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Acute Left Branch Block in Pregnancy: A Case of Peripartum Cardiomyopathy

Gebelikte Akut Sol Dal Bloğu: Bir Peripartum Kardiyomiyopati Olgusu

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ABSTRACT

Peripartum cardiomyopathy is a rare but significant condition occurring during late pregnancy or early postpartum period. Risk factors of peripartum cardiomyopathy include pregnancy, advanced maternal age, multiple pregnancies, and preeclampsia. This case report presented a case of a 32-year-old woman who developed an acute left bundle branch block due to peripartum cardiomyopathy during pregnancy. This case underscores the importance of considering peripartum cardiomyopathy in pregnant patients presenting with cardiac symptoms, especially those with risk factors such as advanced maternal age and multiple pregnancies. Prompt diagnosis and management are crucial to mitigate maternal and fetal risks associated with peripartum cardiomyopathy. Preeclampsia can lead to the development of peripartum cardiomyopathy, a rare but severe condition. Accurate diagnosis and appropriate treatment are essential. Clinicians should consider peripartum cardiomyopathy in patients presenting with preeclampsia symptoms.
Keywords: Peripartum cardiomyopathy; pregnancy; acute left bundle branch block; preeclampsia; twin pregnancy.

ÖZ

Peripartum kardiyomiyopati, gebeliğin sonlarında veya doğum sonrası erken dönemde ortaya çıkan nadir fakat önemli bir durumdur. Peripartum kardiyomiyopatinin risk faktörleri arasında gebelik, ileri anne yaşı, çoğul gebelikler ve preeklampsi bulunur. Bu vaka raporunda gebelik sırasında peripartum kardiyomiyopatiye bağlı olarak akut sol dal bloğu gelişen 32 yaşındaki kadın hasta sunulmaktadır. Bu vaka, kardiyak semptomlarla başvuran, özellikle de ileri anne yaşı ve çoğul gebelik gibi risk faktörleri olan gebe hastalarda peripartum kardiyomiyopatinin dikkate alınmasının önemini vurgulamaktadır. Hızlı teşhis ve tedavi, peripartum kardiyomiyopati ile ilişkili anne ve fetüs risklerini azaltmak için çok önemlidir. Preeklampsi, nadir fakat ciddi bir durum olan peripartum kardiyomiyopatinin gelişmesine yol açabilir. Doğru tanı ve uygun tedavi önemlidir. Klinisyenler preeklampsi semptomlarıyla başvuran hastalarda peripartum kardiyomiyopatiyi düşünmelidir.
Anahtar kelimeler: Peripartum kardiyomiyopati; gebelik; akut sol dal bloğu; preeklampsi; ikiz gebelik.

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INTRODUCTION

Peripartum cardiomyopathy (PC) is a variant of dilated cardiomyopathy that occurs in the late stages of pregnancy or early postpartum (1,2). Although PC is very rare, its mortality is high (3). Risk factors of PC include pregnancy, advanced maternal age, multiple pregnancies and preeclampsia (4,5). While the exact cause of PC remains incompletely understood, factors such as inflammation, selenium deficiency,

genetic predisposition, dysregulation of angiogenic factor, and prolactin metabolites are recognized as significant contributors (6,7). In this particular case, an investigation conducted on an acute left bundle branch block secondary to PC during pregnancy was presented in a 32-year-old woman.

CASE REPORT

A 32-year-old patient was admitted to the emergency department at the 37th week of pregnancy (history of in vitro fertilization (IVF), twin pregnancy). Her complaints were palpitations and dyspnea. Initial vital signs showed blood pressure was 150/100 mmHg, pulse 120 bpm, and other symptoms were normal.

Routine blood and urine tests, including troponin levels, were normal. Obstetric ultrasonography revealed a dichorionic diamniotic twin pregnancy consistent with 36-37 weeks. Umbilical artery Doppler ultrasonography of both fetuses was normal and their estimated fetal weight was measured as 2600-2660 g. The non-stress test showed no uterine contractions, and both fetal heart sounds were regular and rhythmic.

The patient's electrocardiography (ECG) exhibited a QRS duration exceeding 120 milliseconds, a broad S wave in leads V1-3, notching in the QRS complex in lateral leads (DI, aVL, V5, V6), and a monophasic wide R wave in leads DI, DII, and V6. Additionally, there was an absence of the septal Q wave in leads DI-aVL and V6, along with an extended R wave peak time in the left precordial leads DI-aVL-V5-V6 (Figure 1).

The patient was diagnosed with acute left bundle branch block and was referred to cardiology. Echocardiography showed a decrease in ejection fraction (30%) and an enlargement of the left heart chambers, along with moderate regurgitation of both the mitral and tricuspid valves (Figure 2). Based on these findings, a diagnosis of PC was made.

A cesarean section was performed, and two female babies were delivered with 1st- and 5th-minute APGAR scores of 7 and 9, respectively. The patient was transferred to the postoperative intensive care unit. Postoperative ECG indicated a normal sinus rhythm (Figure 3).

Medical treatment included metoprolol, enalapril, enoxaparin, bromocriptine, and a magnesium infusion. After 24 hours of follow-up in the intensive care unit, the patient was transferred to the ward. The patient's blood pressure remained stable at around 120/70 mmHg, and she was discharged with her babies on the 7th postoperative day. Approximately nine months later, follow-up showed improvement in cardiomyopathy findings and mitral-tricuspid valve regurgitation, with an ejection fraction of 50-55%.

