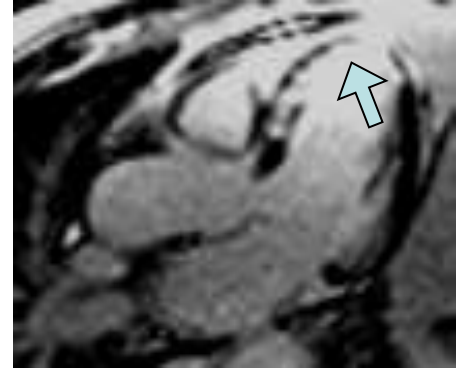
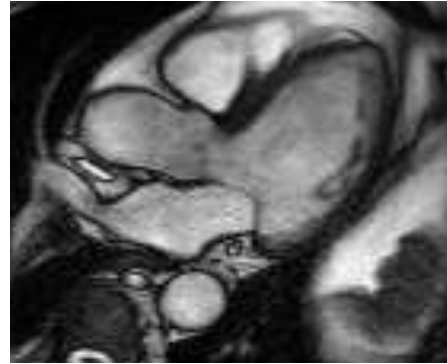
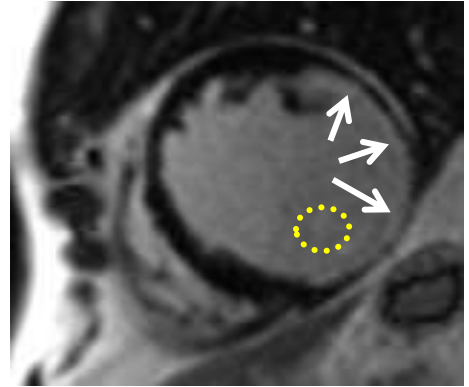
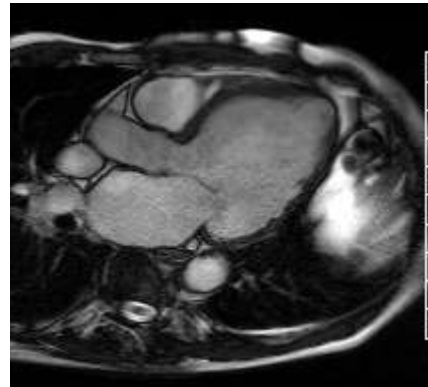


CMR Viability Protocol

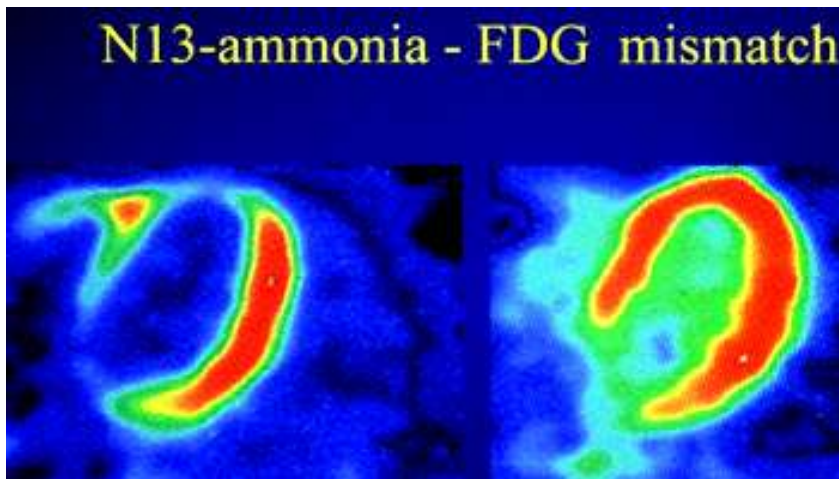
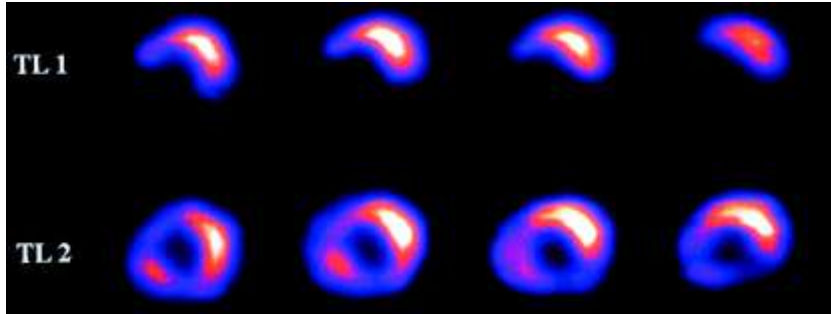
- Late post-gadolinium enhancement (LGE, DME) – ‘bright is dead’



