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UNVEILING PERIPARTUM CARDIOMYOPATHY : A CASE REPORT.

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ABSTRACT

Peripartum cardiomyopathy is a rare form of heart failure that arises towards the end of pregnancy or in the postpartum period, typically presenting symptoms similar to those of heart failure. The pathophysiology of peripartum cardiomyopathy remains largely unclear, though it is believed to involve a combination of hormonal, genetic, and immune-related factors. This case presents with a 30-year-old women who presented with shortness of breath, fatigue, and puffiness of her face. Diagnostic workup revealed a decrease in left ventricle ejection fraction and global left ventricle hypokinesia in 2D Echo along with cardiomegaly in Chest X-Ray which supported the diagnosis. The patient was managed with oxygenation, Diuretics, Beta blocker, and Angiotensin-converting enzyme inhibitor for several manifestations. She was kept on a low sodium diet, Close monitoring and supportive care were provided. On further followup the patient health improved significantly with an increase in ejection fraction. The case report emphasizes the importance of timely diagnosis and appropriate treatment to improve patient outcomes. **Categories:** Cardiology, Obstetrics/Gynecology, Internal Medicine

INTRODUCTION

Peripartum cardiomyopathy (PPCM) is a distinct and perplexing form of heart failure that occurs during the final month of pregnancy or within five months after delivery, affecting approximately 1 in 2,000 to 4,000 pregnancies worldwide [1]. Its rarity, combined with its potential for severe maternal and neonatal outcomes, underscores the importance of recognizing and managing this condition promptly. Unlike other types of cardiomyopathy, PPCM affects women with no prior heart disease, and its onset is intricately linked to the peripartum period, suggesting that pregnancy-related physiological and hormonal changes play a crucial role [2]. Despite advances in diagnostic techniques, such as echocardiography, and treatment options, the precise etiology of PPCM remains elusive. Researchers propose that factors including immune system dysfunction, oxidative stress, and genetic predispositions contribute to its development. The condition's clinical presentation can overlap with normal pregnancy symptoms, making early diagnosis challenging but essential for effective management. Understanding PPCM's multifaceted nature is vital for improving both immediate care and long-term outcomes, as ongoing research continues to explore its underlying mechanisms and refine therapeutic approaches.

Case Presentation

A 30-year-old woman, Gravida 2 Para 2, presented to the obstetric and gynecology department at 6 weeks postpartum with complaints of severe shortness of breath, fatigue, and puffiness of the face. Her symptoms began approximately two weeks after giving birth to her second child, a healthy baby girl, via vaginal delivery. She noted a gradual worsening of her symptoms, which were initially mild but had progressively intensified, impacting her ability to perform daily activities. She had no significant past medical, surgical, or obstetrical history. A general examination of the patient suggested that she was afebrile on touch, pulse rate of 120 bpm, blood pressure of 160/100 mm hg, respiratory rate of 34 breaths per minute, and bilateral pitting edema up to the mid-calf was present. A cardiovascular examination revealed an elevated jugular venous pressure and an s3 gallop. The respiratory examination was suggestive of bilateral crackles at the bases of the lungs. Given the above findings, a cardiac evaluation was sought in which ECG was suggestive of sinus tachycardia (figure 1).

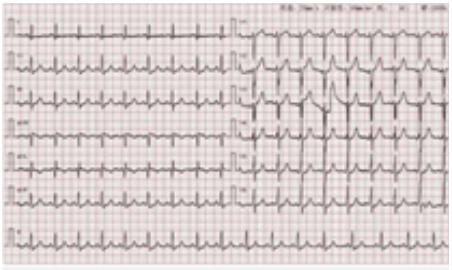

FIGURE 1: ECG showing sinus tachycardia

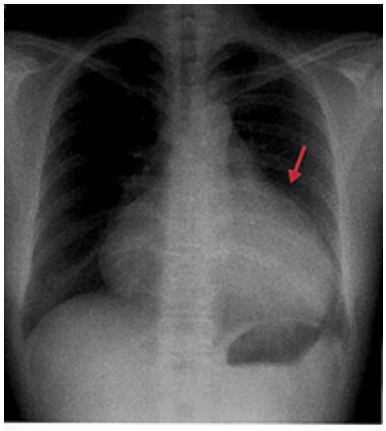

FIGURE 2: Chest X-ray erect view showed cardiomegaly with Kerley B line

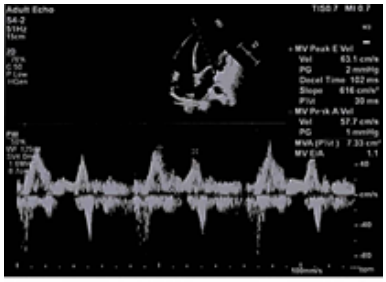

FIGURE 3: Echo revealed a decrease in left ventricular ejection fraction with left ventricle hypokinesia

