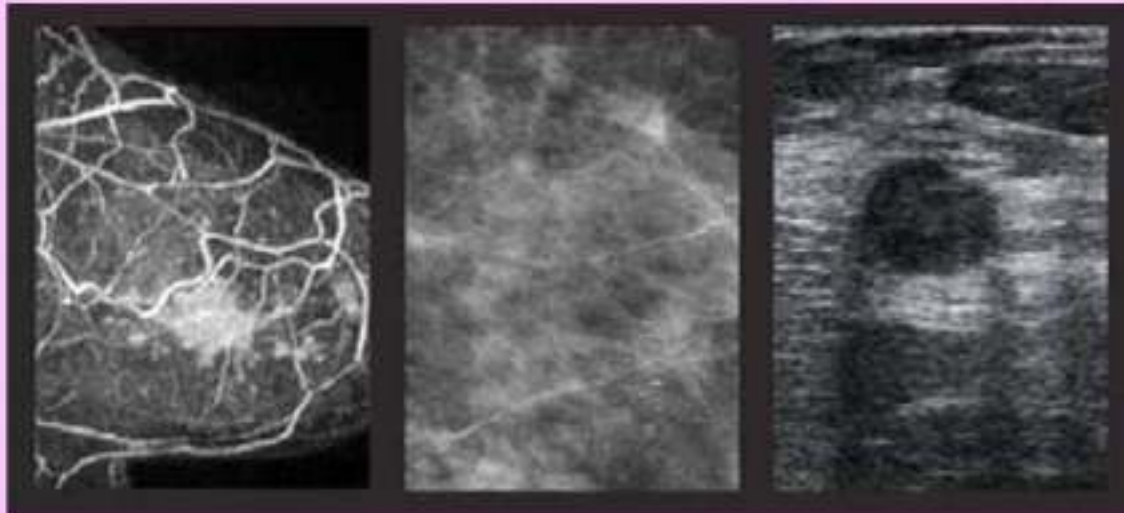




BREAST IMAGING



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Imaging modalities:

Digital mammography

Digital tomosynthesis

Ultrasonography

MRI

Dedicated breast CT

PET scan

Scinti-mammography

SPECT/CT imaging





Digital Mammography:

The mainstay of screening (at age 40 and above)

Screening:

- Asymptomatic women (General population risk).
- The goal is early detection.
- The ACR recommends annual screening MMG for women starting at age 40, as breast cancer incidence increases substantially around this age.

(intermediate risk patients, High risk patients)

Diagnostic:

- Symptomatic patient with pain or a lump.





Ultrasound:

A second look procedure

Handheld & automated whole breast US

Screening

- High risk patients
- Dense breasts (88% sensitivity compared to 56% of MMG alone)

Diagnostic

- As a second-look procedure to further evaluate MMG findings
- Evaluation of lump.

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MRI of the breast:

1.5 T or >

Indications:

High risk patients

Lobular cancer (30% contralateral, multifocal, multicentric)

Occult cancer

To determine the exact dimensions of cancer.

Post-op scar vs tumor recurrence

Neo-adjuvant chemo

Implants integrity

Problematic MMG (rare)

Major drawback:

High false positive rate causing unnecessary biopsies.





Imaging characteristics of breast masses:

Mammography

1- Density

(High, average, low)

2- Shape

(Round, oval, irregular)

3- Edges

(Circumscribed, obscured, micro-lobulated, indistinct, speculated)

4- Calcification

Benign (Dystrophic, popcorn, rim, round, milk of calcium)

Suspicious (Amorphous, fine pleomorphic, fine linear, fine-linear branching)



Ultrasonography

1- Shape

Well circumscribed, irregular or speculated)

