

MRI Guided Wire Localization Notes

* Images to the right will help demonstrate the steps and supplies. The images were taken on a BBC coil using an apple in place of the breast but these steps will work on any Invivo coil.

* To perform a MR guided wire loc using DynaCAD you will need the following supplies:

- Invivo Localization Needle 80, 100 or 150mm
- Grid or Post/Pillar Assembly
- 18g Needle Block (sterile)
- 18g Single or Double hook Localization Needle
- Skin cleanser
- Numbing Medication
- Syringes and needles (to include a spinal needle)
- Gauze (sterile)
- Tape
- Sterile Gloves

* Set up coil with grid for lateral or medial access. For medial access, place the breast blocker in the contra-lateral side to hold that breast out of the way.

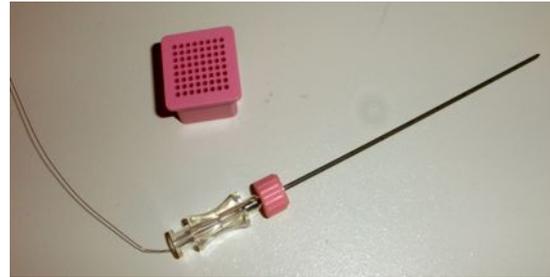
* Position patient so that lesion is accessible and area of interest is in compression. Grid method is used most often, but post/pillar can be used to access far posterior lesions.

* Scanning sequences:

Localizer

Sagittal Fiducial Scan: Spoiled Gradient sequence, 3mm thick, approx 256X128 matrix, NO parallel imaging or imaging options, flip angle of 20, 30-40 slices thru breast and fiducials, 15-50 sec scan time.

Dynamic 1 pre and 2 post in same plane as diagnostic scans were performed in with same contrast and timing.



