Case Series

Outcome of Pregnancy after Peripartum Cardiomyopathy: Search of Literature and Case Series

Umber Jalil Bakhtiar[1], Azra Saeed Awan[2]

[1] Associate Professor, [2]Professor, Railway Teaching Hospital Islamic International Medical College Riphah International University Islamabad

Correspondence: *Dr. Umber Jalil Bakhtiar, Railway Teaching Hospital Islamic International Medical College Riphah International University Islamabad*

E-mail : umber.bakhtiar@gmail.com

Abstract

Peripartum Cardiomyopathy (PPCM) is a rare life threatening disease & affects young women. Relevant literature has been searched. Symptoms of PPCM vary greatly and may be obscured by common physiological aspects of pregnancy. Therefore incidence rate might be higher. Echocardiography and MRI can confirm or rule out PPCM. Unfortunately there is no specific risk factor profile available. We have collected data of three such cases in which we followed the outcome of pregnancy in patients who had PPCM in previous pregnancies. Increasing awareness for PPCM among general practitioners, obstetricians and cardiologists may help in early diagnosis in order to start adequate treatment. We are presenting the outcome of pregnancy of three patients with history of PPCM in previous pregnancies.

Keywords: Cardiomyopathy, cardiomegaly, Ejection fraction, cardiac failure.

Search of Literature

PPCM is a rare disorder in which a weakened heart is diagnosed within the final month of pregnancy or within 5 months after delivery. [1] It is a form of heart failure caused by depression of left ventricular systolic function that occurs in previously healthy women. The finding of ventricular systolic dysfunction by echocardiography is an important criterion for making the diagnosis. Stricter echocardiography criteria have also been recommended such as a left ventricular ejection fraction of less than 45%.PPCM can have devastating consequences, both physically and mentally.[2] This condition if worsened, the patient may need a heart transplantation or can die but fortunately majority of the patients who are young show a significant symptomatic recovery and rectification of cardiac function within few months of delivery. One of the main issues is that if these women survive the first episode of PPCM, whether it is safe for them to become pregnant again or not. Because of the rarity of this condition, reports

on PPCM have been limited to either single cases or a small number of cases.

The incidence of PPCM in United States is 1 in 3000 to 10000. In South Africa it is 1 in 1000 and in Japan it is 1 in 6000.

The risk factors include age more than 30 years, multiple pregnancies, toxaemia of pregnancy, maternal cocaine abuse, nutritional deficiencies, preeclampsia, eclampsia and gestational hypertension. The pathogenesis involves an inflammatory disease, abnormal immune response or haemodynamic stress. [1, 3] Genetic factors also play an important role in the pathogenesis. ECG of these patients may show Sinus tachycardia, non-specific ST and T wave abnormalities, Q wave is occasionally present in anterior leads, P-R and QRS intervals are prolonged. [4] (Figure 1)

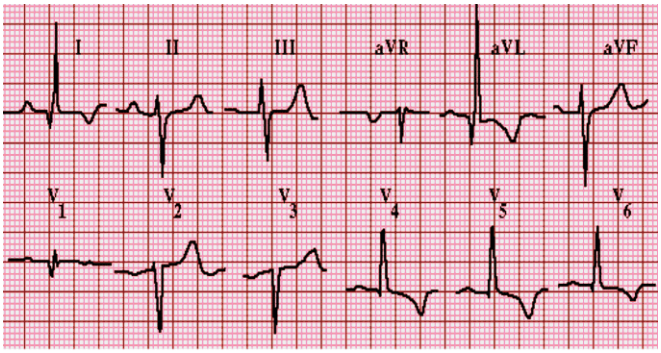

Figure 1. Showing the ECG changes in PPCM.
Source: Reference 4.

Echocardiogram (Figure 2) is very important in diagnosis at which the full enlargement of all four chambers can be seen[5], marked reduction in left ventricular systolic function, small to moderate pericardial effusion , mitral and tricuspid regurgitation and left ventricular ejection fraction <45%. [6] MRI can be very helpful as it may detect large areas of cardiac fibrosis.

The management of Peripartum cardiomyopathy includes vigorous treatment of acute heart failure. Oxygen, diuretics, digoxin and vasodilators are used. Ace inhibitors in early pregnancy should be avoided. Since the disease may be reversible temporary use of Intra Aortic Balloon Pumps or LV assisted device may help to stabilize the patient's condition pending improvement. Large number of patient`s hearts return to normal within 6-12 months of delivery. [7]

