

Unusual extra-cardiac inter-atrial communication: clinical insights from an anomalous vessel

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A 64-year-old man with a history of persistent atrial fibrillation was admitted to our hospital for electrical cardioversion (EC). Preprocedural transoesophageal echocardiography (TEE) revealed an unusual shunt connecting the left to the right atria (Panels A and B), which did not seem to be a typical atrial septal defect (ASD). Sinus rhythm was successfully restored following EC.

Further evaluation with cardiac computed tomography (CT) confirmed the presence of the anomalous vessel originating from the anterior wall of the left atrium (LA), coursing behind the aortic root (AO) and in front of the right atrium (RA) and terminating in the lateral wall of the RA (Panels C and D).

Subsequent coronary angiography and right heart catheterization confirmed the absence of any fistula involving the right coronary artery (RCA) or the AO, the absence of pulmonary arterial hypertension, and a calculated pulmonary to systemic blood flow ratio (Qp/Qs) of 1.4. A cardiac MRI was performed to assess the right ventricle end-diastolic volume (RVEDV), which was found to be within normal limits (RVEDVi 69 mL/m²; normal reference range, 57–105 mL/m²).

Given the absence of haemodynamic impact and the maintenance of sinus rhythm, we opted for a follow-up strategy.

This case highlights the importance of identifying pre-tricuspid shunts due to their potential impact on the pulmonary vasculature and right heart chamber volumes. Such anomalies, although rare, should be monitored as classical ASDs. To our knowledge, this specific abnormal vessel has not been previously described. Moreover, detailed imaging is crucial for detecting conditions that may contribute to atrial fibrillation and ensuring appropriate management.

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

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Data availability: The data underlying this article are available in the article and in its online [supplementary material](#).

