

Breast

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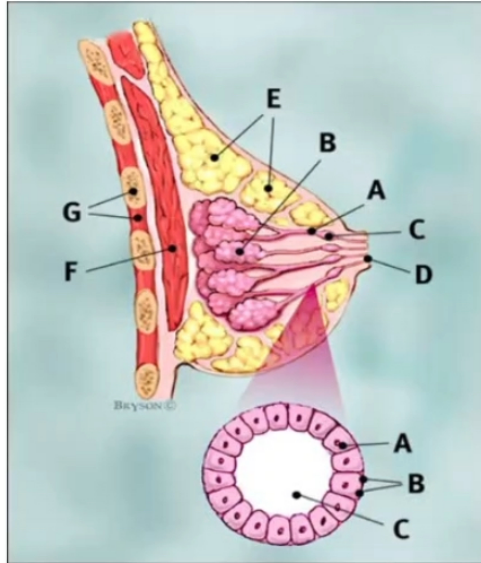
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What we need to know?

- Anatomy and physiology
- Clinical approach to breast problems
- Imaging techniques
- Benign breast abnormalities
- Breast cancer

Anatomy and physiology



Breast profile:

A ducts

B lobules

C dilated section of duct to hold milk

D nipple

E fat

F pectoralis major muscle

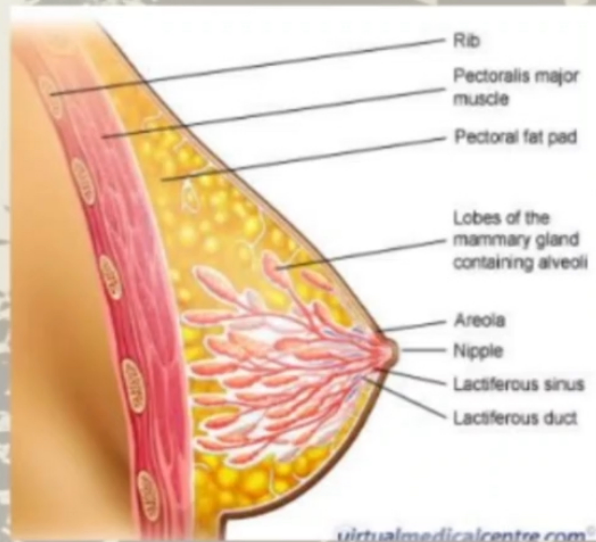
G chest wall/rib cage

Enlargement:

A normal duct cells

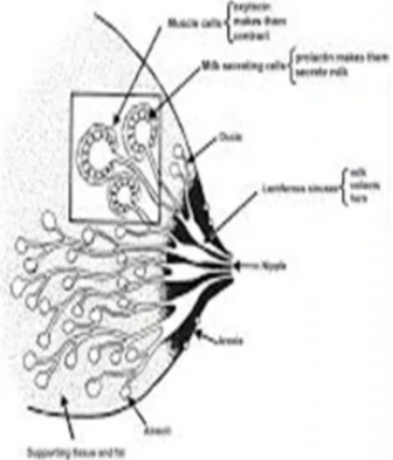
B basement membrane

C lumen (center of duct)

