



Case Report-A Case of Peripartum Cardiomyopathy

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Abstract

PERIPRTUM CARDIOMYOPATHY was 1st described in the 18th century.

1971 Demakis et al described 27 patients, who presented during the purperium with cardiomegaly, abnormal ECG findings and congestive cardiac failure.Hence they named the syndrome “The peripartum cardiomyopathy”.

It is a rare type of cardiomyopathy associated with significant mortality and morbidity as well as heart failure in late pregnancy or purperium.

Incidence-1:2000 to 1:15000.

This case is a classic example of how to manage heart failure in pregnancy and and features of cardiomyopathy as well as heart failure can mimic ARDS.

This case highlights risk factors, etiology, investigations, management options, newer treatment modalities for peripartum cardiomyopathy.

Beta blockers, ACE inhibitors, diuretics, nitrates are main stay of treatment.

A 24 Yr. patient G₃P₂L₂ with twin pregnancy 38 weeks, brought by relatives in emergency department with Complaints of

1. Dry cough and enema feet since 15 days
2. Progressive breathlessness since 4 days
3. Reduced level of consciousness since 1 day.

Patient was admitted in Obstetrics ICU. Medicine opinion was taken in view of respiratory distress.

On Examination

- Patient was drowsy, not obeying simple verbal commands.
- Patient was dyspnoeic, RR-38/min,P-150/min,BP-160/100 mm Hg ,JVP was raised ,bilateral pedal oedema was present

,had bilateral coarse crepitations.SpO₂ was 88% on room air and 90% with 2 lit.O₂,

- Heart sounds were normal and plantars were bilateral flexors.
- Fundus-Grade 1 hypertensive retinopathy, but no papilledema.
- ABG -PH-7.14,PO₂ 73,PCO₂38.8,HCO₃ 21.2 and SO₂ 89% suggesting severe metabolic acidosis.
- Hence urgent intubation and ventilator support was advised.
- Patient was stabilised and then LSCS was done.
- Patient was kept on ventilator and was gradually weaned off and finally extubated after 3 days.

- Patient was then transferred to medicine ICU as there was no Obstetrics management and patient was in heart failure even after delivery.
- While in ICU, patient had irrelevant talk. Expert PSYCHIATRIST opinion was taken and it was diagnosed as Postpartum psychosis with delirium.

Past History

- History of PIH was present; patient was taking Tab. Alphasid 250 mg BD since 2 months on.
- Her previous 2 pregnancies were Full Term Normal Delivery; history of PIH was present with both of these pregnancies.
- No H/O fever, burning micturition.
- No h/o jaundice, blood transfusion, haemoptysis.
- No h/o convulsions, oliguria, blurring of vision.
- No H/o diabetes/tuberculosis/asthma/thyroid disease.

Investigations

ABG -PH-7.14, PO₂ 73, PCO₂ 38.8, HCO₃ 21.2 and SO₂ 89% suggesting severe metabolic acidosis.

X-RAY Chest (lead apron guarded) - Pulmonary oedema with Cardiomegaly.

Other tests-

VDRL/HIV/HBSAG-Negative,

Sickling test-Negative,

Urine Exam-Normal,

TSH-Normal,

LFT-Normal, Sr. Alb-3.0, Total prot-4.6, KFT-Normal,

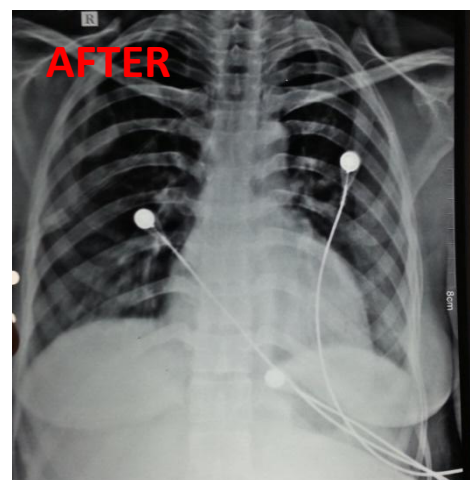
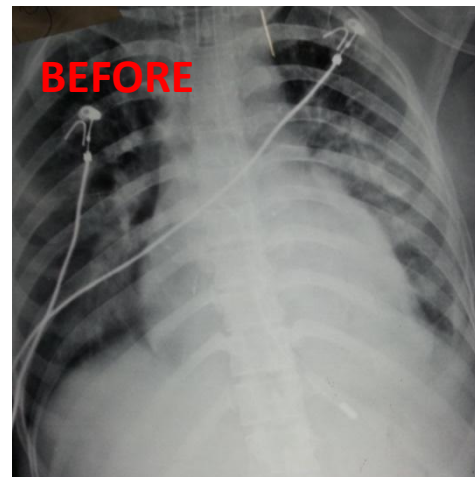
Hb-11.3 gm %, TLC-14000, Platlets-1.59 lacs/mm³.

