Asymptomatic giant pulmonary artery aneurysm in an elderly male patient

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ABSTRACT

Pulmonary artery aneurysm is rarely seen in clinical practice. It has been reported to develop in patients due to several underlying etiologies. However, the natural history is not yet defined, and management remains controversial. We report a case of giant main pulmonary artery aneurysm (6.06 cm in diameter) in an asymptomatic 75-year-old male who has an incidental abnormal chest x-ray for preoperative evaluation as management of benign prostatic hypertrophy. The patient was managed conservatively. He was discharged home in good general condition to be followed up by echocardiography every 6 months. We conclude that pulmonary artery aneurysm can reach a massive size with no apparent symptoms. The treatment can therefore be conservative as no clear guidelines to support interventional management, particularly in the absence of pulmonary hypertension.

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Pulmonary artery aneurysms (PAA) are rare pathological entity that has not been explored extensively in the medical literature. Giant PAA are rarely encountered and can be defined as aneurysmal formations that exceed 5 cm in diameter.[1] Most of the available data pertaining to PAA are either from case reports or studies from small number of patients. Therefore, there have not been established guidelines in the management of PAA. Moreover, the natural history of low-pressure giant PAA is not clearly documented in the medical literature and consequently, management is often controversial.

Case Report. A 75-year-old Saudi man, non-smoker, who worked all his life as a farmer, was referred to Riyadh Medical Complex, Riyadh, Kingdom of Saudi Arabia, for symptoms of benign prostatic hypertrophy. He was admitted under urology service and cardiology consultation was obtained for evaluation of an abnormal chest x-ray (**Figure 1**). Upon further clinical evaluation, he denies history of dyspnea, orthopnea, cough, fever, chest pain, dizziness, or syncope. He led a healthy life and he was never evaluated medically prior to this admission. In particular, he has neither previous history of central venous catheterization, nor previous penetrating or blunt trauma to his chest. Apart from urinary symptoms of hesitancy, dripping and dysuria, he has occasional arthralgia affecting mainly his knees. He has no history of tuberculosis, syphilis, Behcet's disease, or history suggestive of rheumatic fever. On examination, the patient had a regular pulse with a heart rate of 80/minutes, and blood pressure of 138/84 mm Hg. He was afebrile, and breathing at a rate of 18/minute. He had a left parasternal heave, right ventricular S3, an ejection systolic murmur grade 4/6 associated with a thrill, and early diastolic murmur grade 2/4 over the pulmonary area. He had no ascites or lower limbs edema. Chest x-ray revealed a homogenous rounded opacity in the left

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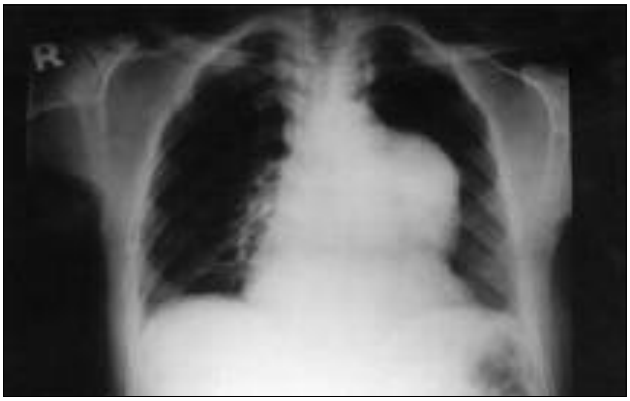

Figure 1 - Chest x-ray showing homogenous rounded opacity in the left pulmonary area.

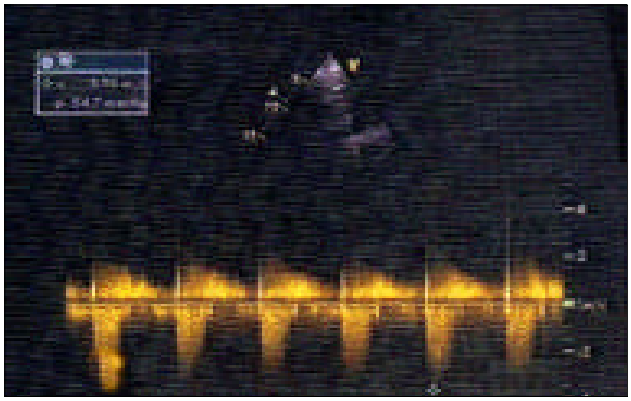

Figure 3 - Doppler velocity showing a peak gradient of 54.7 mm Hg across the pulmonary valve.

