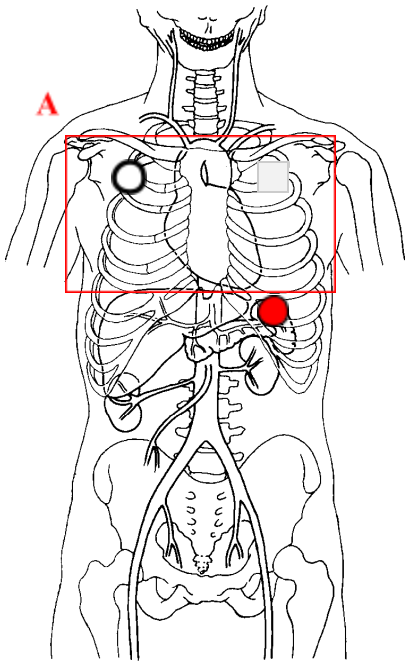
Cardiac MRI for Stress-Rest

ACQUISITION

	Contrast	Oral: N/A Two IVs: 18 gauge
	Injection Rate	4 ml/sec
	Respiration	Breath hold
	Acquisition Specs	Appropriate localization to achieve images as specified in following sequences.
A Axial	Begin	Top of aortic arch
True FISP	End	Below bottom of heart
B Short axis	Begin	Mitral annulus
T1 perfusion Setup	End	Apex
C Short axis	Begin	Mitral annulus
T1 perfusion STRESS	End	Apex
D Short axis	Begin	Mitral annulus
Ciné stack	End	Apex
F Short axis	Begin	Mitral annulus
T1 perfusion REST	End	Apex
G Short axis	Begin	Mid ventricle
T inversion scout	End	
H 2, 3, 4 ch**,** Short axis	Begin	Mitral annulus
Delayed enhancement	End	Apex

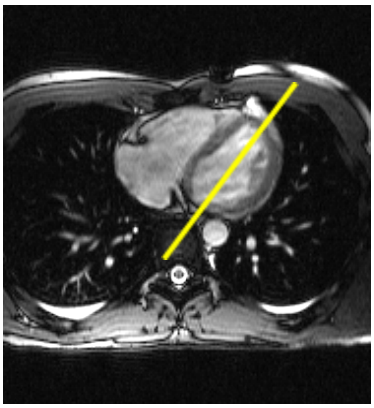


EKG GATING

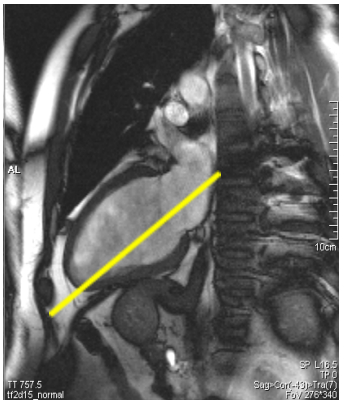
Place white lead on right shoulder, black lead on left shoulder, and red lead on left lower chest.

