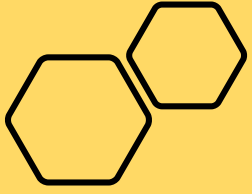




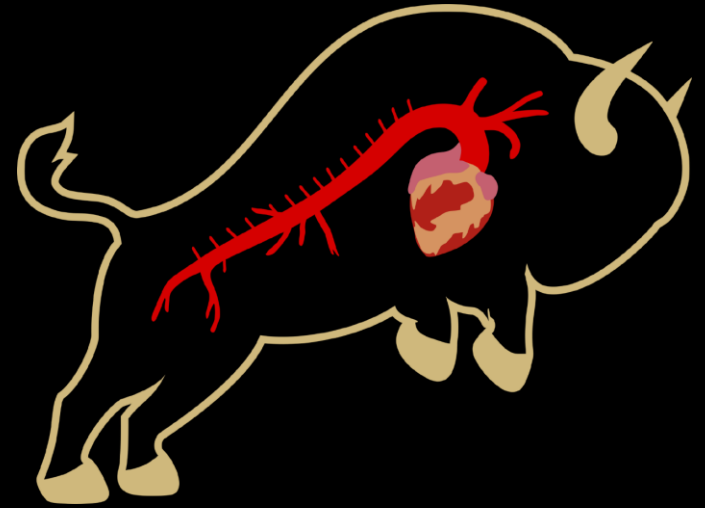
Re-do Aortic Root Replacement Has Comparable Morbidity and Mortality to New Aortic Root Replacement with Previous Sternotomy

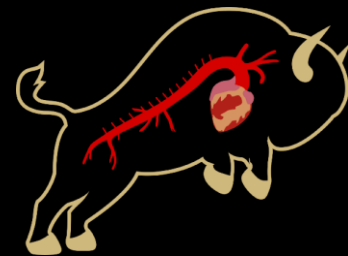
Adam Carroll (1), Nicolas Chanes (1), Michal Schafer (1), Zihan Feng (1),
Jintong Liu (1), Ananya Shah (1), Jacob Edwards (1), Muhammad Aftab (1), T.
Brett Reece (1)

(1) University of Colorado Anschutz, Denver, CO



No disclosures

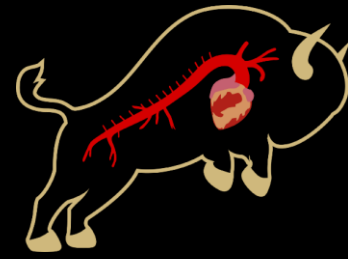




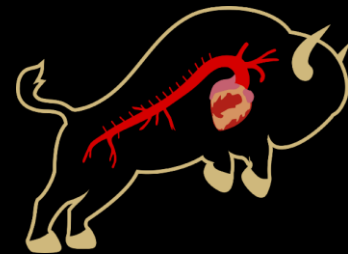
Introduction

- Aortic root replacement is commonly performed to address root pathology
- Prosthetic roots have potential to degenerate or be afflicted with other pathology
- Re-do root replacements pose a technical challenge
- Prior studies have compared re-do root replacement groups with native chest patients, found comparable mortality, but longer operative times and more short-term morbidity
- Re-do root replacement patients have not been compared to other patients with a non-native chest

Aim

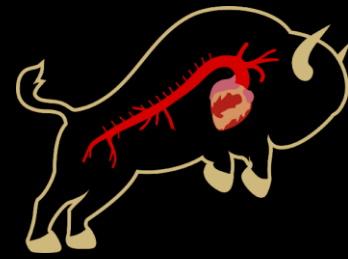


To compare characteristics and outcomes in patients undergoing repeat aortic root replacement with other patients who have a non-native chest



Methods

- A retrospective review of institutional aortic database from 2009-2023 for patients undergoing root replacement with non-native chest
- Patients separated into two cohorts based on prior aortic root history
 - Prior root replacement (True Root Replacement, TRR)
 - Non-native chest without prior root replacement (No Prior Root, NPR)
- Pre-operative, operative and post-operative characteristics compared between two cohorts

