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OPIS PRZYPADKU / *CASE REPORT*

Pulmonary artery aneurysm mimicking pulmonary artery dissection detected by multimodality imaging

Tętniak tętnicy płucnej imitujący rozwarstwienie tętnicy płucnej wykryty za pomocą obrazowania multimodalnego

Murat Unlu[1], Sait Demirkol[2], Sevket Balta[2], Ugur Bozlar[3], Ugur Kucuk[2]

[1]Department of Cardiology, Beytepe Military Hospital, Ankara, Turkey
[2]Department of Cardiology, School of Medicine, Gulhane Military Medical Academy, Etlik-Ankara, Turkey
[3]Department of Radiology, School of Medicine, Gulhane Military Medical Academy, Etlik-Ankara, Turkey

Abstract

An idiopathic pulmonary artery aneurysm (PAA) is an uncommon lesion, and is defined when the diameter of the pulmonary trunk is greater than 30 mm in the absence of cardiac or pulmonary etiologies. Idiopathic PAA is generally asymptomatic and has an increased risk for dissection or rupture of the aneurysm. We herein demonstrate two- and three-dimensional echocardiographic and computerised tomographic angiography features of an idiopathic pulmonary aneurysm mimicking a pulmonary artery dissection.

Key words: pulmonary artery aneurysm, multimodality imaging

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Pulmonary artery aneurysm (PAA) is an uncommon lesion, which may be associated with different etiologies including cardiac and pulmonary causes of pulmonary artery hypertension, atherosclerosis, various infections, connective tissue diseases, cystic medial degeneration, trauma, Behcet's disease and Hughes-Stovin syndrome [1]. Idiopathic PAA is diagnosed by the exclusion of concomitant major pathologies. Idiopathic PAA is more rarely encountered than PAA, and is defined as occurring when the diameter of the pulmonary trunk is greater than 30 mm in the absence of a cardiac or pulmonary cause for pulmonary artery dilatation and in the presence of normal pulmonary artery pressure [2]. Patients with idiopathic PAA are generally asymptomatic and have an increased risk for dissection or rupture of the aneurysm, which is a rare but life-threatening event, predisposing to sudden cardiac death or cardiogenic shock [3]. It is diagnosed by echocardiography or other imaging techniques including magnetic resonance imaging and computerised tomographic angiography.

A 23-year-old male patient was admitted to our outpatient clinic because of palpitations and shortness of breath. His medical and family history was unremarkable. The 12-lead electrocardiogram showed a sinus rhythm. Two-dimensional transthoracic echocardiography (2D TTE) short axis view showed aneurysmally dilated main pulmonary artery (Fig. 1A). 2D colour Doppler TTE revealed bidirectional flow in main pulmonary artery (Fig. 1B). In order to evaluate the bidirectional flow in main pulmonary artery, two- and three-dimensional transoesophageal echocardiography (2D and 3D TEE) was performed. The pulmonary valve was floppy and the first 2 cm of main pulmonary artery had a normal diameter. 2D TEE parasternal short axis view showed aneurysmally dilated main pulmonary artery and a membranous structure dividing pulmonary artery into two parts (Fig. 1C) and 2D colour Doppler TEE demonstrated a turbulent flow in this area (Fig. 1D). 3D TEE parasternal short axis view revealed aneurysmally dilated main pulmonary artery and a mem-

Address for correspondence:
Sevket Balta, MD, Department of Cardiology, Gulhane School of Medicine, Tevfik Saglam St., 06018 Etlik-Ankara, Turkey, tel: +90-312-3044281, fax: +90-312-3044250, e-mail: drsevketb@gmail.com
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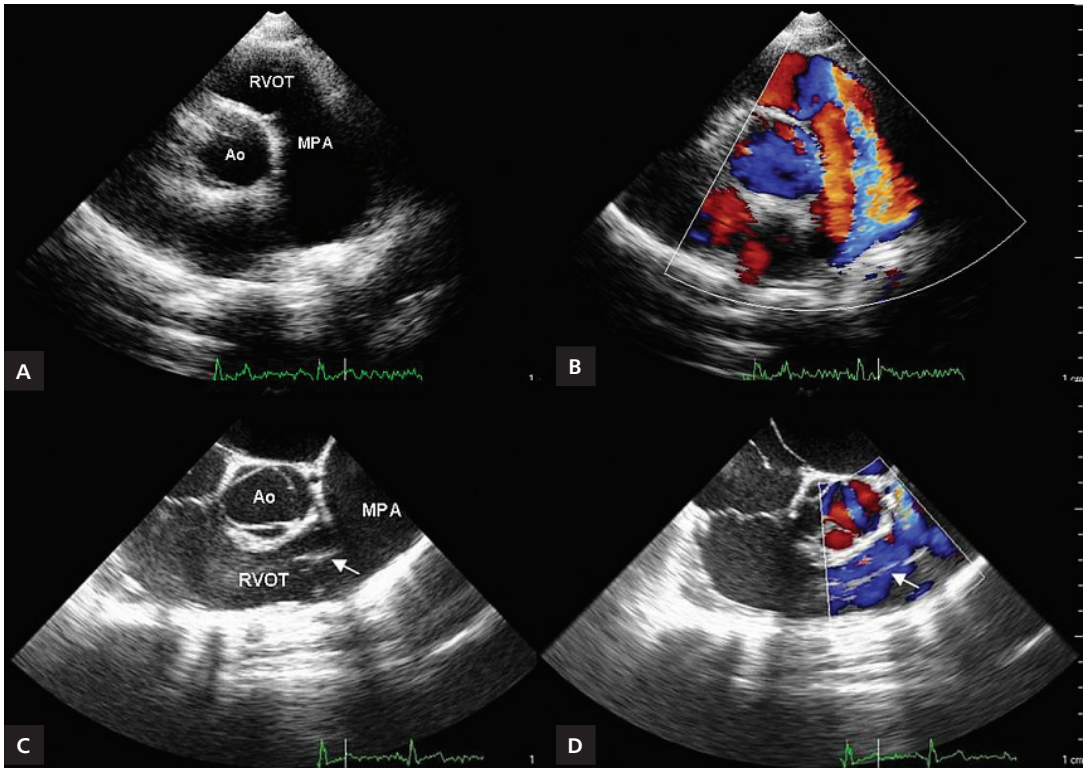

