Colour M-mode Doppler pattern of severe functional mitral regurgitation in the presence of high left ventricular filling pressures: The sign of the galloping coloured horse

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A 75-year-old patient presented with symptoms and signs of heart failure (including a ventricular gallop rhythm) and ventricular bigeminy with retrograde P waves on an electrocardiogram. Echocardiography revealed severe functional mitral regurgitation (MR).

The regurgitant flow showed a quadriphasic temporal pattern, characterized by early systolic, end-systolic, post-extrasystolic and diastolic components (Figures 1 and 2). Curiously, colour M-mode Doppler imaging of transmitral flows depicted the image of a galloping horse

Figure 1) Echocardiography revealing severe functional mitral regurgitation. The regurgitant flow showed a quadriphasic temporal pattern, characterized by early systolic (A), end-systolic (B), post-extrasystolic (C) and diastolic components (D)

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Figure 2) Colour M-mode Doppler image of transmitral flows, depicting the image of a galloping horse (top). Echocardiography revealed severe functional mitral regurgitation, which showed a quadriphasic temporal pattern, characterized by early systolic, end-systolic, post-extrasystolic and diastolic components (bottom). LV Left ventricular; MR Mitral regurgitation

(Figure 2). Higher grades of MR severity and increasing left ventricular filling pressures associated with diastolic dysfunction yield progressive changes in transmitral flow dynamics (1,2). These modifications concur to resemble a horse-like image in the colour M-mode Doppler transmitral pattern, and this can be favoured by retrograde atrial activation after premature ventricular beats (3). This sign may be indicative of MR severity and advanced diastolic impairment, configuring an intriguing visual correlate of the auscultatory gallop rhythm.

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