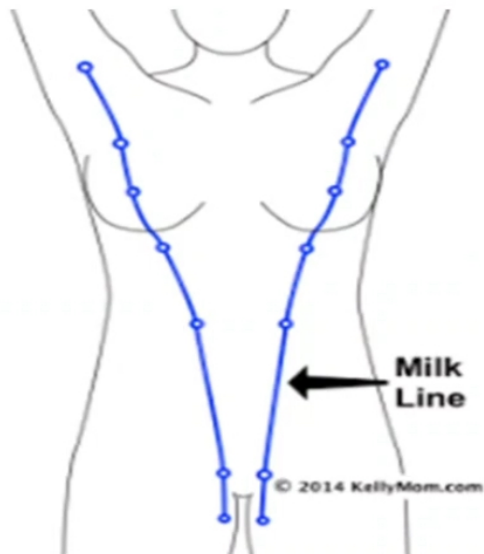


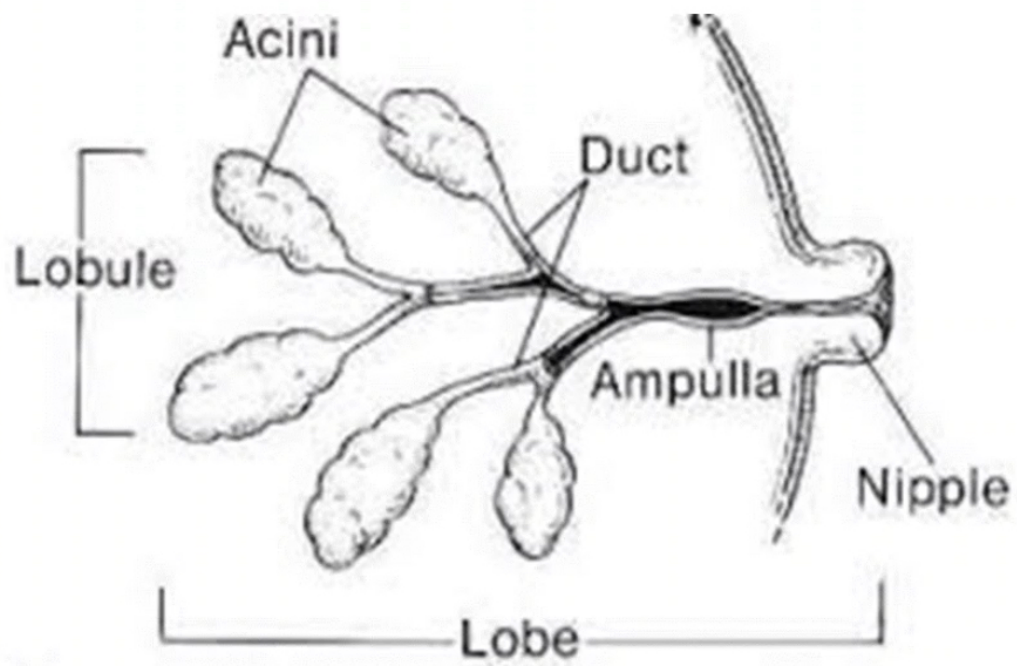
- **Modified Sweat gland**
- **Lies in the deep pectoral fascia**
- **Boundaries:**
 - **clavicle superiorly,**
 - **the lateral border of the latissimus muscle laterally,**
 - **the sternum medially**
 - **inframammary fold inferiorly**

