

# Recurrent Prosthetic Pulmonary Valve Endocarditis in Repaired Tetralogy of Fallot

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## Abstract

25 year old male who was a known case of repaired Tetralogy of Fallot with history of early prosthetic pulmonary valve fungal endocarditis in 2012 presented in 2016 with history of prolonged fever. On subsequent work up, he was diagnosed to have recurrent fungal prosthetic pulmonary valve endocarditis.

## Introduction

Clinical diagnosis of prosthetic valve endocarditis is guided by the modified Duke criteria<sup>1</sup>. Mostly prosthetic valve endocarditis in adults has been frequently described with prosthetic aortic or mitral valve. There is a paucity of data on prosthetic pulmonary valve endocarditis. We are presenting a case of recurrent fungal endocarditis of a Bioprosthetic pulmonary valve in an adult male who had a total correction of tetralogy of Fallot earlier in 1993. Cases of Prosthetic pulmonary valve endocarditis are increasing nowadays because of growing number of prosthetic valves being placed in repaired tetralogy of Fallot.

## Case Report

25 year old male, presented to the Sir Ganga Ram hospital with One month history of Fever associated with 15 days history of Vomiting and pain abdomen. On examination there was presence of Pansystolic murmur in Tricuspid area

with ejection Systolic Murmur and early Diastolic murmur in pulmonary area with splenomegaly.

He was a known case of Cyanotic congenital heart disease (Tetralogy of Fallot) which got total correction done in 1993. Patient had undergone Pulmonary valve replacement (Bioprosthetic) in 2012 due to development of free pulmonary regurgitation. Subsequently He developed early prosthetic valve fungal endocarditis. He was managed with I/V antifungals and fever subsided. Patient underwent echocardiographic examination which revealed vegetation attached to prosthetic pulmonary valve (Figure 1) and pulmonary regurgitation (Figure 2). Blood culture was positive for fungus *Candida Albicans*. Diagnosis of the prosthetic pulmonary valve endocarditis was made.

## Discussion

Infective endocarditis means the infection of the cardiac valve or endothelium, which can be seen as vegetations. The common congenital heart anomalies predisposing to

infective endocarditis are bicuspid aortic valve, Patent ductus arteriosus, Ventricular septal defect, Coarctation of the aorta, Tetralogy of Fallot etc.

Prosthetic valve endocarditis accounts for about 10% to 20% of all cases of infective endocarditis. The greatest risk of infection is in the first 6 months after valve implantation and appears to be similar in mechanical and bioprosthetic valves.

Fungi account for 10% to 15% of late prosthetic valve endocarditis cases and are associated with a higher mortality rate.<sup>2</sup> Prosthetic pulmonary valve endocarditis is a rare entity. In a large multicenter prospective 5 year observational study by Wang et al,<sup>3</sup> 556 cases of prosthetic endocarditis were reported, out of which only 31(5.5%) cases had prosthetic pulmonary valve involvement. However, the increased number of cardiac surgeries followed by prosthetic valve implantation has led to their increasing incidence.

## Conclusion

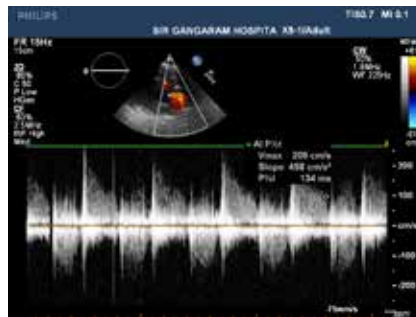
Prosthetic pulmonary valve endocarditis is a rare entity with an increasing incidence in the current era. High index of suspicion should be maintained for detecting it.

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**Fig. 1: Parasternal Short axis view at aortic valve level showing vegetation attached to the prosthetic pulmonary valve**



**Fig. 2: Pulse wave doppler at prosthetic pulmonary valve in parasternal short axis view showing severe pulmonary regurgitation**

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# An Unusual Site of Infective Endocarditis after Surgical Trauma-Evaluated by Three Dimensional Echocardiography

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## Introduction

Infective endocarditis (IE) is an inflammation of endocardium and heart valves, associated with high risk of morbidity and mortality, prompt and early diagnosis and early treatment is essential. The age-specific incidence of endocarditis is 5 cases per 100,000 person-years among persons younger than 50 years to 15 to 30 cases per 100,000 person-years in the sixth to eighth decades of life.<sup>1</sup> Ventricle septal defect (VSD), patent ductus arteriosus (PDA) and bicuspid aortic valve (BAV) are common predisposing lesion for IE in adults. Isolated Atrial septal defect (ASD) associated with IE not reported in literature yet. We are reporting a rare case ASD associated with IE.

