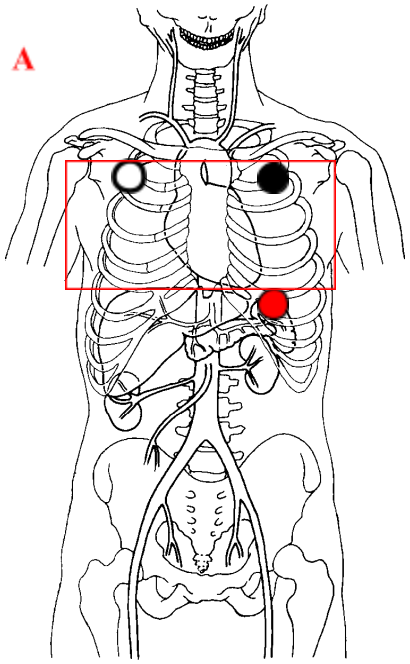
Cardiac MRA for Coarctation

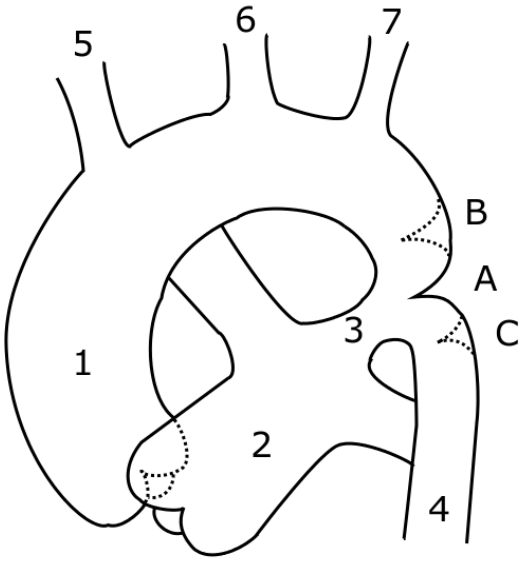
ACQUISITION

	Contrast	Multihance IV: 20 or 22 gauge catheter
	Injection Rate	1 – 2 ml/sec
	Respiration	Per dialogue protocol
Description / Acquisition Name	Acquisition Specs	Appropriate localization to achieve images as specified in following sequences.
A Axial True FISP	Begin End	Carina Below bottom of heart
B short axis ciné	Begin End	Through whole heart
C aortic outflow ciné	Begin End	Anterior margin Posterior margin
D Aorta candy cane Cine stack		Thru aorta
E T2 Dark blood Candy cane view		Candy cane view thru aorta/ coarc, zero spacing
F aortic valve plane ciné	Begin End	Below valve Sinotubular junction
G aortic valve plane Phase contrast	Begin	At and just above aortic valve
H Aorta candy cane view Phase contrast		Use same venc as above
I 3D Coronal MRA with contrast	Begin End	Base of neck Upper abdomen
J Coarctation flow phase contrast	Begin	Coarctation
K Descending aorta phase contrast	Begin	Distal descending aorta
PRN: Delayed enhancement: 2, 3, 4 ch; short axis stack		



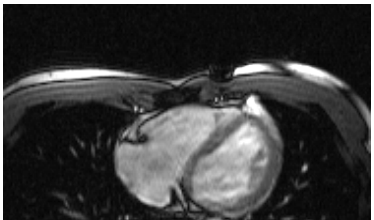
EKG GATING

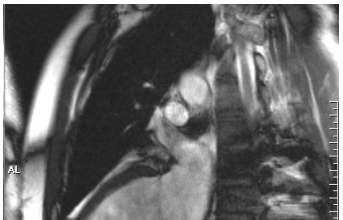
Place white lead on right shoulder, black lead on left shoulder, and red lead on left lower chest.

