

ASYMPTOMATIC DOUBLE AORTIC ARCH IN AN ADULT

Felipe Soares Torres^{1,2}, Marcela Alcantara², Carol Cunha²

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1 Unidade de Tomografia
Computadorizada, Hospital de Clínicas
de Porto Alegre – Porto Alegre (RS),
Brazil.

2 Tomoclínica – Canoas, (RS), Brazil.

Corresponding author:

Felipe Soares Torres
E-mail: felipesoarestorres@gmail.com
Porto Alegre, RS, Brazil

A 52-year-old male with a history of aortic ectasia was referred to a computed tomography (CT) scan of the chest. The frontal scout image showed a right aortic arch with slight leftward displacement of the trachea (Figure 1). A CT angiography of the aorta demonstrated a double aortic arch (DAA) with a right dominant component and a smaller, but patent, left arch encircling the trachea and esophagus (Figure 2). A right-sided descending aorta was observed, as well as subclavian and carotid arteries arising from their respective arches (Figure 3). While the esophagus was severely compressed by the complete aortic ring, the patient did not complain of dysphagia or respiratory symptoms.

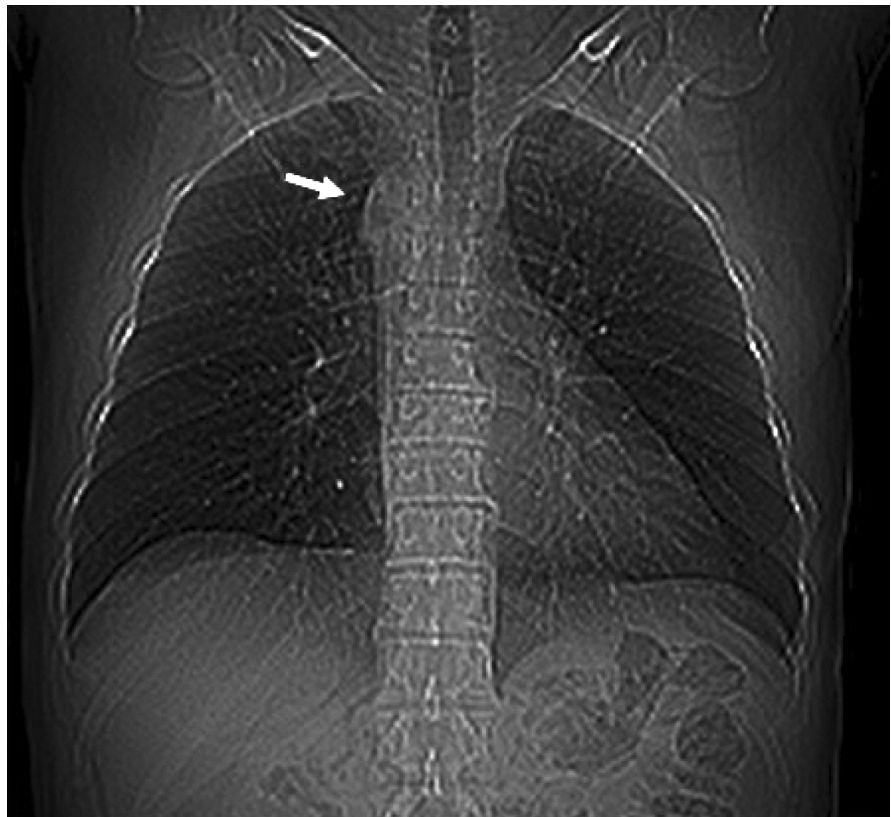


Figure 1: Computed tomography scout image showing a round opacity in the right paratracheal region, suggesting a right aortic arch.

DAA is an uncommon vascular congenital anomaly that develops when there is no break in the hypothetical double arch and the fourth arches and dorsal aorta persist¹. This results

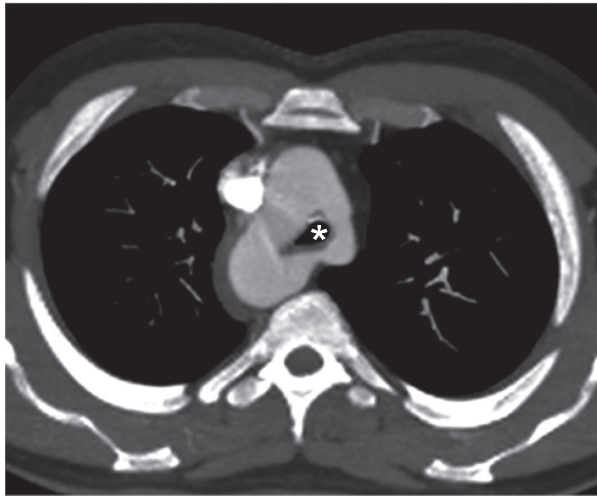


Figure 2: Maximum intensity projection axial reconstruction of the contrast-enhanced computed tomography of the chest showing a patent double aortic arch encircling the trachea (asterisk).

