

Brom (Multisinus) Aortoplasty For Supravalvar Aortic Stenosis

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Background: Controversy remains regarding the optimal surgical approach for children with supravalvar aortic stenosis (SAS). There are proponents of one-patch, two-patch, three-patch, and autologous slide aortoplasty.

Methods: The three-patch technique was first described by Gerard Brom from Brussels, Belgium in 1988. Since 1997 we have used the Brom three-patch aortoplasty to treat 20 patients with SAS. In recent years we have used computed tomographic imaging for preoperative evaluation rather than cardiac catheterization as it does not require general anesthesia.

Results: In 20 consecutive patients with SAS, the mean age was 3.7 ± 5.9 years, median age was 1.5 years. Twelve patients had Williams syndrome. Ten patients had preoperative advanced medical imaging (7 CT, 3 MRI). Mean cardiopulmonary bypass time was 172 ± 29 minutes. Mean cross-clamp time was 110 ± 21 minutes. Nine patients had simultaneous pulmonary artery stenosis patching. Median length of stay was 7 days. There was no operative or late mortality. Mean follow-up time is now 6 ± 5 years. There were no reoperations on the aortic root. Eight patients have no or trivial aortic insufficiency (AI), 3 patients have mild AI, and 1 patient has moderate AI. One patient who had infant balloon dilation of the aortic valve and later subacute bacterial endocarditis has moderate to severe aortic valve insufficiency (AI) and stenosis (AS). One patient has moderate residual supravalvar AS; all the others have essentially no AS. None had signs of late coronary insufficiency.

Conclusion: CT imaging is our diagnostic modality of choice for SAS. Multisinus patch aortoplasty restores the normal aortic root geometry and relieves coronary orifice stenosis in children with supravalvar aortic stenosis. Long-term outcomes are excellent with essentially no recurrent SAS and preservation of aortic valve function.