Severe unicuspid aortic valve stenosis: VACTERL association

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DESCRIPTION

A 24-year-old man with a known history of horseshoe kidney leading to end-stage renal disease, scoliosis and small ventricular septal defect consistent with VACTERL association, who presented with worsening dyspnoea on exertion. Transsthoracic echocardiogram (TTE) showed a unicuspid aortic valve (UAV) with severe aortic stenosis (AS) (valve area of 0.6 cm² and mean gradient of 44 mm Hg). TTE also showed moderate aortic insufficiency and severely reduced left ventricular systolic function with estimated ejection fraction of 20%. Transoesophageal echocardiography (TEE) confirmed a UAV with single commissure located anteriorly (figure 1A–D; online supplementary video 1 and supplementary video 2) and severe AS (figure 1B, C). In preparation for surgical repair, chest CT angiogram showed dilated ascending aorta measuring 4 cm with no evidence of aortic dissection. The patient underwent aortic valve replacement surgery with 21 mm CarboMedics mechanical valve. TEE showed a well-seated prosthesis without evidence of paravalvular leak (figure 1E). The patient had an uneventful recovery and was discharged after close monitoring for 1 week.

UAV is a rare form of congenital heart disease seen in approximately 0.02% of patients referred for echocardiographic studies.1 It is susceptible to early degeneration thus resulting in aortic stenosis with or without regurgitation. Two forms of UAV have been described, the unicommissural variant which is characterised by the presence of a lateral attachment to the aorta with an eccentric orifice and the acommissural form in case of the absence of such attachment and presence of a central orifice.1 UAV has been reported to be associated with other cardiac anomalies such as aortic coarctation, ventricular septal defect, patent ductus arteriosus and aortic aneurysm.2 VACTERL association is a group of birth defects that affect multiple organ systems and typically defined by the presence of at least three of the following congenital anomalies: vertebral defects, anal atresia, cardiovascular...
defects, tracheo-oesophageal fistula, renal anomalies or limb abnormalities. To our knowledge, there is no previous report of unicuspid aortic valve as a part cardiac anomalies in VACTERL association.

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