18g Needle Block and 18g Localization Needle



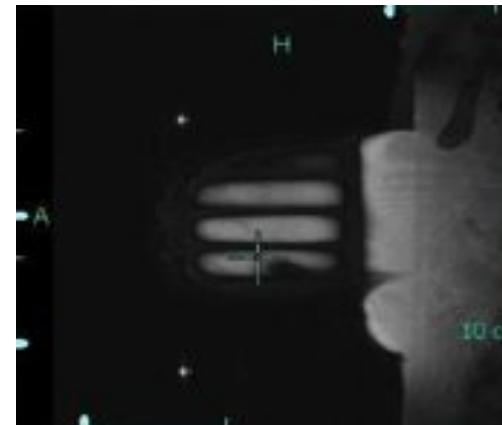
BBC Coil



Breast Blocker



Post/Pillar Method with Angulation

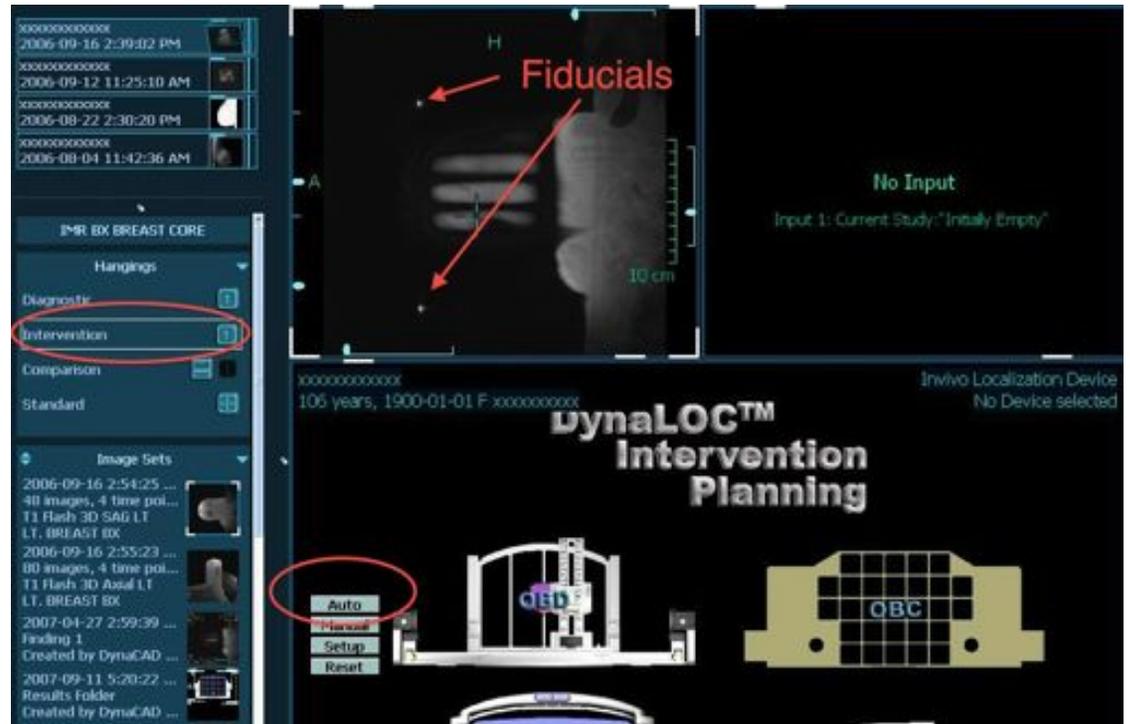


Sagittal Fiducial Scan showing bright fiducials

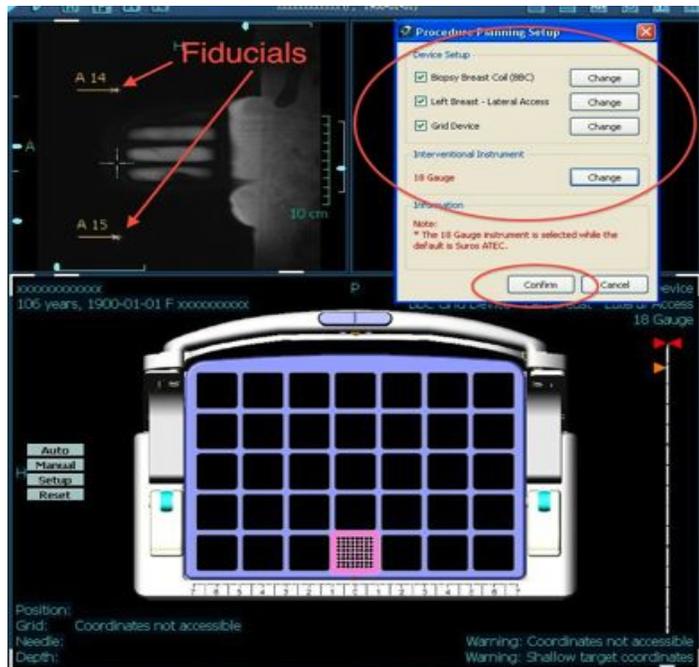
* Send the sagittal fiducial scan and dynamic phases to DynaCAD

* Target the lesion in DynaCAD:

- Open the study up into the interventional hanging
- Scroll to slice of sagittal fiducial scan where fiducials are both visualized the brightest.
- Click “Auto”
- Confirm coil, side and biopsy devices – click on the “change” button to correct any information
- Place crosshair on the lesion on the dynamic images
- Take a snapshot of coordinates viewport
- Print coordinates and tape to the side of the MRI table for the radiologist’s reference



