



# Approach to Breast Masses

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## Objectives

By the end of the presentation, the audience should be able to:

- Refer for the correct radiology exam to work up a palpable breast mass
- Understand terminology used in breast imaging reports
- Be familiar with breast cancer statistics
- Be familiar with risks for breast cancer and patients considered high risk for breast cancer

# Introduction

- Breast cancer accounts for 30% of cancers in American women (1)
- It is the most common non-skin cancer among American women
  - 1 in 8 (12%) will develop breast cancer during their lifetime
- It is the second leading cause of cancer death in American women
  - Lung cancer is #1

# Breast Cancer Prevalence

- Incidence rates of breast cancer began to decline after 2002 but have stabilized in recent years.
- Death rates from breast cancer have been declining since 1989
  - Earlier detection, increased awareness, improved treatment



## Risk Factors for Breast Cancer

- Female (only 1% of breast cancers occur in men)
- Increasing age
- Personal history of breast cancer
- Family history of breast cancer/gene-mutation
- Chest radiation
- Prolonged estrogen exposure (early menarche/late menopause, obesity)

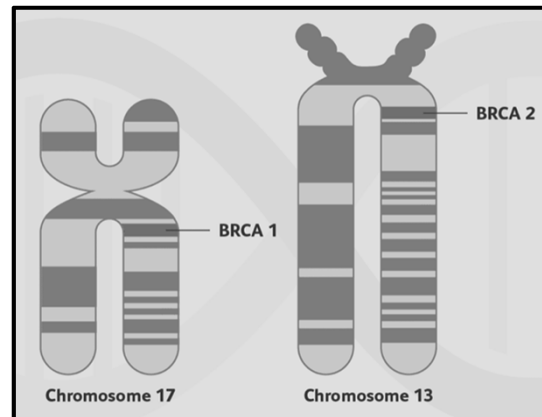
## Family History

- First degree family member = 2x the risk of the average women
- More than 1 first-degree female family member = 3-4x risk of average women
- In general, the younger the age of family member diagnosis, the higher the associated risk.
- Most women (70-75%) with breast cancer have no family history of breast cancer

## Family History

5-10% of breast cancers are hereditary

- BRCA1 or BRCA2
- ATM
- P53
- CHEK2
- PALB2

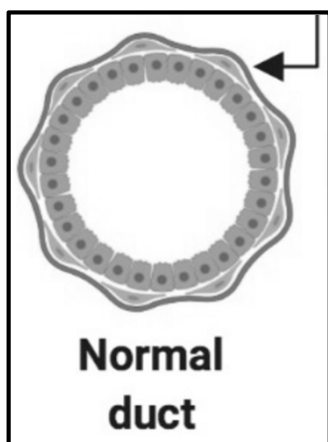
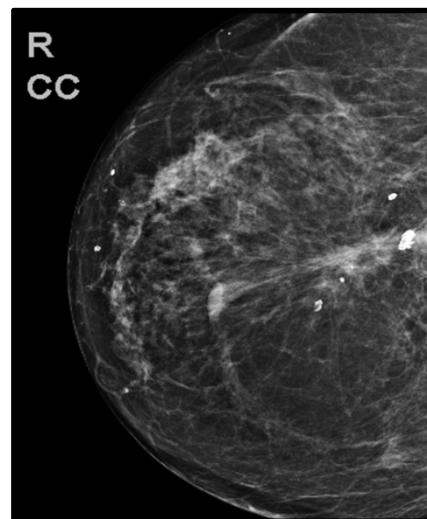


## Family History

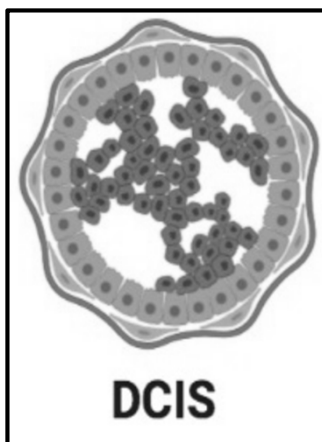
Annual screening mammography is recommended 10 years earlier than the affected relative at the time of diagnosis but not before age 30.

# Personal History of Breast Cancer

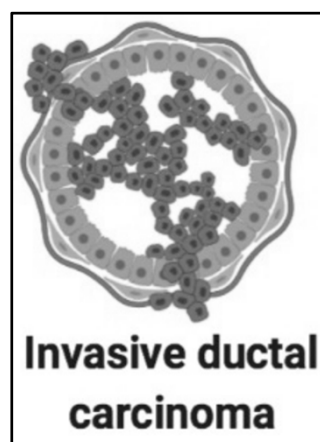
- Incidence of local recurrence = 0.5-1%/year
- Greatest risks include:
  - Patients diagnosed younger than 35, especially younger than 30 y/o
  - Multicentric disease
  - Invasive Ductal Carcinoma with a large DCIS component



**Normal  
duct**



**DCIS**



**Invasive ductal  
carcinoma**

## Chest Radiation

- Radiation therapy to the chest (mantle radiation for Hodgkin's disease), particularly in patients younger than 30 years old.
- Annual mammography is recommended starting eight years after RT but not before age 25 for women who received RT from 10-30 years of age.

## CLINICAL PRESENTATION

## Clinical Examination

- Although the majority of palpable lumps are benign, a new palpable breast mass is the most common presenting symptom of breast cancer (2) .
- In general, cancers detected symptomatically tend to be more aggressive than screen-detected cancers and tend to have a poorer prognosis.

## Clinical Presentation

- Benign masses often are mobile, soft/rubbery in texture on physical exam
- DDx of benign breast masses:
  - Cysts
  - Fibroadenomas
  - Fibrocystic breast disease
  - Stromal fibrosis
  - Pseudoangiomatous Stromal Hyperplasia (PASH)
  - Atypical ductal hyperplasia

## Clinical Examination

- Cancer is firm and immobile on palpation with attachments to skin/deep fascia.
- Can have associated skin dimpling or nipple retraction
- Palpable breast thickening may be associated with cancer in ~5% of women.

## Clinical Examination

- Cysts cannot be reliably distinguished from solid breast masses by palpation.
  - In one study by Rosner et al, only 58% of 66 palpable cysts were correctly identified by physical exam (3).



