

Breast diseases !

Dr. ABDULAZIZ AL-SAIF

Notes

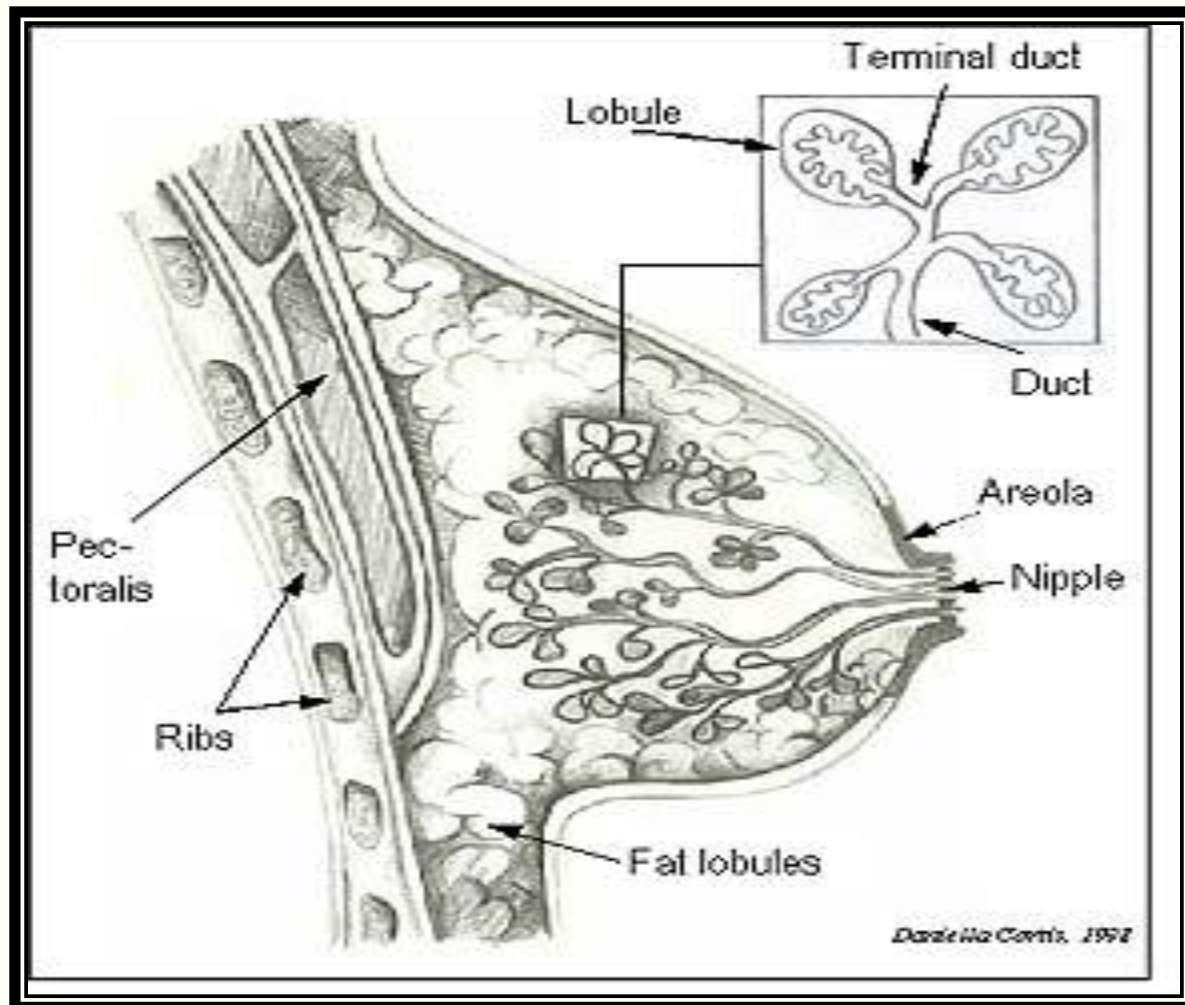
Surgery team:

Suhail Asiri , Nouf alzendi

Shoog alaqeel, Reham alhenaki

Thanks to : Abdullah Alaogayil

THE BREAST



Extra notes !!

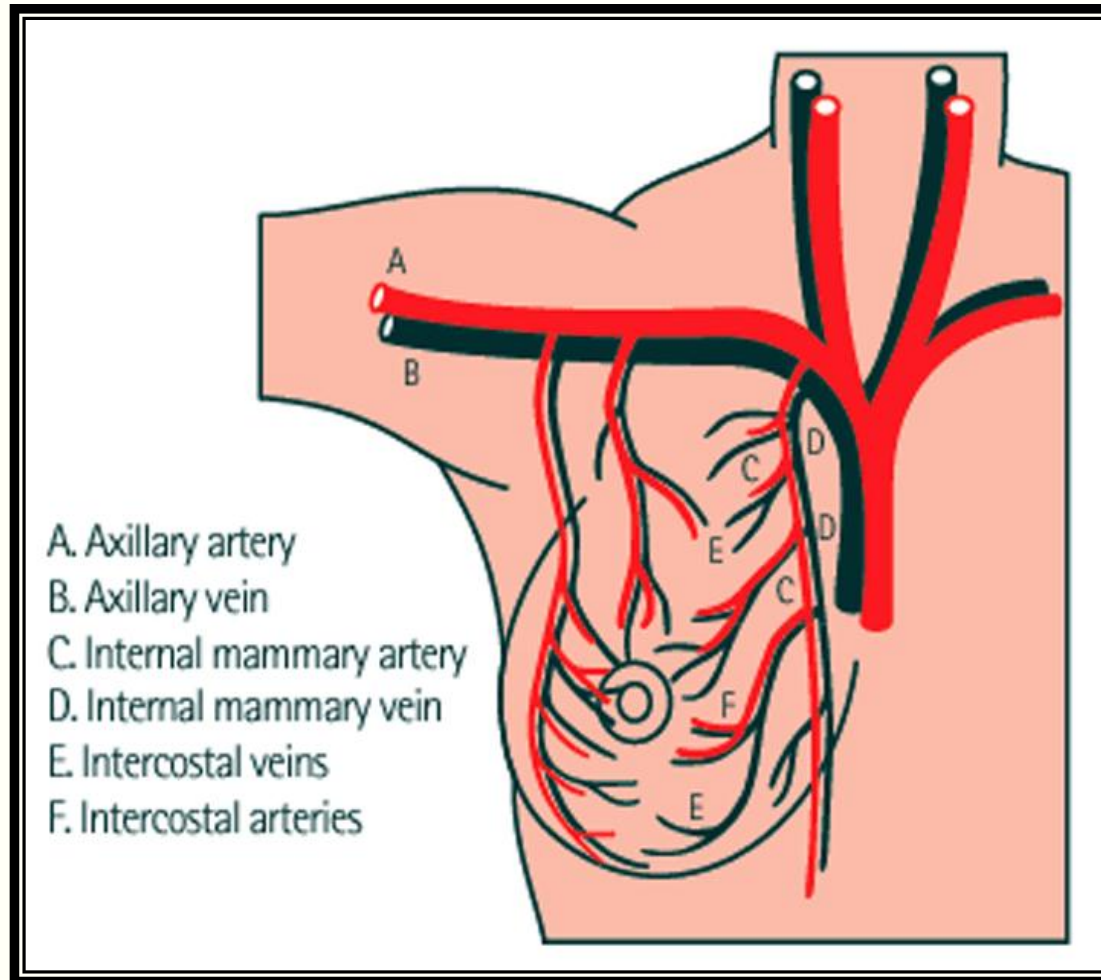
- By the age of 50, 1/3 of women will consult her physician because of breast complaint.
- Locally,
 - Breast cancer is 25% of all female cancers.
 - Breast cancer is around 15% of all types of cancers.
 - In 2011, there was 1300 cases of breast cancer.
- Around the world,
 - In 2011, there was one million and half cases of breast cancer.
 - 40,000 deaths due to breast cancer.
- Breast cancer can be cured up to 98% if detected early (curable more than DM & HTN)

THE BREAST

Anatomy

- Modified sweat gland. IMP !!
- 2-6 ribs, side of sternum to mid-axillary line.
- Sets on
 - Pec. Major 60% IMP !!
 - Serratus anterior 30%
 - Rectus sheath 10%
- 15-20 lobules separated by fibrous septa (Cooper's ligaments).
- Tubular ductal unit connect the ducts to the lobules !!
- Axillary tail of spence.
- Blood supply:
 - *Lateral thoracic and acromiothoracic branch of axillary artery.*
 - *Internal mammary artery*
 - *Intercostal aa.*

Blood Supply to the Breast



Notes: (from browse's Book)

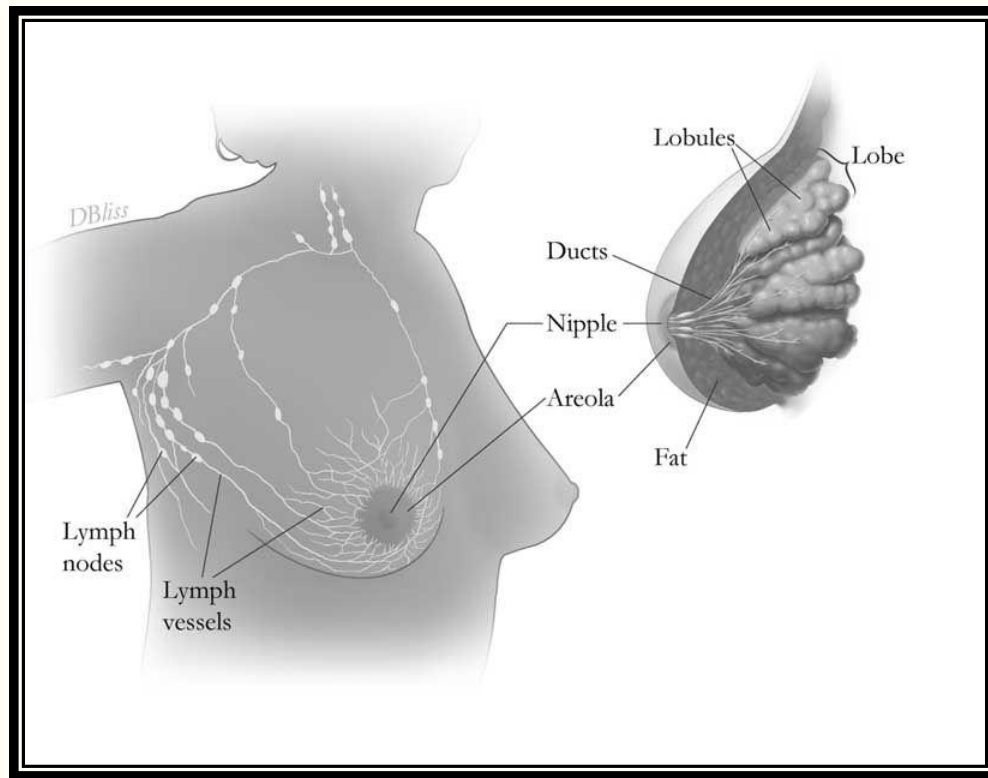
- Physiology Background:
- -How is the breast development occurring?
- In neonates when the maternal estrogens cross the placenta
- The female breast develops normally after menarche. The enlargement might be asymmetrical and causes parental anxiety.
- The size of the breast increases its size after the second half of each menstrual cycle, following ovulation.

Lymphatic drainage

directly connected to breast cancer !!

- Groups of lymph nodes: IMP !!
 - Anterior: deep to pectoralis major.
 - Posterior: along subcapular vessels.
 - Lateral: along the axillary vein.
 - Central: in axillary pad of fat.
 - Apical: drains the above, behind clavicle at apex of axilla.

NB: the lymph nodes classification in surgery is differ than Anatomical classification , it's classified into (level I – II – III)
IMP !



- These pictures show the parts of the breast and the lymph nodes and lymph vessels near the breast.

- So the breast formed by:
Skin, subcutaneous tissue, connective tissue, fat, stroma, ducts, lobules. !

There is two types of cancer:!

1- lobular

2- ductal.

Clinical Classification of Axillary lymph nodes

IMP !!

in relation to pec. Minor muscle !!

Level 1	Any lymph node <u>below</u> pec. Minor !!
Level 2	Any lymph node <u>behind</u> pec. Minor!!
Level 3	Any lymph node <u>above</u> pec. Minor !!

- Number of Lymph nodes differ from person to another but usually it's 25-30
- 80% of lymph nodes located in level 1 !!
- we don't reach level 3 in surgery until we have very gross disease.
- Lymph node distribution:
 - 80% goes to axilla !! ((in surgery we are concerned about those))
 - 10% goes to internal mammary lymph nodes
 - few goes to infra- and supra-clavicular

Women come to see a breast surgeon because of one of the followings

- | | |
|--------------------------------------|-----|
| 1. Breast lump (painful or painless) | 60% |
| 2. Breast pain without lump | 10% |
| 3. Nipple discharge | 5% |
| 4. Change in breast contour | 2% |
| 5. Nipple – areolar complex disorder | 1% |
| 6. Axillary mass | 1% |
| 7. Screen detected lesion | 1% |
| 8. Anxiety IMP! | 20% |

CLINICAL APPROACH

1. History.
2. Clinical examination.
3. Imaging.
4. Cytology and tissue diagnosis.

Important Notes in History Taking !!

1. **Age !!** you should be more concern in 45 y/o lady having breast lump more than 16 y/o female.
because the chance of malignancy in 45 y/o female is higher.
2. **Menstrual cycle, Menarche, Menopause.**
3. **OCP !!** If yes – for how many years ?
4. **HRT!!** If yes – for how many years ? ((using Hormone Replacement Therapy more than 2 yrs will increase the risk of breast cancer !!))
5. **Babies !!** How many ?
6. **Breast feeding !!** If yes – how many months ? ((below 6 months is not beneficial BUT above 6 months is a protective factor !!))
7. **Family history !!** If yes- who is the victim ?
 - 1st cycle ? – mother , daughter or sister.
 - 2nd cycle ? - جدات ، عمات، خالات
 - 3rd cycle?And at what age? ((if it's younger, more risk !!))

1. HISTORY

Full and complete history should be taken, particular attention should be paid to:

- *Age of the Pt. IMP!! → (because we suspect cancer more in old age group)*
- *Breast development stating from childhood to present.*
- *Endocrine status of patient mainly menstruation and OCP.*
- *Size of lump in relation to menses.*

1. HISTORY....

Cont!

- Pattern of pain in relation to menses.
- How regular the cycle is and quantity of blood.
- Changes in breast during previous pregnancies e.g. abscess, nipple discharge, retraction of nipple.
- Number of pregnancies.
- Breast feeding
- Abnormalities which took place during previous lactation period e.g. abscesses, nipple retraction, milk retention.

1. HISTORY....

Cont!

- Family history of breast diseases especially cancer and particularly in near relatives. IMP!!
- Nipple discharge.
- Age at menarch.
- Age at 1st birth.
- L.M.P.
- For past menopausal women.
 - *H.R.T. (hormonal replacement therapy) → if it is more than 2 years then it is significant*
 - *Date of menopause*

Notes: (from browse's Book)

- **In history:**
- 1- Age is very important !
- 2-Ask about previous pregnancies, and breast feeding because of ?
- It reduces the incidence of breast cancer
- 3- Menstrual pattern:
- breast symptoms which alter with menstrual cycle are highly likely to be benign
- 4- Medications:
- OC or HRT they reduce the severity of cyclical changes in the breast
- 5- mental attitude:
- patients most of the time hide their symptoms with a degree of self – delusion * IMPO
- deal with the patient with respect, and try to understand her pain

2. EXAMINATION

- Disrobed from waist and above.
- Examine in **sitting and supine** position and 45° position **IMP!!**
- Inspection with arms by the side and above head:
 - *Size, symmetry, skin changes, nipple complex.*
Examine normal side first.
Examine axilla, arm, SCF
Examine abdomen
Examine the back

Notes: (from browse's Book)

- **In Examination:**

- The patient will be fully exposed from the head to the waist
- Position:
- Patient should be examined in two positions:
- Lying down: making the breast fall sideways
- 45 degree: makes the breast pendulous
- Note that: when the patient mention they can feel the lump only in certain position → preform it
- Inspection:
- comment for : Size, symmetry, skin, the nipples and areola, duplication
- ALWAYS ASK THE PATINT TO RAISE HER HANDS ABOVE HER HEAD NO EXAMINANTIN IS COMPLETE UNTIL YOU PREFORM IT .

Notes: (from browse's Book)

- Inspect the axilla, arms, supraclavicular fossae
- Palpation:
- with the flat of your fingers NOT with the palm
- start with normal breast
- if you find a lump; ascertain its size, site, shape, surface, edge, consistence. * it can be preformed by bimanual examination *
- **- Relation to the skin:**
- 1-skin fixation: the lesion is fixed to the skin it has spread to the skin and cannot be moved.
- 2- Skin tethering: which is more deeply situated. It puckers and pulls the skin inwards but remains separate from the skin, can be moved.
-
- Always ask the patient to press her hand very hard against her hip; so any deep seated lump to appear
-

Notes: (from browse's Book)

- **The nipple:**
 - - Nipple inversion that easily everted is not an abnormality.
 - - Unilateral inversion is more significant than bilateral inversion.
 - - The changes that occur to the nipple:
 - 1- Destruction. 2- Depression(retraction or inversion), 3- Discoloration, 4- Displacement, 5- Discharge, 6- duplication
- **- The Axilla:**
 - - examine the lymphnodes

Notes: (from browse's Book)

- **General Examination:**

- You do general examination for any swelling or any neurological or vascular abnormalities
- Palpate the abdomen : looking for any hepatomegaly or ascites
- Examine the lumbar spine for pain or restricted movement
- So, any patient comes with breast complain you perform the Triple assessment:
 - History and Examination
 - Diagnostic Imaging: Mammography and/or US
 - Cytology or histology.
- Cytology: by aspiration of a lump with a fine needle (FNA)
- Histological: is based on biopsy by Core cutting needle; which is better

Notes: (from browse's Book)

Presentations of Breast disease: (DD)

A painless Lump:

Carcinoma

Cyst

Fibroadenoma

An Area of Fibroadenosis

A Painful Lump:

- AN Area of Fibroadenosis

- Cyst

- Periductal Mastitis

- Abscess

- Carcinoma

3- Pain and tenderness but no Lump:

Cyclical breast pain

Non- cyclical breast pain

Very rare – carcinoma

Notes: (from browse's Book)

Nipple discharge

Duct Ectasia

Intraductal Papilloma

Ductal carcinoma In- Situ (DCIS)

Associated with a cyst

Changes in the nipple and/or areola:

duct Ectasia

Carcinoma

Paget's Disease

Eczema

Change in breast size and shape:

Pregnancy

Carcinoma

Benign Hypertrophy

Rare large tumors

- After History and Examination :

IMAGING

MANAGEMENT OF PATIENT WITH A BREAST LUMP: IMP !!

- History
- Examination
- Ultrasound
- Mammogram if above 35 yrs
- FNAC or
- Core biopsy or
- Excision biopsy
- Definitive treatment which is either:
 - *Observation*
 - *Excision*
 - *If malignant, along the lines of cancer cases*

Imaging !!

- **Ultrasound:** excellent in describing masses and cysts – no radiation – any age. Can be used intraoperative . Can detect very small lesion , lymph nodes , solid or fluid.
Disadvantages: operator dependent.
- **Mammogram:** heavy machine – has radiation (done every 6 months) _ not good in masses or cysts _ above 35 yrs and there is a finding in history and examination _ excellent in microcalcification.
- **Why we are concerned with microcalcification?**
because of risk of malignancy and DCIS (ductal carcinoma in situ)
- **Now all Screening programs goes toward finding microcalcification:**
Because if you discover it early and biopsy it and you prove it is DCIS and treat it effectively the chance of cure is up to 96-98%
- **IMP. Note:** in young patient do US and if you found mass don't do mammogram, it will not add any thing (white picture), so go and do biopsy or MRI.!!
But in 50 y/o lady first next to US is mammogram then biopsy.!!
- **CT scan :** useless in breast imaging.

Biopsy !!

Remember first two and forget second two !!

- 1) **FNAC!!** by simple needle, you will get cells.
- 2) **Core biopsy!!** by thicker needle, you will get tissue (extra information in comparison with FNAC)
 - ✓ In Fine Needle Aspiration Cytology the material could be not adequate or not diagnostic and you have to do it again. BUT core biopsy is definitely diagnostic. !!
- 3) **Excisional biopsy:** rarely done in case of first two not diagnostic, be excising the lesion.
- 4) **Incisional biopsy:** very bad, open the lesion and take biopsy then close it .

MANAGEMENT OF PATIENT WITH A LUMP

Cont!

