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# Successful Tricuspid Valvectomy in a Septic Patient with Tricuspid Valve Endocarditis

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## ABSTRACT

Endocarditis is characterized by vegetations, which is a mass of platelets, fibrin, micro-colonies of micro-organisms, and inflammatory cells, in the endocardium. Over the past three decades, the incidence of right-sided endocarditis has risen dramatically in Pakistan. We report a 36-year woman with a history of repeated intravenous analgesic injections for low back pain, presenting with high grade fever, sepsis and a white cell count of 44,000 with 90% neutrophils. Echocardiography showed large mobile vegetations on Tricuspid Valve (TV). Tricuspid Valve Endocarditis (TVE) is generally responsive to medical treatment; however, about 25% of TVE patients require surgical intervention. Long-term survival of a patient is possible without a prosthetic TV replacement, particularly if the pulmonary artery pressure is normal.

**Key Words:** *Endocarditis. Tricuspid valvectomy. Echo-cardiography intravenous analgesic injection.*

## INTRODUCTION

Endocarditis is one of the most serious complications of intravenous drug use, although right sided IE may occur in association with congenital heart disease and instrumentation of the right heart. The incidence of Right-Sided Endocarditis (RSE) amongst the intravenous drug users stands at 5 - 10% per year.<sup>1</sup> Being common in this population RSE especially involves the tricuspid valve with a propensity of high recurrence.<sup>2,3</sup> RSE accounts for 10% of all infective endocarditis in population based surveys. Generally, RSE can be treated with carefully tailored antimicrobial therapy against specific organism which gives a high alleviation rate.<sup>3,4</sup> However, this treatment modality is readily rendered useless due to the virulence of the organisms involved and their repeated exposure to the inciting agent. It is in these cases that surgery becomes the treatment of choice.

The purpose of presenting this interesting case is to develop awareness among clinicians that long-term survival of a patient without Tricuspid Valve (TV) replacement is possible, particularly if the pulmonary artery pressure is normal.

## CASE REPORT

A 36-year woman with a history of repeated Intravenous (IV) analgesic injections for low back pain, presented with high grade fever and sepsis; and a count of 44,000 with 90% neutrophils, and admitted to the Aga Khan

Hospital, Karachi, Pakistan. Echocardiography showed large mobile vegetations on tricuspid valve. Initially the patient was kept on IV antibiotics but her condition kept on deteriorating with worsening sepsis. At that time patient was taken to the Operating Room (OR) and under cardiopulmonary bypass the tricuspid valve was exposed. The entire tricuspid valve was replaced by large yellowish mobile vegetations. All three leaflets of the tricuspid valve were completely resected. Due to extensive infection at the tricuspid position, no prosthetic valve was placed. Patient was taken off the cardiopulmonary bypass on high inotropic support. After a prolonged ICU stay in the ICU, patient recovered from her sepsis and was discharged home in a perfect health.

## DISCUSSION

Right sided endocarditis is prototypically characterized by a mass of platelets, fibrin and colonies of micro-organism, along with inflammatory cells which add to the degenerative process. Amongst the intravenous drug users who present with fever, it has been reported that most of them have echocardiographic evidence of RSE involving tricuspid valve and is followed by co-existing involvement of the mitral and aortic valve.<sup>4</sup>

The classical presenting complaints of RSE are persistent fever, bacteremia, sepsis and multiple pulmonary emboli featuring chest pain, dyspnoea, cough, and haemoptysis. The triad of bacteremia, fever, and multiple pulmonary infiltrates on chest radiography should always prompt an investigation for RSE. Even as most of the patients of RSE will have a systolic murmur, it is not distinctively pathologic in the majority of cases.<sup>5</sup>

The Duke system defines a major echocardiographic criterion for infective endocarditis as the finding of an oscillating intracardiac mass on the valve or supporting structures, in the path of a regurgitant jet, a paravalvular

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abscess or new dehiscence of a prosthetic valve. A few of the authors have felt that large vegetation size (diameter > 10 mm) have a chance to benefit from surgery while others felt that many of the members of this population will eventually recover with non-surgical, medical treatment. Very large vegetations (> 20 mm) are associated with a poor outcome.<sup>6</sup>

In 1971, first surgical treatment of RSE was reported.<sup>7</sup> Over the course of almost 4 decades, the debate has been directed towards the most successful therapy for RSE and it has been agreed mostly that surgical option is only utilized when the medical treatment fails. It has been reported that patient undergoing tricuspid valvectomy without replacement following RSE do generally well. However, 25% of this population usually develops unbearable tricuspid regurgitation which can lead to pulmonary hypertension and right-sided heart failure, which deems valve replacement necessary.

Reconstruction, repair, replacement and mitral valve homograft have all been reported as surgical options for RSE. These techniques are readily overtaking the non-replacement tricuspid valvectomy as they are hemodynamically more stable. If the possibility of valvular repair is considerably decreased due to the destruction of the subvalvular apparatus of the anterior leaflet and since the septal leaflet is rarely implicated, a mitral homograft can be done.

Given the current rise in trend of IV drug use, it is a fact that the cases of RSE will also show an increasing trend. Surgical intervention, in the course of failure of medical

therapy, remains a sound option in the treatment of RSE. RSE involving the tricuspid valve can be treated with TV without replacement if the pulmonary arterial pressure is normal and tricuspid regurgitation does not take place. This can result in long-term survival of the patient and late valve replacement can be performed if the extent of disease does not allow immediate valvuloplasty.

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