Figure 1. Two-dimensional transthoracic echocardiography (2D TTE) short axis view showing aneurysmally dilated main pulmonary artery (**A**) and 2D colour Doppler TTE revealing bidirectional flow in main pulmonary artery (**B**). Two dimensional transoesophageal echocardiography (2D TEE) parasternal short axis view showing aneurysmally dilated main pulmonary artery and a membranous structure (arrow) dividing pulmonary artery into two parts (**C**) and 2D colour Doppler TEE demonstrating a turbulent flow in this area (arrow) (**D**); Ao — aorta; MPA — main pulmonary artery; RVOT — right ventricle outflow tract

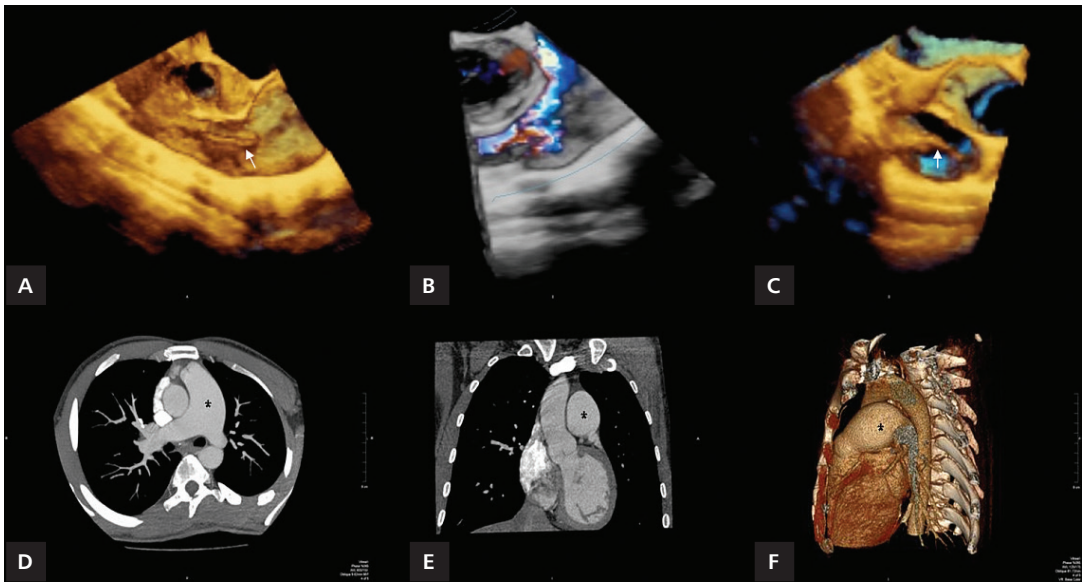

Figure 2. Three-dimensional transoesophageal echocardiography (3D TEE) parasternal short axis view showing aneurysmally dilated main pulmonary artery and a membranous structure dividing pulmonary artery into two parts (**A**, arrow), 3D colour Doppler TEE demonstrating a turbulent flow in this area (**B**) and 3D TEE after manual cropping revealing this membranous structure (**C**, arrow). 64-slice computed tomographic angiographic horizontal (**D**), coronal (**E**) and 3D reconstruction (**F**) images showed pulmonary artery aneurysm and excluded membranous structure and dissection (asterisks)

branous structure dividing pulmonary artery into two parts (Fig. 2A, arrow). 3D colour Doppler TEE demonstrated a turbulent flow in this area (Fig. 2B) and 3D TEE after manual cropping revealed membranous structure (Fig. 2C, arrow). The pulmonary artery trunk was measured as 53 mm at the widest part.

In order to exclude dissection of the pulmonary artery, we performed computed tomographic angiography: its horizontal (Fig. 2D), coronal (Fig. 2E) and 3D reconstruction (Fig. 2F) images showed PAA and excluded membranous structure and dissection (asterisks). Therefore we judged this membranous structure to be a structure adjacent to the pulmonary valve or a reverberation of the pulmonary valve. Although pulmonary artery angiography is considered to be the gold standard, both 2D TEE and 3D TEE also have significant contributions to make to the diagnosis of PAA.

We herein demonstrated 2D and 3D echocardiographic, and computerised tomographic angiographic features of an idiopathic pulmonary aneurysm mimicking a pulmonary artery dissection.

Conflict of interest: *none declared*

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