

Stereotactic Breast Biopsy

Patient Positioning – Tips & Tricks

Dawn Derenburger, R.T.(R)(M)
Breast Imaging Consultant, Mammography Educators



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Objectives

- Review the types of equipment used for stereotactic breast biopsy.
- Illustrate ways in which technologists can position patients for the upright and prone stereo procedure.
- Learn techniques for troubleshooting targeting errors and improving patient comfort.



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Breast Biopsy

- Sampling of a suspicious area for analysis
- Type of biopsy to perform is determined by:
 - Level of suspicion
 - Size, shape and location
 - Number of abnormalities seen



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When to Use Stereo or DBT Biopsy

- Mammographic abnormality in the breast
- Non-palpable
- Lesion not seen with ultrasound
- Microcalcifications
- Finding seen on DBT only
- Finding seen on CEM (Contrast Enhanced Mammogram)



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Advantages of Stereotactic Biopsy

- Less invasive
- Performed in outpatient setting/mammography center
- Patient able to return to normal activity
- Procedure takes approximately 1 hour or less, on average



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Digital Stereotactic Equipment

Prone Table



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Digital Stereotactic Equipment

Upright Attachment



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Stereo vs. DBT Imaging

- Prone and upright systems are available for both Stereo and DBT capabilities.
- There are FFDM-only systems.
- DBT systems models can perform DBT, stereo, and CEM biopsy based on preference; Difference is the imaging sequence acquired.

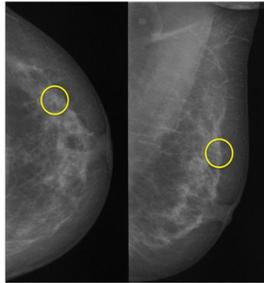


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Stereotactic Equipment

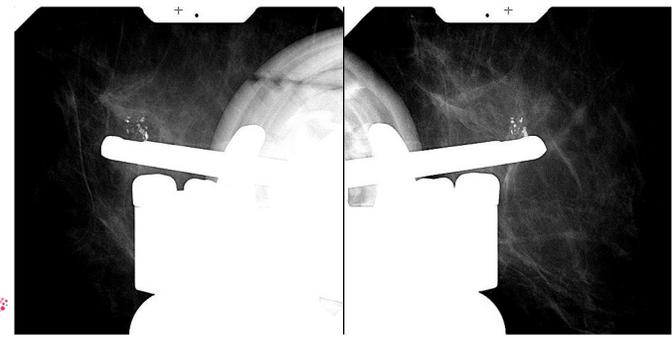
The procedure is the same method for upright attachment and prone table.



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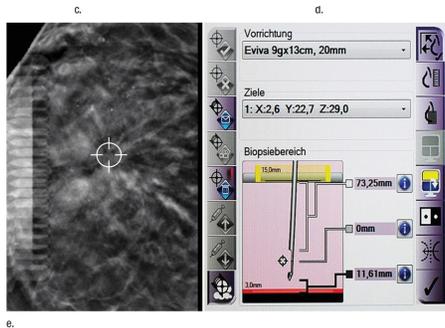
Stereotactic Equipment



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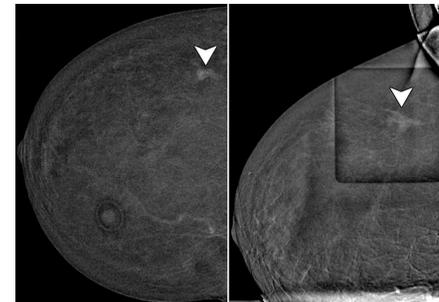
Tomo Biopsy



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Contrast Enhanced Mammography/Biopsy



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Before Getting Started – Technologist

Prepare:

- Know orientation of breast vs. how it displays
- Standard vs. petite needle size
- Possible patient limitations
- Type of clip to use



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Positioning the Patient

Approach/location of area of interest:

- CC From Above (FA)
- CC From Below (FB)
- MLO
- LMO
- ML
- LM



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Upright Attachment



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Upright Attachment

- Quickly convert your existing mammography unit
- Utilize existing space
- Can be performed with the patient seated upright or recumbent on a designated biopsy chair/table
- Cost effective



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Positioning the Patient

Upright:

- Biopsy chair
- Trendelenburg
- Decubitus Breast Imaging (DBI) table



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Biopsy Chairs



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Decubitus Breast Imaging (DBI) Table



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Positioning – Upright

- CC FA:
 - Chair
 - DBI table/stretchers
- Position of C-arm



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Positioning – Upright

Movement of the tube: watch surroundings and patient's head with angulation of the tube.



