Series of Cardiology Research

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Vol 4 Iss 1

Diastolic Mitral and Tricuspid Insufficiency in Complete Atrioventricular Block

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Received on 23 September 2022; Accepted on 07 October 2022; Published on 22 October 2022

Clinical Image

Male patient, 82 years old, who is referred to the echocardiography service for having presented a syncopal event 48 hours earlier. There is evidence of preserved left ventricular diameter and systolic function, slight left atrial dilatation, and moderate pulmonary hypertension. Continuous Doppler on the mitral valve (Figure 1) and tricuspid valve (Figure 2) shows regurgitation in the diastolic phase (yellow star in both figures) and systolic phase (yellow square). An electrocardiogram was performed, showing a complete atrioventricular block (Figure 3).

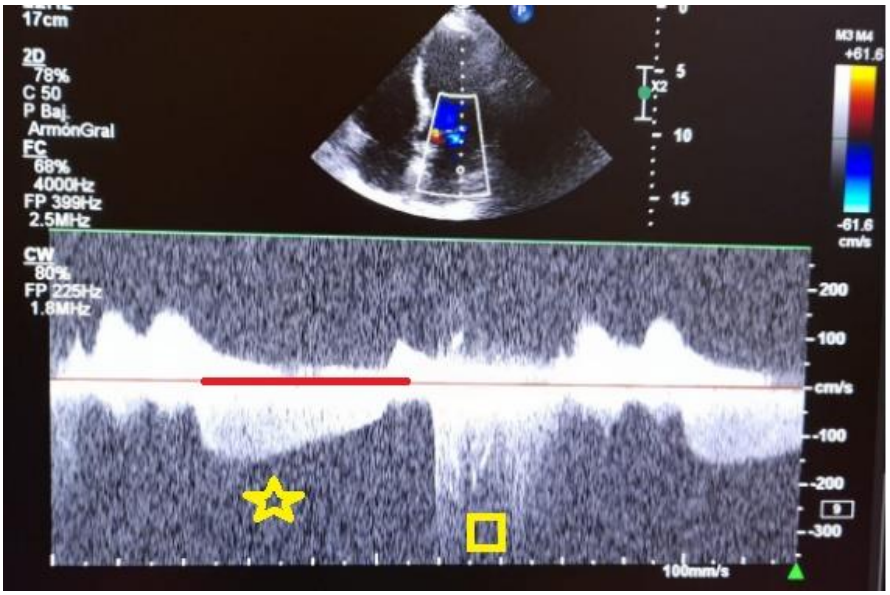

Figure 1: Continuous Doppler on the mitral valve shows regurgitation in the diastolic phase (yellow star) and systolic phase (yellow square).

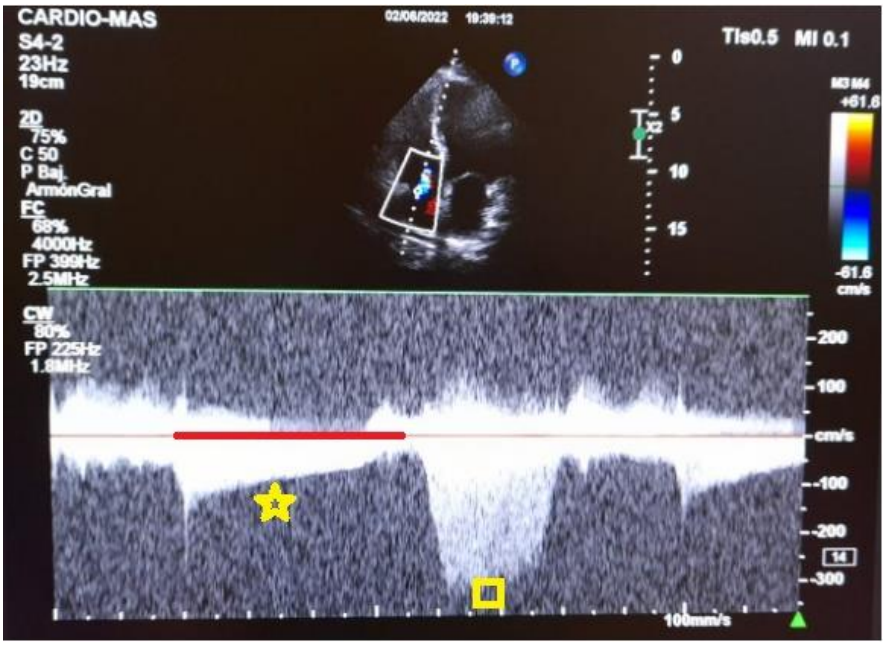

Figure 2: Continuous Doppler on the tricuspid valve shows regurgitation in the diastolic phase (yellow star) and systolic phase (yellow square).

Figure 3: An electrocardiogram showing a complete atrioventricular block.

Mitral and tricuspid regurgitation usually occurs during ventricular systole, when the pressure in this chamber increases and the atrioventricular valve is closed. But it can occur with an open atrioventricular valve, in diastole, when there is a large increase in intraventricular pressure due to restrictive physiology or severe acute aortic regurgitation. Another cause, such as the one shown in this case, maybe a high-grade atrioventricular block with baseline sinus rhythm, where non-conducted atrial contraction generates an inverse pressure gradient that favors flow from the ventricle to the atrium during diastole [1, 2]. Dual-chamber pacemaker implantation allows recovery of hemodynamic function [3].

Conflicts of Interest

The authors declare that they have no conflict of interest.

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