Right-sided aortic arch with Kommerell's diverticulum: 64-DCTA with 3D reconstructions

A 75-year-old woman was referred with a long history of dysphagia and wheezing. A chest radiograph revealed the presence of bilateral paratracheal stripes of abnormal appearance (fig 1).

Computed tomography angiography with 64 detectors (64-DCTA) of the chest revealed the presence of a right-sided aortic arch with an aberrant retro-oesophageal left subclavian artery arising from a Kommerell's diverticulum (fig 2).

Kommerell's diverticulum can occur in a number of anomalies of the aortic arch system.¹ It may cause symptoms of tracheal or oesophageal compression, but not in all cases.³ In this patient the left subclavian artery arises from a right-sided aortic arch as the fourth branch passing behind the oesophagus to the left arm. 64-DCTA with isotropic submillimetre acquisition allowed high quality 3D volume-rendered images to be generated that readily showed this complex vascular anomaly.

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Learning points

- ▶ A vascular malformation can mimic an upper mediastinal mass on the chest radiograph.
- ▶ 64-DCTA with 3D reconstruction is the gold standard for detecting vascular malformations in adults.

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Figure 1 Chest radiographs. (A) Posteroanterior view showing abnormal bilateral paratracheal stripes. (B) Lateral view showing a superomedial mediastinal mass displacing the trachea forwards.

Figure 2 Three-dimensional (3D) volume-rendered images. (A) Frontal 3D volume-rendered image showing a right-sided aortic arch with a retro-oesophageal left subclavian artery (big arrow) arising from a Kommerell's diverticulum (K). The left (small white arrow) and right (black arrow) common carotid arteries arise from the ascending aorta as the first and second epiaortic branches, respectively. The right subclavian artery (curved arrow) arises as the third epiaortic vessel. (B) Superior 3D volume-rendered image showing the retro-oesophageal course of the Kommerell's diverticulum. The trachea (*), oesophagus (E) and the origins of the right subclavian artery (curved arrow), right common carotid artery (black arrow) and left common carotid artery (white arrow) are shown. (C) Left lateral 3D volume-rendered image showing compression of the oesophagus (broken red line) at the level of the Kommerell's diverticulum (K). The trachea (*) is displaced anteriorly.