

C66. Evaluation Of The Shape And Function Of The Pulmonary Autograft Root 10 Or More Years After The Ross Procedure

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OBJECTIVES: Concerns have been raised about long-term autograft root dilatation and valve dysfunction.

METHODS: Between 1994 and 1998, 75 patients underwent the Ross procedure as part of a prospective randomized trial. Of those, 30 patients (40%) underwent aortic root evaluation using cardiac magnetic resonance (CMR) (n=15) or 64-slice computed tomography (n=15). Autograft root size and 3-dimensional shape, opening and closing aortic valve dynamics and cusp and aortic wall calcification scores were measured.

RESULTS: Patients examined ranged in age from 6 to 60 years (mean 34±11 years; 20 males and 5 females). 20 patients (66%) had bicuspid aortic valves. Interval between operation and imaging ranged from 10 to 13 years. Mean end-systolic autograft dimensions were: annulus 29±6mm, sinus 41±6mm, sinotubular junction 35±4mm and ascending aorta 34±5mm. The 3-dimensional shape of the autograft root is comparable to a normal control. Autograft root distensibility was 9±7%. Peak velocity across the autograft root ranged from 0.8 to 1.1 m/s. The pattern of flow through the root appeared normal in all patients. Mean regurgitant fraction through the aortic valve was 7±4% (range 1% - 13%). Cusp and aortic wall calcification scores were <50 Hounsfield units for all patients.

CONCLUSIONS: In this series, autograft root shape and function appears near normal up more than 10 years after surgery. This could be due to the use of specific intra- and peri-operative strategies aimed at preventing root dilatation.