Based on above mentioned clinical presentation and diagnostic findings, the patient was diagnosed with peripartum cardiomyopathy. The diagnosis was supported by the onset of symptoms during the peripartum period and the echocardiographic findings consistent with systolic heart failure. The patient was managed with oxygenation, Initiation of diuretics to manage fluid overload, beta-blockers to improve cardiac function, and angiotensin-converting enzyme inhibitors for further cardiac support. Her symptoms improved after 24 hours, and she got discharged and was advised on a low sodium diet and fluid restriction. Her follow-up echocardiogram at 3 months postpartum showed a modest improvement in left ventricular function, with an ejection fraction of 46%.

DISCUSSION

Peripartum cardiomyopathy (PPCM) is a rare and serious form of heart failure that occurs towards the end of pregnancy or in the post-partum period [3]. Despite its low prevalence, PPCM poses significant challenges due to its potential for severe outcomes and its diagnostic complexity. The exact etiology of PPCM remains uncertain, but various factors, such as hormonal changes, particularly the influence of elevated levels of progesterone and estrogen during pregnancy, genetic predisposition, and immune system alterations, have been proposed [4]. Additionally, inflammatory processes and oxidative stress have been implicated in myocardial damage. PPCM may result from a combination of these factors, leading to impaired cardiac function during a critical period of hemodynamic stress, resulting in symptoms of heart failure such as dyspnea, edema, and fatigue, which can be easily confused with normal pregnancy-related changes [5].

Identifying at-risk individuals for PPCM is crucial for early intervention and better outcomes. Risk factors include advanced maternal age, multiple pregnancies, preeclampsia, and a history of cardiac conditions. Socioeconomic factors and ethnic disparities have also been noted, with higher prevalence observed in certain populations. Diagnosing PPCM involves a combination of clinical evaluation, imaging studies, and biomarker assessment. Echocardiography is a key diagnostic tool, revealing reduced left ventricular ejection fraction and structural abnormalities. Early recognition is crucial, as delayed diagnosis can lead to significant morbidity and mortality.

Management of PPCM involves a multidisciplinary approach, integrating cardiology, obstetrics, and critical care. Treatment strategies are largely analogous to those for other forms of heart failure and include pharmacological therapies, lifestyle modifications, and, in severe cases, advanced interventions.

Medications such as beta-blockers, ACE inhibitors, and diuretics are commonly used to manage symptoms and improve cardiac function [6]. Anticoagulants may be necessary to prevent thromboembolic events.

Supportive care, including fluid management and monitoring for complications, is crucial. In cases where medical management is insufficient, mechanical circulatory support or heart transplantation may be considered [7].

Prognosis varies with some women experiencing complete recovery of cardiac function, while others may face persistent heart failure or other complications. Long-term followup is essential to monitor cardiac function and adjust treatment as needed. The overall outcome of PPCM can be improved with early diagnosis, appropriate treatment, and continuous monitoring [8].

CONCLUSIONS

Peripartum cardiomyopathy (PPCM) represents a significant and challenging condition within the realm of maternal health. As a form of heart failure that occurs towards the end of pregnancy or in the postpartum period, PPCM poses substantial risks to both the mother and the infant. Despite its relatively rare occurrence, the impact of PPCM is profound, necessitating prompt diagnosis and effective management to improve outcomes. Advances in research and clinical practice continue to enhance our understanding of its pathophysiology, risk factors, and treatment options. Early identification and intervention are crucial for optimizing care and mitigating long-term consequences. Ultimately, ongoing research and multidisciplinary collaboration are essential to refine treatment strategies and support affected individuals, ensuring better health outcomes for mothers and their babies.

Additional Information

Disclosures

Human Subjects: Consent for treatment and open access publication was obtained or waived by all participants in this study.

Conflicts Of Interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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