- **TRIPPLE ASSESSMENT IMP!!:**
 - ✓ Applicable to any breast lump!!
 - ✓ If you do next 3 steps you can get a diagnosis with 99% accuracy !!
 - H & P (History and physical examination)
 - Mammogram (99%)
 - F.N.A. (fine needle aspiration)

Techniques Available for Investigations

- Clinical examination.
- Cytology of discharge.
- Mammography and ductography.
- Ultrasound.
- Imaging-guided percutaneous biopsy.
- M.R.I.
- Nuclear medicine (include PET).

WHEN TO IMAGE IMP!!

- Investigation of a palpable lump or nipple discharge.
- Screening in appropriate groups (which is above 40 years old even if there are no symptoms).
- Metastatic adenocarcinoma, unknown primary.

Distinguish between

DIAGNOSTIC mammography

When you have patient with a complaint !!

Ex: breast lump, skin changes, nipple discharge.

&

SCREENING mammography

When your client has nothing !!

Ex: risk people (45 y/o lady)

The great majority is normal

Features of screening versus diagnostic mammography.

Screening Mammography	Diagnostic Mammography
Asymptomatic	Symptomatic (examples include palpable finding, pain, spontaneous nipple discharge)
Purpose is detection of possible abnormalities	Call back of a patient with an abnormal screening mammogram
	After a complete work-up, recommendations can range from normal 1-year follow-up to biopsy for histologic diagnosis
Standard two views of each breast (mediolateral oblique and craniocaudal)	Views tailored to the patient's problem (may include spot or magnification views, additional projections, and ultrasound)
Batch read by radiologist	Usually performed in the presence of the radiologist and interpreted at the time of the examination

Benign versus Malignan Imaging Characteristics in Breast Cancer

Benign	Malignant
Circumscribed mass	Spiculated mass
Fat-containing lesion	Architectural distortion with no history of prior surgery
Microcalcifications	Microcalcifications
Round, uniform density, large, coarse	Linear, branching, pleomorphic, casting
Widely scattered	Tightly clustered
Long axis of the lesion is along the normal tissue planes	Lesion is taller than it is wide
Homogeneous internal echotexture	Decreased hyperechogenicity
Hyperechogenicity	Marked acoustical shadowing
Smoothly margined	Spiculation

TECHNICAL QUALITY OF THE IMAGE

- Positioning.
- Compression
- Exposure.
- Processing.

IS THE “LESION” REAL?

Look for other signs like :

- Nipple.
- Skin fold
- Mole.
- Pseudocalcifications.
- Asymmetric parenchyma.

CARDINAL MAMMOGRAPHIC FEATURES OF MALIGNANCY IMP !!.

- Spiculated mass.
- Architectural distortion without mass.
- **Micro**-calcifications with casting or irregularity IMP !!.
- Circumscribed density with indistinct margins.
- Asymmetric density.

1- STELLATE LESIONS

- Is there a surgical scar?
- All other stellates are presumed invasive carcinomata → work-up.
- If unexplained, do not be seduced by stability.

ARCHITECTURAL DISTORTION

- Treat as stellate lesion.

2- CALCIFICATIONS IMP!!

- 60% of localisation biopsies are for calcs, but only 25% of these yield malignancy. IMP!!
- Distribution (casting, linear, segmental, clustered) **imp! “ segmental & clustered usually indicate malignancy “**
- Morphology (pleomorphism).
- Relationship to parenchyma.

calcification

- **Macrocalcification:** benign.
- **Microcalcification:** mostly benign but there's significant percent (20%) of malignancy. !!
- 1/5 of ladies having microcalcification will have malignancy.
- **The following shapes of microcalcification , mostly indicate malignancy: !!**
 - ductal shape
 - segmental shape
 - clustered shape
- **BUT if it is wide spread all around the breast, mostly it will be benign.!!**

3- ROUNDED CIRCUMSCRIBED MASSES

- Density w.r.t. parenchyma.
- Clarity of margins.
- Presence of calcifications.
- Size of stability, size <2 cm.
- Number of lesions.

IMAGING FEATURES WHICH CAN BE ASSOCIATED WITH D.C.I.S. (ducts carcinoma in suite)

- Microcalcifications (75-90%).
- Circumscribed mass.
- Ill-defined mass.
- Prominent duct or nodule.
- Architectural distortion.
- Asymmetry.
- Sub-areolar mass.

The report should be:

- Accurate, organized, concise, understandable, helpful and unambiguous.
- Reporting should be descriptive, definitive, directive.

WHAT TO EXPECT FROM THE REPORT?

- Clinical context, examination type, ? comparison.
- Concise and specific description of findings, concordance (or not) with clinical findings.
- Directive summary and interpretation of findings (negative...biopsy).

RECOGNISE THE COST OF FALSE POSITIVES

- Anxiety – “I have cancer”.
- Clinic and surgeon availability.
- Morbidity and increased cost = opportunity cost for other health initiatives.

IMAGES

We take 2 views in mammogram study :

1- CC : craniocaudal

2- MLO : mediolateral oblique

NOTES!!

- Mammogram is done for males.
- Every 100 female patient with breast cancer, there's one male with breast cancer.
- If a ≥ 60 y/o male present with breast lump, think of breast cancer !!
- All the principles in diagnosing and treating breast cancer are applied to males with more aggressiveness.
- Breast cancer is more aggressive in males and usually in late stage.



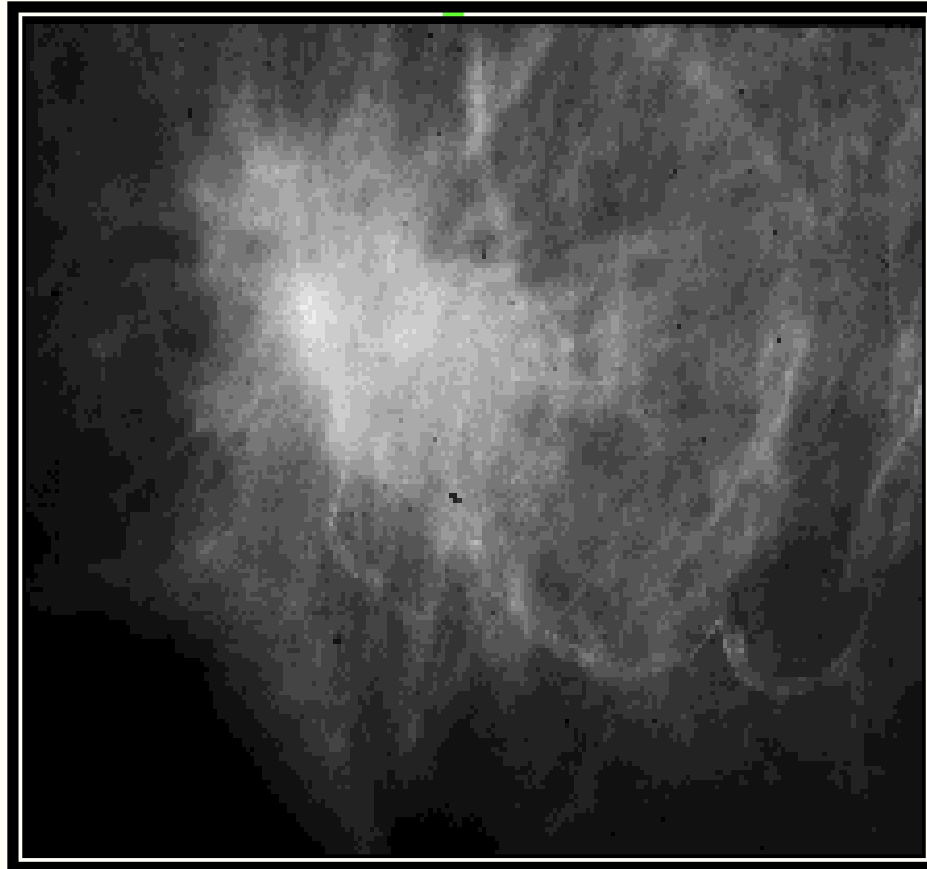
-MLO view : because of pectoralis major muscle.

- In this picture you can see axillary lymph node, muscle, skin, fat, nipple, and breast tissue (increases in younger patients)

- Normal unilateral mammogram with two standard views.
- This normal mammogram is an example of a fibrofatty pattern.

Spiculated margins

(suggestive of malignancy, biopsy
should be considered **imp!**):



- There are two types of calcification :

- 1/macro-calcification : always benign

- 2/micro-calcification : most of it benign but it has a chance to convert to malignancy(from 60women having micro calcification ,15 of them get malignant) .

Also, we can determine malignancy from the shape of calcification, (spiculated ,segmented, cluster, and lobulated are more prone to be malignant)but if calcification are spread all over the body are highly to be benign)

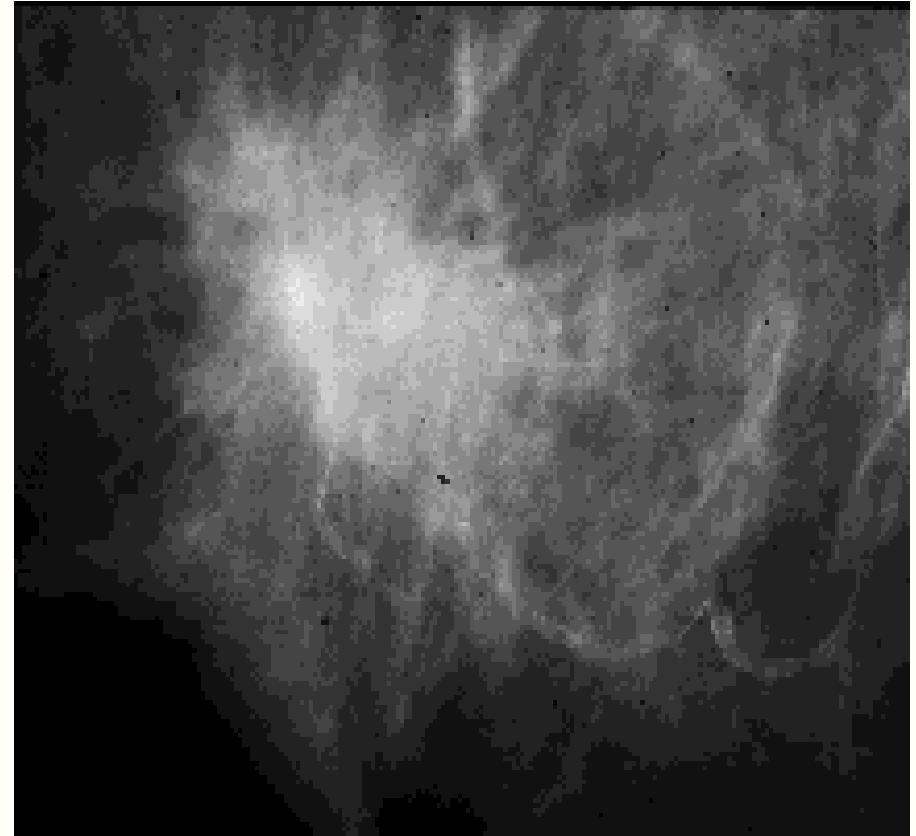
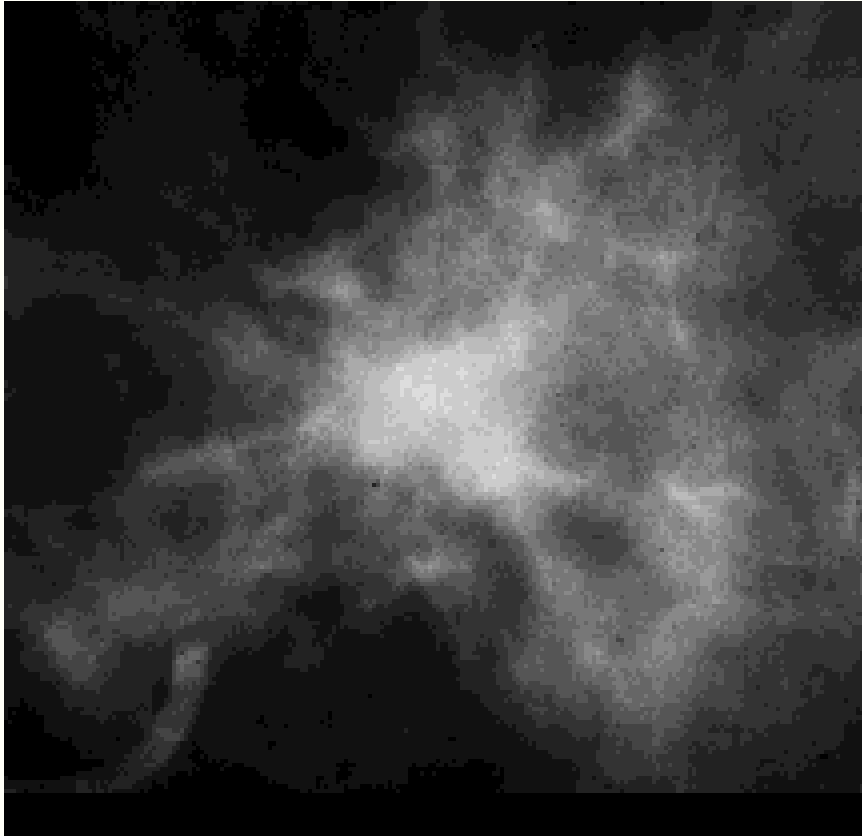
- If the calcification is haphazard in order and they are macro it's benign .. Only follow up

- IN diagnosis START with US

Spiculated Mass

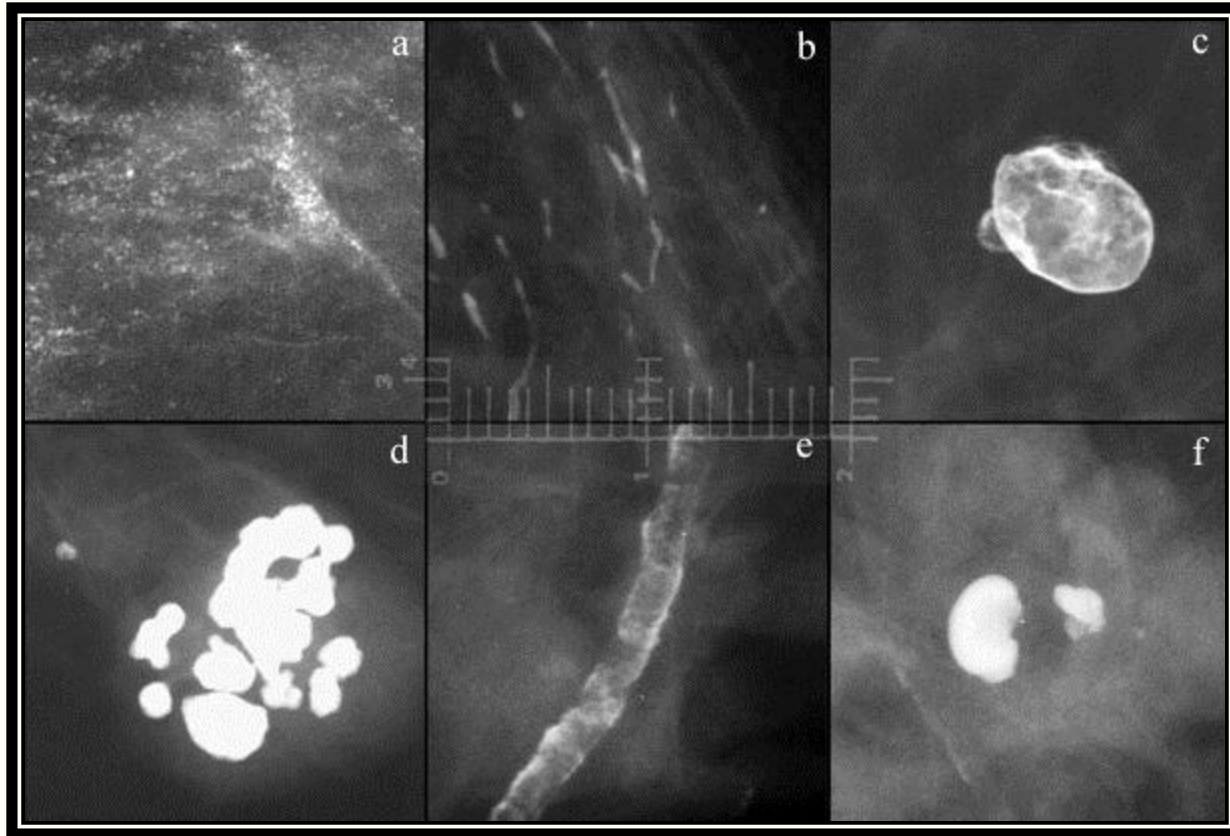


- *Spiculated margins(suggestive of malignancy, biopsy should be considered):*



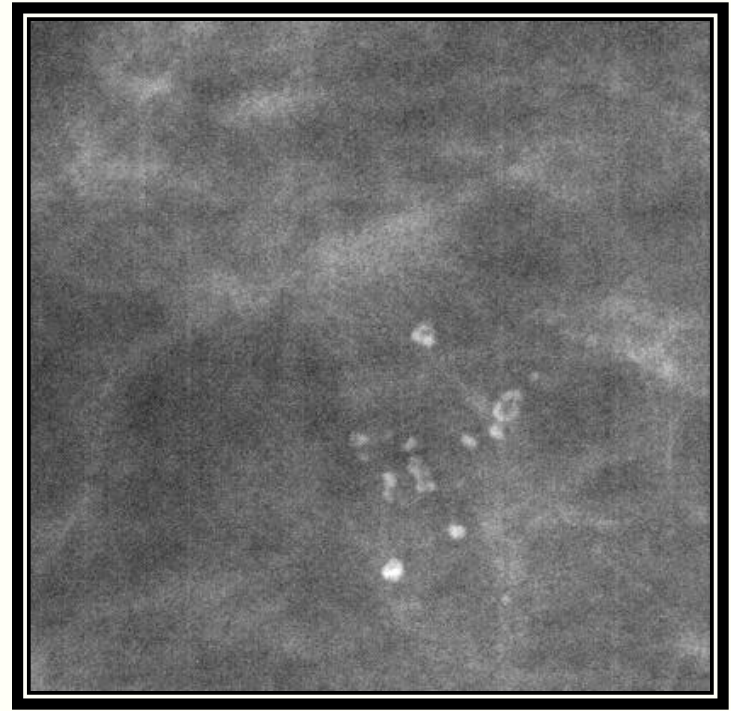
spiculated and indistinct margin in a small
infiltrating lobular carcinoma

Benign calcifications



- **a-punctate b-linear c-spherical**
d-popcorn e-vascular f-smoothly dense

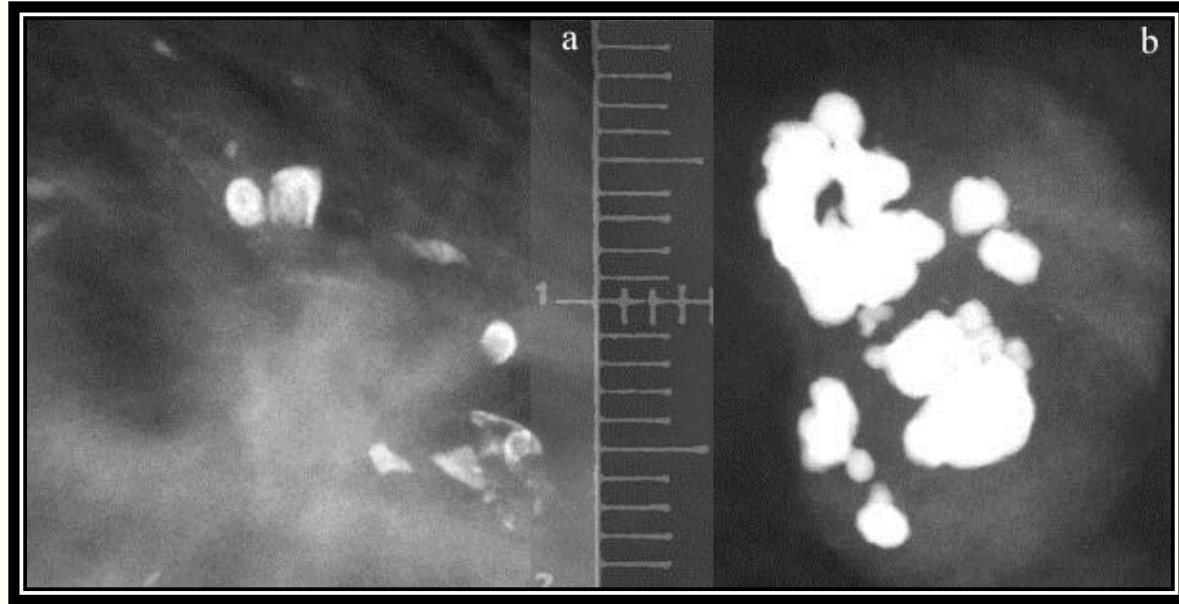
Skin calc, Benign calcification *cont.!*



