

## Clinical Image

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# Right circumflex aorta: An extremely rare aortic arch anomalies

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**Keywords:** coronary angiography; aortography; computed tomography angiography; congenital anomalies of the aortic arch.

**Abbreviations:** CAG: Coronary Angiography; CTA: Computed Tomography Angiography.

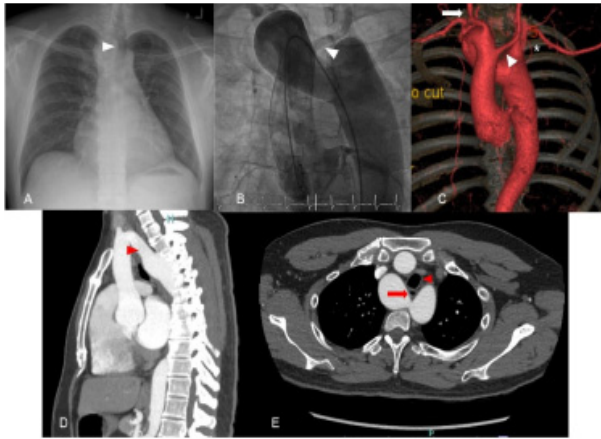
### Clinical image description

A 38-year-old Asian man was referred to our hospital due to a history of decompensated heart failure. Transthoracic echocardiography demonstrated a left ventricular ejection fraction of 29%. The chest radiograph demonstrated an increased cardiothoracic ratio. There was right paratracheal soft tissue density with compression on the right side of the trachea (Figure A, Arrowhead).

We performed coronary angiography (CAG) via the right femoral approach that revealed non-significant coronary artery disease. Regarding the difficulty of performing CAG, we did the aortography that demonstrated anomalous aortic arch. We also identify the left common carotid artery arising from the ascending aorta (Figure B, Arrowhead). 3D reconstruction of computed

tomography angiography revealed left common carotid artery was the first branch that arose from the ascending aorta (Figure C, Arrowhead), followed by the right carotid artery (Figure C, Arrow), the right subclavian, and the aberrant left subclavian arteries (Figure C, Asterisk), respectively. The right arch passed between the superior vena cava and the right side of the trachea and esophagus, crossing over the right main bronchus to join the descending aorta (Figure D, Arrowhead). Mid-esophagus (Figure E, Arrow) and trachea (Figure E, Arrowhead) had anterior displacement by the pressured effect of the aberrant left subclavian artery. Suggestive of right aortic arch with circumflex aorta and aberrant left subclavian artery.

Circumflex right aortic arch is an extremely rare anomaly [1]. Surgical correction is the treatment of choice in symptomatic tracheal or esophageal compression [2,3].



**Figure 1:** Figure A Frontal chest radiograph demonstrated tracheal deviation to the left (Arrowhead). Figure B Left common carotid artery (Arrowhead) originated from ascending aorta Figure C 3D reconstruction of Computed Tomography Angiography (CTA) showed left common carotid artery (Arrowhead) was the first branch, followed by right carotid artery (Arrow), arising from ascending aorta and aberrant left subclavian artery (Asterisk). Figure D Sagittal view of CTA revealed right arch cross over midline entering descending aorta (Arrowhead). Figure E Axial view of CTA demonstrated anterior displacement of the trachea (Arrowhead) and esophagus (Arrow).

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