

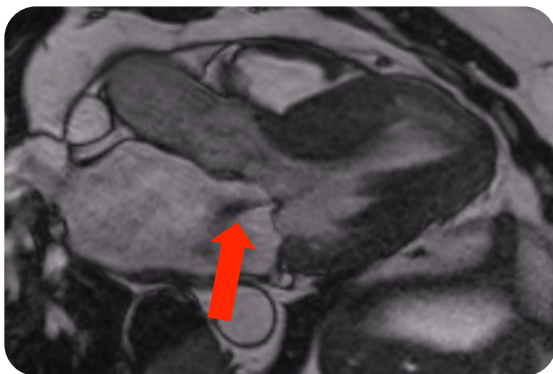
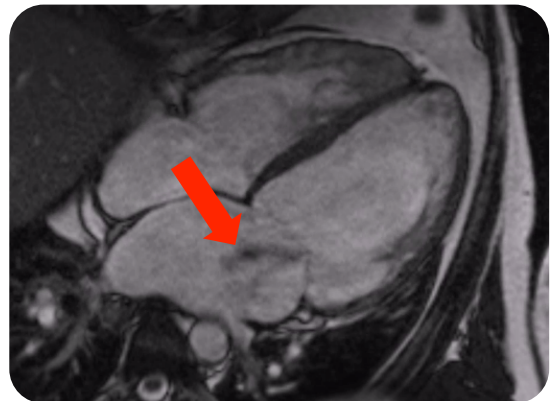
Cardiac MRI Essentials

Mitral regurgitation

- CMR permits assesment of:
 - Mitral valve anatomy and identification of the etiology of mitral regurgitation
 - Mitral regurgitant volume and fraction
 - Left ventricular size and function
 - Left atrial size

Etiology of mitral regurgitation

- 4-chamber cine CMR (still frame)
- Functional MR (red arrow) due to dilated cardiomyopathy



Etiology of mitral regurgitation

- 3-chamber cine CMR (still frame)
- Mitral regurgitation (red arrow) due to systolic anterior motion

Mitral regurgitation quantification

MR volume = LV stroke volume – aortic forward flow

$$\text{MR fraction} = \frac{\text{MR volume}}{\text{LV stroke volume}}$$



Do not use the size of the regurgitant jet to assess mitral regurgitation severity on CMR

How do we assess mitral regurgitation with CMR?

CMR of mitral regurgitation allows us to:

- Assess mitral valve anatomy
 - Two-, three, four-chamber views
 - Short-axis stack
- Assess left ventricular size and systolic function
- Quantify left ventricular stroke volume
- Quantify aortic forward flow
 - To calculate mitral regurgitant volume/fraction
- Assess left atrial size.

Further reading

Quantitative assessment of mitral regurgitation: validation of new methods. *Journal of the American College of Cardiology* 2012; **60**: 1470-1483 [[click here to access online](#)]