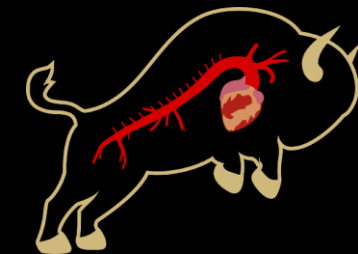


Results

- In total, 94 patients identified
 - 18 with a prior history of root replacement
 - 76 with history of sternotomy, no prior root replacement history
- Higher incidence of connective tissue disease in TRR group, otherwise no difference in baseline comorbidities

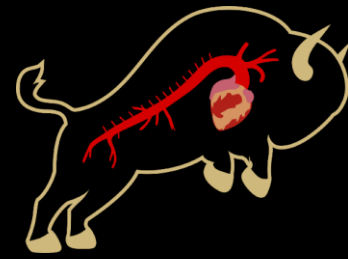
	True Re-do Root (n=18)	No Previous Root (N=76)	P-value
Age	59.9 (45.8 – 65.8)	59.3 (51.9 – 66.4)	0.478
Sex (male)	13 (72.2%)	61 (80.2%)	0.524
Comorbidities			
Hyperlipidemia	2 (11.1%)	23 (30.3%)	0.140
Hypertension	12 (66.7%)	56 (73.7%)	0.566
Diabetes	1 (6.2%)	5 (6.6%)	0.999
Smoking	2 (11.1%)	12 (28.9%)	0.729
CKD	2 (11.1%)	9 (11.8%)	0.999
CAD	2 (11.1%)	12 (15.8%)	0.999
Prior Stroke	2 (11.1%)	13 (17.1%)	0.728
Connective Tissue Disease	4 (22.2%)	3 (3.9%)	0.024
BMI	26.7 ± 4.5	27.8 ± 5.2	0.665

Results



- No difference in other aortic or cardiac surgical history
- Majority of TRR patients had prior non-valve sparing root

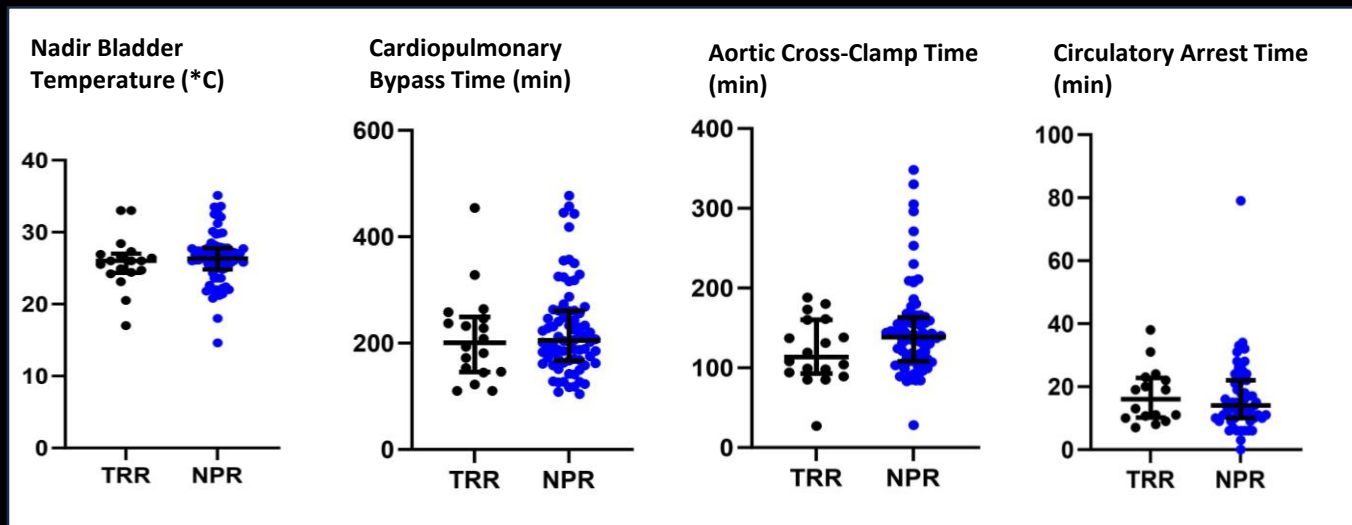
	True Re-do Root (n=18)	No Previous Root (N=76)	P-value
Aortic/Cardiac Surgical History			
Valve Sparing Root (TRR) or Aortic Valve Resuspension (NPR)	7 (39.9%)	14 (18.4%)	0.111
Non-Valve Sparing Root (TRR) or Aortic Valve Replacement (NPR)	11 (61.1%)	34 (44.7%)	0.295
Ascending Replacement	5 (27.8%)	26 (34.2%)	0.783
Hemiarch Replacement	3 (16.7%)	9 (11.8%)	0.694
Total Arch Replacement	2 (11.1%)	7 (9.2%)	0.681
Mitral Valve Intervention	2 (11.1%)	1 (1.3%)	0.093
CABG	1 (5.6%)	5 (6.6%)	0.999
Coarctation Repair	0	3 (3.9%)	0.999

