Association of pulmonary sling and atypical tracheal tree arrangement in a young girl

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A 3-year-old girl was referred to our team following a history of recurrent chest infections in the context of atrial septal defect (ASD).

Echocardiogram confirmed a large ASD and revealed a second left pulmonary artery (LPA) rising from right pulmonary artery (RPA). Bronchoscopy and contrast CT angiogram confirmed duplicated LPA with an upper LPA of a narrowed origin supplying the left upper lobe. The distal LPA, showing pulmonary sling configuration, originated from the proximal RPA. The tracheal branching pattern showed upper lobe bronchi originating from the same level at the distal trachea, with a bridging bronchus dividing into two lower lobe bronchi.

A two-dimensional echocardiogram with colour flow mapping from high parasternal short-axis view (Panel A) revealed a pulmonary sling with the left pulmonary artery (LPA 2) originating from the RPA and running behind the trachea (asterisk).

Anteriorly, there was another left pulmonary artery (LPA 1) originating from an usual pulmonary bifurcation area and with anterior course to the trachea. Right (RUB) and left (LUB) upper bronchi and right (RLB) and left (LLB) lower bronchi are connected via a narrowed trachea on CT angiogram (Panel B) and as seen on volume-rendered CT (Panel C, arrow). 3D reconstruction of the contrast CT angiogram with superimposed bronchial tree (Panel D) provided a better understanding of spatial relationship of all structures.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.

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