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CASE REPORT

Giant high-pressure pulmonary artery aneurysm in an elderly patient with chronic obstructive pulmonary disease

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Abstract The authors report the case of a 74-year-old man, with a history of chronic obstructive pulmonary disease (COPD), GOLD grade 3, stable for the past two decades, who was admitted to our center with severe right heart failure.

The chest radiograph showed moderate heart enlargement mainly of the right atrium and pulmonary artery, similar to previous chest radiographs in the previous 20 years. The transthoracic echocardiogram showed a pulmonary artery aneurysm (PAA), dilatation of the right chambers with pulmonary artery systolic pressure of 52 mmHg, and preserved right ventricular systolic function. A thoracic computed tomography scan confirmed the presence of a giant PAA 72 mm in diameter.

The patient was started on high-dose diuretics, with significant clinical improvement.

After optimization of medical therapy right heart catheterization was carried out with the patient in optimal clinical condition, which revealed mild precapillary pulmonary hypertension with a mean pulmonary artery pressure of 26 mmHg.

On the basis of the clinical and imaging findings a stable, giant, high-pressure, PAA was diagnosed secondary to pulmonary hypertension induced by COPD, with a 20-year follow-up without need for surgical repair, which helped in our decision to maintain medical surveillance. The recent onset of heart failure is explained by the unfavorable evolution of COPD.

This case may change the attitude expressed in previous studies favoring the choice of an invasive approach to treat giant high-pressure PAAs, instead supporting the maintenance of medical treatment.

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PALAVRAS-CHAVE
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Aneurisma gigante da artéria pulmonar de altas pressões em idoso com doença obstrutiva pulmonar crónica

Resumo Os autores relatam o caso de um homem de 74 anos, com história de doença obstrutiva pulmonar crónica (DPOC), categoria C de GOLD, estável nas últimas duas décadas, admitido por insuficiência cardíaca grave de câmaras direitas.

Na radiografia torácica era evidente o alargamento da silhueta cardíaca, em particular da aurícula direita e artéria pulmonar, sendo sobreponível a radiografias torácicas realizadas ao longo dos últimos 20 anos. O ecocardiograma transtorácico documentou um aneurisma da artéria pulmonar (AAP), dilatação das câmaras direitas, com pressão sistólica da artéria pulmonar de 52 mmHg e função sistólica do ventrículo direito preservada. A TC torácica confirmou a presença de um aneurisma gigante da artéria pulmonar com 72 mm de diâmetro.

Iniciou-se terapêutica diurética intensiva, com melhoria clínica.

Após otimização e com o doente clinicamente estável, foi realizado cateterismo cardíaco, que revelou hipertensão pulmonar pré-capilar ligeira com uma pressão da artéria pulmonar média de 26 mmHg.

Acreditamos que os dados clínicos e imagiológicos permitiram diagnosticar um aneurisma gigante da artéria pulmonar de altas pressões secundário a hipertensão pulmonar em contexto de DPOC, atualmente estável e com um seguimento de 20 anos sem necessidade de intervenção cirúrgica, que fundamentou a decisão de manter a vigilância médica, sendo a instalação recente de insuficiência cardíaca explicada pela progressão da DPOC.

Este caso poderá alterar a ideia defendida em estudos prévios, que favorecia a escolha de uma abordagem invasiva no tratamento de aneurismas gigantes da artéria pulmonar de altas pressões, dando mais robustez à manutenção de um tratamento médico.

Introduction

Pulmonary artery aneurysm (PAA) is a rare condition appearing in 1/14 000 of autopsies.[1] However, there are no prospective studies focusing on PAA, so its precise incidence is unknown.[2]

Many patients are completely asymptomatic and are diagnosed incidentally in imaging studies.[3] A high index of suspicion is thus required for an accurate diagnosis.

The treatment of high-pressure PAA remains controversial but most case reports support a trend for surgical intervention due to the high risk of complications.[4]

Case report

We report the case of a 74-year-old Caucasian male followed in our hospital for the past two decades. The patient had a history of chronic obstructive pulmonary disease (COPD), Global Initiative for Chronic Obstructive Lung Disease (GOLD) staging system grade 3, high blood pressure, chronic atrial fibrillation (CAF), chronic right heart failure (HF) classified as New York Heart Association (NYHA) functional class II, and a 60 pack-year history of cigarette smoking.

Reviewing the patient's medical record we found a chest radiograph from 1992 (Figure 1, left), on which mediastinal enlargement was already present.

During the first decade of follow-up the patient remained stable under standard medical treatment for COPD and HF, and anticoagulation for CAF.

In 2000 the patient had a gastrointestinal hemorrhage forcing the suspension of anticoagulation. Pharmacological rate control with digoxin was started for treatment of CAF.

In February 2011 a routine transthoracic echocardiogram revealed moderate to severe dilatation of both atria and mild dilatation of both ventricles with normal thickness of the ventricular walls. There was no significant morphological alteration in valve structures. Moderate mitral regurgitation, mild aortic and pulmonary regurgitation, and mild to moderate tricuspid regurgitation were observed. Pulmonary artery systolic pressure (PASP) was 60 mmHg. Biventricular systolic function was preserved.

On the basis of the echocardiographic findings, pulmonary hypertension due to lung disease (GOLD grade 3) was diagnosed.

A routine thoracic computed tomography (CT) scan (Figure 2) was also performed in February 2011 and revealed pronounced dilatation of the pulmonary trunk, with a maximum diameter of 72 mm, and dilatation of the main pulmonary arteries, 40 mm in diameter on the right and 33 mm in diameter on the left. There was no evidence of thrombus in the central pulmonary arteries.

The imaging exams led to a diagnosis of a giant pulmonary artery aneurysm (PAA). Closer examination of the recent chest radiographs (Figure 1, right) confirmed the