

Breast Anatomy

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Types of Breast Tissues

- Fibrous
- Fibro glandular
- Adipose (Fatty)

What is Tomosynthesis?

- Is a 3 dimensional projection
- Reduces overlapping tissue seen with 2D only
- 15 projections are taken with each combo exposure (7.5 (-7.5))
- With an average breast (18*24) 3D dose is 1.34, combo is 2.56 Milligrey. (3 Milligrey FDA) (2D is 1.2)

Breast Ultrasound

- Sound waves to verify the internal structure of the breast
- The transducer sends off sound waves which bounces off the breast tissue.
- Use for screening, diagnostic or co-relates.
- Transducer are 12MHZ, 8MHZ (wave frequency)

Characteristic for Abnormalities (US)

- Shape (round, oval, irregular)
- Margin (well circumscribed, indistinct, spiculated, microlobulated, angular)
- Orientation (parallel, Non-parallel)
- Posterior Acoustic Features enhancement, shadowing, combined pattern)
- Boundary (abrupt, echogenic halo)
- Echo pattern (hyperechoic, hypoechoic, isoechoic, complex, anechoic)

Stereo

- Vacuum assisted biopsy under mammography (NEEDLE - 9G REGULAR/PETITE (small))
- Stereo is actually two images taken (-15 and +15 to create a 3d dimensional image)
- Mainly for calcification, distortion, non-palpable lesion
- The biopsy could be done prone or sitting
- The approach could be Medial, Lateral, Craniocaudal, Caudocranial or Oblique
- The calcs, lesion, distortion is targeted (X-horizontal, y-vertical, Z-Depth)

MRI

- Is a magnetic field, radio waves along with a computer
- Sequences: pre contrast and post contrast
- Gadolinium contrast is used 10cc (130lbs) 9cc (less than 130lbs)
- Prone position
- Special applications: mip map images, colour map (subtraction images)

Indications MRI

- Dense breast
- Implants (no contrast)
- Disease extension
- High risk patients
- Co-relates (multicentric or focal)

Benign Findings (US)

- Pash

- Fibroadenomas
- Hamartoma
- Gynecomastia
- Cyst
- Phyllodes (both)
- Lipoma

PASH (pseudoangiomatous Stromal Hyperplasia)

- Fibrous breast tissue ; rare benign lesion
- Usually women in child bearing age
- Palpable

Fibroadenomas

- Benign breast lump glandular and connective tissue
- Solid lesion palpable, mobile, non-palpable
- Common in young girls premenopausal women
- Very well defined lesion

Hamartoma

- Mostly benign neoplasm tissue
- Glandular, fibrous and fatty (adipose) tissue
- “Developmental malformation”
- These nodules are defined

Lipoma

- Benign tumors
- Mesenchymal cells
- Mature adipose/fatty tissue
- Palpable, soft tissue cells
- BIRADS 2 lesion
- Mammography-radiolucent
- Ultrasound-iso-echoic, hyper-echoic

Phyllodes

- Both benign or malignant
- Connective tissue
- Common in women (30-40yrs) child bearing age
- Grows quickly and palpable
- Similar features as a fibroadenoma

Paget's Disease of the Breast

- Rare form of cancer, starts in the milk duct and spreads to the nipple and areola surface
- Symptoms are itchy, irritated, dryness and thickening of the skin around the nipple
- Common in women over 50, usually there is another type of cancer in the breast