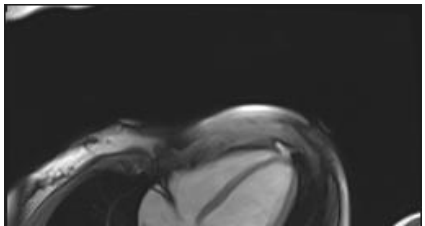


1. Ascending aorta
2. Pulmonary artery
3. PDA
4. Descending aorta
5. Innominate artery
6. Left common carotid
7. Left subclavian artery

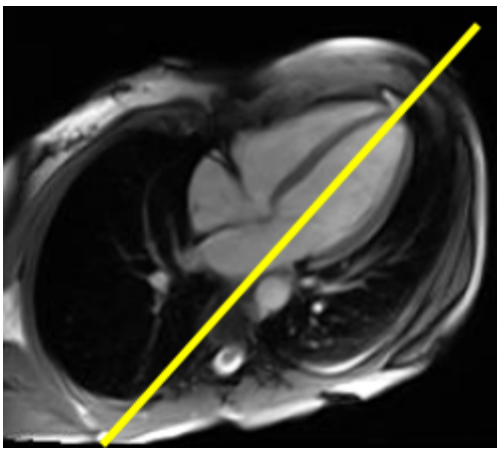
LOCALIZERS

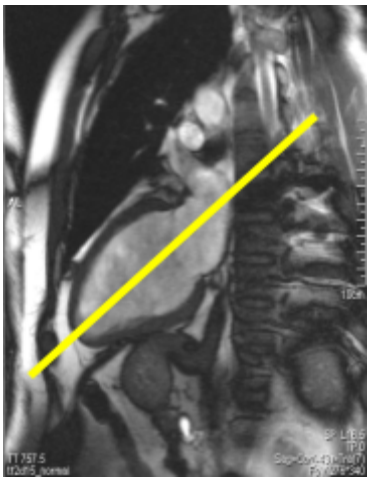


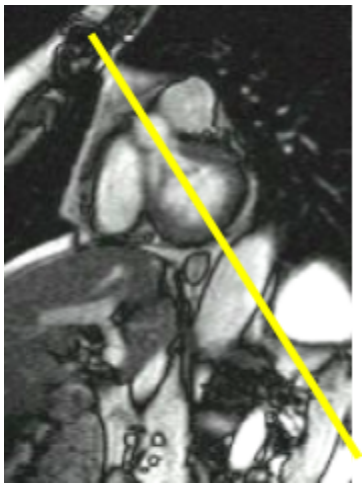




Axial **Two Chamber** **Horizontal Long Axis**



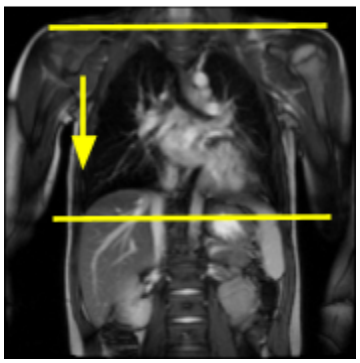




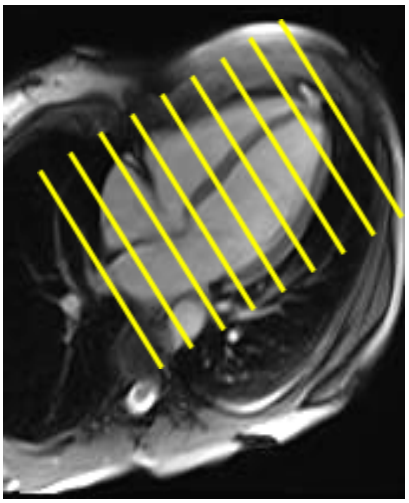
Horizontal long axis **2-Chamber** **LV outflow tract**

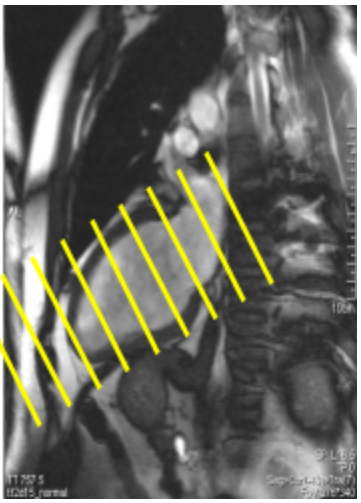
ACQUISITION

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

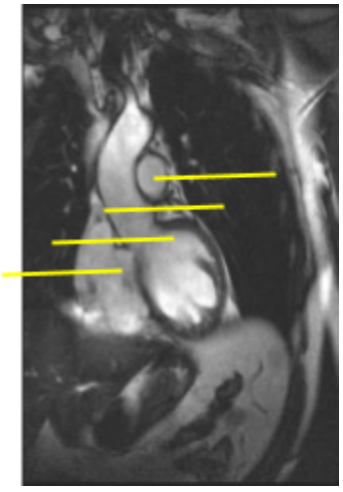


B	Sequence	Short axis cine Stack
	Slices	
	Thickness	7 mm
	Spacing	20 %
	FOV	300
	TR/TE	51.5 / 1.4

