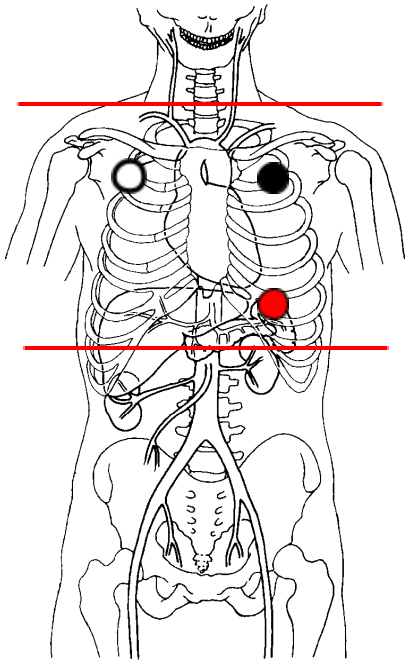
Cardiac MRA/Marfan Syndrome

ACQUISITION

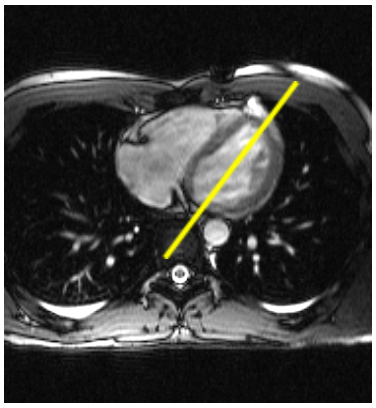
	Patient Position	Supine, head first into gantry, heart positioned isocenter,
	Contrast	Multihance IV: 20 or 22 gauge catheter
	Injection Rate	2 ml/sec
	Respiration	Per dialogue protocol
Description / Acquisition Name	Acquisition Specs	Appropriate localization to achieve images as specified in following sequences.
A Axial	Begin	Carina
True FISP	End	Below bottom of heart
B short axis cine	Begin	AV groove
	End	Apex
C aortic outflow	Begin	Anterior margin
ciné	End	Posterior margin
D aortic valve plane	Begin	Below valve
ciné	End	Sinotubular junction; For Marfan's mid asc aorta
E aortic valve plane	Begin	Aortic valve:
phase contrast		At valve and just above valve
F T2 dark blood		Thru aorta
Candy cane		Zero spacing
G 3D MRA	Begin	Base of neck
Coronal – pre	End	Upper abdomen
H 3D MRA	Begin	Base of neck
Post contrast	End	Upper abdomen
PRN: Delayed enhancement: 2-, 3-, 4-ch, short axis stack		
PRN: Pulmonary valve phase contrast		



