

A stylized anatomical illustration of a heart and aorta. The heart is depicted in shades of purple and pink, with the aorta extending upwards and to the left. A prominent green ring is shown encircling the aortic root. The background is dark, with light green outlines of the heart and aorta. The title text is overlaid on the central part of the illustration.

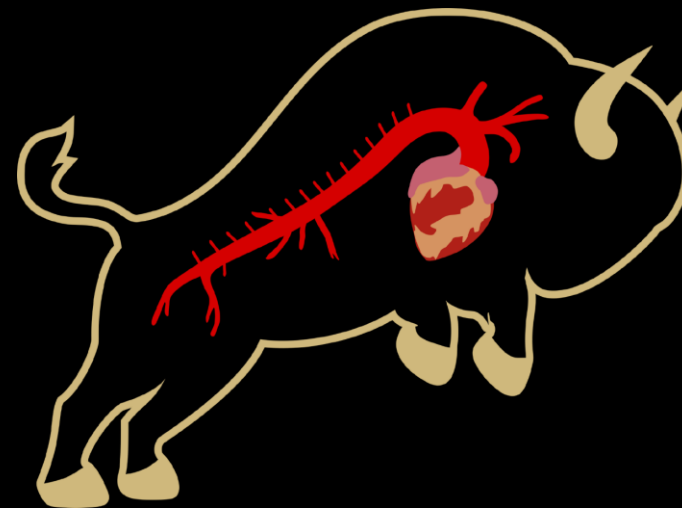
Adjunctive Ring Annuloplasty in Valve Sparing Root Replacement

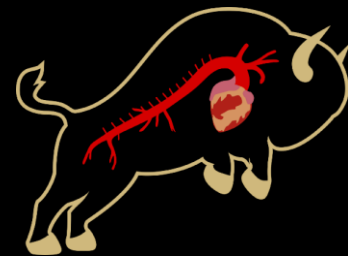
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No disclosures

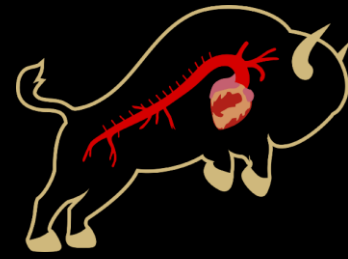




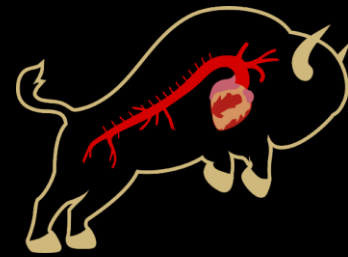
Introduction

- Valve-sparing root replacement (VSRR) has seen increasing usage at aortic centers for root pathology
- Preserving the native valve has the benefit of avoiding anticoagulation
 - Particular benefit in younger patients requiring a mechanical valve
- VSRR failure can occur secondary to insufficient graft fixation to the annulus resulting in aortic insufficiency (AI)
 - Insufficient depth of dissection prevents fixation
 - Some advocate for additional subannular stitches to prevent slippage
- We developed a novel method of concomitant ring annuloplasty with VSRR to prevent graft malposition

Aim

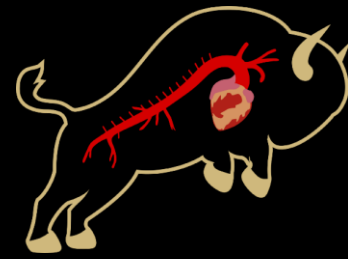


Describe pre-operative and operative characteristics, short-term outcomes of concomitant VSRR and ring annuloplasty



Methods

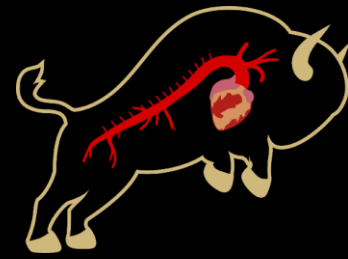
- Institutional aortic database used to identify patients who underwent VSRR with concomitant ring annuloplasty
- Pre-operative imaging including degree of AI, valve morphology, additional pathology reviewed
- In total, six patients identified



Results

- All patients male
- 50% trileaflet, 50% bicuspid valves
- Variable degree of AI

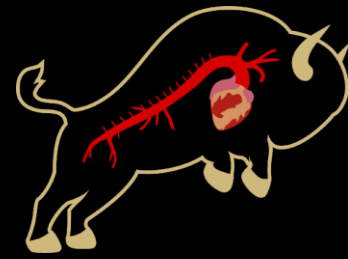
| Patient # | Age (yrs) | AI degree | Root Size (cm) | Ascending Size (cm) | Valve Morphology | Other Notable |
|-----------|-----------|-----------|----------------|---------------------|--------------------|---------------------|
| 1 | 36 | Severe | 4.1 | 5.1 | BAV (Sievers I RL) | |
| 2 | 70 | Moderate | 4.6 | 5 | Trileaflet | Bovine Arch |
| 3 | 66 | Trace | 4 | 4.9 | BAV (Sievers I RL) | |
| 4 | 68 | Moderate | 5.5 | 5 | Trileaflet | Familial Aortopathy |
| 5 | 67 | Trace | 4.2 | 4.3 | Trileaflet | AV Fibroelastoma |
| 6 | 42 | Mild | 5.2 | 4.9 | BAV (Sievers I RL) | |



Results

- 30mm Valsalva graft, 25mm HAART annuloplasty ring used in all cases
- 6 subannular stitches used in all patients
- 5 patients with additional leaflet plication
- One patient required return to OR for post-operative hypoxia, found to have ASD not seen on pre- or intra-op echo
- All patients with no or trace AI at three months

| Intra-operative | | | | | | | Post-operative | |
|-----------------|-----------|----------------------------------|-----------|----------|----------|---------------|----------------|--------------------|
| VSRR Size | Ring Size | Adjunct Procedures | CPB (min) | XC (min) | CA (min) | CA Protection | AI | Follow-up Duration |
| 30mm | 25mm | Hemiarch | 155 | 111 | 9 | RCP | None | 3 months |
| 30mm | 25mm | Hemiarch | 175 | 146 | 6 | RCP | Trace | 4 months |
| 30mm | 25mm | Hemiarch | 131 | 110 | 6 | RCP | None | 3 months |
| 30mm | 25mm | Hemiarch, PFO closure | 156 | 141 | 5 | RCP | None | 3 months |
| 30mm | 25mm | Hemiarch, Fibroelastoma excision | 127 | 92 | 5 | RCP | None | 3 months |
| 30mm | 25mm | Hemiarch | 140 | 121 | 6 | RCP | None | 3 months |



Conclusions

- Novel method of VSRR with ring annuloplasty demonstrated excellent results at short-term follow-up
 - Viable in both trileaflet and bicuspid valve anatomy
- Benefits of ring annuloplasty and VSRR:
 - Prevent graft slippage by providing internal and external support
 - Typically, VSRR fails due to AI, if it were to occur facilitates TAVR salvage therapy with internal rigid prosthesis

Questions???