LOCALIZERS

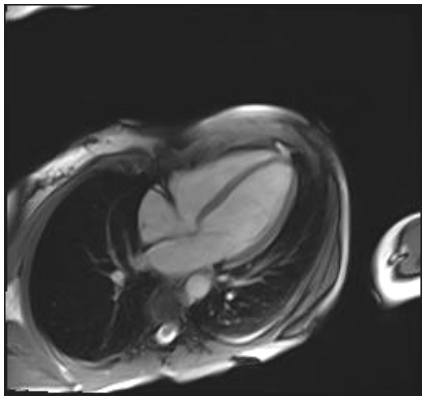
IPAT off



Axial



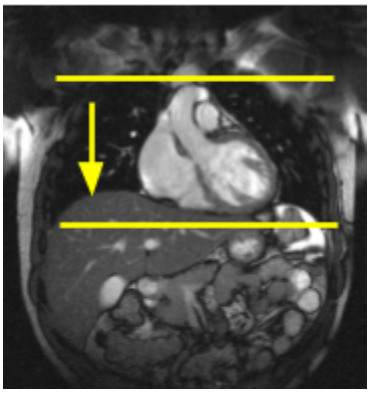
Two Chamber



Horizontal Long Axis

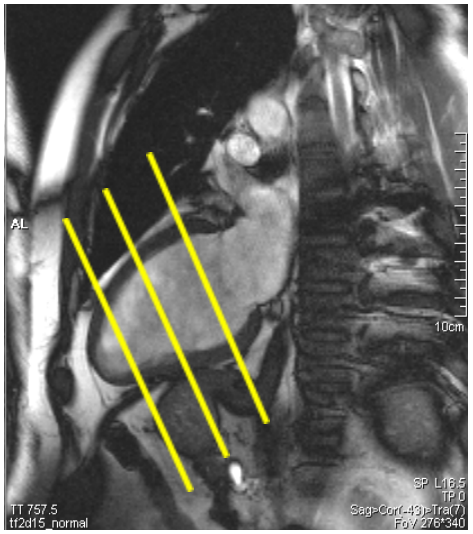
ACQUISITION

A	Sequence	AX Tru Fisp
	Slices	50
	Thickness	3.5mm
	Spacing	0%
	FOV	300
	TR/TE	553.68/1.38



B	Sequence	Perfusion pre-contrast
	Slices	5

	Thickness	8mm
	Spacing	200%
	FOV	360
	TR/TE	211.96/1.22

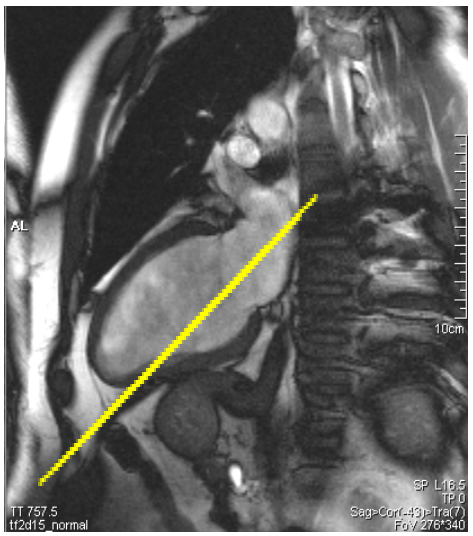


STRESS

C	Sequence	+fl_sr_dyn_160 (perfusion)
	Slices	3
	Thickness	8.0mm
	Spacing	200%
	FOV	360
	TR/TE	224.22/1.22

*****65 measurements*****

D	Sequence	SAX CINE
	Slices	16
	Thickness	7mm
	Spacing	20%
	FOV	340
	TR/TE	38.87/1.27



REST

E	Sequence	+fl_sr_dyn_160 (perfusion)
	Slices	5
	Thickness	8.0mm
	Spacing	200%
	FOV	360
	TR/TE	224.22/1.22

*****65 measurements*****

G	Sequence	SAX delayed enhancement, 2, 3, 4 ch
	Slices	16
	Thickness	6.0mm
	Spacing	25%
	FOV	340
	TR/TE	565/3.16

F	Sequence	T1 scout
	Slices	1
	Thickness	7mm
	Spacing	20%
	FOV	340
	TR/TE	38.87/1.27

OTHER

Place two 18g IV catheters, one in each antecubital vein
10 min between rest and stress imaging

Monitoring requirements for stress MR imaging

Heart rate and rhythm	Continuously
Blood pressure	Every minute
Symptoms	Continuously

Table 3: Contraindications for adenosine
• Myocardial infarction <3 days
• Unstable angina pectoris
• Severe arterial hypertension
• Asthma or severe obstructive pulmonary disease requiring treatment
• Second or third degree AV block; SA node dysfunction
• Caution: autonomic nerve dysfunction stenotic valvular disease cerebrovascular insufficiency any obstructive lung disease comedication with beta-blockers, Ca-antagonists or cardiac glycosides (due to AV / sinus node depression)

Table 4: Termination criteria
• Persistent or symptomatic AV block
• Significant drop in systolic blood pressure (> 20 mmHg)
• Persistent or symptomatic hypotension
• Severe respiratory

Delayed Enhancement

8 min between perfusion and delayed enhancement.
T1 scout add initial 30ms, then additional 10ms or redo TI scout to maintain quality.

POST PROCESSING

Left ventricle functional analysis
Perfusion analysis

Enter memorandum with following fields filled out:

History:

Scanner:

Amount of Contrast:
Name of contrast:
Injected into which vein:

Heart rate (min, max, and avg):
Height:
Weight: