

Case Report

Maternal and Perinatal Outcome of a Pregnancy Complicated with Dilated Cardiomyopathy

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Abstract

Dilated cardiomyopathy (DCM) is characterized by ventricular enlargement along with left systolic cardiac dysfunction. In association with pregnancy, it has been classified as pregnancy associated DCM (PADCM) and peripartum cardiomyopathy (PPCM). Herein we report a case of 26 year old G2P1L1 presented at 27 weeks of gestation with progressive dyspnea and pedal edema for last 3 weeks. Clinical features of biventricular failure were present. 2D Echocardiography showed dilated cardiomyopathy, severe mitral regurgitation, ejection fraction 20-25% and mild pulmonary arterial hypertension. Based on these findings PADCM was diagnosed as there was no history of prior cardiac disease. She was started on drugs carvedilol, amiodarone and furosemide along with fluid restriction and strict input/output monitoring. Pregnancy continued till 35 weeks of gestation and then terminated by LSCS. Post-delivery she again landed up in biventricular failure, managed in ICU with cardiotonic drugs and ventilator support. She recovered after 5 days of intensive care. Pregnancy in women with DCM is at high risk of adverse maternal and perinatal outcome. However early involvement of cardiologist and obstetrician in the management of such cases improves the maternal and fetal outcome. This case report addresses the challenges that pregnancy complicated with DCM poses on the obstetrician.

Keywords: Heart failure, pregnancy associated dilated cardiomyopathy, peripartum cardiomyopathy

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Dilated cardiomyopathy (DCM) is characterized by ventricular enlargement along with left systolic cardiac dysfunction. In association with pregnancy, it has been classified as pregnancy associated DCM (PADCM) and peripartum cardiomyopathy (PPCM).^[1] These two entities are differentiated from each other by the time of onset as PPCM occurs during last month of pregnancy till five months postpartum whereas pregnancy associated DCM is diagnosed first time during pregnancy in any trimester except the last month of pregnancy.^[2] Given the physiological cardiovascular changes occurring during pregnancy, continuation of pregnancy in these cases results in poor cardiac outcome. Herein we report a case of PADCM, which was diagnosed in

late second trimester, pregnancy continued till 35 weeks of gestation then delivered by cesarean section. Mother and baby were discharged in good condition.

Case Report

26 year old G2 P1 L1 presented at 27 weeks of gestation with peripheral edema and inability to perform ordinary physical activity. Family members reported that she developed progressive dyspnea and pedal edema over last 3 weeks. Prior to this she did not have any cardiac or lung disease. On examination, pulse rate 135 beats/minute, blood pressure – 130/86 mmHg, respiratory rate- 43/minute, jugular venous distension, mild pallor and bilateral pedal

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edema were present. On cardiac auscultation, tachycardia was present however no murmur could be appreciated. Bilateral crepts were present on chest auscultation. Obstetric examination findings were normal for the corresponding gestational age. So she was categorised as NYHA class III and admitted for management. ECG showed ectopic atrial tachycardia, prolonged QT interval and anterior T-wave abnormality. 2D Echocardiography done subsequently revealed severe global hypokinesia of left ventricle, hypokinetic interventricular septum, dilated left atria and ventricle, severe mitral regurgitation with an ejection fraction of 20-25% and mild pulmonary arterial hypertension. Her liver function was mildly deranged with AST 67.8 U/L and ALT 32U/L. Patient was anaemic with haemoglobin of 9.5gm/dl. Her Thyroid stimulating hormone (TSH) was within normal limit. A diagnosis of idiopathic dilated cardiomyopathy was made as patient had no underlying cause for the disease. Her previous pregnancy three years back was uneventful. She was started on drugs carvedilol 6.25 mg twice daily, amiodarone 200 mg once daily and furosemide 10mg once daily along with fluid restriction (~1.5L/day) and strict input/output monitoring. Thromboprophylaxis with low molecular weight heparin was also initiated. She had symptomatically improved, her liver function and hemoglobin returned to normal. She received regular obstetric care and cardiac follow-up two weekly till 35 weeks of gestation when a planned cesarean section was done under general anaesthesia. Heparin was stopped 24 hours before surgery. Intraoperatively during intubation patient had an episode of pulmonary bleed. She delivered an alive 2.340 kg male baby. In immediate post-op period, her cardiac output decreased to less than 2 liters per minute and had persistent tachycardia of more than 200 beats per minute, so DC cardioversion was given. She was started on noradrenaline along with dobutamine and was kept on respiratory paralysis under atracurium and fentanyl for two days. LMWH and injectable antibiotics Meropenem were also instituted. Gradually noradrenaline and dobutamine were tapered off. She was kept intubated under mechanical ventilation in ICU for 3 days. She recovered after 5 days of intensive monitoring and was shifted to general obstetrics ward where she was monitored for 2 days and discharged on digoxin, low molecular weight heparin and furosemide.

