

Severe aortic regurgitation caused by unicuspid aortic valve

Ciężka niedomykalność zastawki aortalnej spowodowana zastawką jednopłatkową

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Unicuspid aortic valve is a rare congenital anomaly that could cause severe valve dysfunction, usually during the second to the fifth decade of the patient's life. Its incidence is estimated at less than 0.02%. There are few clinical case reports concerning this congenital pathology of aortic valve and severe valve stenosis. Even rarer are reported unicuspid aortic valve regurgitation defects. In our Complex Cardiovascular Department a 39-year-old man was examined for a grade 4/6 systolic heart murmur heard over the precordium by his general practitioner. The patient reported no medical or surgical history, he did not take any medication on a regular basis. He was a non-smoker, with negative family history of cardiovascular diseases. The patient noticed dyspnoea and impaired exercise tolerance as a professional golf player and coach. He suffered from moderate dyspnoea (New York Heart Association class II–III) and felt dizzy after sport activities (running, swimming), although no loss of consciousness or syncope occurred. Echocardiographic examination revealed aortic root and ascending aorta dilatation (annulus 32 mm, bulbus 43 mm, sinotubular junction 37 mm, ascending aorta 43 mm) and massive aortic regurgitation grade 4+ (Fig. 1A, B). The left ventricle was dilated and the aortic valve seemed to be abnormal, with only one raphe and mobile redundant valve tissue. Transoesophageal echocardiography and three-dimensional echocardiography confirmed the presence of unicuspid aortic valve (Fig. 1C). The inspection during surgery found unicuspid unicommissural valve and rudimentary left and right coronary cusps (Fig. 1D). The valve was repaired — redundant valve tissue was resected and the bicuspidalisation of the valve was done by autologous pericardium tissue, and the annulus was reduced. The postoperative echocardiography showed no residual aortic regurgitation, mean gradient of 11 mmHg, and sufficient valve area of 2.2 cm². The postoperative course was uneventful. Unicuspid aortic valve is an anatomic variant that could lead to severe valve dysfunction. Surgical correction may be necessary at a young age. Based on our experience, aortic valve repair could be an alternative to valve replacement. Comprehensive echocardiographic examination and description of aortic valve morphology is useful for surgeons with respect to the strategy of repair procedure.

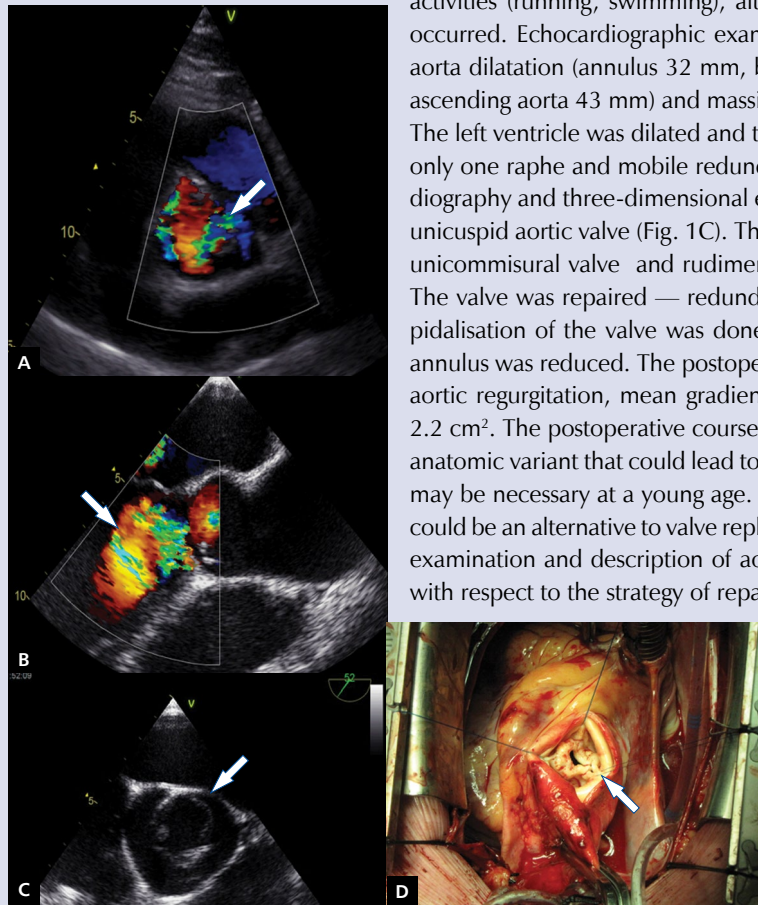


Figure 1. Transthoracic echocardiography; **A.** Severe aortic regurgitation in short-axis parasternal view; **B.** Severe aortic regurgitation in long-axis parasternal view; **C.** Transoesophageal echocardiography: unicuspid aortic valve in systole; **D.** Perioperative view: true unicuspid valve with only one true commissure

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