2-D ECHO-done in MEDICINE ICU, 3 days after delivery -

LVEF 15%, no valve lesion, global hypokinesia, IVC- dilated, mild pericardial effusion, PERIPARTUM CARDIOMYOPATHY.

Repeat 2-D ECHO-after one and half months, when patient came for follow up-

LVEF 67%, no RWMA, no pericardial effusion and IVC -normal.



Treatment offered To The Patient

- Patient was treated with---
- Antibiotics- Inj. Pipracillin and Tazobactam 4.5 gm. TDS, Inj. Metronidazole 500 mg TDS,
- Diuretics- Inj. Lasix 40 mg BD
- ACE inhibitors -T .Ramipril 5mg BD (lactation was stopped during ACEI therapy)
- Beta blockers- T.Met-XL 25 mg BD
- Anti coagulants- Inj. Heparin (conventional) 5000 IU SC BD.
- Also with T. Risdone 0.5 mg BD and T. Lopez 1mg BD for 15 days and patient was recovered from psychosis and delirium.

Review Of Literature

- **Periprtum Cardiomyopathy** was 1st described in the 18th century.
- 1971 Demakis et al described 27 patients, who presented during the purperium with cardiomegaly, abnormal ECG findings and congestive cardiac failure.
- Hence they named the syndrome “The peripartum cardiomyopathy”.
- It is a rare type of cardiomyopathy associated with significant mortality and morbidity as well as heart failure in late pregnancy or purperium.
- Incidence-1:2000 to 1:15000.

Definition

- 3 clinical and 1 ECHO criteria-
- Development of heart failure during last trimester of pregnancy or 1st 6 months post partum.
- Absence of any identifiable cause for cardiac failure.
- Absence of any recognizable heart disease prior to last trimester of pregnancy.
- 2-D ECHO-
- Ejection fraction <45%,Left ventricular fractional shortening less than 30% or left ventricular end-diastolic dimension>2.7cm/m square of body surface area.

Risk Factors

- Higher maternal age
- Multipara-previous exposure may increase immune response
- Multifoetal pregnancy(2/3)
- PIH
- Obesity
- Maternal cocaine and alcohol abuse, Smoking
- Long term tocolytic therapy
- Selenium deficiency-its anti oxidant
- GBS
- Myocarditis

Etiology

1. Nutritional-salt overload.
2. A/W myocarditis-7 to 78%-a/w HSV, EBV and CMV----cross reactivity of anti-uterine antibodies against cardiac muscles.
3. Chimerism-mixture of genotypes-immunological response
4. Apoptosis and inflmm-incr CRP and TNF alpha, increased proteolytic cathepsin D activity in cardiomyocyte result in 16kDa prolactin fragment with anti-angiogenic and apoptotic properties.
5. Abn.Hemodynamics- rise in blood vol and Cardiac output.
6. Unmasking of latent idiopathic dilated cardiomyopathy by preg.

Clinical Features

Symptoms-

- Cough, orthopnoea, PND, fatigue, palpitations, weight gain, haemoptysis ,chest pain & abdominal pain, altered mental status, psychiatric symptoms.
- Signs-
- Cardiomegaly, tachycardia, decr SPO₂, elevated JVP,S3 gallop and loud P2,MR or TR and pulmonary crepitations.
- Peripheral oedema, ascites and hepatomegaly.
- Arrhythmias-May cause emboli.
- Pericardial effusion, proteinuria, pre-eclampsia.

Diagnosis

- We should consider PPCMP in any peripartum patient with signs and symptoms of heart failure.