- Cines for regional wall motion, LV volumes & EF

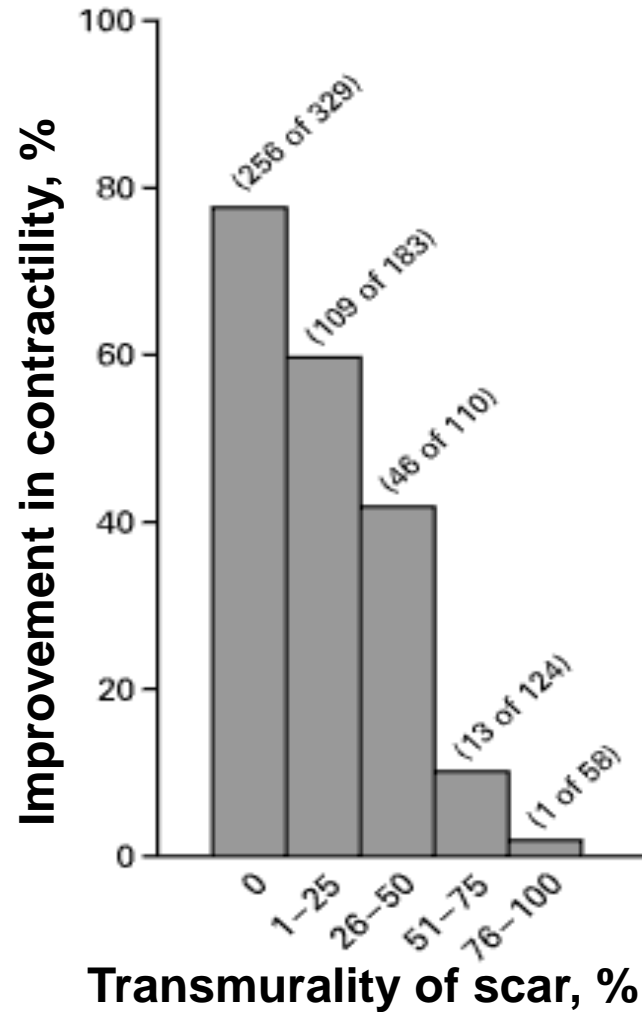
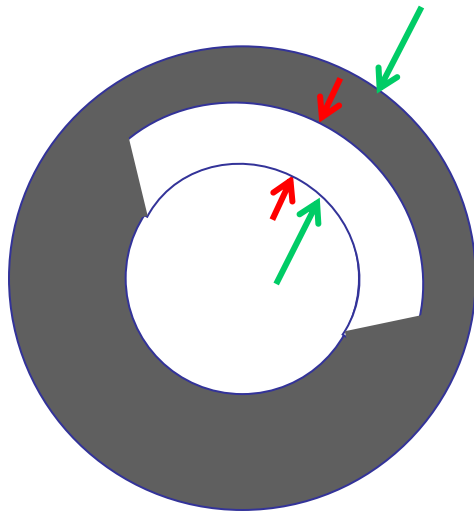