Breast Anatomy - Structure



3/1

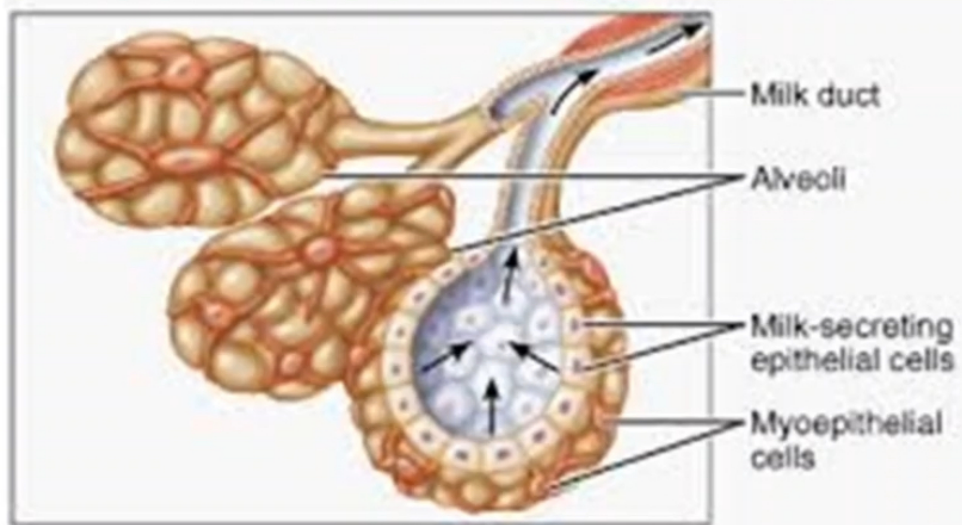


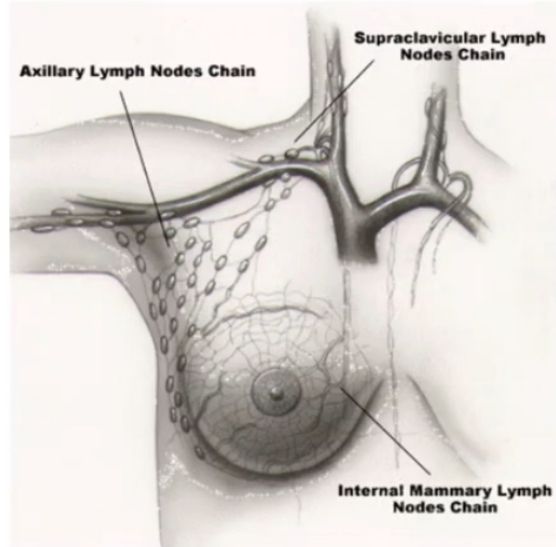


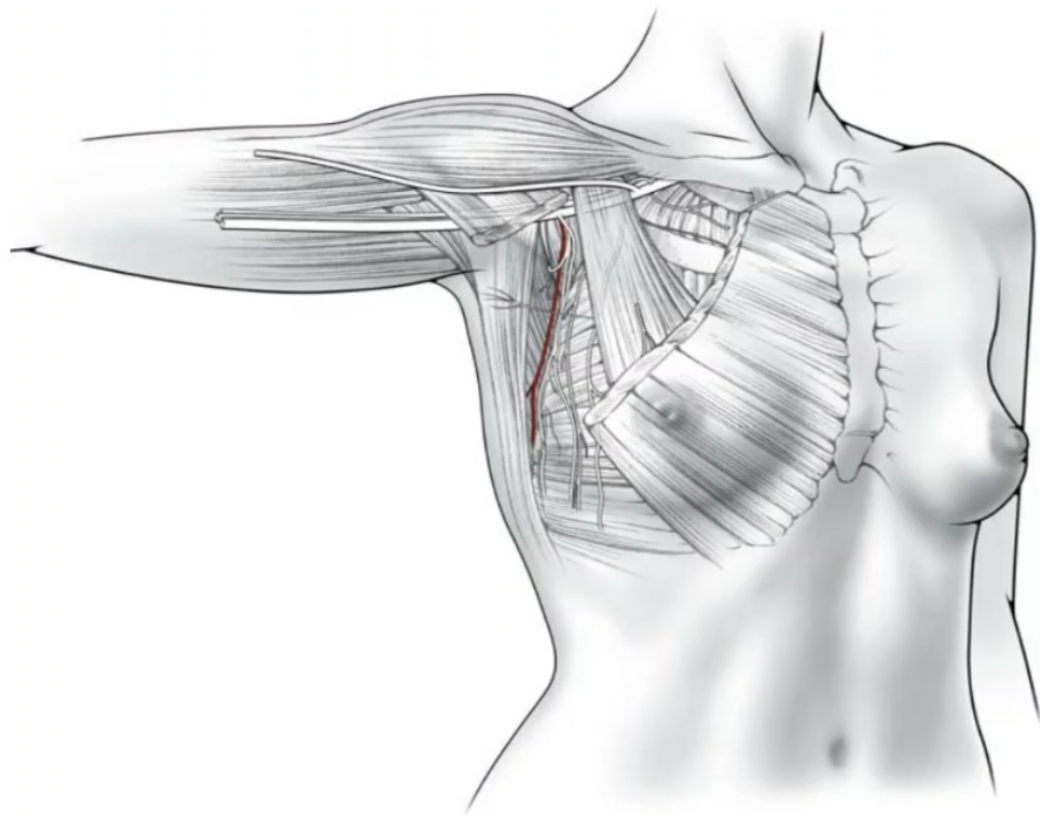
Duct structure (11)



- Perforating branches of the internal mammary arteries
- the lateral thoracic arteries
- thoracoacromial arteries
- posterior intercostal arteries







Triple Assessment

- History and examination
- Imaging by mammography and/or ultrasound scanning
- Cytology or histology

PRESENTATION OF BREAST DISEASE

Painless lump

- Carcinoma.
- Cyst.
- Fibroadenoma.
- An area of fibroadenosis.

Painful lump

- An area of fibroadenosis.
- Cyst.
- Periductal mastitis.
- Abscess (usually postpartum or lactational).
- Occasionally a carcinoma

Pain and tenderness but no lump

- Cyclical breast pain.
- Non-cyclical breast pain.
- Very rarely, a carcinoma.

Nipple discharge

- Duct ectasia.
- Intraduct papilloma.
- Ductal carcinoma-in-situ (DCIS).