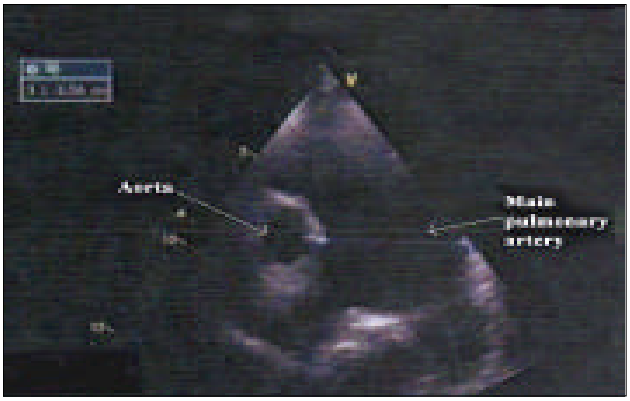

Figure 2 - Double 2 D echo showing huge main pulmonary artery aneurysm measuring 6.06 cm.

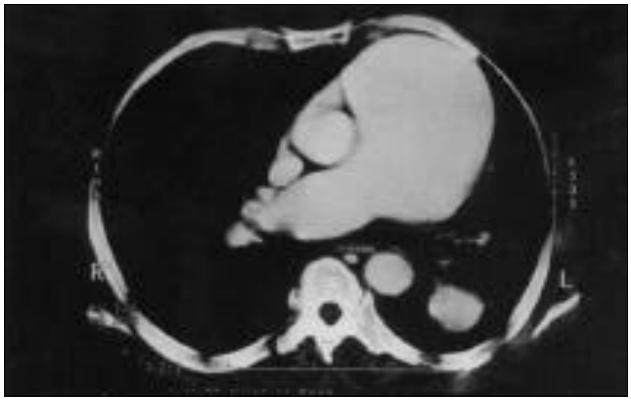

Figure 4 - Computerized tomography scan of the chest showing huge main pulmonary artery aneurysm measuring 6.2 cm.

pulmonary area (**Figure 1**). Electrocardiogram revealed sinus rhythm with marked right ventricular hypertrophy (RVH), and left axis deviation. Transthoracic echocardiogram revealed a large aneurysm of the main pulmonary artery measuring 6.06 cm, with valvular pulmonary stenosis and a 54.7 mm Hg peak gradient (mean 24.2 mm Hg) across the pulmonary valve and intact inter-atrial as well as inter-ventricular septum, there was a mild tricuspid regurgitation and the estimated right ventricular systolic pressure was 38 mm Hg (**Figure 2 & 3**). A contrast enhanced computed tomography (CT) of the chest revealed huge main PAA measuring 6.2 cm (**Figure 4**). The patient was advised against general anesthesia, and in a consultation with the cardio-thoracic surgery, a decision was made for conservative management of his PAA with regular follow-up. Therefore, further evaluation by cardiac catheterization or coronary angiography was not performed.

Discussion. Aneurysms involving the main pulmonary artery and its branches are rare. Only 8 cases of PAA were identified in a large pathology study reported in 1947 by Deterling and Clagett[2] in a review of 109,571 necropsies. The possible underlying etiologies behind the development of PAA are numerous such as arteritis, Behcet's disease, pulmonary artery hypertension, pulmonary valve stenosis, persistent ductus arteriosus, ventricular septal defect, atrial septal defect, and transposition of the great arteries with ventricular septal defect, connective tissue disorders such as Marfan's or the Ehlers-Danlos syndrome, systemic vasculitides, or it may be idiopathic.[1-9] Complications of PAA may be the presenting feature in asymptomatic patient. These complications may be related to thrombosis, embolization, or significant airway obstruction due to extrinsic compression.[10,11] Furthermore, rupture of PAA is a serious and likely to be fatal complication if not managed promptly. Fishman et al[12] reported survival of a 28-year-old woman who had ruptured pulmonary arterial aneurysm and was successfully treated by pericardial patch graft. Although a surgical approach is generally

considered life saving by preventing rupture of the aneurysm, literature is unclear on the possible rupture in the specific situation of a PAA, particularly in the absence of pulmonary hypertension, as demonstrated in our patient. In fact, some reports suggest a conservative treatment for this specific entity.[13] However, the management of PAA has largely been surgical. Reported procedures have included Dacron interposition graft placement, autologous pericardial replacement of the main pulmonary artery, replacement of the pulmonary valve, pulmonary artery plication, and pulmonary arterial aneurysmorrhaphy.[14,15]

In conclusion, the patient's clinical presentation has demonstrated that low pressure PAA can reach a massive size with no apparent symptoms. The treatment may be conservative, particularly in the absence of pulmonary hypertension, as no clear guidelines to support interventional management.

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