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A case of an acute mitral regurgitation: differential echocardiographic diagnosis with the chronic form.

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Topic(s):
Valvular Heart Disease – Pathophysiology and Mechanisms

Citation:
A 63 years old man came to Emergency Department because of breathlessness after fifteen days of worsening dyspnea. At medical visit, he had cardiac systolic heart murmur (IV/VI), rales at left inferior thoracic field and tachycardia. The arterial blood gas analysis demonstrated an initial compensated respiratory acidosis, while the chest x-Ray showed interstitial pulmonary congestion and lower left pleural effusion.

An echocardiogram showed severe mitral regurgitation (MR) due to chordal rupture with P2 flail causing an eccentric jet directed towards the interatrial septum. The flow was easily detectable with continuous Doppler and graded as severe by quantitative methods. Interestingly the echocardiography findings were suggestive for acute MR. Indeed at continuous wave Doppler we found an early peak and low-velocity triangle shaped MR, due to low left ventricular-atrium gradient and reduced atrial compliance. Moreover a very high (78%) left ventricle (LV) ejection fraction and hyperdynamic ventricle was visualized associated with tachycardia and hypotension. In accordance with severe increase of LV diastolic pressures a restrictive pattern of the diastolic mitral flow and low cardiac output were also recorded.

The patients was then treated with non invasive ventilation, diuretics. After stabilization a coronary angiography and an early surgical intervention were performed with triangular resection of P2, annuloplasty (Physio Ring n.30) and aorto-coronary bypass (LIMA-LAD) because of significant stenosis of left anterior descending artery. The result was a trivial mitral regurgitation with a mild reduction of left ventricle systolic function.

This case shows an unusual presentation of acute MR with severe decompensation, hypotension and severe pulmonary hypertension. These findings were clinical findings were associated with severe MR due to P2 flail with very small LV, high LV filling pressures and very low LV-left atrium gradient. This atypical clinical and Echo-Doppler presentation of MR with acute chordal rupture differs from the well-known Echo-Doppler patterns of chronic condition characterized by LV and LA adaptation to volume overload.
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