Intramyocardial Dissection with Rupture of the Right Ventricle After an Acute Myocardial Infarction — A Rare Complication Diagnosed by Transesophageal Echocardiography

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Introduction

Mechanical complications of acute myocardial infarction include free-wall rupture, inter-ventricular shunt and acute mitral regurgitation. Only a few cases of intramyocardial dissection of the right ventricular wall, have been reported[1,2]. In the case we describe, a 'pseudo channel' was formed from the infarcted posterior wall through the right ventricle wall with rupture into the pericardium.

Case History

A 69-year-old male was admitted to the Emergency Room in cardiogenic shock after complaining of dyspnea and intense precordial pain. The ECG showed Q waves in the inferior leads. Transthoracic echocardiography showed good left ventricular function with akinesis of the basal inferior wall and a small pericardial effusion suspected to be hemorrhagic. A transesophageal echocardiography was performed due to an elevated D-dimer level and a high clinical suspicion of pulmonary embolism. Surprisingly, an intramyocardial channel originating from the akinetic infero-posterior wall of the left ventricle, leading to the right ventricle with intraluminal flow (Fig. 1(a) and (b)) was detected, suggesting a diagnosis of intramyocardial dissection from the left ventricle through the right ventricular wall into the pericardium. The patient was referred for urgent surgery; intra-operatively a huge clot that resembled a 'placenta', which covered all the cardiac chambers was found, along with a friable and hemorrhagic zone of the right ventricle with signs of a recent infero-posterior infarct. The right ventricle was reconstructed with a bovine pericardial patch with glue reinforcement.

Evolution

One month later a transthoracic echocardiography showed a severe deformation of the akinetic segments of the left ventricle and moderate mitral regurgitation due to dilatation of the mitral ring. A transesophageal echocardiography was performed, revealing a basal pseudoaneurysm with an adherent thrombus inside it (Fig. 2). However, the patient refused surgery. He returned with signs of right heart failure a month later. A large heterogenous mass compressing the right ventricle with a linear structure within it was detected. Dehiscence of the pericardial patch was suspected and the patient underwent surgery with a LIMA graft to the LAD, a prosthetic valve in the mitral position and repair of the pseudoaneurysm. The patient died 2 months later, after an episode of pulmonary edema with autopsy revealing large vegetations and dehiscence of the prosthetic valve.

Discussion

In the very few cases of complex intramyocardial dissection described in the literature[1,2], the point of entry started at the infarcted inferior or posterior wall of the left ventricle, progressed through the septum, reentering in the right ventricle. In our patient, intramyocardial dissection occurred with subsequent rupture of right ventricular free wall into the pericardium. Death due to refractory heart failure occurred in all the cases of intramyocardial dissection, first reported by Scanu. Transesophageal echocardiography may be advantageous in these cases as it allows a complete and simultaneous analysis of both ventricular cavities in the transgastric views[3] demonstrating the intramyocardial...
channels with flow as described here. Although pseudoaneurysms are infrequent, they can lead to rupture at any time\(^4\). The disruption of the pseudoaneurysm in our patient was contained due to the reinforcement by

the glue used during the first surgery along with a thrombus, forming a mass that compressed the right heart chambers.

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**References**