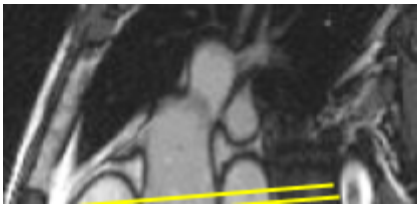


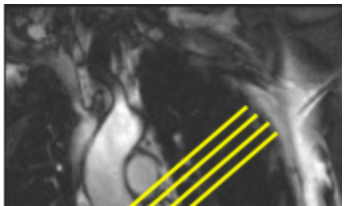


C	Sequence	Aortic valve outflow
	Slices	7
	Thickness	3 mm
	Spacing	0
	FOV	200
	TR/TE	36.6 / 1.4



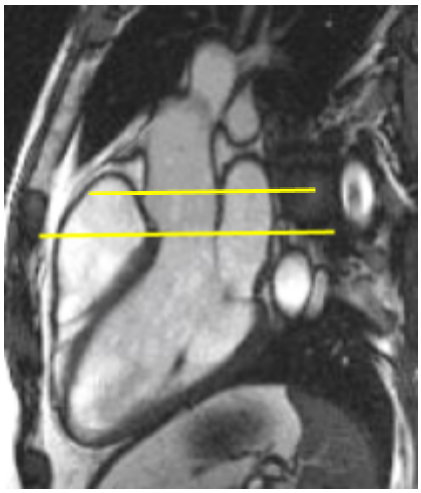
3-Chamber LV outflow

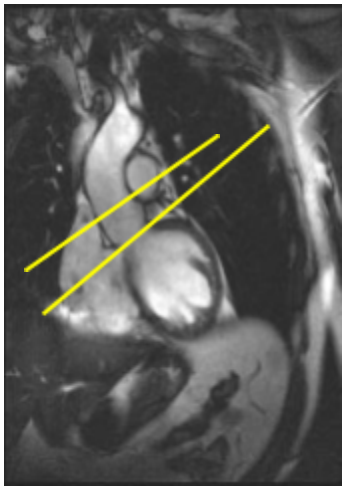




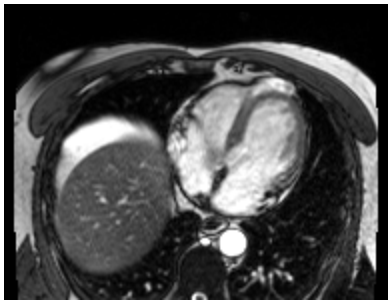
F	Sequence	Aortic valve in plane
	Slices	7
	Thickness	3.0
	Spacing	0
	FOV	200
	TR/TE	35.6 / 1.4

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



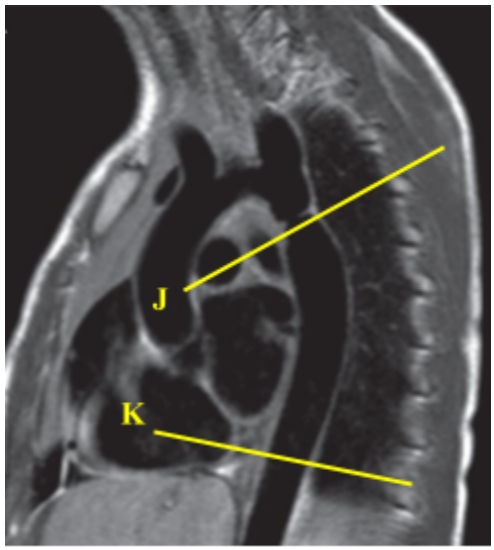


I	Sequence	MRA of Aorta
	Slices	
	Thickness	0.9 mm



	Spacing	0
	FOV	384 x 216
	TR/TE	3.5/1.3

J	Sequence	Phase contrast
	Slices	1
	Thickness	6 mm
	Spacing	20%
	FOV	360
	TR/TE	41.4 / 3.4



****may need pre/post stenotic flows****

K	Sequence	Phase contrast
	Slices	1
	Thickness	6 mm
	Spacing	20%
	FOV	360
	TR/TE	41.4 / 3.4

POST PROCESSING

LV epi-/endo- contour analysis
MRA (left to right)
Flow quantification:
    aortic valve,
    coarctation site, and
    descending aorta.