Carolina Radiology

A Higher Standard.

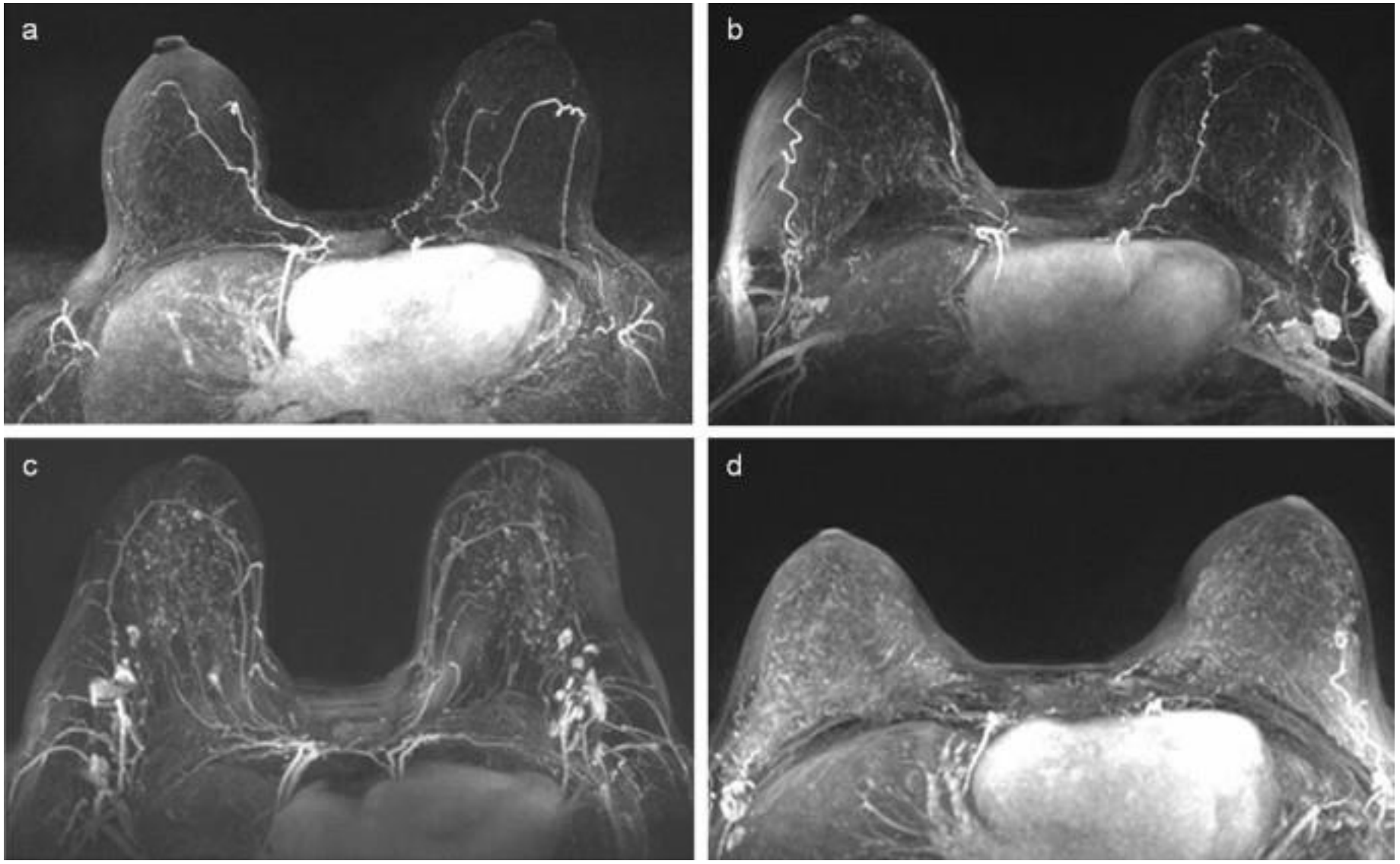
MRI Breast Protocol

Version 1.0 (October 2024)

MRI BREAST PROTOCOL (DIAGNOSTIC AND SCREENING)
ORDER: MRI BREAST WITH AND WITHOUT CONTRAST
REQUIRES DEDICATED BREAST COIL

SEQUENCE - BASICS						
PLANE	**SEQUENCE ROUTINE**	**Coverage**	**Slice Thickness/Gap (mm)**	**Pixel Size (F X P) (mm)**	**FOV (F X P) (mm)**	**Misc./Comments**
3 Plane	**Scout**					Check for folds
AX	**T1W Sequence**	Nipple to mid axilla	1.8/0	< 1mm	280-360	Pre contrast
AX	**T2W Fat Sat or STIR**	Nipple to mid axilla	4/0-0.8	< 1mm	OPTIMIZE	Send Water Only
AX	**3D T1W Fat Sat PRE**	Nipple to mid axilla	1.8/0	< 1mm	280 - 360	Pre contrast
AX	**3D T1W Fat Sat POST CONTRAST DYNAMIC (IDEAL-IQ or FLEX preferred)**	Nipple to mid axilla If more coverage is needed, increase slice thickness	1.8/0 interpolated	< 1mm	280 – 360 **OPTIMIZE**	• Start 30 seconds post injection – **4** post contrast axials • ***Try to keep scan time < 5 min*** • **Send Each Post Contrast Series Separately** • Send subtractions for each 4 time points separately to PACS • Create an Axial MIP of the first subtraction only (see example on next page)
SAG	**T1W FS POST CONTRAST**	Nipple to mid-heart	1.5/0	NA	220 - 260	Perform immediately after dynamic axials Keep AP coverage to mid heart

