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Peripartum Cardiomyopathy: Strong Suspicion and Prompt Management Saves the Life of A Mother; A Case Report

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***Abstract*: Peripartum cardiomyopathy is a rare dilated cardiomyopathy of unknown aetiology affecting 1 in 3000 to 4000 livebirths. The overall morbidity and mortality rate are as high as 20%-50%. The clinical presentation mimics pre-eclampsia, pulmonary embolism etc. Hence, it is often misdiagnosed. This case report aims to make health professionals aware about the significance of timely diagnosis and management of this rare entity. *Case report*: A 29 year old, booked 2nd gravida with twin pregnancy presented at 36 weeks of gestation in active phase of labour to the labour room with 1st twin in vertex presentation. She was given trial of labour. Soon after the delivery of 1st twin she developed acute breathlessness with bilateral diffuse coarse crepitations. Echocardiography suggested peripartum cardiomyopathy. Patient was shifted to ICU and was treated with respiratory support, diuretics, cardiotonic and other supportive measures. The challenge here was the delivery of the 2nd twin which was an IUFD. Vaginal delivery of the 2nd twin was conducted after stabilization of the mother. Prevention of PPH was well taken into account with injection oxytocin. The patient symptomatically improved on 5th postpartum day and was discharged on 7th postpartum day, explaining the need of regular follow up. *Conclusion*: Acute onset of air hunger in a previously asymptomatic women in labour should always raise a suspicion of peripartum cardiomyopathy. Timely diagnosis and management saves the life of a mother.**

***Keywords*: Peripartum cardiomyopathy, echocardiography, twin.**

1. Introduction

Peripartum cardiomyopathy is a rare dilated cardiomyopathy with unknown aetiology. Its incidence is 1 in 3000 to 4000 livebirths(1). The diagnostic criteria include 1) Development of cardiac failure in last month of pregnancy or within 5 months of delivery. 2) No identifiable cause of cardiac failure. 3) No identifiable heart disease before last month of pregnancy. 4) Left ventricular dysfunction manifested as ejection fraction <45% (2). There are many associated risk factors like multiparity, African- American descent, obesity, older maternal age, hypertension, multiple pregnancy, smoking, alcoholism, poor nourishment, etc.(2,3) The clinical presentation like fatigue, palpitations, dyspnoea and oedema mimics pulmonary oedema due to pre-eclampsia and pulmonary embolism. Hence, it is often misdiagnosed and results into maternal mortality rate as high as 20%-50% (1).Therefore, high index of suspicion is required for timely diagnosis & appropriate management of peripartum cardiomyopathy. This case report emphasizes that, how timely recognition of the signs and symptoms, immediate echocardiography, and appropriate multidisciplinary management can save the life of a mother.

2. Case Presentation

A 29 year old, 2nd gravida with twin pregnancy at 36 weeks of gestation with 1st twin in vertex presentation presented to labour room in active phase of labour for safe confinement. She was a booked case. Her 1st and 2nd trimester was uneventful. She was asymptomatic up to 2 days before admission when she developed orthopnoea. Her previous pregnancy was uneventful. She never had any history of heart disease. At the time of admission, she was afebrile with SPO2 of 98% at room air with RR -18/min, bilateral, pulse rate of 82bpm, regular. Her BP was 110/70 mmHg. She had no pallor, icterus or cyanosis. She had pedal oedema which was pitting in nature and was up to ankles.

