Survived sudden cardiac death in a patient with a huge sinus of Valsalva aneurysm

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A 75-year-old man was admitted to the hospital with acute coronary syndrome after strenuous physical activity, associated with ventricular fibrillation and successful defibrillation (Panel A). Echocardiographic study (Panel B) and multidetector computed tomography (Panel C) demonstrated a giant unruptured isolated aneurysm of the left sinus of Valsalva (SVA). Cardiac catheterization confirmed the diagnosis of a large SVA (6 × 6 cm), compressing the left main coronary artery, the proximal parts of both the left anterior descending (LAD) and the circumflex coronary arteries (Panel D 1). Due to the severe haemodynamic instability, rescue percutaneous coronary intervention with implantation of two bare-metal stents and good immediate angiographic result was performed (Panel D 2). The patient had full recovery and was scheduled for aortic root and aortic valve replacement in combination with internal mammary artery bypass grafting to the LAD. At 6 months follow-up, the patient had no complaints and a negative treadmill exercise test.

Sinus of Valsalva aneurysm is a rare cardiac anomaly especially when the left coronary sinus is involved. The prevalence was 0.09% in a large autopsy series and especially when the left coronary sinus is involved. The malformation consists of a separation, or lack of fusion, between the media of the aorta and the annulus fibrosis of the aortic valve. Unruptured SVAs are usually asymptomatic, although rupture of the dilated sinus may lead to intracardiac shunting. Pressure on the intracardiac conduction system may cause complete AV block. Rarely, myocardial ischaemia may be caused by coronary arterial compression, as described in our case.

Panel A. Electrocardiogram: ventricular fibrillation, terminated with a biphasic 360 J shock.
Panel B. Transoesophageal echocardiography, demonstrating the connection of the sinus of Valsalva aneurysm (AN) to the aorta (AO) and the aortic valve (AV).
Panel C. Multidetector computed tomography: showing the large sinus of Valsalva aneurysm (asterisk) and its relationship to the aorta (AO), pulmonary artery (PA), and the left ventricle (LV), respectively.
Panel D. Cardiac catheterization; (D 1) compression of both the left anterior descending (LAD, black arrow) and of the circumflex arteries (CX, white arrow). (D 2) LAD and CX after implantation of two bare metal stents.

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