022 Revised: 25-06-2022 Accepted: 04-08-2022 Available Online: 07-12-2022

Access this article online

Quick Response Code:



Website:
<https://journals.lww.com/jmut>

DOI:
10.4103/jmu.jmu_55_22

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How to cite this article: Coelho TB, Gomes RM, Teixeira J, Mariz JA. Ultrasound assessment in a pregnant woman? Not just for the fetus. *J Med Ultrasound* 2023;31:334-6.

seated and leaning forward position, associated with fever and dry cough. She had already recurred twice to a physician who medicated her with amoxicillin and clavulanic acid 8 days earlier. Fever and cough resolved, but the pleuritic chest pain got more intense. The pain still alleviated by leaning forward and irradiated to the right chest wall. She was pregnant and in the 18th week of gestation. Otherwise, her medical history was unremarkable.

Her blood pressure was 116/78 mmHg, with a pulse of 118 beats/min, and her temperature was 36.5°C. On physical examination, she was conscious and well-oriented; the cardiopulmonary auscultation and abdominal and neurological evaluation were normal.

Bedside point-of-care ultrasonography was performed as an extension of the physical examination and revealed an organized pericardial effusion with a maximum thickness of 8 mm, that did not compromise ventricular filling, but, with evidence of an abnormal septal motion [Figures 1 and 2].

An EKG was performed showing only sinus tachycardia. The chest radiograph was normal, and the first analysis came back demonstrating leukocytosis (14,200/uL), elevated C-reactive protein (10.03 mg/dL), and erythrocyte sedimentary rate (47 mm) with no elevation in myocardial enzymes. The patient was admitted to the internal medicine for surveillance. Since the patient was in the second trimester of pregnancy, initiation of treatment was withheld until a consensus was reached among the obstetrician, internal medicine, and cardiology teams. On day 2, the patient started colchicine, based that existed an increased risk of ductus arteriosus constriction and oligohydramnios with NSAID.^[2]

A complete study was done with immune panel, an extensive serological panel, which was unable to give a definitive conclusion about the ethology. Pericardiocentesis was not performed, given the minimal thickness of the effusion.

The patient responded well to treatment with symptomatic improvement and decrease of inflammatory response markers, although only after 5 consecutive days of treatment, with recurrence for additional acetaminophen for pain control. A transthoracic ultrasound was performed confirming the stability of the pericardial effusion (8 mm maximum thickness), with no compromise of ventricular function [Figure 3]. Given the stability of effusion, satisfying clinical evolution, and risks of invasive procedure, pericardiocentesis was not performed. The patient was discharged and followed as an outpatient, thereafter.

DISCUSSION

Despite being a relatively common diagnosis in the general population, pericarditis remains rare in the first and second trimesters of gestation.

Therefore, a meticulous anamnesis and physical examination remain essential for a correct diagnosis. The importance and

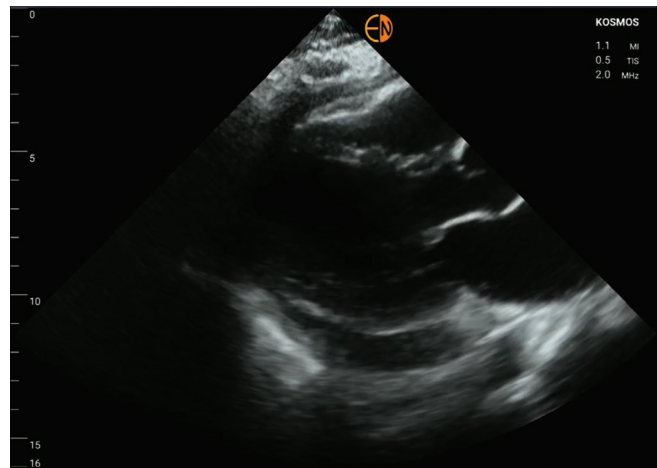


Figure 1: Parasternal long-axis view showing pericardial effusion

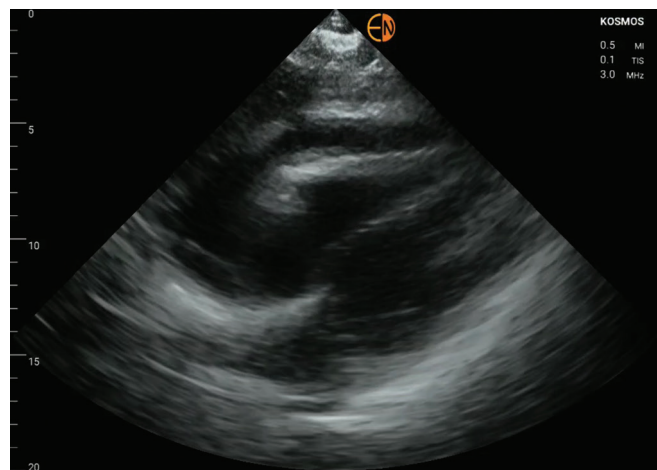


Figure 2: Subcostal view showing pericardial effusion with no compromise of the right ventricular filling and abnormal septal motion

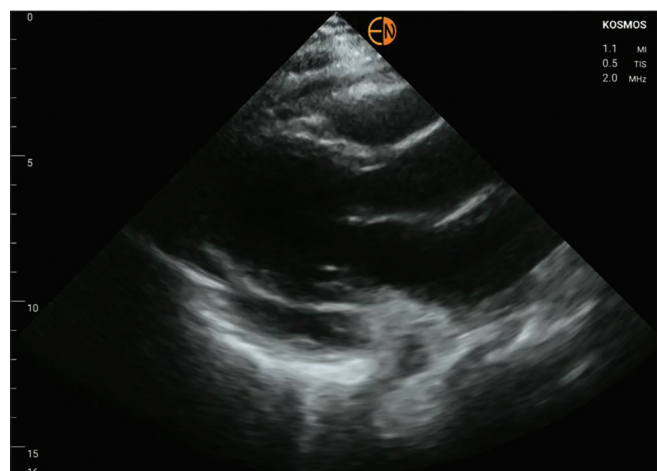


Figure 3: Parasternal long-axis view showing stability of the pericardial effusion

acknowledgment of portable and hand-held ultrasonography devices are growing, and bedside evaluation is becoming an extension of physical examination.

This case highlights the impact of bedside ultrasonography. This technique has a high sensitivity in detecting pericardial effusions, enabling quick diagnosis, and prompting treatment initiation. Moreover, point-of-care ultrasound permits the definition of the size of effusion and evaluation of signs of cardiac tamponade. This technique is also fundamental in case pericardiocentesis is mandatory. Integrated with clinical examination and anamnesis bedside point-of-care ultrasonography permits a close follow-up to access the evolution of the effusion under treatment and reevaluation in the outpatient setting. Therefore, point-of-care ultrasonography has a major importance through all phases of follow-up.

Furthermore, it is necessary to continue studies to reach a consensus on the best and safest treatment for pregnant women presenting with pericarditis.

Both the diagnostic delay and treatment withholding could have implications in the future, as some degree of organization of the effusion was noted.

Due to high risk associated with the procedure, given the fact that the effusion had only 8mm, pericardiocentesis was not performed. An extensive immunologic study and serological panel were performed, but were unable to establish etiology for this pericardial effusion.

However, given the previous symptoms of fever and dry cough, the favorable evolution and epidemiological data, postviral infectious effusion seem the most likely cause.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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