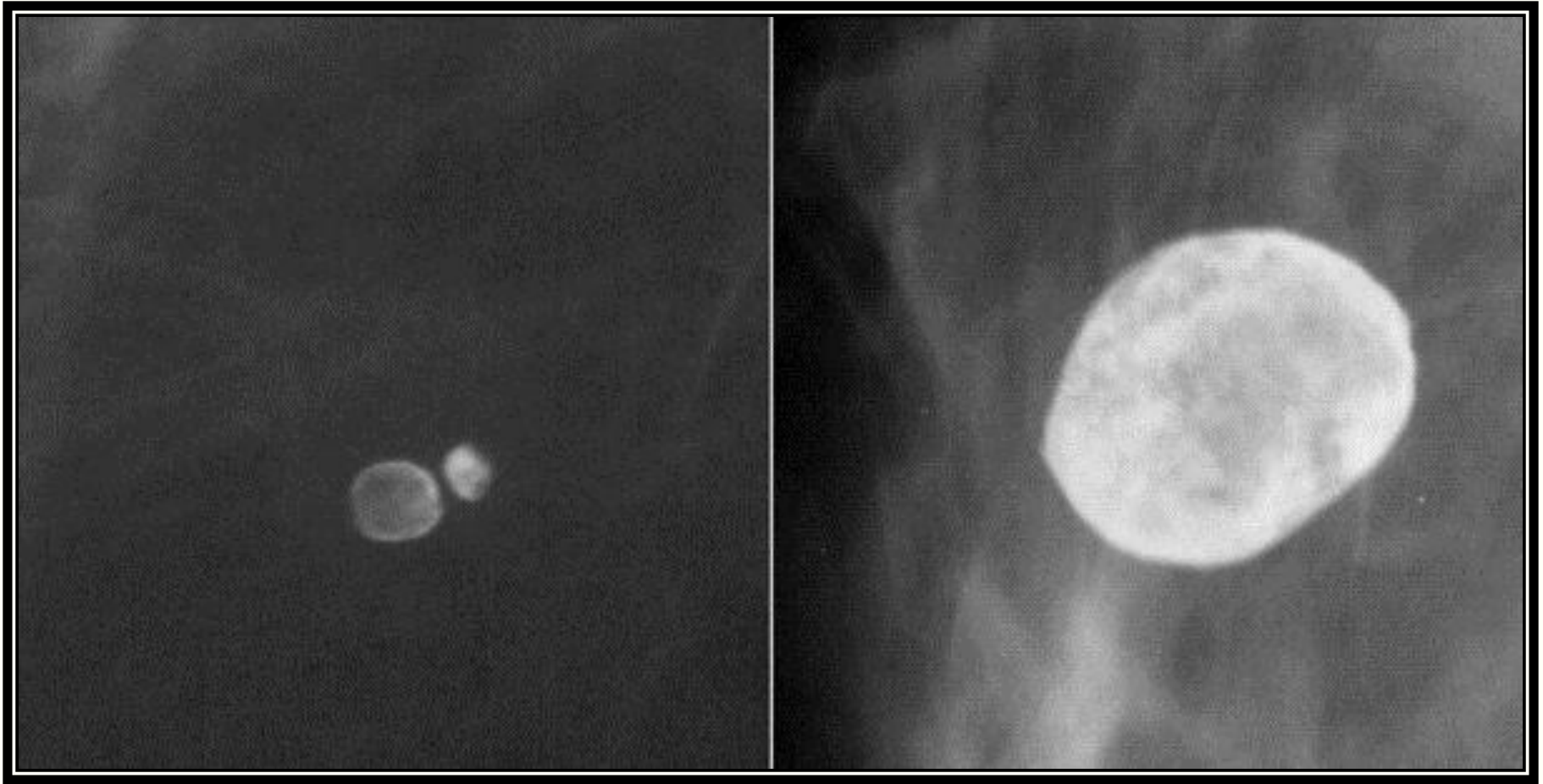
**Typical skin calcifications, dense, smooth, with a donut like
lucent center when viewed with magnification**

Benign calcification

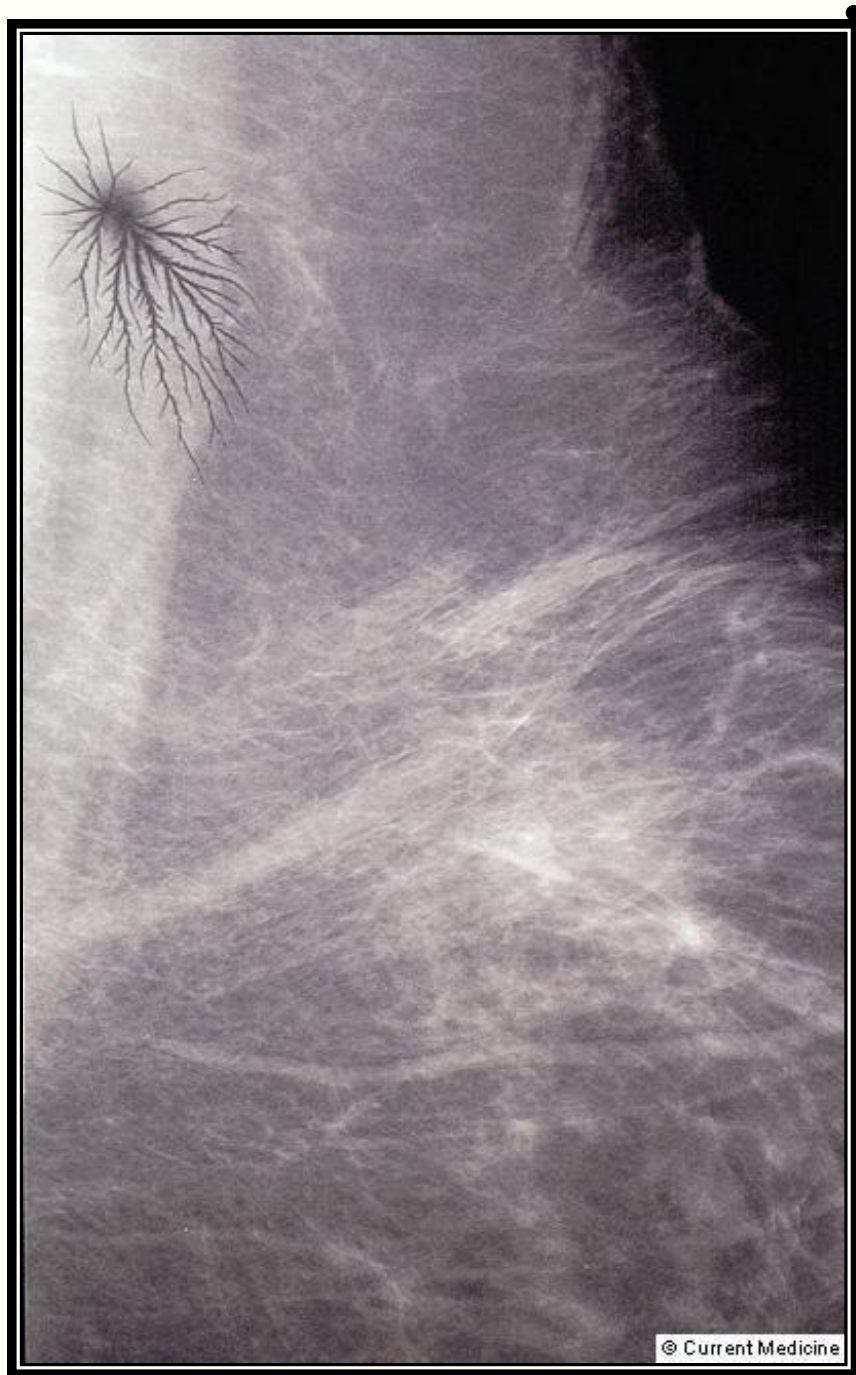
cont.!



- **e.) Round Calcifications:** When multiple, they may vary in size. They are usually considered benign and when small (under 1 mm.), the term punctate may be used. They are smooth, dense and round.

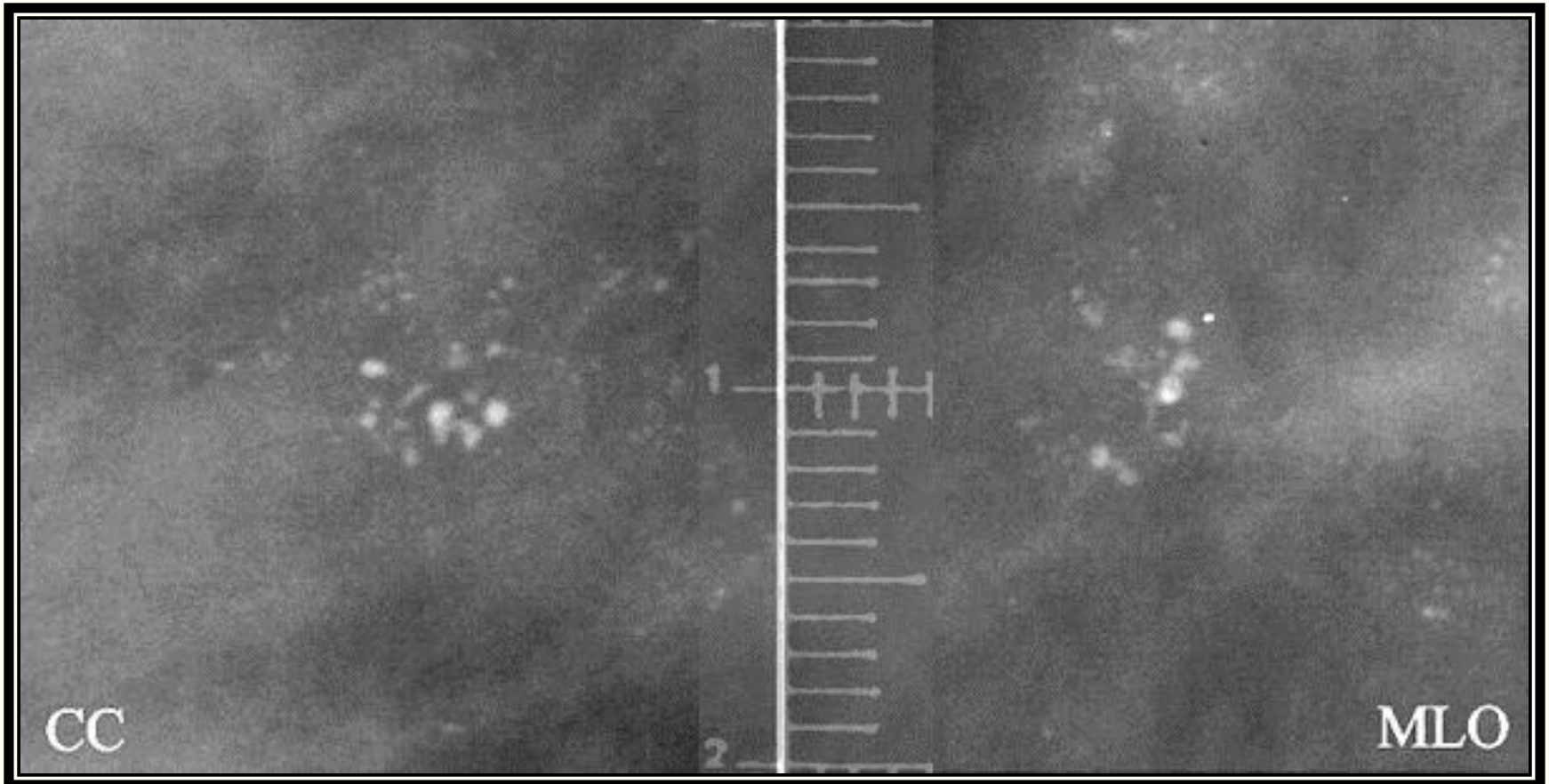


- **f.) Spherical or lucent centered calcifications:** There are benign calcifications that range from under 1 mm to over a centimeter. These deposits have smooth surfaces, are round or oval, and tend to have a lucent center. The wall is thicker than "eggshell" forms. They arise from areas of fat necrosis, calcified duct debris, and occasional fibroadenoma.



Artifacts. Artifacts on mammographic images can be misinterpreted as originating from the affected breast. They can often pose as clinical and technical troubleshooting difficulties for the interpreting radiologist. They can arise from the patient in the form of hair, deodorant, or body parts (such as a nose or arm projected on to the film). The mammography x-ray unit, film, cassette, or screen can also contribute to possible artifacts [13], [14]. This mediolateral oblique view from a screening examination demonstrates static. This film artifact is caused by improper humidity conditions.

- **a.) Grouped or Clustered:**
(Historically, the term clustered has can noted suspicion, the term shall now be used as a neutral distribution modifier and may reflect benign or malignant processes): The term is used when multiple small calcifications occupy a small volume of tissue (less than two cc.).



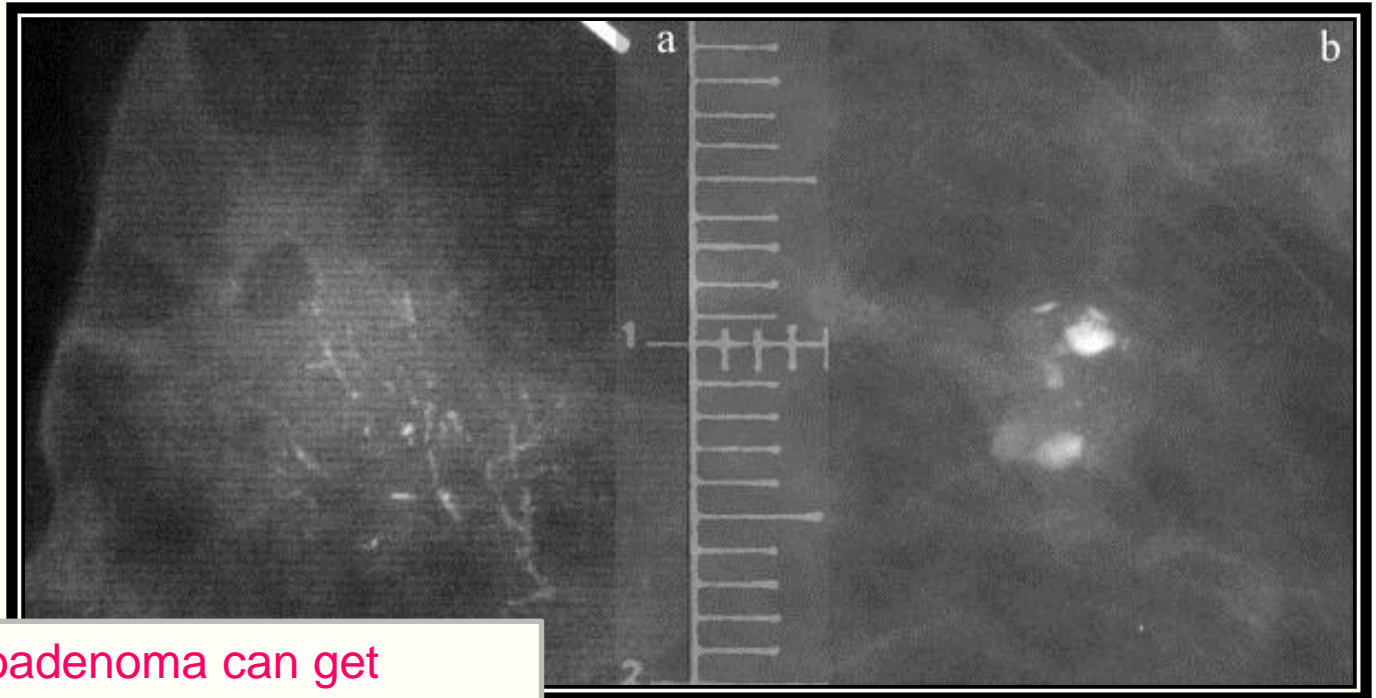
- **b.) Linear:**

Calcifications arrayed in a line that may have branch points.

- **Indicate :**

a-DCIS (Ductal carcinoma in situ)

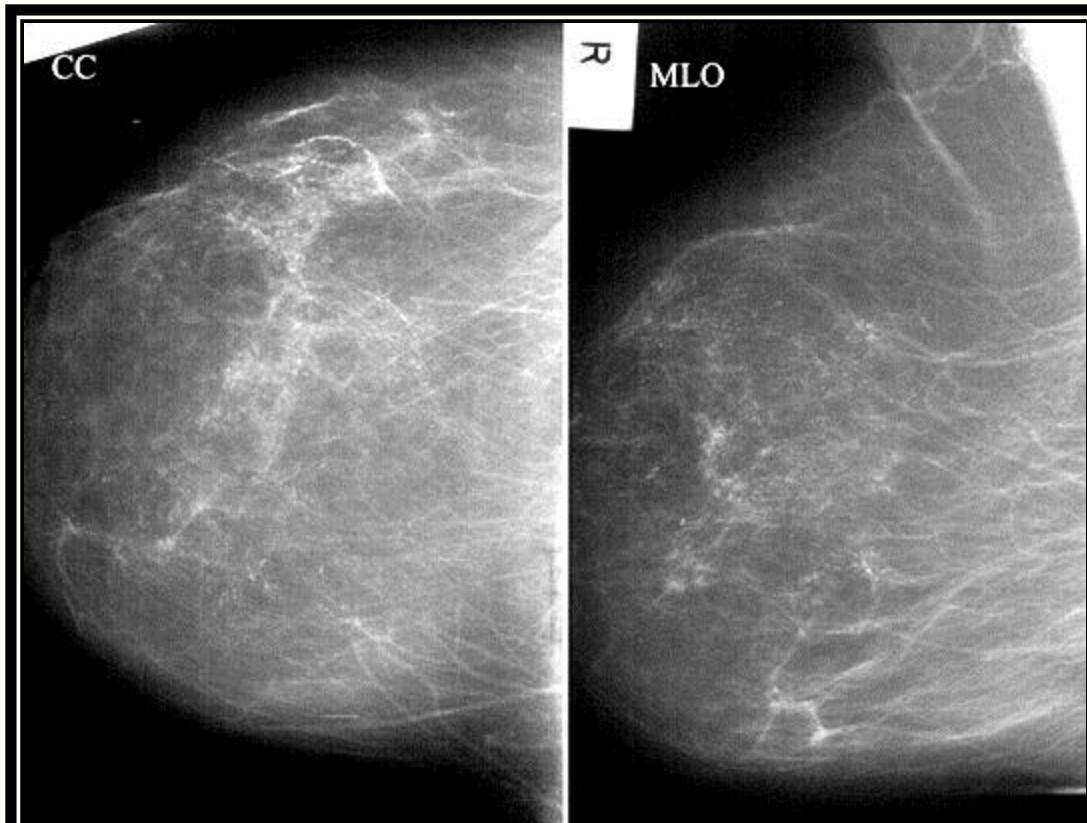
b- fibroadenoma



Long standing fibroadenoma can get calcified

- **c.) Segmental:**

These are worrisome in that their distribution suggests deposits in a duct and its branches raising the possibility of multifocal breast cancer in a lobe or segment of the breast. Although benign causes of segmental calcifications exist such as "secretory disease: this distribution is of greater concern when the morphology of the calcifications is not specifically benign.



Calcif. distribution

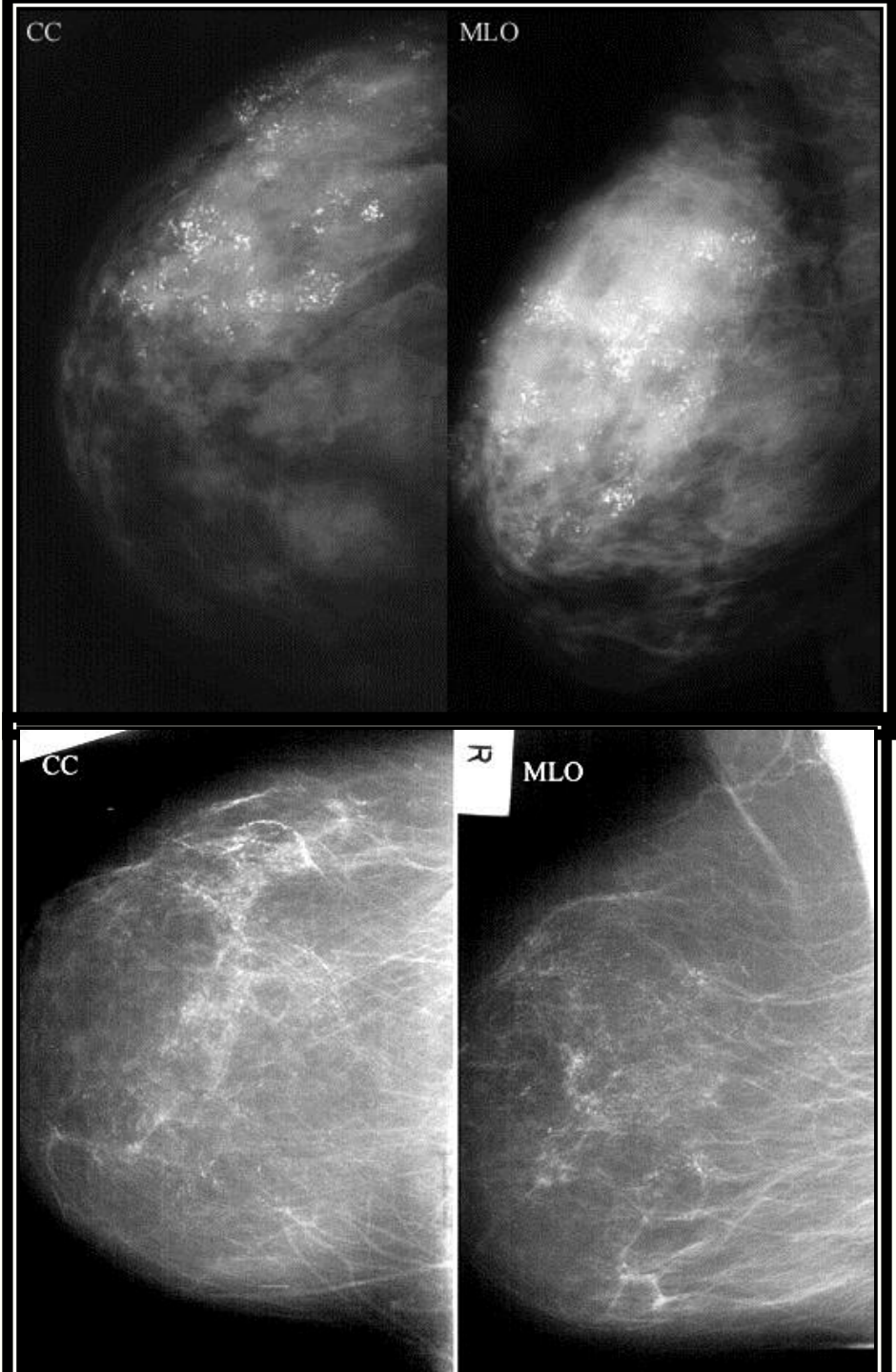
e.) Diffuse/Scattered:

These are calcifications that are distributed randomly throughout the breast.