1- Orientation

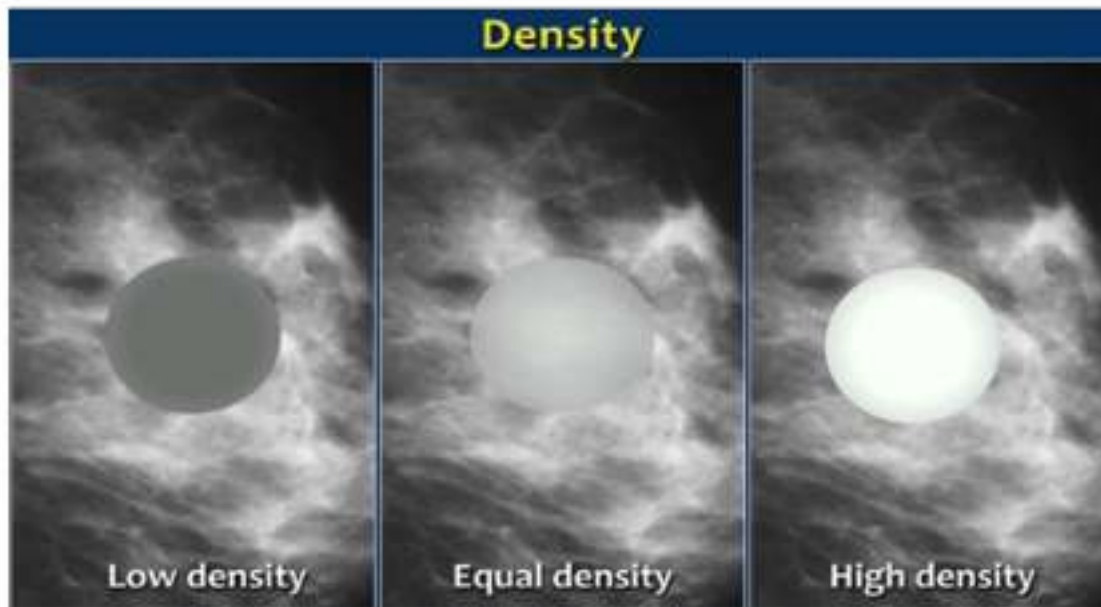
(Deep or wide)

2- Echopattern

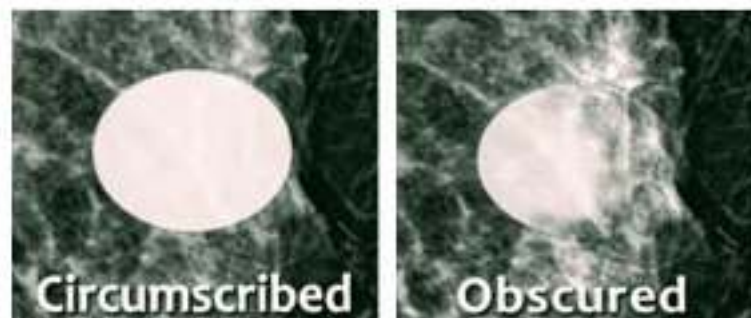
(Hyper or hypoechoic)

3- Posterior features

(Enhancement or shadowing)

