



## Asymptomatic Left Atrial Appendage Aneurysm

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### Abstract

We report a patient with asymptomatic left atrial appendage aneurysm. Cardiac magnetic resonance was performed to further delineate the aneurysm, and the patient underwent successful surgical resection.

### Case Report

Asymptomatic healthy, 32-year-old woman was found to have enlarged left upper cardiac border on chest radiograph (CXR), undertaken as a routine health check-up (Figure 1). This was

compared to a previous CXR taken 5 years earlier, which only showed a small bulging of the left upper cardiac border. Electrocardiogram showed normal sinus rhythm. A transthoracic two-dimensional echocardiogram showed left atrial appendage (LAA) aneurysm (Figure 2). To further delineate the aneurysm and the anatomical relationship with other structures, cardiac magnetic resonance (CMR) was performed. CMR confirmed large LAA aneurysm measuring 4.8 x 6.9 x 5.3 cm, communicating with the left atrium via a wide neck, compressing the lateral wall of the left ventricle, and without evidence of thrombus (Figure 3). The left atrial size was normal, without mitral stenosis or regurgitation. Although asymptomatic, the patient underwent surgical resection of the LAA (Figure 4) in view of the risk of potential life-threatening complications. Macroscopic examination



Figure 1: Chest radiograph showing enlarged left upper cardiac border

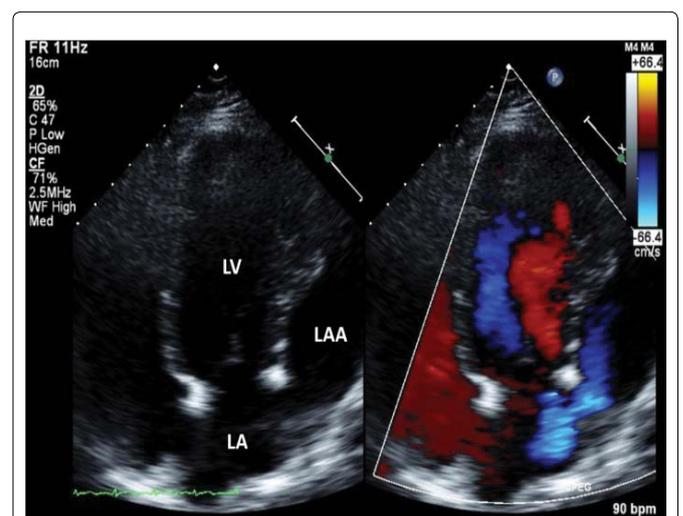
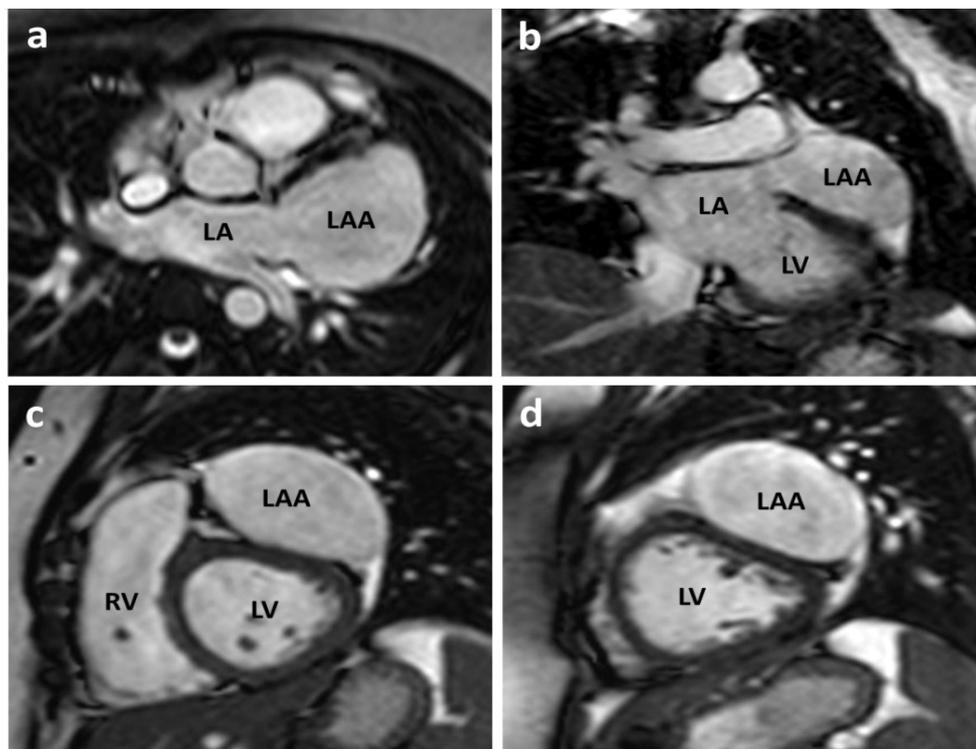