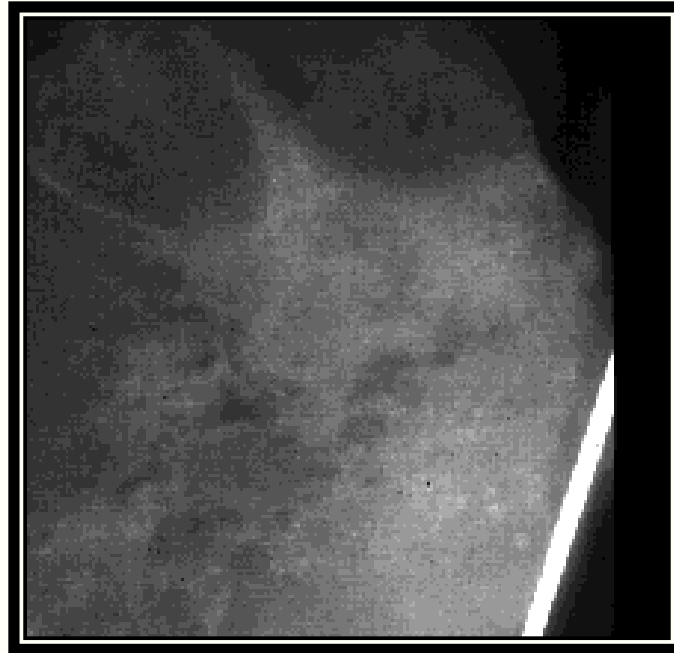
f.) Multiple groups:

Multiple groups may be indicated when there is more than one group of calcifications that are similar in morphology and distribution

- widespread distribution, even over an entire breast is worrisome if unilateral, while bilateral changes are suggestive of a benign processes.



Intermediate concern calcifications:

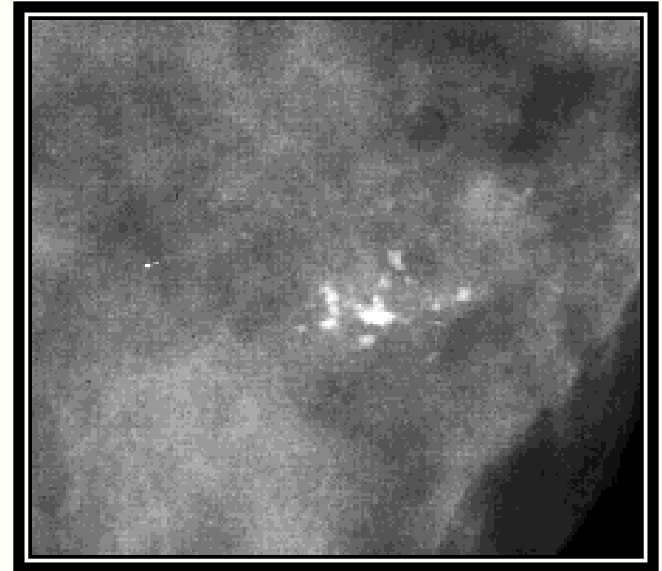


group of poorly defined calcifications, some round, others irregular with a clustered distribution. These particular calcifications were benign related to sclerosing adenosis, however similar appearances are common enough in small cancers to merit biopsy.

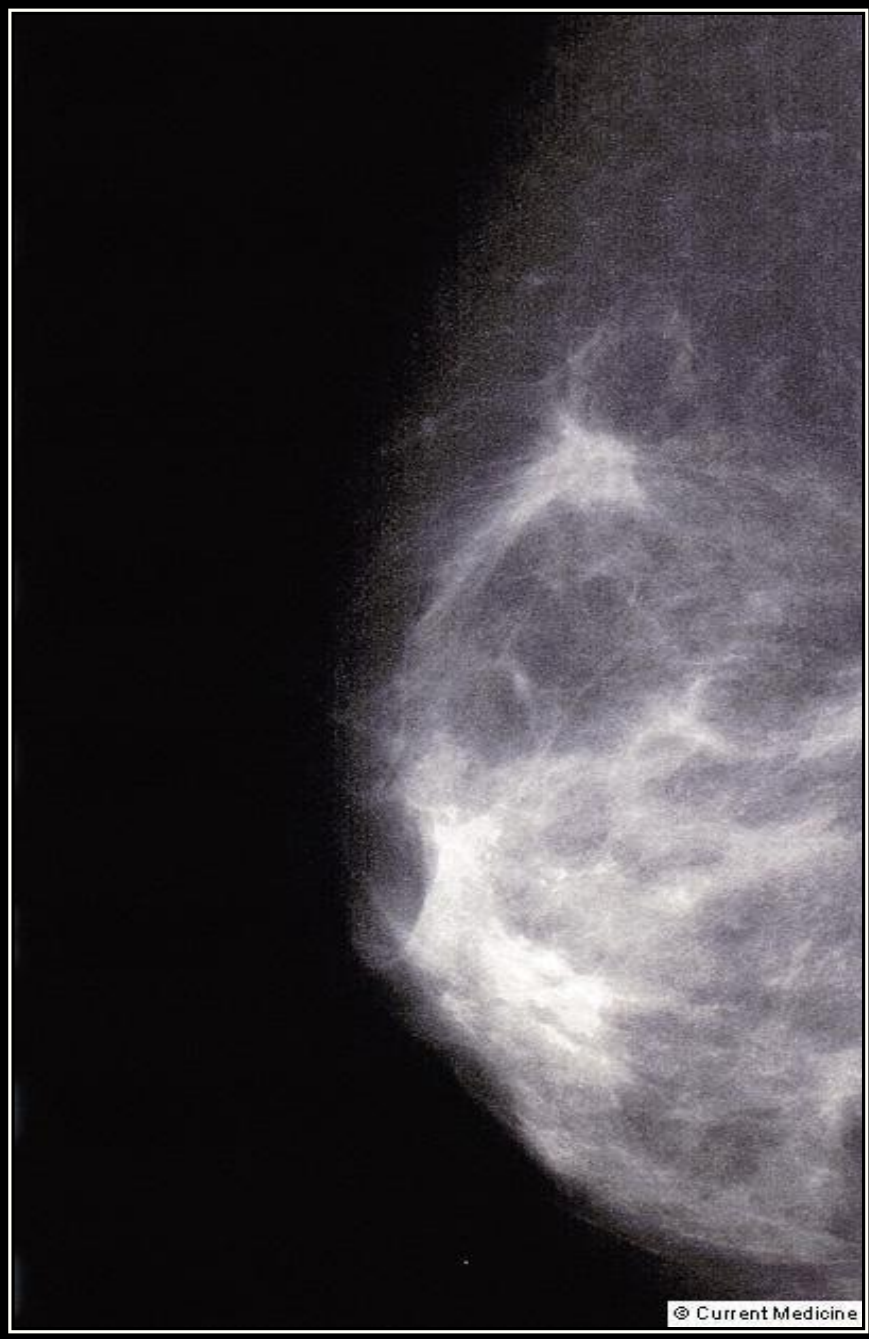
Pleomorphic (granular)



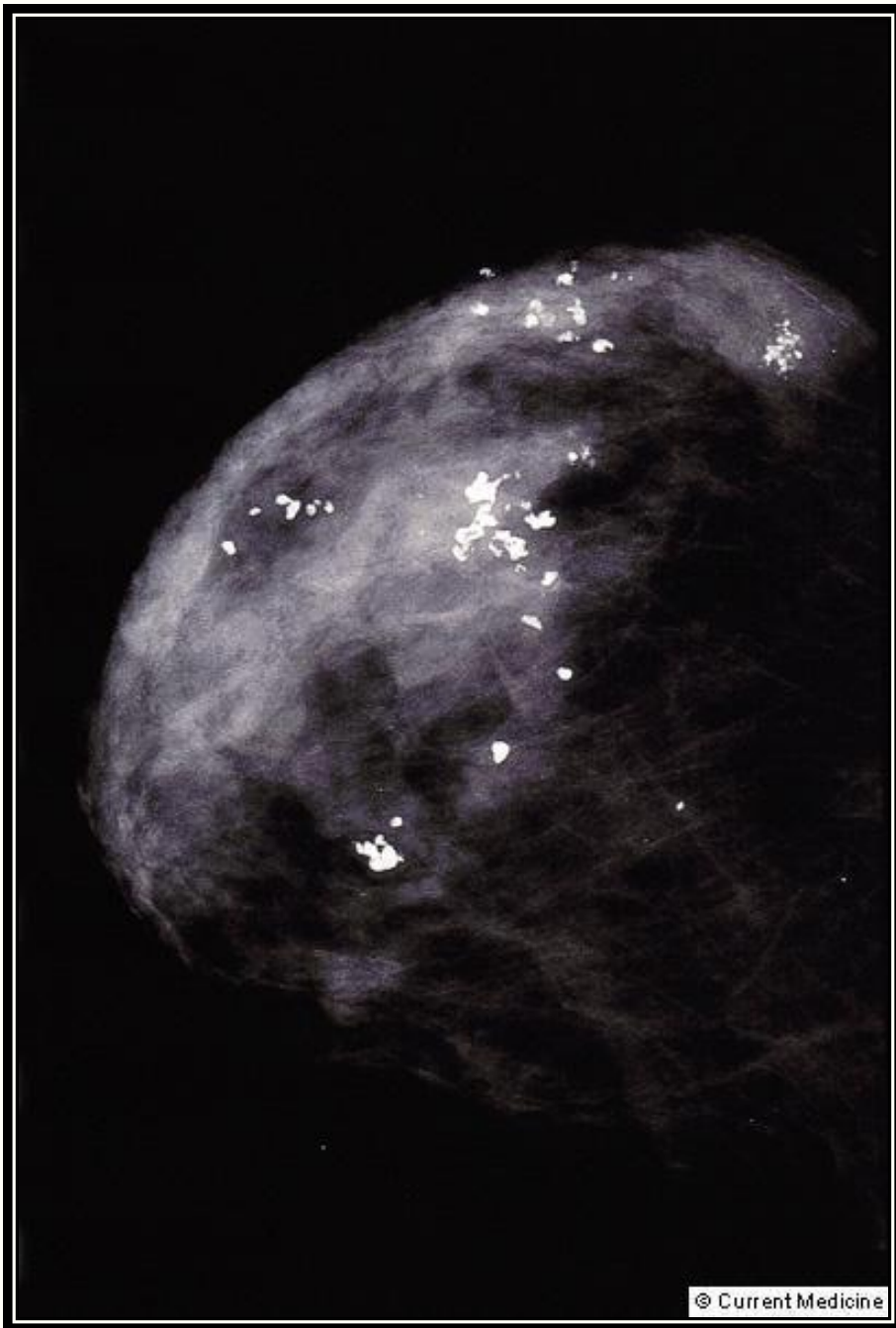
- grouped irregular calcifications were found to be benign (fibroadenoma).



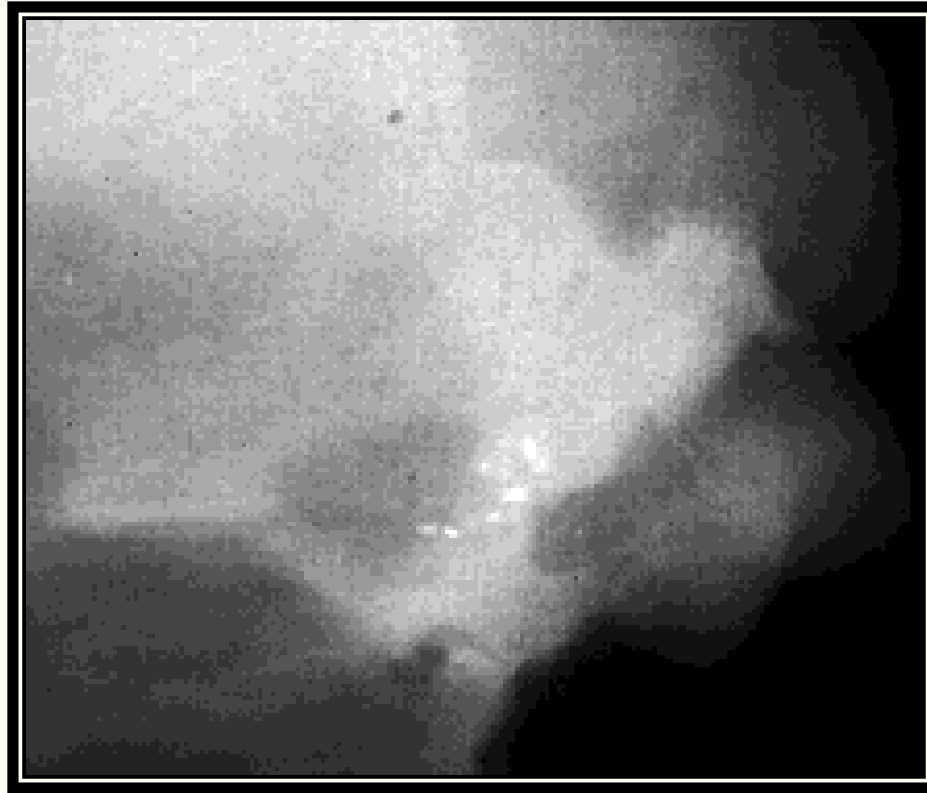
- irregular calcifications were associated with ductal carcinoma (cancer).



- Malignant mass. Intraductal and invasive ductal carcinoma not otherwise specified (NOS), nuclear grade 3. Invasive ductal carcinoma (NOS) is the most common type of breast cancer and represents 65% of the breast cancer in the United States [5]. When the histologic pattern does not fit a specific subtype, it is labeled NOS. These cancers can present as a palpable mass or a spiculated mass on mammography. Malignant-type calcifications can be seen and are usually associated with an intraductal component. Ultrasound usually demonstrates a hypoechoic spiculated mass that may be taller than wide. **A**, Mediolateral oblique view demonstrates a dense, spiculated mass with associated architectural distortion within the superior aspect of the breast. There are associated malignant-type calcifications. **B**, Directed ultrasound of the breast demonstrates a spiculated hypoechoic mass corresponding to the mammographic lesion. Ultrasound-guided core biopsy revealed invasive ductal carcinoma.

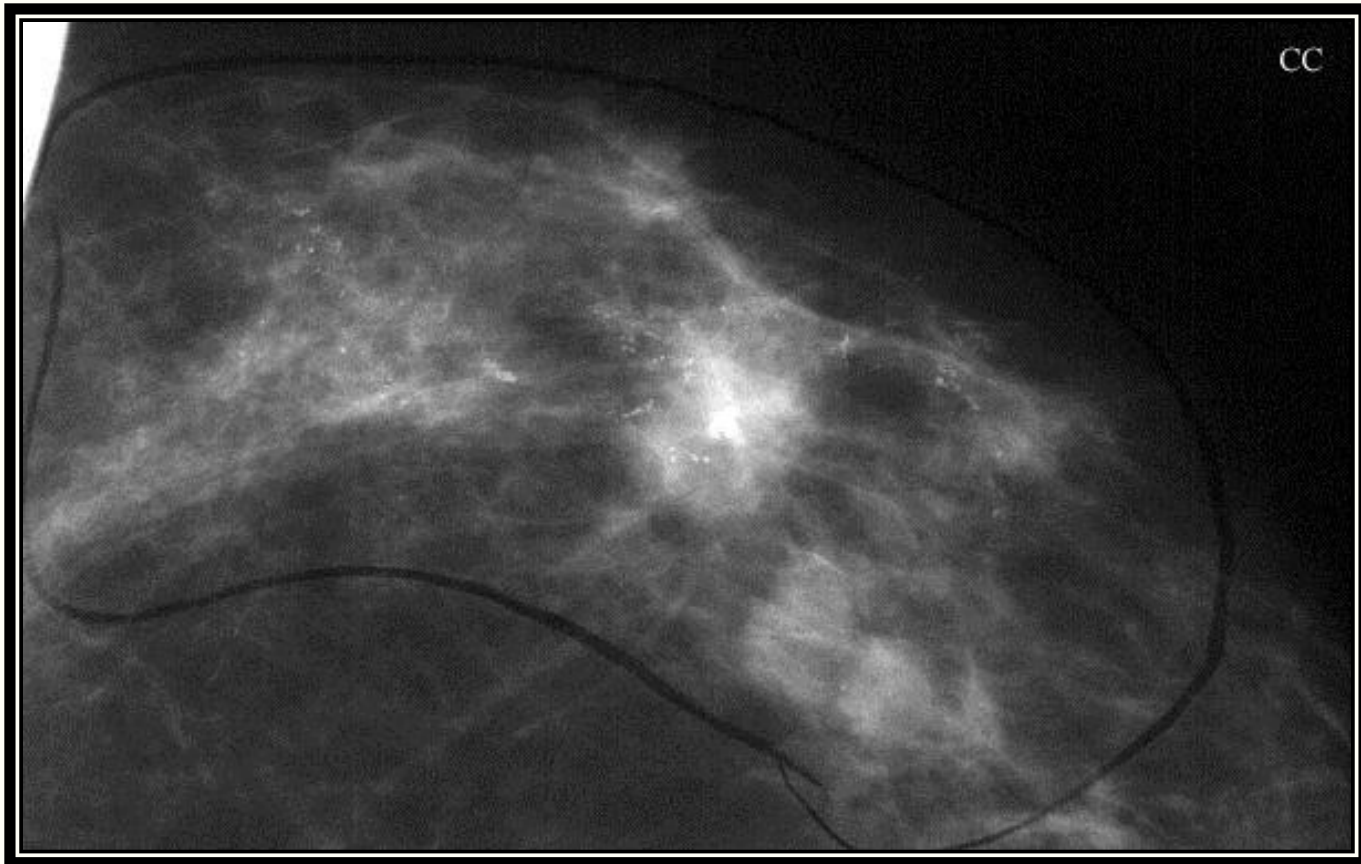


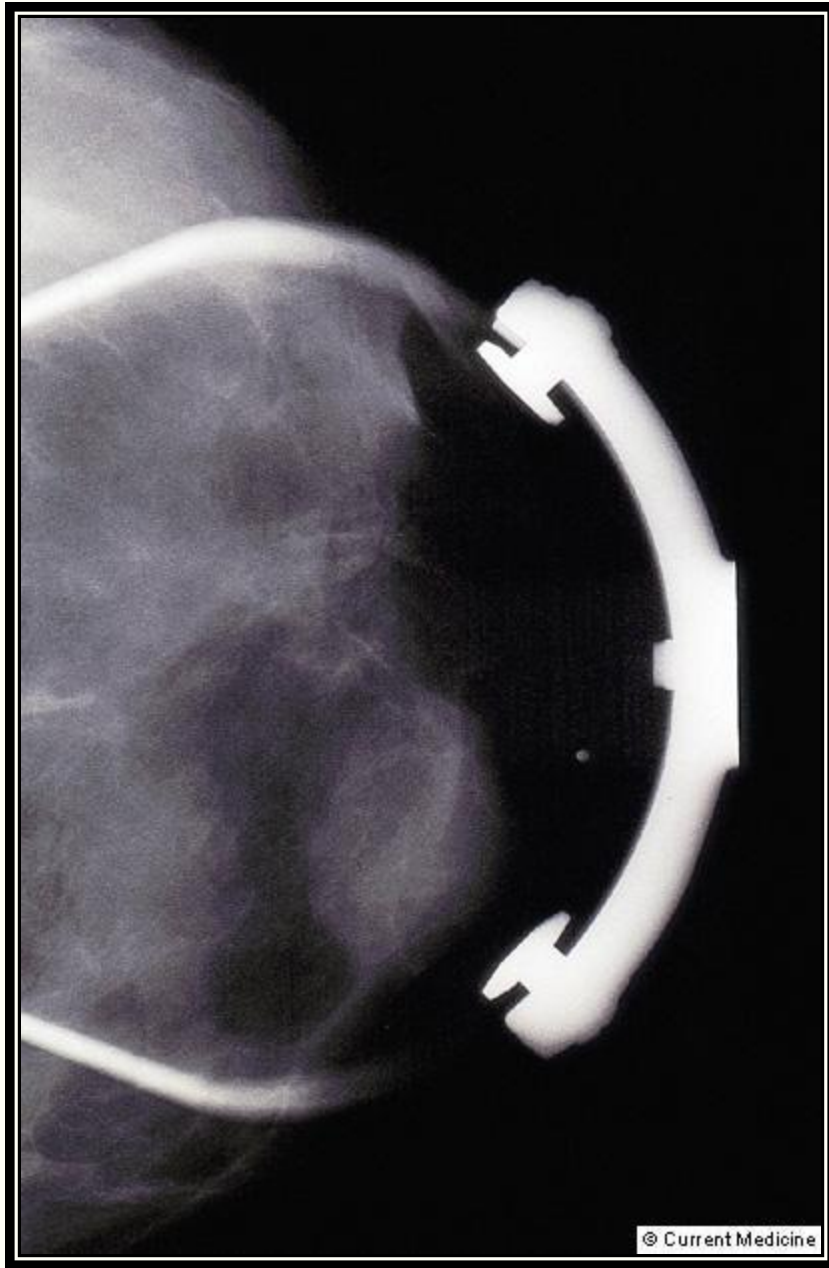
Benign microcalcifications. **A**, Hyalinizing fibroadenoma, craniocaudal view. There are multiple scattered dense, large, coarse popcorn-like calcifications associated with a dense fibronodular pattern. When these calcifications begin to form, they may be suspicious in appearance, prompting biopsy. The calcifications may be too small to characterize, toothlike in configuration, and of varying densities. Hyalinizing fibroadenomas occur more commonly in older women. **B**, Secretory calcifications, mediolateral view. Rod-shaped, smoothly margined, dense, coarse calcifications in a pattern directed toward the nipple. These calcifications are commonly associated with ductal ectasia and periductal mastitis [2].



