Breast MR Biopsy

Set up

* Set up like routine breast with coil and injector.
* Have biopsy supplies and cart out.
* The breast opposite the side getting biopsied will rest on a plate. The plate needs to be placed on top of one of the holes in the breast coil.
* Have Dynacad open.

Patient positioning

* Position the patient prone on the MR table, with the index breast positioned in the biopsy grid.
* The location of the lesion within the breast is usually known from the previous diagnostic MRI study. Use this information to optimally position the breast within the biopsy grid.
* The breast is minimally compressed between the compression plate and the biopsy grid to prevent motion and to minimize breast deformity during needle placement. Make sure the compression will not impede vascular perfusion, potentially affecting the lesion visualization.
* Once the patient is in position, the breast will be cleaned before the grid is placed.
* The radiologist will place the fiducial in one of the grid openings, away from the expected lesion location.
* Connect the IV line to the power injector.
* Remind the patient to remain motionless for the duration of the procedure. Make sure before starting the scan that the patient is positioned with as much comfort as possible.

MRI scanning protocol

* The radiologist will inform if T2 FATSAT and/or T1 NONFATSAT are necessary.
* T1 FATSAT Sag and Axial
* Dynamic, usually sagittal (check with radiologist!), 3 frames. The same as the clinical protocol, contrast injected after the first frame and 50 sec delay.

Make sure the start time for first and second frame are set to “manual” and the start time for the third frame is set to “shortest”.

Send Dynamic images to Dynacad.

Perform manual subtraction.

* Copy and run both T1 Sag and Ax without any adjustment. Record the location on both axial and sagittal images of the identified lesion.
* Bring the patient out for lesion localization. Ask the patient to remain still.
* After the lesion localization by the radiologist, return the patient to the magnet.
* Without any parameter change, repeat both T1 Axial and Sagittal.
* If the lesion location is confirmed, the radiologist will start taking the samples. If adjustments are necessary, T1 axial and Sagittal may need to be repeated.

Protocol

For all sequences, cover and center on unilateral breast of interest. No need to cover entire chest. Adjust FOV and slices to fit unilateral breast of interest.

SURVEY

T1 FS PRE AX

T1 FS PRE SAG

This sequence should have the exact same parameters as the dynamic, with the exception of having 1 dynamic instead of 3.

T1 FS SAG DYNAMIC

3 dynamics, run like the routine breast. (Run one dynamic, scanner pauses after. Inject and wait 50 seconds, then continue with 2nd dynamic)

Under post-processing tab, make sure the start time for first and second frame are set to “manual” and the start time for the third frame is set to “shortest”.

T1 FS POST AX

Exact parameters as PRE AX, so subtractions will work.

T1 FS POST SAG

Exact parameters as PRE SAG, so subtractions will work.

Run entire protocol before anything is placed in the breast. Rads will do calculations on Dynacad, then go in and place the introducer.

Repeat the T1 FS POST AX and T1 FS POST SAG as needed (after introducer is placed, after samples are taken, after clip is placed etc.). Copy and paste these sequences so that no parameters are changed and subtractions will work.