

Image in cardiology

New Cause of Presystolic Drag: Long PR Extrasystoles



Nueva causa de arrastre presistólico: extrasistolia-PR largo

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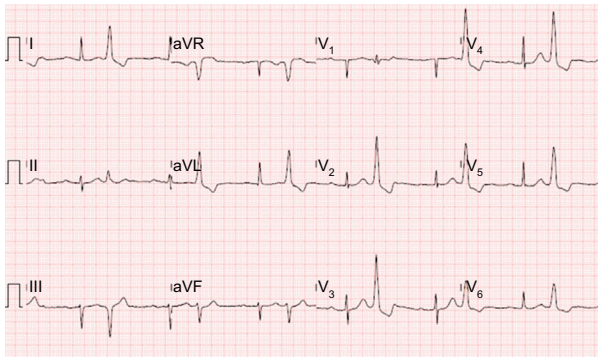


Figure 1.

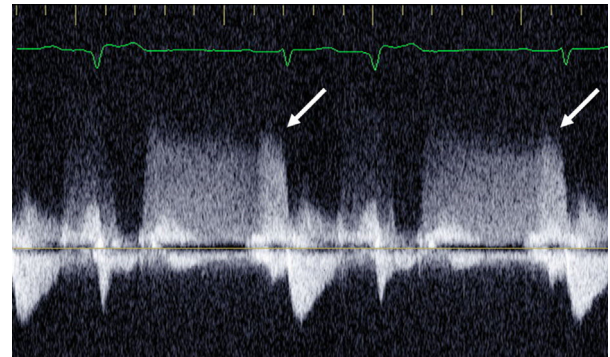


Figure 2.

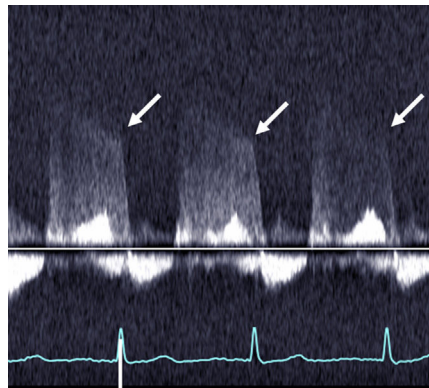


Figure 3.

A 91-year-old man with no cardiovascular symptoms underwent echocardiography to investigate ventricular bigeminy and a long PR interval on electrocardiography (Figure 1).

Transthoracic echocardiography showed slight left atrial dilation, adequate biventricular contractility, and minor mitral and aortic valve degeneration, with excellent opening and mild regurgitation of both valves. The mitral filling pattern showed a relaxation abnormality. On continuous Doppler study of the left ventricular outflow tract, a more intense presystolic aortic regurgitation was documented in the postextrasystolic beats (Figure 2, arrow). A new echocardiogram was performed after the extrasystoles had disappeared, and this unusual finding was not seen in the sinus beats (Figure 3, arrow).

Ventricular relaxation is a dynamic, multifactorial process. More intense diastolic suction has been described during the rapid ventricular filling phase in postextrasystolic beats. We believe that the presence of extrasystoles in conjunction with a long PR interval creates the ideal conditions for this unique hemodynamic situation, which constitutes a new cause of presystolic drag. Atrial contraction in a patient with a long PR may not produce an increase in left ventricular end-diastolic pressure because of the simultaneous presence of diastolic suction in postextrasystolic beats. Our clinical case showed a paradoxical higher presystolic pressure gradient between the aorta and left ventricle in postextrasystolic beats (Figure 2) that was not seen in the absence of extrasystoles (Figure 3). To our knowledge, there have been no previous reports of this cause of presystolic drag.

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