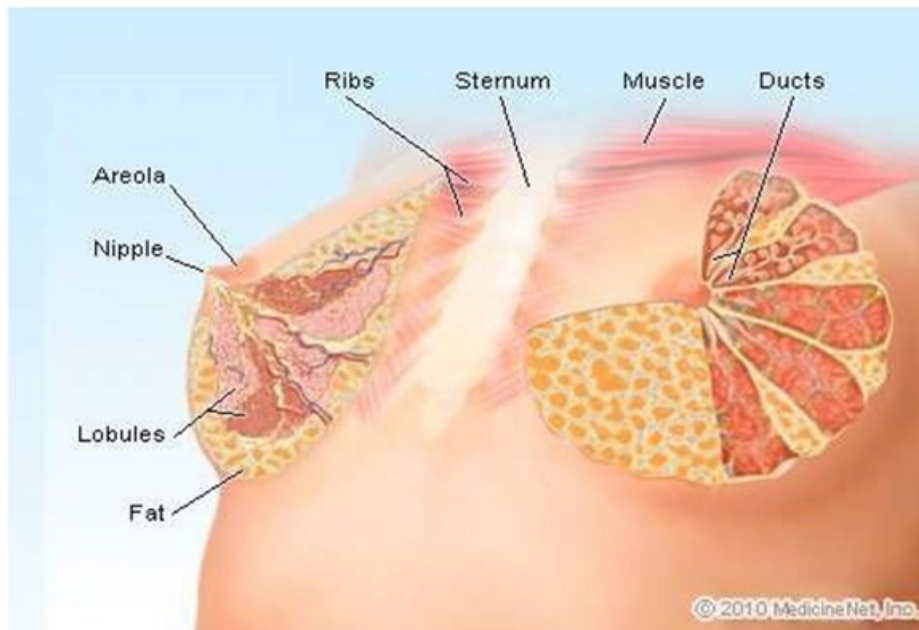


Figure 1: Breast Anatomy

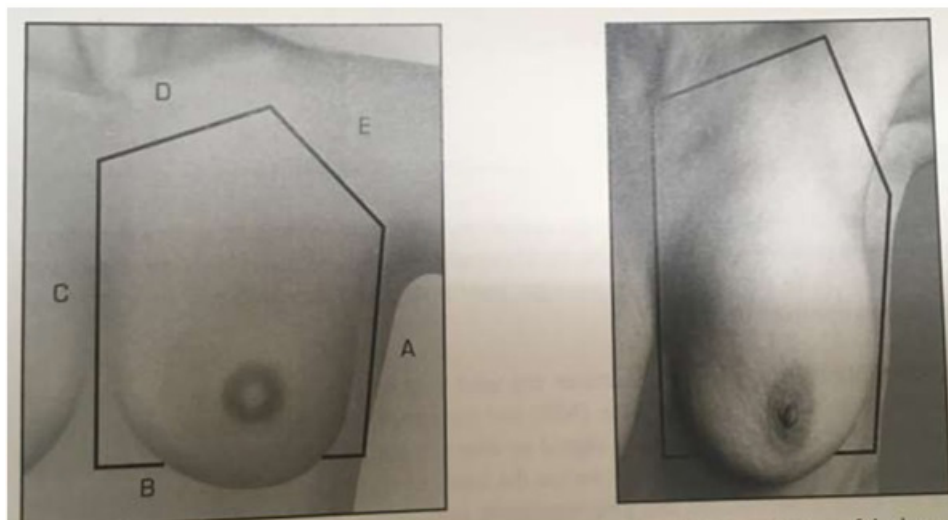


Figure 2: Breast Perimeters

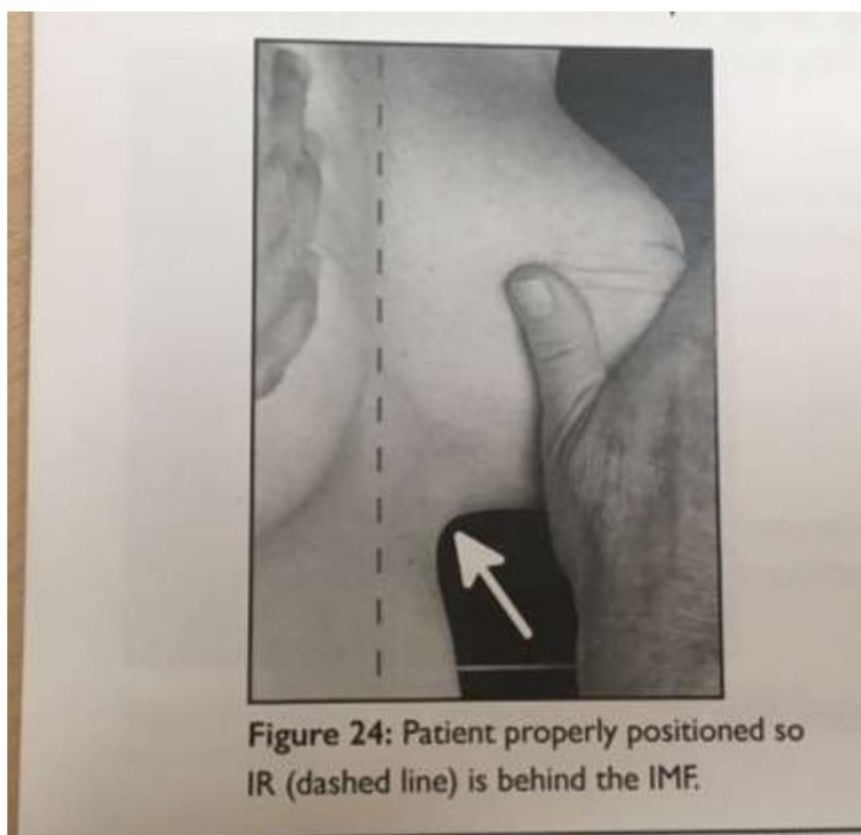


Figure 3: Positioning of the Breast

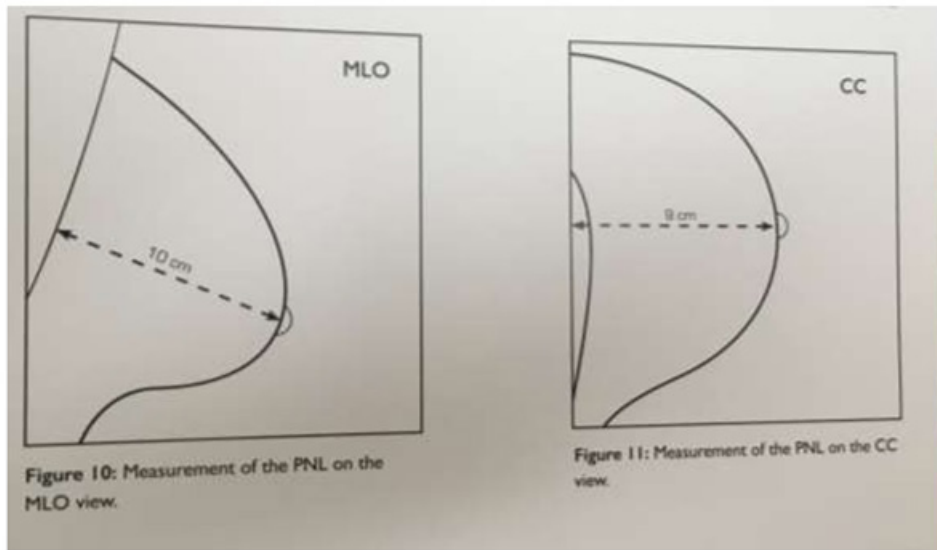


Figure 4: Illustration of Breast Positioning

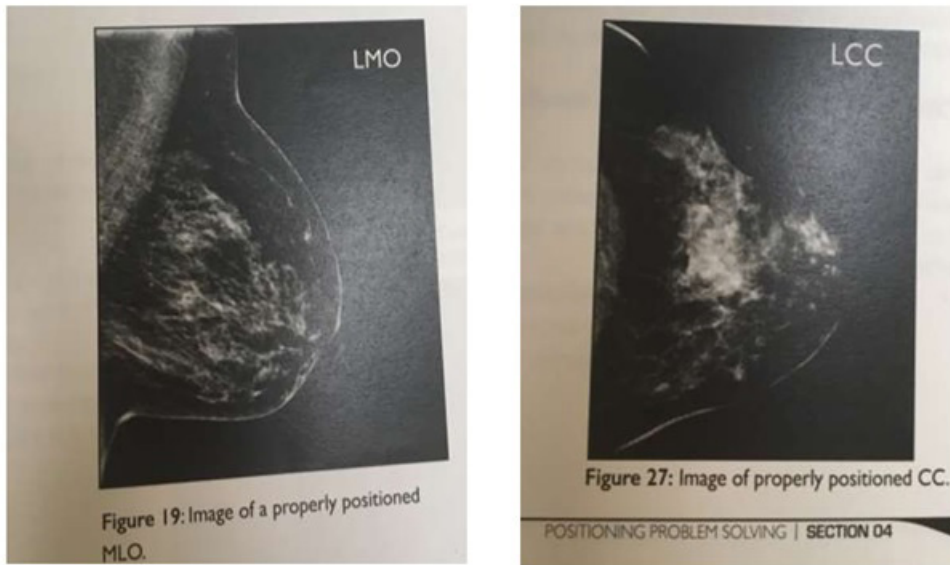


Figure 5: Correct Breast Positioning

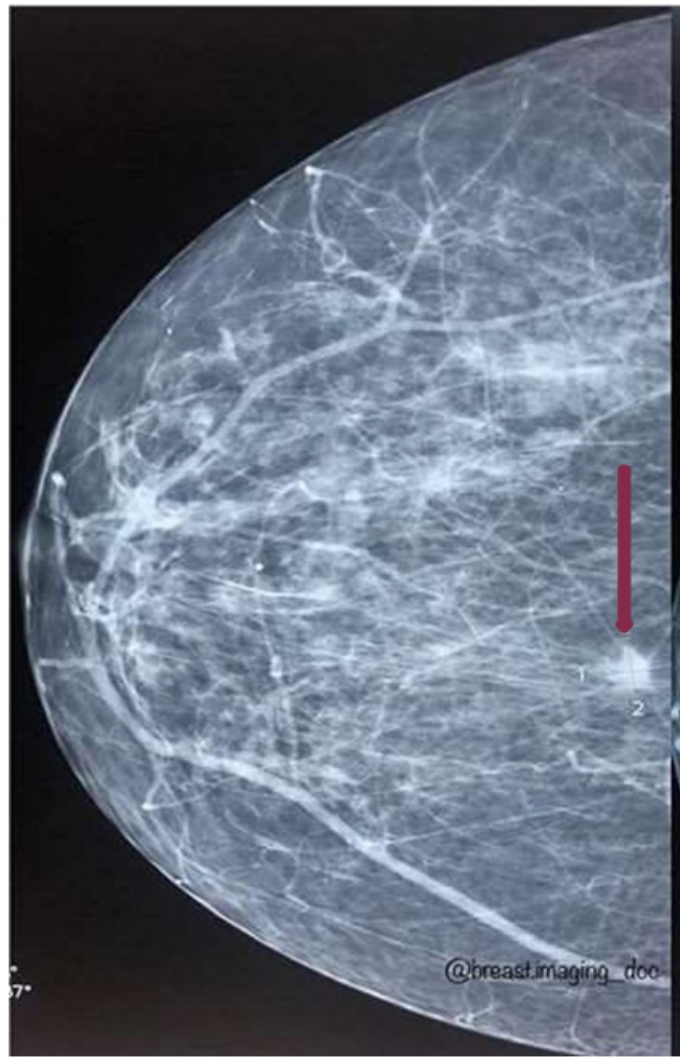


Figure 6: Importance of Positioning



Figure 7: Fibrous Tissue (Extremely Dense >75%)



Figure 8: Fibrous (Dense) US



Figure 9: Fibro glandular (25%- 50%)

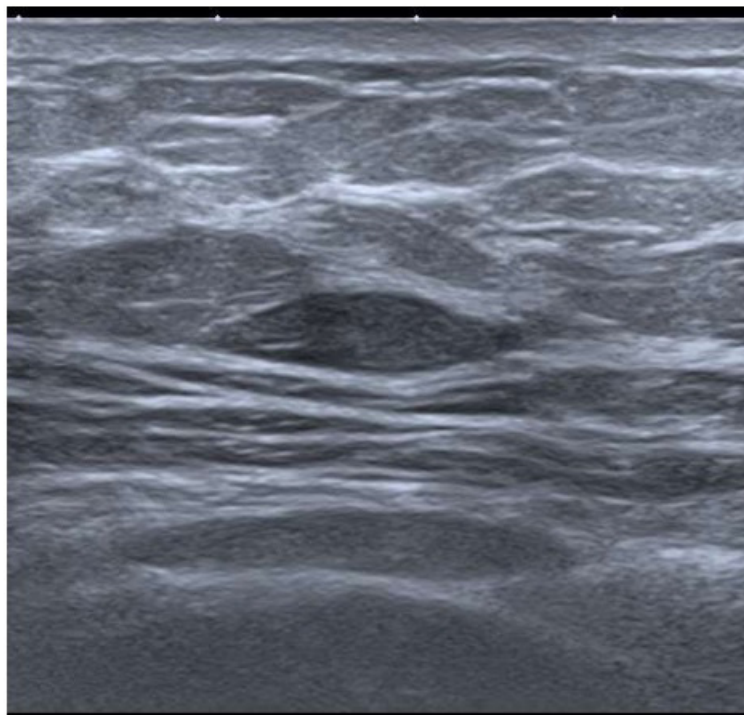


Figure 10: Glandular US

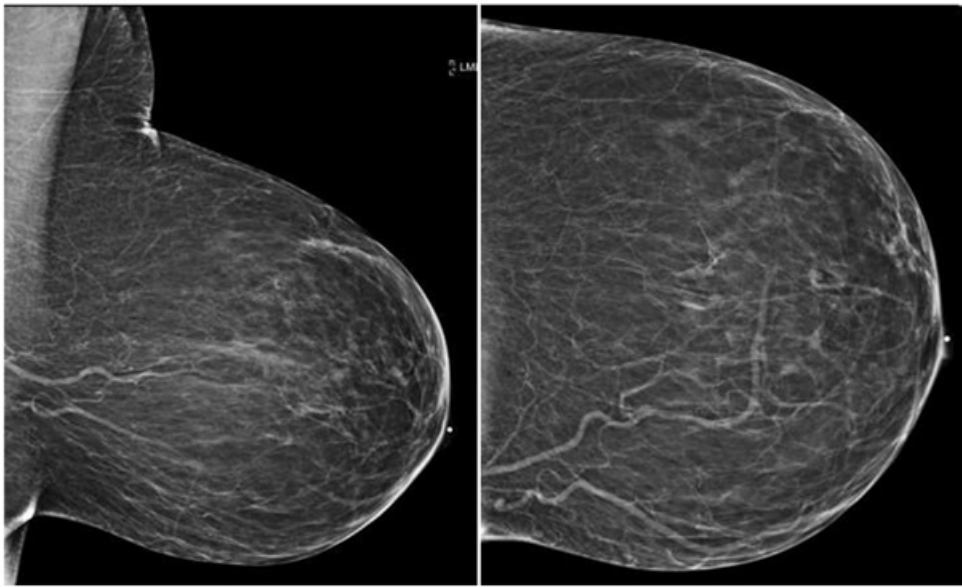


Figure 11: Adipose (Fatty < 25%)



Figure 12: Adipose (Fatty) US

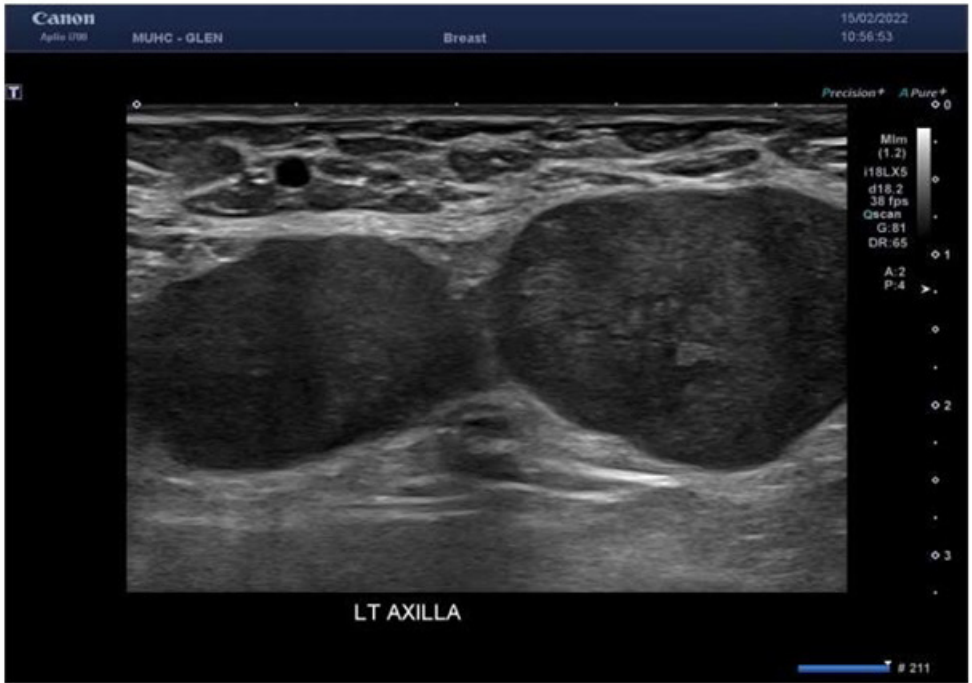


Figure 13: Enlarge Lymph Nodes (Metastasis nodes)