Close up (magnified) view of heterogeneous granular calcifications of infiltrating ductal carcinoma.

Segmental distribution of microcalcifications
is almost always suspicious





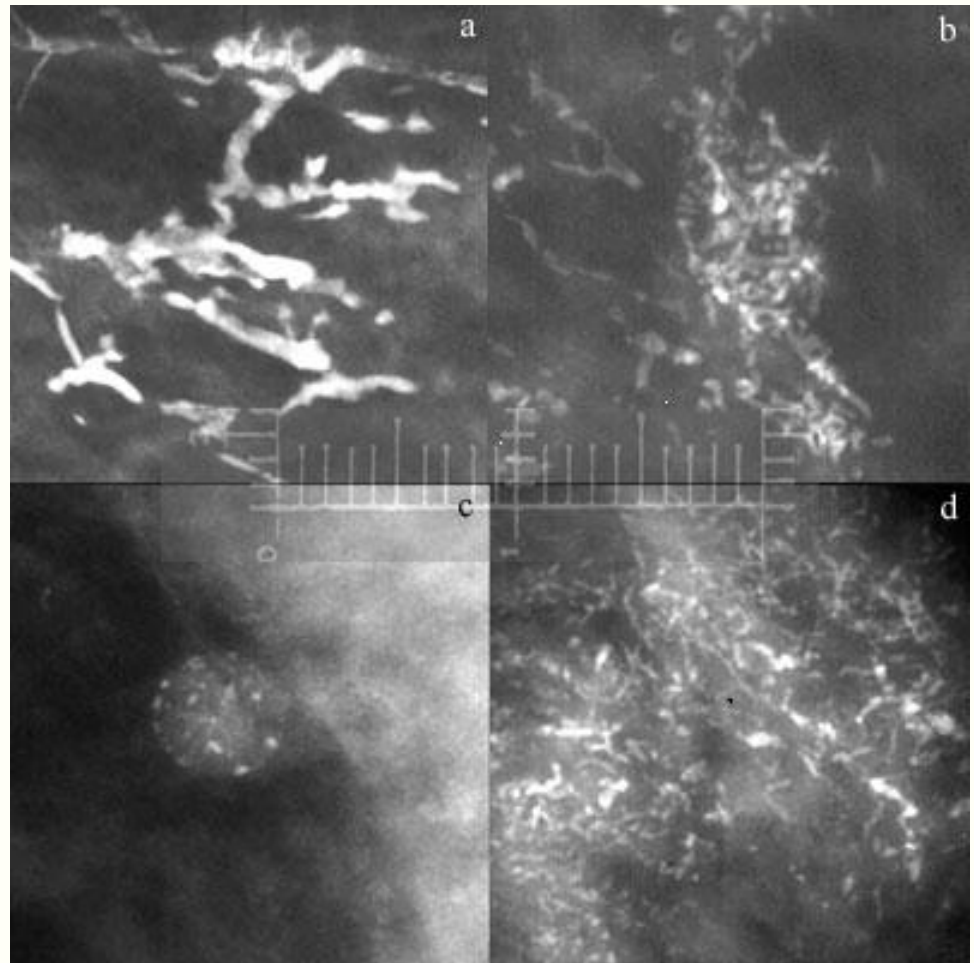
- Benign mass: fibroadenoma. The fibroadenoma is a benign breast mass with no increased malignant potential. Because histologically it contains epithelial cells, a cancer could theoretically arise from within it [4]. Although they are typically found in younger premenopausal women, fibroadenomas are discovered in postmenopausal women as well. Owing to their sensitivity to hormones, increasing numbers of older patients on exogenous hormone replacement therapy have demonstrated the presence of benign fibroadenomas. **A**, Craniocaudal spot compression view demonstrates a slightly obscured ovoid mass within the medial aspect of the left breast. **B**, Directed ultrasound of the medial left breast demonstrates a smooth, marginated, well-defined ovoid homogeneously hypoechoic mass with increased through transmission corresponding to the mammographic mass. Ultrasound core-needle biopsy confirmed a benign fibroadenoma.



- Malignant microcalcifications. Ductal carcinoma in situ (DCIS), comedo type, magnification view. Before the advent of improved mammographic screening, the diagnosis of DCIS was made infrequently. Note the fine, linear, heterogeneous calcifications arranged in a cluster. There is also an associated ill-defined mass lesion. Although the hallmark imaging feature for DCIS is the presence of microcalcifications, DCIS can also present less frequently mammographically as a mass without associated microcalcifications

Fine and/or branching (casting)

calcifications: These are thin, irregular calcifications that appear linear, but are discontinuous and under 0.5 mm. in width. Their appearance suggests filling of the lumen of ducts .



A,b,d
branching
c:cyst wall

ULTRASOUND

- Advantages of US :

Give excellent information & good for masses

We can do it any age .

Disadvantages :

Operator dependant.

Can't take place of mammograph in screening coz the whole idea of screening is to look for calcification

- But MRI :

Good in express microcalcification ...

- Different b/w diagnostic and screening :

Diagnostic (person come with complain and we do it)

Screening (person come with nothing and majority will be normal)

ROLE OF ULTRASOUND (1)

- Characterize a mammographic abnormality.
- Characterize a mammographically occult clinical abnormality.
- Initial examination in the younger woman.

ROLE OF ULTRASOUND (2)

- Imaging guided biopsies,
- Some utility in distinguishing benign from malignant lesions.
- Still no role on screening, even in the mammographically dense breast.
- ? Developing role in monitoring neo-adjuvant therapy.

ADVANTAGES OF ULTRASOUND

- Painless.
- Does not use ionising radiation.
- Very good at detecting cysts.
- Can “see through” mammographically dense breasts.

DISADVANTAGES OF ULTRASOUND

- Not good for screening the breast.
- Cannot always characterize lesions precisely.
- More operator-dependent than mammography. **Imp!**

WHAT DOES ULTRASOUND LOOK FOR?

- Location of lesion.
- Solid or cystic?
- Margins.
- Surrounding structures.

1- CYSTS

- Contain no or few echoes.
- Have smooth margins.
- Are often compressible with the ID.
- Have posterior enhancement (increased echoes = whiter).

When u confirm that is a cyst , aspirate it
If u aspirate and get blood u should excise it surgically
But if no blood, complete aspiration and follow pt
If cyst recurrent for 3 times u have to excise it

2- BENIGN MASSES

- Have smooth margins.
- Have relatively uniform internal appearance.
- Don't disturb surrounding tissues.
- Are usually “wider than tall”.

The normal breast tissue appear as symmetrical waves under the Ultra sound

The Benign masses follow the same pattern

3- MALIGNANT MASSES

- Have irregular or indistinct margins.
- Have heterogonous internal appearance.
- Often cut across surrounding tissue planes.
- Are often “taller than wide” or rounded (special types).

The normal breast tissue appear as symmetrical waves under the Ultra sound

The malignant masses cut and disturb this pattern

Ultrasound / *clinical correlation*

Is an important as

Ultrasound / *mammographic*

Correlation:

U/S as an extension of palpation.

CHALLENGES FOR ULTRASOUND CORRELATION

- Small lesions in larger breasts.
- Small lesions deep within echogenic parenchyma.
- Dense parenchyma interspersed with fatty lobules.
- Surgically scarred breasts.
- Multiple mammographic lesions.
- Complicated cysts.
- Cellular malignancies.

FUNDAMENTALS – MAMMO U/S

- Correlate lesion location.
- Correlate lesion size.
- Correlate lesion margin.
- Don't assume that previous imaging assessment was correct (*pull out all the films if necessary*).
- Take account of both mammographic and U/S appearances.

Most probably benign lesions are benign.
Of 543 probably benign lesions in 5514
screening mammograms,

- *Only 1 was malignant (0.2%).*
- *21% regressed or disappeared.*

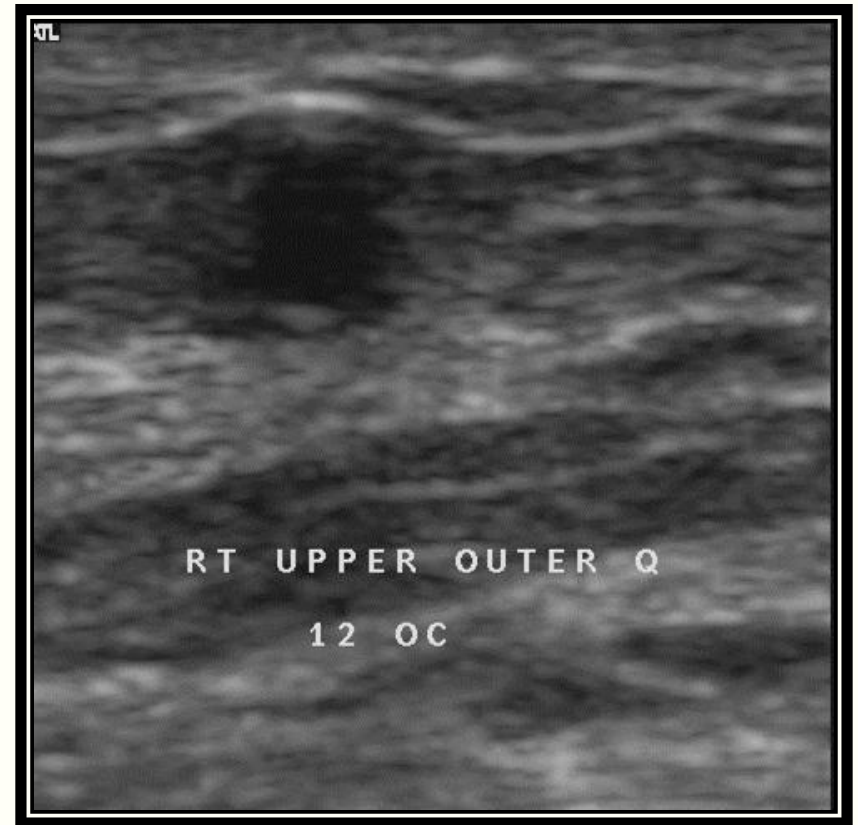
CATEGORY 3 LESIONS – BIOPSY OR WATCH?

- Probably benign lesions have an extremely high chance of being benign **(98-99.5%)**.
- Surveillance mammography can diagnose even the malignant lesions at an early stage.
- Surveillance is very cost effective by comparison with biopsy of all or most lesions.
- However, some patients may not be suitable.

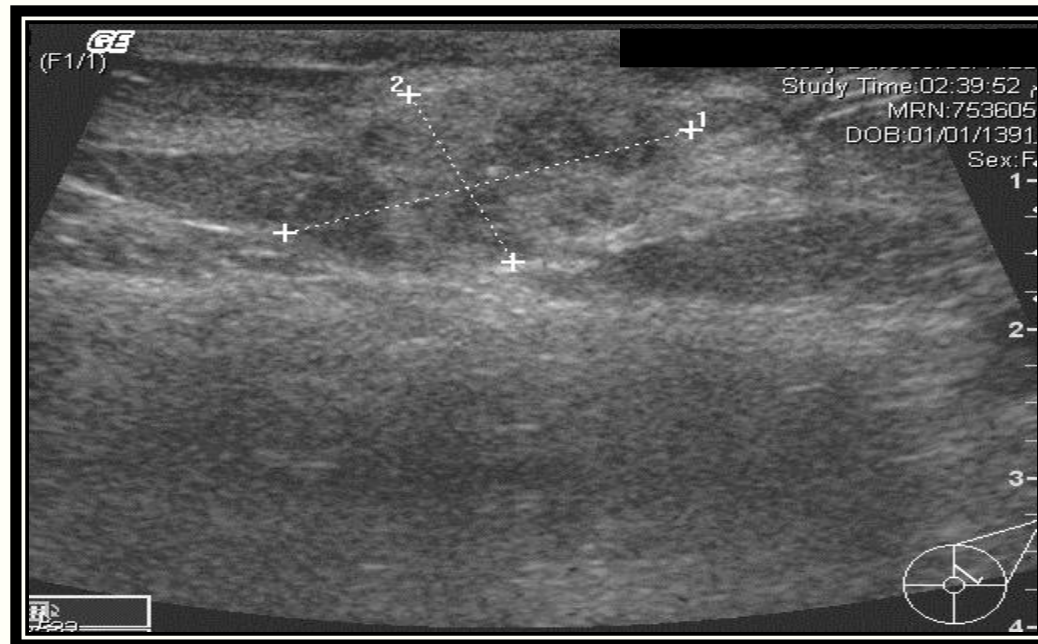
KEY POINTS

- Meticulous imaging technique.
- Careful correlation of mammo with U/S, and imaging with clinical findings.
- Clear communication reduces errors.

Irregular shape



ill-Define margins

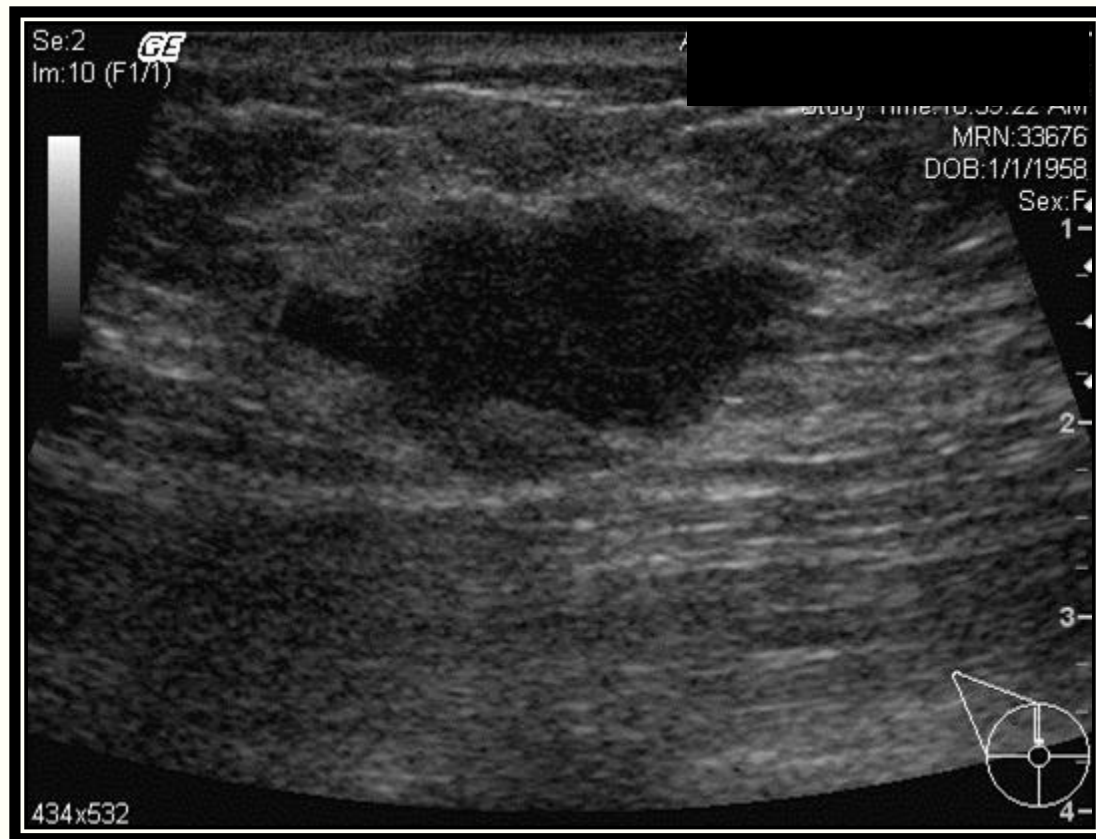


If you find it in a patient the further investigations depend on the age :

If it is old age → do mammogram

If it young age → do biopsy

Spiculated Margins

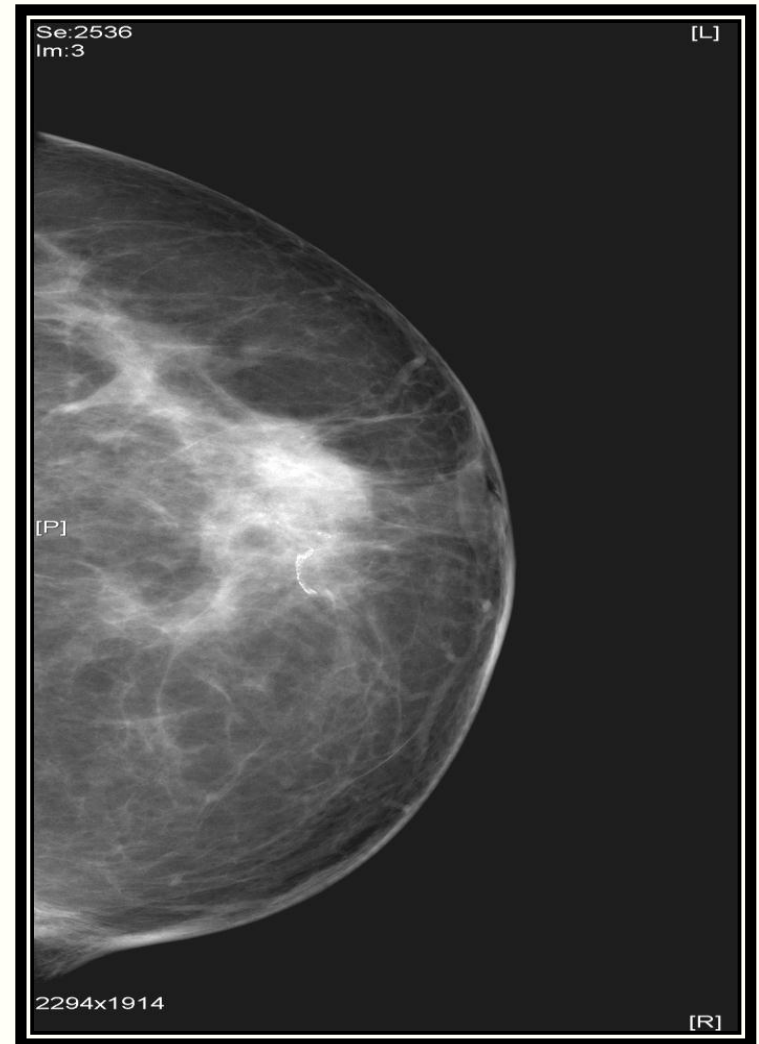
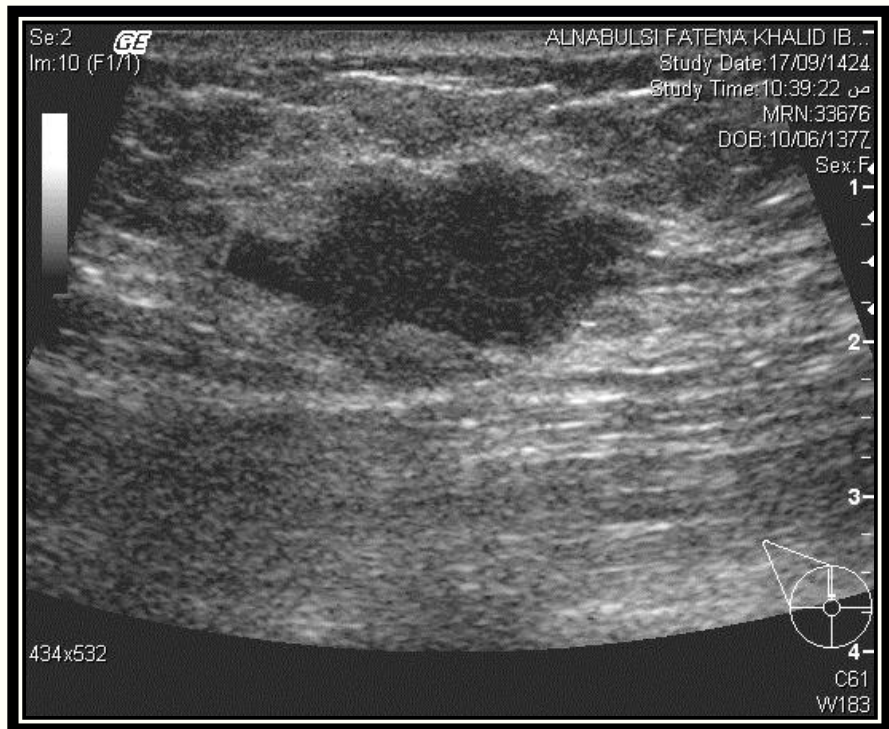


