

Successful surgery for lateral left ventricular wall rupture with severe mitral insufficiency resulting in cardiogenic shock

Skuteczne leczenie kardiochirurgiczne pęknięcia ściany mięśnia lewej komory i ciężkiej niedomykalności zastawki mitralnej u pacjenta z wstrząsem kardiogenym

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A 68-year-old female was admitted to the intensive cardiac care unit with acute (6 h from pain onset) lateral myocardial infarction (MI) with ST elevation and cardiogenic shock, treated with successful circumflex stenting. On day 5, she developed pulmonary oedema and new systolic murmur 4/6 over apex. Transthoracic echocardiography (TTE) revealed a wide rupture of the left ventricular (LV) lateral wall with pseudoaneurysm entry of 46 mm (Fig. 1). A severe mitral regurgitation due to extreme mitral leaflets

restriction was the predominant haemodynamic disorder (Fig. 2). The patient was supported with an intraaortic balloon and immediately transferred by air to the cardiosurgical unit, where successful reconstruction of the left ventricle with Dor's method and mitral annuloplasty with a 28 mm ring was performed. Control contrast TTE and magnetic resonance imaging two weeks later showed a small pericardial patch leak with residual pseudoaneurysm of 18 mm diameter with LV ejection fraction of 34% and insignificant mitral regurgitation (Figs. 3, 4). This case illustrates the successful treatment of a severe mechanical complication with unusual pathophysiology resulting in functional NYHA class II eight months after surgery. A delay in hospital admission for acute MI is often associated with higher mortality, severe complications such as heart rupture (HR) with an incidence as high as 6% in the prereperfusion era, 1–4 accounting for up to 30% of hospital mortality. A free wall HR occurs in 0.45% of patients with MI treated with percutaneous coronary intervention (PCI), although primary PCI is not independently related to HR. The main risk factors for HR are: ST-segment elevation/left bundle branch block; ST-segment deviation; female sex; previous stroke; positive initial cardiac biomarkers; and older age. TTE is the first line tool for a suspected myocardial rupture, and intravenous echocardiographic contrast agent may be useful for the evaluation of the development of an LV pseudoaneurysm (LVP). However, contrast-enhanced myocardial resonance imaging helps to delineate the location and extent of the myocardial rupture, providing valuable structural and functional information in the assessment of LVP. Prompt diagnosis and early surgical intervention is essential for patients with a large or expanding LVP due to the high propensity for fatal rupture.

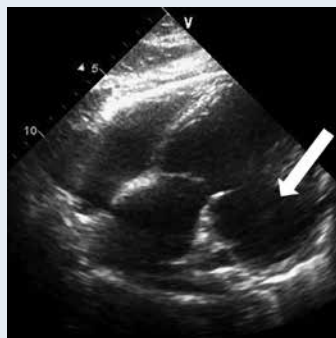


Figure 1. Transthoracic two-dimensional echocardiography: modified apical four-chamber view — a large pseudoaneurysm (arrow) with rupture of the lateral wall (46 mm in diameter)

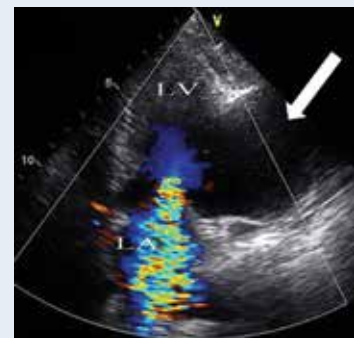


Figure 2. Transthoracic two-dimensional echocardiography: apical four-chamber view — a large pseudoaneurysm (arrow) of left ventricle (LV) with colour Doppler flow mapping indicating severe mitral regurgitation; LA — left atrium

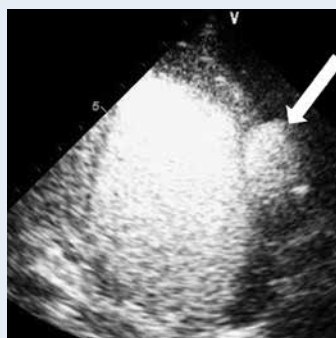


Figure 3. Post-operative transthoracic two-dimensional contrast echocardiography: modified apical four-chamber view with the contrast entering the large pseudoaneurysm (arrow) of left ventricle



Figure 4. Post-operative cardiovascular magnetic resonance imaging demonstrating communication between the left ventricle and the lateral wall chronic pseudoaneurysm (arrow)

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