

Severe Tricuspid Regurgitation in a Young Heart Transplant Recipient

Clinical Case Portal

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Abstract

This case-report illustrates the value of transthoracic echocardiography (2D, Doppler and 3D) for identifying the presence, the severity and the mechanism of tricuspid regurgitation (TR) in a young heart transplant recipient.

Introduction

Significant TR is not a rare finding in orthotopic heart transplantation (OHT) patients and represents a matter of concern, being associated with a poor prognosis (1).

Case Report

A 38-year-old male, who underwent heart transplantation seven years before, was referred to our laboratory for yearly routine echocardiographic follow-up. He presented asymptomatic, with no history of graft rejection and with an unremarkable endomyocardial biopsy (EMB) performed 2 months before.

Current echocardiographic two-dimensional examination revealed a large, highly eccentric TR (Video 1) with a flail of tricuspid valve (Videos 2-3, Figure 1A-C). However a definite conclusion of the involved leaflet was difficult from 2D images. Volume rendering of tricuspid valve by transthoracic 3D echocardiography identified with high confidence a posterior leaflet flail due to chordal rupture (Video 4, Figure 1D). Doppler examination confirmed the severity of tricuspid regurgitation (Figures 2-4). The right ventricle was hypertrophied but neither dilated nor dysfunctional (Video 5). Echocardiographic examination also showed a normal left ventricular size, function and mass, the characteristic biatrial enlargement, and no pericardial effusion.

Given the echocardiographic signs and the recent EMB, the tricuspid valve flail was interpreted as most likely recent and iatrogenic.

Discussion

Repeated EMBs are routinely used to monitor for allograft rejection after OHT, but may occasionally cause TR (2). Mechanisms involved in the development of TR in OHT patients can be multiple (acute allograft rejection, annular dilation, elevated pulmonary vascular resistances, etc.) but the single most frequent cause of TR in long-term follow-up is the damage to the valve apparatus by EMBs (3).

Because of the impact of TR on patient prognosis, surgical intervention is indicated in case of symptomatic severe TR refractory to medical therapy (4). Correct timing for the intervention must be carefully evaluated since right ventricular performance is a crucially important parameter to consider, as it is a strong predictor of outcome after surgery (5).

Conclusion

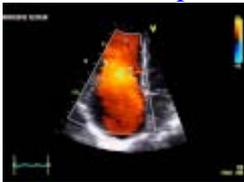
Transthoracic 3D echocardiography can provide important information regarding the mechanism and the consequences of TR on the right ventricle, and should be integrated in the routine armamentarium for OHT follow-up.

References

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Video 1 :

[Severe Tricuspid Regurgitation](#)



Video 2 :

[Tricuspid Leaflet Flail \(2D\)](#)



Video 3 :

[Tricuspid Leaflet Flail \(2D\)](#)



Video 4 :
[Tricuspid Leaflet Flail \(3D\)](#)



Video 5 :
[Quantification of Right Ventricle Volumes and Function \(3D\).](#)

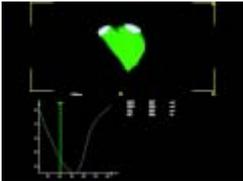


Fig. 1 :
[Flail of the Posterior Tricuspid Leaflet \(PTL\)](#)



Fig. 2 :
[Assessment of Tricuspid Regurgitation \(TR\) Severity by Color-flow doppler](#)

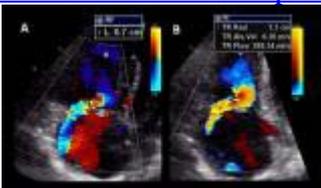


Fig. 3 :
[Assessment of Tricuspid Regurgitation \(TR\) Severity by Spectral Doppler.](#)

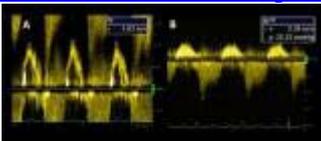


Fig. 4 :
[Assessment of Tricuspid Regurgitation \(TR\) Severity by Hepatic Vein Flow](#)