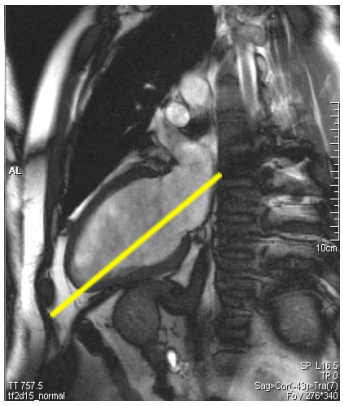
EKG GATING

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

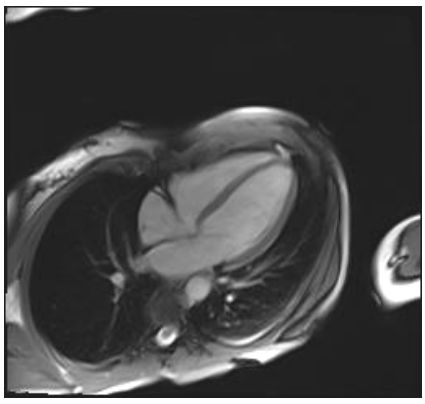
LOCALIZERS



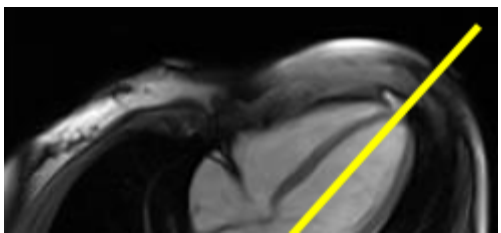
Axial

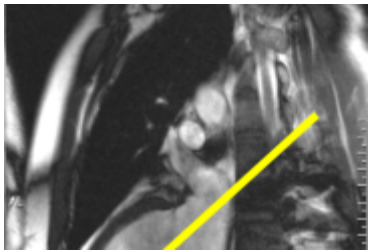


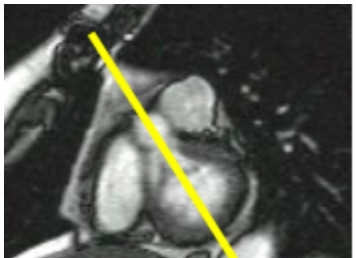
Two Chamber



Horizontal Long Axis



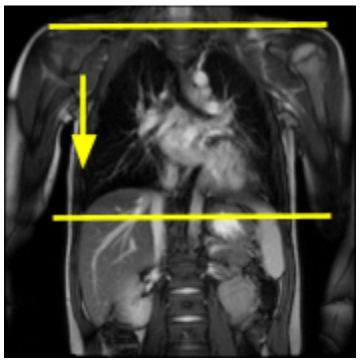




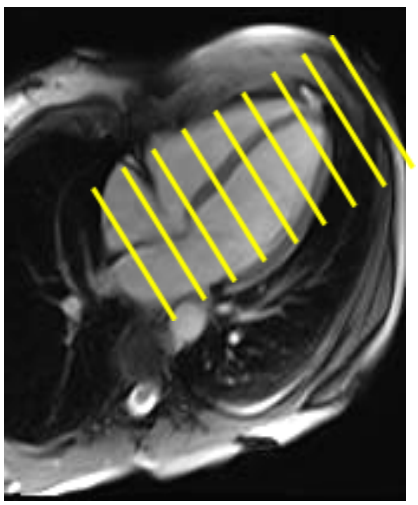
Horizontal long axis **2-Chamber** **LV outflow tract**

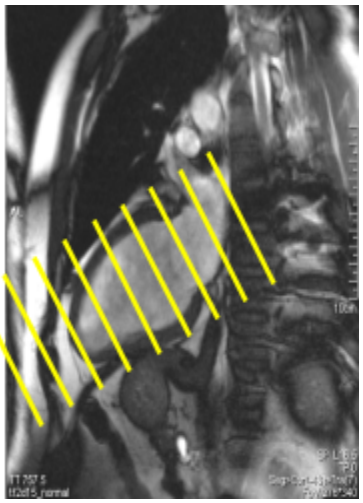
ACQUISITION

A	Sequence	True FISP
	Slices	30
	Thickness	4.5 mm
	Spacing	0
	FOV	400
	TR/TE	635 / 1.3

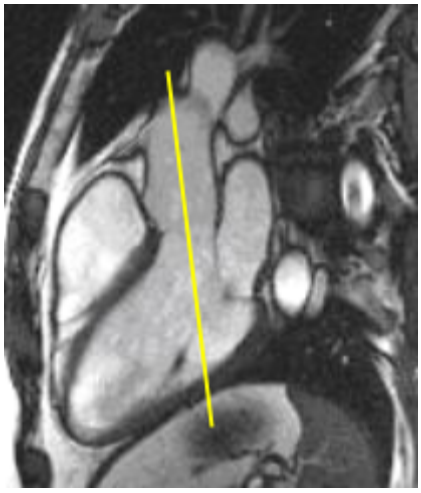


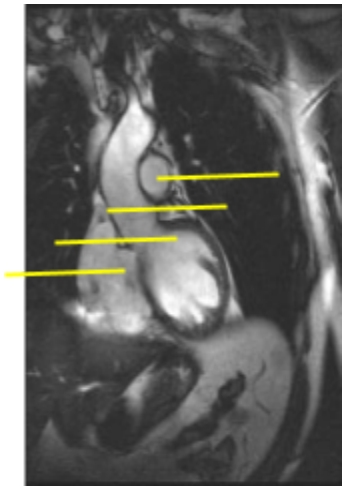
B	Sequence	Short axis cine Stack
	Slices	10
	Thickness	7 mm
	Spacing	20 %
	FOV	300
	TR/TE	51.5 / 1.4





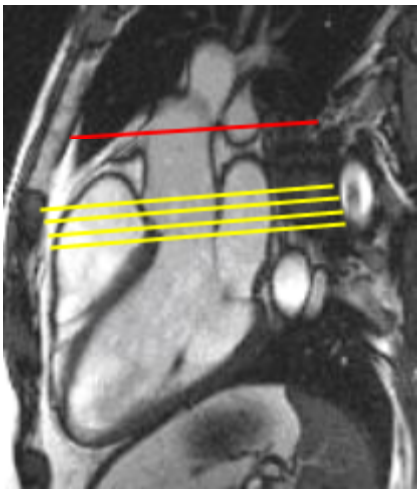
C	Sequence	Aortic valve outflow
	Slices	7
	Thickness	3 mm
	Spacing	0
	FOV	200
	TR/TE	36.6 / 1.4