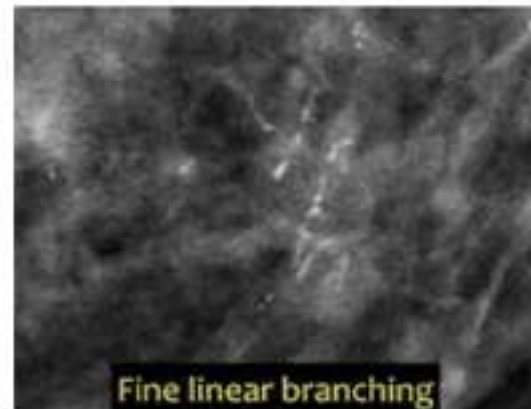
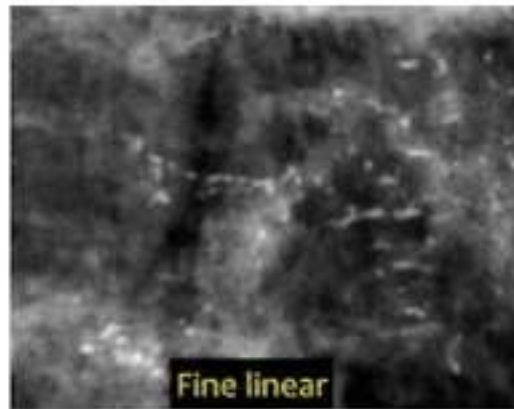
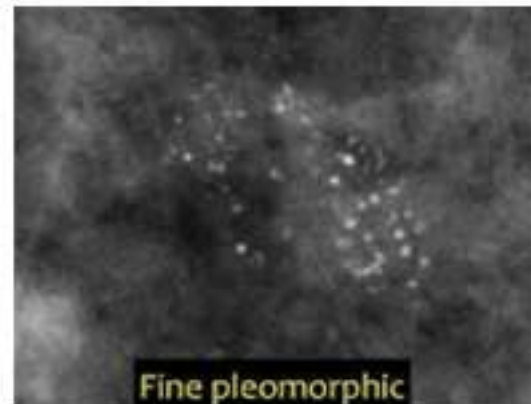
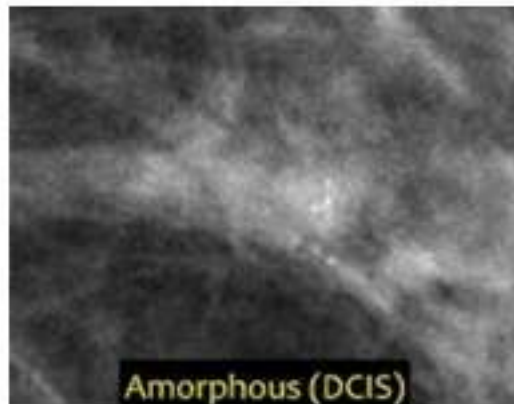
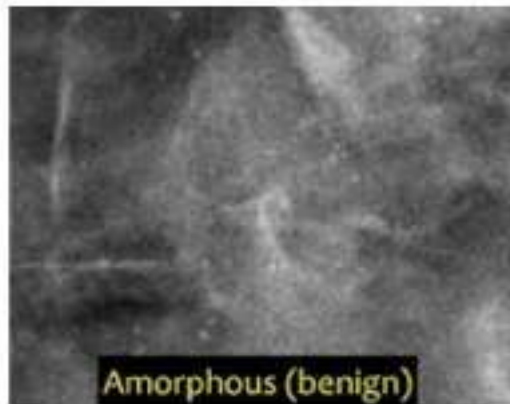


Edges:





Suspicious calcifications:

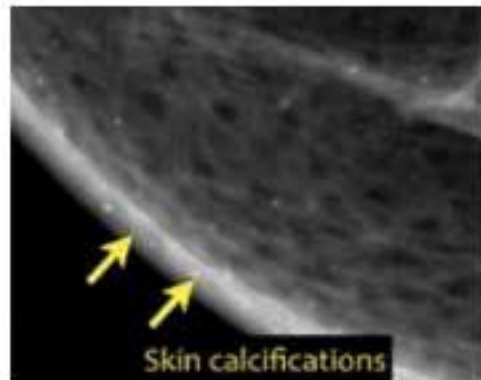


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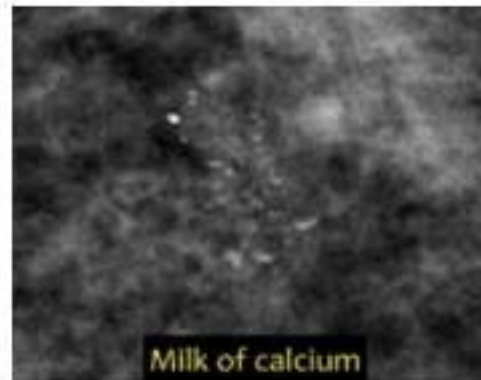




