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A Rare Levoatrial Cardinal Vein with an Interatrial Communication

A 62-year-old woman presented with chest tightness and discomfort for 2 years. Physical examination and laboratory tests were unremarkable. Transthoracic echocardiography revealed dilatation of the ascending aorta and mild aortic regurgitation. Maximum intensity projection computed tomography angiography (CTA) showed that a levoatrial cardinal vein (LACV) connected the anterior wall of the left atrium (LA) to the right atrium (RA) (Figure 1A-B). Three-dimensional volume rendering CTA showed that the LACV originated from the lower part of the LA, coursed through the rear of the aortic root, and finally drained into the RA (Figure 1C-D). The patient was hemodynamically stable and

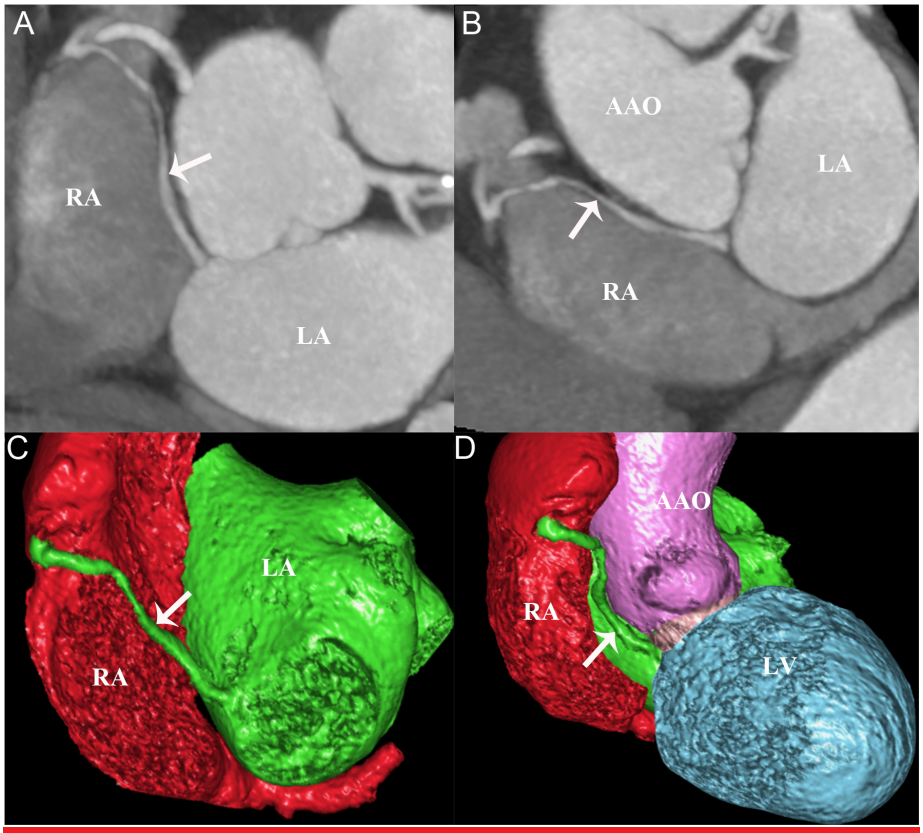


Figure 1. (A-B) Maximum intensity projection CTA shows an LACV that connects the anterior wall of the left atrium (LA) to the right atrial appendage (RAA). (C-D) Three-dimensional volume rendering CTA reveals that the LACV originates from the lower part of the left atrium, courses behind the aortic root, and finally drains into the RAA. AAO, ascending aorta; LA, left atrium; LACV, levoatrial cardinal vein; LV, left ventricle; RA, right atrium.

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E-PAGE ORIGINAL IMAGE

Leizhi Ku[1]
Yuhang Wang[1]
Zheng Liu[1]
Xiaojing Ma[2]

[1]*Department of Radiology, Wuhan Asia Heart Hospital Affiliated to Wuhan University of Science and Technology, Wuhan, P.R. China*
[2]*Department of Echocardiography, Wuhan Asia Heart Hospital Affiliated to Wuhan University of Science and Technology, Wuhan, P.R. China*

Corresponding author:
Xiaojing Ma
✉ klz1534292102@163.com

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L.Ku and Y.Wang have contributed equally to the article.

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without associated cardiac anomalies; no further Qp/Qs measurements were assessed. She was recommended for close observation without surgery or catheter intervention. At 12-month follow-up, the patient's symptoms were stabilized and without progression.

Levoatrial cardinal vein is an anomalous connection between the LA or pulmonary vein and the systemic vein.[1] It generally originates from the pulmonary vein or the LA and drains into the superior vena cava or the innominate vein. It can be associated with hypoplastic left heart syndrome (HLHS), tetralogy of Fallot, mitral or aortic atresia, or aortic stenosis, as well as cor triatriatum.[2] The LACV with an interatrial communication is extremely rare.[3] Although rare, the ability to identify LACV is clinically significant because it may result in a bidirectional shunt, and the development of symptoms is an indication for intervention. It is essential to recognize this embryologic abnormality and report it in patients who require surgical ligation or transcatheter closure.[4] Computed tomography angiography is an effective method for determining the anatomy of complex heart abnormalities. It can distinguish between LACV and persistent left superior vena cava, vertical vein of partial anomalous pulmonary venous connection, left superior intercostal vein, and veno-venous bridges.[5]

Informed Consent: The informed consent was obtained from the patient for this study.

Declaration of Interests: The authors have no conflicts of interest to declare.

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