Many Ways to Skin the Viability Cat

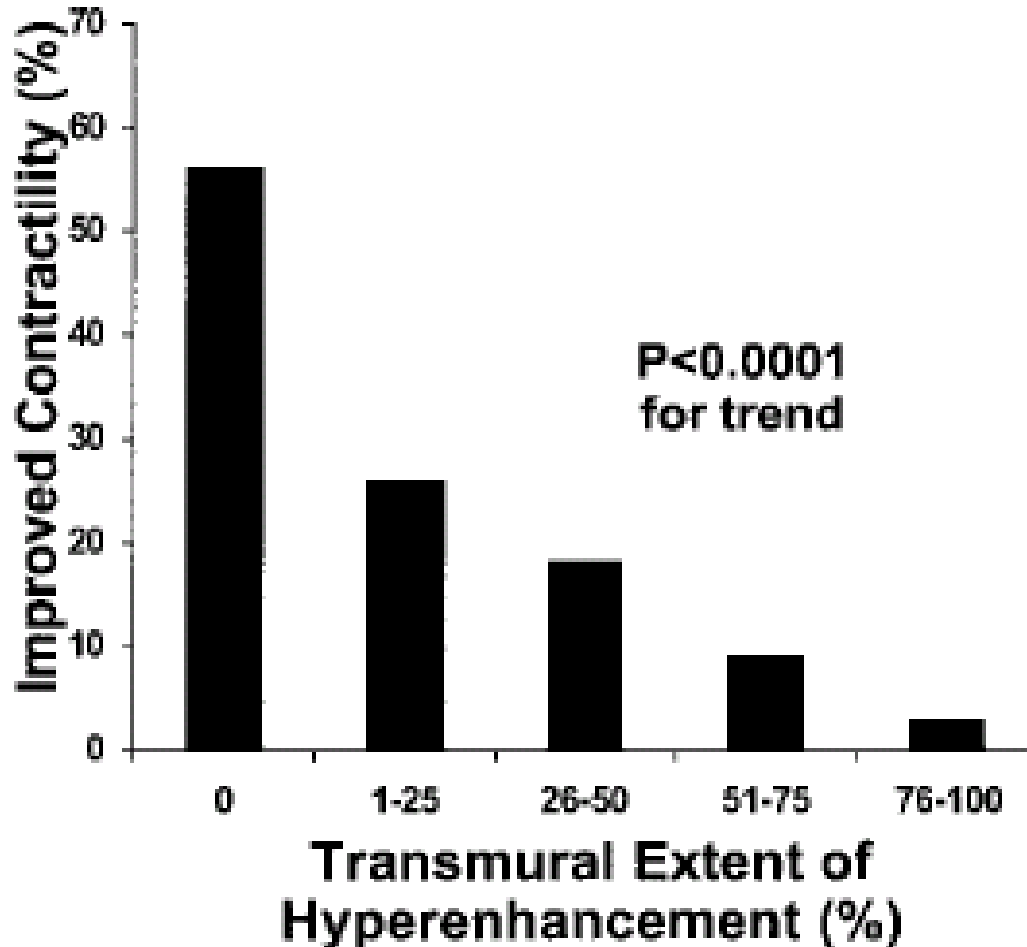


Scar Transmurality

Predicts LV Recovery Post-Revascularization

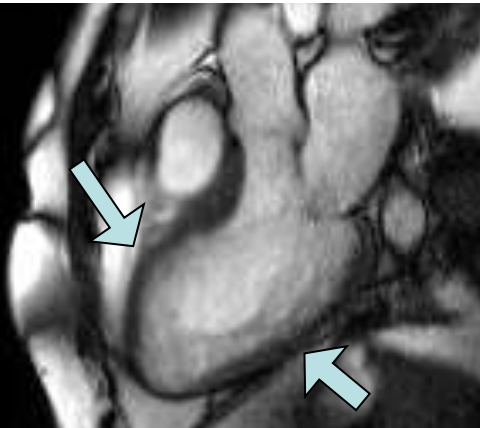


Absence of Scar Also Predicts Response to Medical Therapy

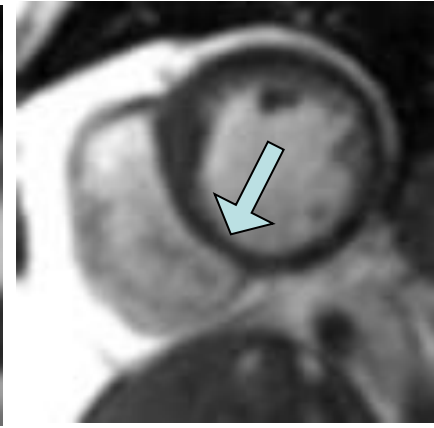
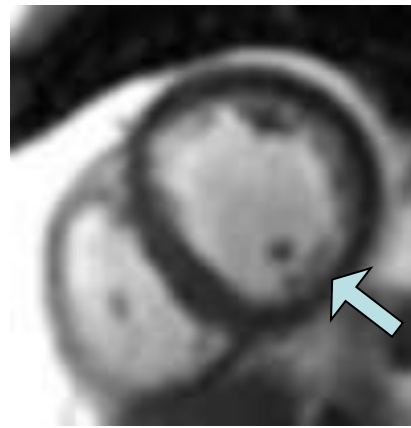