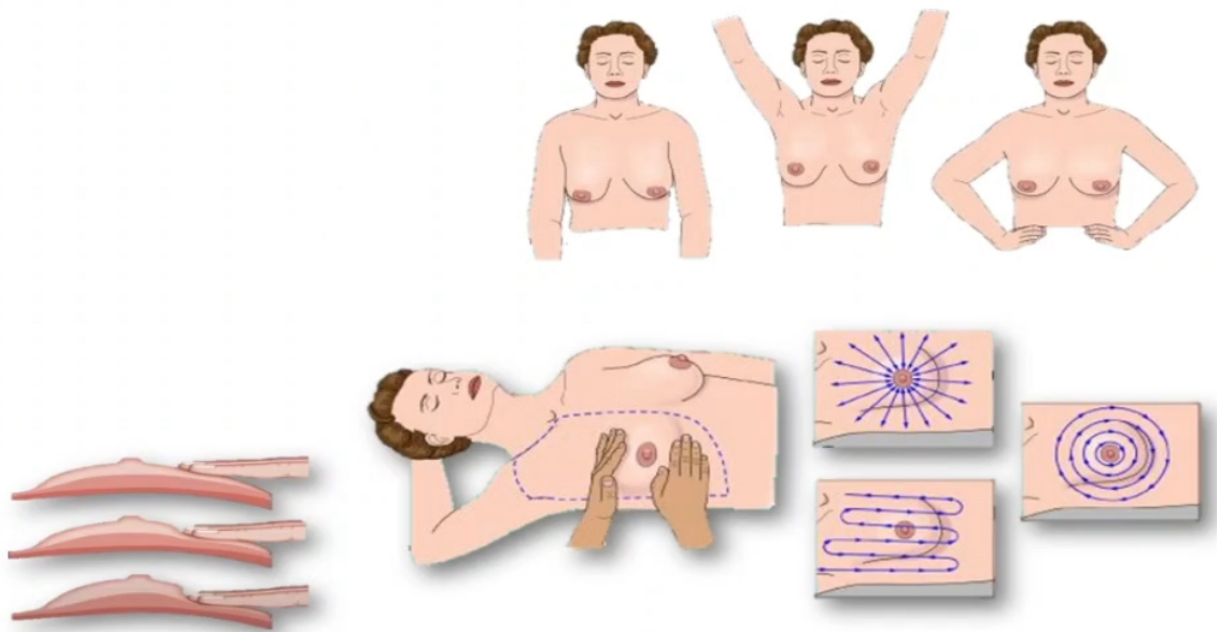
Changes in the nipple and/or areola

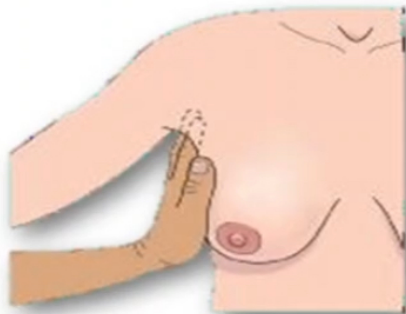
- Duct ectasia.
- Carcinoma.
- Paget's disease.
- Eczema.

Changes in breast size and shape

- Pregnancy.
- Carcinoma.
- Benign hypertrophy.
- Rare large tumours

Physical examination





Breast imaging

- The breast can be imaged with mammography, ultrasound or MRI.
- Mammography is the most sensitive of breast imaging modalities.
- Sensitivity is reduced in young women due to the presence of increased glandular tissue.
- For symptomatic patients, imaging always be performed as part of triple assessment



mammogram



RCC

Right
Craniocaudal



LCC

Left
Craniocaudal



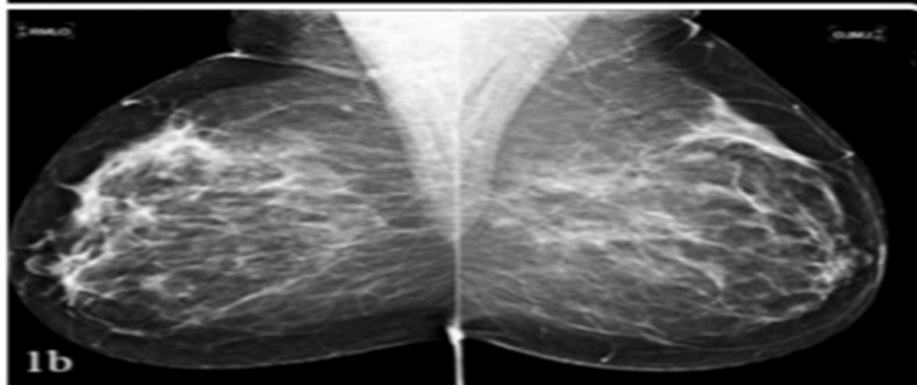
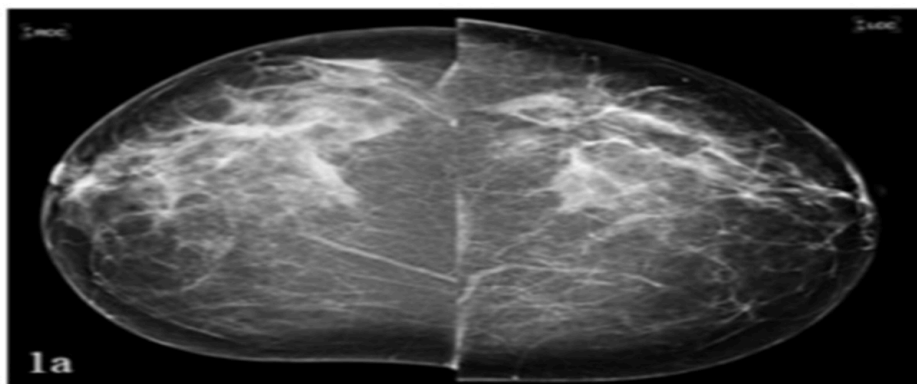
RMLO

