CASE REPORT

Pulmonary Artery Hypertension Masquerading as Hilar Mass

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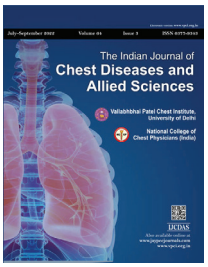

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Abstract

This is a case of a 68-year-old man who came with complaints of chronic dry refractory cough of 3-month duration. He is a known case of atrial septal defect (ASD). Chest radiograph done showed prominent convex pulmonary bay with right hilar mass. Contrast-enhanced computed tomography (CECT) thorax was done. The mass-like lesion was found to be an enlarged and dilated pulmonary artery. The refractory cough was due to compression of larger airways by pulmonary trunk.

Keywords: Artery, Hypertension, Mass, Pulmonary.

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Abbreviations used in this Article

ASD = Atrial septal defect; CECT = Contrast-enhanced computed tomography; PAH = Pulmonary artery hypertension; PAP = Pulmonary artery pressure; RAP = Right atrial pressure; RVSP = Right ventricular systolic pressure.

Introduction

Chest radiography is considered a window into the patient's respiratory system. It is an important tool to evaluate the structures within the thoracic cage, including the airways, lung parenchyma, mediastinum, and pulmonary vasculature.[1] Chest radiography is the most common primary radiological test done for screening for lung disorders, but it has certain limitations, especially in the evaluation of interstitial lung disease and diseases of pulmonary vasculature.[2] In recent times, the use of cross-sectional radiography like CT thorax is widely available and has several advantages over conventional radiography.[3] Nevertheless, radiography is a good tool to assess the lung and projections of the mediastinal tissues. It also gives us a good idea regarding the possible tissue involved and the location, and helps in choosing the next modality to further investigate the lesion.[4] In this report, we are discussing the details of a case where the clinical presentation and chest radiography finding of pulmonary hypertension is masquerading as a hilar mass lesion.

Case Description

A 68-year-old male patient came with complaints of chronic cough of 3 months duration. The cough was primarily dry and gradually progressive in nature. The patient had no history of fever, chest pain, breathlessness, hemoptysis, weight loss, or loss of appetite. He had already been prescribed inhaled bronchodilators, antihistamines, and other symptomatic therapy for cough with not much relief. He was also an ex-smoker who had smoked with 20 pack year history and stopped 10 years back. His past medical history included an ASD since childhood.

On examination, general physical examination was unremarkable. He had a loud P2 on auscultation and an early diastolic murmur. Respiratory examination was within normal limits.

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Routine blood tests that included counts and ESR were within normal limits. Chest radiograph was done that showed a prominent convex pulmonary bay and a right hilar mass-like lesion (Fig. 1). In view of significant smoking history, CECT was done that showed dilated pulmonary trunk and enlarged pulmonary artery at the hilum (Figs 2 and 3). Echocardiography was done that showed the following findings: dilated right and left atria, right ventricle dilatation, 14 mm ostium secundum ASD with left-to-right shunt, severe eccentric tricuspid regurgitation with pulmonary artery hypertension (PAH), and grossly dilated main pulmonary artery and its left and right branches (Figs 4 and 5). The pulmonary artery pressures (PAPs) were recorded through right ventricular systolic pressure+right atrial pressure (RVSP+RAP) by the TR jet method and it was found to be 140 mm Hg.

Discussion

Pulmonary artery hypertension is a hemodynamic state characterized by elevated PAP at rest of 25 mm Hg right-heart catheterization.[5] The two most common causes for the same are chronic lung disease and left-heart disease.[6] Congenital heart disease with systemic-to-pulmonary shunt (L–R) can also cause PAH. Pulmonary artery hypertension is noted in 6–35% of patients with ASD.[7]

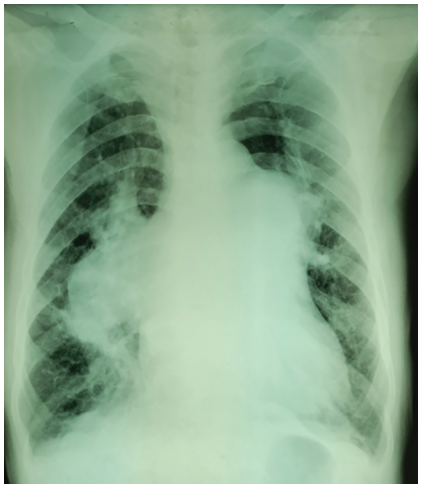

Fig. 1: Chest radiograph image of the patient showing well-defined, convex, dense right hilum and prominent pulmonary bay

