CASE REPORT

Massive pericardial cyst in an athlete

Cisto pericárdico volumoso em atleta

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ABSTRACT

Tumors and cysts are rare in the heart. This report presents the evolution of a pericardial cyst with an atypical radiographic aspect. The diagnosis was suggested by a transesophageal echocardiography and chest CT scan and confirmed after thoracotomy and anatomopathological study in an athlete with significant cardiac decompensation and remission after surgery.

Key words: Mediastinal Cyst; Heart Failure; Thoracic Surgery.

RESUMO

Tumores e cistos do coração são raros. Este relato apresenta a evolução de cisto pericárdico com aspecto radiográfico atípico. O diagnóstico foi sugerido pelo ecocardiograma transesofágico e tomografia computadorizada de tórax e confirmado após toracotomia e estudo anatomopatológico em atleta com descompensação cardíaca significativa e remissão após intervenção cirúrgica.

***Palavras-chave:** Cisto Mediastínico; Insuficiência Cardíaca; Cirurgia Torácica.*

INTRODUCTION

Tumors and cysts of the heart and pericardium are rare.[1] They are essentially congenital defects with an incidence estimated at 1:100,000, accounting for 6-7% of all mediastinal masses.[2,3] The majority of cases are asymptomatic and usually diagnosed incidentally by chest x-ray. Their symptoms may present as dyspnea and chest pain in addition to complications such as cardiac tamponade, which justifies the need for rapid diagnosis and appropriate approach to preventing death.

This report describes a healthy athlete, with cardiac decompensation due to the compression of a large pericardial cyst and who underwent surgical treatment.

CASE REPORT

A 40 year old man, bodybuilder, user of warfarin due to deep vein thrombosis, sought emergency medical care due to progressive dyspnea and dry cough associated with small efforts. The symptoms inception took place three months prior to the consultation, having been subjected to a transthoracic echocardiographic study without diagnostic elucidation. The examination showed signs of systemic and pulmonary con-

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gestion, jugular engorgement, and crepitations in the lower third of both hemithoraces and hepatomegaly.

The transesophageal echocardiography (Figure 1) stressed the extrinsic compression of the right cardiac chambers by a large cystic formation and thickening of the pericardium with hemodynamic repercussion. The function and morphology of the left chambers were slightly reduced and without significant alterations in the heart valves. The thorax tomography with venous contrast (Figure 2) revealed liquid collection of great dimension with calcified borders between the sternum and right ventricle, compressing the cardiac structures.

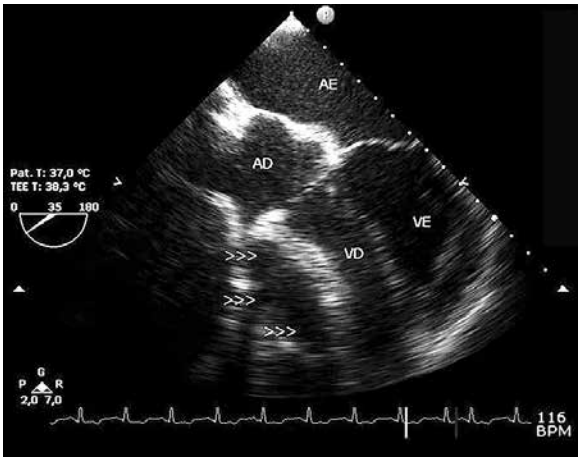

Figure 1 - Image from transesophageal with visualization of the four heart chambers demonstrating extrinsic compression of right chambers by a large cystic formation (arrowheads) and pericardial thickening.
Source: personal archive.

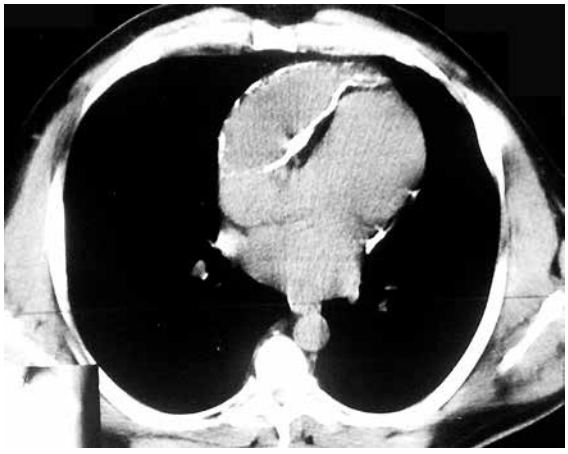

Figure 2 - Image of thorax computed tomography with venous contrast showing voluminous liquid collection with calcified borders between the sternum and right ventricle.
Source: personal archive.