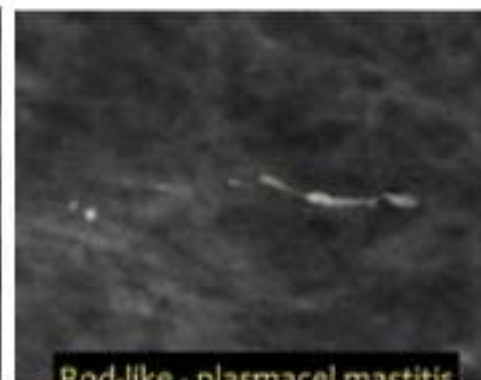
Benign calcifications:



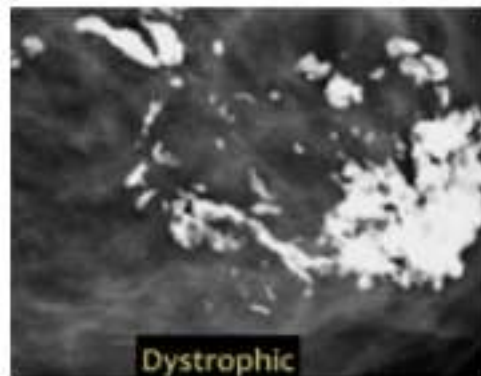
Skin calcifications



Milk of calcium



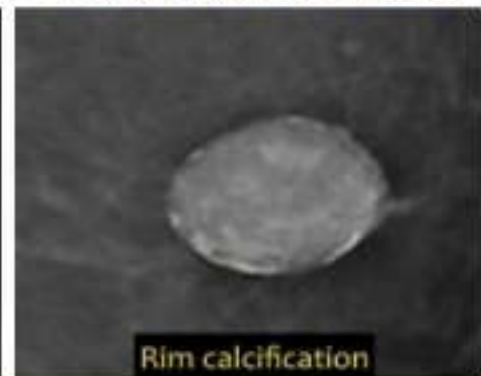
Rod-like - plasma cell mastitis



Dystrophic



Popcorn - Fibroadenoma



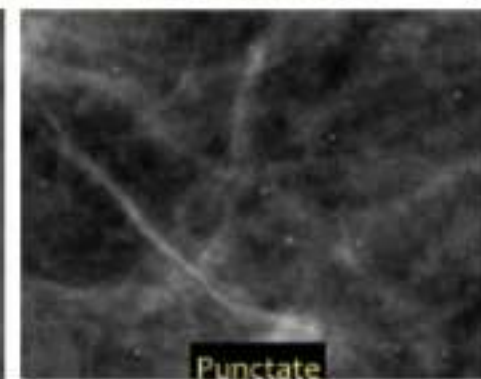
Rim calcification