Next step is Biopsy

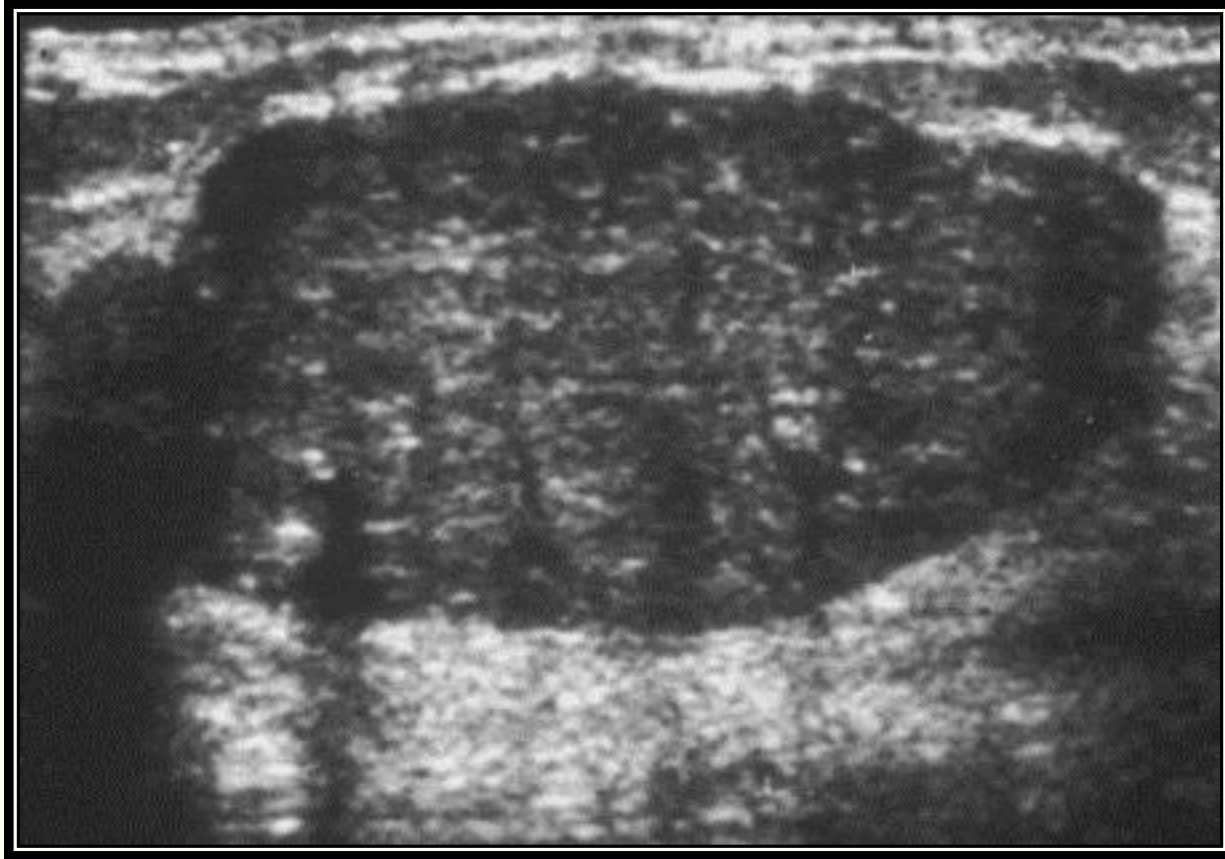


- Benign mass: simple cyst. This patient presented with a new generally well-defined mass on her screening mammogram. Ultrasound demonstrates a well-defined, smoothly marginated anechoic ovoid mass with increased through transmission consistent with a benign simple cyst. Because this finding indicates a benign lesion, the patient was told to return to annual screening follow-up. Cysts can present as a palpable mass or a focal tender area within the breast. A majority of cysts are found in asymptomatic women on their screening mammogram. On mammography, they appear as a mass and may have associated benign rim or eggshell microcalcifications. Ultrasound is the confirmatory diagnostic test demonstrating a well-defined mass devoid of internal echotexture. If any internal echoes are demonstrated, ultrasound-guided needle aspiration is recommended to fully exclude malignancy.

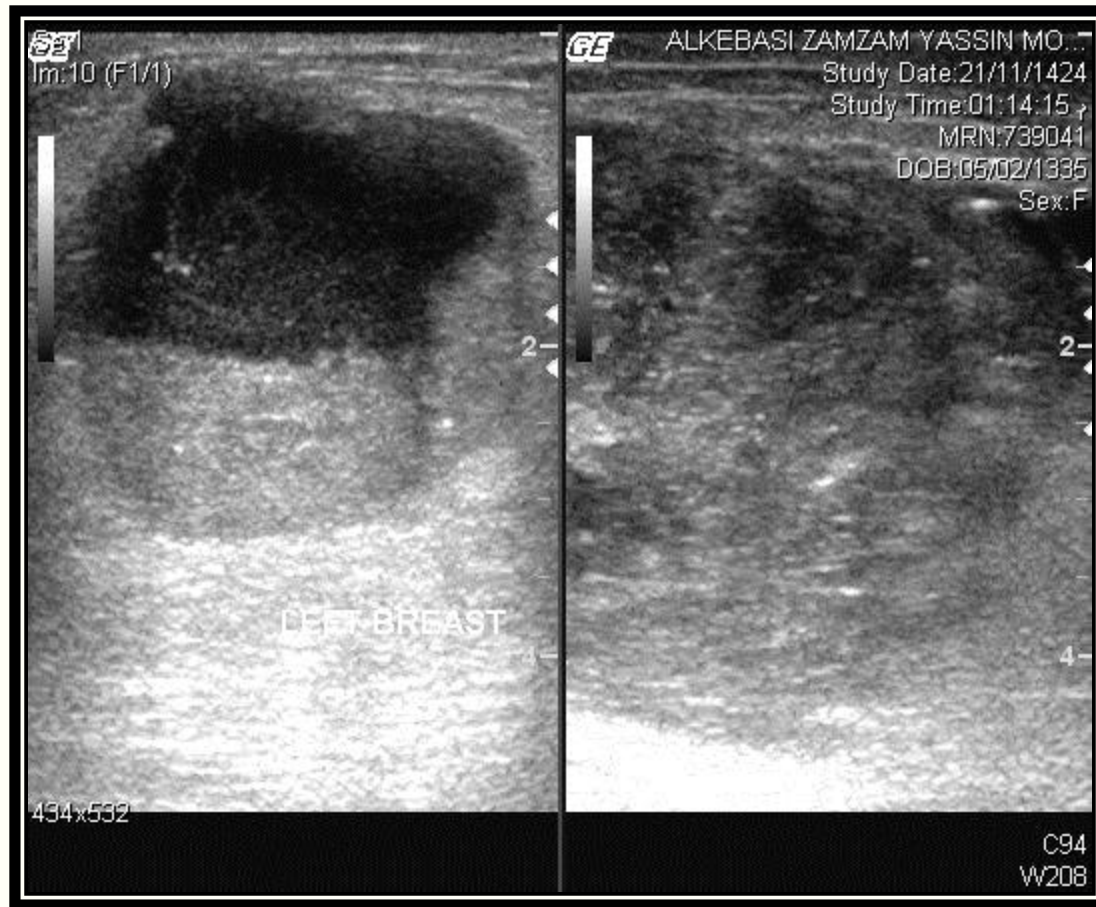
Spiculated margins



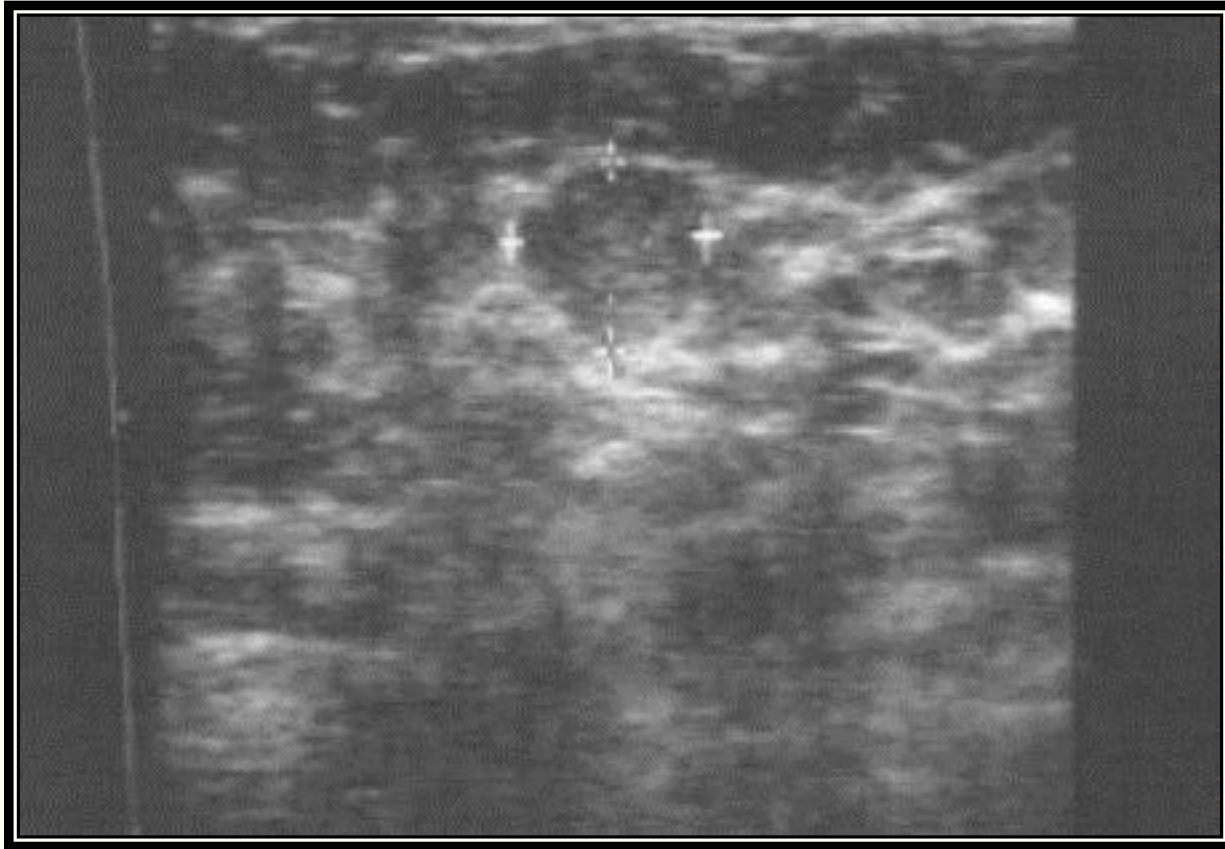
Ultrasound Fibroednoma



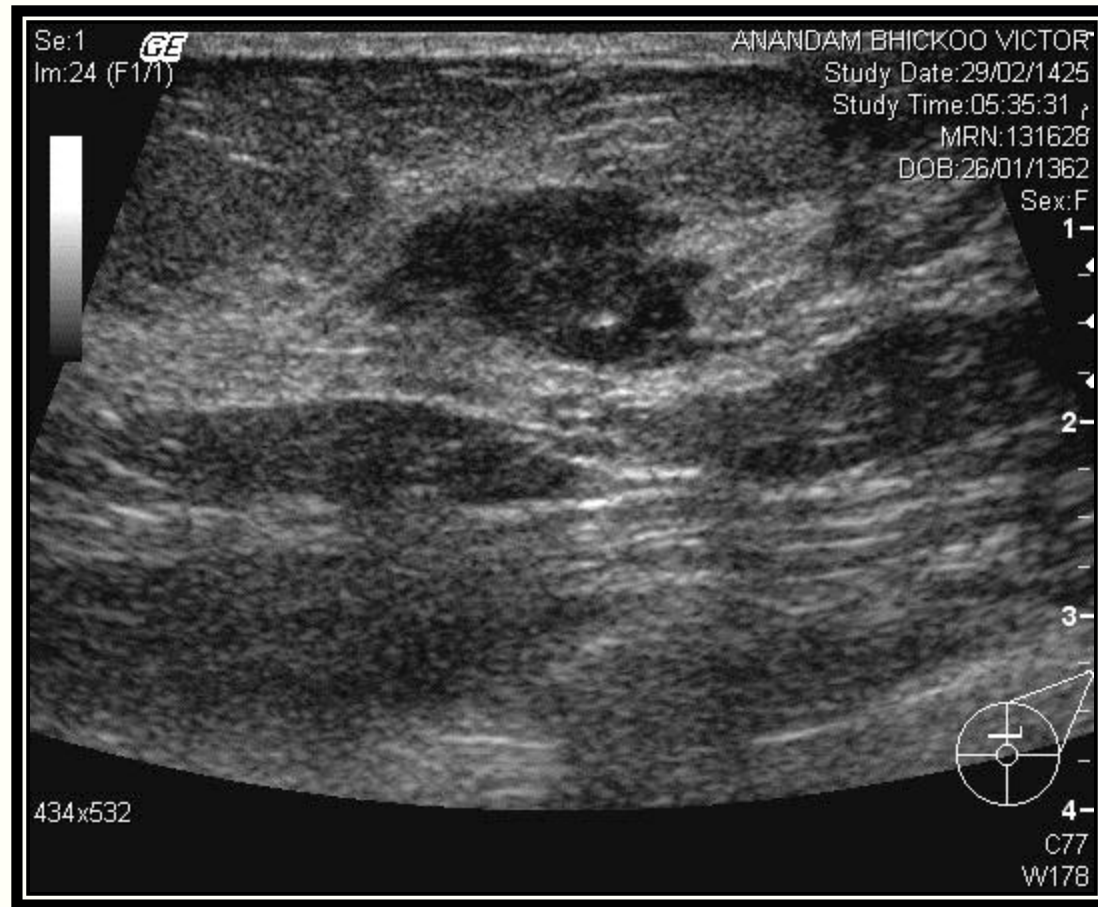
Phyllodes tumor with malignant characters



USS spiculated mass



Spiculated Margins



BASIC INVESTIGATIONS OF BREAST DISEASES... *Cont!*

F.N.A.B. (fine needle aspiration biopsy)

- *Description of procedure*
- *Clinical, U/S guided, mammotomes*
- *Sensitivity 80-98%*
- *False negative 2-10%*

F.N.A.B

Scoring of result Code 0 → Code 5

- Core biopsy (the best way b/c it takes the tissue not only cells)
 - *Tissue diagnosis*
 - *Painful*
 - *Costly*
 - *Receptor status*
- Open biopsy

BREAST CYSTS:

- The Cyst are part of the ANDI (Aberrations in the normal development and involution of the breast) التطورات الطبيعية التي تحدث للثدي بسبب العمر والهرمونات
- **Management : imp!**
- 1- Aspirate if bloody go for surgical biopsy.
- 2- If non-bloody and disappear completely → observe.
- 3- If non-bloody and doesn't resolve → surgical biopsy.



Fibroadenoma

- Benign lesions, 15-30 years old of age.

Management:

- * *triple assessment*
- * *to leave alone or to excise? Imp!*

if it above the age of 30 → remove it

If it is >3cm remove it

Strong family history >remove it

Painful>remove it

If the Pt. ask remove it

If it is growing → remove it

When diagnosis is not sure 100% that is fibroadenoma> remove it

Ultrasound Fibroednoma



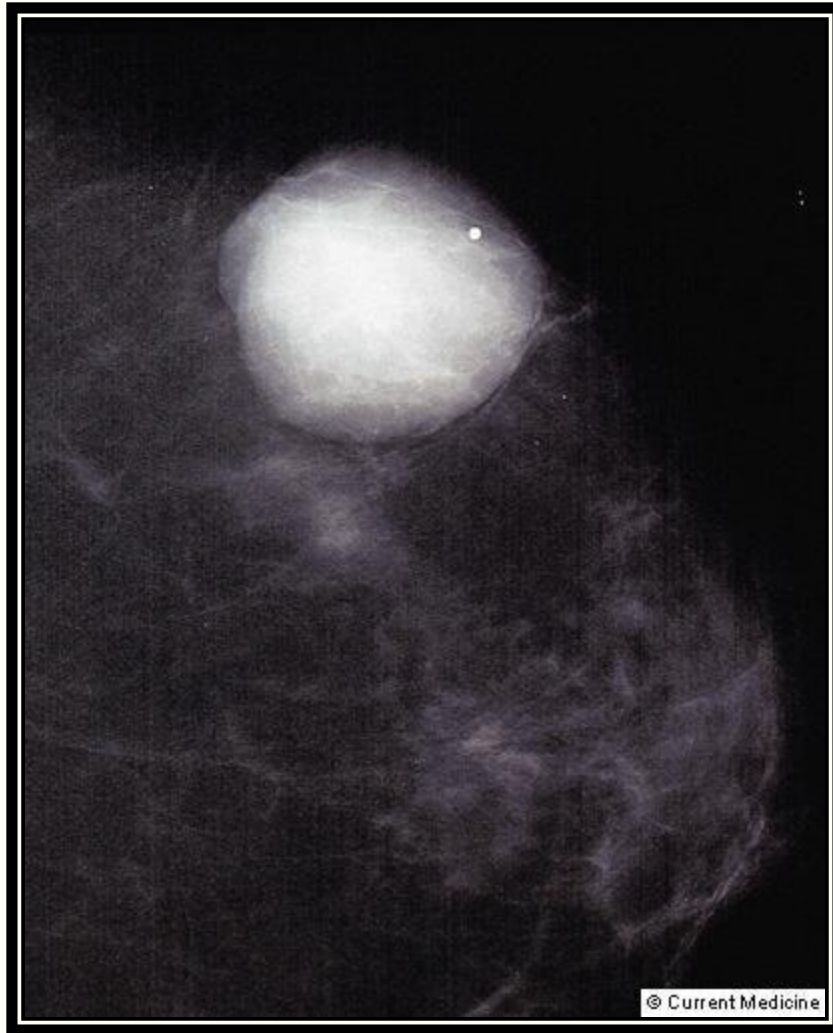
Notes: (from browse's Book)

- **Fibroadenoma:**
 - Is a benign neoplasm of the breast, in which the fibromatous element is the dominant.
 - The cut surface is: lobules of whorled, white fibrous tissue
 - There are two histological types:
 - Pericanalicular: which is mainly consist of Fibrous Tissue
 - Intracanalicular: which contain more glands
 - -Most Fibroadenoma present in young women
 - In History: Painless lump
 - In Examination: - Position: anywhere in the breast
 - Shape and size: spherical
 - Surface: smooth, rubber
 - Mobility: very mobile

phyllodes



It is locally malignant →
because it rarely metastasizes
(Bigger size = less metastasis)
imp!