# Imaging Work-Up

The imaging work-up for a palpable breast mass requires diagnostic mammography AND ultrasound in most patients.

## Imaging Work-Up

- NPV of mammography with US in the work-up of palpable mass ranges from 97.4-100% (4)
- In several series, evaluating palpable breast abnormalities (5-7), the sensitivity of mammography alone was 86-91%.
- Despite this, negative imaging should never overrule a strongly suspicious finding on physical exam.

## Screening vs Diagnostic Mammography

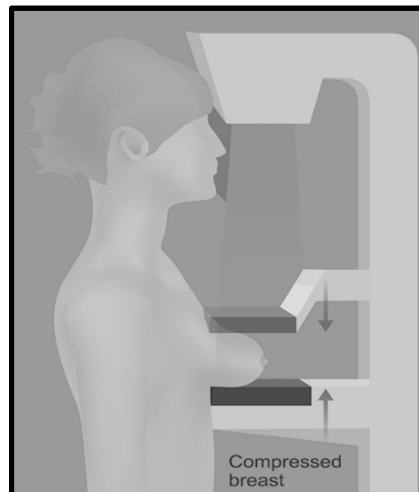
# Screening Mammography

## Asymptomatic women

Consists of two views of each breast:

- MLO (mediolateral oblique views): X-ray beam travels from the medial aspect of the breast to the lateral aspect at ~45 degree angle
- CC (craniocaudal view): X-ray beam travels from the cranial to caudal aspect of the breast.

# Screening Mammography



<https://greenimaging.net/wp-content/uploads/2018/02/greenimaging-screening-mammography-1.jpg>

Breast is under compression to minimize motion and blur

# Diagnostic Exams

## Indications for Diagnostic Exams:

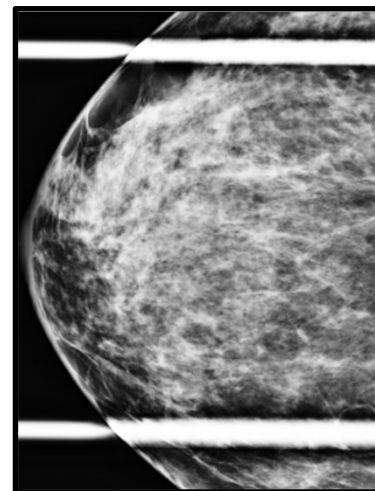
- Evaluating patients symptoms
  - Lump, nipple discharge, skin retraction, swelling, pain
- Evaluate findings seen on screening mammography
- Evaluate extent of disease/treatment response in known breast cancer

# Diagnostic Evaluation

May include additional views:

- XCCL or XCCM (to include far lateral or medial tissue)
- Spot Compression
- Spot magnification views
- May also be followed with ultrasound

Spot Compression View



# Tomosynthesis



- X-ray source moves in arc over 4 seconds to make a 3-D image
- Eliminates artifact from overlapping breast tissue
- Decreases false positives from screening mammography and increases cancer detection rate

# Tomosynthesis

## Pros:

- It has consistently shown to both decrease recall rates from screening mammography AND increase cancer detection rates.
- Increased detection of clinically significant, invasive cancers
- Increases sensitivity of mammography particularly for women with dense breasts

## Cons:

- Increased radiation
- Most insurance companies cover tomosynthesis for screening mammography but NOT diagnostic

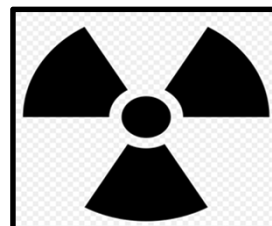
# ACR Appropriateness Criteria

- Radiologic decision making is based on ACR appropriateness criteria
- Appropriateness of imaging modalities in a given clinical scenario is rated 1-9
  - 7-9 is usually appropriate
  - 1-3 is not usually appropriate

| American College of Radiology<br>ACR Appropriateness Criteria®<br>Palpable Breast Masses   |        |   |                           |
|--|--------|---|---------------------------|
| <b>Variant 1:</b> Palpable breast mass. Female, 40 years of age or older, initial evaluation. (See Appendices 1A-1B for additional steps in the workup of these patients.) |        |   |                           |
| Radiologic Procedure   | Rating | Comments  | RRL*                      |
| Mammography diagnostic   | 9      | See references [13-15].   | ☼☼                        |
| Digital breast tomosynthesis diagnostic  | 9      | See references [16-18,20,85].   | ☼☼                        |
| US breast  | 4      | If she had recent mammogram (ie, past 6 months), US may be appropriate. | O                         |
| MRI breast without and with IV contrast  | 2      | See references [4,49].  | O                         |
| MRI breast without IV contrast   | 1      |   | O                         |
| FDG-PEM  | 1      |   | ☼☼☼☼                      |
| Sestamibi MBI  | 1      |   | ☼☼☼                       |
| Image-guided core biopsy breast  | 1      |   | Varies                    |
| Image-guided fine-needle aspiration breast   | 1      |   | Varies                    |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate   |        |   | *Relative Radiation Level |

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# ACR Appropriateness Criteria



Radiation level is taken into account for each imaging modality

| American College of Radiology<br>ACR Appropriateness Criteria®<br>Palpable Breast Masses   |        |   |                           |
|--|--------|---|---------------------------|
| <b>Variant 1:</b> Palpable breast mass. Female, 40 years of age or older, initial evaluation. (See Appendices 1A-1B for additional steps in the workup of these patients.) |        |   |                           |
| Radiologic Procedure   | Rating | Comments  | RRL*                      |
| Mammography diagnostic   | 9      | See references [13-15].   | ☼☼                        |
| Digital breast tomosynthesis diagnostic  | 9      | See references [16-18,20,85].   | ☼☼                        |
| US breast  | 4      | If she had recent mammogram (ie, past 6 months), US may be appropriate. | O                         |
| MRI breast without and with IV contrast  | 2      | See references [4,49].  | O                         |
| MRI breast without IV contrast   | 1      |   | O                         |
| FDG-PEM  | 1      |   | ☼☼☼☼                      |
| Sestamibi MBI  | 1      |   | ☼☼☼                       |
| Image-guided core biopsy breast  | 1      |   | Varies                    |
| Image-guided fine-needle aspiration breast   | 1      |   | Varies                    |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate   |        |   | *Relative Radiation Level |

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# ACR Appropriateness Criteria

Initial evaluation of palpable breast mass in women 40 years or older.