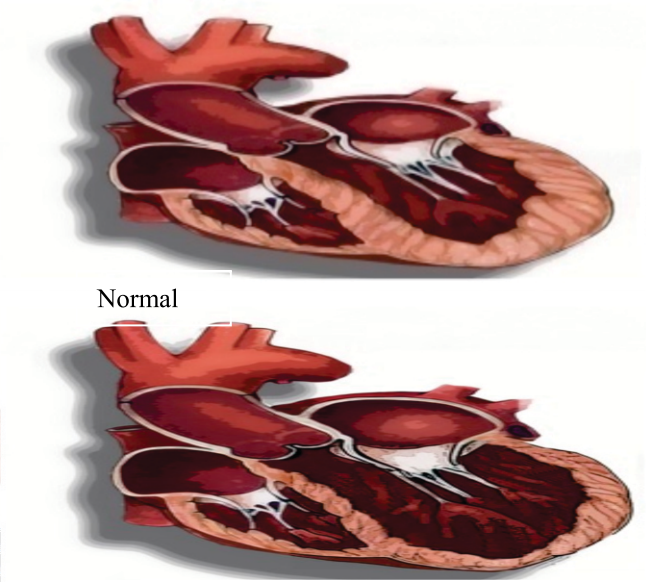

Figure 2. Showing Cardiac dilatation at echocardiography
Source: Reference 5.

In year 2000, American College of Cardiology conducted a survey in United States and South Africa showing the outcome of 60 subsequent pregnancies in 44 women with a history of Peripartum cardiomyopahy.[8,9] They divided these women into two groups. Group I included (twenty eight women) who had normalized their left ventricular systolic function prior to their subsequent pregnancy. Group II (16 women) who had persis-

tent left ventricular dysfunction. First subsequent pregnancy was associated with a significant decrease in left ventricular ejection fraction which was seen in both groups.

During the first subsequent pregnancy 21% of group I woman and 44% of group II woman developed symptoms of heart failure. 21% of group I and 25% of group II had a > 20% decrease in left ventricular ejection fraction either during their subsequent pregnancy or during the early postpartum period.

Fetal complications associated with subsequent pregnancy in these patients included therapeutic abortions and prematurity.

CASE I

The first patient was 33 years old, G3P2. She had a full term spontaneous vaginal delivery, uncomplicated which resulted in an alive healthy male child who is 5 years old now. Her next pregnancy which was also full term which followed by vaginal delivery but she developed dysponea & breathlessness on the second post natal day and was referred to the cardiac center. There she was diagnosed as a case of PPCM & the ejection fraction was 35%. She was treated accordingly, recovered and was advised follow-up. She however was lost to follow-up. She conceived after 19 months of last delivery and presented to us at 20 weeks of gestation with severe dysponea and cough. She was again referred to cardiac center with developing cardiac failure. Echocardiography revealed ejection of 20% with pulmonary hypertension. She was put on ventilator support but did not recover. She expired due to fulminant cardiac failure.

CASE II

The second patient was a young lady 20 years old, married for 2 years. She had a preterm twin delivery and both babies died in early neonatal period. She developed PPCM at 34 weeks of gestation with ejection fraction of 35%. She was treated immediately and recovered. Follow up visits showed ejection fraction of 38%, 3 months post delivery. She conceived within 6 months of last delivery and presented at 22 weeks of gestation with severe anaemia palpitations and chest pain, complicated with cardiac failure. She was put on ventilatory support but expired on 2nd day due to fulminant cardiac failure.

CASE III

The third case was a 41 years old lady. She was G_8P_6A1. She had 6 alive and healthy issues. Her last miscarriage was 5 years back. Last child born was 4 years back and in that pregnancy she developed PPCM at 38 weeks and was treated accordingly, recovered and delivered vaginally. She had regular follow-up visits at cardiac center and became clinically asymptomatic. Last echocardiography before the subsequent pregnancy showed EF of 45%. She presented to us at 16 weeks of gestation with cough, fever and dysponea. Her symphysiofundal height showed severe oligohydrmnios with alive fetus of 14 weeks. Echocardiography showed EF of 30% with pulmonary hypertension. Medical termination of pregnancy was started with misoprostol and she

expelled completely after 12 hours in CCU. She developed cardiac failure but recovered on vigorous treatment. She went home healthy after 20 days. Later, permanent sterilization was done.

Conclusion

In Large percentage of patients cardiac function return to normal within 6-12 months. In patients with persistent cardiomegaly beyond 6 months survival is very poor. Evaluation of left ventricular ejection fraction with history of PPCM has a key role in deciding for the subsequent pregnancy. The deteriorating left ventricular function leads to major cardiac insult and therefore warrants strong consideration to avoid additional pregnancies in future. Although decision for further pregnancies are made by the woman and her family aggressive counseling regarding successful contraception has to be undertaken by the caregivers .

KEY POINTS

1. PPCM mimics changes occurring in normal pregnancy.
2. Fetal growth restriction may point towards this condition.
3. It should be treated like any other cardiac failure along with anti coagulants, cardio tonic drugs, diuretics therapy, near or within a cardiac center.
4. Persistent reduction in left ventricular ejection leads to complicated subsequent pregnancies and warrants strong consideration to avoid additional pregnancies.

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