

## Answer to Quiz on page...: Imaging and Case Discussion

### Correct Answer C: Aneurysm of the ductus arteriosus diverticulum

There is a true saccular aneurysm, which projects to anterior inferior (aneurysm of the ductus arteriosus diverticulum [size; 2x2.5 cm]) from distal part of aortic arch on the cardiac computed tomography (CT) images. This defined localization is the typical placement of the ductus arteriosus. When the images are examined with attention, it can be observed that the aneurysm is projecting towards the left branch of the main pulmonary artery but not is related with it. Furthermore, the arcus aorta and the descending thoracic aorta are also elongated and tortuous.

Why the correct answer is not option A? Because penetrating atherosclerotic ulcers occur on a ground of atherosclerosis and ulcers exceed internal elastic lamina in the vessel wall. No atherosclerotic change is observed in the patient as seen in the oblique MPR image.

Why the correct answer is not option B? Because the double aortic arch is congenital disease of the aortic arcus and presents as double arch on left and right side. This patient has a single left aortic arch.

Why the correct answer is not option D? Because the Kommerell's diverticulum is accompanied by the aberrant right subclavian artery (the right subclavian artery originates from distal part of arcus aorta) and there is an aneurysmal dilatation on the origin of subclavian artery. In this patient, the segment in which the left subclavian artery originates from the arcus aorta is natural and there is not an aberrant artery.

### Discussion

The ductus arteriosus diverticulum is a rare pathology of the arcus aorta. It resembles both penetrating atherosclerotic ulcers and saccular pseudoaneurysms. Typical location, projection toward

left pulmonary artery and a true wall are important features for differentiation of ductus arteriosus diverticulum from other pathologies of arcus aorta. Recently the morphological characteristics of these pathologies can be better demonstrated by use of ECG-triggered cardiac CT imaging. Open surgical repair and excision or endovascular stent graft implantation can be performed in the treatment of these aneurysms (1, 2). In our case, when axial/coronal images were evaluated, it was difficult to distinguish the aneurysm from other arcus aortic diseases due to the elongated and tortuous appearance of the arcus aorta; however, the diagnosis was made by showing location and projection of the aneurysm in the high-resolution 3-D images. Later patient was treated with thoracic endovascular aortic repair.

Ferhat Can Piskin, Erol Husyein Aksungur, Kaigeldy Aikimbaev  
Department of Radiology, Balcali Hospital,  
Medical Faculty, Cukurova University, Adana, Turkey

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**Address for Correspondence:** Ferhat Can Piskin, Department of Radiology, Balcali Hospital, Medical Faculty, Cukurova University, Adana, Turkey Email: ferhatcpiskin@gmail.com

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