

Experience with Valve Sparing Aortic Root Replacement in Children and Young Adults *Erez, Eldad¹; Tam, Vincent²*

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Objective: Valve sparing aortic root replacement has been used successfully in adult patients with ascending aorta aneurysms, typically associated with connective tissue disorders. In children there is limited experience with this surgical technique, even though, it may prevent aortic valve replacement. We retrospectively reviewed our experience with this procedure in children.

Methods: 14 patients underwent valve sparing aortic root replacement from May 2003 to January 2011. Aged 5 to 28 years (mean 16 years). 5 patients had Marfan's syndrome with one patient presenting with acute type A aortic dissection. 3 patients had a previous Ross procedure, 4 patients with a single ventricle had a Fontan circulation, one patient had repair of pulmonary atresia and ventricular septal defect and one patient had a previous arterial switch operation. The preoperative root dimension ranged from 38 to 60 mm (mean 45). 6 patients developed more than 2+ aortic valve insufficiency

Results: There were no hospital deaths. Median postoperative ICU stay was 2.5 days and hospital stay was 5.5 days. One patient had a mild left hemiparesis that resolved. Follow up ranged from 10 months to 6.5 years (mean 3.3 years) with one sudden late death of a Marfan patient. There was one mechanical aortic valve replacement in a single ventricle patient 2 years after surgery. All 13 surviving patients are in New York Heart Association functional class I. 12 patients have no or mild aortic insufficiency.

Conclusion: Valve sparing aortic root replacement provides optimal ascending aorta reconstruction in multiple congenital defects with good medium term results. Longer follow-up will be needed for the aortic valve function.