

Pregnancy with Tubercular Pericarditis Presenting as A Cardiac Emergency: Review of A Rare Case

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Abstract

Pericardial effusion can present as one of the life threatening emergency requiring prompt diagnosis and immediate life-saving measures. We are presenting a case of a large pericardial effusion, tubercular in origin, in a pregnant woman with 31 weeks period of gestation. She presented with acute onset cough, dyspnea and hemodynamic instability. She was managed successfully with pericardiocentesis and antitubercular therapy and later she had a normal vaginal delivery. Prompt and correct diagnosis and team-based approach is the key in the management of such patients and a successful outcome.

Keywords: Pericardial Effusion; Tubercular; Pregnant; Pericardiocentesis.

Introduction

Antepartum/postpartum collapse is one of the few dreaded emergencies confronted by obstetricians globally. The differential diagnosis includes both obstetric and non-obstetric etiologies. Pericardial effusion and cardiac tamponade is a rare condition presenting with hemodynamic collapse in pregnancy. Classically, the patient presents with acute chest pain, dyspnoea, tachycardia and hypotension. In the developing countries, tuberculosis attributes to 70% of cases of pericardial effusion. Immediate pericardiocentesis and prompt antitubercular therapy leads to a drastic positive outcome in the patient. This case

is being presented to reiterate the importance of keeping a high index of suspicion for non-obstetric life threatening conditions and timely managing it with multidisciplinary approach.

Case summary

A 35-year-old G6P2L2A3 with 31 weeks period of gestation presented to Gynecology Emergency Department of Lok Nayak Hospital with complaints of sudden onset of breathlessness and dry cough. She did not give any history of chest pain or fever and no other significant past and family history. Her present pregnancy was uneventful in first and second trimester. On examination, patient



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talking, tachypnea (RR-30/min), oxygen saturation was maintained and reduced air entry on left side on auscultation. Pulse rate of 102/min low volume and a blood pressure of 94/60 mmHg. ABG suggestive of acute respiratory alkalosis. The electrocardiogram findings were suggestive of sinus tachycardia. Cardiac ischaemia markers were negative. The patient was stabilised and a cardiology referral done. A 2D echocardiography was done which reported pericardial effusion with cardiac tamponade; ejection fraction was 60% with both atrium and ventricle collapsed as in figure 1 and 2.



Fig. 1: Parasternal long-axis view demonstrating pericardial effusion.



Fig. 2: Parasternal short-axis view demonstrating massive pericardial effusion.

In the light of above echocardiography findings, pericardiocentesis done and cardiology team tapped about 1.5 litre of ambrecoloured fluid with close fetal surveillance in the presence of obstetricians. The patient had a drastic hemodynamic improvement after therapeutic pericardiocentesis. Biochemical evaluation of the tapped pericardial fluid done. The ADA and LDH levels were abnormal with values of 50 U/L (<35 U/L) and 3063 U/L (<2/3rd of the upper limit of normal serum LDH) respectively. The pericardial tap for CBNAAT was positive for tuberculosis. In view of the 2D echocardiography and laboratory findings, diagnosis of tubercular pericarditis made and patient started on antitubercular therapy. The

patient further improved within two days and discharged subsequently.

On day 10 of the antitubercular therapy, patient again presented to casualty with complaints of chest pain and breathlessness, which aggravated on lying down. Patient was hemodynamically unstable with hypotension (BP-84/60 mmHg) and tachycardia (110/min) with raised JVP and infrascapular crepitations. An urgent cardiology referral taken and immediate pericardial pigtail insertion was done, as there was recurrence of pericardial effusion. Patient improved symptomatically over one week and discharged subsequently with the resolution of pericardial effusion on echocardiography. Patient continued weekly follow up in antenatal OPD.

At 34 weeks, patient went into spontaneous labour and had meconium stained liquor but no fetal distress. Under strict fetomaternal surveillance, she delivered a healthy baby of 2350 g vaginally. There was no exacerbation of symptoms in the postpartum period. She was discharged in satisfactory condition on category I antitubercular therapy.

Discussion

The differential diagnosis of the congregation of symptoms of dyspnea, cough, hypotension, tachycardia and left sided decreased air entry includes a wide spectrum of obstetric and non-obstetric etiologies. The obstetric causes are severe pre-eclampsia, amniotic fluid embolism, and peripartum cardiomyopathy. The non-obstetric causes include pulmonary thromboembolism, pneumonia, acute myocardial infarction, aortic dissection, systemic lupus erythematosus flare, etc. The incidence of pericardial effusion in pregnant woman is 15%, 19.2% and 40% in first, second and third trimester respectively¹⁻³. The predominant causes of pericardial effusion or cardiac tamponade are neoplastic disease, idiopathic pericarditis, pericardial effusion secondary to renal failure and tuberculosis. There are also rare reported cases of pericardial effusion secondary to uncontrolled hypothyroidism⁴, viral infections⁵ and severe pre eclampsia⁶.

The final diagnosis of the patient who presented to us was tubercular pericarditis. Tubercular pericarditis accounts for 1-2 % of cases of pericarditis in developed countries⁷. In contrast, in the developing countries, as high as 70% cases of large pericardial effusion is secondary to tuberculosis⁸. Tuberculous pericarditis has a mortality of 17-

40% and presents in 3 forms: pericardial effusion (80%), effusive constrictive pericarditis (15%) and constrictive pericarditis (5%)^{8,9}. The classical triad of Beck for cardiac tamponade includes hypotension, increased jugular venous pressure and muffled heart sounds. The other signs are pulsus alternans, pulsus paradoxus, pericardial knock, hepatomegaly and oedema. The radiological findings are globular heart with increased cardiac silhouette. An echocardiography will detect presence of fluid or blood in the pericardial cavity. The presence of fibrinous strands on the visceral pericardium is typical of tubercular origin¹⁰. An echocardiography is the preferred aid in an emergency setting due to its diagnostic as well as therapeutic value.

Positive smear, culture or MTB PCR confirms the diagnosis of tubercular pericarditis from pericardial fluid or biopsy specimen and biochemical parameters of pericardial fluid. MTB PCR on pericardial biopsy specimen has a sensitivity of 80% followed by pericardial biopsy specimen histology (10-64%) and pericardial fluid smear for AFB (0-40%)⁷. Tubercular pericardial effusion are exudative and are characterised by high protein content, increased leukocytes with lymphocyte and monocyte predominance¹¹. Other causes of pericardial exudate may be fungal infections and bacterial agents other than mycobacteria. Increased levels of adenosine deaminase and lactate dehydrogenase in pericardial fluid is suggestive of tubercular origin. Adenosine deaminase values greater than 35 IU/L has a sensitivity of 90% and specificity of 74%^{10,12}. Both ADA and LDH values were raised in this patient. An elevated interferon gamma in the pericardial fluid (>200 pg/l), measured by radioimmunoassay, is 100% specific of tubercular pericardial effusion⁹. Likewise, elevated pericardial lysozyme levels (> 6.5 microgram/dl) are 100% sensitive⁹.

The treatment of tubercular pericardial effusion includes prompt life saving pericardiocentesis and antitubercular therapy with first or second line agents depending on the case. All antitubercular drugs are category C except fluoroquinolones and aminoglycosides, which are category D. Breastfeeding, is safe for women on ATT as the concentration of these drugs in breast milk is too small.

Conclusion

In view of the above-mentioned case it was learned that early detection, early intervention and

team approach was the key element in favorable outcome of pericardial effusion in pregnancy. Multidisciplinary approach in critically sick obstetrics patients can help in reducing maternal mortality.

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