

ROSS PROCEDURE WITH PULMONARY AUTOGRAFT REINFORCEMENT USING REIMPLANTATION TECHNIQUE: A VALUABLE ALTERNATIVE FOR AORTIC VALVE REPLACEMENT IN YOUNG PATIENTS

Objective: Surgical management of congenital aortic valve disease in adolescent and young adult remains a clinical challenge. Mechanical valve is associated with evidence of morbidity, repair is not always safe and durable, and the dilatation of the pulmonary autograft resulting in aortic valve regurgitation represents a common issue following Ross procedure with root replacement. Modified Ross procedure associated with autograft reinforcement using reimplantation technique was proposed as an alternative. However, the functional late outcome of the pulmonary valve inside a rigid conduit requires to be documented.

Methods: Records of 61 consecutive patients who underwent Ross procedure with reinforcement between 2009 and 2021 were analysed. Pulmonary autograft was reimplanted in a Dacron conduit of a median diameter = 25.6 mm (range: 20-30) using Tirone David's valve sparing aortic root replacement technique. Majority of cases has presented with mono or bicuspid aortic valve (n=52; 85%), predominant aortic valve regurgitation (n=47; 77%) and dilatation (>30mm) of the ascending aorta (n=33; 54%). 47 patients (77%) had prior aortic valve procedure including 38 surgical repair (62%) and 9 balloon dilatation (15%).

Results: Median age at procedure was 16.8 years (range: 6-38). No death occurred. 2 patients (3%) required early neo-aortic root revision, 2 others were reoperated on later resulting in neo-aortic valve replacement in 3 (4.9% IC 95% [0.34%; 12.7%]) because of consecutively : infection, left ventricular false aneurysm and leaflet perforation. Six patients required right ventricular outflow conduit replacement. At mean 66 ± 50,5 months post-operatively, the survival rate with freedom from reoperation was 83% [71,9 ; 93,5] and the deterioration of the initial neo-aortic valve function was never observed.

Conclusion: Autograft reinforcement by means of reimplantation technique allowed to extend the indications for Ross procedure to all patients requiring aortic valve replacement and prevented neo-aortic root dilatation. Failures were early and rare, and late controls confirmed the stability of the neo-aortic valve function in follow-up.

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Survival curve freedom from reoperation

