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Giant sinus of Valsalva aneurysm—a peculiar presentation with atrial fibrillation

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A 73-year-old woman presented with a transient ischaemic attack and paroxysmal atrial fibrillation (electrocardiogram as supplementary image). Her premedical history included hypertension, and mild obesity (body mass index 27), yielding a CHA₂DS₂-VASc score of 5 point (female gender, hypertension, age >65 years, transient ischaemic attack). Transthoracic echocardiography revealed a large mass protruding into both atria, which appeared to originate from the aortic root (Panels A and B). The aortic valve was tricuspid and had trivial insufficiency. Computed tomography confirmed the presence of an aneurysm (maximal diameter 62 mm) originating from the non-coronary sinus of Valsalva, bulging into both atria (Supplementary material online, Figure). We hypothesized that the mechanical pressure of the aneurysm against the atrial wall caused structural atrial remodelling and elevation of atrial filling pressures, which could have triggered the arrhythmia. These underlying pathophysiologic causes were previously described by Andrade *et al.* and Pritchett *et al.* Because of the size of the aneurysm, the patient was scheduled for surgery. After median sternotomy and cannulation for extracorporeal circulation, the heart was arrested and the aortic root was opened. A large, thin-walled aneurysmal sac originating from the non-coronary sinus (Panels C and D) was seen. Also, the left- and right-coronary sinus appeared friable. The left-coronary leaflet was calcified. Because of this, and considering the age of the patient, valve-sparing root replacement seemed inappropriate. We performed a Bentall procedure implanting a biological composite conduit. Patient was weaned from cardiopulmonary

bypass in sinus rhythm. The procedure and post-operative course were uncomplicated. She was discharged with a vitamin K antagonist and could be switched to direct anticoagulation therapy after 3 months.

Sinus of Valsalva aneurysms are associated with connective tissue disorders and are most often seen in patients with the bicuspid aortic valve but can also occur due to atherosclerosis or infectious diseases as infective endocarditis or syphilis. This case underlines the importance of echocardiographic imaging in all patients presenting with atrial fibrillation because of the wide heterogeneity in possible underlying diseases triggering this arrhythmia. NCS, non-coronary sinus; RCC, right-coronary sinus.

(Panel A) Transthoracic echocardiography, in the four-chamber view the aneurysm is seen protruding into both atria. (Panel B) Transoesophageal echocardiography, mid-oesophageal aortic valve short axis, the aortic valve is appreciated at 30–40° and the connection to the non-coronary-sinus aneurysm is clearly seen. (Panel C) Surgical view from the left side of the patient. The aorta is transected at the level of the sinotubular junction. (Panel D) Schematic drawing of the surgical field.

Supplementary material

Supplementary material is available at *European Heart Journal - Case Reports* online.

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