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CC FA Upright



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Positioning – Upright

- CC FB:
 - DBI table
 - Stretcher
- Position of C-arm
- Movement of the tube



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CC FB Upright DBI Table



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Difficulties – CC FB Upright Positioning

Movement of the tube:

- Around the chair or patient
- Easier with DBI table



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Difficulties – CC FB Upright Positioning

- Patient body habitus
- Movement of the patient
- Posterior location
- Limitation of the mobile breast border



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Positioning – Upright

- ML:
 - Chair
 - DBI Table
- Position of C-arm
- Movement of the tube



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ML Upright



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ML DBI Table



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Difficulties – ML

Upright:

- Vasovagal reaction
- Extreme posterior



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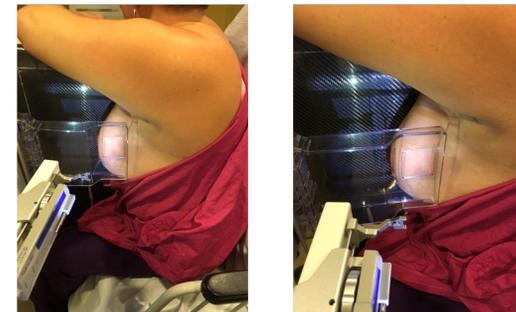
Positioning – Upright

- LM:
 - Chair
 - DBI Table
- Position of C-arm
- Movement of the tube



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LM Upright



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LM DBI Table



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Positioning – Upright

- MLO:
 - Chair
- Position of C-arm
- Movement of the tube



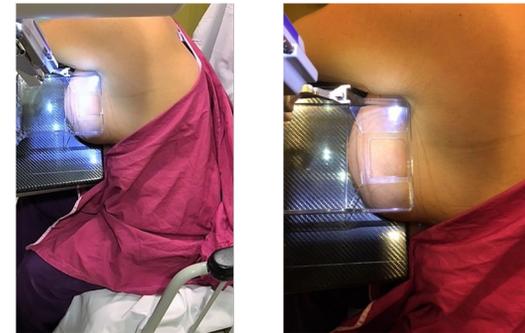
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MLO Upright



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LMO Upright



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Prone Table



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Prone Table

- Dedicated procedure room
- Patient positioned prone with breast through opening
- Reduce risk of vasovagal event
- C-arm allows for 360-degree access of the breast
- Reaching posterior lesions/calcs – gravity



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Positioning the Patient

Prone Table:

- Patient as comfortable as possible
- Key in successful biopsy



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Positioning: Prone

- CC FA
- Prone table



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Difficulties – CC FA

Prone:

- Posterior location
- Calcs in axilla



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CC FA Prone



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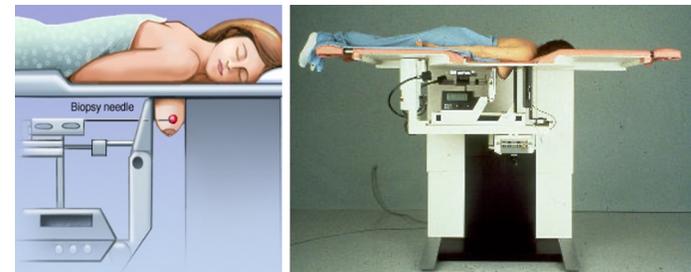
Positioning – Prone

- CC FB



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CC FB Prone



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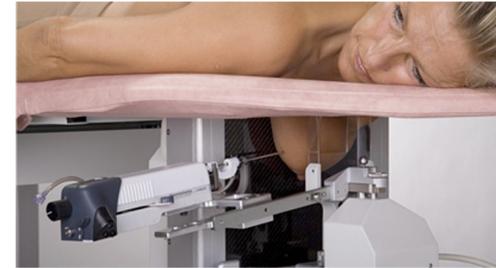
Difficulties – CC FB Prone Positioning

- Posterior location



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ML Prone



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LM Prone



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Preparing the Patient

- Protective cloth/chucks to protect clothing
- Warm blanket
- Wet wash cloths
- Emesis basin
- Room temperature



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Preparing the Patient

- Sheet for table or chair
- Pillows
- Padding
- Ammonia inhalants



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Preparing the Patient

- Light music
- Guided imagery



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Aromatherapy

- How/when to offer
- Hospital vs. stand-alone clinic
- How to use:
 - Lavender aids in relaxation
 - Orange aids in nausea



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Procedure

Procedure/policy in place:

- Specific instructions
- Clarity



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Procedure

Staffing is facility based:

- One tech or two?
- Advantages of two techs – one to stay with the patient and do control panel/imaging and one to work with radiologist and tissue sampling



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Procedure Technologist Duties

- Communication with the patient
- Positioning
- Image acquisition



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Procedure Technologist Duties

- Pre-targeting and coordinate verification – needle size selection
- 2 technologists (Patient Tech/Procedure Tech)



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Procedure Radiologist Duties

- Marking of patient's skin
- Communication and consent
- Targeting and coordinate verification – needle size verification



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Procedure Radiologist Duties

- Administration of anesthesia
- Procedure – tissue sampling



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What Patient Can Expect During Procedure

- Communication
- Designated roles
- Being one step ahead, forward-thinking, troubleshooting, planning, coordinating, preparation
- Positioning



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Vasovagal Reaction

- What is happening?
- "Vasovagal syncope (vay-zoh-VAY-gul SING-kuh-pee) occurs when you faint because your body overreacts to certain triggers, such as the sight of blood or extreme emotional distress."



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Source: Mayo Clinic, 2025

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Vasovagal Reaction

- The vasovagal syncope trigger causes your heart rate and blood pressure to drop suddenly. That leads to reduced blood flow to your brain, causing you to briefly lose consciousness.
- Vasovagal syncope is usually harmless and requires no treatment.



