


Breast Lumps & Nipple Discharge

GROUP A2

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Breast Lumps

A breast lump is a mass or growth that develops in the breast.

- It's like a localized swelling, knot, bump, bulge in the breast.
- It may feel as hard as a rock or squishy like a grape or pea. Breast lumps can occur in your breast tissue or close to your armpit area.

Breast lumps may appear in both sexes at all ages.

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- In women, it may be due to infection, trauma, fibroadenoma, cyst, fibrocystic conditions, or could even be due to a more serious medical condition such as cancer.
 - The commonest cause of a breast lump in males is gynaecomastia.
 - While a breast lump can be a sign of breast cancer, it's usually benign (not cancerous).
 - No breast lump should be dismissed as benign until it has been checked by a physician.

Incidence

- The incidence rate of benign breast disease is unclear due to the fact that breast lumps is not considered as a life threatening condition.
- Majority of the women who receives medical therapies or surgeries come into account.

Prevalence

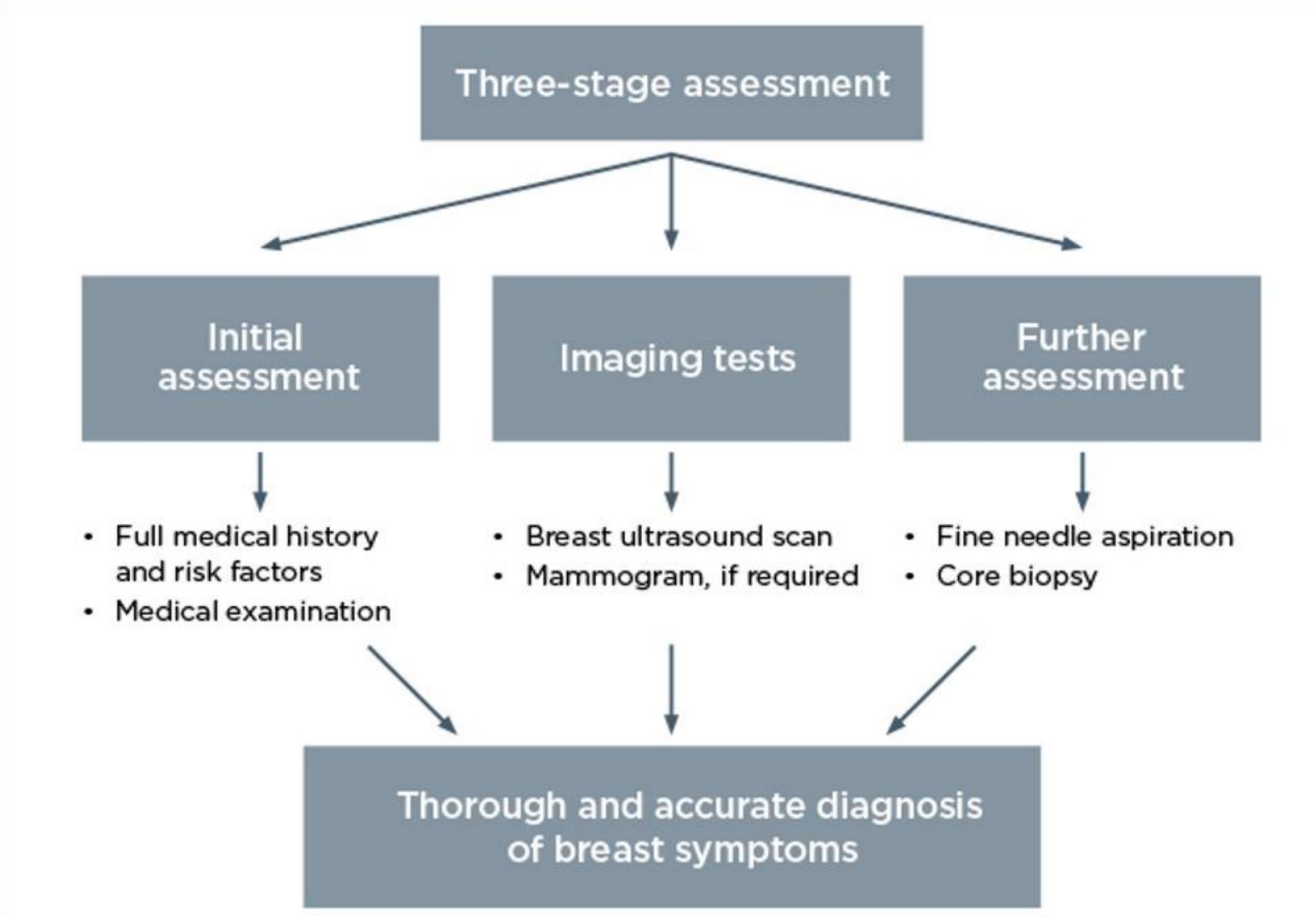
- Benign breast changes are more common in women of child-bearing age, peaking between the ages of 30 and 50, whereas the incidence of breast cancer peaks during the postmenopause.