Interventional Hanging with Fiducials Visualized

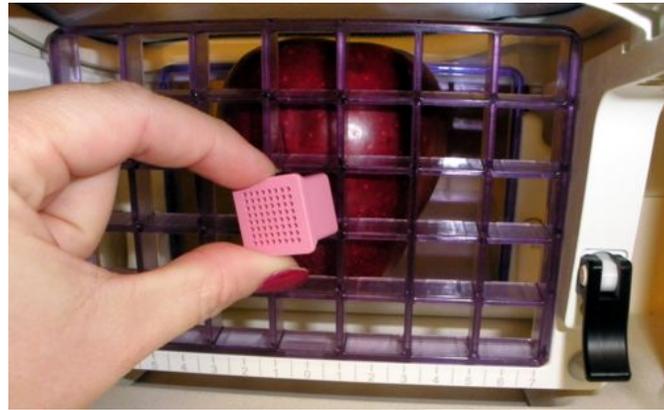


Confirm planning set-up – make changes if needed

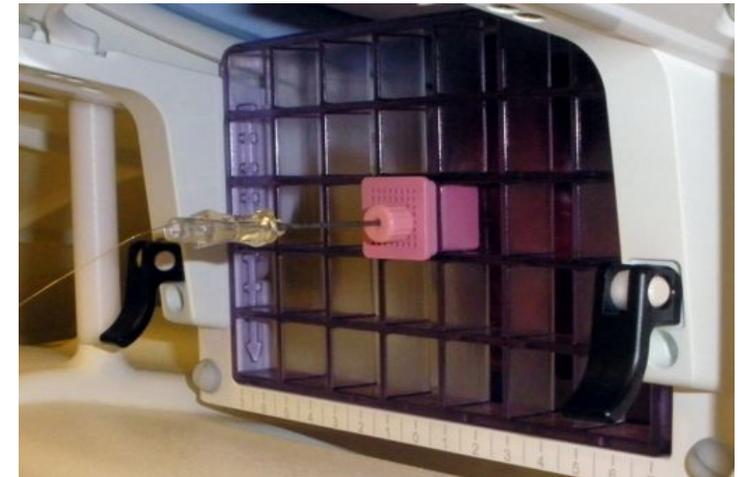


Coordinates of lesion – click on camera to take snapshot for printing
The “Depth” will put the end of the needle exactly where you targeted
NO MATH NECESSARY!

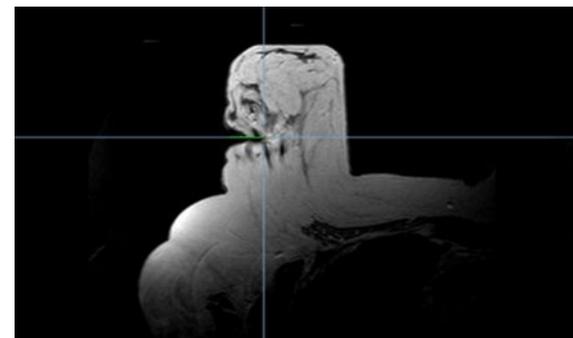
- * Cleanse the skin in the grid where DynaCAD instructs the needle block to be placed.
- * Numb the skin within that grid.
- * Place block in correct grid coordinate. The numbering system is A thru G left to right and 1-5 anterior (nipple) to posterior (chest wall)
- * Going thru the indicated needle hole use a spinal needle to numb about 1cm past the lesion. Numbering system on the block is the same as on the grid.
- * Set the depth on the Localization Needle by placing the pink stopper at the depth calculated by DynaCAD – this depth accounts for the width of the grid – NO Math Needed!
- * Place the Localization Needle into the appropriate hole. When introducing the needle into the breast, place fingers against the pink stopper to avoid going too deep.
- * Perform a Needle Confirmation Scan: Copy one of the dynamic phases but turn fat-sat off to minimize metal artifact.
- * Check the placement of needle to assure that after the deployment of the wire the lesion will be localized appropriately.



Place needle block in appropriate square



Localization wire appropriate hole of needle block



Needle confirmation scan showing localization needle

* Deploy the wire

Method 1 – slightly advance the wire, then pull the needle off the wire. This will place the hook slightly distal to the end of the localization needle

Method 2 – holding the wire still, pull the needle off over the wire. This will place the hook at the same location as the end of the localization needle

* Remove the needle block out carefully to leave the wire in place

* Remove the compression plate carefully.

* Support the patient's breast and the entry site of the wire to avoid dislodging the wire

* Have the patient sit up. Using sterile gauze and tape, secure the wire to the breast for transport to the operating room.



Deploy the wire carefully



Pull the needle out over the wire leaving the wire in place



Carefully release compression and pull grid off wire



Single hook Invivo wire that will localize the lesion for the surgeon