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A Rare 5-chambered Heart: Giant Left Atrial Appendage Aneurysm

A 40-year-old male presented with intermittent palpitations and precordial discomfort for 1 year. Physical examination and laboratory tests were unremarkable. Electrocardiogram demonstrated sinus bradycardia. Chest radiography demonstrated a prominent outpunching of the left cardiac border inferior to the left hilum (Figure 1A). Transthoracic echocardiography showed a large left atrial appendage aneurysm (6.6 × 5.6 cm) widely communicating with the atrial cavity via a 1.6 cm aneurysmal neck, and this aneurysmal cavity seemed like a "fifth chamber" (Figures 1B and 1C). Coronary computed tomography angiography showed a giant saccule-shaped left atrial appendage aneurysm (LAAA) located in the anterior superior left ventricle (Figures 1D and 1E). Cardiac magnetic resonance imaging was performed to further anatomically define the left atrial appendage and surrounding structures. Cardiac magnetic resonance confirmed a giant aneurysm mimicking a dog ear-like protrusion arising from the left atrial appendage compressing the banana-shaped left ventricle (Figure 1F). The patient

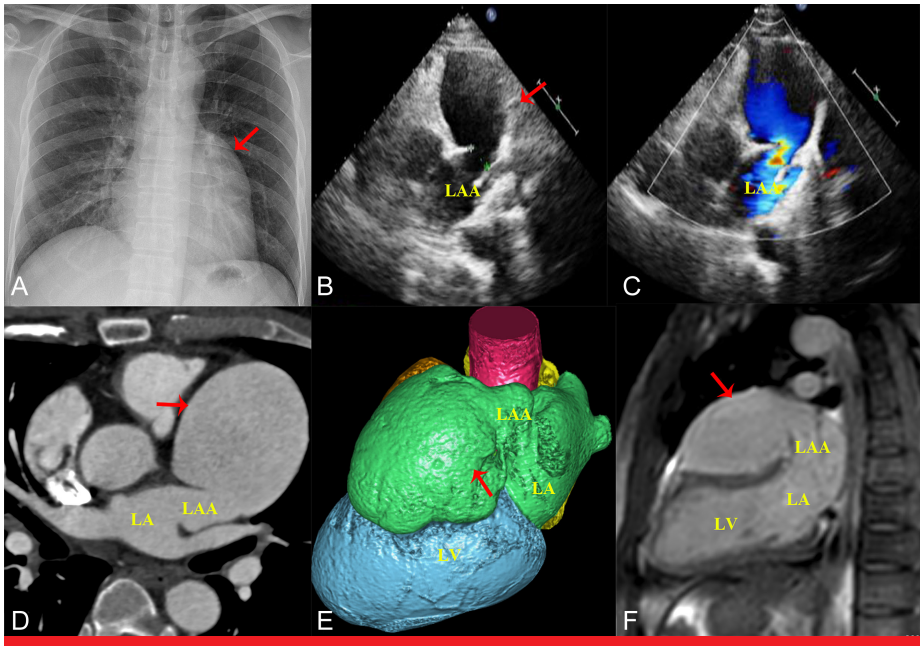

Figure 1. (A) Chest x-ray demonstrates a prominent outpunching of the left cardiac border inferior to the left hilum. (B and C) Transthoracic echocardiography shows a large left atrial appendage aneurysm (6.6 × 5.6 cm) widely communicating with the atrial cavity via a 1.6-cm aneurysmal neck. (D and E) Coronary CT angiography shows a giant saccule-shaped LAAA located anterior superior left ventricle. (F) CMR confirmed a giant aneurysm arising from the left atrial appendage compressing the banana-shaped left ventricle. LA, left atrium; LV, left ventricle; LAAA, left atrial appendage aneurysm; CT, computed tomography; CMR, cardiac magnetic resonance

E-PAGE ORIGINAL IMAGE

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#Leizhi Ku and Yafeng He have the same contribution to the article.

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was referred to a cardiac surgeon who performed an LAAA excision under cardiopulmonary bypass, but he refused and was selected for conservative management with anticoagulation therapy, he is under follow-up for 6 months without any thromboembolic episode.

Left atrial appendage aneurysms are extremely rare pathology entities, sometimes described as a "fifth chamber,"[1] and there are no established consensus regarding the exact size cut-off for LAAAs to be considered aneurysmal, although reported cases of LAAAs are generally >5 cm.[2] They may be caused by dysplasia of the atrial pectinate muscles and related atrial muscle bands or secondary to mitral valve disease or conditions that lead to elevated atrial pressure.[3] Clinical presentation ranges from asymptomatic patients to complications such as systemic thromboembolic events. The most common clinical presentations were palpitations, followed by dyspnea, arrhythmia, stroke, and non-specific chest pain[4] Left atrial appendage aneurysms are most often incidentally discovered during the work-up of non-specific symptoms. They can predispose to adverse events, including cardiac arrest, respiratory distress, arrhythmia, heart failure, systemic thromboembolism, or rupture.[5] Clinicians should use stepwise multimodality imaging to accurately diagnose and expedite therapeutic strategies for LAAAs. Due to the risk of atrial tachyarrhythmias and thromboembolic events, surgical resection is the treatment of choice even in asymptomatic cases.[6]

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

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