A Rare Cardiac Pathology: The Levoatriocardinal Vein


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Background: Levoatriocardinal vein (LACV) is a rare cardiac pathology that represents a connection between pulmonary venous and cardinal systems. LACV is commonly associated with left-sided obstructive conditions but can be seen with normal intracardiac anatomy and pulmonary venous return. The aim of this study is to discuss the morphological and clinical characteristics, diagnostic methods and outcomes of cases with LACV.

Patients and Methods: An eleven patients with LACV between 2010–2014 were examined retrospectively. The presence of LACV was confirmed with echocardiography, 128-Slice Dual Source CT Angiography and catheter angiography in all patients. The primary obstructive lesion, associated with cardiac defects and the integrity of interatrial septum, was determined for each of the patients with left-sided obstructions.

Results: The overall mean age was 79 ± 1.83 days (range 1 day- 390 days), mean weight was 4.4 ± 0.4 kilograms (range, 2-8 kg). Seven the patients were female. The age at presentation was under one year in 81.8% of the patients. Nine patients had left-sided obstructions and two patients had normal intracardiac anatomy and pulmonary venous returns. All of the nine patients with left-sided obstructions were referred to our hospital because of tachypnea, respiratory distress and murmurs. In all of the patients with left-sided obstructions, LACV was demonstrated initially with echocardiographic evaluation. Atrial septum was restrictive or intact in the patients with left-sided obstructions. LACV originated directly from the left atrium in all of the patients.

Conclusions: LACV is an extremely rare cardiac pathology, existing almost exclusively in patients with left-sided obstructive lesions. It is thought to form an alternative route for left atrial blood flow when the interatrial septum is intact or restrictive. However, the presence of an interatrial or alternative shunt with LACV may postpone clinical presentation. LACV must be kept in mind for patients with left-sided obstructions. It may also be seen in patients with normal intracardiac anatomy and pulmonary venous return.