AXIAL MIP EXAMPLES



INDICATION: IMPLANT INTEGRITY

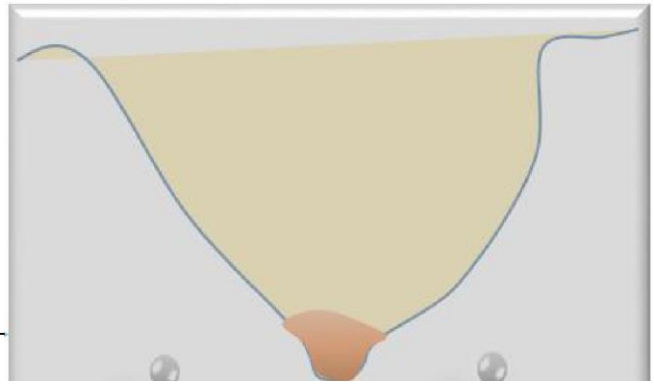
Confirm with patient they have <u>silicone</u> implants

SEQUENCE - BASICS		
PLANE	**SEQ**	**Misc. / Comment**
	ROUTINE	
AX	T1 Weighted Sequence (with fat)	Optimize FOV
AX	T2W Silicone Bright (Water Suppression)	Optimize FOV
AX	T2W Silicone Suppression/Dark	Optimize FOV
SAG	T2W Silicone Bright (Water Suppression)	Optimize FOV
SAG	T2W Silicone Suppression/Dark	Optimize FOV

POSITIONING

- Make sure the patients' back is ***flat,*** feet elevated. Use pillow or sponges to get the patient flat and comfortable. There should be no hump or slopes on the back.
- Use arm rests on the side to enhance comfort and relax the pectoralis muscle.
- Pull breasts from front and back and side to side.
- Use side panels to only slightly touch the breast on the sides. Loose compression only.
- Positioning is crucial. When laying the patient down, pull the upper abdominal fat that is under the breast out from the table opening. Pull the breasts in the opening to make sure there are no folds in front, back, and side to side.
- When using the coil, position the breast so it is two fingers from the bottom of the panel.

Compression plate

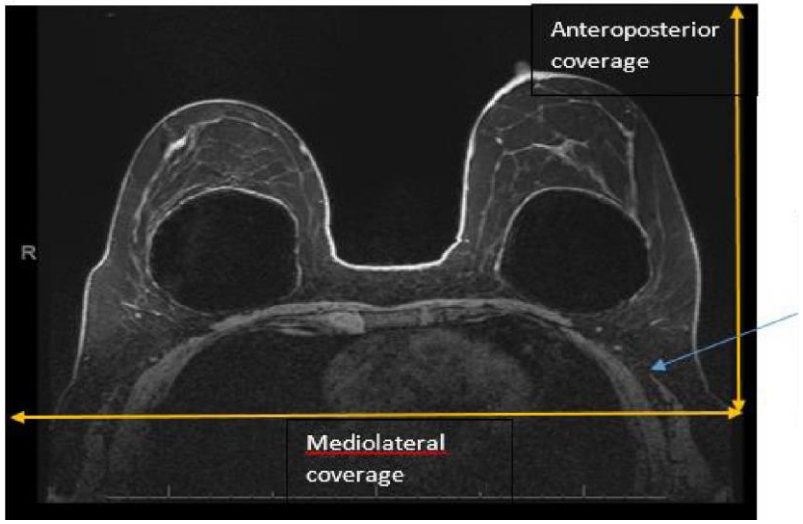


POSITIONING

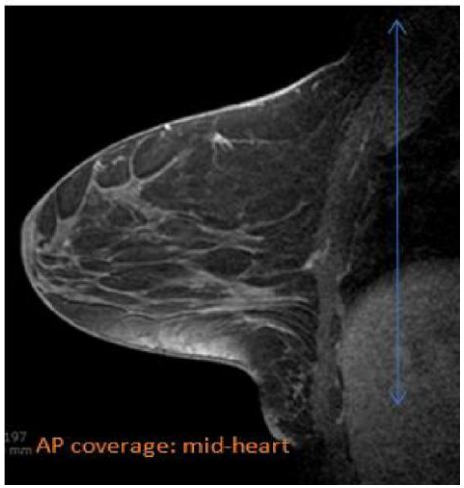
Have the patient adjust position from head to foot so that inferior border/fold aligns with the medial border of the coil. Inframammary fold should be in the coil.

SCAN DESCRIPTION - FOV

SCOUT: Check positioning on sagittal and axial and make sure the breast is not compressed, has smooth edges, and no folds.
Plan the axial slices on the sagittal plane and align the position block parallel to the breast. Verify the positioning block in the other two planes. Ensure an appropriate angle is set in the coronal plane, parallel to the right and left nipples. The slices should be sufficient to cover the entire breast. To prevent wrap-around artifacts, oversampling of both the slice and phase should be applied. *Phase direction in the axial scans must be right to left, this is to avoid the artifacts from chest and heart motion*. DO NOT INCLUDE THE ENTIRE LUNG – The descending thoracic aorta should almost never be included in an appropriate FOV.



Include triangle of muscle in axial images



Extend 2 cm below Inframammary fold

Re-position and correct breast tissue folds