Race

- African American women have worse prognosis and higher mortality rate in comparison to European American women.
- European American women have higher incidence rate of breast cancers.
- The prevalence of fibroadenoma is higher in black women than white individuals.

Risk factors:

- Early menarche.
- Late menopause.
- History of breast cancer, ovarian cancer.
- Genetic mutations like BRCA1 or BRCA2.
- Hormone replacement therapy.
- Lifestyle (alcohol consumption, recreational exercise, obesity, previous history of radiation).



HISTORY OF BREAST LUMP

Patient profile:

1. Name.
2. Age.
3. Marital status.
4. Occupation.
5. Living place.

Admission:

Date, time and how (via ER or clinic)

Chief complaint and the duration

History of presenting illness:

- **Specific Questions about the lump:**

1. Duration.
2. First symptom.
3. Other symptoms.
4. What was the size of the lump when it was first noticed?
5. Progression.
6. Persistence.
7. Multiplicity.
8. Have you ever had any lump before in the same or in another site?
9. Cause.

Menstrual Hx:

1. Age of menarche?
2. If menopause, age of menopause?
3. Do you have children? How many?
4. When did you have your first child?
5. Did you breast feed your children? For how long?
6. Frequency of the MP? Amount of blood? And length of it? Regular or not? And the LMP?
7. Are you on hormone replacement therapy?
8. Do you take OCPs?
9. Do you have babies that you nurse these days?
10. Are you pregnant?
11. Are you planning to have more children?
12. Does the severity of symptoms of the lump change with the MP?

Symptoms of cancer and metastasis:

- fever? Anorexia? Weight loss?
- Bone pain? Generalized weakness?
- Abdominal distension? Jaundice?
- Cough? SOB?
- Headache? Dizziness? Vertigo?

Past Medical and Surgical History:

1. Have you had a breast CA or benign tumors in the past?
2. Do you have any other medical problems?
3. Have you ever had any surgeries before?
4. Do you take any drugs?
5. Do you have allergy to any type of drugs?
6. Have you been exposed to any source of radiation?
7. Have you ever had a mammogram before?
8. Have you had any trauma recently?

Family Hx:

1. Do you have a family Hx of breast tumors?
2. FHx of uterine or ovarian tumors?
3. FHx of other tumors?
4. Same complaint in your 1st and 2nd degree relatives?
5. Family Hx of other illnesses?

Social Hx:

1. Do you smoke?
2. Do you drink alcohol?
3. How many Kgs do you weigh?
4. Do you eat a high fat diet?

Nipple Discharge

- **The Nipple:** the small protuberance on a breast through which, in the female, the milk passes.
- **Nipple Discharge:** any fluid that seeps out of the nipple of the breast and it may be physiological or pathological.