Discussion

Pregnancy associated dilated cardiomyopathy account for 50% cases of dilated cardiomyopathy in pregnancy. Among these about 35% are inherent.^[3] Symptoms of heart failure like easy fatigue ability, dyspnoea and leg edema overlap with those of pregnancy. Thus it is important to recognize whether these symptoms are due to pregnancy per se or an underlying cardiovascular disease. As the hemodynamic

load increases towards the end of pregnancy the risk of adverse cardiac events like heart failure, ventricular tachycardia, sudden death, atrial fibrillation, transitory ischemic attack increase up to 60%.^[4] In these circumstances it is very difficult for obstetrician and cardiologists to decide the time of termination of pregnancy.

Pregnancy in women with dilated cardiomyopathy is at high risk of adverse maternal and perinatal outcome and carpreg score has been found to be sensitive predictor of maternal complication.^[5] In our case the patient presented at 27 weeks of gestation with an ejection fraction of <25%, belonged to NYHA class III and wanted to continue pregnancy inspite of repeated counselling regarding the maternal and fetal prognosis. Patient for thus managed by multidisciplinary team including obstetrician and cardiologist with aim to optimize her heart function and achieve hemodynamic stability till the planned cesarean delivery. It was diagnosed as a case of idiopathic DCM as there was no underlying cause of disease and PPCM was ruled out owing to the timing of presentation. Management of such patients aims at symptomatic relief and prevention of complications. In our case the patient was kept on bed rest as the ejection fraction was less than 30% and all drugs including beta blockers, loop diuretics, and digitalis (digoxin) used were pregnancy safe. There is high risk of thromboembolism in cases of idiopathic cardiomyopathy,^[6] so we started her on low-molecular weight heparin. Pregnancy was continued till 35 weeks of gestation when elective cesarean section was planned. General anesthesia was considered as patient already had a reduced ejection fraction and epidural anesthesia may have led to decrease in systemic vascular resistance which would have further decreased the cardiac output. Brown et al. have also highlighted the use of general anesthesia because they were concerned about the catastrophic implications of epidural blocking on systemic vascular resistance.^[7] The patient developed cardiac failure in immediate post-operative period and thus managed by senior anesthetists and cardiologist in intensive care unit under noradrenaline, dobutamine and cardiac medication. She recovered under intensive care and was discharged after stabilization. It has been observed that the long-term event-free survival is significantly compromised among women with peripartum cardiac events, so they need close monitoring for later life.^[8] Four months post-delivery patient is doing fine with stable cardiac condition.

Thus this case report shows that idiopathic dilated cardiomyopathy may present in any trimester during pregnancy. Pregnancy can be continued till term with good obstetrics and cardiac care. It emphasizes the need of multidisciplinary team approach with cardiologist, anaesthetist and obstetrician for optimizing maternal and fetal outcome.

Disclosures

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

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Conflict of Interest: None declared.

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