CASE REPORTS

VENTRICULAR PSEUDOANEURYSM AFTER MYOCARDIAL INFARCTION: A CASE REPORT

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INTRODUCTION

A 66-year-old female patient was admitted to hospital care in March 2021 due to aggravating fatigue and dyspnoea. Her past medical history was relevant for chronic anaemia, smoking, dyslipidaemia, antiphospholipid syndrome and lupus-like mixed connective tissue disease, for which she was taking corticosteroids. She had suffered an acute coronary syndrome in August 2020, complicated with post-infarction pericarditis; at the time, coronariography diagnosed moderate disease of the anterior descending artery and occlusion of the circumflex artery. Echocardiography showed a discontinuity in the lateral and posterior walls of the left ventricle to a thin walled, loculated cavity, with doppler blood flow (Figure 1). A diagnosis of pseudoaneurysm was assumed, and the patient was transferred to our centre for surgical treatment.

After median sternotomy, extensive pericardial adhesions were debrided to free the heart from the pericardial sac and expose its lateral and posterior walls, where a pearl-coloured protrusion appeared right below the atrioventricular junction. After aorta and both vena cava cannulation for institution of cardiopulmonary bypass, the aorta was clamped, and the heart stopped. Incising the thin wall of the pseudoaneurysm exposed a large thrombus rugging its interior surface, justifying the thick appearance on initial echocardiogram. Removing the thrombus exposed the opening to the base of the left ventricle, through which mitral valve cords were visible in their entire length (Figure 2). This wall was completely removed and 12 teflon-pledgetted 3/0 polypropylene sutures were passed on the border of the discontinuity ensuring adequate margins so that only viable myocardium was pierced. Special care was taken while handling and passing sutures in the most posterior border of the circular defect, so that no damage was imposed on the circumflex artery or the mitral valve. The sutures were then used to anchor a bovine pericardial patch that sealed the left ventricle cavity. A continuous 4/0 polypropylene suture reinforced the patch attachment to the ventricular wall. The result is shown in Figure 3.

Post operatory transthoracic echocardiogram revealed no discontinuities in the left ventricular wall and no relevant mitral regurgitation (Figure 4). The patient had an uneventful hospital recovery and was discharged home on the fifth postoperative day. She maintains a good health condition two years after the surgery.

DISCUSSION

Pseudoaneurysms form when a ventricular free wall rupture is contained by localized pericardial adhesions or scar tissue. Most often, they result from transmural myocardial infarctions, but may occur after surgery (especially mitral valve surgery), trauma or infection that led to ventricular wall weakness and rupture.[1] Ventricular pseudoaneurysms differ from true ventricular aneurysms as their wall contains no endocardium or myocardium, hence their higher risk for sudden rupture with catastrophic consequences. For this reason, ventricular pseudoaneurysms require urgent intervention, different from true aneurisms, usually treated conservatively or on a scheduled basis.[2]

Diagnosis may be difficult because symptoms, which are not always present, are unspecific and like those reported by patients with more common forms of heart disease: dyspnoea, heart failure, chest pain. Atypical symptoms, like dizziness or cough, have also been reported. Initial physical examination may be normal and the classical to-and-fro heart murmur from blood flowing in and out of the pseudoaneurysm may or not be present.[3] Electrocardiogram findings are nonspecific and chest roentgenogram may show cardiomegaly. Traditionally, left ventricle angiography provided initial diagnosis. More recently, both computed tomography and magnetic resonance imaging (MRI) provide excellent

anatomical detail and are useful during workup and surgical planning. MRI may be the preferred exam as it is radiation-free and may prove helpful in distinguishing a true ventricular aneurysm from a pseudoaneurysm. Echocardiography with Doppler study is a safe and readily available exam which provides dynamic assessment of the cavity and its vascularity; anatomical benefit may be retrieved from a transoesophageal study, given the typical locations of false aneurysms on the inferior, posterior, and lateral myocardial wall.[1;4]

Corrective surgery is the preferred treatment for pseudoaneurysms. Mortality rates of up to 35% have been described with surgery in the past, but more recent reports lower the figure to 10%.[5] Of interest, percutaneous transcatheter LV closure is also an alternative for patients who are not candidates for surgery.[6]

CONCLUSION

Left ventricle pseudoaneurysms are a rare and possibly fatal mechanical complication of extensive myocardial infarction, but surgical correction offers a definitive treatment and should be offered to patients deemed fit for surgery.

