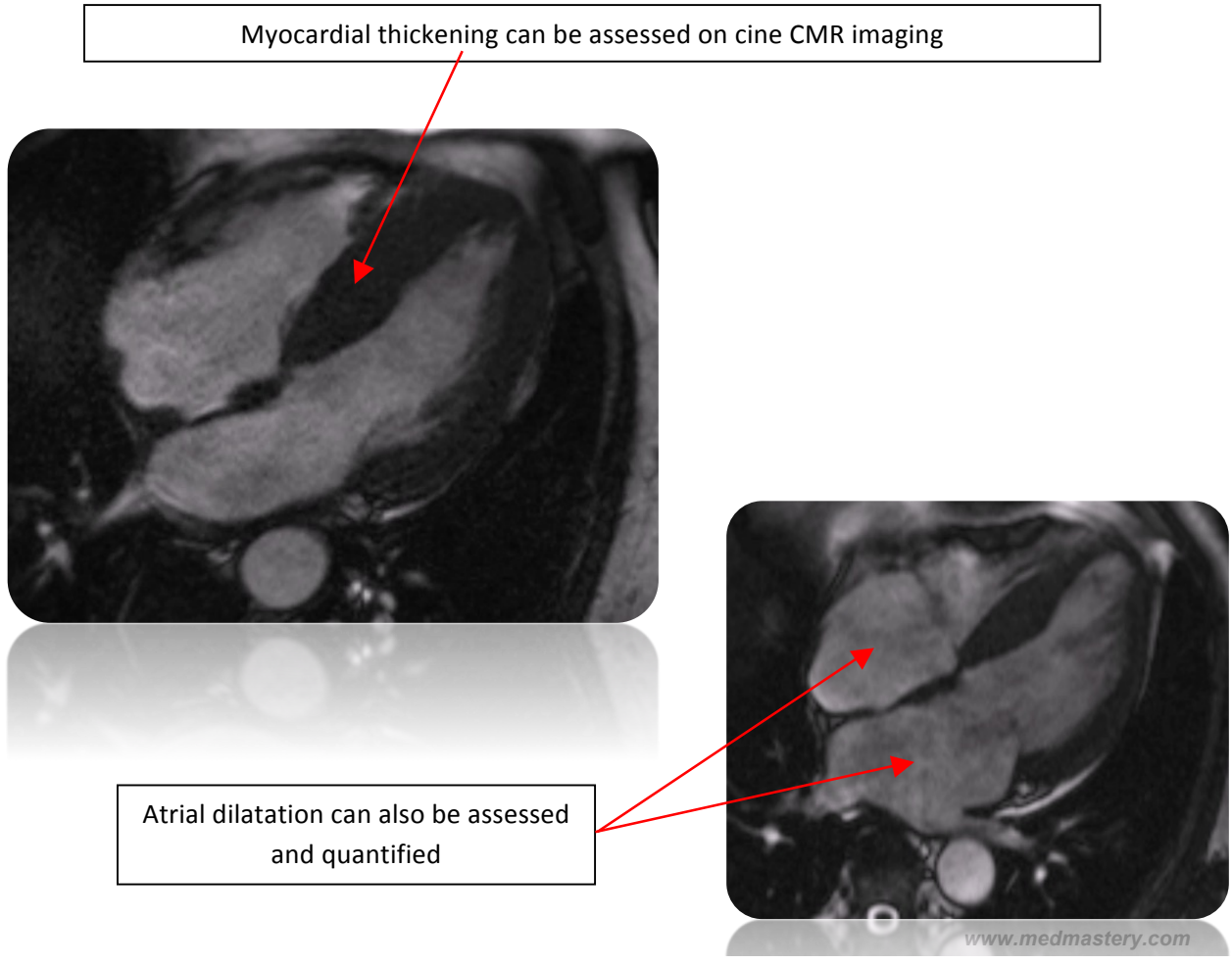
Cardiac MRI Essentials

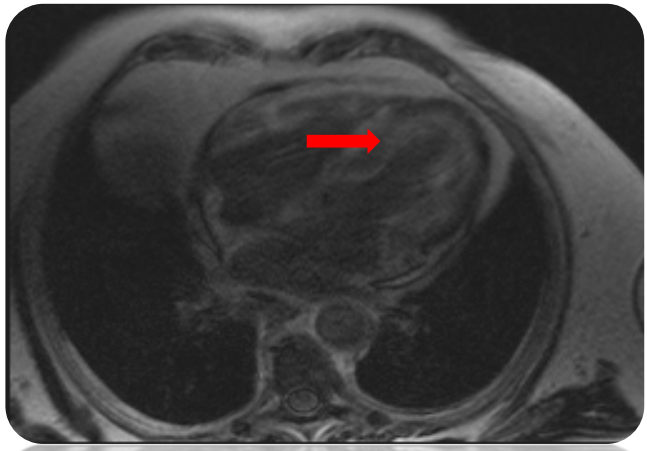
Cardiac amyloidosis

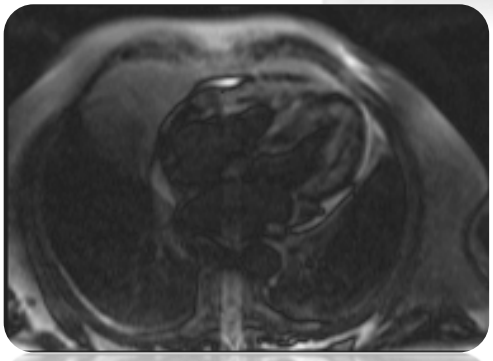
- Amyloidosis is a systemic disorder with extracellular deposition of insoluble amyloid protein
- Endomyocardial biopsy is the gold standard for diagnosis, but CMR provides useful diagnostic information about cardiac involvement:
    - Myocardial thickening
    - Atrial dilatation
    - Diffuse late gadolinium enhancement in the left ventricular myocardium
    - Late gadolinium enhancement may also affect right ventricle and atria
    - Dark blood pool
    - Pericardial and/or pleural effusions



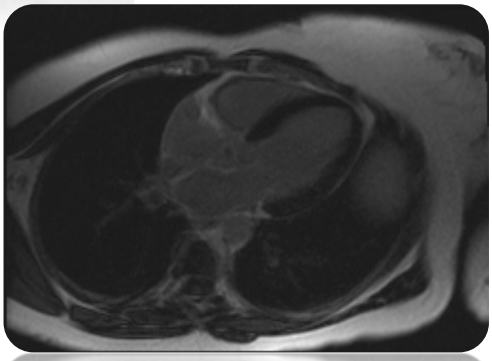
Late gadolinium enhancement CMR

- Late gadolinium enhancement CMR will typically show diffuse enhancement of the myocardium (red arrow below)
- The appearance of the blood pool is also unusually dark





Compare the dark blood pool in amyloidosis (left), with the normal appearance (right)



How do we assess cardiac amyloidosis with CMR?

- Assess left ventricular wall thickness, volume, systolic function, and mass
- Assess any right ventricular wall thickening
- Assess atrial size
- Look for pericardial or pleural effusions
- Describe late gadolinium enhancement (and blood pool appearance)

Further reading

Magnetic resonance imaging in cardiac amyloidosis. *Journal of the American College of Cardiology - Cardiovascular Imaging* 2009; **2**: 1378-1380 [click here to access online]