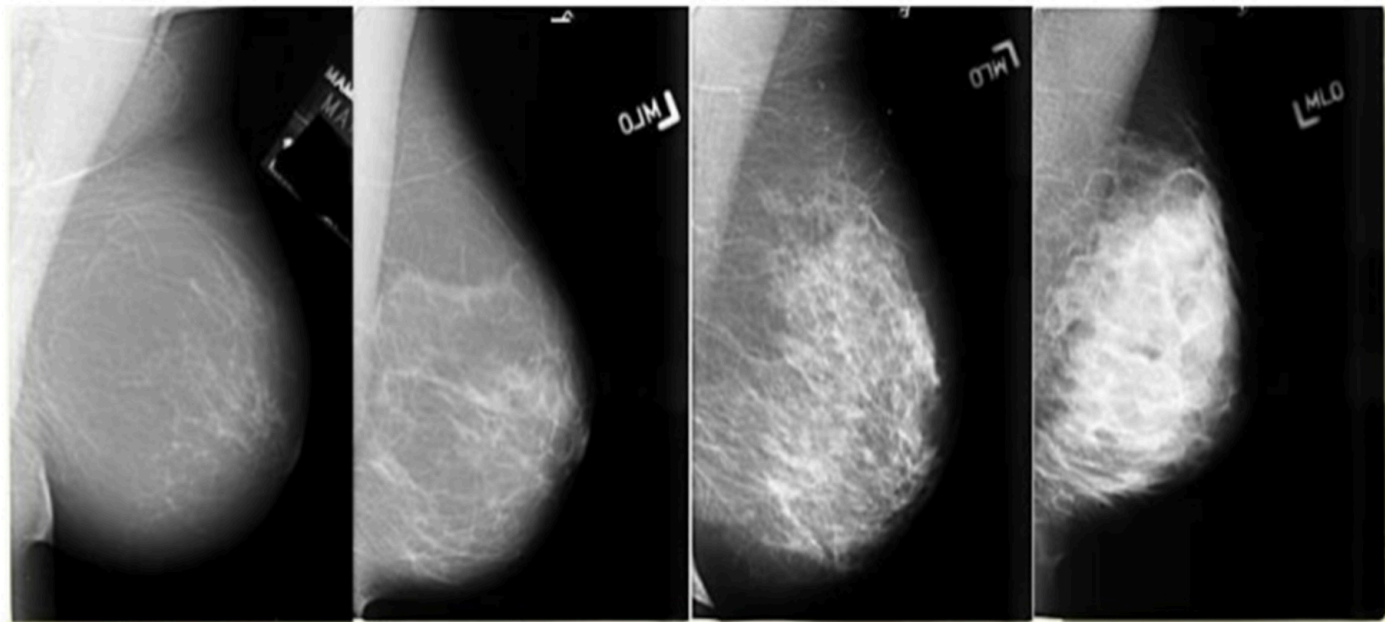
Right
Mediolateral
Oblique



LMLO

Left
Mediolateral Oblique





BI-RADS mammographic assessment categories

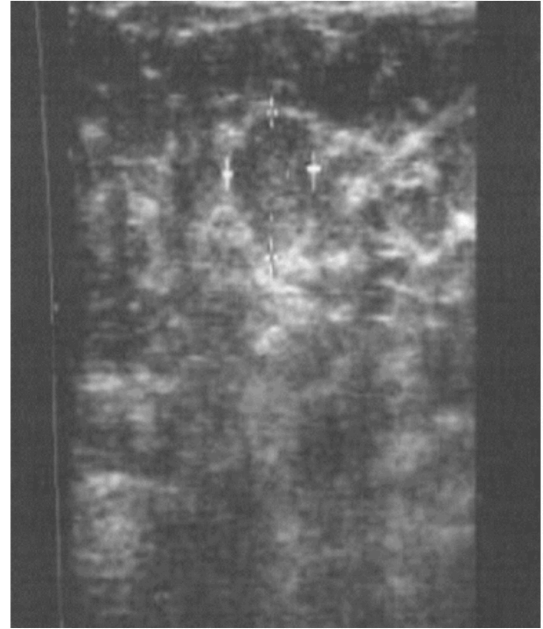
Assessment category	Recommendation	Probability of malignancy
0: Incomplete	Need for further evaluation	Not applicable
1: Normal	Normal interval follow-up	0 percent
2: Benign	Normal interval follow-up	0 percent
3: Probably benign	A short interval follow-up is recommended	<2 percent
4: Suspicious abnormality	A biopsy should be considered	≥2 to <95 percent
		(a) Low-risk
		(b) Intermediate-risk
		(c) Moderate to high-risk
5: Highly suggestive of malignancy	Biopsy or surgery should be performed	≥95 percent
6: Biopsy-proven carcinoma	Appropriate action should be taken	

BI-RADS: Breast Imaging Reporting and Data System.