Figure 14: Biopsy (Invasive Ductal Carcinoma) 1st case



Figure 15: Biopsy

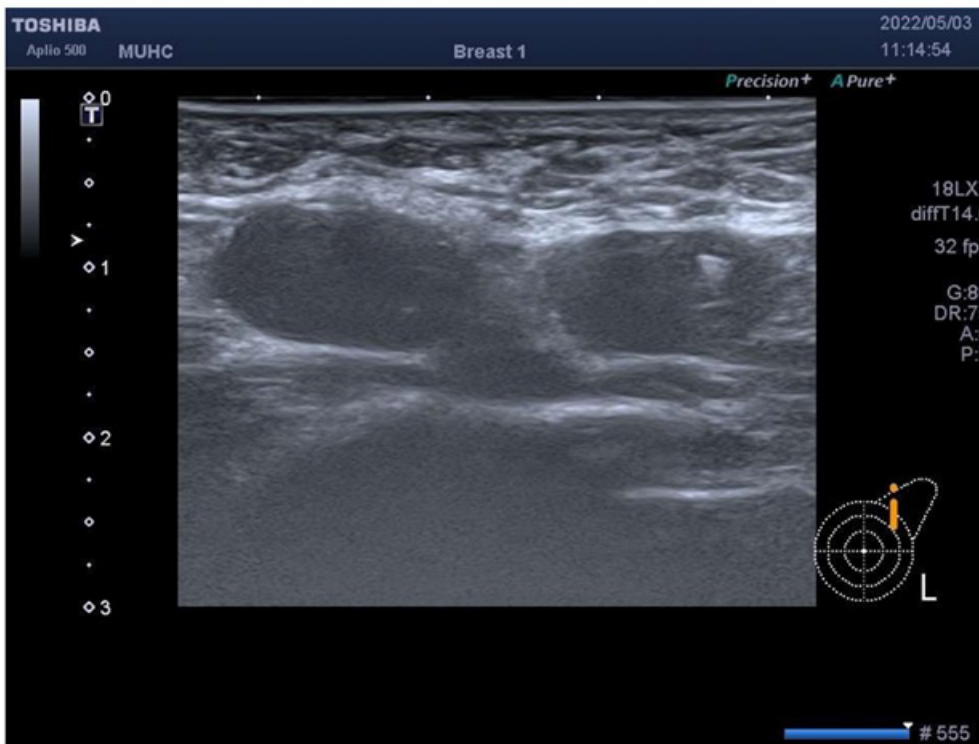


Figure 16: Treatment

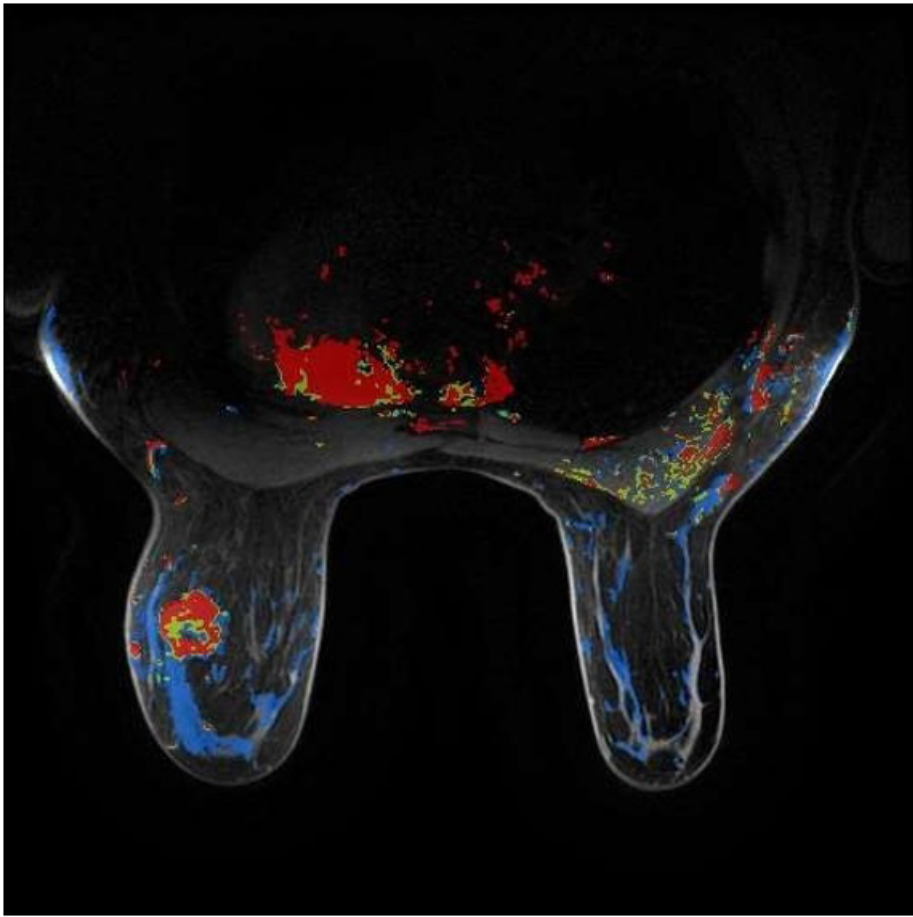


Figure 17: MRI Colour processing

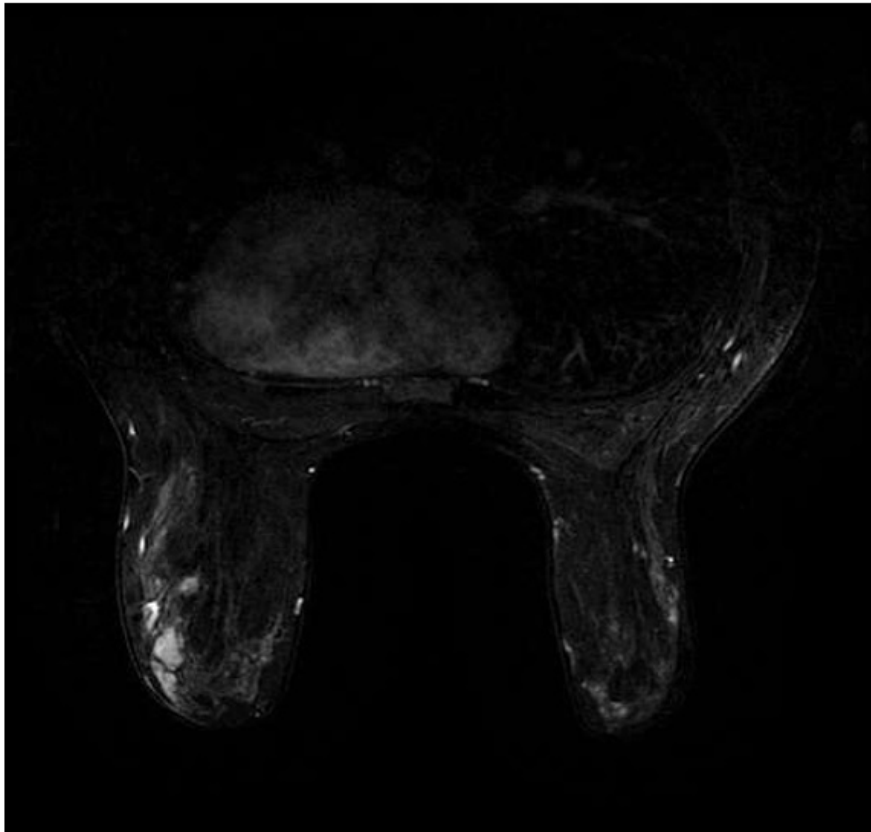


Figure 18: MRI

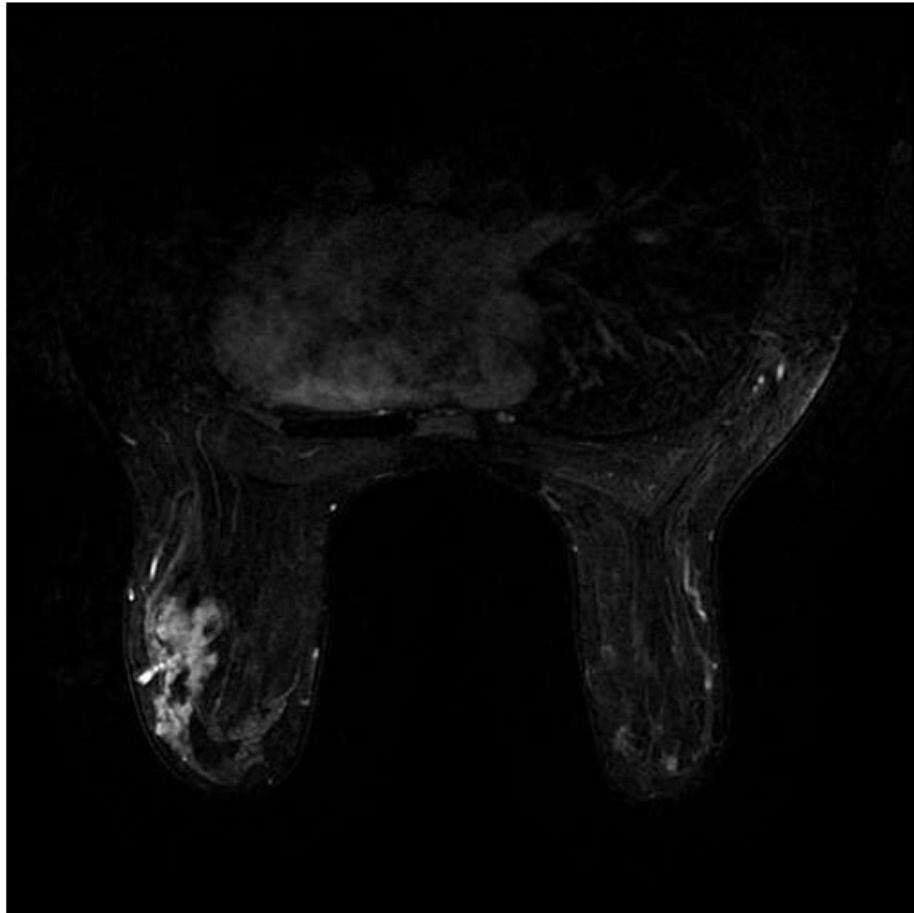


Figure 19: Extending MRI

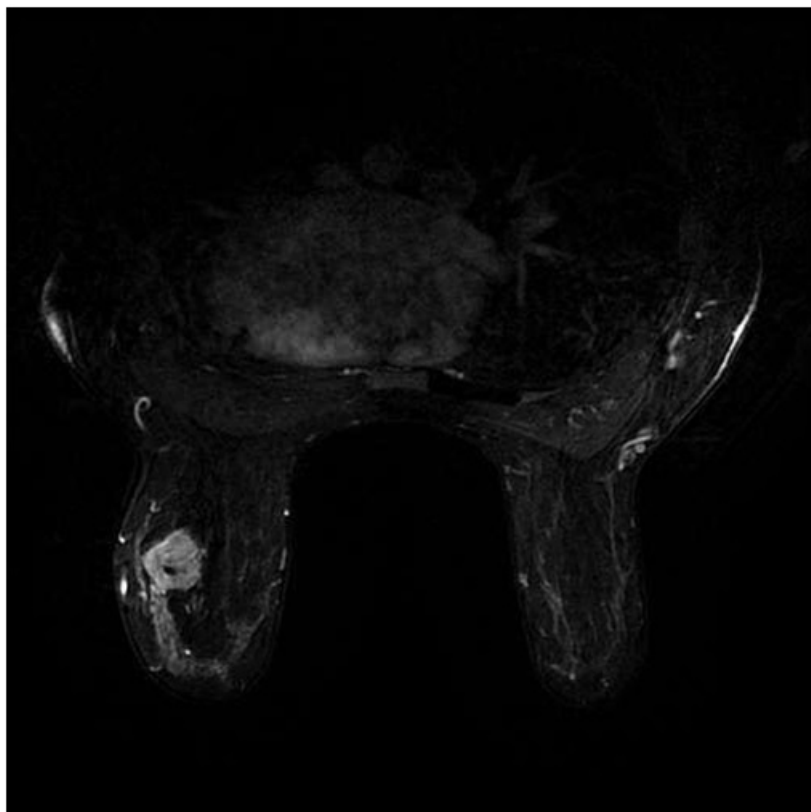


Figure 20: MRI

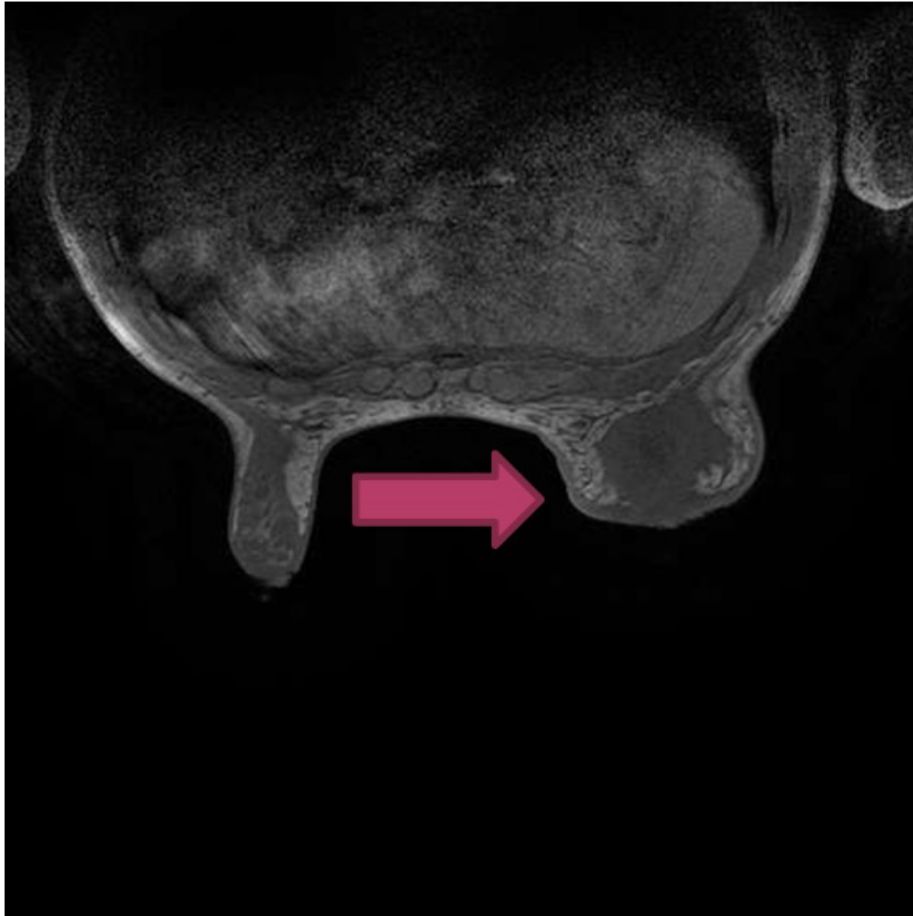


Figure 21: MRI 2nd Case Showing Breast Deformity

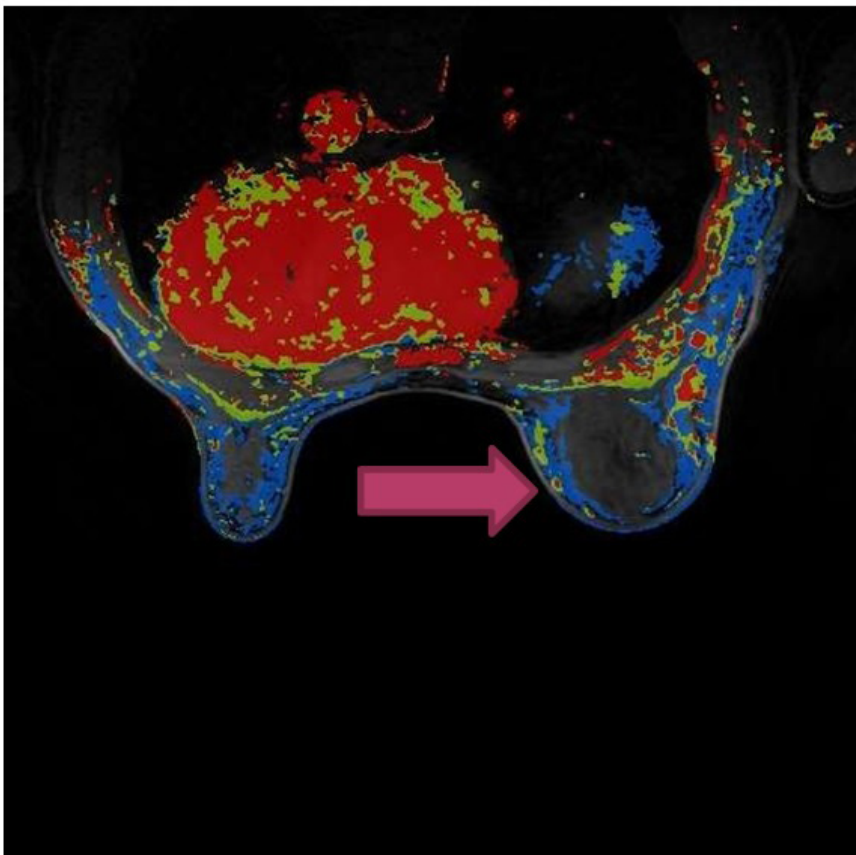


Figure 22: MRI Colour Subtraction

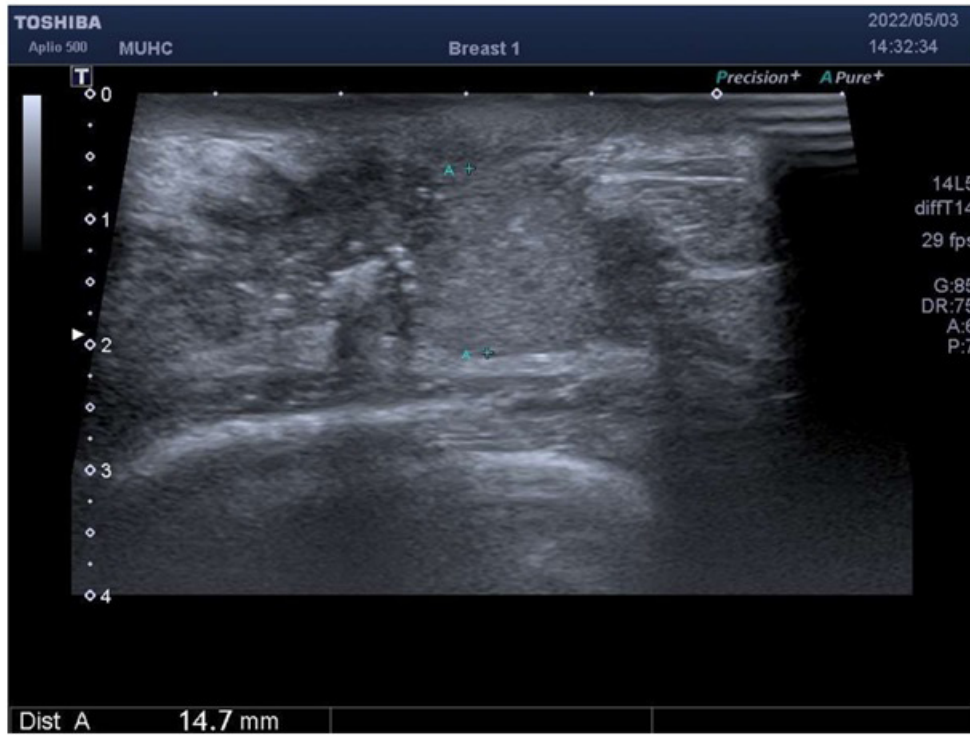


Figure 23: Ultrasound Breast (Invasive Ductal Carcinoma)