The patient was submitted to thoracotomy due to hemodynamic alterations, with complete excision of the mediastinal mass, with its histopathological analysis confirming the pre-operative suspicion of a large pericardial cyst measuring 10 x 3 x 0.3 cm, with fibrous wall filled with fibrin-hemorrhagic old liquid. Discharge occurred five days after surgery with uneventful postoperative.

The post-surgery transesophageal echocardiography (Figure 3) recorded thickened pericardium, improvement in the biventricular function (left ventricular ejection fraction = 64%), however, a respiratory variation of the tricuspid flow persisted, indicating some degree of hemodynamic involvement.

In the two months follow-up, the patient showed complete symptoms remission.

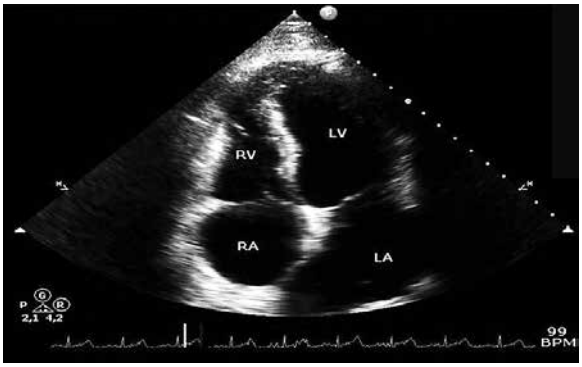

Figure 3 - Image of postoperative transthoracic echocardiogram in an apical view with visualization of the four heart chambers demonstrating thickened pericardium, however, without the cystic formation.
Source: personal archive.

DISCUSSION

Pericardial cysts are unusual congenital anomalies that occur almost exclusively in adults in the fourth and fifth decades of life.[4] They are caused by defects in the development of the celomic cavity, being adhered to the pericardial leaf, although communication with the pericardial cavity happens only in a minority of cases.[5] The cysts vary in diameter from 2 to 5 cm or more and represent 6% of all mediastinal masses and 33% of mediastinal cysts;[6] most cases are asymptomatic and diagnosed incidentally by thorax x-ray. They rarely calcify or rupture. Acquired cysts are extremely rare and may be associated with a mediastinal neoplasm, parasitic infection, traumatic disease, or cardiac surgery.[7]

This case report is about a man at 40 years of age, common age range for the presentation of pericardial cyst, however, with sports activity characterized by multiple thoracic traumas, which includes the possibility of an acquired injury. We highlight the unusual size of the cyst and its anatomopathological characteristics. The hemorrhagic content could suggest rupture or association with the use of oral anticoagulants without implying its gravity.

The most common symptoms, when present, are characterized by: chest pain, dyspnea or paroxysmal tachypnea, cough, and palpitations. Occasionally, they can alter the cardiovascular hemodynamics or lung expansibility and simulate tricuspid stenosis, pulmonary stenosis, or constrictive pericarditis.[8]

In this report, the clinical signs of restrictive biventricular involvement were evident with hemodynamic alterations shown in the echocardiogram.

The transthoracic echocardiogram is generally sufficient to establish the diagnosis; however, occasionally the propedeutics complementation with transesophageal examination is needed in cases of atypical location or difficult visualization. Computed tomography and magnetic resonance imaging also contribute to the differential diagnosis of other mediastinal masses.[9] The aspiration puncture is an alternative for being diagnostic and therapeutic and presenting low mortality. The definitive diagnosis, however, is only reached through the anatomopathology analysis.

Its complications include rupture, cardiac tamponade, obstruction of the right source bronchus, obstruction of the right ventricular outflow tract, and acute heart failure of right chambers.[10]

The spontaneous resolution of pericardial cysts has been described in a few cases, probably by cyst rupture.[11] The conservative treatment should be reserved for asymptomatic cases; in symptomatic cases, percutaneous aspiration and sclerosis with ethanol must be performed, reserving the surgical removal only in cases of failure with this therapy or observation of symptoms with cardiorespiratory effects.[12]

In this case report, surgical removal by thoracotomy was the alternative to treatment in view of the cyst dimensions and hemodynamic involvement.

CONCLUSION

Pericardial cysts are rare, usually asymptomatic and incidentally diagnosed. They may manifest chest pain, dyspnea or paroxysmal tachypnea, cough, and palpitations. In this reported case, the cyst caused hemodynamic repercussion with signs of acute heart failure. Imaging methods provide diagnostic information and help define the proposed therapy, which can be from conservative to surgical resection.

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