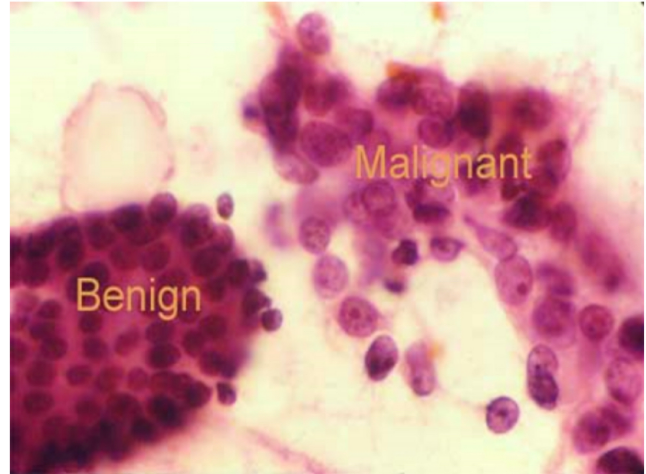
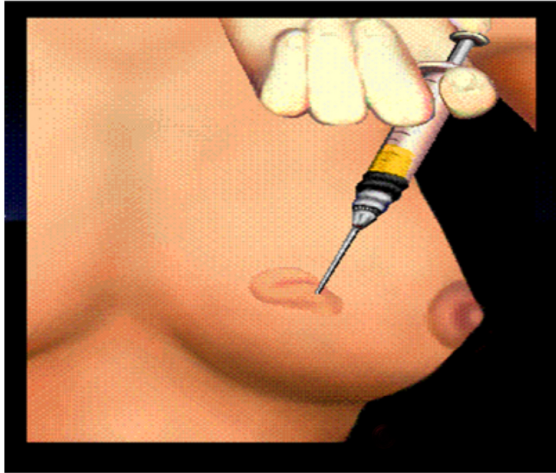
Source: *Breast Imaging Reporting and Data System (BI-RADS) Atlas. 4th Edition. American College of Radiology, Reston, VA, 2003.*

Breast Ultrasound

- Ultrasound is useful in the assessment of breast lumps
- Complements mammography and is able to differentiate solid and cystic lesions
- Also able to guide fine needle aspiration and core biopsies
- Can be used to assess tumour size and response to therapy
- In the diagnosis of malignancy it has a sensitivity and specificity of 75% and 97% respectively
- Cysts and solid lesions have typical appearances

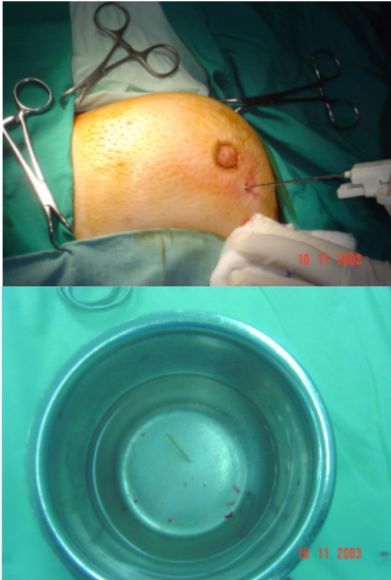


Fine Needle Aspiration Cytology

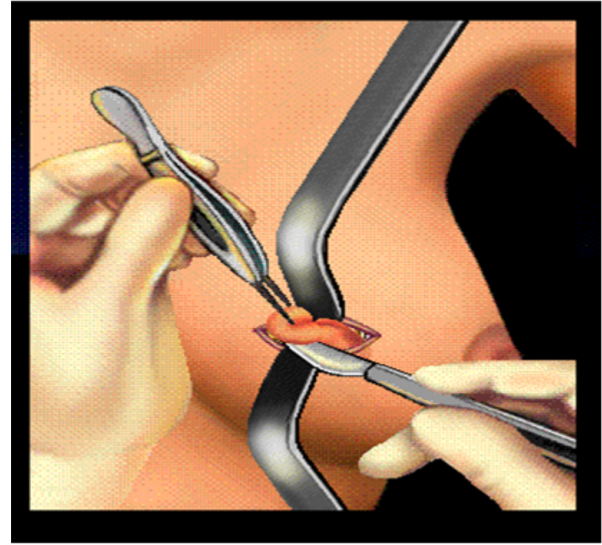


Tissue Biopsy

Core needle biopsy



Incisional or Excisional biopsy



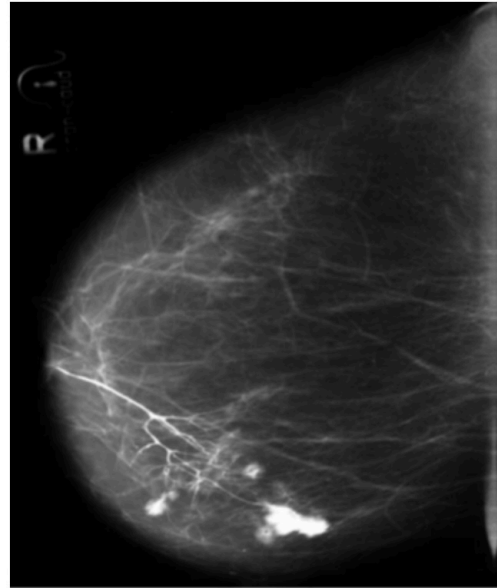
Fibroadenoma

- **Position** It may be anywhere in the breast.
- **Shape and size** Fibroadenomas are usually spherical or ovoid but sometimes lobulated and may be any size.
- **Surface** smooth, the edge definite and the consistency like firm rubber.
- **Mobility** the most mobile of all breast lesions 'breast mouse'.



