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CASE REPORT

Left ventricular pseudoaneurysm – a challenging diagnosis☆

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Abstract Left ventricular pseudoaneurysm is a rare complication of acute myocardial infarction, associated with high mortality. However, it can present in a non-specific manner, complicating and delaying the diagnosis.

The authors present the case of a 65-year-old patient, hypertensive, with no other known relevant medical history, who presented with chest pain, cough and left pleural effusion, initially attributed to a pulmonary process. However, these were in fact the result of a left ventricular pseudoaneurysm following silent acute myocardial infarction. The diagnosis was suspected on echocardiography and confirmed by cardiac magnetic resonance imaging, and the patient underwent successful surgical pseudoaneurysm repair.

This case illustrates an atypical presentation of a left ventricular pseudoaneurysm, in which the manifestations resulted from pericardial and pleural extension of the inflammatory process associated with contained myocardial rupture. The case demonstrates the need for a high index of suspicion, and the value of imaging techniques to confirm it, in order to proceed with appropriate surgical treatment, and thus modify the course of the disease.

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PALAVRAS-CHAVE
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Pseudoaneurisma ventricular esquerdo – um desafio diagnóstico

Resumo O pseudoaneurisma do ventrículo esquerdo é uma complicação rara do enfarte agudo do miocárdio, associada a elevada mortalidade. No entanto, pode manifestar-se de modo inespecífico, dificultando e atrasando o seu diagnóstico.

Os autores apresentam o caso de um doente de 65 anos, hipertenso, sem outros antecedentes relevantes conhecidos, em que toracalgia, tosse e derrame pleural esquerdo, inicialmente atribuídas a um processo pneumológico, foram as manifestações de um pseudoaneurisma do ventrículo esquerdo, após enfarte agudo do miocárdio silencioso. O diagnóstico foi suspeitado por ecocardiografia, confirmado por ressonância magnética cardíaca e o doente foi submetido a cirurgia de reparação do pseudoaneurisma com sucesso.

Este caso ilustra uma forma de apresentação atípica de um pseudoaneurisma do ventrículo esquerdo, em que as manifestações resultaram da extensão pericárdico-pleural do processo inflamatório associada à rotura miocárdica contida. O caso demonstra a necessidade de suspeitar o diagnóstico e o valor dos vários exames de imagem para a confirmação do mesmo, de modo a possibilitar a terapêutica cirúrgica adequada e assim modificar o curso da doença.

Introduction

Left ventricular pseudoaneurysm is a rare mechanical complication of acute myocardial infarction that results from myocardial rupture contained by the adjacent pericardium, and is associated with high mortality. It can develop in individuals without previous clinical events and have a non-specific and insidious presentation. Surgical repair can modify the course of the disease, and so prompt diagnosis is of considerable clinical importance.[1,2]

Case report

The authors present the case of a 65-year-old man, hypertensive, who was admitted to the emergency department with pleuritic left chest pain and nonproductive cough that had progressively worsened over the previous three months. He was feverish, tachycardic, and polypneic, with reduced breath sounds in the lower third of the left hemithorax. There were no signs of pulmonary congestion, abnormalities on cardiac auscultation, or peripheral edema. Laboratory tests revealed leukocytosis 11 000/μl, C-reactive protein 10.50 mg/dl and troponin <0.02 μg/ml. The chest X-ray showed a slight opacity of the lower third of the left lung, suggesting pneumonia with pleural effusion. This possibility was supported by thoracic computed tomography (CT), which revealed a left pleural effusion and thickening of the pleural membranes with high contrast uptake, suggesting an inflammatory process associated with atelectasis or possible consolidation of the adjacent pulmonary parenchyma. Thoracentesis produced a liquid with the appearance of exudate, but cultures were negative. Other microbiological studies were also negative, including cultures from blood, expectorate, bronchoalveolar lavage and transbronchial pulmonary biopsy. Despite multiple courses of antibiotics, including tuberculostatics, the patient's fever persisted and inflammatory markers remained elevated.

From the time of admission, the patient presented pathological Q waves and negative T waves in III and aVF on the electrocardiogram (ECG), suggesting inferior myocardial scarring. Transthoracic echocardiography showed deformation of the inferior wall, expanding in systole, and apparent reduction in wall thickness, together with a small pericardial effusion, suggesting a pseudoaneurysm rather than a true aneurysm (Figure 1 and Video 1).

Cardiac magnetic resonance imaging (MRI) confirmed a small pericardial effusion, without hemodynamic compromise, with increased signal intensity in the pericardial space in perfusion sequences, thrombotic material adhering to the walls in early and late enhancement sequences and pericardial late enhancement. These findings confirmed the diagnosis of pseudoaneurysm of the mid and basal segments of the inferior wall, partially filled with thrombotic material (Figure 2 and Video 2).

Coronary angiography revealed an 80% lesion in the proximal circumflex artery and occlusion of the mid segment of the right coronary artery.

The patient underwent surgery, which showed a large pseudoaneurysm with a thick fibrous neck, containing thrombotic material and extending to the left inferior wall and pericardium. It was repaired using the modified Dor procedure (exclusion of the pseudoaneurysm and placement of a Dacron patch) and aortocoronary venous bypass grafting to the first obtuse marginal, which were uneventful (Figure 3). During the operation the patch was seen to be slightly above the neck, which was very wide. The patient's clinical course was favorable, with remission of chest pain, fever, inflammatory markers and pleural effusion. Control echocardiography showed persisting aneurysm of the inferior wall affecting various components of the ventricular wall (Figure 4 and Video 3).