Figure 2: Transthoracic echocardiography of the apical 4-chamber views showing significantly dilated left atrial appendage. Colour Doppler (right) demonstrating flow between the left atrium and the dilated left atrial appendage. LA: Left Atrium, LAA: Left Atrial Appendage, LV: Left Ventricle

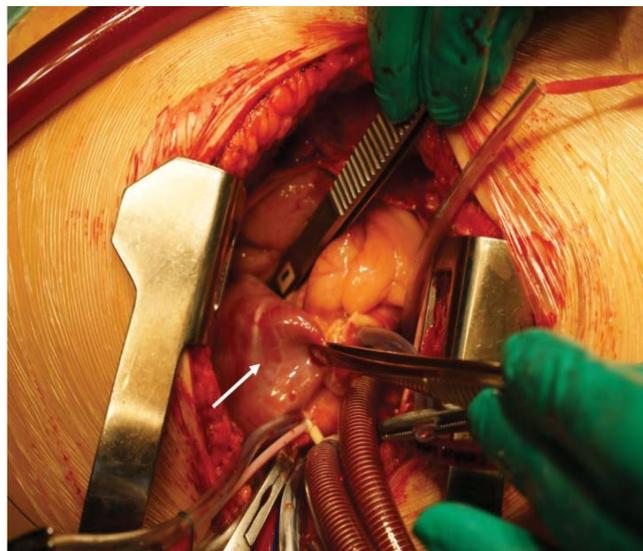
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**Figure 3:** Cardiac magnetic resonance of the transverse (a) and coronal (b) views of the heart demonstrating a large LAA aneurysm communicating with the LA via a wide neck, without evidence of thrombus. Short axis views at the basal (c) and mid ventricular levels (d) showing mild compression of the lateral wall of the LV by the aneurysm. LA: Left Atrium, LAA: Left Atrial Appendage, LV: Left Ventricle, RV: Right Ventricle



**Figure 4:** Intraoperative image showing the left atrial appendage aneurysm (white arrow)

of the specimen revealed a partly open collapsed cyst-like structure with wall thickness between 2 and 4mm, smooth outer and inner surfaces, without blood clots. Microscopically, there were areas of muscular hypertrophy without evidence of tumour, inflammation, myxoid or cystic degeneration. She had uneventful postoperative recovery with normal post-operative CXR (Figure 5).

LAA aneurysm is very rare with less than 100 cases have been reported in the literature [1]. An LAA aneurysm can be due to congenital or acquired causes. The congenital type is thought to be due to weakened appendage wall due to dysplasia of the pectinate muscles. The acquired form is usually associated with other cardiac abnormalities such as mitral valve disease, history of infection or



**Figure 5:** Post-operative chest radiograph showing normal left upper cardiac border

other causes which can lead to raised left atrial and LAA pressures or weakened muscle wall [2,3].

Patients commonly present with palpitations, breathlessness and thromboembolic complications. Sixteen percent do not have symptoms and detected on routine medical assessment. LAA aneurysm can expand slowly over several years and have been reported to occur over 18 [4] and 30 years [5]. To our knowledge, this is the first report of significant progressive enlargement of LAA

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aneurysm in a relatively short time (5 years). Imaging modalities such as computed tomography scan and CMR are important techniques to further characterize the aneurysm [1]. However CMR is better suited in women of childbearing age without the risk of ionizing radiation, as was performed in our case. The most likely aetiology in our case was congenital as it occurred in isolation without known predisposing factors that could lead to the LAA enlargement. This was supported by CMR findings which revealed clear communication of the appendage with the normal-sized left atrium, no mitral valve stenosis or regurgitation. Surgery was performed in view of the risk of developing complications such as rupture, atrial tachyarrhythmias, thrombus formation and systemic embolism [1].

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### References

1. Aryal MR, Hakim FA, Ghimire S, Ghimire S, Giri S, et al. (2014) Left atrial appendage aneurysm: A systematic review of 82 cases. *Echocardiography* 31: 1312-1318.
2. Culver DL, Bezante GP, Schwarz KQ, Meltzer RS (1993) Transesophageal echocardiography in the diagnosis of acquired aneurysms of the left atrial appendage. *Clin Cardiol* 16: 149-151.
3. Zimand S, Frand M, Hegesh J (1997) Congenital giant left atrial aneurysm in an infant. *Eur Heart J* 18: 1034-1035.
4. Park JS, Lee DH, Han SS, Kim MJ, Shin DG, et al. (2003) Incidentally found, growing congenital aneurysm of the left atrium. *J Korean Med Sci* 18: 262-266.
5. Pomé G, Pelenghi S, Grassi M, Vignati G, Pellegrini A (2000) Congenital intrapericardial aneurysm of the left atrial appendage. *Ann Thorac Surg* 69: 1569-1571.