



Cardiac MRI Essentials

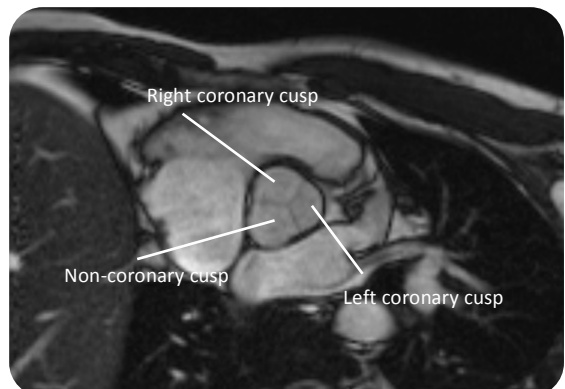
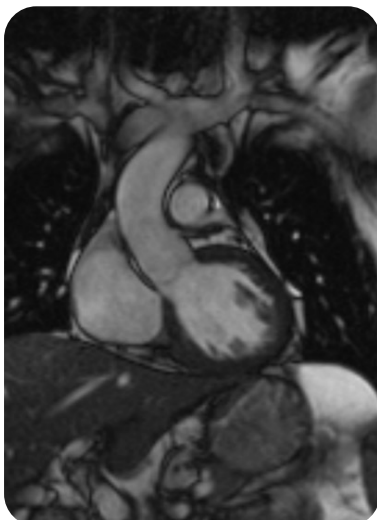
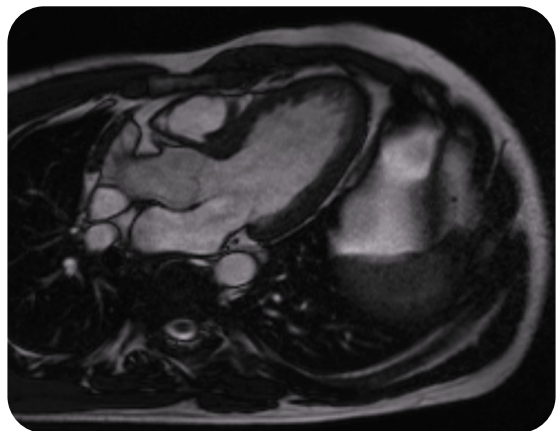
Aortic valve morphology

CMR allows us to assess:

- Number of aortic valve cusps
 - Normal (tricuspid) / bicuspid / unicuspid / quadricuspid
- Cusp thickening
- Cusp mobility
- Aortic root anatomy
- Hemodynamic assessment
 - Aortic stenosis / regurgitation

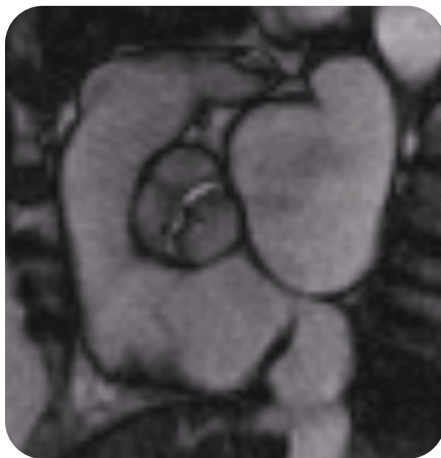
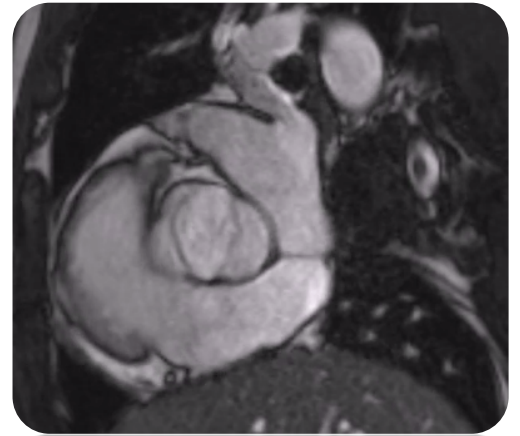
Aortic valve CMR views

- The aortic valve can be assessed in a number of CMR views:
 - 3-chamber view (right)
 - LVOT view (below left)
 - Short axis view (below right)



Bicuspid aortic valve: short axis view

- Short axis view - cine CMR (still frame)
- Shows bicuspid aortic valve *en face*
- Valve is of the anterior-posterior type
- Allows direct planimetry of orifice area



Pseudobisucpid aortic valve: short axis view

- Short axis view - cine CMR (still frame)
- Pseudobicuspid valve (fusion of left and right coronary cusps)
- Severe aortic stenosis (small orifice area)

How do we assess aortic valve morphology with CMR?

- Assess aortic valve anatomy, cusp thickening, and mobility:
 - Three-chamber view
 - LVOT view
 - Short-axis view
- Perform direct planimetry of valve orifice area
- Assess morphology and dimension of aortic root
- Perform a hemodynamic assessment (aortic stenosis/regurgitation)

Further reading

Variable phenotypes of bicuspid aortic valve disease: classification by cardiovascular magnetic resonance. *Heart* 2010; **96**: 1233-1240 [[click here to access online](#)]