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Medical Imagery

Silent Double Aortic Arch

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A previously healthy 59-year- old female presented with right chest pain with radiation to anterior chest and diaphoresis for 1 day. A computed tomography angiography of the chest showed the aorta bifurcated at the upper end of the ascending aorta to form a double aortic arch, and this vascular ring encircling the trachea and esophagus, and both arches merged into descending aorta (Fig. 1a and b, and Fig. 2). Due to no evidence of trachea or esophagus compression and the chest pain improved, she was discharged and scheduled for outpatient follow-up.

Double aortic arch (DAA) is rare, contributing less than 1% of the congenital heart disease. It is the most common form of a complete vascular ring enclosing the trachea and esophagus, resulted by a failure of degeneration of the embryological right fourth pharyngeal arch[1]. In general, DAA is categorized into three main groups depending on the sizes of both arches. Seventy-five percent of the patients have a right dominant arch, 20% have left dominant arch while the remaining 5% have balanced type[2]. This anomaly is usually diagnosed during infancy or childhood due to symptoms caused by tracheal or esophageal compression.

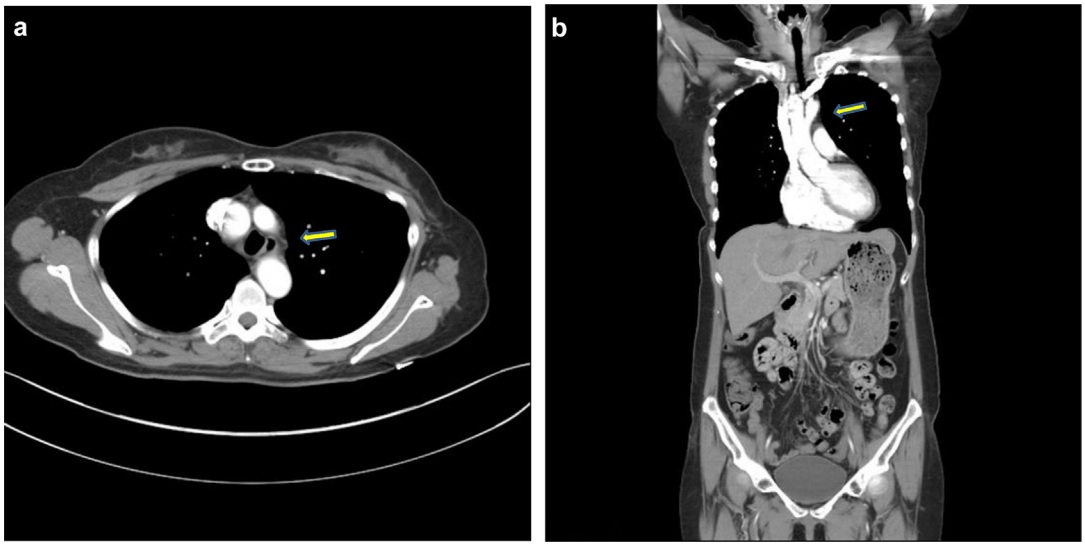

Fig. 1. a. Computed tomography angiography of the chest showing a vascular ring encircling the trachea and esophagus (Arrow). b. Computed tomography angiography scan in coronal view showing a double aortic arch.

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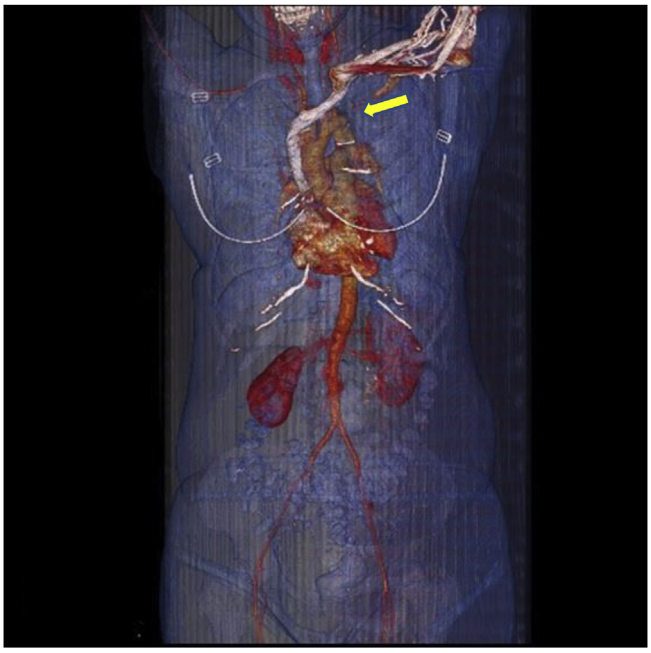

Fig. 2. A 3-dimensional reconstruction of the scan showing the aorta bifurcated at the upper end of ascending aorta.

Respiratory symptoms include dypnea, cough, stridor and recurrent respiratory infections. Patients seldomly manifest with gastrointestinal symptoms like choking with feeds, dysphagia and vomiting. Adult asymptomatic double aortic arch cases are rare. Double aortic arch can be diagnosed by using chest x-ray, echocardiography, barium esophagography, Magnetic resonance (MR) and computed tomography (CT) angiography. Both CT/MR angiography are the best image modalities providing detailed structural informations for the clinicians. The definite treatment for symptomatic patient is surgery via left thoracotomy and division of the minor arch.

Conflict of interests

There are no conflict of interests.

References

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