


Occlusion of persistent left atrial cardinal vein without left heart hypoplasia utilizing an Amplatzer device

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An 18-year-old male was referred with a complaint of progressive exercise intolerance and systolic murmur. Echocardiography showed an atrio-ventricular septal defect with no atrial or ventricular component. There was no left atrio-ventricular valve stenosis, but mild regurgitation was present. Pulmonary venous drainage was normal but the modified parasternal short-axis view (Panel A; see Supplementary data online, Video S1) revealed a left atrial cardinal vein (LACV) originating from the roof of the left atrium (LA) that ran parallel to the descending thoracic aorta and drained into the innominate vein (IV) (Panel B; see Supplementary data online, Video S2).

Cardiac magnetic resonance imaging (Panels C and D) confirmed the anomalous venous connection (arrow) between the roof of the LA and the IV, associated with a 1.5:1 pulmonary to systemic blood flow and mild right ventricular dilation. At angiography, the LACV measured 12 mm in diameter at the mid-course (Panel E; see Supplementary data online, Video S3). To minimize the risk of embolization, a 16 mm Amplatzer atrial septal defect occluder was used to block the LACV (Panel F, red arrow; see Supplementary data online, Video S4), with no complication.

Persistence of LACV has been associated with congenital mitral stenosis and other left-sided obstructive lesions, but it is rare in their absence. In this setting it is thought that the persistence of this embryonic connection between the embryonic pulmonary venous bed and the cardinal veins could act as ‘safety-valve’ able to drain the pulmonary venous blood into the systemic circulation, thus minimizing pulmonary venous congestion.

Percutaneous occlusion of the anomalous vein with a carefully selected Amplatzer device is a safe and effective option in this setting, and to the best of our knowledge it has been never reported before.

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