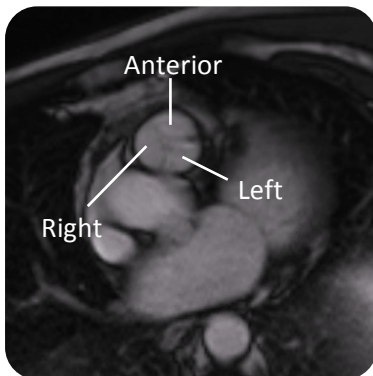




Cardiac MRI Essentials

Pulmonary valve

- The normal pulmonary valve has three cusps:
 - Anterior
 - Left
 - Right
- CMR permits:
 - Assessment of pulmonary valve anatomy
 - Direct planimetry of PV orifice area
 - Quantification of flow
 - Peak forward flow velocity
 - Regurgitant volume/fraction
 - Assessment of RVOT and pulmonary artery
 - Assessment of right ventricle



Pulmonary valve: short axis view

- Anatomy of all three cusps
- Direct planimetry of valve orifice area



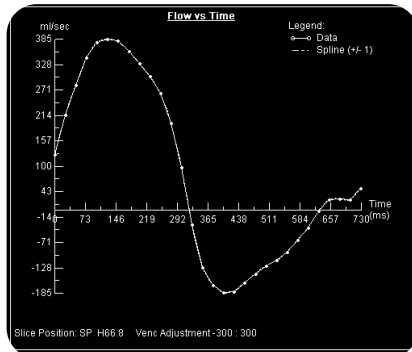
Pulmonary valve: RVOT view

- Permits assessment of cusp mobility
- Also shows anatomy of right ventricular outflow tract and pulmonary artery



Moderate pulmonary stenosis

- Short axis view
- Valve orifice area 1.3cm^2 by direct planimetry



Pulmonary regurgitation

- Graph obtained using flow CMR
- Shows flow (ml/sec) versus time
- Allows quantification of regurgitant volume (area under the x axis)

How do we assess the pulmonary valve with CMR?

CMR of the pulmonary valve allows us to:

- Assess pulmonary valve anatomy and function
 - Short-axis view
 - RVOT view
- Quantify pulmonary stenosis
 - Direct planimetry of orifice area
 - Peak forward flow velocity
- Quantify pulmonary regurgitation
 - Regurgitant volume/fraction
- Assess RVOT and pulmonary artery anatomy
- Assess right ventricular size and function

Further reading

Magnetic resonance imaging to assess the hemodynamic effects of pulmonary valve replacement in adults late after repair of Tetralogy of Fallot. *Circulation* 2002; **106**: 1703-1707

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