Vascular calcification



Round



Punctate



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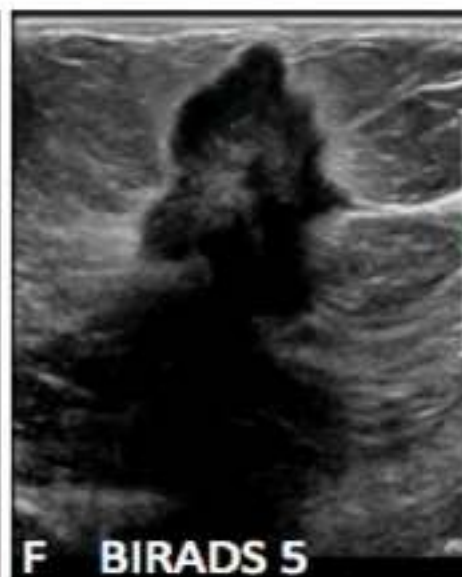
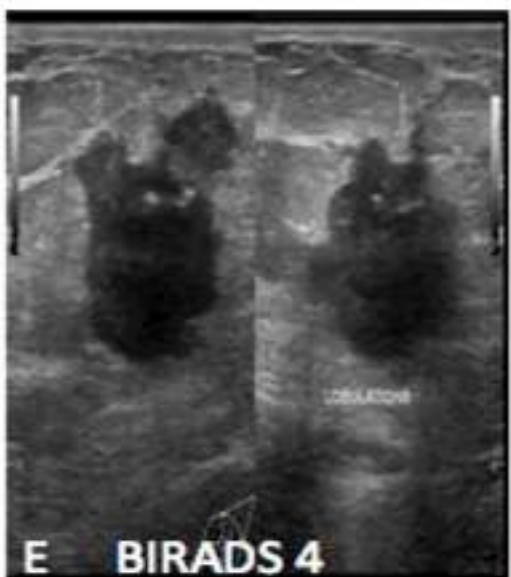
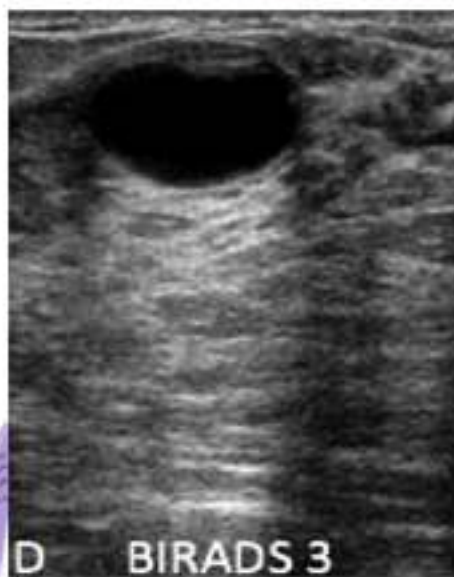
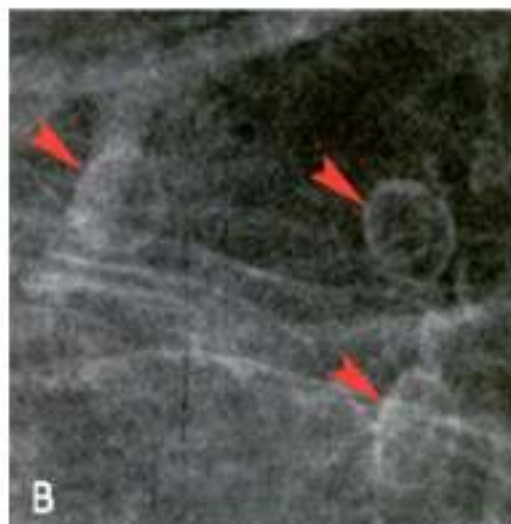


BIRADS classification of breast lesions:

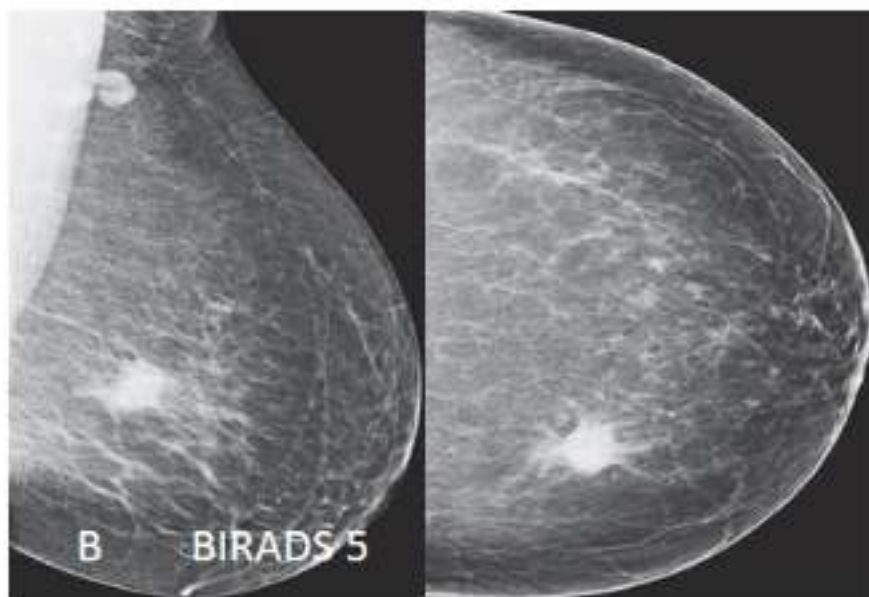
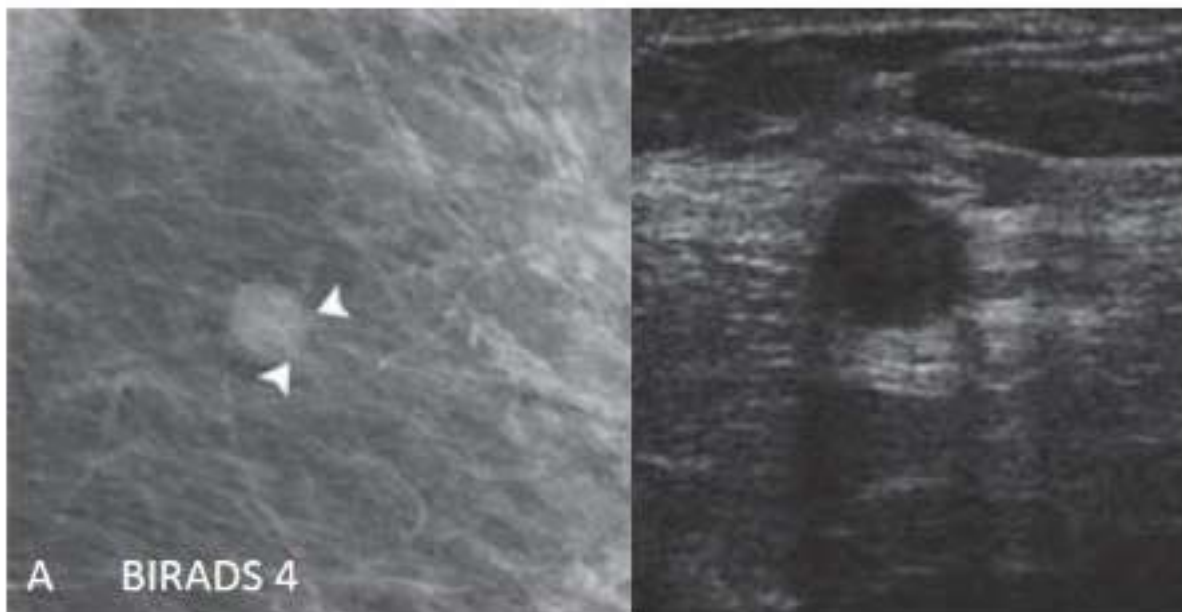
Final Assessment Categories

Category		Management	Likelihood of cancer
0	Need additional imaging or prior examinations	Recall for additional imaging and/or await prior examinations	n/a
1	Negative	Routine screening	Essentially 0%
2	Benign	Routine screening	Essentially 0%
3	Probably Benign	Short interval-follow-up (6 month) or continued	>0 % but \leq 2%
4	Suspicious	Tissue diagnosis	4a. low suspicion for malignancy (>2% to \leq 10%) 4b. moderate suspicion for malignancy (>10% to \leq 50%) 4c. high suspicion for malignancy (>50% to <95%)
5	Highly suggestive of malignancy	Tissue diagnosis	\geq 95%
6	Known biopsy-proven	Surgical excision when clinical appropriate	n/a

Use after incomplete excision



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Ultrasound and MMG guided biopsies:

Core biopsy is **SUPERIOR** to fine needle aspiration biopsy !

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Goal of screening mammography is
early detection !

 **M**ammography**S**aves**L**ives®
... one of them may be yours

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THANK YOU