- Diagnostic Mammography: 9
  - 2-D or 3-D is 9
- Ultrasound: 4
- MRI with contrast: 2

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|--|--------|---|---------------------------|
| <b>Variant 1:</b> Palpable breast mass. Female, 40 years of age or older, initial evaluation. (See Appendices 1A-1B for additional steps in the workup of these patients.) |        |   |                           |
| Radiologic Procedure   | Rating | Comments  | RRL*                      |
| Mammography diagnostic   | 9      | See references [13-15].   | ☼☼                        |
| Digital breast tomosynthesis diagnostic  | 9      | See references [16-18,20,85].   | ☼☼                        |
| US breast  | 4      | If she had recent mammogram (ie, past 6 months), US may be appropriate. | O                         |
| MRI breast without and with IV contrast  | 2      | See references [4,49].  | O                         |
| MRI breast without IV contrast   | 1      |   | O                         |
| FDG-PEM  | 1      |   | ☼☼☼☼                      |
| Sestamibi MBI  | 1      |   | ☼☼☼                       |
| Image-guided core biopsy breast  | 1      |   | Varies                    |
| Image-guided fine-needle aspiration breast   | 1      |   | Varies                    |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5 Usually appropriate   |        | Usually appropriate   | *Relative Radiation Level |

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# ACR Appropriateness Criteria

Palpable breast mass in women over 40 y/o with suspicious findings on mammogram

- Ultrasound: 9
- MRI: 2

| <b>Variant 2:</b> Palpable breast mass. Female, 40 years of age or older, mammography findings suspicious for malignancy. Next examination to perform. (See Appendix 1A-1B for additional steps in the workup of these patients.) |        |                         |                           |
|---|--------|-------------------------|---------------------------|
| Radiologic Procedure  | Rating | Comments                | RRL*                      |
| US breast   | 9      | See reference [62].     | O                         |
| MRI breast without and with IV contrast   | 2      | See references [4,49].  | O                         |
| Image-guided core biopsy breast   | 2      |                         | Varies                    |
| Mammography short-interval follow-up  | 1      |                         | ☼☼                        |
| Digital breast tomosynthesis short-interval follow-up   | 1      |                         | ☼☼                        |
| MRI breast without IV contrast  | 1      |                         | O                         |
| FDG-PEM   | 1      |                         | ☼☼☼☼                      |
| Sestamibi MBI   | 1      |                         | ☼☼☼                       |
| Image-guided fine-needle aspiration breast  | 1      |                         | Varies                    |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 Usually appropriate  |        | 8,9 Usually appropriate | *Relative Radiation Level |

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# ACR Appropriateness Criteria

Palpable breast mass in women over 40 y/o with negative mammographic findings.

- Ultrasound: 9
- DBT: 3
  - If prior mammogram was 2-D can consider tomosynthesis
- MRI: 1

| <b>Variant 5:</b> Palpable breast mass. Female, 40 years of age or older, mammography findings negative. Next examination to perform. (See <a href="#">Appendix 1B</a> for additional steps in the workup of these patients.) |        |   |                           |
|---|--------|---|---------------------------|
| Radiologic Procedure  | Rating | Comments  | RRL*                      |
| US breast   | 9      | See references [10-15].   | 0                         |
| Digital breast tomosynthesis diagnostic   | 3      | If prior mammogram was 2-D only, consider doing DBT as part of the diagnostic workup. | ☼☼                        |
| Mammography diagnostic  | 1      |   | ☼☼                        |
| MRI breast without and with IV contrast   | 1      | See references [4,49].  | 0                         |
| MRI breast without IV contrast  | 1      |   | 0                         |
| FDG-PEM   | 1      |   | ☼☼☼☼                      |
| Sestamibi MBI   | 1      |   | ☼☼☼                       |
| Image-guided core biopsy breast   | 1      |   | Varies                    |
| Image-guided fine-needle aspiration breast  | 1      |   | Varies                    |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate  |        |   | *Relative Radiation Level |

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## Point of Emphasis

- For an initial work-up of a palpable mass in a woman over 40 years old, the diagnostic mammogram and ultrasound should both be ordered.
- Ultrasound will almost always be performed following the mammogram in a palpable lump, even if no findings are seen on the mammogram.



## ACR Appropriateness Criteria

Palpable breast mass in women younger than 30 years of age, initial evaluation

- US: 9
- Diagnostic mammogram: 3
- MRI: 1

| Variant 6: Palpable breast mass. Female, younger than 30 years of age, initial evaluation. (See Appendices 2A-2B for additional steps in the workup of these patients.) |        |                            |                           |
|---|--------|----------------------------|---------------------------|
| Radiologic Procedure  | Rating | Comments                   | RRL*                      |
| US breast   | 9      | See references [25-29,62]. | 0                         |
| Mammography diagnostic  | 3      |                            | ☼☼                        |
| Digital breast tomosynthesis diagnostic   | 3      |                            | ☼☼                        |
| MRI breast without and with IV contrast   | 1      | See references [4,49].     | 0                         |
| MRI breast without IV contrast  | 1      |                            | 0                         |
| FDG-PEM   | 1      |                            | ☼☼☼☼                      |
| Sestamibi MBI   | 1      |                            | ☼☼☼                       |
| Image-guided core biopsy breast   | 1      |                            | Varies                    |
| Image-guided fine-needle aspiration breast  | 1      |                            | Varies                    |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate  |        |                            | *Relative Radiation Level |

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## Palpable mass in women younger than 30 years old

- Because of the radiation with mammography and low incidence of breast cancer (<1%) in younger women, the recommended imaging is US
  - Differing from women >30 y/o which is mammography
- Younger women tend to have dense breast tissue which is associated with decreased mammographic sensitivity.
- If suspicious finding on US, mammography is usually pursued.

# ACR Appropriateness Criteria

Palpable breast mass younger than 30 years of age, US findings suspicious for malignancy. Next exam to perform.