- Phyllodes tumor. The phyllodes tumor or cystosarcoma is believed to be related to the fibroadenoma. The malignant form of this lesion (about 10%) can metastasize hematogenously most commonly to the lungs and not to the axillary lymph nodes. Most of these tumors are benign, but approximately 25% recur locally if they are incompletely excised. Lesions larger than 3 cm are more likely to be malignant. By both mammography and ultrasound, these lesions present as well-defined masses that are very similar in appearance to a benign fibroadenoma. On sonographic evaluation, the malignant forms are more likely to have cystic spaces [8]. This craniocaudal view demonstrating a large, well-circumscribed, dense, palpable mass within the lateral aspect of the breast. According to the patient's history, this mass had rapidly increased in size. Ultrasound core biopsy revealed phyllodes tumor.

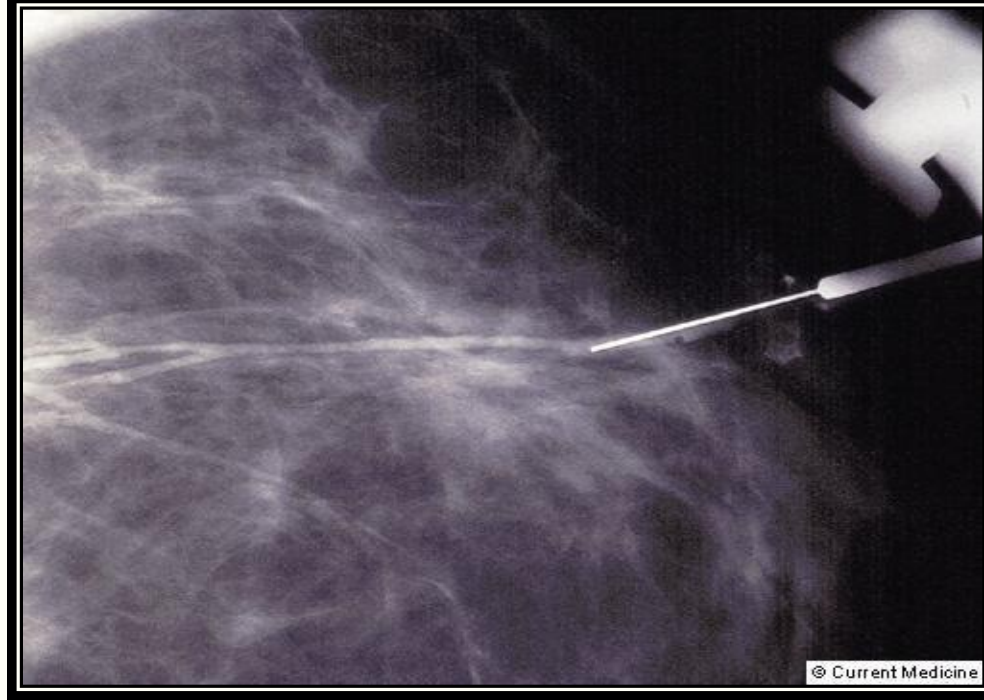
Treatment → mastectomy imp!

Notes: (from browse's Book)

- Phylloides Tumor:
- -Rare
- -it is not sarcoma
- -It does not metastasize.
- -Slow growing, smooth swelling in middle aged usually.

NIPPLE DISCHARGE

- 5% of women coming to clinic.
- 95% of them → benign
- Most important points in history are
 - *Is it spontaneous or on pressure?”*
 - *Is it coming from single or multiple?*
- Colors.
 - *Serous, serosanguinous , bloody (the most serious one), clear, milky, green, blue-black.*
- Investigation.
 - *H&P*
 - *R/O mass by exam and mammogram*
- Identify source of discharge.
- Consider ductography.
 - In nipple discharge we do ductogram if there is papilloma we remove it
 - 10-15% of papilloma could be cancer .



- Ductography. For further evaluation of spontaneous nipple discharge, a painless ductogram can be performed. Using aseptic technique, a 30-gauge sialography catheter is used to cannulate the effected single ductal orifice. Approximately 0.2 to 0.4 mL of radiographic contrast is injected through the catheter. Magnification views in the true lateral and craniocaudal projections are then obtained. Ductography is useful in detecting the location of the lesion (or lesions) within the ducts and the extent of involvement. This information can be extremely helpful in presurgical planning. **A.** Normal ductogram. Magnification view demonstrates a normal contrast-opacified duct. There is no dilatation or filling defect. **B.** Abnormal ductogram. Magnification view demonstrates a single lobulated filling defect in the cannulated duct with associated ductal ectasia. Before surgery, a preoperative ductogram was performed with injection of a combination of radiographic contrast and methylene blue to localize the specific duct. The patient was found to have a solitary papilloma.

CAUSE OF NIPPLE DISCHARGE

imp!

- Duct ectasia
- Papilloma
- Cyst communicating with duct system
- Lactation

MANAGEMENT

- Observation
- Single duct excision
- Total duct excision

BREAST CANCER

Typical presentation



Mass + inverted nipple



Shows skin invasion



Show eruption of the capsule + Lymphoedema (swelling of hand)
imp!

Fast Facts

- Killer of women

USA 1:8

KSA ? 1:15

187000 cases of cancer breast in one year (USA)

45000 deaths due to it in one year (USA)

Fast Facts

Cont.

- Breast cancer is the most common cause of death from cancer in western women
- Every day in Australia, over 30 women discover they have breast cancer
- In Australia 11,400 people (11,314 women and 86 men) were diagnosed with breast cancer in 2000.

Fast Facts

Cont.

- 9 out of 10 women who get breast cancer do not have a family history of the disease
- Age is the biggest risk factor in developing breast cancer – over 70% of cases occur in women over 50 years
- Women aged 50–69 who have a breast screen every two years can reduce their chance of dying from breast cancer by at least 30%

Fast Facts

Cont.

- Breast cancer is the most common cancer in women aged over 35 years - 29% of all cancers diagnosed
- The average age of diagnosis of breast cancer in women is 45 - 55 years

Fast Facts

Cont.

- During the period 1994 to 1998, the five year survival rate for women diagnosed with breast cancer was 85 %
- Although we know of many factors that contribute to the risk of women getting breast cancer, the cause remains unknown

Five-Year Survival Rates in Women with Breast Cancer*

Stage at diagnosis

Survival rates (%)

Localized

96.8

Regional

75.9

Distant

20.6

*--Based on U.S. statistics from 1986 to 1993.

Reprinted with permission from American Cancer Society. Breast cancer facts and figures. Atlanta: American Cancer Society, 1997:14.

Established risk factors for breast cancer in women **imp!**

Factor	High-risk group	Low-risk group
	Relative risk >4.0	Relative risk \leq 1.0
Age	Old	Young
Country of birth	North America, Northern Europe	Asia, Africa
Mother and sister with history of breast cancer, especially if diagnosed at an early age	Yes	No
Biopsy-confirmed atypical hyperplasia and a history of breast cancer in a first degree relative	Yes	No
	Relative risk=2.1B4.0	Relative risk \leq 1.0
Nodular densities on the mammogram	Densities occupying >75% of breast volume	Parenchyma composed entirely of fat
History of cancer in one breast	Yes	No
Mother or sister with history of breast cancer, diagnosed at an early age	Yes	No
Biopsy-confirmed atypical hyperplasia without a family history of breast cancer	Yes	No
Radiation to chest	Yes	No

Established risk factors for breast cancer in women

Factor	High-risk group	Low-risk group
	Relative risk=1.1B2.0	Relative risk ≤ 1.0
Socio-economic status	High	Low
Place of residence	Urban	Rural
Race/ethnicity		
breast cancer at >45 years	White	Hispanic, Asian
breast cancer at <45 years	Black	Hispanic, Asian
Religion	Jewish	Seventh-day Adventist, Mormon
Oophorectomy before age 40	No	Yes
Nulliparity, breast cancer at >40 years of age	Yes	No
Age at first full-term pregnancy	>30 years	<20 years
Age at menarche	<11 years	>15 years
Age at menopause	>55 years	<45 years
History of primary cancer in endometrium, ovary	Yes	No
Obesity		<u>Thin</u>
breast cancer at >50 years	Obese	
breast cancer at <50 years	Thin	Obese

Notes: (from browse's Book)

Carcinoma is the only life threatening disease of the breast can present in almost any way

Carcinoma of the breast:

Its an Adenocarcinoma

Most common cancer in women

One of the histological Features is: Fibrous Tissue surrounding the cancer cells

90% of the mass is Fibrous Stroma – sometime

So, the cut surface of carcinoma is: Concave, rough, gritty, and pale grey with prominent yellow and white flecks - Crap Clows -

The cut surface of benign lesion is: Convex, is white rather than grey, feels smooth and rubbery not GRITTY.

Ductal Carcinoma In- Situ (DCIS):

Malignant cells inside the duct with NO invasion

Associated with Micro-calcifications – visible on mammography

Notes: (from browse's Book)

- Note That: when carcinoma cells migrate along the ducts to the nipple
- they produce the skin changes known as: Paget's disease
- In history:
- Age:
- Rare in teenagers, common in old age
- Symptoms:
- Related to the primary lesion – rare due to secondary lesions:
- Painless lump
- The size does not reflect an accurate indication
- Skin dimpling caused by tethering
- Swelling of the arms caused by lymphatic or venous obstruction in the axilla
- Backache caused by secondary infiltration and collapse of lumbar vertebrae
- Pathological fracture may be the first indication of the presence of the disease
- GENERAL SYMPTOMS OF CANCER in breast cancer such as: Weight loss, malaise,
- cachexia is RARE
- 2% of women with breast cancer have the BRCA gene
- Breast carcinoma is common in nulliparous women

Notes: (from browse's Book)

-In Examination:

- 1-Most common site is upper outer quadrant, which includes the axillary tail.
- Most carcinoma is not tender
- Only Rare inflammatory type of carcinoma is Warm
- Solid, do not fluctuate, transilluminate or have fluid thrill
- Peau d' orange: Is orange peel appearance due to tumor spreading in the fibrous septae of the breast and blocking the lymphatics which will cause edema of the overlying skin
- When the glands are very large – lymph nodes may indicate tumor necessary.
- You do General examination For:
 - 1-The skeleton: Lumbar spine; causing back pain and reduced movement and pathological Fracture in long bones
 - 2- The Lungs: causing plural effusion, lymph involvement may cause → Lymphangitis carcinoma
 - 3- The liver.
 - 4- The brain

Notes: (from browse's Book)

- Conditions mimicking breast cancer:
- 1- Fat Necrosis:
 - Occurs in the elderly
 - It could be Focal necrosis of subcutaneous fat with local scarring
- * 2- Mondor's disease:
 - it's a thrombophlebitis of the lateral Thoracic
 - Vein → producing cord like linear skin puckering

STAGING

Dr's summary:

Stage I → small – below 2cm

Stage II → (2-5 cm)

Stage III → (> 5 cm)

Stage IV → metastases

PRECANCEROUS



Normal

The cells lining the duct are orderly and well differentiated



Hyperplasia

A few extra cells accumulate



Atypical ductal hyperplasia

The cells start looking more and more abnormal

Stage I

3/4 inch diameter

Stage II

STAGE 0

DCIS with micro-calcifications

● The definition

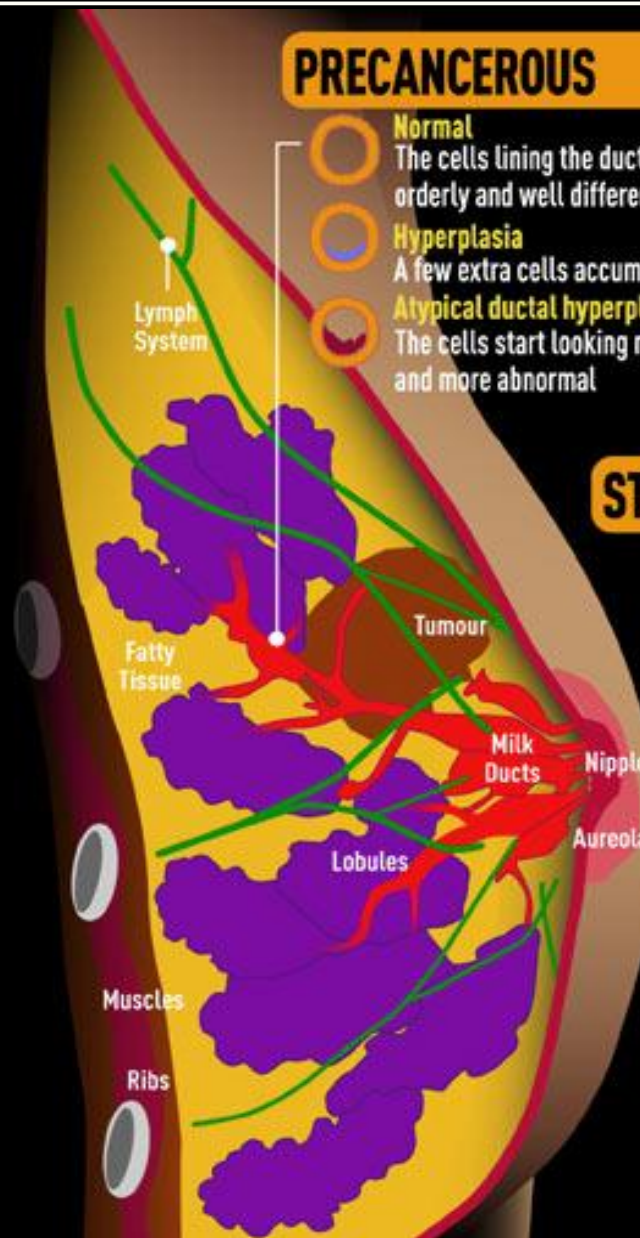
Cells that look like cancer but have not invaded surrounding tissue are called ductal carcinoma in situ (cancer confined to the duct). The lesions may be tiny as pinpoints and may pop up throughout the breast.

● The options

Patients whose lesions are tightly focussed can be treated with lumpectomy and radiation. Some surgeons think surgery alone may be sufficient in certain cases.

● The outlook

Very good. Virtually no-one dies of breast cancer within five years of treatment for DCIS. No-one knows what percentage of DCIS lesions eventually become invasive.



STAGE 1

Invasive ductal cancer

● The definition

Some of the cells from the tumour, which now measures 2cm or less, spill out of the duct. There is no evidence of cancer in the lymph nodes.

● The options

Mastectomy or lumpectomy plus radiation. Lymph nodes are biopsied. Chemotherapy or tamoxifen may be recommended for some women.

● The outlook

Anywhere from 95% to 98% of women are doing fine five years after treatment. Most will live much longer.

PRECANCEROUS



Normal

The cells lining the duct are orderly and well differentiated



Hyperplasia

A few extra cells accumulate



Atypical ductal hyperplasia

The cells start looking more and more abnormal

Stage I
3/4 inch
diameter

Stage II

STAGE II

● The definition

Most tumours in this category measure 2-5cm but have not spread to the lymph nodes.

● The options

Mastectomy or lumpectomy plus radiation. Chemotherapy is used for any cancers that have spread to the lymph nodes and may even be indicated for larger node-negative tumours. Tamoxifen is prescribed for those cancers that respond to oestrogen.

● The outlook

Depending on tumour size and other characteristics, 76% to 88% of women live at least five years after their diagnosis.

STAGE III

● The definition

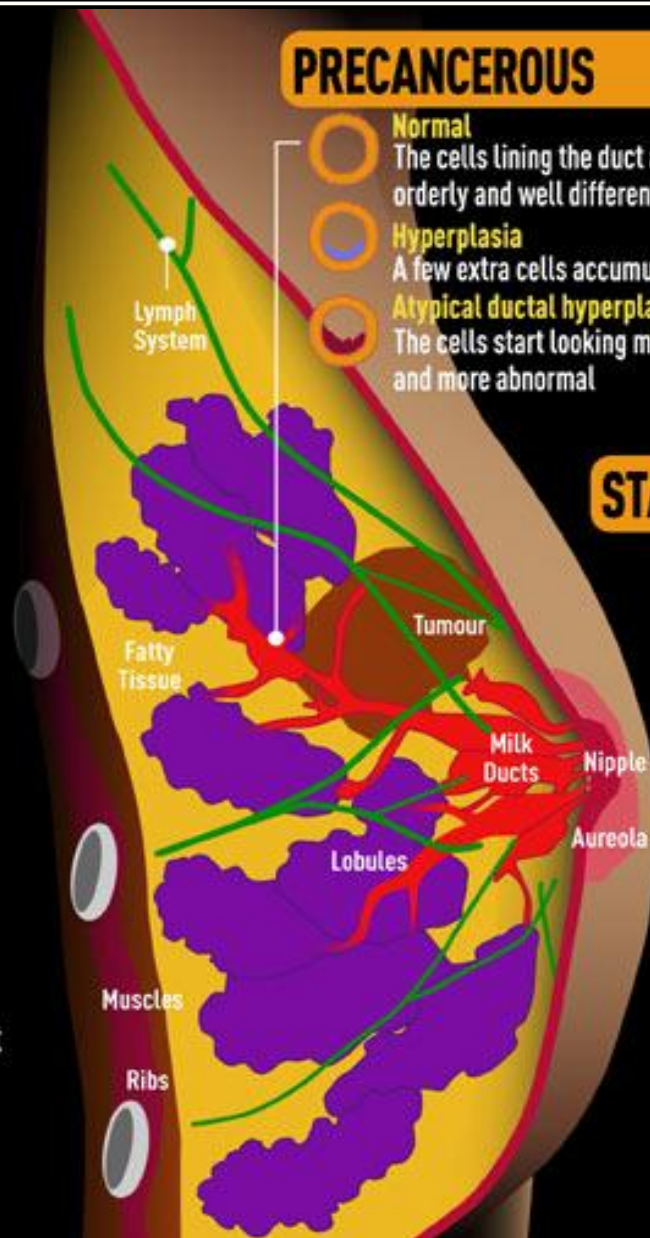
The cancer has really taken hold in the lymph nodes. Even a tumour less than 1cm in size is considered Stage III if several lymph nodes are involved.

● The options

Mastectomy or lumpectomy plus radiation. Chemotherapy. Tamoxifen for those cancers that respond to oestrogen.

● the outlook

Depending on the tumour size and other characteristics, 49% to 56% of women live at least five years after diagnosis.



STAGE IV

● The definition

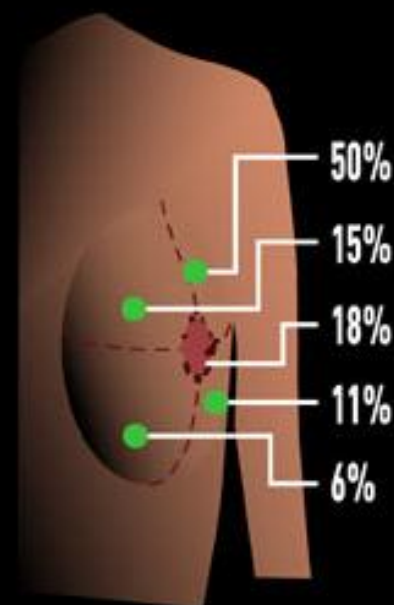
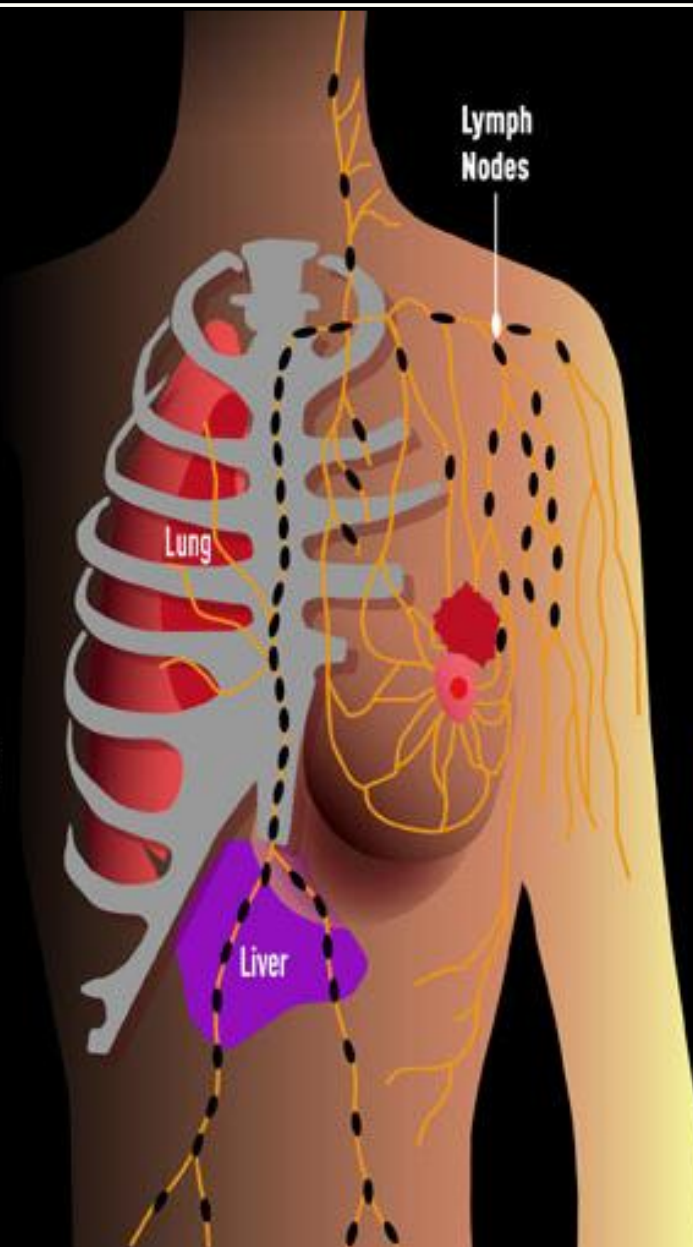
The cancer has spread beyond the breast, leading to secondary tumours in the liver, lungs, brain or elsewhere.