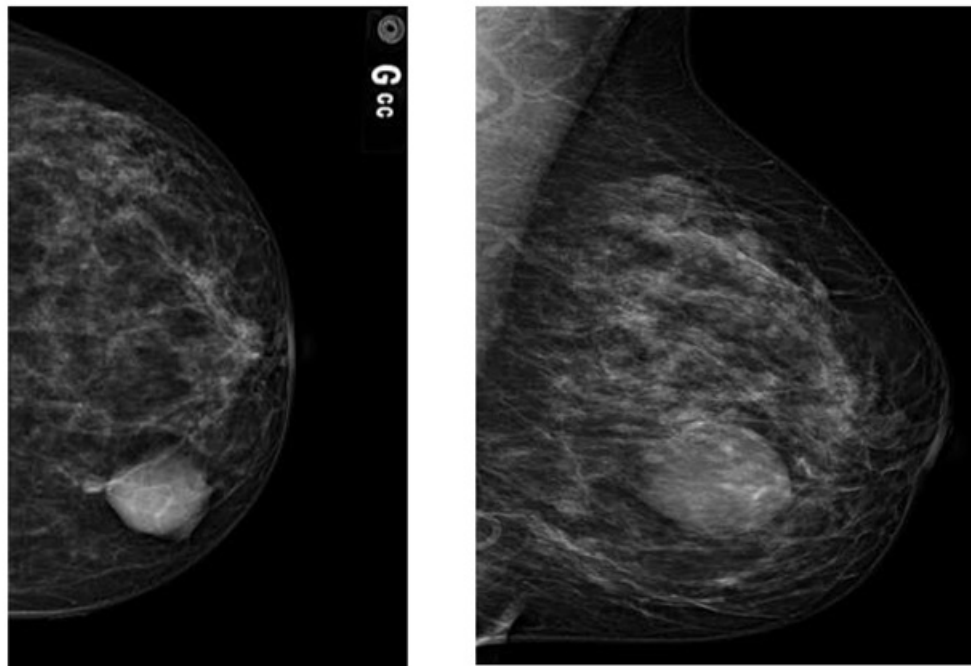


Figure 24: Pash 2D

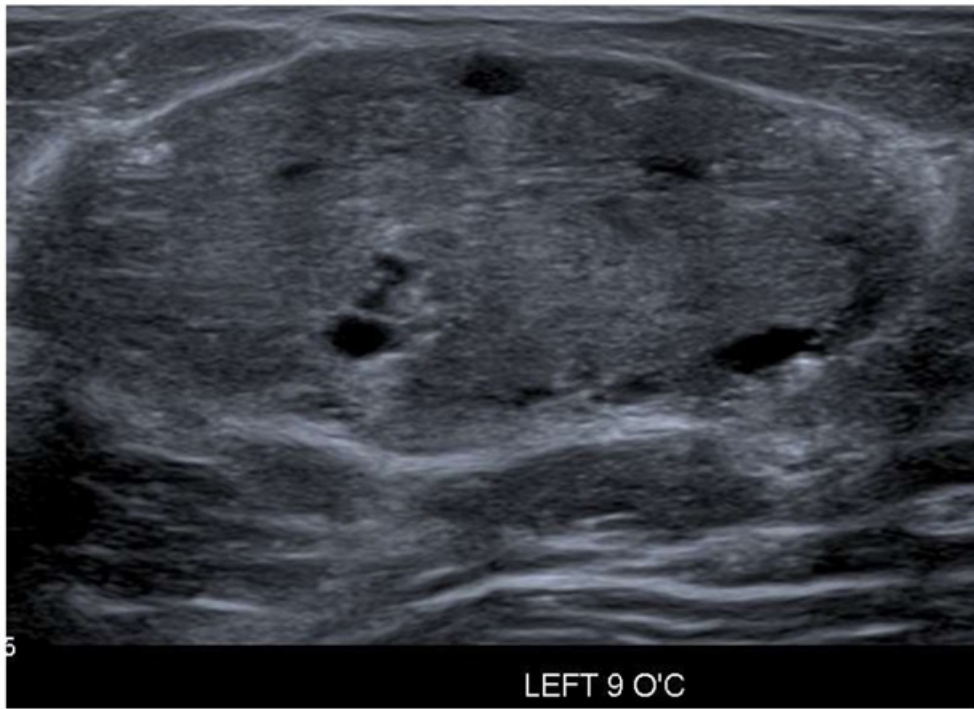


Figure 25: US

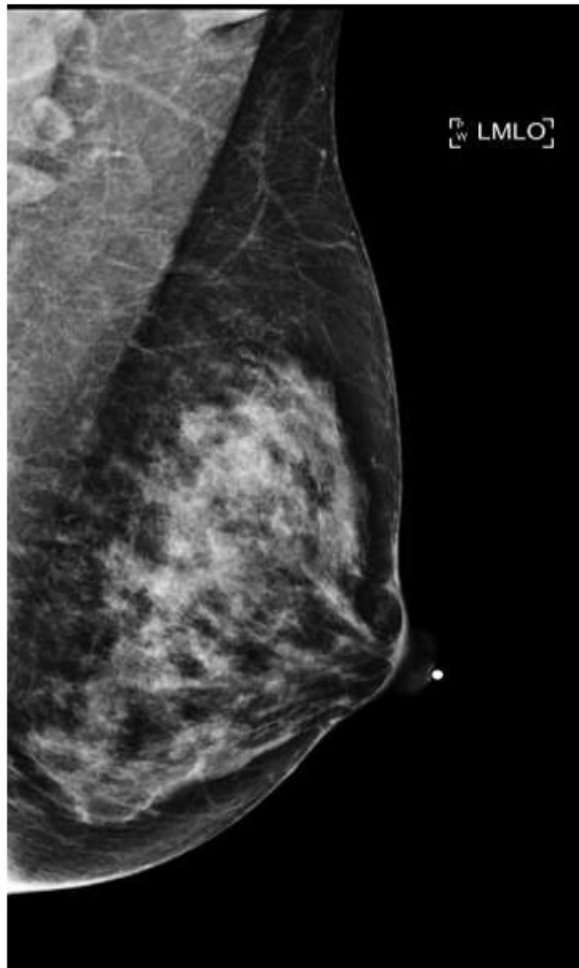


Figure 26: 2D Mammo



Figure 27: 3D

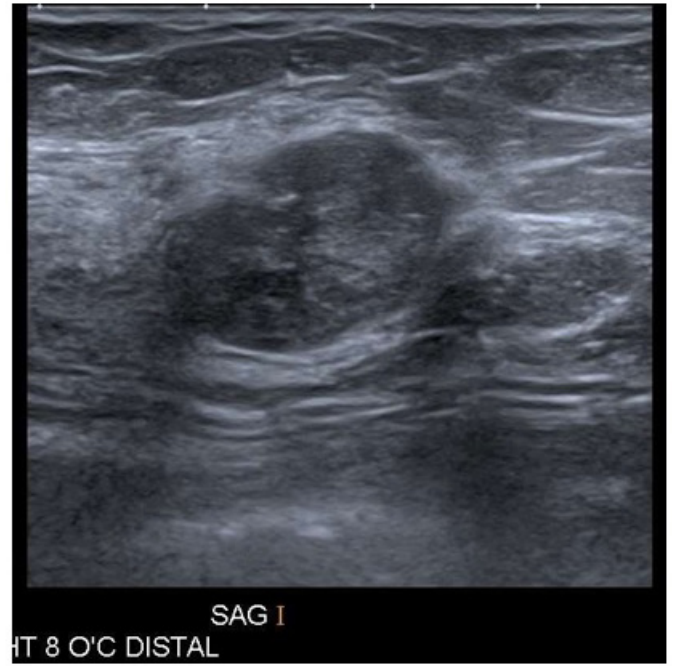


Figure 29: US

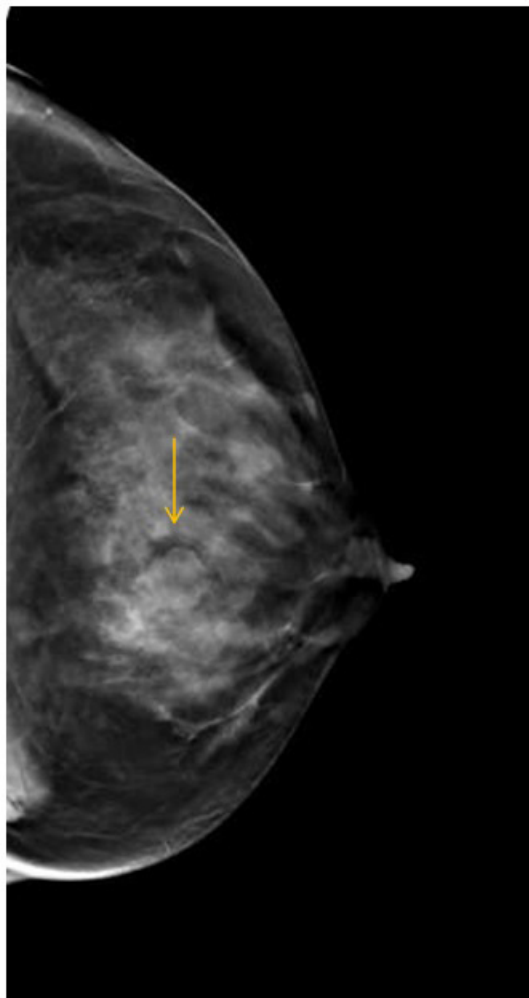


Figure 28: 3D

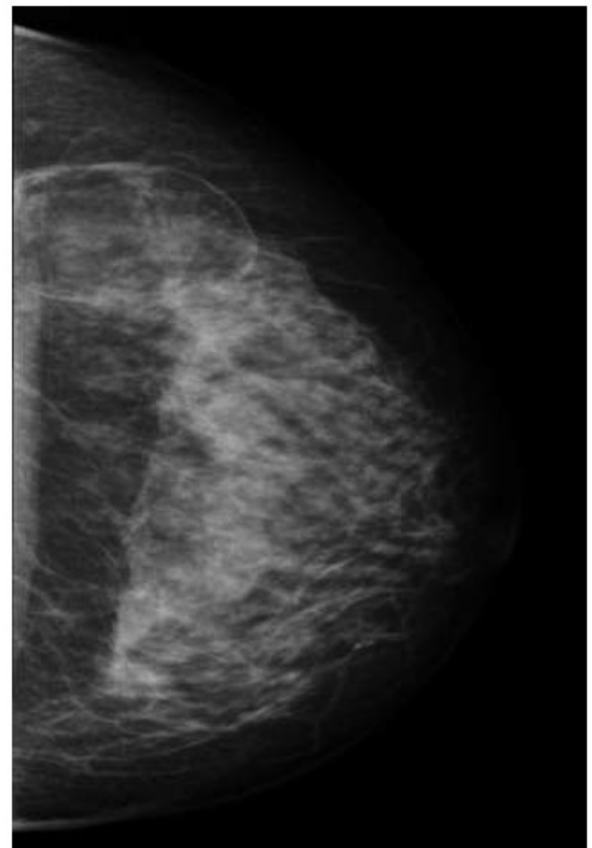


Figure 30: Hamartoma 2D

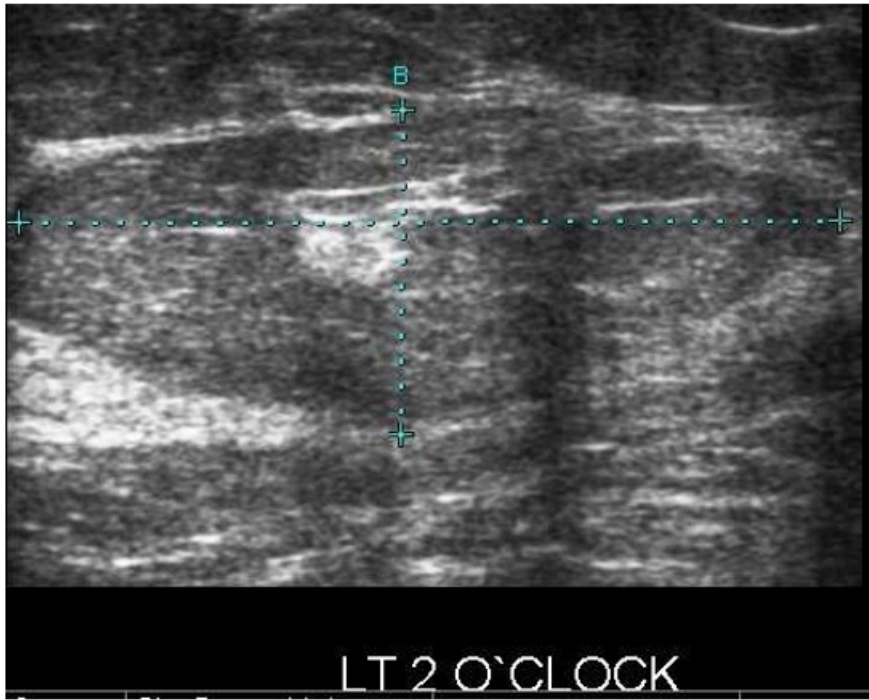