Types of Nipple Discharge

- Lactation
- Galactorrhea
- Pathologic nipple discharge

VI Lactation Discharge

- It is normal milk production by the mammary glands that occurs during pregnancy and after giving birth.
- It is the most common physiologic cause of nipple discharge and may continue for up to 2 years after cessation of breastfeeding.
- In parous nonlactating women, a small amount of milk may be expressed from multiple ducts. This requires no treatment.

02 Galactorrhea Discharge

- It is milky discharge unrelated to breastfeeding.
- Physiologic galactorrhea is the continued production of milk after lactation has ceased and menses has resumed and is often caused by continued mechanical stimulation of the nipples.
- Pathologic galactorrhea has 2 types: drug related galactorrhea and spontaneous galactorrhea.
- Drug related galactorrhea: caused by medications that affect the hypothalamic-pituitary axis by depleting dopamine (reserpine, methyldopa, cimetidine), blocking the dopamine receptor (phenothiazine, metoclopramide), or having an estrogenic effect (digitalis). Discharge is generally bilateral and nonbloody.
- Spontaneous galactorrhea: in nonlactating patient may be due to a pituitary prolactinoma, and may be associated with amenorrhea.

03 Pathologic Discharge

- It is usually bloody, spontaneous, unilateral, and originates from a single duct unlike physiologic discharge which usually nonbloody, from multiple ducts, and can be a variety of colors (clear to yellow to green).
- Malignancy is the underlying cause in 10% of patients.
- If not associated with mass, most likely etiologies are benign intraductal papilloma, duct ectasia, and fibrocystic changes.
- In lactating women, serosanguineous or bloody discharge can be associated with duct trauma, infection, or epithelial proliferation associated with breast enlargement.

HISTORY OF NIPPLE DISCHARGE

Patient profile:

- Age: mostly in adults (>20 years old).
- Gender: in females it may be normal or pathological but in males it is always pathological.
- In females, if she had been pregnant before and how many times.

Possible causes:

- Pregnancy
- Lactation.
- Puberty.
- Menstruation.
- Malignancy.
- Hyperprolactinemia.

History of presenting illness:

- Whether the current discharge is unilateral or bilateral: bilateral mostly normal or benign and has an endocrine etiology but unilateral always abnormal.
- What its color: if its yellow, green or milky, it won't be cause of concern but if its red or bloody, it will be cause of concern for cancer.
- How long it has lasted.
- Whether it is spontaneous or occurs only with nipple stimulation.
- Whether a mass or breast pain is present.
- Consistency.
- Amount.
- If female, whether her menstrual cycle regular or not, or as she reaches menopause

Review of systems:

- Fever: mastitis or breast abscess.
- Cold intolerance, constipation, weight gain: hypothyroidism/ hyperprolactinemia.
- Amenorrhea, infertility, headache, visual disturbances: pituitary tumor.
- Ascites or jaundice: liver disorders.

Past medical history:

- Clinicians should ask specifically about drugs that can cause prolactin release such as oral contraceptives, antihypertensive drugs, opioids, h2 antagonists.