## Case Report

A 43 year non diabetic, non-hypertensive, post-surgical closure of atrial septal (ASD) female patient presented with high grade fever from last one month. Her blood pressure was 130/86 mm of mercury and pulse rate was 104 minute, chest bilateral clear, no murmur, Abdomen and nervous system examination was normal. No significant abnormality detected in x ray chest PA view, total leucocyte count was 18000/cm<sup>3</sup>, 90 % neutrophil. All blood culture were negative. All other parameters were normal. Evaluation with two dimensional echocardiography (2D ECHO) reveals oscillating mass seen in right atrium (Figure 1A) attached to interatrial septum. which was not present in previous 2D ECHO before surgical closure. Trans esophageal

echocardiography confirmed oscillating mass attached to opening of superior vena cava (Figure 1B) which was further confirmed by three dimensional echocardiography (Figure 1 C, D).

## Discussion

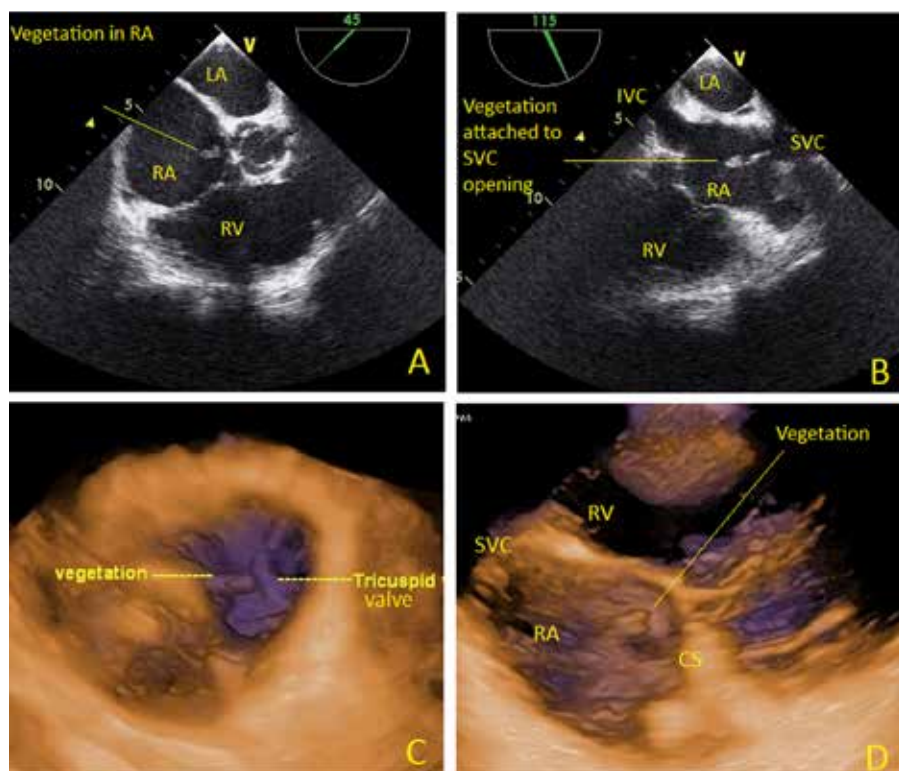
Intact cardiac endothelium is resistant to bacterial invasion, damaged cardiac endocardium is strong stimulator for bacterial attachment leading to infective endocarditis. In VSD, PDA, BAV high velocity blood stream jet cause damage to endothelium in adult leading to IE. In literature most common site IE is valves (native or prosthetic), interventricular septum and intra-cardiac devices.<sup>2</sup> IE after surgery first reported by Taussig and associates in patients tetralogy of Fallot, assumed that unhealed suture line was the potential source of IE.<sup>3</sup> Various case reports also described IE after surgical mitral commissurotomy.<sup>4-6</sup> Hurst, Jones and Scott reported case of IE after PDA surgery.<sup>7-9</sup> Uncomplicated ASD in adult never been reported in literature as associated with IE. But after surgical closure of ASD, normal endothelium could be receptive for bacterial adhesion due to unusual site surgical trauma, could be a source of prolonged fever. Prompt and early recognition and treatment result in excellent patient recovery.

## Conclusion

Surgical trauma, could be a unusual site of infective endocarditis. Awareness of unusual site of infective endocarditis and early recognition result in excellent patient recovery.

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**Fig. 1:** (A) Two-dimensional TEE at 45° angle showing a vegetation near the aortic valve in RA. (B) Two-dimensional TEE at 115° angle clearly delineating the vegetation attached to SVC opening. (C and D) 3D TEE showing Vegetation attached to SVC. TEE=Transesophageal echocardiography, RA= Right atrium, SVC = Superior vena cava, 3D=Three dimensional

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