Ductus diverticulum
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Section: Cardiovascular
Area of Interest: Arteries / Aorta
Procedure: Diagnostic procedure
Imaging Technique: CT-Angiography
Special Focus: Diverticula Case Type: Clinical Cases
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Patient: 40 years, male

Clinical History:
A 45-year-old male patient came to our hospital to perform a thoracic CT for the evaluation of a "focal dilatation" of the aortic isthmus detected in a non-contrast-enhanced CT for the evaluation of the lung.

Imaging Findings:
Contrast-enhanced thoracic CT revealed a focal mm buldge of the aortic inferior contour, at the level of the isthmus, demonstrating symmetric shoulders and obtuse angles. It was orientated towards the left pulmonary artery. No other abnormalities were seen in the thoracic aorta, which displayed normal calibre in the remaining segments.

Discussion:
The ductus diverticulum, also called ductus bump, is believed to be a small remnant of the ductus arteriosum, a structure that links the aorta at its isthmus to the left pulmonary artery. It should have its normal involution after birth. A diverticulum may rarely form at this location, without clinical relevancy. It can be recognizable in 9% of adults [1] in aortograms and is clinically asymptomatic.

Radiographic findings include a soft-tissue opacity at the aortopulmonary window in a postero-anterior chest radiography or a bump-like vascular shadow at the aortic arch in a lateral view. Ductus diverticulum can be demonstrated on CT with intravenous contrast, particularly with coronal and sagittal oblique maximum intensity projections (MIP). It is seen as a smooth outpouching at the level of the aortic isthmus, at the level or distal to the left subclavian artery and directed towards the left pulmonary artery. It shows obtuse angles with the aortic wall and is most commonly visualized in the anteromedial aortic wall [2].

Aneurysms can rarely complicate a ductus diverticulum [3] and surgical intervention is needed if they exceed 3 cm. With this exception, no treatment is recommended for this pathology. The importance of its recognition lies in the distinction with traumatic aortic pseudoaneurysms which constitutes a medical emergency [4].

Differential Diagnosis List: Ductus diverticulum, Aortic pseudoaneurysm, Patent ductus arterium

Final Diagnosis: Ductus diverticulum
References:

Figure 1

Description: Contrast-enhanced CT demonstrating an anterior outpouching at the aortic isthmus with regular borders. Origin: Centro Hospitalar e Universitário de Coimbra, Serviço de Imagem Médica
Description: The aortic outpouching is located in the inferior contour, at the level of the left subclavian artery. It is orientated towards the left pulmonary artery (asterisk), but does not communicate with it.

Origin: Centro Hospitalar e Universitário de Coimbra, Serviço de Imagem Médica
Description: 3D reconstruction demonstrating the aortic diverticulum orientated towards the left pulmonary artery. Origin: Centro Hospitalar e Universitário de Coimbra, Serviço de Imagem Médica