Physical Examination

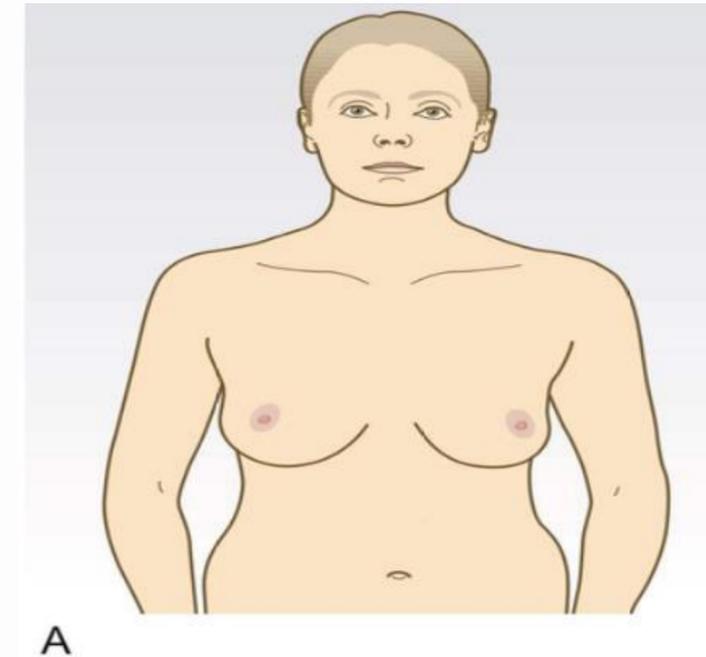
- Breast examination is a sensitive examination and must always be performed gently, with full permission and explanation and in the presence of a chaperone.
- The woman should be asked to undress to the waist and wear a front-opening gown.
- The examination starts with the women seated and facing the clinician .

Inspection:

(A) With the patient sitting on the side of the bed ask them to place their hands on their thighs to relax the pectoral muscles.

And looking for :

1. Overall breast size
2. Breast Shape
3. Symmetry
4. Nipple size, shape, position, color
5. Skin texture, and color.
6. Areas of skin thickening, dimpling, or fixation relative to the underlying breast tissue.
7. Axillary swelling
8. Spontaneous nipple discharge

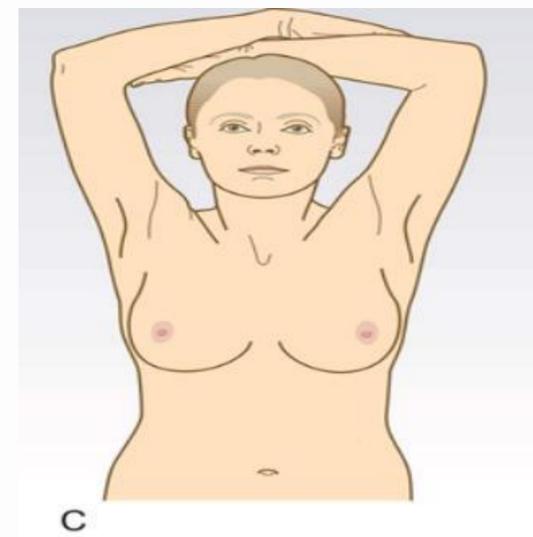
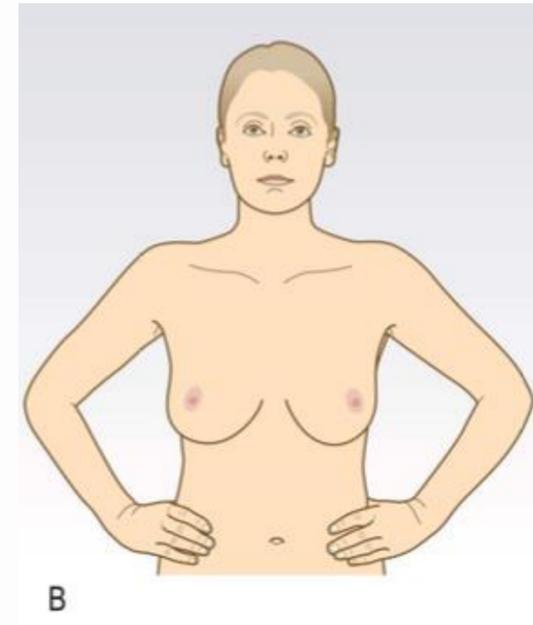