- US-guided core biopsy: 9
- Diagnostic mammography: 8
- Short term follow-up: 1
- MRI: 1

**Variant 7:** Palpable breast mass. Female, younger than 30 years of age, US findings suspicious for malignancy. Next examination to perform. (See [Appendix 2A](#) for additional steps in the workup of these patients.)

| Radiologic Procedure   | Rating | Comments   | RRL*                      |
|--|--------|--|---------------------------|
| Image-guided core biopsy breast  | 9      | Either mammography or biopsy is appropriate. It depends on the history and findings. See references [36-38]. | Varies                    |
| Mammography diagnostic   | 8      | Either mammography or biopsy is appropriate. It depends on the history and findings.                         | ☼☼                        |
| Digital breast tomosynthesis diagnostic  | 8      | Either DBT or biopsy is appropriate. It depends on the history and findings.                                 | ☼☼                        |
| US breast short-interval follow-up   | 1      |  | 0                         |
| MRI breast without and with IV contrast  | 1      | See references [4,49].   | 0                         |
| MRI breast without IV contrast   | 1      |  | 0                         |
| FDG-PEM  | 1      |  | ☼☼☼☼                      |
| Sestamibi MBI  | 1      |  | ☼☼☼                       |
| Image-guided fine-needle aspiration breast   | 1      |  | Varies                    |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate |        |  | *Relative Radiation Level |

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# ACR Appropriateness Criteria

Palpable breast mass in woman younger than 30 y/o, US findings negative.

- Diagnostic mammography: 3
- MRI breast: 2
- Short-term US follow-up: 1

**Variant 10:** Palpable breast mass. Female, younger than 30 years of age, US findings negative. Next examination to perform.

| Radiologic Procedure   | Rating | Comments  | RRL*                      |
|--|--------|---|---------------------------|
| Mammography diagnostic   | 3      |   | ☼☼                        |
| Digital breast tomosynthesis diagnostic  | 3      | If the clinical examination is highly suspicious and the breasts are dense, DBT may be helpful. | ☼☼                        |
| MRI breast without and with IV contrast  | 2      | See references [4,49].  | 0                         |
| US breast short-interval follow-up   | 1      |   | 0                         |
| MRI breast without IV contrast   | 1      |   | 0                         |
| FDG-PEM  | 1      |   | ☼☼☼☼                      |
| Sestamibi MBI  | 1      |   | ☼☼☼                       |
| Image-guided core biopsy breast  | 1      |   | Varies                    |
| Image-guided fine-needle aspiration breast   | 1      |   | Varies                    |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate |        |   | *Relative Radiation Level |

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# ACR Appropriateness Criteria

Palpable breast mass in women 30-39 y/o, initial evaluation.

- US: 8
- Diagnostic mammography: 8
- MRI: 2

**Variant 11:** Palpable breast mass. Female, 30 to 39 years of age, initial evaluation. (See [Appendix 3](#) for additional steps in the workup of these patients.)

| Radiologic Procedure                       | Rating | Comments  | RRL*   |
|--|--------|---|--------|
| US breast                                  | 8      | If imaged initially with US, see Variants 7-10 for additional imaging.          | 0      |
| Mammography diagnostic                     | 8      | If imaged initially with mammography, see Variants 2-5. See references [14,15]. | ☻☻     |
| Digital breast tomosynthesis diagnostic    | 8      | See references [16-20].   | ☻☻     |
| MRI breast without and with IV contrast    | 2      | See references [4,49].  | 0      |
| MRI breast without IV contrast             | 1      |   | 0      |
| FDG-PEM                                    | 1      |   | ☻☻☻☻   |
| Sestamibi MBI                              | 1      |   | ☻☻☻    |
| Image-guided core biopsy breast            | 1      |   | Varies |
| Image-guided fine-needle aspiration breast | 1      |   | Varies |

**Rating Scale:** 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

\*Relative Radiation Level

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## MRI in Palpable Breast Mass

- Should not be used in initial evaluation of palpable breast mass
- Pros: Highest sensitivity
- Cons: High cost, low specificity

## Take-Home Points

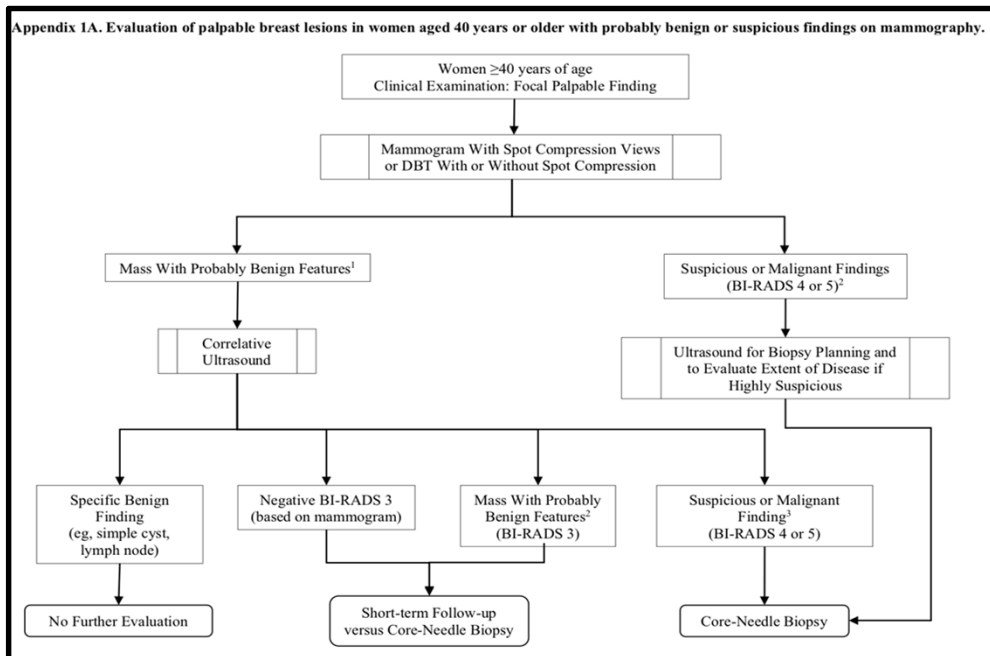
Older than 40 y/o: diagnostic mammography + US orders should be placed

<30 y/o: US is initial imaging. Mammography does not usually need to be ordered.