in two arches connecting the ascending and descending aorta, creating one of the most common forms of vascular rings². Although both arches may be patent, a segment of one arch may be atretic, persisting as a ligamentous structure³. The right aortic arch is dominant in 75% of patients, as in the present case. The descending aorta is most commonly on the left side, but it may be at the midline or occasionally on the right side⁴.

We present a rare case of a completely asymptomatic adult with a relatively tight aortic vascular ring. Diagnosis of DAA is usually based on symptoms of dysphagia or airway compression, depending on the tightness of the vascular ring⁵, but occasionally it presents in an asymptomatic adult as an incidental finding. DAA commonly occurs without associated cardiovascular anomalies, but it may be associated with ventricular septal defect, tetralogy of Fallot, truncus arteriosus, transposition of the great arteries or pulmonary atresia¹. Since the patient was asymptomatic and had no other congenital anomalies, no further tests or treatments were carried out at this time.

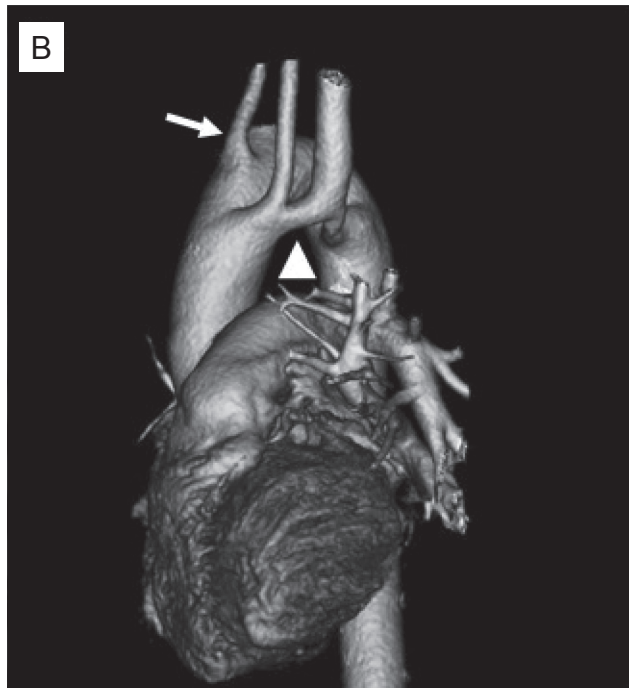
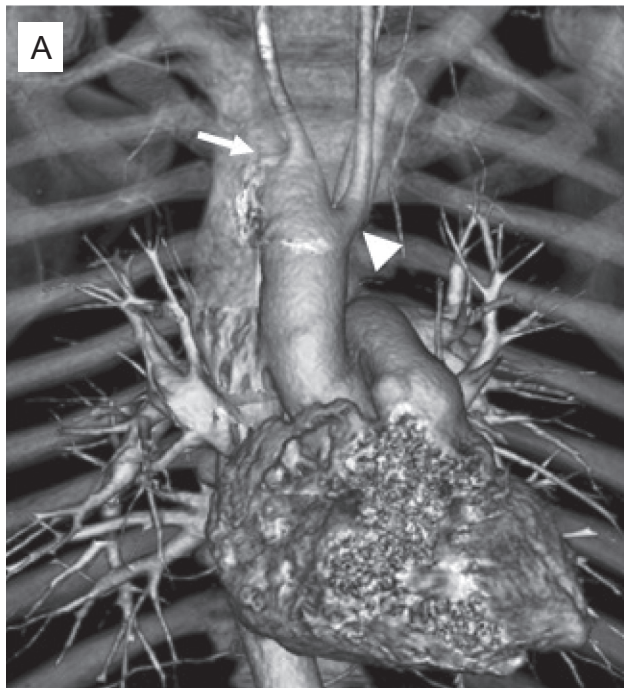


Figure 3: Frontal (A) and rotated (B) projections of 3D volume rendered images of the contrast-enhanced computed tomography of the chest showing the right (arrow) and left (arrowhead) supra aortic arteries arising from the right and left aortic arches, respectively.

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