Operative Management in Setting of Anomalous Origin of Coronary Artery

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Background

Anomalous Origin of Coronary Artery

- Anomalous origin of coronary artery (AOCA) is a rare congenital abnormality in which both coronary arteries arise from the same aortic sinus
- Intramural course through the aortic wall is the most common trajectory of the anomalous coronary artery (RCA)
- Because of this, the artery is prone to compression and decreased blood flow during times of increased aortic pressure (exercise)
- This is associated with high risks of exercise-induced myocardial ischemia, ventricular arrhythmia, and sudden cardiac death

Coronary Unroofing

- Surgical correction is required to prevent sudden cardiac death both for symptomatic and for asymptomatic patients with evidence of myocardial ischemia under stress or restricted coronary artery segment
- Surgical unroofing is the gold standard procedure when the anomalous artery exhibits intramural course through the aorta
- Coronary unroofing is associated with risk of aortic insufficiency

Case Presentation

A 50-year-old male presents for cardiology evaluation in setting of recurrent chest pain

Past Medical History

- No pertinent PMH
- Family history of premature coronary artery disease (CAD)
  - Mother with CAD/MI at age 52
  - Father with PCIx2 at age 60

Coronary CT Angiography

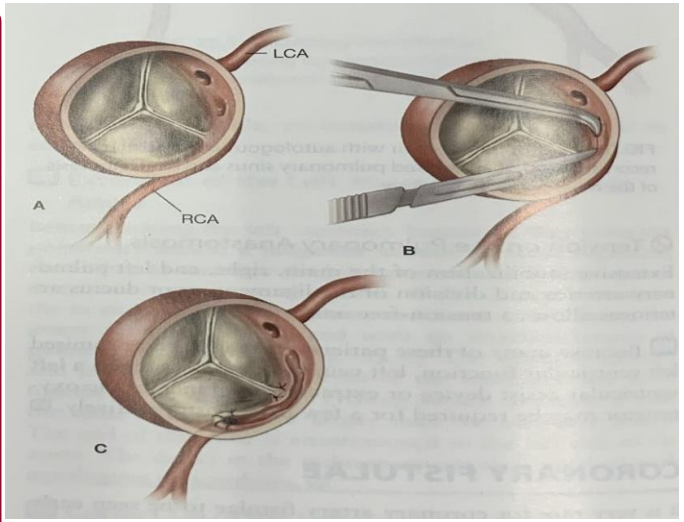
- Anomalous RCA originating from left sinus of valsalva coursing between aorta and pulmonary artery with short intramural course and significant compression

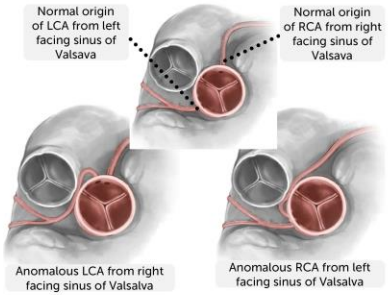
Anesthetic Strategy

- **These patients are at increased risk for cardiac arrest on induction of anesthesia**
- **Hypertension, hypotension, and tachycardia should be avoided**
- **Goal HR 60-80 BPM and BP within 30% of baseline**

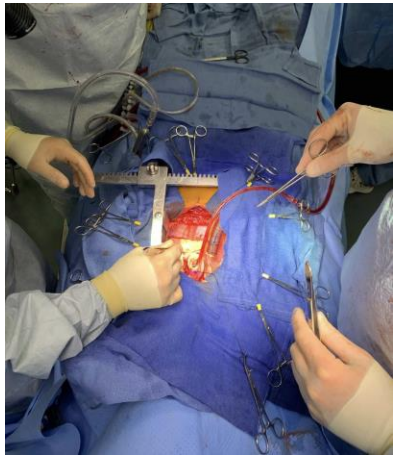
Anesthetic Course

- **Arterial line placed pre-induction**
- **Patient given premedication with 2 mg Versed**
- **Induced with 250mcg of fentanyl, 100 mg lidocaine, 150 mg of propofol, 80 mg rocuronium, and 50 mg of esmolol**
- **There were no significant events pre, post, or while on cardiopulmonary bypass**
- **Patient remained hemodynamically stable throughout the case, requiring just some low dose Cardene coming off bypass. Discharged on POD 7**





Boston Children's Hospital | Heart Center Cardiac Intensive Care Unit



Discussion

- Patients undergoing repair of Anomalous Origin of Coronary Artery must be handled carefully as there is increased risk of cardiac arrest on induction
- The doctrine of “not too high, not too low, not too fast, not too slow” serves as a good guideline for hemodynamic goals

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