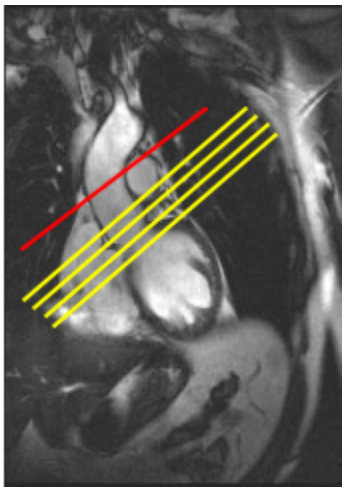




3-Chamber LV outflow **Aortic outflow tract**

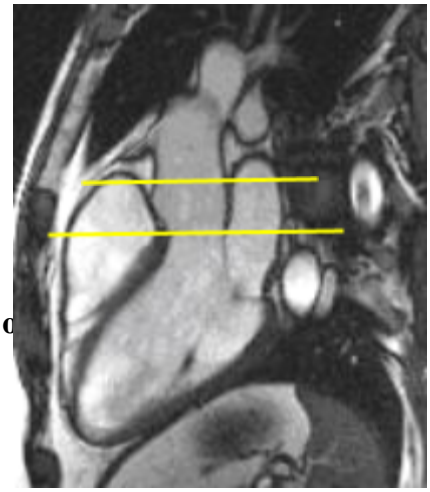
D	Sequence	Aortic valve in plane
	Slices	7
	Thickness	3.0
	Spacing	0
	FOV	200
	TR/TE	35.6 / 1.4



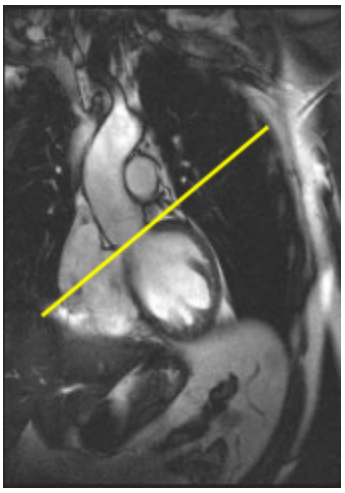


For Marfan patients extend to mid ascending aorta, but keep in plane for the valve (red line).

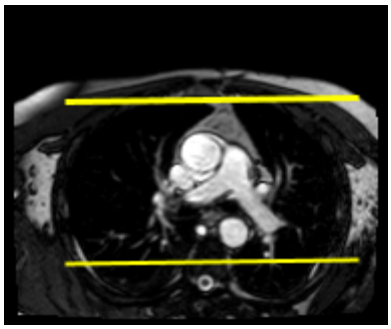
E	Sequence	Aortic phase contrast
	Slices	1
	Thickness	6 mm
	Spacing	20%
	FOV	360
	TR/TE	41.4 / 3.4

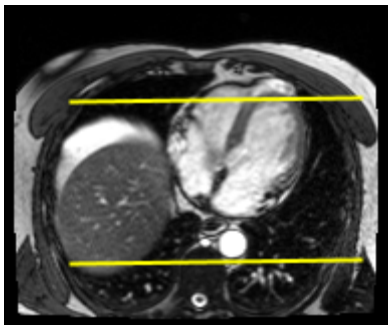


Do o

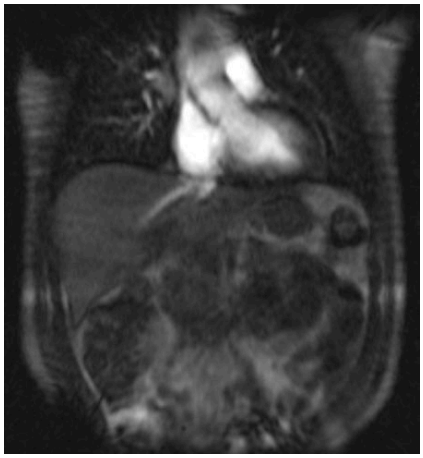


G/H	Sequence	MRA of Aorta
	Slices	
	Thickness	0.9 mm
	Spacing	0
	FOV	384 x 216
	TR/TE	3.5/1.3





****Do 2 runs after contrast****



PRN: Delayed enhancement: 2, 3, 4 chamber and short axis stack.
PRN: Pulmonary valve phase contrast.

POST PROCESSING

Left contour analysis
MRA: recon for axial and candy cane view. Also 3-D spin
Flow quantification: aortic valve,

REFORMATION

1. Choose the post SUB images. Do not choose the images that say SUB MIP.
2. Once all these are chosen, Click applications and choose composing.
3. You will be prompted with a box asking if these images are composing for spine or angio; choose composer for angio.
4. Once the images are composed, click on patient then "**Save All as**:". You want all the images in that series saved.
5. Once back at the browser screen choose the images you just saved. Click applications again and choose the 3D tab and then MIP.
6. You then need to spin and save these images.