

Rare Unicuspid Pulmonary Valve and Pulmonary Artery Aneurysm in an Elderly Asymptomatic Patient

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A 76-year-old man presented following the detection of persistent, rate-controlled atrial flutter. Echocardiography revealed moderate left ventricular (LV) systolic impairment, normal right ventricular function, and a dilated main pulmonary artery (MPA). There were no significant valvular abnormalities or pulmonary hypertension. A cardiovascular magnetic resonance (CMR) scan was requested to investigate the LV dysfunction and dilated MPA. Past history was significant for an unspecified cardiac abnormality, having been told he may not survive to adulthood.

CMR demonstrated a rare unicuspid unicommissural pulmonary valve (*Panel A; Video 1*) with good opening, resulting in mild-moderate stenosis (pulmonary valve area 1.6cm²; max velocity 1.4m/sec) and no significant regurgitation. There was also a large pulmonary artery aneurysm (6.5x7.2cm – *Panels B and C; Videos 2 and 3*) tapering into the left and right branch pulmonary arteries. The extent of pulmonary artery dilatation was out of keeping with the degree of pulmonary stenosis, although this is a recognised association. He was managed conservatively, as there was no indication for intervention, being asymptomatic at a relatively advanced age.

We present the first published CMR images of a rare unicuspid unicommissural pulmonary valve, with a large, associated pulmonary artery aneurysm. Unicuspid pulmonary valves are extremely rare, especially in the absence of complex congenital heart disease, and particularly in the elderly, with only three previous published reports. These findings have not been previously described in the CMR literature.

