Rev Port Cardiol. 2017;36(4):307.e1–307.e5

Revista Portuguesa de Cardiologia
Portuguese Journal of Cardiology
www.revportcardiol.org

CASE REPORT

Pericardial mesothelioma presenting as a suspected ST-elevation myocardial infarction

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Received 26 January 2016; accepted 7 March 2016
Available online 23 March 2017

KEYWORDS
Pericardium;
Mesothelioma;
Cardiac tumor;
Pericardial mesothelioma;
Pericardial effusion;
Pericardiectomy

Abstract Primary cardiac and pericardial tumors are rare entities with an autopsy frequency of 0.001-0.03%. Metastases to the heart and pericardium are much more common than primary tumors. Malignant pericardial mesotheliomas account for up to 50% of primary pericardial tumors.

We report the case of a 75-year-old woman with hypertension, dyslipidemia and atrial fibrillation who went to the emergency department due to nonspecific thoracic discomfort of over six hours duration associated with syncope. Physical examination revealed a low-amplitude arrhythmic pulse, no heart murmurs and no signs of pulmonary congestion. The ECG revealed atrial fibrillation with ST-segment elevation in V2-V6, I and aVL. The patient was transferred for emergent coronary angiography, which revealed a long stenosis in the mid-distal portion of the left anterior descending artery. The echocardiogram showed a large pericardial effusion with diffuse thickening of the myocardium. Due to worsening hemodynamics, cardiac rupture was suspected and the patient underwent urgent sternotomy and pericardiotomy with drainage of a large quantity of hematic fluid. The surgeons then identified a large, unresectable tumor occupying the distal half of the anterior portion of the heart.

This is, to our knowledge, the first case report of primary pericardial mesothelioma presenting with suspected ST-elevation myocardial infarction. In this case, direct observation of the tumor led to biopsy and the final diagnosis. These are highly malignant tumors and when diagnosed are usually already at an advanced stage.

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PALAVRAS-CHAVE
Pericárdio;
Mesotelioma;
Tumor cardíaco;
Mesotelioma pericárdico;
Derrame pericárdico;
Pericardiotomia

Apresentação de mesotelioma do pericárdio como suspeita de enfarte agudo do miocárdio com elevação de ST

Resumo Os tumores primários do coração e pericárdio são entidades raras, com uma frequência estimada em autópsias de 0,001-0,03%. A metastização do coração e pericárdio é muito mais comum do que os tumores primários. O mesotelioma maligno do pericárdio pode atingir 50% dos casos de tumores primários do pericárdio.

Mulher de 75 anos, com hipertensão arterial, dislipidemia e fibrilhação auricular. Recorreu ao serviço de urgência por desconforto torácico inespecífico, com mais de seis horas de duração, associado a síncope. No exame objetivo foi detetado pulso arrítmico de baixa amplitude, ausência de sons cardíacos, sem sinais de congestão pulmonar. O ECG mostrou fibrilhação auricular e elevação do segmento ST em V2-V6, I e aVL. A doente foi transferida para angiografia coronária urgente, que mostrou estenose na porção médio-distal da artéria descendente anterior esquerda. O ecocardiograma revelou derrame pericárdico de grande volume com espessamento difuso do miocárdio. Devido a agravamento hemodinâmico, houve suspeita de rutura cardíaca e a doente foi submetida a esternotomia e pericardiotomia emergentes, com drenagem de grande quantidade de líquido hemático. Foi observada existência de volumoso tumor irressecável, ocupando a metade distal da face anterior do coração.

O nosso caso é o primeiro, de que temos conhecimento, que descreve um caso de mesotelioma do pericárdio primário que se apresenta como suspeita inicial de enfarte do miocárdio com supra-ST. Neste caso, a observação direta do tumor permitiu a realização de biopsia e o diagnóstico final. Estes tumores são altamente malignos e, quando diagnosticados, estão habitualmente num estádio avançado.

Introduction

Primary cardiac and pericardial tumors are rare entities with an autopsy frequency of 0.001-0.03%.[1] Metastases to the heart and pericardium are much more common (100-1000 times) than primary tumors, with the underlying malignant origin, in most cases, being carcinoma of the lung.[2] Primary cardiac tumors present with one or more symptoms of the classic triad of cardiac symptoms and signs resulting from intracardiac obstruction, signs of systemic embolization, and systemic or constitutional symptoms.[3] Unlike primary malignant cardiac tumors, which account for up to 25% of cases, malignant pericardial mesotheliomas account for up to 50% of primary pericardial tumors. The mean age of presentation is 46 years and they are twice as common in males than in females. We present the case of a patient with a primary pericardial mesothelioma presenting with ST-elevation myocardial infarction.

Case report

We present the case of a 75-year-old Caucasian woman with a previous history of hypertension, dyslipidemia and a left total hip replacement. She was medicated with lisinopril-hydrochlorothiazide, bisoprolol and atorvastatin. Additionally, she was recently diagnosed with atrial fibrillation and was on warfarin. She had no previous symptoms of cardiac disease. She went to the emergency department of the local hospital due to nonspecific thoracic discomfort and malaise of over six hours duration associated with an episode of syncope. She also reported dyspnea on moderate exertion of two weeks duration. A complete blood count (CBC) and biochemistry revealed anemia and thrombocytopenia, with no other changes. The patient denied other signs or symptoms. Physical examination revealed a low-amplitude arrhythmic pulse, no heart murmurs and no signs of pulmonary congestion, blood pressure of 95/56 mmHg, heart rate of 101 beats per minute, and peripheral oxygen saturation of 85%. The CBC revealed anemia (Hg 8.9 g/dl) and thrombocytopenia (80 000 U/l). Biochemistry results revealed elevated serum cardiac troponin I (0.9 ng/ml; normal <0.04 ng/ml). A chest X-ray revealed a cardiothoracic index of >50% with widening of the mediastinum. The ECG revealed atrial fibrillation with ST-segment elevation in V2-V6, I and aVL. The patient was immediately transferred to a tertiary centre for emergent coronary angiography, which revealed a long stenosis of 50% in the mid-distal portion of the left anterior descending artery (with TIMI 3 flow) and a focal 30% stenosis in the mid segment of the right coronary artery (Figure 1). Left ventriculography revealed a hyperkinetic left ventricle and apical akinesia but otherwise normal systolic function. In the minutes after cardiac catheterization, the patient developed hypotension (systolic blood pressure of 85-90 mmHg) and slight chest discomfort persisted. An echocardiogram was performed and revealed a large pericardial effusion with diffuse thickening of the myocardium, mainly in the anterolateral wall and apex, which was assumed to be adherent fibrin (Figure 2). Due to worsening hemodynamic status and echocardiographic findings in a patient with chest pain, ST-elevation on the ECG and elevated cardiac troponin, cardiac rupture was suspected and the patient underwent urgent sternotomy and pericardiotomy with drainage of a large quantity of bloody fluid followed by hemodynamic recovery. The surgeons then identified a large unresectable tumor occupying the distal