Case 1

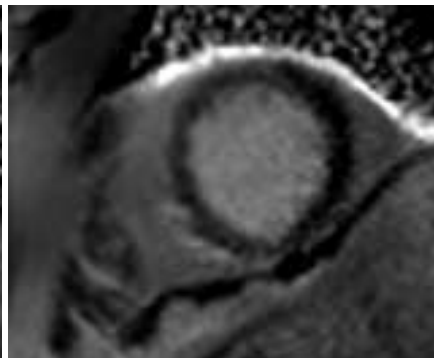
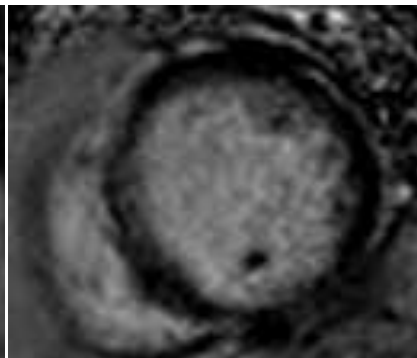
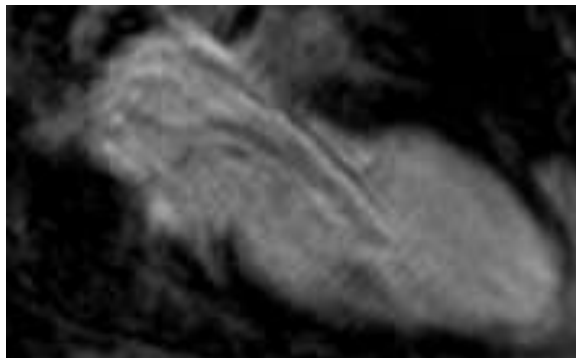
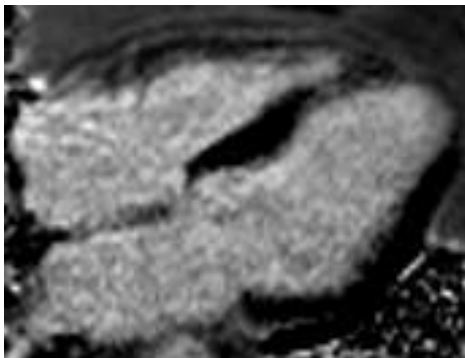
Breathhold Cine



Real-Time Free-Breathing Cine Imaging



Late Gadolinium Enhancement Images (LGE, DME)