Figure 31: US

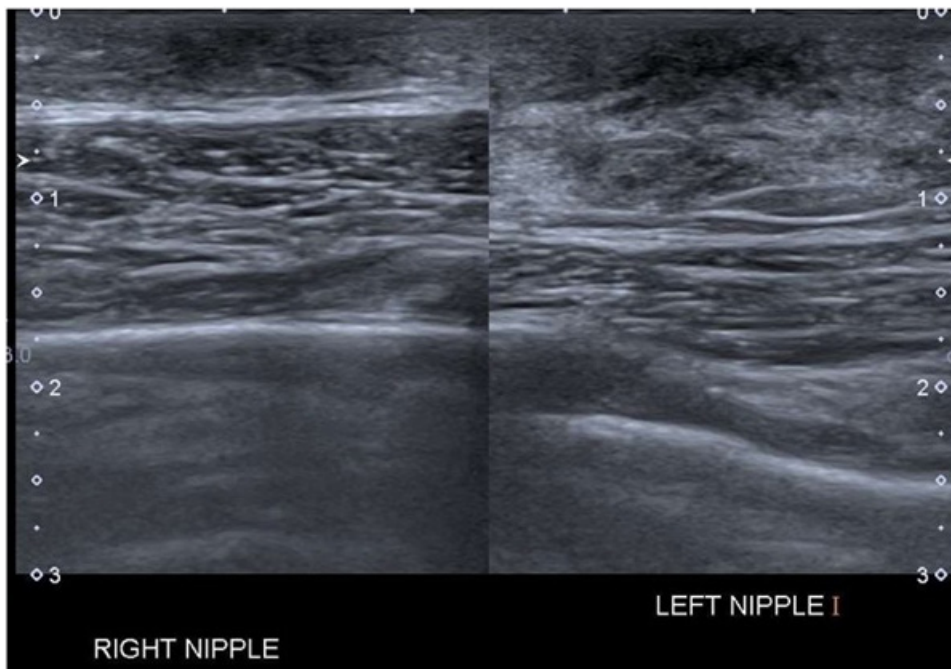


Figure 32: Gynecomastia US

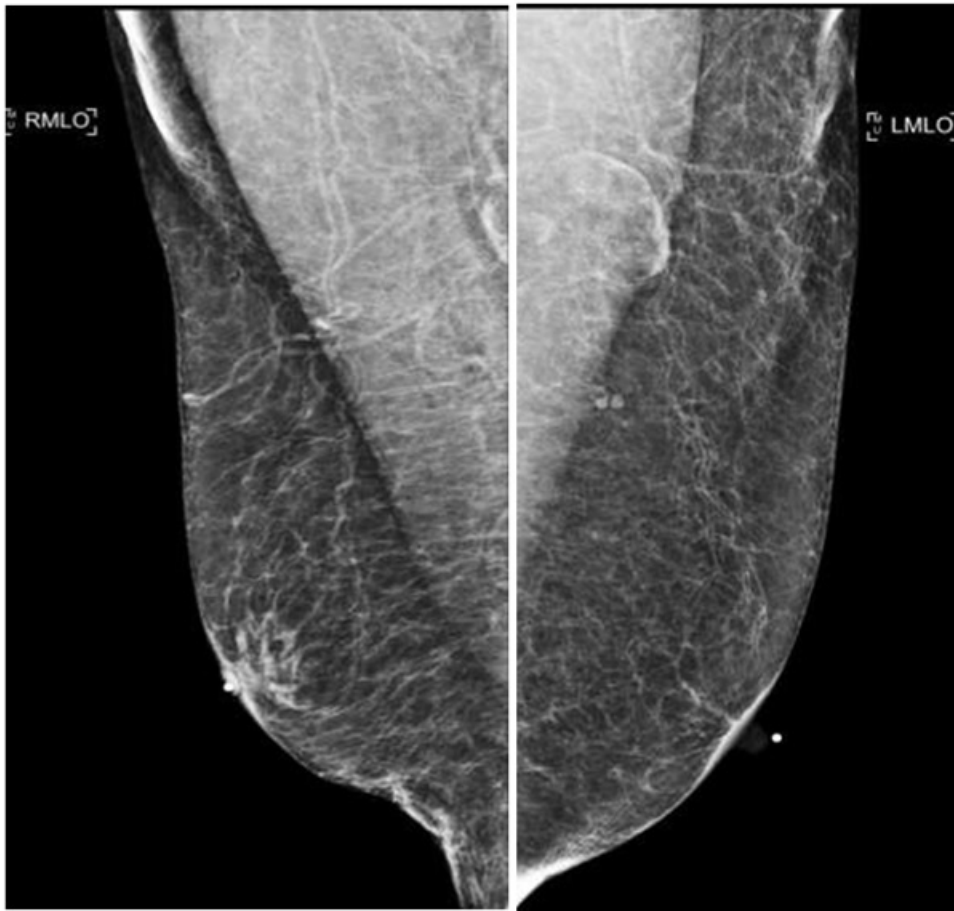


Figure 33: Gynecomastia 2D

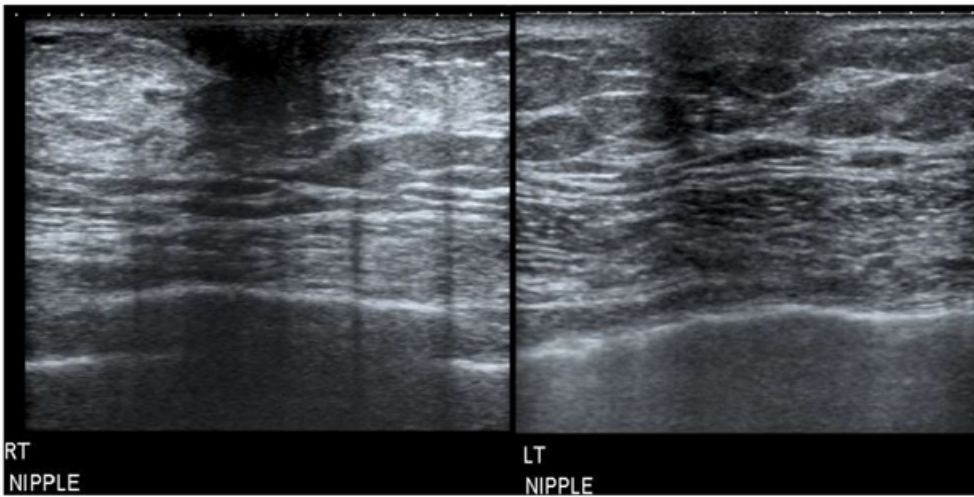


Figure 34: Gynecomastia US

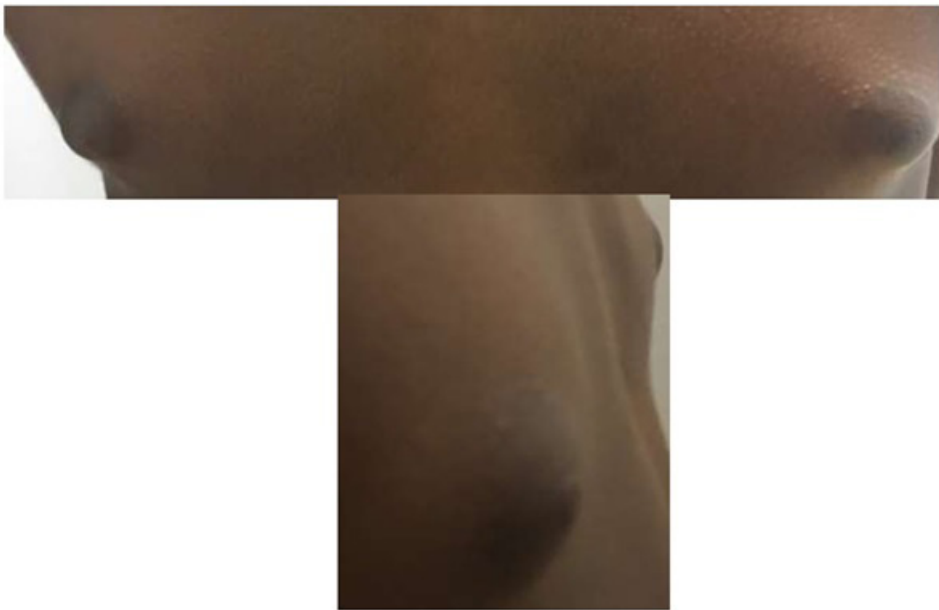


Figure 35: Teen Gynecomastia

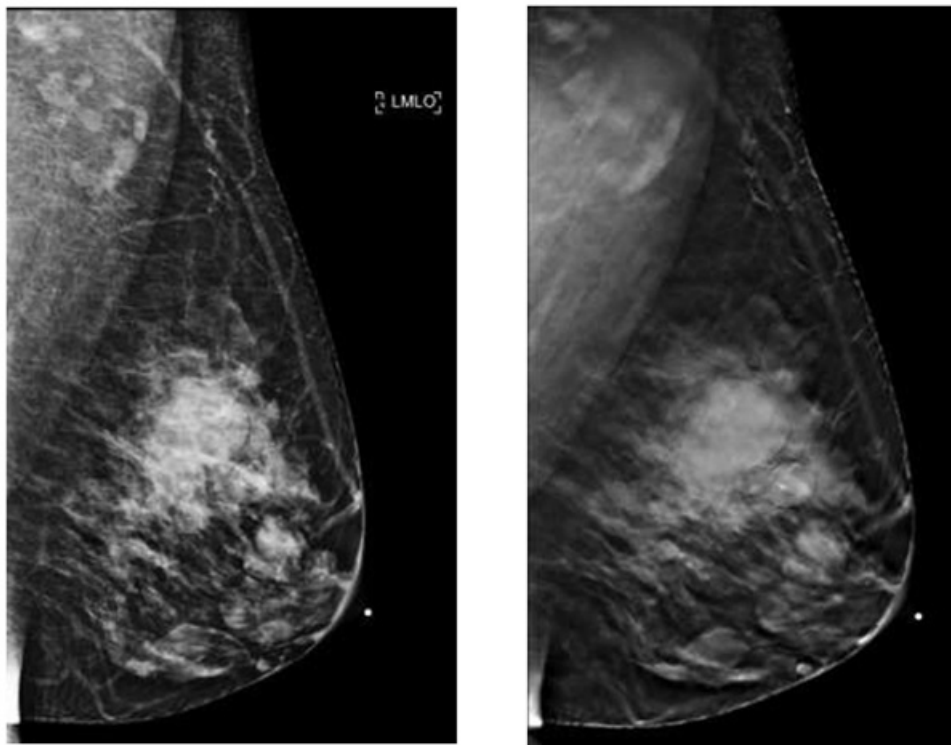


Figure 36: Cysts 2D and 3D

