Unicuspid Aortic Valve Repair

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Objectives

• Explore decision making in patients with Unicuspid AV
• Appreciate the different techniques available for Unicuspid AV repair
• Understand the Commissural reconstruction technique using a pericardial patch for bicuspidization of a Unicuspid AV
Unicuspid Aortic Valves: Clinical Presentation

- Frequently present in adolescence or young adults
- Can present with stenosis or insufficiency (post balloon valvuloplasty)
- No ideal prosthetic valve substitute
- Repair vs. Ross vs. Mechanical Valve
- Lifelong disease
UAV post balloon dilation and Severe AI
Surgical Techniques: Two Patch

Aicher D, Schafers HJ ATS 2013
Surgical Techniques: One Patch (Butterfly)

Vohra H, El Khoury G, JTCVS 2013
Case

- 30 year-old female
- Hx of AV disease diagnosed soon after birth
- Recently got pregnant and started having dyspnea on exertion and some left arm pressure and numbness.
- Persistent symptoms despite termination of pregnancy – SOB with 1 flight of stairs
- Other PMHx: diagnosis of anxiety- on benzodiazepine, no known hx of connective tissue disorder, no family hx of Ao disease
- Smoker – 15 packs-year
Case

Physical examination

• HR – 64, BP – 108/82
• Cardiac auscultation – normal S1, crisp S2, sharp high-pitched 4/6 systolic ejection murmur radiating to carotids, no diastolic murmurs.
• Peripheral pulses – palpable bilaterally
• Remainder of exam – unremarkable
Case

TTE

- Severe AS – peak gradient 105, mean gradient 64, valve area estimated at 0.76 cm².
- Aortic root – normal at 2.6 cm
- Ascending aorta – mild to moderate dilatation at 4.1 cm.
- LVEDd – 4.4 cm, LVESd – 2.1 cm.
Echo
Echo
Echo
Surgery
Post Repair TEE
Post Repair TEE

Intra-op gradients: 6 (mean)
6 month gradient: 11 (mean)
Summary

- Unicuspid AV repair is feasible for AS or AI given adequate quantity and quality of tissue.

- Bicuspidization through creation of a neo-commissure using a 1-patch technique is a feasible technique.

- Long-term data are needed to determine repair durability.