Women between 30-39 y/o: Initial imaging could be US with or without mammography

- Depends on risk factors/patient preference/additional symptoms

MRI is NOT a way to work-up palpable breast mass



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# **Palpable mass in the pregnant/lactating patient**

## **Differential of new palpable mass in pregnant/lactating patient**

- Fibroadenoma
- Galactocele
- Lactating adenoma
- Puerperal mastitis/abscess
- Pregnancy-associated breast cancer

## Palpable mass in pregnant patient

- Initial test to order is US
- Mammo may be appropriate if suspicious finding on US

**Variant 5:** Pregnant women with a palpable breast mass. Initial imaging.

| Procedure                                  | Appropriateness Category | Relative Radiation Level |
|--|--------------------------|--------------------------|
| US breast                                  | Usually Appropriate      | 0                        |
| Digital breast tomosynthesis diagnostic    | May Be Appropriate       | ☼☼                       |
| Mammography diagnostic                     | May Be Appropriate       | ☼☼                       |
| MRI breast without and with IV contrast    | Usually Not Appropriate  | 0                        |
| MRI breast without IV contrast             | Usually Not Appropriate  | 0                        |
| Sestamibi MBI                              | Usually Not Appropriate  | ☼☼☼                      |
| Image-guided core biopsy breast            | Usually Not Appropriate  | Varies                   |
| Image-guided fine-needle aspiration breast | Usually Not Appropriate  | Varies                   |

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## Palpable mass in the male breast

# Male Breast Mass

Clinical symptoms of gynecomastia at any age:  
No imaging is recommended

Clinical symptoms suspicious for cancer at any age:

Mammography AND US  
are usually appropriate

| <b>Variant 1:</b> Male patient of any age with symptoms of gynecomastia and physical examination suspicious for gynecomastia or pseudogynecomastia. Initial imaging. |                          |
|--|--------------------------|
| Procedure  | Appropriateness Category |
| Mammography diagnostic   | Usually Not Appropriate  |
| Digital breast tomosynthesis diagnostic  | Usually Not Appropriate  |
| US breast  | Usually Not Appropriate  |
| MRI breast without and with IV contrast  | Usually Not Appropriate  |
| MRI breast without IV contrast   | Usually Not Appropriate  |

| <b>Variant 5:</b> Male of any age with physical examination suspicious for breast mass, axillary adenopathy, nipple discharge, or nipple retraction. |                          |
|--|--------------------------|
| Procedure  | Appropriateness Category |
| Mammography diagnostic   | Usually Appropriate      |
| Digital breast tomosynthesis diagnostic  | Usually Appropriate      |
| US breast  | Usually Appropriate      |
| MRI breast without and with IV contrast  | Usually Not Appropriate  |
| MRI breast without IV contrast   | Usually Not Appropriate  |

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## Male breast mass

Younger than 25 y/o with indeterminate palpable mass:

- US: usually appropriate
- Diagnostic mammo: May be appropriate
- MRI: Usually not appropriate

25 years or older:

- Diagnostic mammo: usually appropriate
- US: May be appropriate

| <b>Variant 2:</b> Male younger than 25 years of age with indeterminate palpable breast mass. |                          |
|--|--------------------------|
| Procedure  | Appropriateness Category |
| US breast  | Usually Appropriate      |
| Mammography diagnostic   | May Be Appropriate       |
| Digital breast tomosynthesis diagnostic  | May Be Appropriate       |
| MRI breast without and with IV contrast  | Usually Not Appropriate  |
| MRI breast without IV contrast   | Usually Not Appropriate  |

| <b>Variant 3:</b> Male 25 years of age or older with indeterminate palpable breast mass. |                          |
|--|--------------------------|
| Procedure  | Appropriateness Category |
| Mammography diagnostic   | Usually Appropriate      |
| Digital breast tomosynthesis diagnostic  | Usually Appropriate      |
| US breast  | May Be Appropriate       |
| MRI breast without and with IV contrast  | Usually Not Appropriate  |
| MRI breast without IV contrast   | Usually Not Appropriate  |

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## Male Breast Mass

- Majority of male breast problems are benign
- Differential diagnosis for male breast mass:
  - **Gynecomastia**
  - **Breast cancer**
  - Lipoma
  - Epidermal inclusion cyst
  - Oil cysts
  - Pseudogynecomastia- Excess fatty tissue

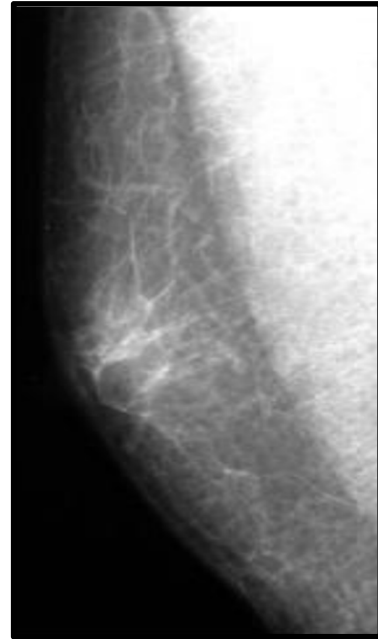
## Gynecomastia

- Most common cause of a palpable mass, breast enlargement, or pain in men.
- Bilateral in ~50% of patients
- Common causes:
  - Side effect of many medications and recreational drugs
  - Hormonal changes
  - Chronic liver disease
- On physical exam, presents as a soft, rubbery, or firm mobile mass directly under the nipple.
- Not a risk factor for breast cancer