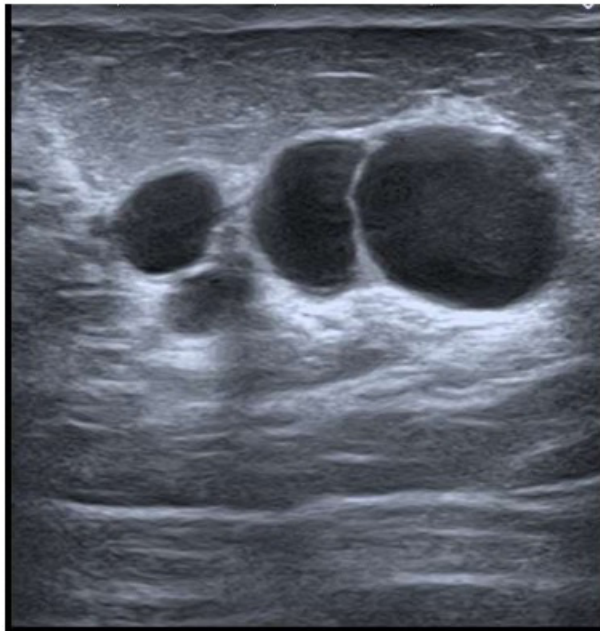


Figure 37: CTSTS US

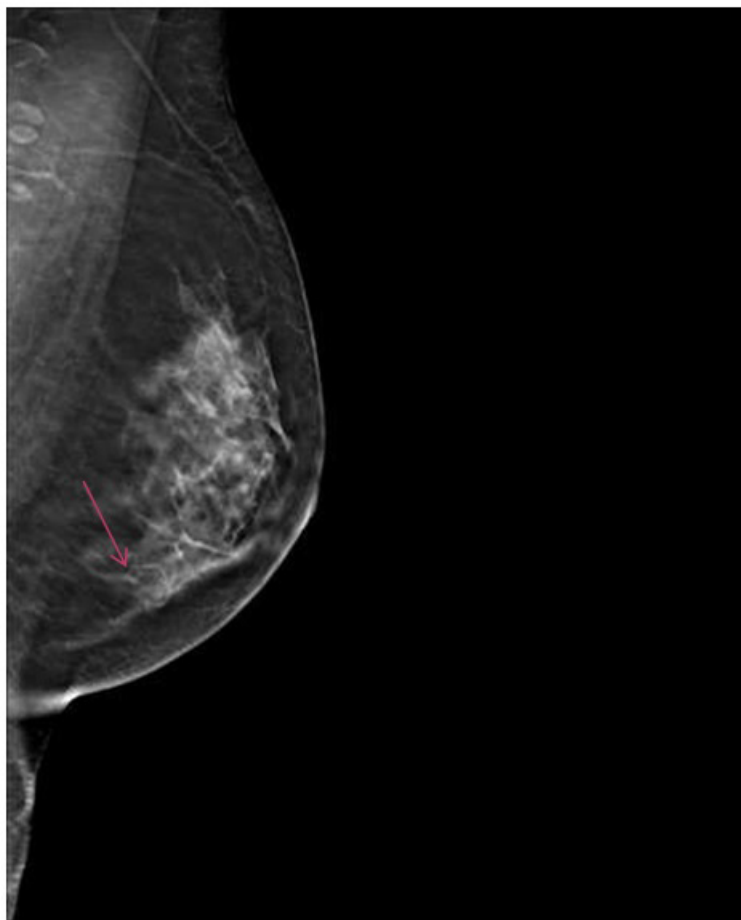


Figure 38: Mammography – Lipoma



Figure 39: Ultrasound Lipoma

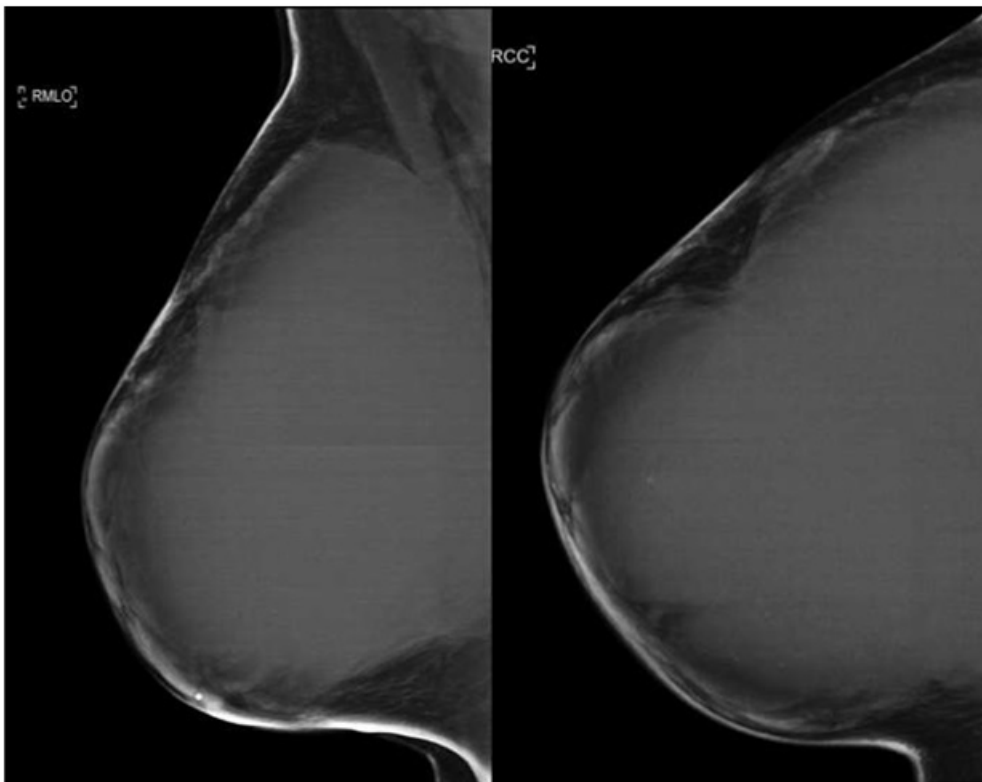


Figure 40: 2D

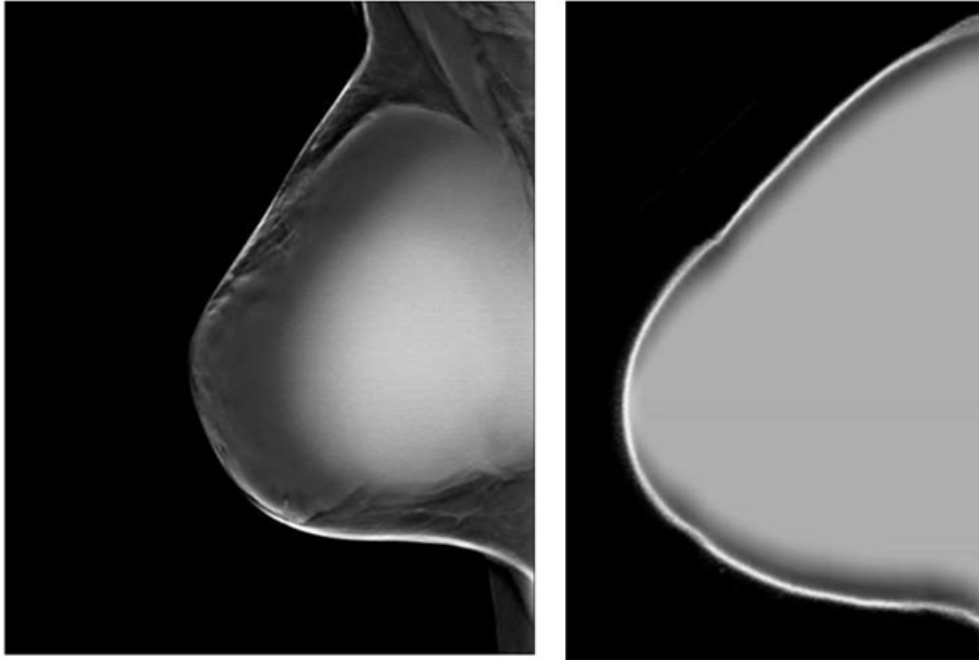


Figure 41: 3D

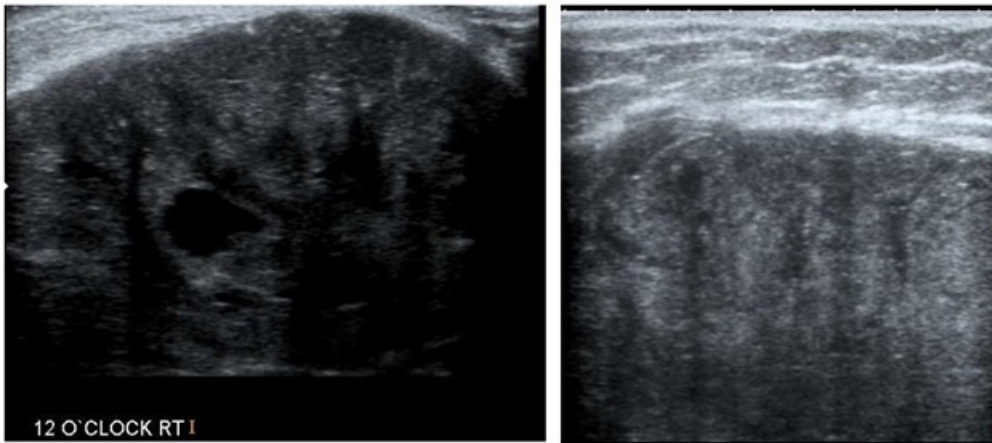


Figure 42: US



Figure 43: CT Chest

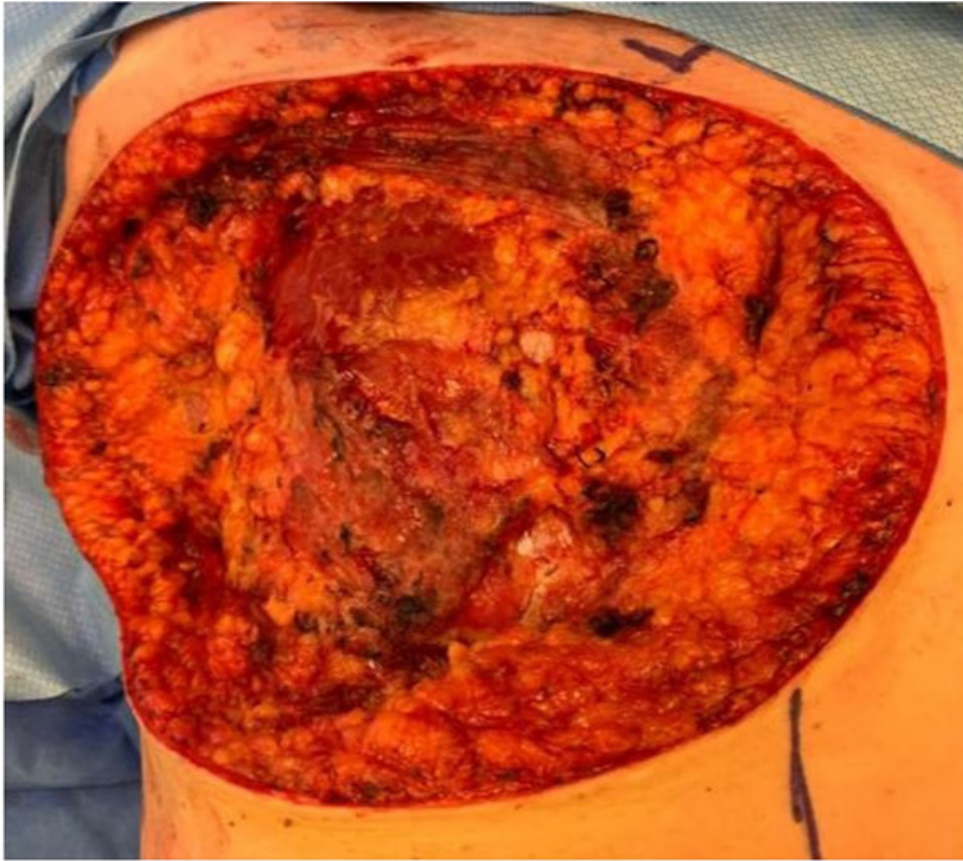


Figure 44: Post Surgery