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On auscultation, her chest was clear with bilateral normal vesicular breath sounds and S1S2 was normal. There was no added sound on auscultation. On gynaecological examination, uterus was overdistended due to twin pregnancy, both foetuses were in longitudinal lie with cephalic presentation with regular foetal heart rate. She was having 3 uterine contractions in 10 min each lasting 35-40 seconds. On per vaginal examination, cervix was 6-7cm dilated and 90% effaced, membranes were absent, vertex was at station zero and pelvis was adequate. All the antenatal investigations were WNL. ECG was asked in view of history of orthopnoea and was WNL. She was given a normal trial of labour. Soon after the delivery of 1sttwin (vertex) which was a male child of 2kg with APGAR score of 7/8, she had acute breathlessness, her saturation fell down to 60% at room air, RR was 34/min. Her pulse rate was 134 bpm. On auscultation, bilateral chest was full of coarse crepitations. Immediately her legs were kept down and she was kept in propped up position. She was given oxygen with high flow mask at the rate of 16 litres/minute on which her SPO2 was 80%. Injection furosemide 20mg IV was given immediately. She was shifted to NIV support on which she was maintaining SPO2 of 95%. Immediate cardiology consultation was done. Echocardiography showed global left ventricular hypokinesia with moderate MR, mild TR, ejection fraction 30-35% with no clots or vegetations. IVC was dilated with diameter of 1.93cm.

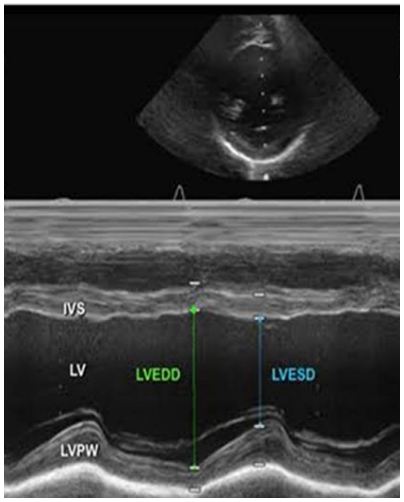

Fig. 1. Diagnosis

She was diagnosed as the case of peripartum cardiomyopathy. She was immediately shifted to GICU and was given management in the form respiratory support, diuretics, cardiotonic (started on Tablet Digoxin 2.5mg OD) and other supportive measures. While the patient was being stabilised, foetal heart rate of 2nd twin disappeared. After 3 hours, vaginal delivery of 2nd twin was conducted. Slow IV infusion of oxytocin 2U over 10 minute followed by 12mU/min for 4 hours was started to prevent postpartum haemorrhage. Her general and cardio-respiratory condition improved gradually with intensive care and support. She was discharged after 7 days in good health on tablet digoxin(2.5mg), explaining her the need of regular follow up to a multidisciplinary team of experts.

3. Discussion

Peripartum cardiomyopathy is a rare life-threatening disease with the incidence of 1/1374 live births according to study conducted in south India (2). Viral myocarditis, auto immune phenomenon and some genetic mutations affecting the formation of prolactin have been proposed as the possible causes (1). The symptoms are often confusing as they mimic the normal physiological spectrum of peripartum states and many pregnancy associated conditions like pre-eclampsia, severe anaemia etc. Therefore, the diagnosis is often delayed which results in increased maternal mortality.

Although historically peripartum cardiomyopathy was reported more in older women but in the present case report the woman was quite young with the age of only 29 years. Contemporary trend shows that there is increasing incidence of (24-37%) of peripartum cardiomyopathy in young primi-gravida(1). The other associated risk factors include pre-eclampsia, multiple gestation hypertension, diabetes and obesity (4). None of the other risk factor except multiple gestation was present in this case. In a meta-analysis the average rate of twin gestations in cases of peripartum cardiomyopathy across 16 studies was 9% which is well above the prevalence of 3% (5).

Maximum incidence of peripartum cardiomyopathy is reported in first 4weeks of postpartum period(5), while the present case needs to be reported as the women went into cardiac failure in the intrapartum period just after the delivery of 1sttwin while the 2ndtwin was still inside the womb. All the clinical features of peripartum cardiomyopathys reported in the literature including symptoms of congestive heart failure, chest pain, pulmonary rales were present in this case(1). She was diagnosed as peripartum cardiomyopathy based on the criteria laid down by American heart association as 1) Heart failure develops in the last month of pregnancy or within 5month of delivery. 2) Heart pumping function is reduced, with an ejection fraction less than 45% (typically measured by an echocardiogram). 3) No other cause for heart failure with reduced Ejection fraction can be found (6). Here, the ejection fraction of the patient was <35%.