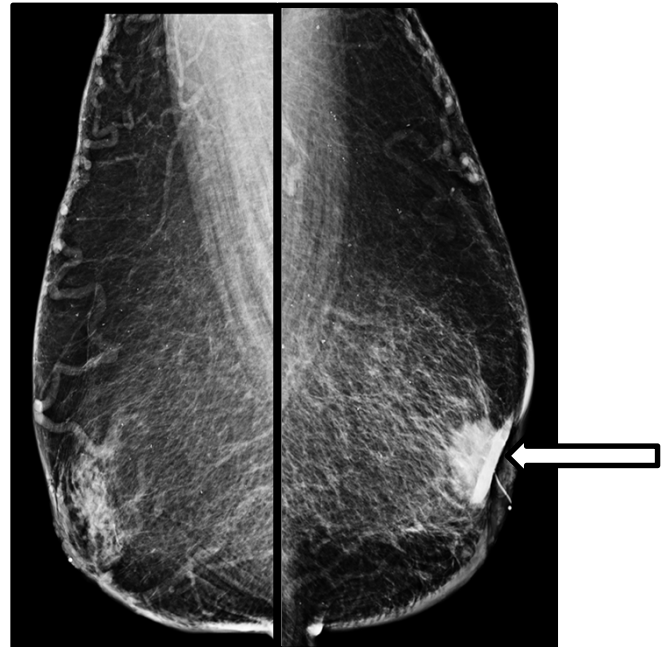
## Gynecomastia

- Diagnostic findings on mammography
  - Dendritic pattern
  - Directly behind the nipple
  - No mass-like component
- No further imaging is usually needed



## Male Breast Cancer

- 1% of all breast cancers
- Median onset is 63 years of age
- Frequently presents with symptoms- palpable lump, nipple retraction, nipple discharge.



## Take-Home Points

Younger than 25 y/o with palpable mass: US is appropriate

25 years or older: Mammography with possible US is the best imaging modality

## Clinical Cases

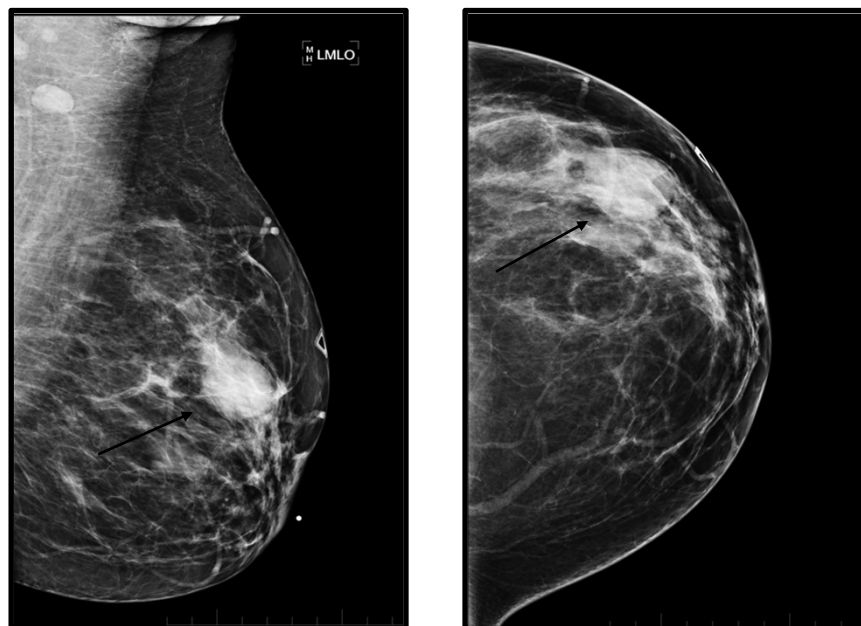
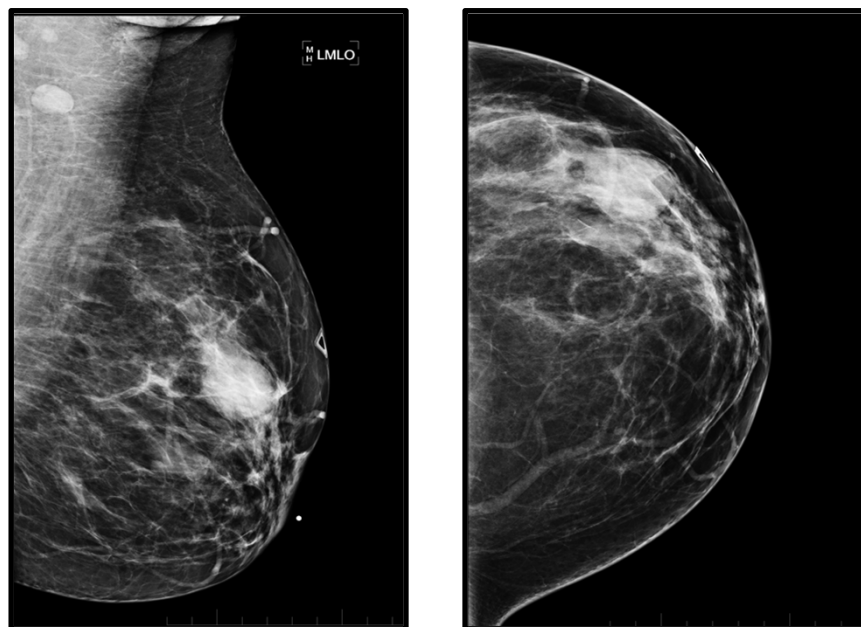
**63 year old female presents with palpable abnormality for 3 weeks**