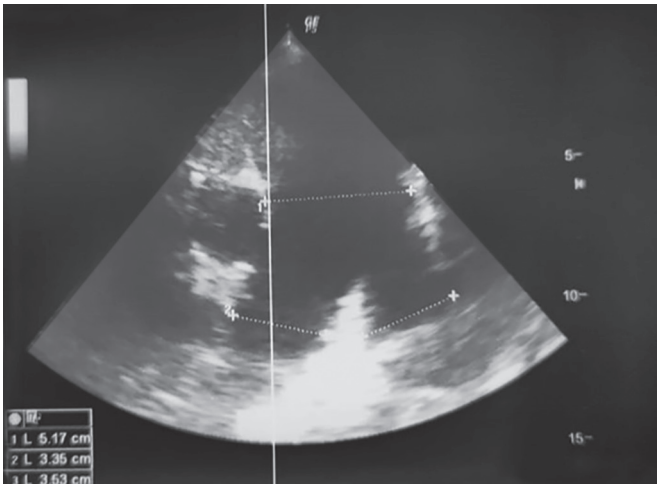

Fig. 4: Echocardiography short axis view at the base of the heart showing massive dilatation of main pulmonary artery and its branches

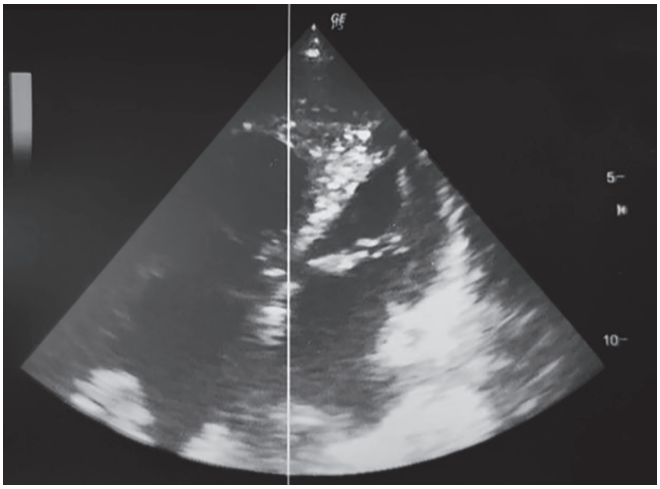

Fig. 5: Echocardiography image showing dilatation of RA and RV with ostium secundum ASD

Fig. 2: Axial CT image of the lungs showing dilated right and left pulmonary artery

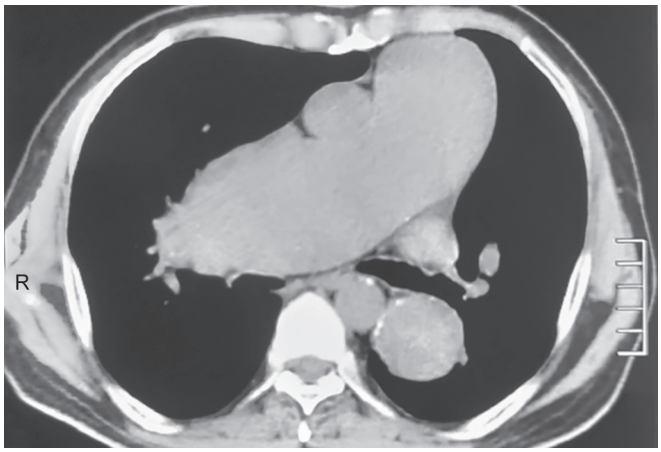

Fig. 3: Axial CT image (mediastinal window) showing dilated pulmonary trunk

The most common presentation of PAH includes chronic dyspnea, fatigue, syncope, and headache. Other less common presentations include hemoptysis and cardiac arrhythmias.[8]

Our patient presented with chronic dry cough, most likely due to compression of the larger airway due to dilated pulmonary artery, which is uncommon. Achouh et al. reported two cases of nonsmoking patients with severe PAH who developed chronic cough, wheezing, and airflow obstruction on spirometry. Several other studies have shown airway obstruction on spirometry in patients with PAH. Studies have also shown this cough due to PAH to be resistant to usual bronchodilators and steroid therapy.[9]

Patients with PAH can have a variety of abnormalities of chest radiography at the time of diagnosis. Most common changes include elevated cardiac apex due to right ventricular hypertrophy, enlarged right atrium, prominent pulmonary bay with convexity, dilated pulmonary arteries at the hilum, and peripheral pruning of vessels.[6] Common differentials for left hilar mass include chronic infectious causes (like tuberculosis, histoplasmosis, blastomycosis, etc.), inflammatory causes (like rheumatoid nodules, sarcoidosis, Wegener's granulomatosis, and lipoid pneumonia), benign lung tumor (like bronchial cystadenomas, papilloma, lipoma, and hemangioma), and pulmonary vascular causes for hilar mass include pulmonary infarct, vascular malignancies like leiomyosarcoma and aneurysms.[10]

In our patient's chest radiography, the dilated pulmonary artery appeared as a dense opacity at the hilum with rounded well-defined margin mimicking a mass. This is an uncommon manifestation of dilated pulmonary descending trunk on chest radiography.

This case highlights two important learning points. One is chronic cough can be due to dilated pulmonary arteries compressing on airways and should be suspected in cases with severe PAH with refractory cough. Another one is dense and rounded opacities can occur in cases of severe PAH mimicking hilar mass.

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