DISCUSSION

Preeclampsia is a pregnancy complication that has an impact on both maternal and fetal mortality and morbidity. In this case, the patient presented with high blood pressure and dyspnea, leading to a diagnosis of preeclampsia (5). The patient's history of IVF and multiple pregnancy are known risk factors (6). It's important to recognize that, as illustrated in this case, not every instance of preeclampsia may exhibit impaired proteinuria and liver transaminase levels (8).

Dyspnea and chest pain in a term pregnant should not be attributed solely to preeclampsia; Other possible diseases include acute myocardial infarction (AMI) and PC (1,3). The ECG results in our patient reveal signs of left bundle branch block, and the absence of any elevation in troponin levels in the blood serum rules out AMI in this case. The absence of any prior cardiological complaints in the patient strongly suggests that the current cardiomyopathy is PC. The echocardiogram conducted by the cardiology team revealed features consistent with cardiomyopathy, including

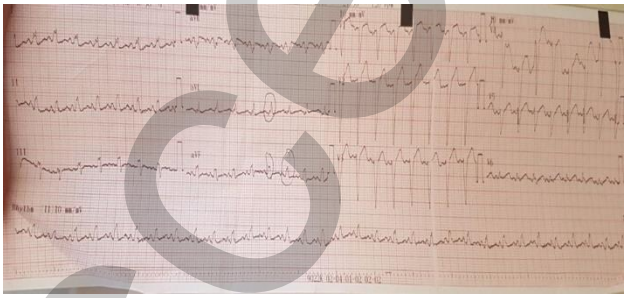

Figure 1. Pre-cesarean electrocardiography: The QRS duration exceeds 120 milliseconds, exhibiting a broad S wave in leads V1-3 and notching in the QRS complex in lateral leads (DI, aVL, V5, V6). Additionally, there is a monophasic wide R wave in leads DI, DII, and V6. Notably, the septal q wave is absent in leads DI-aVL and V6

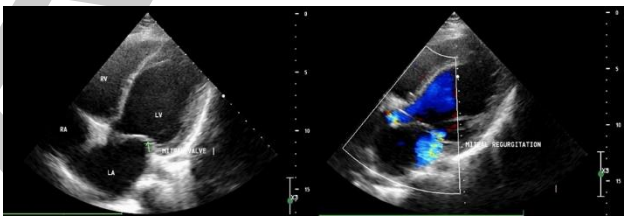

Figure 2. Echocardiography reveals dilated four chambers and a dilated cardiomyopathy with an ejection fraction of 30%, accompanied by mitral and tricuspid regurgitation

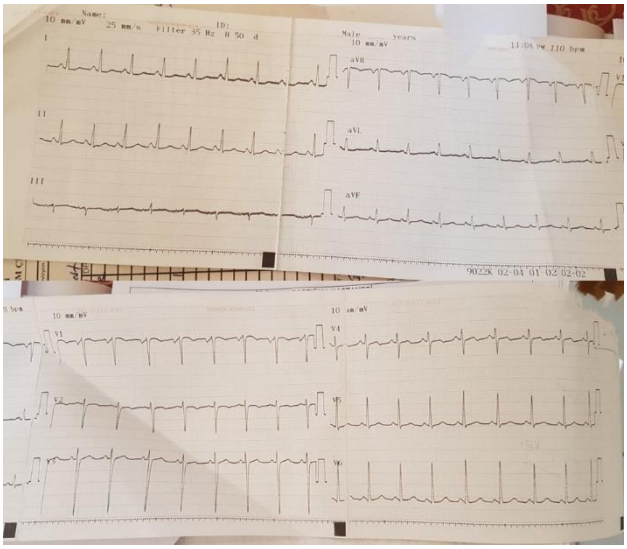

Figure 3. Post-cesarean electrocardiography: Notably, the electrocardiogram obtained approximately 30 minutes after birth demonstrates a normal sinus rhythm

a low ejection fraction of 30%, mitral-tricuspid valve regurgitation grade 2. The patient's diagnosis of PC was established by integrating both the ECG and echocardiography findings with her medical history. As highlighted in a study by Iorgoveanu et al. (5), preeclampsia is identified as a significant risk factor for PC. The patient, diagnosed with left bundle branch block and PC, underwent an emergency cesarean section and was admitted to the intensive care unit for post-operative monitoring and treatment. The initial ECG obtained in the intensive care unit revealed an improvement in the left bundle branch block findings, with the ECG returning to a normal sinus rhythm. In the context of PC, particularly left atrial enlargement, the sensitivity of ECG findings is reported to be low (38%), but the specificity is high (96%) (10). Although the exact etiology of PC remains unclear, factors such as angiogenic factor dysregulation and prolactin metabolites are considered primary contributors (9,10). While there is no defined time interval for the resolution of abnormal ECG findings in PC, they typically normalize within an average of 6-8 months (10). Interestingly, in contrast to the literature, the ECG in our patient returned to a normal rhythm within the first postpartum hour. According to the study by Davis et al. (11), although PC tends to improve, these patients have a high risk of developing cardiovascular diseases in later life.

CONCLUSION

Preeclampsia can lead to the development of PC, a rare but severe condition. Accurate diagnosis and appropriate treatment are essential. Clinicians should consider PC in patients presenting with preeclampsia symptoms.

Informed Consent: Written informed consent was obtained from the patient for publication and accompanying images.

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