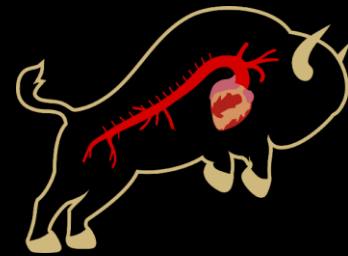


Results: Operative

No differences seen in operative characteristics or adjunctive aortic procedures performed

	True Re-do Root (n=18)	No Previous Root (n=76)	P-value
Urgency			
Elective	8 (44.4%)	46 (60.5%)	0.290
Urgent/Emergent	10 (55.6%)	30 (39.5%)	
CBP time (min)	201 (148 - 244)	205 (168 - 260)	0.535
XC time (min)	114 (95 - 155)	139 (108 - 161)	0.099
Circulatory Arrest (min)	16 (11 - 23)	14 (11 - 22)	0.755
Bladder Nadir Temp (deg C)	27.2 (23.6 - 29.9)	26.4 (24.9 - 27.7)	0.364
Procedures			
Valve-sparing	1 (5.6%)	10 (13.2%)	0.684
Non-valve sparing	17 (94.4%)	66 (86.8%)	
Hemiarch	8 (44.4%)	33 (43.4%)	0.999
Total arch	8 (44.4%)	24 (31.5%)	0.407
Elephant trunk	4 (22.2%)	20 (26.3%)	0.999
Perioperative Blood Products			
RBCs	4 (2 - 8)	3 (1 - 7)	0.445
FFP	6 (3 - 8)	6 (4 - 10)	0.417
Platelets	3 (2 - 3)	3 (2 - 4)	0.564



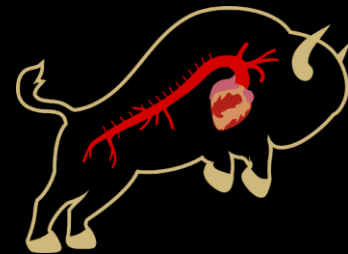


Results: Post-Operative Outcomes

- Increased hospital length of stay, but not ICU length of stay in TRR cohort
- Trend towards increased pacer implementation rate in TRR, but non-significant

Variable	TRR (N=18)	NPR (N=76)	p-value
Hospital Stay (days)	19 (9-29)	10 (8 - 17)	0.028
ICU Stay (days)	6 (3 - 10)	4 (3 - 7)	0.439
Prolonged Ventilation	3 (16.7%)	7 (9.2%)	0.397
Infection	3 (16.7%)	9 (11.8%)	0.694
New MCS	0	10 (13.2%)	0.200
Stroke	2 (11.1%)	6 (7.9%)	0.647
Arrhythmia requiring PPM	3 (16.7%)	4 (5.3%)	0.126
Post OP open chest	3 (16.7%)	20 (26.3%)	0.546
Unplanned Takeback	1 (5.6%)	3 (3.9%)	0.579
Post Mortality	2 (11.1%)	7 (9.2%)	0.681

All data reported as median with corresponding IQR or N(%). (MCS= Mechanical Circulatory Support, PPM=Pacemaker)



Conclusions

- Re-do root replacement is feasible, has comparable outcomes to other patients with a non-native chest
 - Patients requiring repeat root replacement more prone to have connective tissue disease
 - Increased hospital length of stay, otherwise no difference in perioperative morbidity and mortality
- Findings may help guide decision-making of index operation if questioning root intervention

Questions???