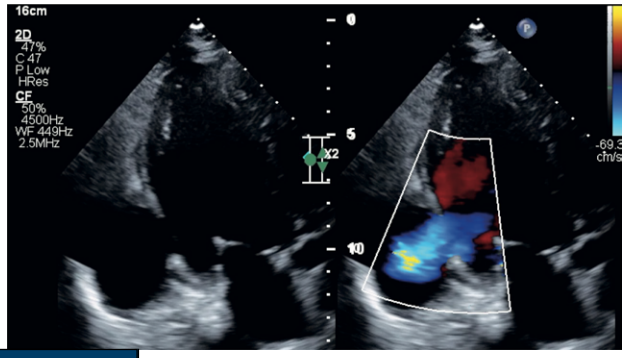

Figure 1 *Transthoracic Doppler echocardiogram showing a blood-filled, thin-walled protrusion (*) from the posterolateral wall of the left ventricle (LV).*

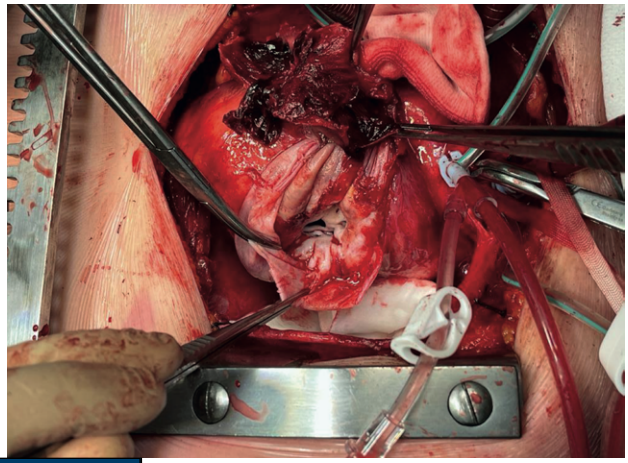

Figure 2 *Surgical view of the discontinuity on the left ventricle wall, after removal of the fibrous wall and thrombus, exposing the ventricular cavity and the mitral valve apparatus (MV).*

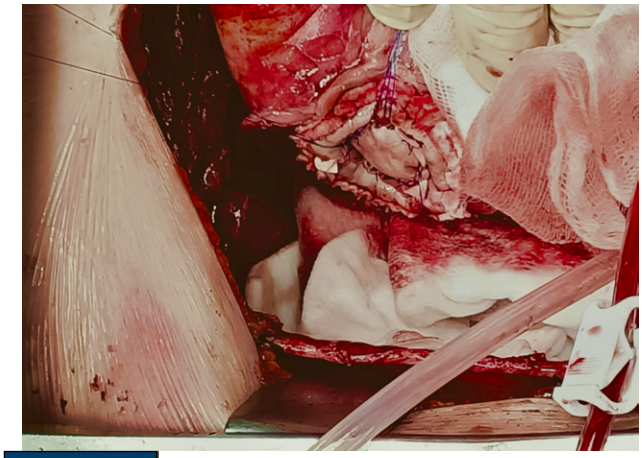

Figure 3 *Intraoperative photograph showing a bovine pericardial patch sutured to the borders of the pseudoaneurysm neck, after the removal of its wall, to close the defect on the left ventricular wall.*

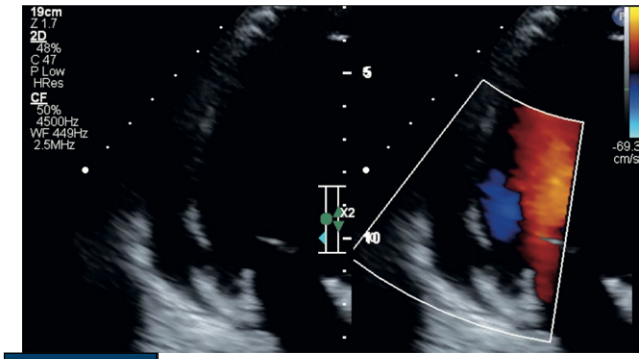

Figure 4 *Transthoracic Doppler echocardiogram performed before patient discharge. No discontinuities on left ventricle wall or mitral valve regurgitation were found.*

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