An Unusual Case of Post-Partum Native Tricuspid Valve Infective Endocarditis

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Abstract

Native valve infective endocarditis during pregnancy or peri-partum period is a rare entity with significant morbidity and mortality. Rheumatic heart disease was considered a significant risk factor previously which has changed over to intravenous drug abuse in recent decades. We hereby report a case of tricuspid native valve endocarditis complicating peri-partum period in a young female without underlying traditional risk factors, who improved with medical therapy alone.

Keywords: Pregnancy; Post-partum; Native Valve Endocarditis; Methicillin Resistant Staphylococcal Aureus.

Introduction

Infective endocarditis in peri-partum period has low incidence and hence our knowledge regarding its presentation and management is limited. The traditional risk factors associated with infective endocarditis include structural heart diseases, presence of prosthetic valves/intravascular devices, chronic hemodialysis and continuous intravenous drug use with the latter being the major risk factor in recent years. Suppressed immunity during pregnancy, postpartum period and invasive procedures performed during delivery may result in mucosal barrier disruption and systemic infection by opportunistic organisms. We hereby report a case of native valve right-sided infective endocarditis in a healthy female who had recent vaginal delivery of a healthy baby one month prior to presentation.

Case Report

A 20-years-old Para1 Living1 postpartum female was admitted with high-grade intermittent fever up to 102 F associated with chills for 20 days insidious onset cough with mucoid expectoration and gradually progressive shortness of breath from mMRC (modified Medical Research Council) grade II to IV over a period of 14 days along with streaky hemoptysis around 2-3 episodes per day for 4 days. On further inquiry she revealed history of cough associated with mucoid expectoration in her 9th month of pregnancy. She received treatment from local hospital with relief of symptoms. She had delivered a healthy baby 15 days later via normal vaginal delivery with no intervention during pregnancy and no peri-partum complications. She had presented to our hospital around 25 days after the delivery with symptom onset of around 4-5 days post-delivery. She belonged to lower class of social economic strata as per Indian guidelines. There was no history of intravenous drug use or any history suggestive of rheumatic heart disease.
At presentation she had systolic blood pressure of 122 mm of Hg and diastolic blood pressure of 68 mm of Hg with pulse of 120 / min and respiratory rate of 30 / min with saturation of 98% at room air, temperature of 102°F. On examination, she had pallor with grade II holosystolic murmur at left lower sternal border. Laboratory investigations revealed hemoglobin of 7.7 gm/dL, total leucocyte count of 13 X 10^9/L, platelet count of 200 X 10^9/L. Computed tomography chest showed bilateral peripheral nodules and consolidation with cavitory changes with subpleural location suggestive of septic emboli. (Figure 1) A suspicion of infective valve endocarditis with septic emboli was kept and transthoracic 2D echocardiography revealed 3 × 1 cm vegetation on anterior leaflet of tricuspid valve. (Figure 2) Blood culture grew methicillin resistant staphylococcus aureus. She fulfilled 2 Major clinical (Vegetation on 2D Echocardiography and Blood culture growth of typical organism) and 2 Minor criteria (Fever and vascular phenomenon) (Definite diagnosis of Infective endocarditis) of modified Duke’s criteria for Infective endocarditis. Patient was started on intravenous injection vancomycin 1 gm 12 hourly. During her hospital stay, she had sudden onset hemoptysis requiring elective intubation. She was immediately resuscitated with intravenous fluids and transfusion of packed red blood cells. Repeat chest tomography showed cavitating nodules in both the lungs with new consolidative changes noted in right lower lobe. In view of new consolidation and fever, intravenous injection meropenem 1gram q 8 hourly was added. She was subsequently extubated within 48 hours. Patient remained afebrile with no fresh episode of hemoptysis. All repeat sets of blood cultures were sterile. She was continued on antibiotics for 6 weeks. A written and well informed consent was taken from patient. She was discharged in stable condition with systolic blood pressure of 118 mm of Hg and diastolic blood pressure of 80 mm of Hg, pulse of 84 per minute. 2D Echocardiography at the time of discharge showed residual vegetation of around 1 cm x 0.5 cm size with no ventricular dysfunction or valve regurgitation. She has been advised for 3 monthly echocardiography until 1 year and 6 monthly thereafter. Since there is no residual valve dysfunction, there seems to be no contraindication for future pregnancy.

![Figure 1](image1.jpg)

**Figure 1:** Contrast enhanced computed tomography of chest showing bilateral segmental and peripheral areas of consolidation with cavitory changes with subpleural location of few on right side suggestive of septic emboli (Arrow).
Figure 2: Apical four chamber view of 2D echocardiography of heart showing vegetation of 3x 1 cm on tricuspid valve with no regurgitation (Arrow)

Discussion

Infective endocarditis is a serious and fatal complication of heart valves. There has been gradual increase in the annual incidence of infective endocarditis from 5 to 7 cases per 100,000 person-years (1970-2000)\(^1\) to around 15 cases per 100,000 population in United States in 2011.\(^2\) IE in peri-partum period has low incidence and hence our knowledge regarding its presentation and management is limited. Overall reported incidence in pregnancy is 1 in 100,000 pregnancies\(^3\), but is responsible for high maternal (22.1%) and fetal mortality (14.7%).\(^4\) Most commonly identified risk factors in pregnancy are intravenous drug use (14.4%), congenital heart disease (12.2%) and rheumatic heart disease (11%).\(^5\) Most common pathogenic organisms are streptococcus species (39%) followed by staphylococcus (25.6%); Left sided cases are more common than right sided and are more likely due to streptococcal infection than right side which are due to staphylococcus.\(^5\)

Suppressed immunity during pregnancy, postpartum period and invasive procedures performed during delivery may result in mucosal barrier disruption and systemic infection by opportunistic organisms. In our case since the actual symptom onset was prior to pregnancy which was overlooked and later exacerbated post-delivery, risk factor precipitating the infection couldn’t be determined. Case control studies on infective endocarditis have revealed larger vegetations (>1-2cm in size) to be associated with increased morbidity and mortality.\(^6\) Although the risk of pulmonary emboli is high with tricuspid vegetation and increases morbidity, the response to antibiotic therapy is generally favourable with right sided lesions.\(^4\) In recent review of literature; maternal mortality was 11.5% in pregnant cases and 10.5% in post-partum cases. Mortality was lower in right sided cases as compared to left side (6.1% vs 14.3%).\(^5\)

In the setting of right sided native valve endocarditis, medical therapy with culture sensitivity guided IV antibiotics constitutes the mainstay of management while surgical interventions are often deferred
unless there is; (i) right sided heart failure due to severe tricuspid regurgitation (ii) persistent bacteremia for >7 days or fungemia refractory to medical therapy or (iii) large vegetations of >20mm (iv) recurrent multiple pulmonary emboli with or without right side heart failure (v) abscess formation. Multi-disciplinary approach involving early assessment by the infectious disease expert, obstetrician, cardiologists and cardiovascular surgeons will result in better prognosis of peri-partum infective endocarditis patients.

**Conclusion**

Infective endocarditis is rare in pregnancy and post-partum period; but has high maternal and fetal mortality. Early diagnosis and aggressive management targeting specific organism and multi-disciplinary team approach can result in good outcome in IE during pregnancy and peri-partum period.

**References**