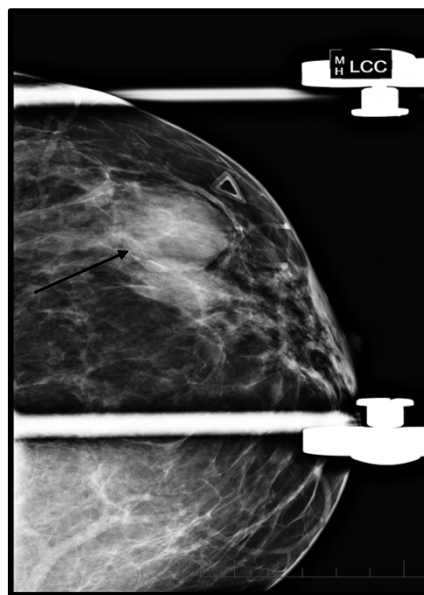
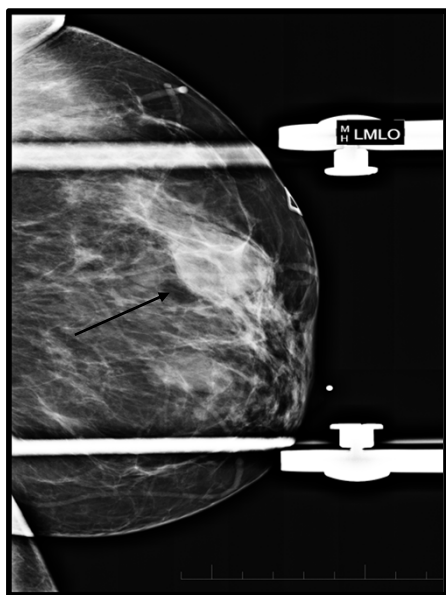
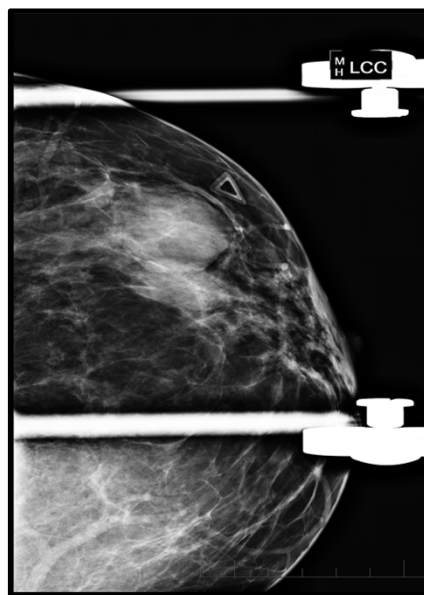
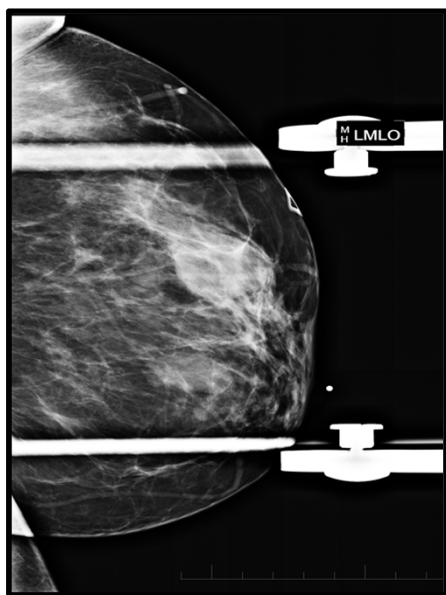
What study/studies should you order?

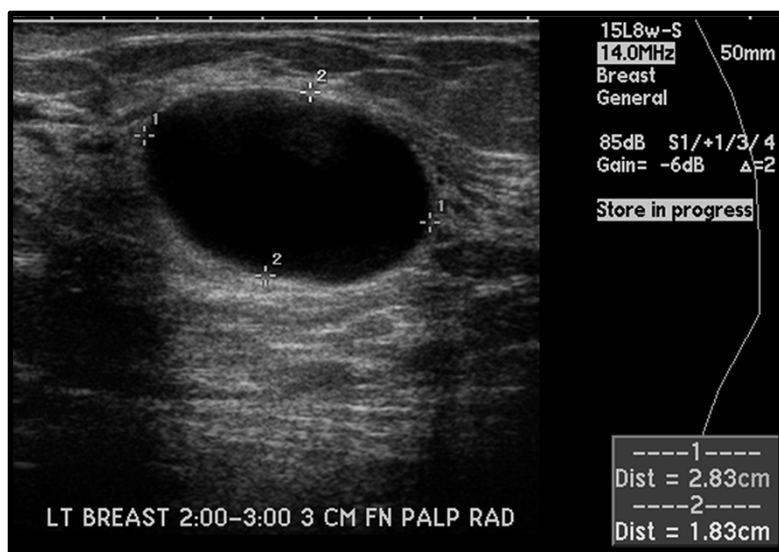
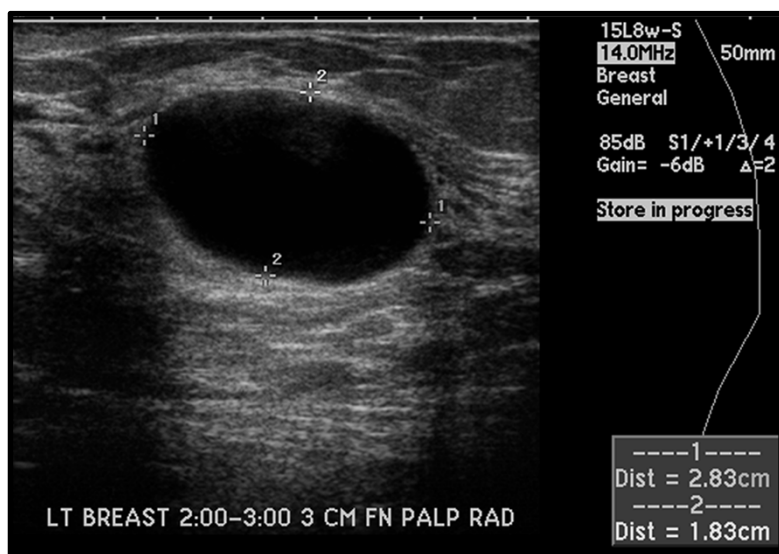
**63 year old female presents with palpable abnormality for 3 weeks**

What study/studies should you order?

**Mammogram and Ultrasound**







Findings consistent with a cyst

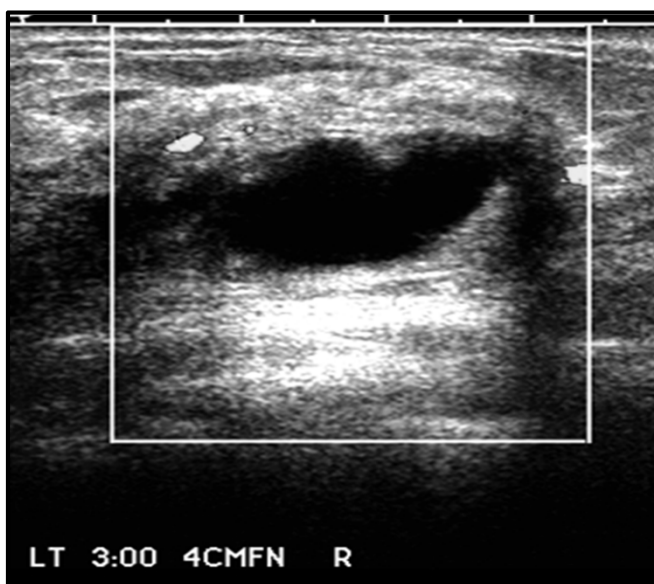
**28 year old postpartum female presents with left breast redness and mass.**

What study should be ordered?