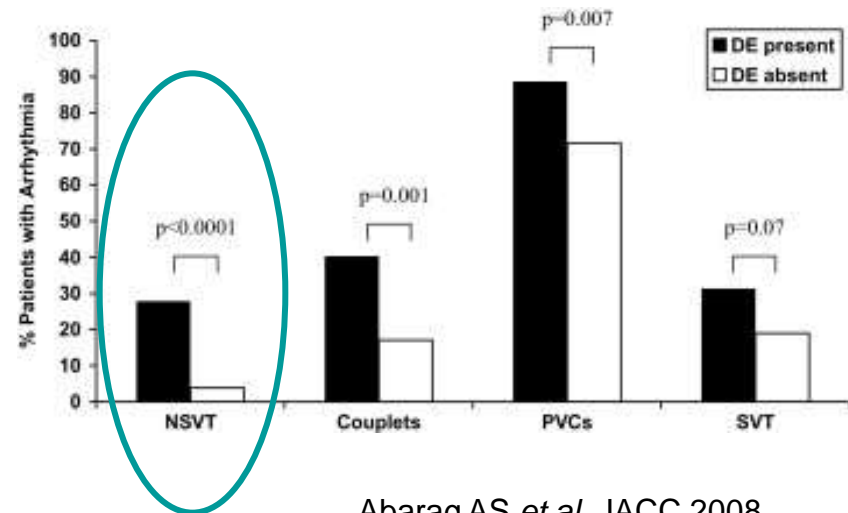
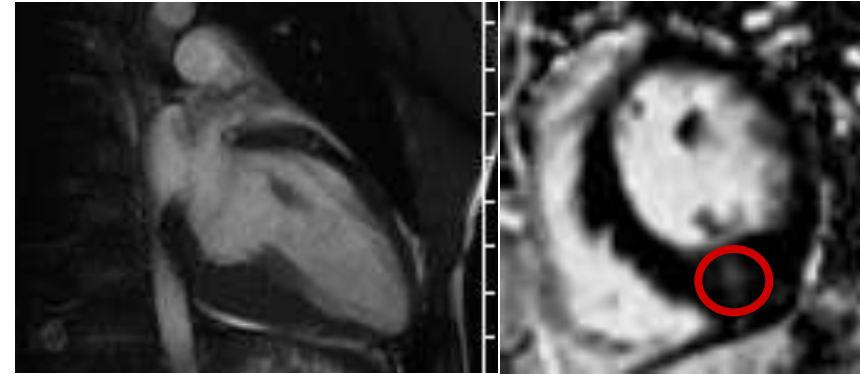


Case 1: Summary of CMR Findings

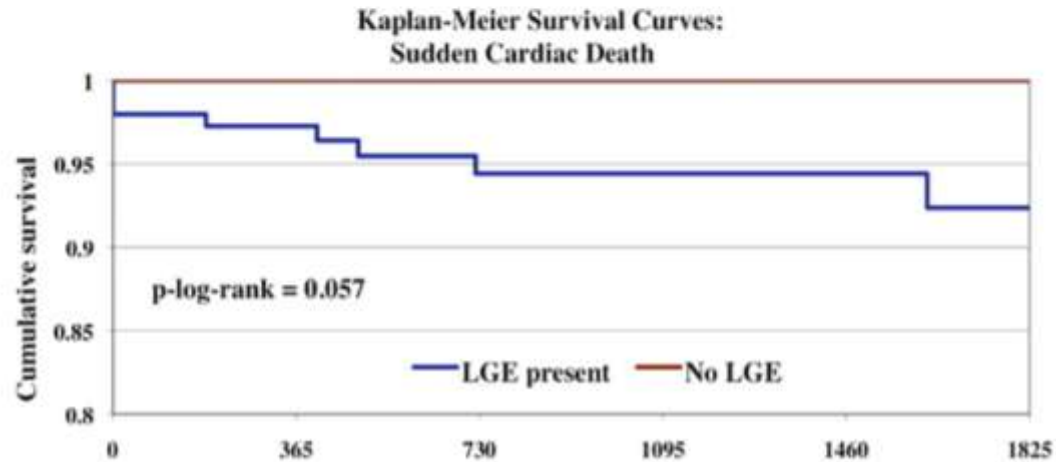
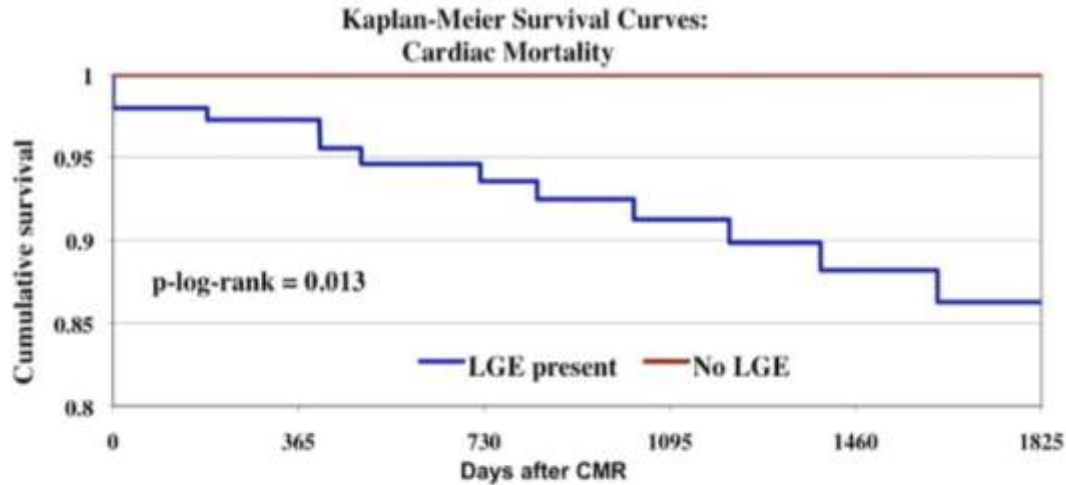
1. Dilated LV, LVEF 15%
2. Distal septal and apical scar; remaining LV segments viable
3. Moderate mitral regurgitation