Figure 45: Post surgery

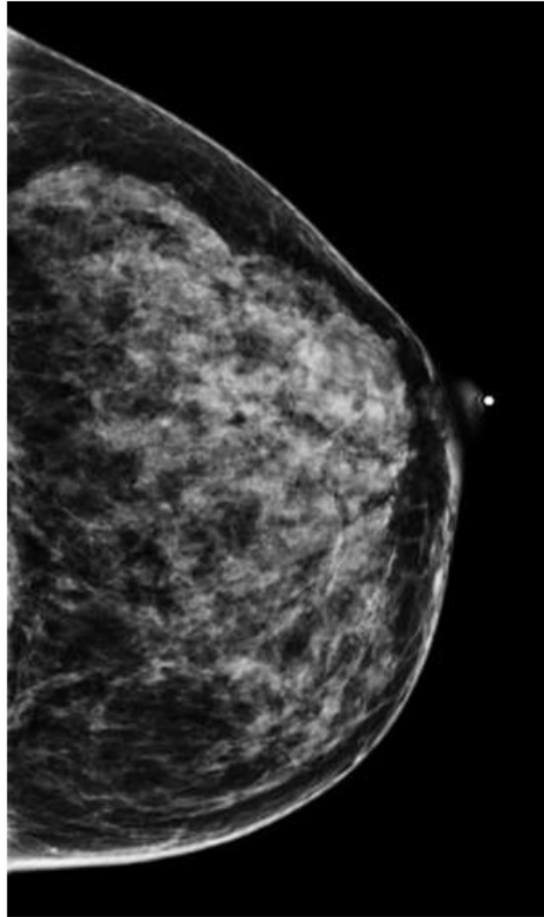


Figure 46: Malignant (Mammo 2D)

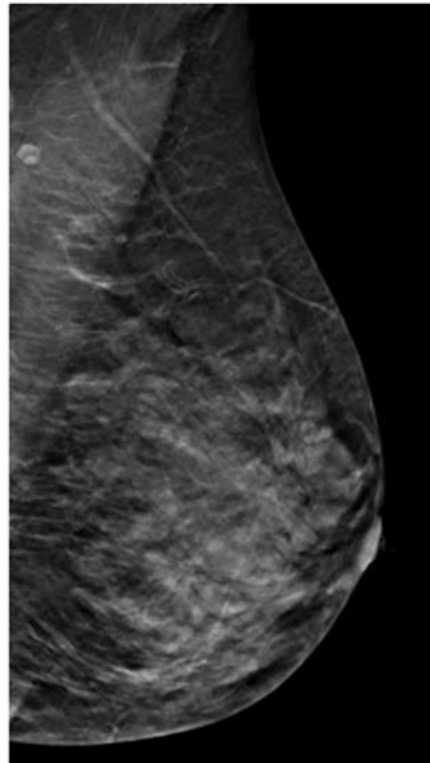
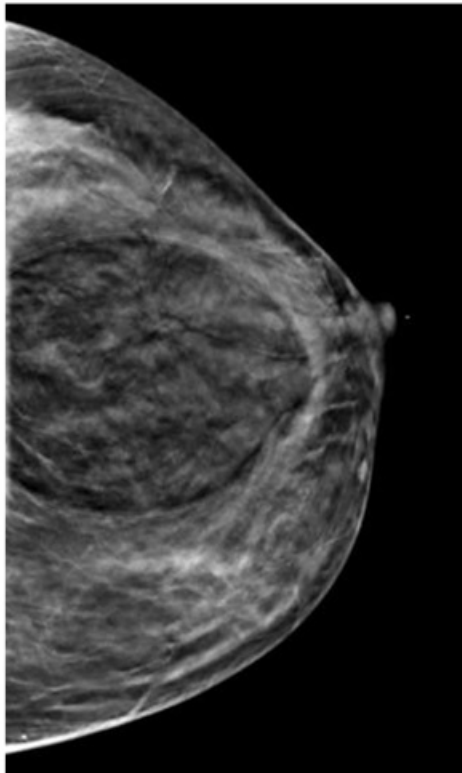


Figure 47: 3D

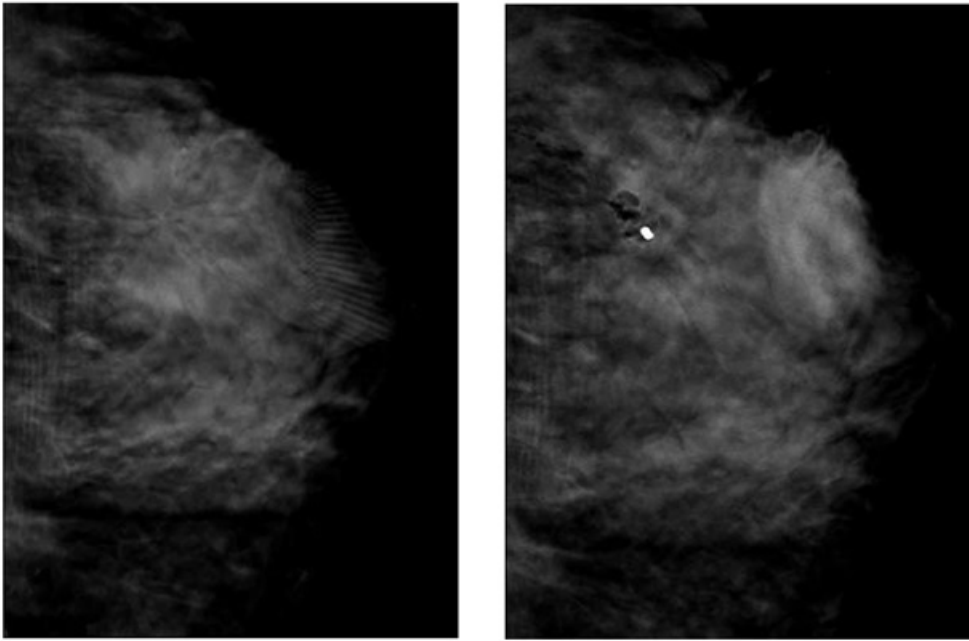


Figure 48: Stereo

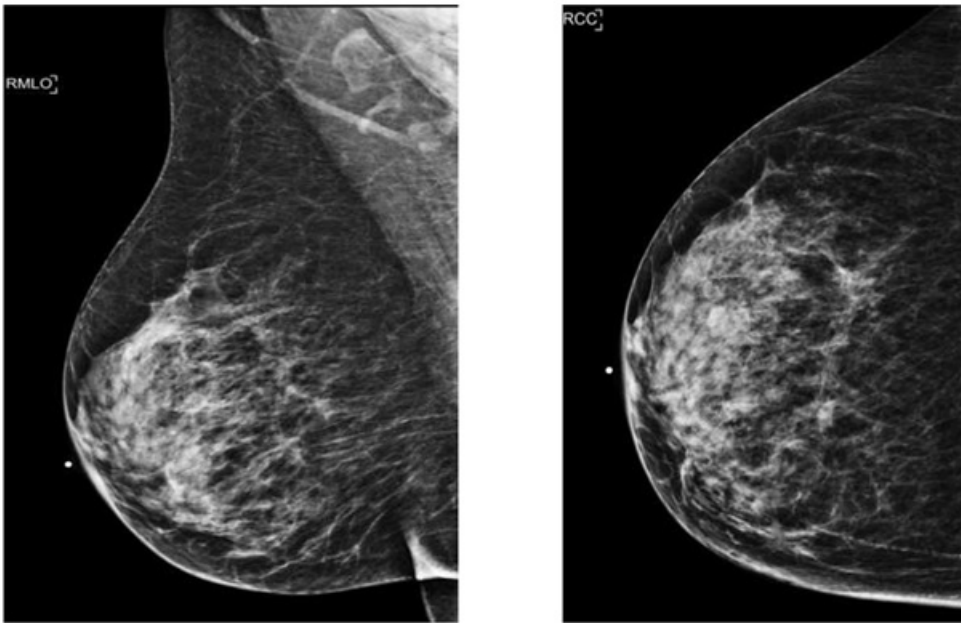


Figure 49: 2D

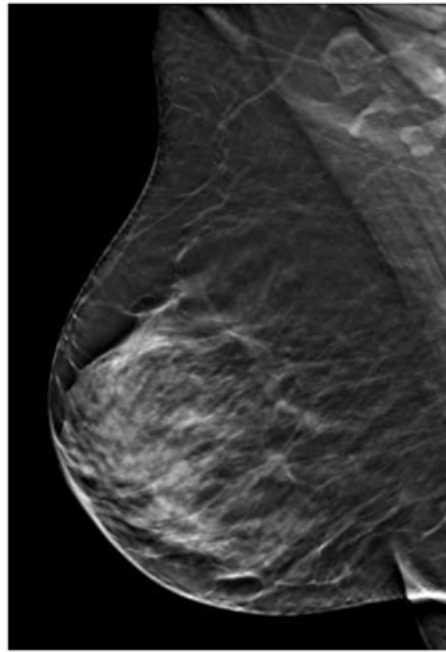
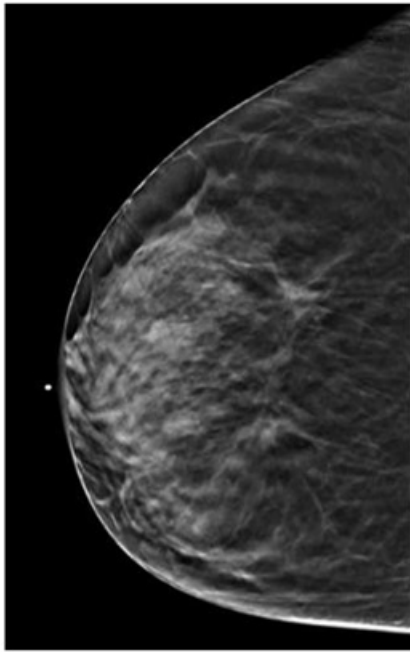