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Source: Mayo Clinic, 2025

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Patient Experience in Vasovagal Reaction

- Pale skin
- Lightheadedness
- Tunnel vision – your field of vision narrows so that you see only what's in front of you



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Patient Experience in Vasovagal Reaction

- Nausea
- Feeling warm
- A cold, clammy sweat
- Yawning
- Blurred vision



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Vasovagal Reaction Signs to Watch For

- Jerky, abnormal movements
- A slow, weak pulse
- Dilated pupils
- Patient complains of being hot



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Vasovagal Reaction Preventative Measures

- Patient as comfortable as possible
- Room temperature not too warm
- Cold compress
- Aromatherapy
- Distracting conversation
- Move feet and/or toes



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Vasovagal Reaction Actions to Take

- Remain calm
- Move quickly and accurately
- Slowly remove needle from breast
- Hold compression
- Cold washcloth to back of neck/forehead
- Get patient into Trendelenburg position
- Check and monitor blood pressure



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Vasovagal Reaction Actions to Take

- Can we continue on?
- Patient tolerability level
 - Change position and approach
 - Stretcher or reclined biopsy chair



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Missed Target

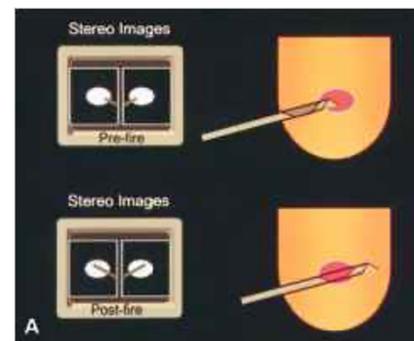
- What could have happened?
- Accuracy of target coordinates
- Wrong area targeted
- Tissue consistency
- Equipment malfunction



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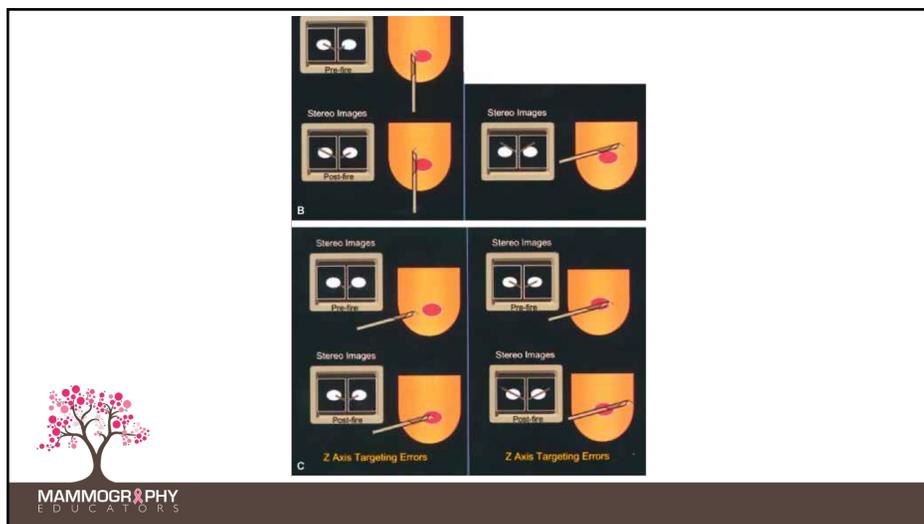
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How to Spot XYZ Errors



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How to Correct XYZ Errors

Attempt Sample:

- Pull of vacuum-assisted device
- Image sample
- Reimage stereo pair



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How to Correct XYZ Errors

- Reposition and Retarget
- “Jog” the needle inside or outside the breast:
 - Depends on distance
 - Radiologist comfort



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Target Obscured

- Extremely dense breast tissue with fine microcalcifications
- Lidocaine:
 - How much is too much?
 - Snowplowing of calcs



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Target Obscured

Ways to correct:

- Patient comfort is key
- Communication with radiologist



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Patient Movement

- Ways to prevent
- How to recognize:
 - Image blur
 - Markings you made on patient have moved
- How to correct



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Breast Thickness

Compresses too thin:

- Target area/check coordinates
- Z + 6 is equal to or less than compression
- Know the calculation for your equipment
- Malfunctions DO happen



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Breast Thickness

- Different needle:
 - Petite
 - Blunt tip non-firing
- Firing outside the breast
- Different approach



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Breast Thickness

- Build the breast up:
 - Play-Doh
 - Tape
 - Tegaderm
- Air-gap technique (not recommended)



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In Summary

- Patient comfort and proper positioning is key in successful tissue sampling through Stereotactic Biopsy.
- The technologist should work in conjunction with the radiologist, to determine the best approach and the proper equipment for the procedure.
- Preparedness is key in prevention of errors.



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Mayo Clinic Staff. (2025, February 15). Vasovagal syncope. Mayo Clinic. <https://www.mayoclinic.org/diseases-conditions/vasovagal-syncope/symptoms-causes/syc-20350527>



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