Postgraduate Course Video Session

Postgraduate Course Video Session (III-PCV)
Complex BVR Video Session - Callenges and technical solutions -

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Sun. Jul 9, 2017 3:10 PM - 5:00 PM ROOM 3 (Exhibition and Event Hall Room 3)

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[III-PCV-05]Valve Sparing Aortic Root Replacement in Children and Young Adults

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Valve sparing aortic root replacement is typically performed for aortic aneurysm rather than valve disease, though minor valve abnormalities and functional disturbances of the valve created by root distortion are often addressed as part of root replacement. Most patients have congenital connective tissue disorders, such as Marfan syndrome and Loeys-Dietz syndrome but increasingly adolescents with enlarged aortas associated with bicuspid aortic valve are being evaluated and considered for prophylactic surgery to prevent rupture and dissection.

Valve sparing root replacement exists in 2 major forms, the remodeling procedure and the reimplantation procedure. The remodeling operation reconstitutes the aortic root with a prosthetic tube graft that has 3 tongues sewn to the aortic annulus. While it reproduces the shape of the sinuses faithfully, it does not stabilize the aortic annulus and can therefore can lead to late valvular incompetence. For most children having aortic root replacement, aortic annulus stabilization is important for durability of the repair. The reimplantation operation, which enclosed the entire aortic valve complex within the prosthetic graft, stabilizes the annulus and is therefore the preferred operation. Neither the remodeling nor reimplantation operations allow growth. So in adult size annulus at least allows the possibility of an operation that can endure until adulthood.

We present two cases of Marfan’ s syndrome that underwent aortic valve sparing root replacement. The first case was an 8-year-old female who presented with severe mitral regurgitation and dilated aortic root. The mitral valve regurgitation was severe with bileaflet prolapse with dilated annulus. The aortic root was dilated with a score more than 11.02. The patient successfully under went mitral valve repair and aortic root replacement using remodeling technique. The second case was an 18-year-old female with Marfan’ s syndrome who presented with severe heart failure and multi organ failure. She was diagnosed with severe aortic regurgitation, severe tricuspid regurgitation, root dilatation and pulmonary hypertension. During intra-operative the non-coronary and the right coronary artery were dilated along with ascending aortic aneurysm. She successfully underwent mechanical tricuspid valve replacement, aortic valve replacement and partial root replacement by remodeling technique.

References:
1.Patel ND, Arnaoutakis GJ, George TJ, et al: Valve-sparing aortic root replacement in children: Intermediate-term results. Interact Cardiovasc Thorac Surg 12:415-419, 2011.

2.Zanotti G, Vricella L, Cameron D: Thoracic aortic aneurysm syndromes in children. Semin Thorac Cardiovasc Surg Pediatr Card Surg Annu 11:11-21, 2008
3.Cameron DE, Vricella LA: Valve-sparing aortic root replacement in Marfan syndrome. Semin Thorac Cardiovasc Surg Pediatr Card Surg Annu 8:103-111, 2005