Figure 50: 3D

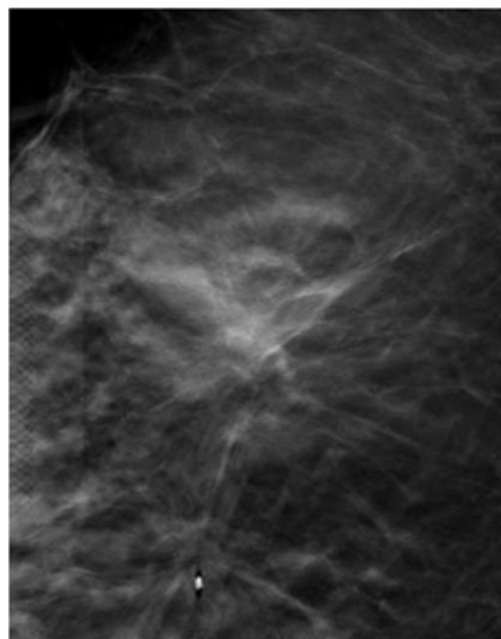
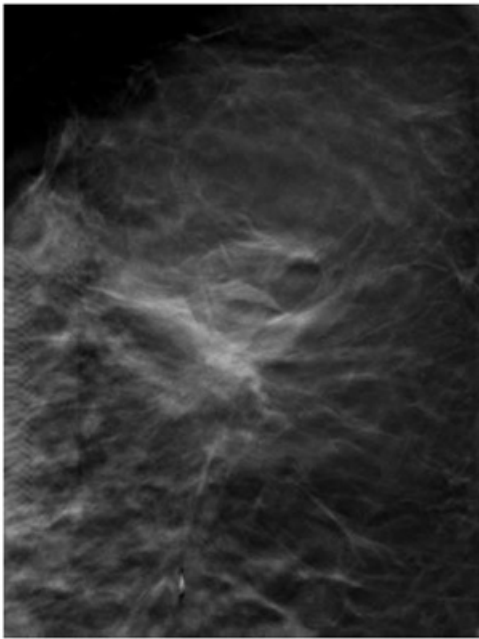


Figure 51: Stereo

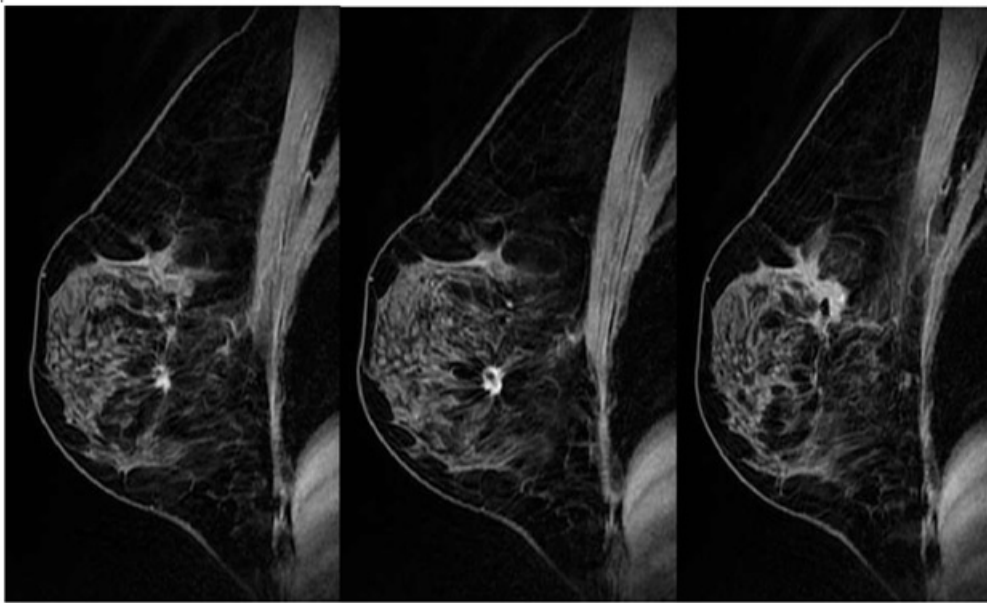


Figure 52: MRI

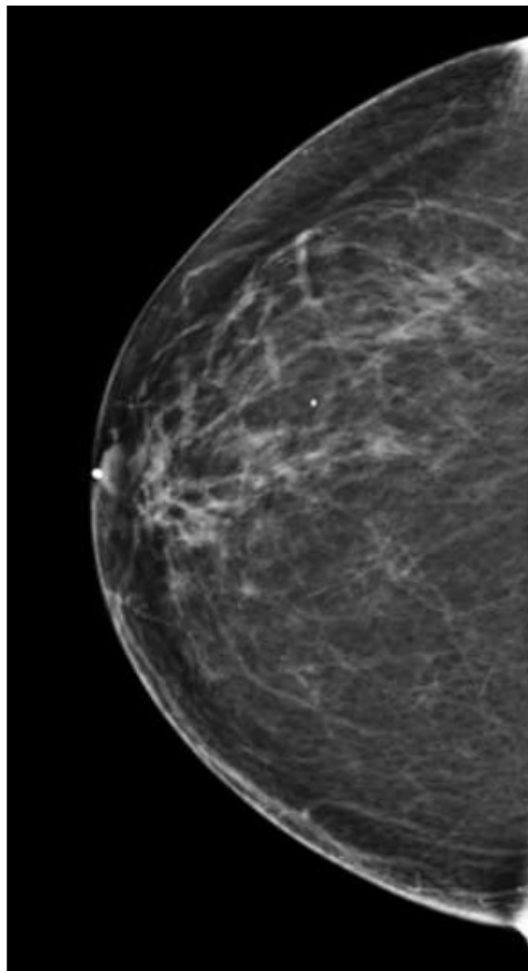


Figure 53: Paget's Disease 2D

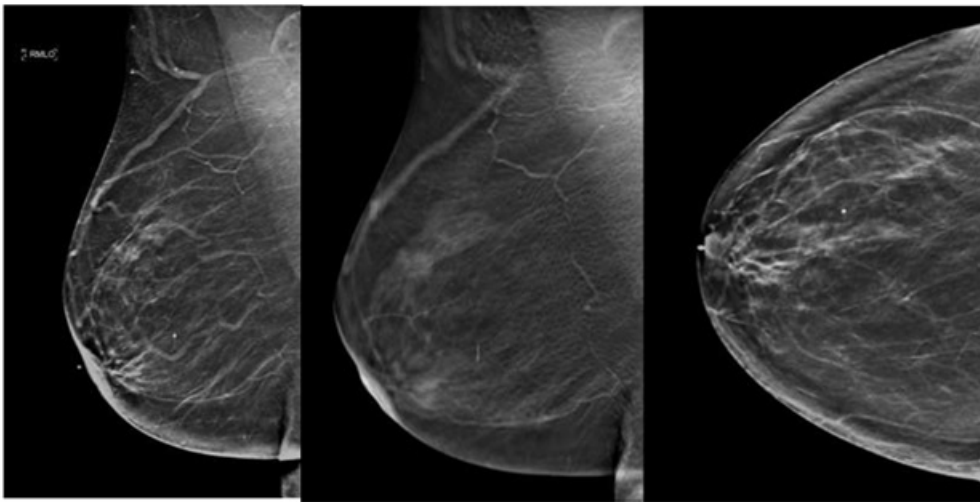


Figure 54: 3D

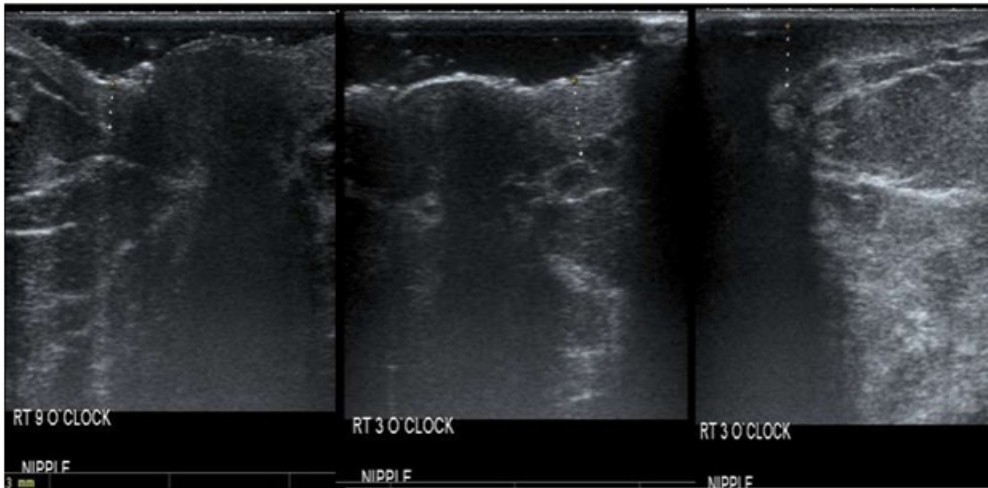


Figure 55: US

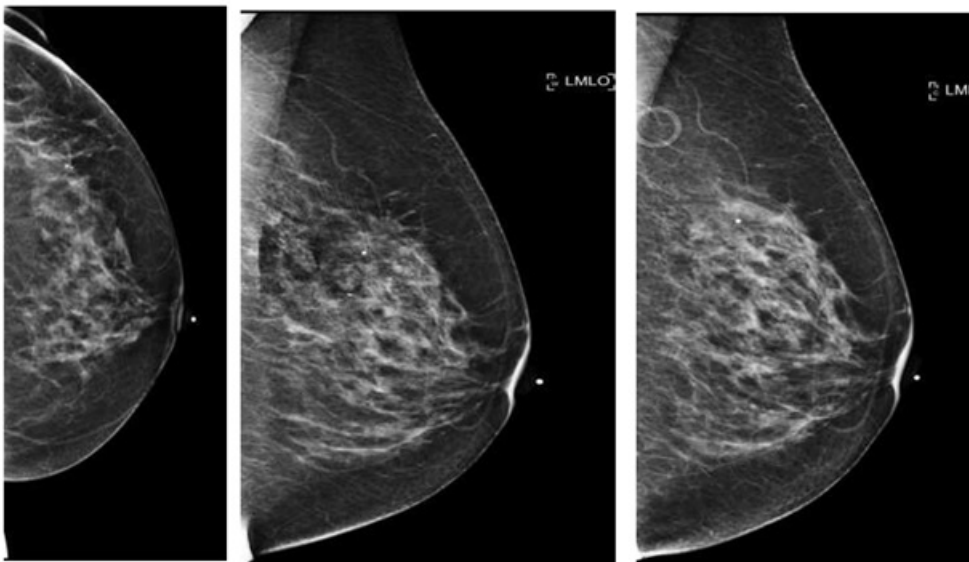


Figure 56: 2D

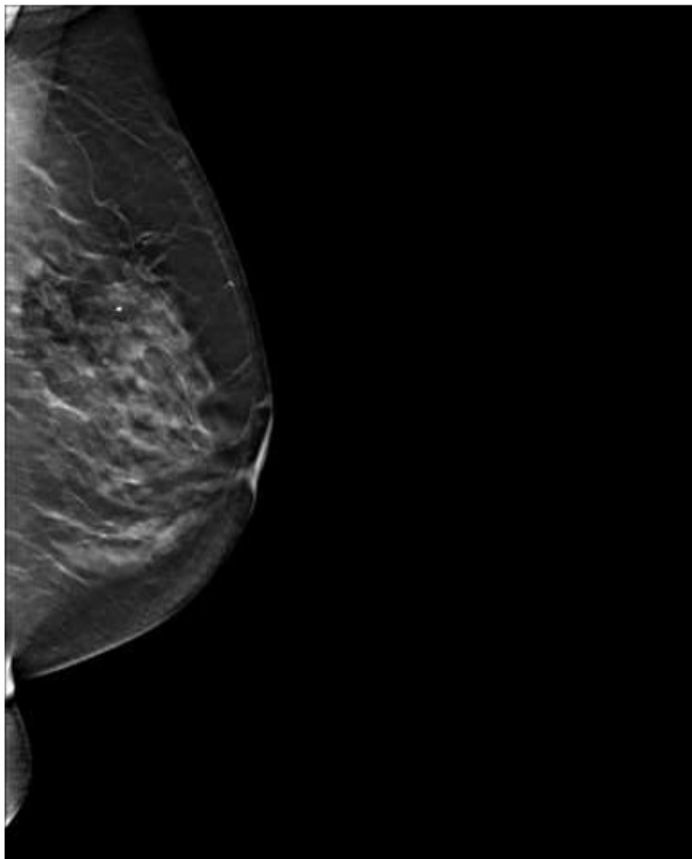


Figure 57: 3D



Figure 58: US