

Diastolic mitral regurgitation in complete atrioventricular block

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Case report

A 75-year-old woman was admitted to our hospital with progressive dyspnea and fever due to an acute, community-acquired pneumonia. On examination, the heart rate was irregular and slow (43 beats per minute), and there was a soft end-diastolic and a somewhat louder systolic murmur over the apex. The 12-lead surface electrocardiogram confirmed the diagnosis of a third-degree atrioventricular (AV) block, most likely due to a pneumonia-associated myocarditis. The

transthoracic echocardiogram revealed the presence of a significant diastolic mitral regurgitation (MR) as the reason for the diastolic murmur (fig. 1). The timing of diastolic MR was best demonstrated by continuous-wave Doppler recordings (fig. 2) and colour-Doppler M-mode (fig. 3, left side). During the M-mode acquisition, the patient switched back to SR, and the diastolic MR disappeared (fig. 3, right side).

Diastolic MR is caused by an elevated left ventricular end-diastolic pressure, leading to an inverse pressure gradient across the mitral valve in diastole, and hence to a diastolic MR with a relatively low velocity of 1–2 m/s [1, 2]. This condition is frequently met during atrioventricular conduction abnormalities of any degree [1], after ventricular premature beats or in patients with a pacemaker and a prolonged PQ interval [3], during atrial flutter, in patients with restrictive cardiomyopathy [4], and in patients with severe aortic regurgitation [2]. The present case illustrates diastolic MR during complete atrioventricular block and emphasises the diagnostic accuracy of continuous-wave Doppler and colour-Doppler M-mode echocardiography.

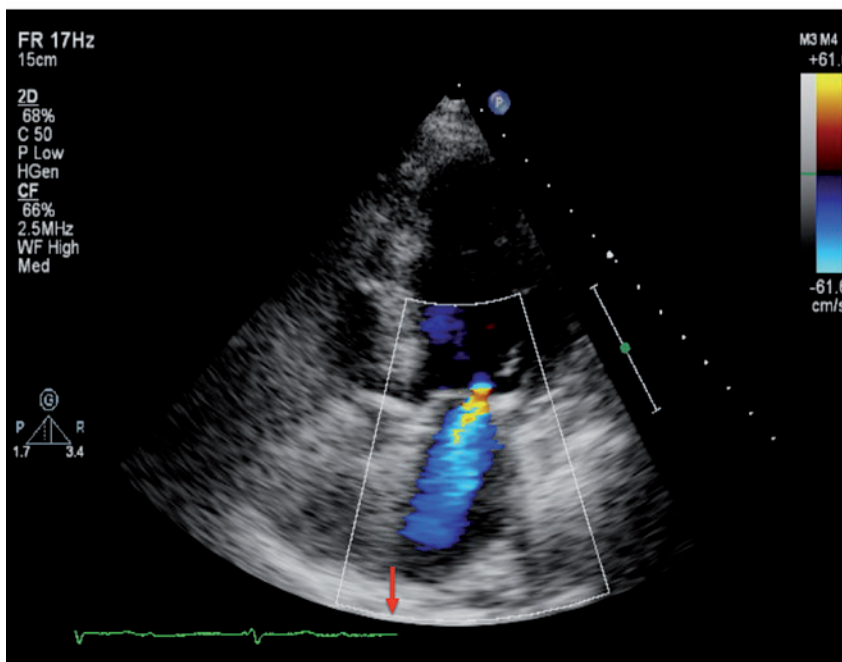


Figure 1
Colour-Doppler image. End-diastolic mitral regurgitation (arrow highlights end-diastole).