CMR HCM Protocol

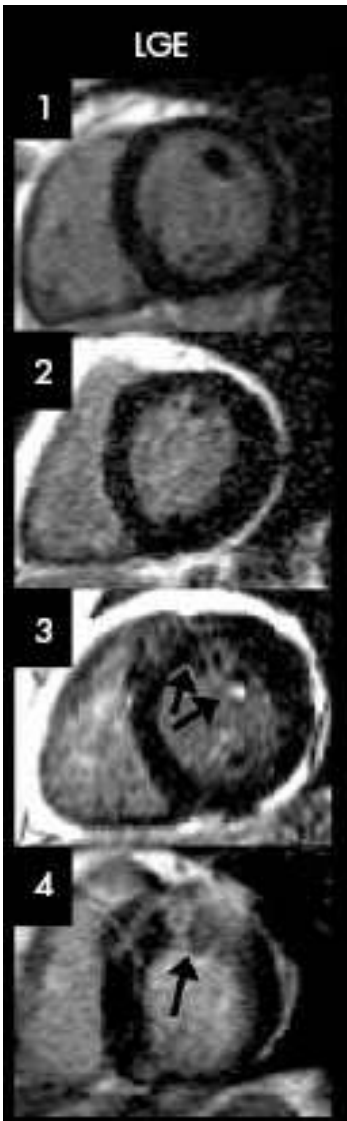
- Late post-gadolinium enhancement (bright is fibrosis, often patchy)
- Cines for regional wall motion, thickness
- Velocity-encoded cines in LVOT to estimate gradient



LGE Scar in HCM Predicts Events



Similar Genotype (TNNI3), Distinct Phenotypes

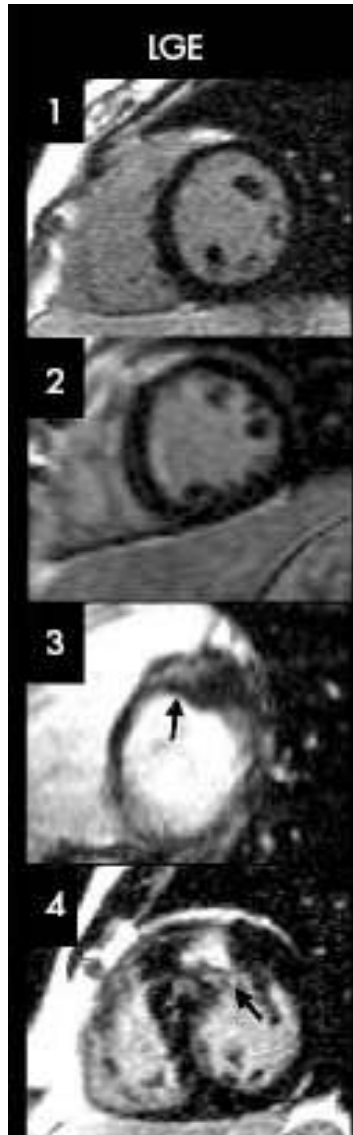


Family 1:

late onset

slow progression

No pt with any RFs
for SCD



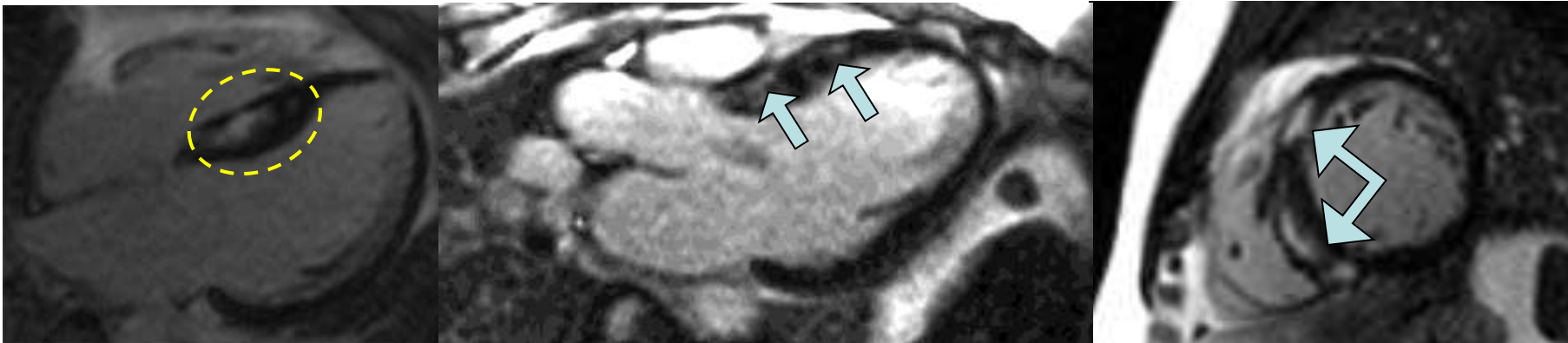
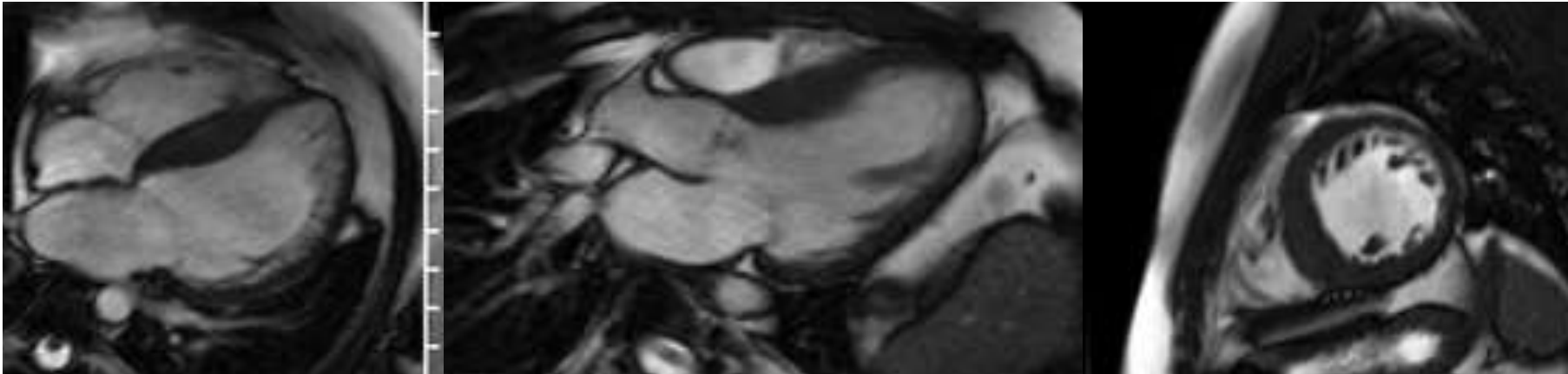
Family 2:

early onset

rapid phenotype
development

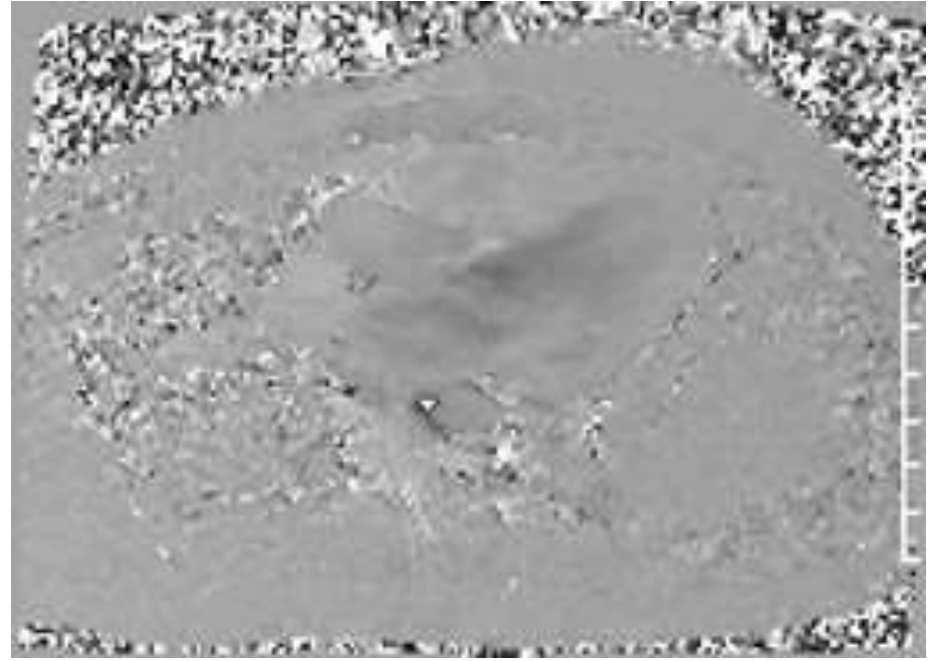
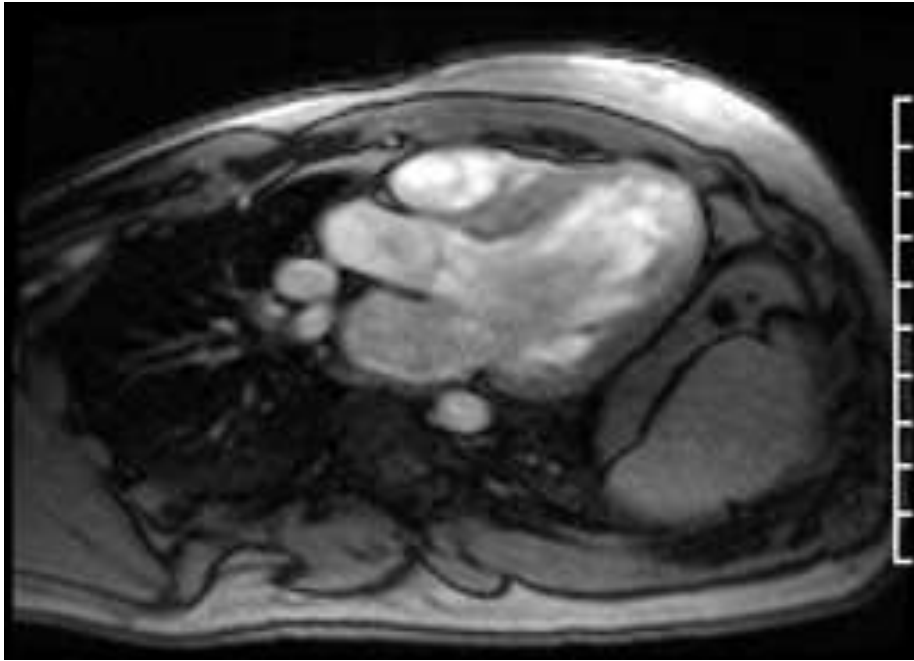
Proband had SCD
at age 18

Case 2: Cines (Top) and LGE (Bottom)



In-Plane Velocity-Encoded Cine

(grayscale at each pixel \propto velocity, direction)



Case 2: Summary of CMR Findings

- Asymmetric septal hypertrophy (2.5 cm)
- No LVOT obstruction or SAM
- **Diffuse septal fibrosis c/w HCM**
- LVEDVI 126, LVESVI 57; LVDd 66mm, LVDs 44 mm; LVEF 55%
- Bicuspid aortic valve with moderate-severe AR, regurgitant fraction 30%