Here, the two main challenges for the obstetrician were to conduct delivery of the 2nd twin and to manage peripartum cardiomyopathy. The patient was managed for cardiac failure in accordance to the guidelines laid by European Society of Cardiologists. After stabilisation of the mother, the preparations for delivery of 2nd twin were made in GICU itself. As per the guidelines, arrangements were made for outlet forceps application to cut short the second stage of labour. Meanwhile, an IUFD, male child of 1.75 kg with placenta was expelled out spontaneously. As recommended by European Society of Cardiologists, vaginal delivery leads to lesser blood loss and reduces the chances of infection also (7,8). A slow IV infusion of oxytocin 2U over 10min followed by 12Mu/min for 4 hours was given for prevention of PPH and to avoid systemic hypotension (7, 8). Coagulation activity is increased during pregnancy. In the context of reduced ejection fraction in peripartum cardiomyopathy, treatment with LMWH or oral anticoagulation should be considered. Anticoagulation is

recommended in patients with intracardiac thrombus detected by imaging or evidence of systemic embolism (8). The labour in this woman was prolonged as 2nd twin got delivered after 3 hours. The chances of post -partum haemorrhage was very high. So, LMWH was not given in this case.

Continuous electronic monitoring of the woman was done and she was shifted to high flow mask after 9 hours of NIV support. As she was maintaining her saturation well, so after 24hours the woman was weaned off oxygen support. Breast feeding is associated with low risk of bacteraemia secondary to mastitis, so she was supported to breast feed her baby (7, 8). Safirstein et al showed that recovery of left ventricular ejection fraction was statistically better in the women who breastfeed her baby (9). The patient didn't turn up for follow up, she was contacted telephonically. Her repeat echocardiography could not be performed. But, she was doing all her household activity without any symptoms. About 50% of women regain their ejection fraction (10). Recurrence rate is 30 % (2).This is a rare case, where timely recognition and management saved patients life.

4. Conclusion

Any type of breathing difficulty should raise a suspicion in all pregnant women. A differential diagnosis of peripartum cardiomyopathy should always be kept in mind. As early diagnosis and management could save mothers life as well as have good fetal outcome.

References

[1] Wang, M. Peripartum Cardiomyopathy: Case Reports. *The Permanente Journal*, vol. 13, pp. 42-45, 2009.

[2] Kumari, A., Singh, S., Singh, S and Chaturvedi, M. Peripartum Cardiomyopathy: A Review of Three Case Reports. *Journal of South Asian Federation of Obstetrics and Gynaecology*, vol. 4, no. 3), pp. 164-166, 2012.

[3] Kaavya, M., & Saraswathi, K. Peripartum Cardiomyopathy - A Case Report. IOSR Journal of Dental and Medical Sciences, vol. 15, no. 5, pp. 55-58, 2016.

[4] Akbar, A., Rehman, H. M., Tameez Ud Din, A and Malik, A Peripartum Cardiomyopathy During Puerperium Co-existing with Pre-eclampsia and Complicated by Acute Renal Failure: *A Case Report. Cureus*, 5., 2019.

[5] Arany, Z., & Elkayam, U. Contemporary Reviews in Cardiovascular Medicine. AHA journals, pp. 1397-1409, 23016.

[6] https://www.heart.org/en/health-topics/cardiomyopathy/what-is-cardiomyopathy-in-adults/peripartum-cardiomyopathy-ppcm

[7] *European Heart Journal*, vol. 39, pp. 3165–3241 ESC guidelines, 2018.

[8] *European Heart Journal*, vol. 32, pp. 3147–3197, 2011.

[9] Safirstein, J. G., Ro, A. S., Grandhi, S., Wang, L., Fett, J. D and Staniloae, C. Predictors of left ventricular recorverry in a cohort of peripartum cardiomyopathy patients recruited via the internet. *International journal of cardiology*, vol. 154, no. 1, pp. 27-31, 2012

[10] Macas, A., Rimaitis, K., Baksyte, G and Laura, S. Peripartum cardiomyopathy: case report. *Acta medica Lituanica*, vol. 19, no.3, pp. 224-227, 2012.