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Images in Congenital Cardiac Disease

Crossed pulmonary arteries with double aortic arch: a rare association

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Abstract Crossed pulmonary arteries is a rare, benign congenital anomaly. Both pulmonary arteries cross each other on their course to each respective lung, thus forming a crisscross pattern. We report an infant with crossed pulmonary arteries and a complete vascular ring formed by double aortic arch.

Keywords: Crossed pulmonary arteries; double aortic arch; vascular ring; CT angiography

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An 8-month-old male infant was referred to our department for cardiac evaluation for recurrent bronchospasm and inspiratory stridor. The patient had normal vital signs and laboratory values and was haemodynamically stable. Transthoracic echocardiography showed no intracardiac defects. The anatomy of the bifurcation of the pulmonary arteries could not be visualised; however, the left pulmonary artery originated from the right portion of the pulmonary trunk superior to the right pulmonary artery (with mild ostial stenosis), whereas the right pulmonary artery originated from the left portion of the pulmonary trunk, inferior to the left pulmonary artery. A double aortic arch was also present. CT angiogram confirmed the crossed pulmonary arteries (Fig 1) with double aortic arch (Fig 2) forming a complete vascular ring. The patient's stridor was relieved after surgical correction of the double arch.

Although crossed pulmonary arteries is an asymptomatic and benign congenital anomaly, it can co-exist with clinically important lesions such as common arterial trunk, severe aortic tubular hypoplasia and, as in this case, double aortic arch. In this anomaly, the left pulmonary artery originates from the pulmonary trunk superiorly and to the right of the origin of the right pulmonary artery. Both pulmonary arteries cross each other on their course to each respective lung, thus forming a crisscross pattern. Our research of the English literature showed only one case of crossed pulmonary arteries with double aortic arch.[1] Crisscross pulmonary arteries do not cause airway compression in contrast to anomalous origin of the left pulmonary artery from the right pulmonary artery (pulmonary arterial sling). Therefore, if respiratory symptoms are suggestive of airway compression, additional vascular malformations that commonly cause airway compression must be ruled out.

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Conflicts of Interest

None.

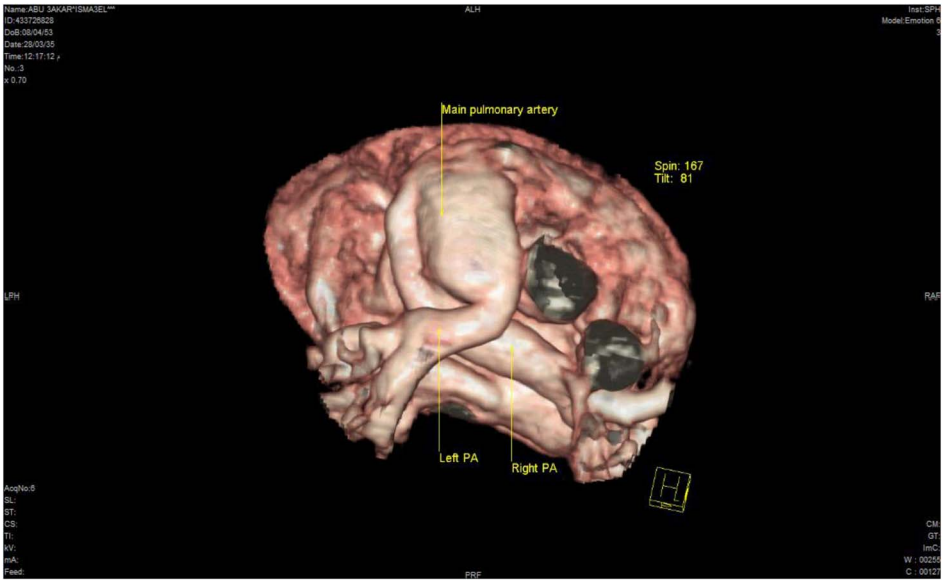

Figure 1.
CT angiography. Three-dimensional reconstructed image showing crisscross origin of the pulmonary arteries.

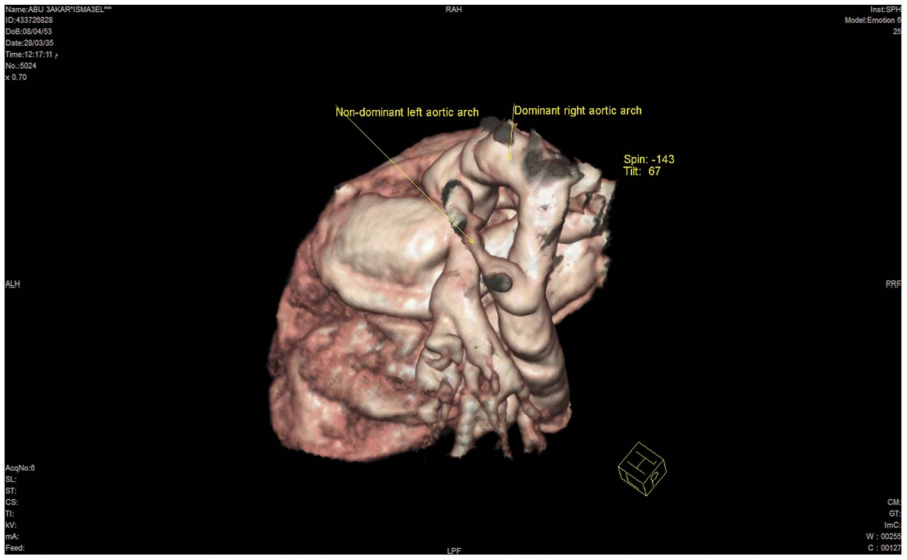

Figure 2.
CT angiography. Three-dimensional reconstructed image showing "dominant right aortic arch" and "non-dominant left aortic arch".

Ethical Standards

Parent consent was signed by parents, and they agree to publish this case report of their child.

Reference

1. Shunmugasundaram P, Bijulal S, Titus T, Tharakan JA. Crisscross pulmonary artery with double aortic arch: an unusual association. Pediatr Cardiol 2012; 33: 857–858.

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