Cardiac MRI Essentials

Aortic coarctation

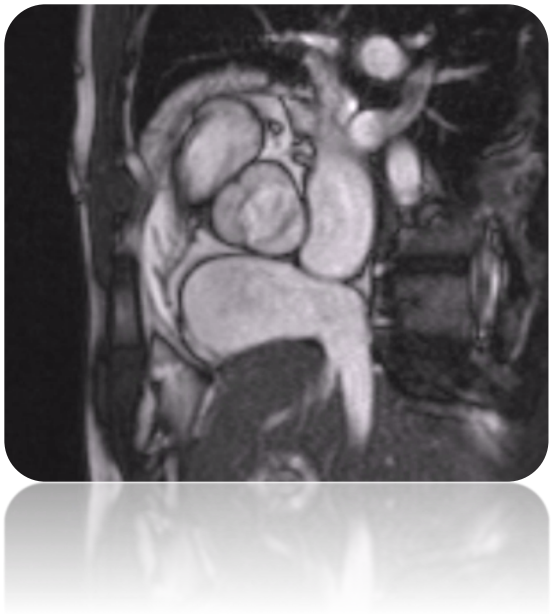
- Aortic coarctation is a narrowing of the aorta, most commonly just distal to the left subclavian artery
- CMR allows assessment of:
  - anatomy of coarctation, surrounding aorta, and collaterals
  - flow through the coarctation
  - left ventricular size, function, and mass
  - aortic valve anatomy.

MR angiogram of normal aorta

MR angiogram showing aortic coarctation and extensive collaterals

Aortic coarctation repair

- CMR can be useful in assessing patients who have undergone aortic coarctation repair
- Image at left shows a successful end-to-end repair



Bicuspid aortic valve

- Half of patients with aortic coarctation will also have a bicuspid aortic valve (left)
- Always evaluate the aortic valve carefully during any aortic coarctation CMR study

How do we assess aortic coarctation with CMR?

CMR assessment of aortic coarctation should always include:

- Description of aortic anatomy
- Measurement of aortic dimensions
- Assessment of aortic coarctation severity
    - minimal dimensions
    - peak flow velocity
    - collaterals
- Quantification of left ventricular size, function, and mass
- Assessment of aortic valve anatomy (?bicuspid valve)

Further reading

Magnetic resonance imaging predictors of coarctation severity. *Circulation* 2005; **111**: 622-628 [click here to access online]