**Valve Sparing Aortic Root Replacement in Teenagers and Young Adults with Aortic Root Aneurysms and Bicuspid Aortic Valves Can be Equivalent to Valve Sparing of Normal Tricuspid Valves at Intermediate Follow-up**

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**Background**: Valve sparing aortic root replacement (VSARR) is an excellent alternative to composite root replacement in patients with aortic root aneurysm and tricuspid aortic valves (TAVs) because VSARR preserves native tissue, has optimal hemodynamics, avoids the need for lifelong anticoagulation, and has demonstrated long term durable results. Bicuspid aortic valves (BAVs) have been cited as a risk factor, and asymmetric BAVs have been considered by some as a contraindication for VSARR. Minimal longitudinal data exists regarding outcomes in patients with BAV undergoing VSARR. We have employed VSARR in young patients with BAV for over 15 years including patients with asymmetric BAVs. We sought to critically review this experience and highlight the technical modifications we have instituted and lessons we have learned.

**Methods:** All patients who underwent VSARR between 2003 and 2018 in the context of BAVs were reviewed. Structured preoperative, intraoperative, and postoperative variables were collected, and preoperative, discharge, and most recent echocardiograms we re-read by a single expert reviewer blinded to clinical data.

**Results:** 8 patients, mean age 21.25 years (15-36 years) with BAV underwent VSARR, 5 with asymmetric BAVs. 1 patient had greater then mild preoperative aortic insufficiency. Indication for VSARR was aortic root dilation with a mean sinus of Valsalva diameter of 4.92 ± 0.19 cm (z-score +6.13 ± 0.93). Mean follow-up was 4.07 ± 5.12 years (range, 0.47- 14.5 years). There were no operative and no late deaths. There were no reinterventions on the aortic valve and the only cardiac reintervention was a pacemaker 3 weeks post VSARR. At last echo 7 of 8 patients had mild or less insufficiency with 1 patient having moderate insufficiency.

**Conclusions:** VSARR in young patients with BAV is safe and results in valve function and morbidity comparable to best published VSARR data in young adults with TAVs at mid-term follow-up.