Intraductal papilloma

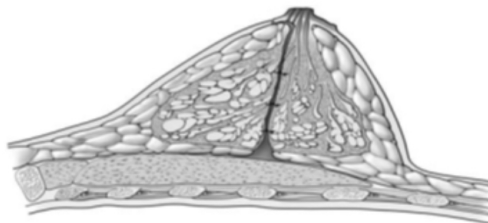
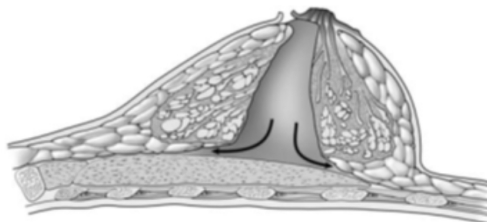
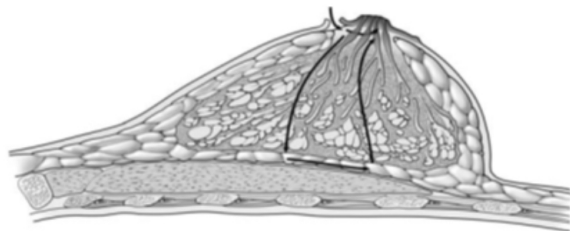
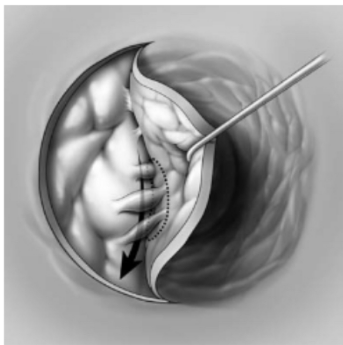
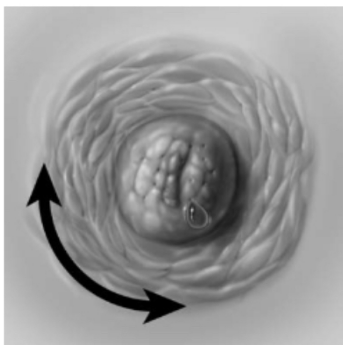
- This uncommon condition is a papillary benign neoplasm arising from the duct epithelium and enlarging into the duct system.
- It usually presents with a bloodstained discharge from the nipple, although there may be a soft swelling near the areola.

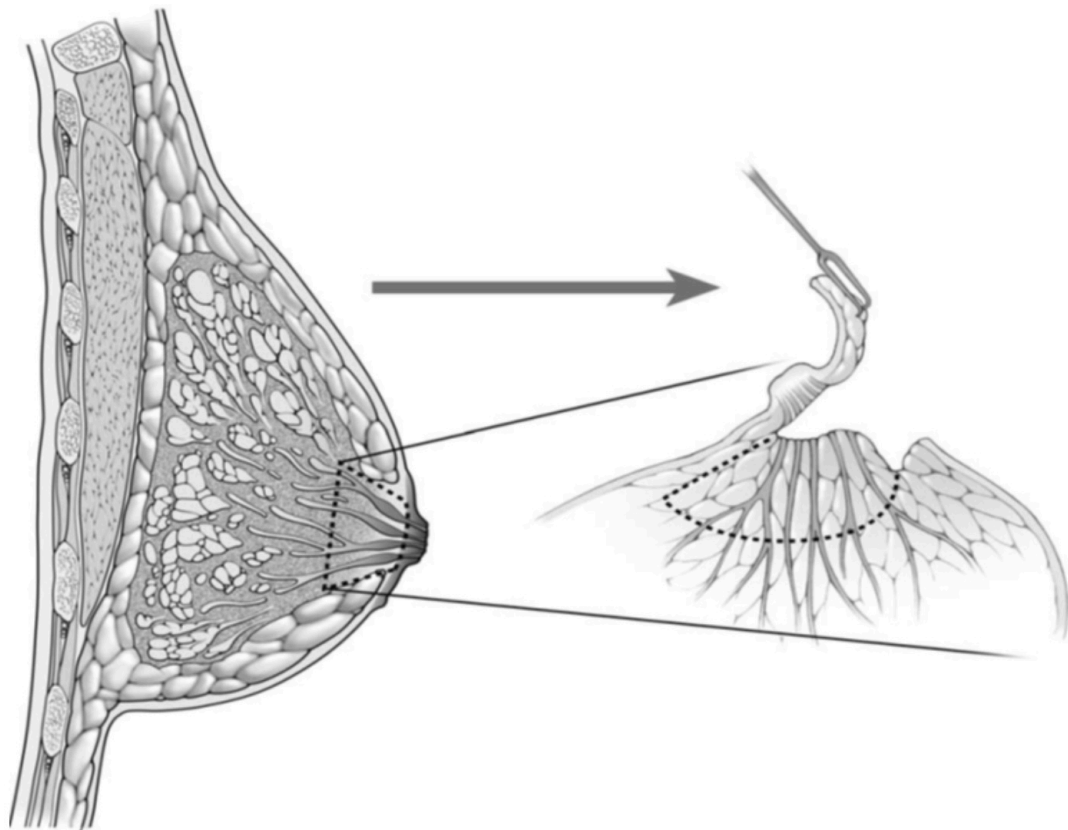


Periductal mastitis or ductectasia

- This is a common condition of unknown aetiology.
- Dilatation of the mammary ducts, which are full of inspissated material containing macrophages and chronic inflammatory debris..
- Nipple inversion
- Nipple discharge
- Chronic low-grade infection of the peri areolar area, with tender thickening around the nipple known as periductal mastitis
- Abscess formation,.
- Periductal abscess may rupture (or be drained) externally and remain in communication with the duct system.
- Mammary fistula