● The options

Most treatments are aimed at relieving symptoms or prolonging life a few months or years. Surgery or radiation to remove or at least try to shrink any tumours. Chemotherapy, Herceptin for those cancers that express an excess of the Her2 receptor. Tamoxifen or an aromatase inhibitor, if they haven't already been used, for those tumours that respond to oestrogen. (Clinical trials of both Herceptin and aromatase inhibitors in earlier stages of breast cancer are under way).

● The outlook

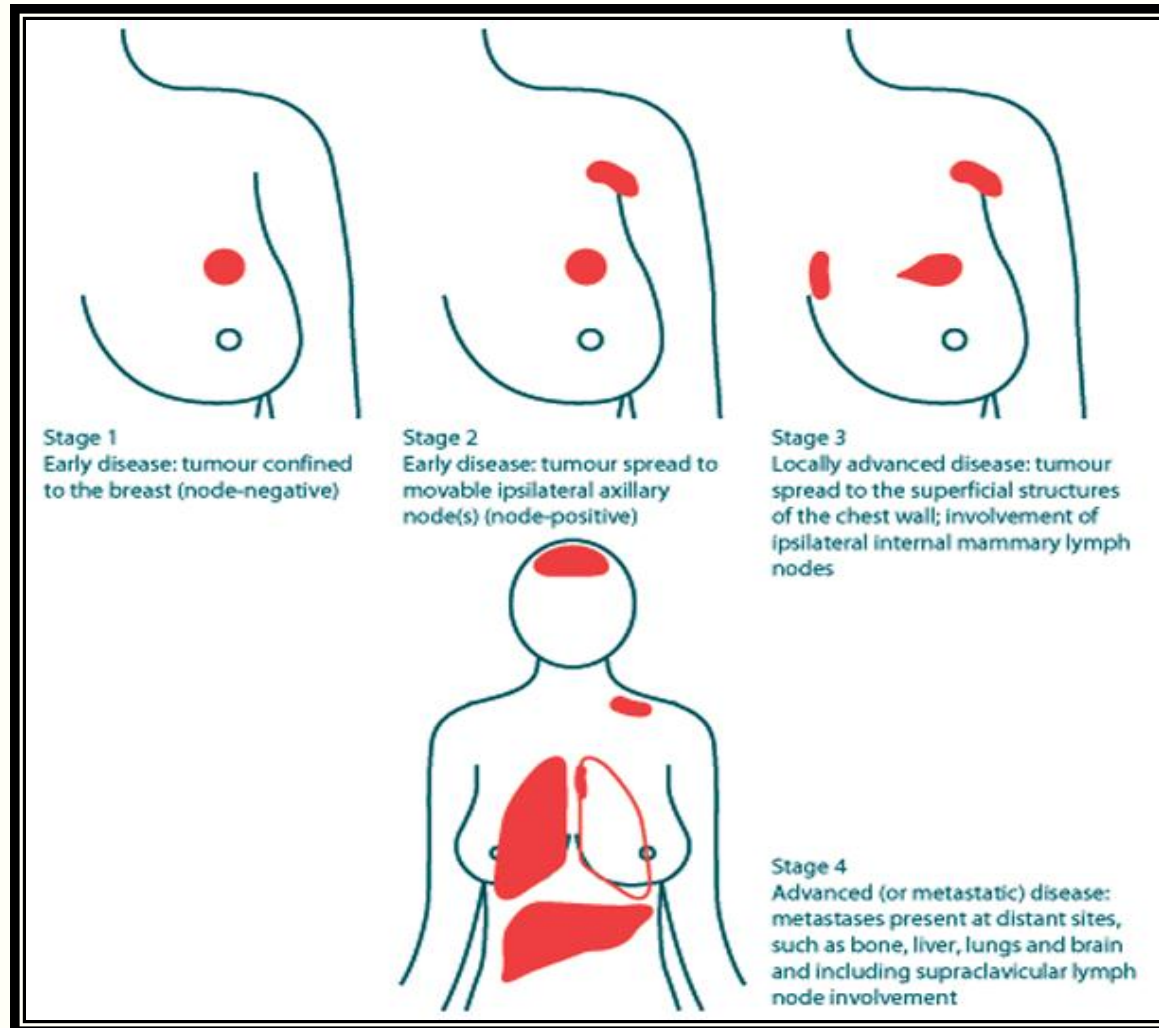
Studies indicate an average survival time of 18 months to 24 months. From 15% to 20% live at least five years after diagnosis.

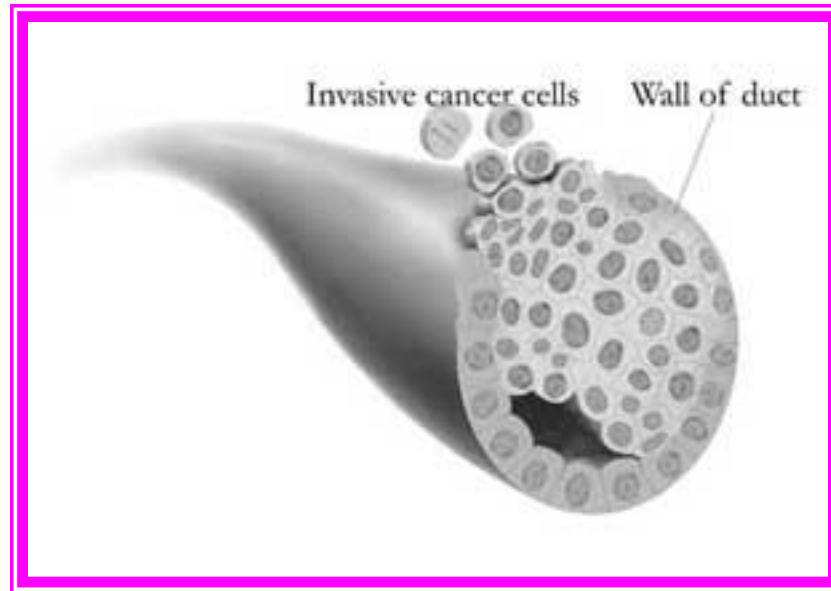


WHERE IT STRIKES

Tumours most frequently form in the breasts upper hemisphere, but they can appear anywhere.

Staging Classification of Breast Tumour





- This picture shows cancer that has spread outside the duct and has invaded nearby breast tissue.

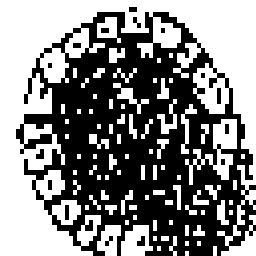
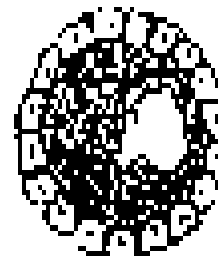
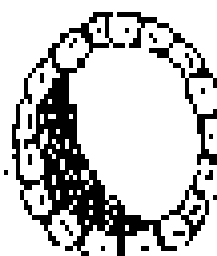
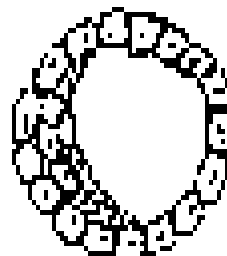
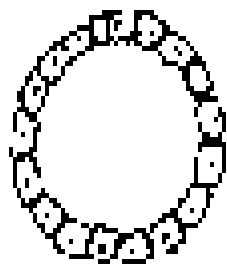
Normal
milk duct

Hyperplasia
too many cells

Atypia
cells becoming
abnormal

DCIS
cancer cells
inside the ducts

**Invasive
Cancer**
cells spread out
of the duct



How is DCIS treated ?

- Depending on the degree of DCIS the options of treatment are
 - Total mastectomy
 - Lumpectomy
 - Lumpectomy and radiation therapy
- DCIS does not spread to the axillary lymph nodes so these are usually not removed.

LINES OF TREATMENT **imp!**

1. Surgery: for Stage I, II either WLE or mastectomy + axillary nodes.
2. Radiotherapy.
3. Chemotherapy.
4. Hormonal therapy.
5. Ovarian ablation.
6. *Reconstruction*

PROGNOSTIC FACTORS

1. Size
2. Grade
3. Lymph nodes

Histopathological Types of Breast Cancer

- **Infiltrating (or invasive) Ductal Carcinoma (IDC)**

- Starting in a milk passage, or duct, of the breast, this cancer breaks through the wall of the duct and invades the breast's fatty tissue. It can spread to other parts of the body through the lymphatic system and through the bloodstream. Infiltrating or invasive ductal carcinoma accounts for about 80 percent of all breast cancers.

- **Infiltrating (or invasive) Lobular Carcinoma (ILC)**

- This type of cancer starts in the milk-producing glands. About 10 to 15 percent of invasive breast cancers are invasive lobular carcinomas.

- **Medullary Carcinoma**

- This type of invasive breast cancer has a relatively well-defined distinct boundary between tumour tissue and normal breast tissue. It accounts for about 5 percent of all breast cancers. The prognosis for medullary carcinoma is better than that for invasive lobular or invasive ductal cancer.

- **Colloid Carcinoma**

- This rare type of invasive disease, also called mucinous carcinoma, is formed by mucus-producing cancer cells. Prognosis for colloid carcinoma is better than for invasive lobular or invasive ductal cancer.

- **Tubular Carcinoma**

- Accounting for about two percent of all breast cancers, tubular carcinomas are a special type of invasive breast carcinoma. They have a better prognosis than invasive ductal or lobular carcinomas and are often detected through breast screening.

- **Adenoid Cystic Carcinoma**

- This type of cancer rarely develops in the breast; it is more usually found in the salivary glands. Adenoid cystic carcinomas of the breast have a better prognosis than invasive lobular or ductal carcinoma.

Lines of Treatment

Determination of lines depend on stage

Stage 4 >chemotherapy no surgery

Stage 3>chemo then surgery

Stage 1-2 early breast cancer >start with surgery then chemo , radiotherapy

- Surgical Intervention
- For breast
 - Mastectomy
 - W.L.E. (wide local excision)
- For axilla :
 - *axilla clearness
 - *central lymph node biopsy
- (LN involvement +size of tumor +grade of tumor)these the factors that contribute in prognosis

Chemotherapy

Chemotherapy for breast cancer is usually given in cycles every three or four weeks.

The common schedules include:

- CMF (Cyclophosphamide, Methotrexate and 5-Flurouracil)
- AC (Adriamycin, Cyclophosphamide)
- Taxol or Taxotere

Chemotherapy side-effects

- Fatigue
- Anorexia
- Nausea and vomiting
- Hair loss
- Effects on the blood.
- Mouth problems
- Skin problems
- Fertility
- Bowel problems

Radiotherapy

- What are the side-effects?
- Common reactions
- During the course of treatment
 - *skin reddening and irritation*
 - *Fatigue*
 - *loss of hair*
 - *sore throat*
- AFTER the course of treatment
 - *discomfort and sensitivity in the treated area.*
 - *increased firmness -*
 - *swelling of the treated breast -*

Radiotherapy Uncommon reactions

During the course of treatment

- *skin blistering*
- *nausea*
- *rib fractures*

less than one in every 100 treated women experiences a fracture in the treated area.

Rare reactions

After the course of treatment

- *pneumonitis and scarring -*

About one or two women in every 100 women treated experiences it between six weeks and six months after the therapy has finished.

Tamoxifen

What is Tamoxifen ?

- Tamoxifen is a drug that has been used for the treatment of breast cancer. It can increase survival for some women with breast cancer and significantly reduce their risk of developing cancer in the opposite breast. Tamoxifen is sometimes used for patients whose breast cancer recurs.
- It is also being tested to see if it can prevent the development of breast cancer in unaffected women who are at an increased risk because of a strong family history of the disease.

How is it given?

- Tamoxifen is taken by mouth. Tablets are either 10 mg or 20 mg. The usual dose is 20 mg daily. It is usually started after surgery or after the completion of radiation treatment.
- Tamoxifen should take it at the same time each day.

How does it work?

- Some breast cancers need the hormone estrogen to grow. Estrogen is used by the cell if it finds a receptor to join to. Tamoxifen blocks the receptors in breast tissue and stops oestrogen from working. This slows down or stops the growth of cancer.
- Some breast cancers are sensitive to oestrogen ('receptor positive') and some are not ('receptor negative').
- Tamoxifen is most effective in cancers that are oestrogen-receptor-positive.



Oestrogen

→ Breast cancer grows

Oestrogen Receptor



Tamoxifen

→ Slowed or halted growth

Oestrogen

Oestrogen Receptor

How long is the treatment?

- Currently the recommended length of Tamoxifen therapy is five years.

What are the side effects?

- Common side-effects
 - Hot flushes or sweats
 - Irregular menstrual periods (in women who have not gone through the menopause)
 - Vaginal irritation, including vaginal dryness or discharge
 - Fluid retention and weight gain
- Uncommon side-effects
 - Light-headedness, dizziness, headache or tiredness
 - Rash
 - Nausea

What are the side effects? *Cont.*

- Rare side-effects

- A rare complication (less than a 1 in 100 chance by 10 years) is the development of cancer of the uterus. A routine gynaecological check is advised for women who are taking Tamoxifen for more than five years.
- Thrombosis - and embolism. The risk is the same as the risk of blood clots for women on the birth control pill or hormone replacement therapy.
- Depression or mood swings

- Very rare side-effects

- Eye problems
- Hair thinning

Lymphoedema imp!



Lymphoedema

What is Lymphoedema ?

- Lymphoedema is long-term swelling of the arm after axillary surgery or radiotherapy to the axilla.
- Symptoms include a general heaviness of the arm, a swelling of the fingers or sometimes difficulty putting on a long sleeve.
- The earlier treatment is started the easier it is to achieve good results.
- Less than 1 in 10 women who have had either lymph glands removed or radiation to the armpit will develop noticeable lymphoedema. This risk increases to 1 in 3 if the pt. had both of these treatments.

When can Lymphoedema happen??

- Lymphoedema can occur any time after the operation, even up to ten years.

Post Operative Breast Reconstructions **imp!**

What is breast reconstruction?

- The aim of breast reconstruction is to rebuild the breast shape and, if desired, the nipple and the surrounding darker skin (areola).

What are the benefits?

- Reconstruction usually does not restrict any later treatments that may be necessary, nor does it usually interfere with radiotherapy, chemotherapy or hormone therapy.
- The patient will not need to wear an external prosthesis.
- Follow-up after the operation is no more difficult and any recurrence of cancer in the area can still be detected.
- Some women feel more self-confident and feminine when they have a permanent prosthesis or reconstruction.

What are the choices?

- There are two main types of breast reconstruction:
 - tissue or skin expander with breast implants
 - flap reconstruction







External breast prosthesis - specially designed padding available in different sizes, shapes and colours



A tissue expander is inserted after the mastectomy to prepare for reconstruction



The expander is gradually filled with saline to stretch the skin enough to accept an implant beneath the chest muscle



A patient with a tissue expander following a mastectomy.

When and why BSE should be done ???

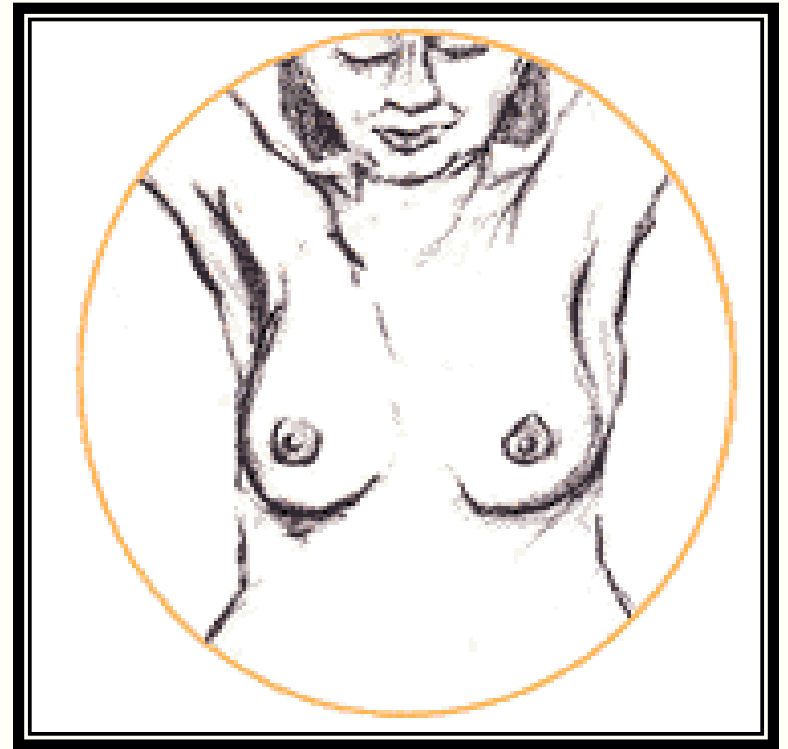
- Once a month, preferably just after a period.
If the women has no longer have a period, she may choose a day that she will remember each month.
- To be most effective, BSE should be done regularly and carefully

Step 1 - Look at your breasts

- Undress from the waist up and stand in front of the mirror. Try to get used to what your breasts normally look like, so you will notice changes if they appear. Look with your arms by your side, then on your hips with tightened chest muscles, and then above your head. Look for more than just lumps. You should compare the contour of your breasts looking for:

Step 1 - Look at your breasts *Cont.*

- changes in the size and shape of your breast
- any dimpling, puckering or skin changes
- anything different about your nipples



Step 2 - Feel your breasts

- You may find it easy to examine your breasts in the shower. You may also like to check your breasts lying down with a pillow under your shoulder. In either position raise your arm above your head. Use the flat part of your fingers to feel each part of your breast. Move the skin over the underlying tissue in a gentle rotating movement

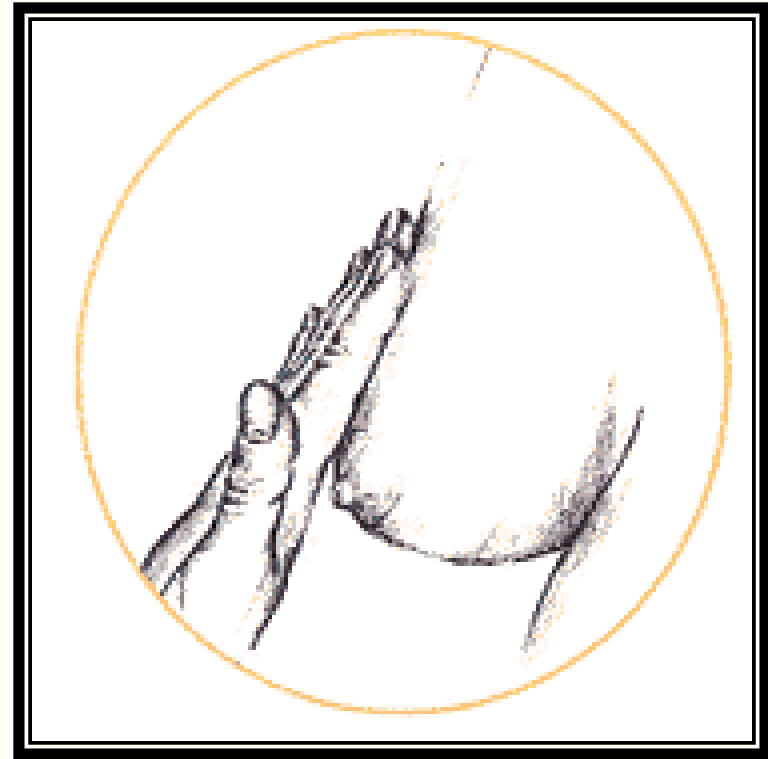


Step 2 - Feel your breasts *Cnot.*

- Cover the entire breast area in a circular movement, finishing at your nipple
- Check from the collar bone
- Check into your armpit
- Check both breasts

Look for:

- Lumps (even if painless)
- Discharge
- Thickening
- Any other changes



Take home Message

- BSE once a month.
- Mammogram annually or every 2 yrs if > 50yrs old
- Breast examination annually
- Timely referral of patient to breast surgeon