Multiple accessory left atrial appendages along a semi-circular path

Wen-Jeng Lee¹, Shyh-Jye Chen¹, and Tzung-Dau Wang²*

¹Department of Medical Imaging, National Taiwan University Hospital, Taipei 100, Taiwan, Republic of China and ²Division of Cardiology, Department of Internal Medicine, National Taiwan University Hospital, National Taiwan University College of Medicine, No. 7, Zhong-Shan South Road, Taipei 100, Taiwan, Republic of China

*Corresponding author. Tel: +886 2 2312 3456/ext. 5632, Fax: +886 2 2391 3682, Email: tdwang@ntu.edu.tw

A 51-year-old man with suspected coronary artery disease was referred for coronary computed tomographic (CT) angiography study by using a 64 detector-row multidetector CT scanner. There were no significant coronary stenoses. However, multiple accessory left atrial appendages (Panels A–D, arrowheads) were incidentally noted in the left atrium along a semicircular path, from anterior roof adjacent to the septal ridge (Panel C, arrow) through left atrial appendage to the mitral isthmus (between left inferior pulmonary vein and mitral annulus). There was no definite thrombus inside these accessory atrial appendages.

Focal outpouches in the left atrium are increasingly recognized with the improved spatial resolution of cardiac CT. This structure is reported to occur in 10–15% of the adult population. The particular semicircular arrangement of these accessory appendages, along with left atrial appendage, is just approximate the line of fusion between the primitive embryonic atrium and pulmonary veins. This finding indicates that accessory appendages and the left atrial appendage may have a common embryonic origin from the primitive atrium. Thrombosis in the blind-ended accessory atrial appendages may serve as a potential source of embolic stroke in patients with atrial fibrillation. Therefore, left atrial appendage occlusion to prevent thrombo-embolism will be intuitively not appropriate in patients with atrial fibrillation who also have accessory left atrial appendages, which could only be identified by cardiac CT. Whether the presence of accessory left atrial appendages will influence the development of atrial arrhythmias is still not certain.

Panels A–D. Three-dimensional volume-rendered images (Panels A–C) and virtual endoscopic view inside the left atrium (Panel D) show multiple accessory left atrial appendages (arrowheads) in the left atrium along a semicircular path, from anterior roof adjacent to the septal ridge (Panel C, arrow) through left atrial appendage (LAA) to the mitral isthmus. LSPV, left superior pulmonary vein; LIPV, left inferior pulmonary vein; RSPV, right superior pulmonary vein; RIPV, right inferior pulmonary vein.

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