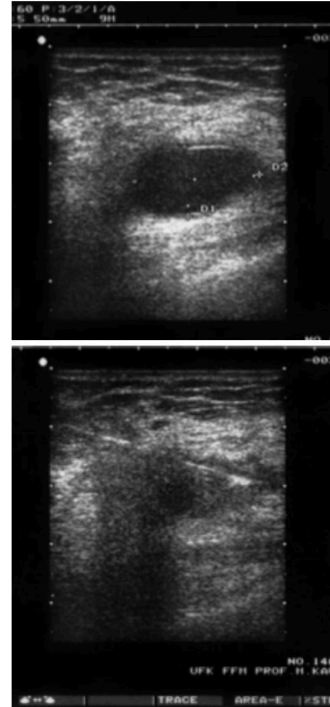






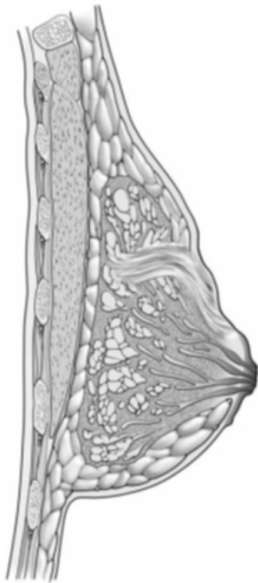
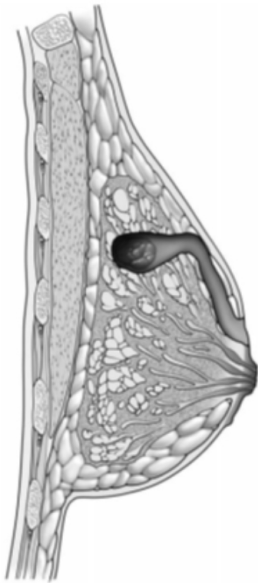
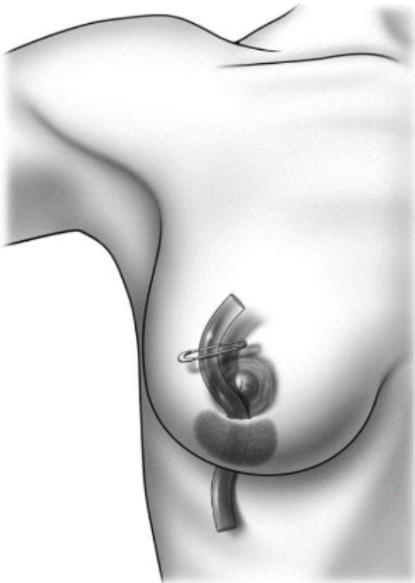
Breast Cyst

- **History**
- Age forties and early fifties.
- Presentation sudden onset
- discomfort and tenderness.
- Past history Many patients have multiple cysts and
- **Examination**
- Shape and surface
- consistency
- Size.
- **Ultrasound**



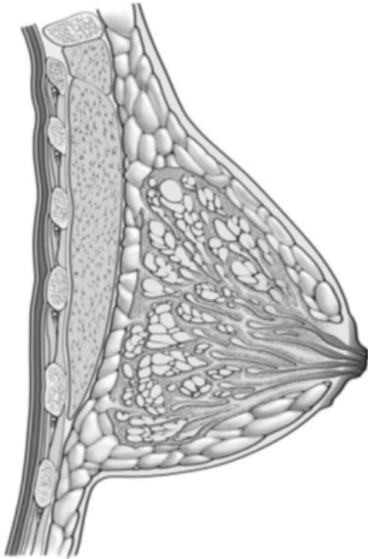
Breast Abscess





Type of lump	Age (years)	Pain	Surface	Consistency	Axilla
Solitary cyst	40–55	Occasional	Smooth	Soft to hard	Normal
Nodularity	20–55	Often	Indistinct	Mixed	Normal
Fibroadenoma	15–55	No	Smooth and bosselated	Rubbery	Normal
Carcinoma	35+	Uncommon	Irregular	Hard	Nodes may be palpable

Paget's disease of the nipple Vs Eczema



Eczema	Paget's disease
Bilateral	Unilateral
Sometimes lactating	Older females
Itches	Does not itch
Vesicles	No vesicles
Nipple intact	Nipple may be destroyed
No lumps	May be an underlying lump