**28 year old postpartum female presents with left breast redness and mass.**

What study should be ordered?

**Start with US only**



Findings consistent with an abscess



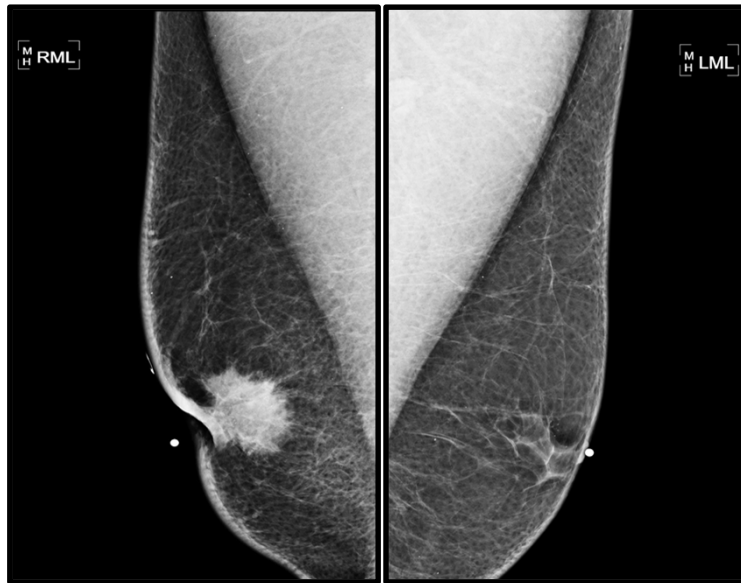
**55 year old male has a mass palpated in the subareolar right breast on physical exam.**

What studies should you order?

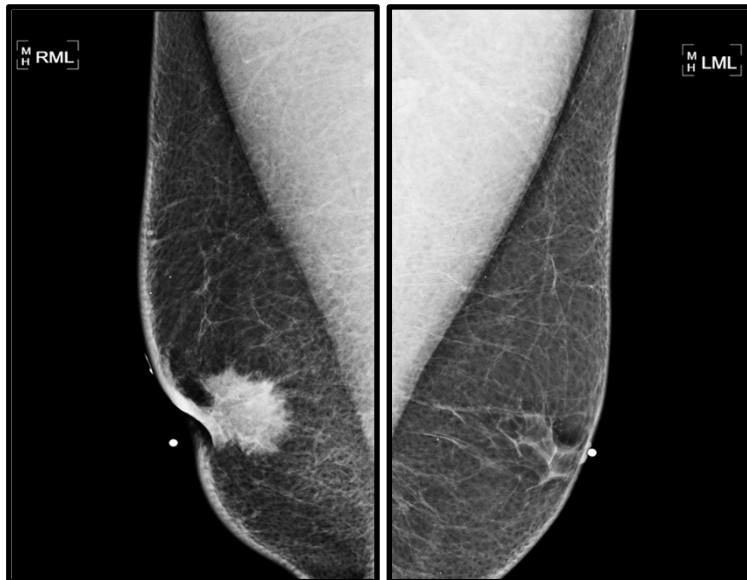
**55 year old male has a mass palpated in the subareolar right breast on physical exam.**

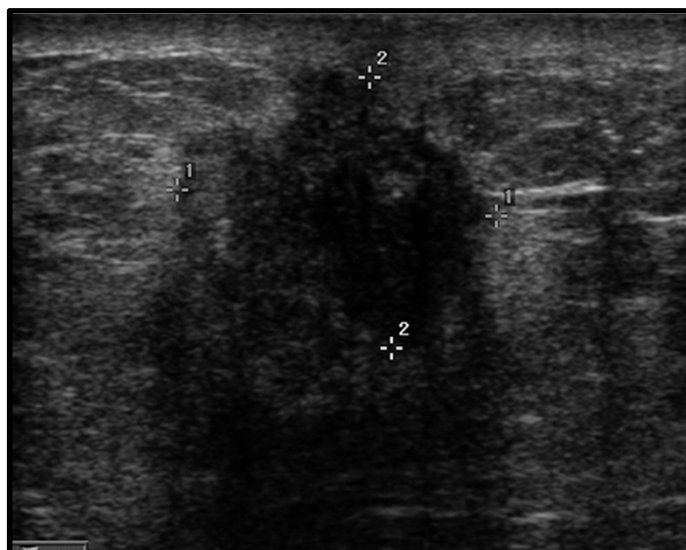
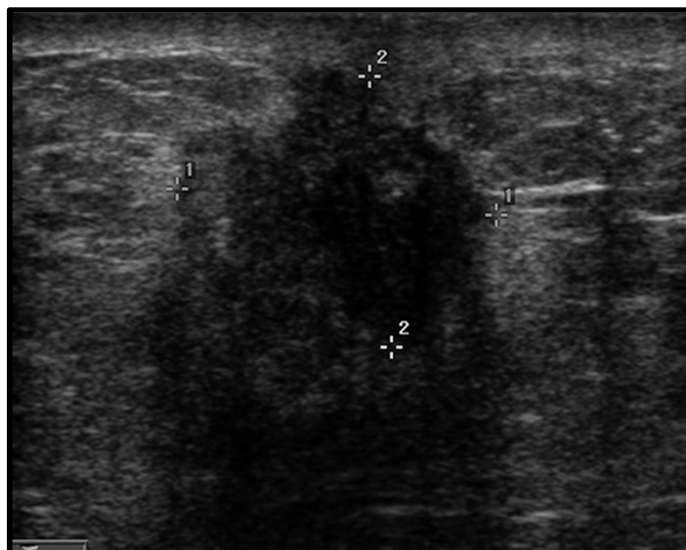
What studies should you order?

**Without physical exam findings suggestive of gynecomastia, then mammogram and US**



How should  
we proceed?





Findings consistent with highly suspicious mass found to be biopsy-proven IDC

## References

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