

Successfully operated ischemic left ventricular wall rupture in a patient under chronic steroid treatment

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A 59-year-old woman, with history of chronic prednisone therapy for rheumatoid arthritis, was admitted to the hospital for non-ST-segment elevation myocardial infarction (NSTEMI). Coronary angiography showed complete distal occlusion of the narrow (1.5 mm) circumflex coronary artery. Successful coronary balloon angioplasty was performed. Transthoracic echocardiography (TTE) showed reduced left ventricular ejection fraction of 40% with the akinetic posterior wall and moderate to severe mitral regurgitation due to restriction of the posterior leaflet (Figure 1A). On the third day of hospitalization, the patient experienced a syncopal episode with severe hypotension. TTE showed a pericardial effusion (30 mm in thickness) (Figure 1B), a diastolic collapse of the right ventricle (RV) and right atrium, plethoric inferior vena cava with minimal respiratory variation, and exaggerated respiratory cycle changes in mitral and tricuspid valve inflow velocities. Due to the inability to remove the organized hematoma through a minithoracotomy, urgent full sternotomy and pericardial drainage were performed, revealing 600 ml of hematoma and hemorrhagic fluid.

After surgery, TTE showed a small, residual hematoma in the pericardium, with no signs of cardiac compression. Severe ischemic mitral regurgitation was confirmed. During the following 10 days, no recurrence of pericardial fluid was noted on serial TTE studies, and the patient was hemodynamically stable.

Another follow-up TTE showed a new defect in the posterior wall of the left ventricle (LV, diameter of 8–10 mm), localized between

the papillary muscles (Figure 1C). Doppler color imaging suggested blood flowing into a dyskinetic thin-walled cavity measuring 25 × 20 × 15 mm. In comparison to several previous studies, there was visible progression of the lesion in this area, initially evident as a small indentation in the posterior wall (Supplementary material, Videos S1, S2). The suspicion of cardiac rupture and formation of pseudoaneurysm was raised. An urgent magnetic resonance study confirmed the suspicion of LV wall rupture. In addition, there was a suspicion of necrosis and stretching of the papillary muscle, with risk of pending rupture (Figure 1D).

Despite the lack of clinical symptoms, the patient was urgently operated on. All findings have been confirmed during surgery. After opening the chest, the LV ruptured completely (Figure 1E). The mitral valve was replaced with ATS 27 M mechanical prosthesis, and left ventricular reconstruction was performed using felt pledgets (Figure 1F).

LV free wall rupture (LVFWR) is a rare mechanical complication of myocardial infarction, which may progress rapidly despite the absence of clinical signs, leading to sudden death [1, 2]. A few clinical studies showed that exposure to corticosteroid treatment might predispose to LVFWR, possibly as a result of increased infarct size, impaired scar formation, and free wall thinning [3]. The patient presented a subacute variant of LVFWR marked by initial limited pericardial bleeding, which is reported in one-third of cases. Although cardiovascular magnetic resonance is an excellent diagnostic tool for anatomic evaluation

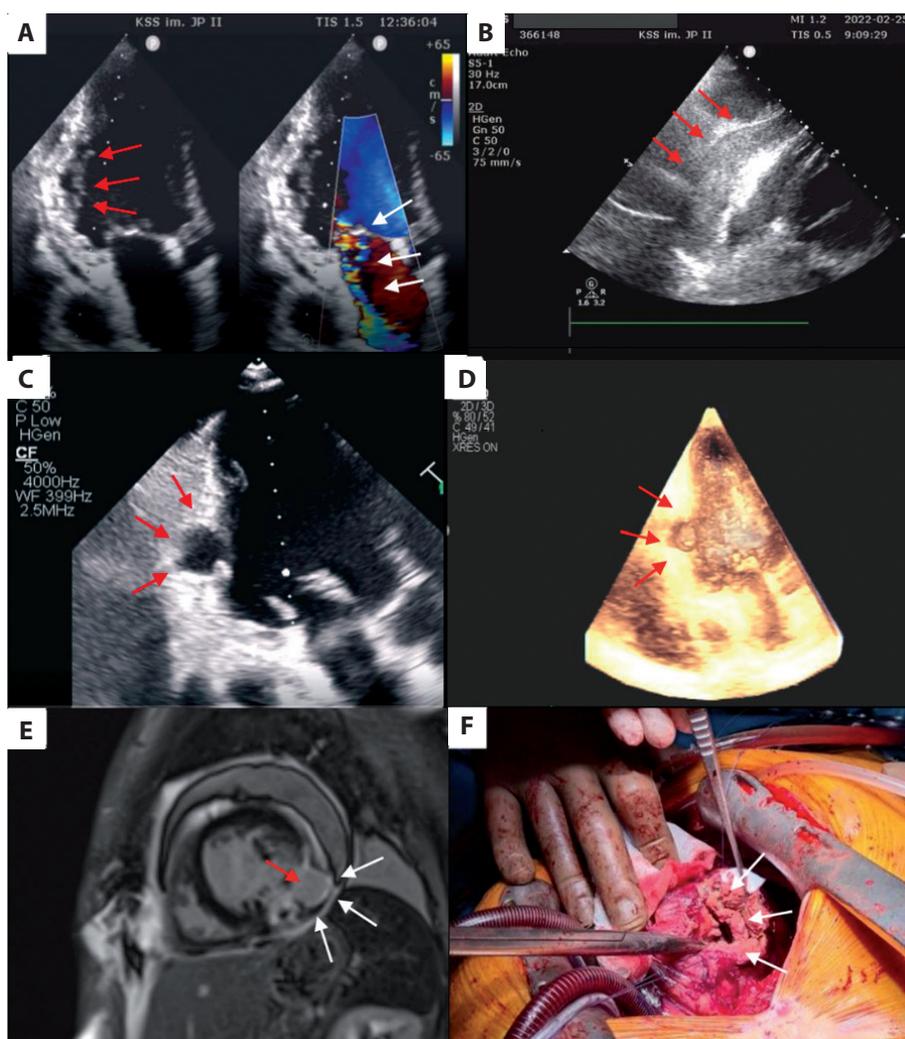


Figure 1. **A.** Akinesis and a small indentation in the posterior wall (red arrows) and moderate to severe mitral regurgitation (white arrows). **B.** Pericardial effusion (red arrows). **C. D.** Dyskinetic thin-walled cavity measuring $25 \times 20 \times 15$ mm (TTE 2D, TTE 3D) (red arrows). **E.** Aneurysm in the inferolateral wall (red arrow) due to ischemic transmural damage — LGE T1-weighted image (white arrows). **F.** Left ventricular free wall rupture (white arrows) during operation

Abbreviations: LGE, late gadolinium enhancement; TTE, transthoracic echocardiography

of this uncommon complication, our report highlights that repeated echocardiography with a comparison of subsequent recordings (and not only text reports) is the optimal diagnostic method in patients after pericardial bleeding before discharge [4, 5].

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/kardiologia_polska.

Article information

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