

# Case Report

## Redo Aortic Valve Replacement In A Patient With Culture Negative Prosthetic Valve Endocarditis with Thrombocytopenia

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### Abstract

Prosthetic valve endocarditis (PVE) is a serious complication of cardiac valve replacement surgery as it is associated with high rates of morbidity and mortality. Early diagnosis and appropriate treatment determines the clinical outcome of the patient with blood culture-negative endocarditis. Risk of post-operative bleeding, need for transfusion, its associated morbidity and mortality impose a challenge for cardiac surgery in patients with thrombocytopenia. We report a case of 60 year old male with persistent fever and bradycardia for 5 days with negative blood cultures and thrombocytopenia, with history of aortic valve replacement (AVR) done 7 months back, diagnosed as prosthetic valve endocarditis and was taken up for early redo AVR despite thrombocytopenia, following which patient had good recovery. Hence we emphasize that high index of suspicion of infective endocarditis and timely intervention is needed in patients with prosthetic valves presenting with fever for early diagnosis and good outcome.

**Key Words:** Prosthetic valve endocarditis, Blood culture-negative endocarditis, Redo aortic valve replacement, thrombocytopenia.

### Introduction

Prosthetic valve endocarditis (PVE) is an endovascular, microbial infection occurring on parts of a valve prosthesis or reconstructed heart valves.<sup>1</sup> The incidence of prosthetic valve endocarditis accounts to 20.1% among all endocarditis cases and it have been attributed due to aging population and frequency of valve replacement.<sup>2</sup> Though the mortality associated with PVE has grossly declined due to advanced diagnostic technique and improvement in medical and surgical management, associated morbidities like sepsis, ring abscess, increased stay in hospital continue to be high in developing countries.<sup>3</sup>

Culture-negative endocarditis is endocarditis in which no microorganism could be identified either on serial blood culture or in cultures made from the explanted valvular tissue of patients presenting with the clinical picture of endocarditis, particularly in the presence of a new regurgitant murmur, congestive heart failure (CHF), or valvular vegetations on echocardiography. Culture negative endocarditis accounts for 2.5% to 70% of cases with endocarditis depending upon the countries.<sup>4</sup> The epidemiological factors, advance of emerging zoonotic infections, early coverage of antibiotics, variations in sampling and diagnostic techniques, unknown infective origin adds to the above incidence of culture negative endocarditis.<sup>5</sup>

Structural dysfunction of prosthetic valve attributed to infective endocarditis is one of the cause of redo prosthetic valve surgery.<sup>6</sup> Studies suggest that 16% to 32% of redo cardiac surgeries carried a high risk of postoperative morbidity and mortality.<sup>7</sup>

The outcome of redo prosthetic surgeries can be improved if adequate myocardial and cardiopulmonary resuscitation strategies are followed adequately in intra operative and postoperative period. We report a case of culture negative prosthetic valve endocarditis who was taken for early redo aortic valve surgery (AVR) despite thrombocytopenia following which patient had good recovery.

### Case History

A 60 year old male with history of AVR done 7 months ago for Aortic stenosis, presented with complaints of fever associated with giddiness for 5 days. He was initially admitted elsewhere for the same complaints and diagnosed to have leptospirosis and treated accordingly. Patient presented to our causality with persistent fever and intermittent episodes of bradycardia associated with giddiness for which emergency temporary pacing was done. Two sets of blood cultures and urine culture were sent. His Hb was 9.8, platelets: 73000/mm<sup>3</sup>, urea: 13mg/dl, creatinine: 1.13mg/dl, blood group: O positive, normal coagulation profile, chest x ray showed increased Bronchovascular

markings, positive serum pro-calcitonin values, Negative Leptospirosis IgM and negative blood and urine cultures. Patient was started on empirical broad spectrum antibiotics and echocardiography was done which showed severe AR, Mild dilated LV with adequate LV function EF: 50% and paravalvular leak suggestive of endocarditis. Patient was taken up for emergency redo AVR surgery under cardiopulmonary bypass despite thrombocytopenia. Intraoperative period was uneventful and intra-operative findings were pericardial adhesion, post AVR ring abscess over RCA and NCC extending to AML and biocor valve leaflet disease. Post-operatively, patient developed severe low cardiac output (LCOS) due to sepsis associated with severe hypothermia (33C) and increasing lactate levels (18mmol/l). Broad spectrum antibiotics were continued, pulmonary artery catheter was placed in the immediate post-operative period and hemodynamics monitored & managed with appropriate supportive measures. Post-operative echocardiography showed normal functioning aortic valve prosthesis (AVPG-25 mmhg MG-14 mm hg), no paravalvular leak, no RWMA and EF- 60 %. Patient's general condition and hemodynamics improved well and he discharged on post-operative day 12 with Vancomycin for 7 days and routine follow up.

## Discussion

Redo aortic valve replacement in a patient with underlying sepsis and thrombocytopenia is associated with a high mortality and morbidity. In our patient, even with higher antibiotic coverage the patient showed worsening hypotension and refractory bradycardia along with septic shock and thrombocytopenia. Whenever a patient with prosthetic valve presents with fever, infective endocarditis is very likely and TEE should be considered to confirm the diagnosis and compared with blood cultures.<sup>8</sup> In our patient TTE revealed worsening aortic regurgitation and paravalvular leak with dilated left ventricle though his blood and valvular tissue culture was negative. Patients with thrombocytopenia when they undergo cardiac surgery can be at high risk for bleeding complications.<sup>9</sup> In our case though the patient had thrombocytopenia (platelet :75000 cu. Mm) which was probably due to sepsis, surgery was done to remove the source of infection under appropriate antibiotic coverage. In a study multivariate analysis predicted that the morbidity of prosthetic valve endocarditis redo surgery can reduce markedly if treated appropriately. The redo surgical outcome can be improved if myocardial and cardiopulmonary resuscitation strategies are followed adequately in intra operative period.<sup>9</sup> Hence we conclude that high index of suspicion of infective endocarditis is needed in patients with prosthetic valves presenting with fever for early diagnosis and timely intervention for good outcome.

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