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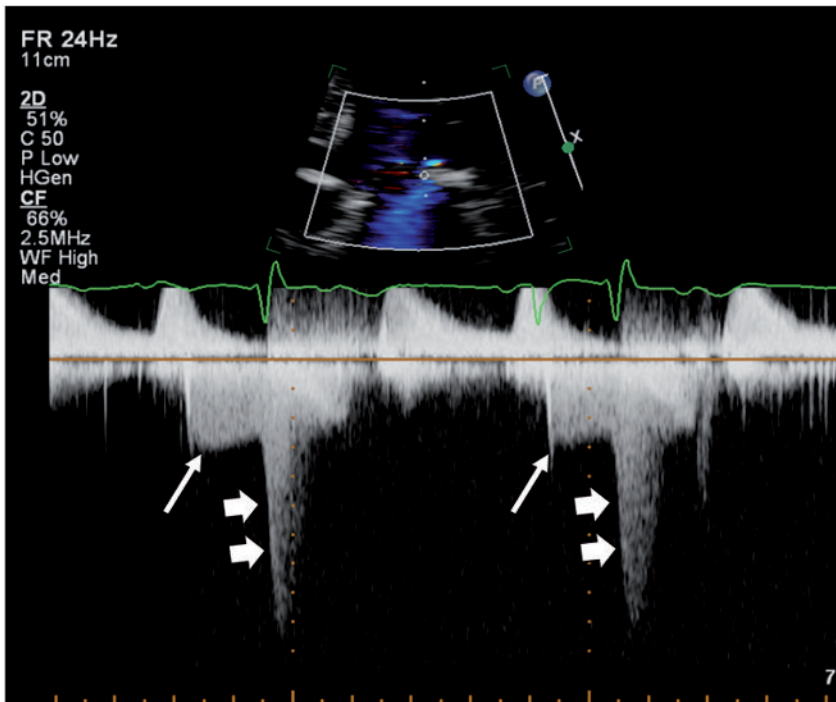


Figure 2 Continuous-wave Doppler through the mitral valve, demonstrating both diastolic (long arrows) and systolic MR (short arrows).

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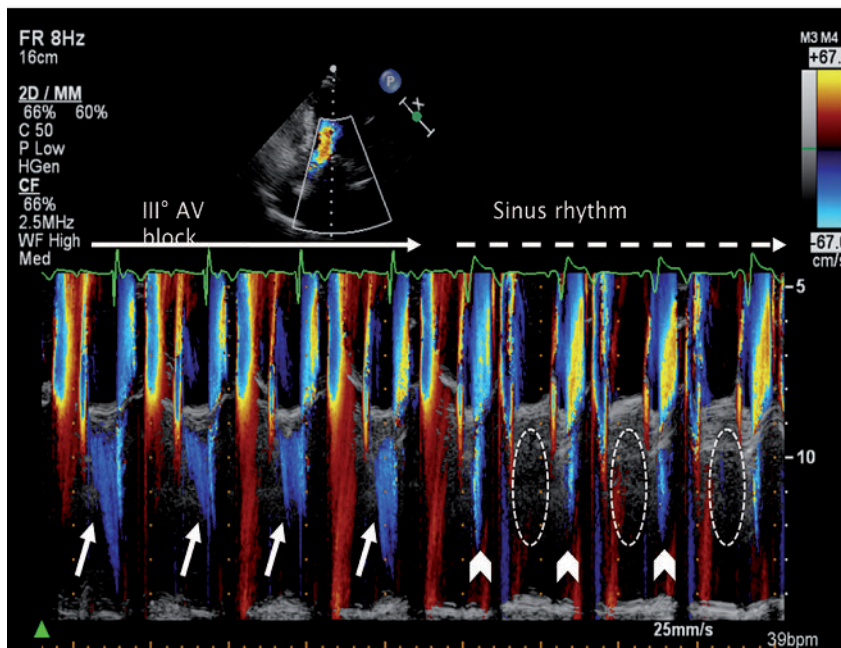


Figure 3 Colour-Doppler M-mode through the mitral valve. During complete atrioventricular (AV) block, diastolic mitral regurgitation is present (long arrows). After conversion into sinus rhythm, minimal systolic MR is noted (arrow heads), while diastolic MR is absent (dashed circles).