Investigations

- X-Ray-guarded
- ECG
- 2D ECHO-May show reduced LVEF,LVH,MR/TR/PR.....review ECHO be done after 6 weeks,3 months and 6 months

- Endomyocardial Biopsy-myocarditis
- Viral and bacterial titre and cultures
- MRI-Myocarditis has a nonvascular distribution in the subepicardium with a nodular or band-like pattern, whereas ischemia has a vascular distribution in a sub-endocardial or trans mural location.
- Coronary angiography, Right heart catheterization.
- Biochemical evaluation-CK MB, TROPONIN-T.
- Amlodipine - improves survival in non ischemic CMP.
- During Post Partum period
- ACE Inhibitors- T.Enalapril(max.) 20 mg/day and ARBs are useful
- Diuretics, Dioxin, BB – Metoprolol/ Carvedilol.
- **Anticoagulation candidates-** in bedridden patients, if LVEF <35%, atrial fibrillation, mural thrombi, obese patients and with history of thromboembolism . Heparin- ante partum period and heparin or warfarin in the post partum period, as warfarin- c/I pregnancy.

Differential Diagnosis

1. Idiopathic Dilated Cardiomyopathy (IDCM)-

Differences between PPCM and IDCM

1. PPCM-younger age and better prognosis.
 2. Incidence-PPCM-higher.
 3. PPCM mc in postpartum (78 - 93%,IDCM usually 2nd trimester.)
 4. PPCM exclusively affects pregnancy and recurrent PPCM is seen in the peripartum period.
 5. Varying types of hemodynamic patterns are seen in PPCM.
 6. Unique sets of antigen and antibodies against myocardium-seen in PPCM compared to IDCM patients.
 7. Incidence of myocarditis-higher in PPCM.
 8. Heart size returns to normal after delivery in PPCM.
 9. Contrary to IDCM,PPCM may lead to rapid worsening of clinical condition.
- 2.Acute MI
 - 3.Valvular Heart Ds—MS,MR
 - 4.Pulmonary Thromboembolism
 - 5.Severe PIH

Management

- Low Na diet, fluid restriction <2 lit/day.
- During pregnancy-ICU if needed,BP,CVP monitoring
- ACE and ARBs are C/I in pregnancy.
- Digoxin, loop diuretics, Na restriction and drugs reducing afterload such as hydralazine and nitrates.

Newer Options

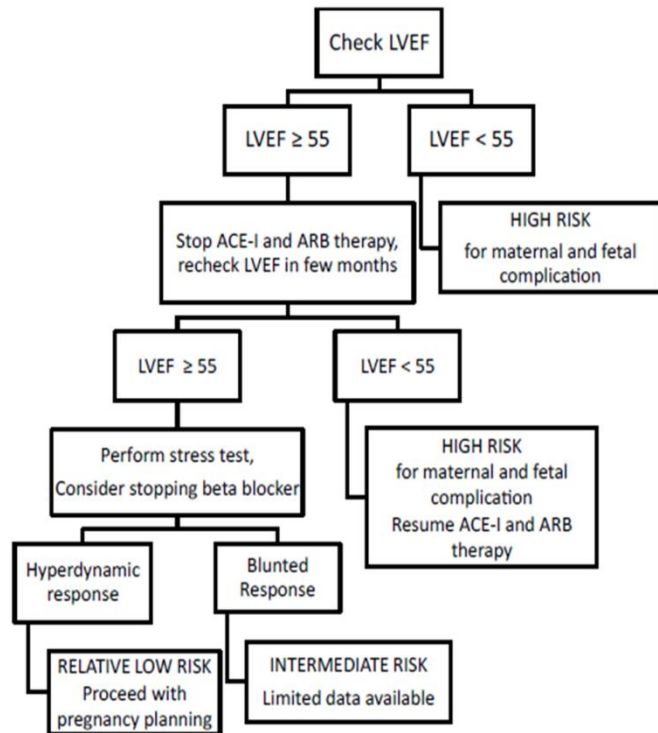
- Pentoxifylline-inhibits TNF-alpha,400 mg TDS.
- Role of Bromocriptine and Cabergoline-as prolactin increases risk of PPCMP.
- Immune modulators-IV IG., plasmapheresis,
- Other drugs-CCB, statins, monoclonal AB and INF-beta.
- Other Interventions and Devices -an intra-aortic balloon pump or LV assist devices.
- Rare-continuous veno-venous haemodialysis
- Inodilators such as amrinone, milrinone, enoximone and levosimendan.
- Levosimendan-helps in weaning of inotropes in inotrope -dependent cases.
- Nesiritide, BNP , reduce elevated PCWP and lead to clinical improvement.
- Last option-Cardiac transplantation.

Prognosis

Nearly 50% patients will normalize their LVEF during follow up within 6 months. Prognosis is directly correlated to recovery of LVEF.

15 to 20 % patients do not show improvement in LVEF at the end of 6 months.

THINKING OF NEXT PREGNANCY IN PATIENT OF DCM



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