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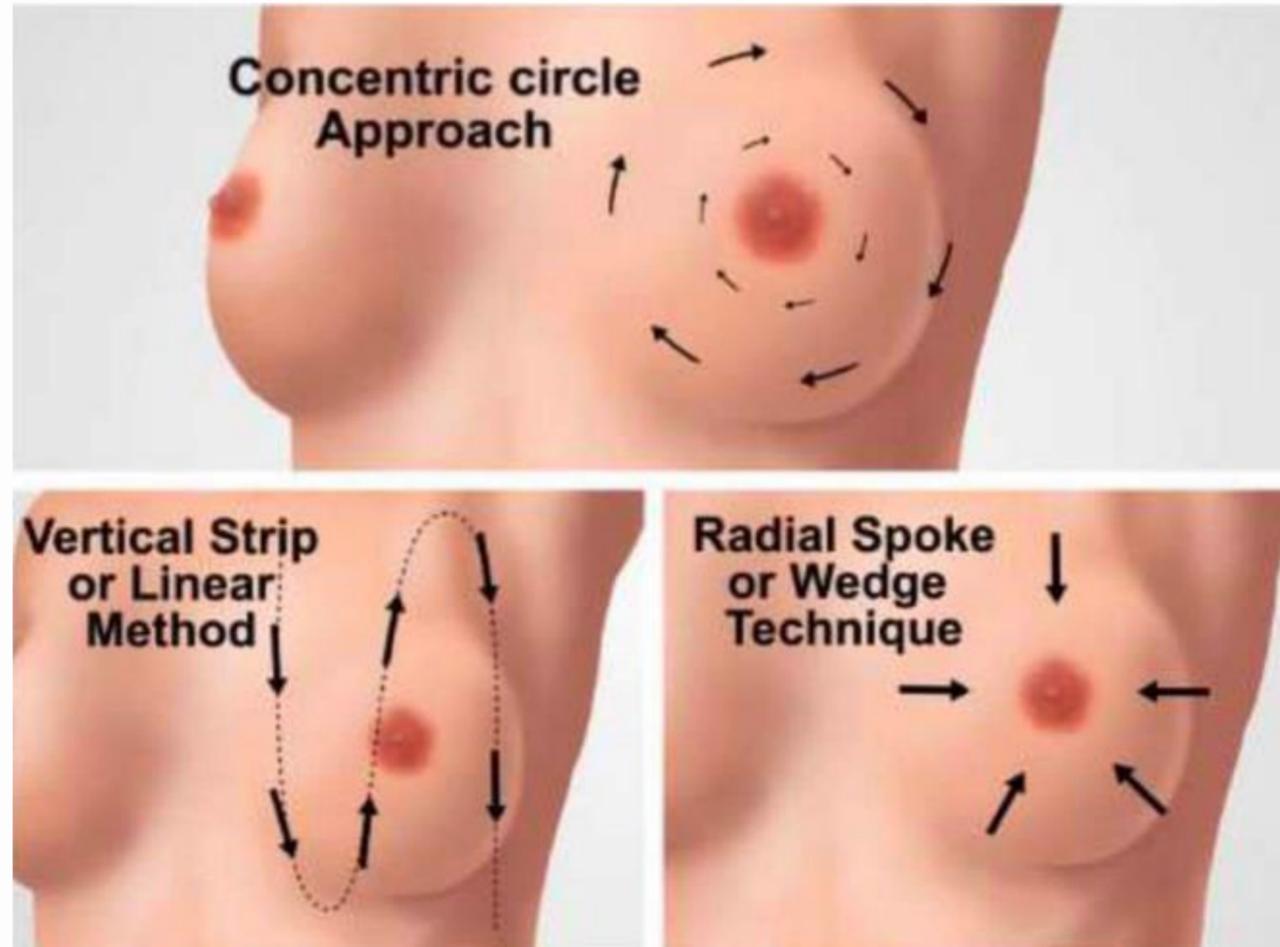
Inspection:

(B) Repeat inspection with the patient pressing their hands into their hips to contract the pectoral muscles.

(C) Finally, complete your inspection by asking the patient to place their hands behind their head and lean forward so that the breasts are pendulous to expose the whole breast and exacerbate skin dimpling.



Palpation:

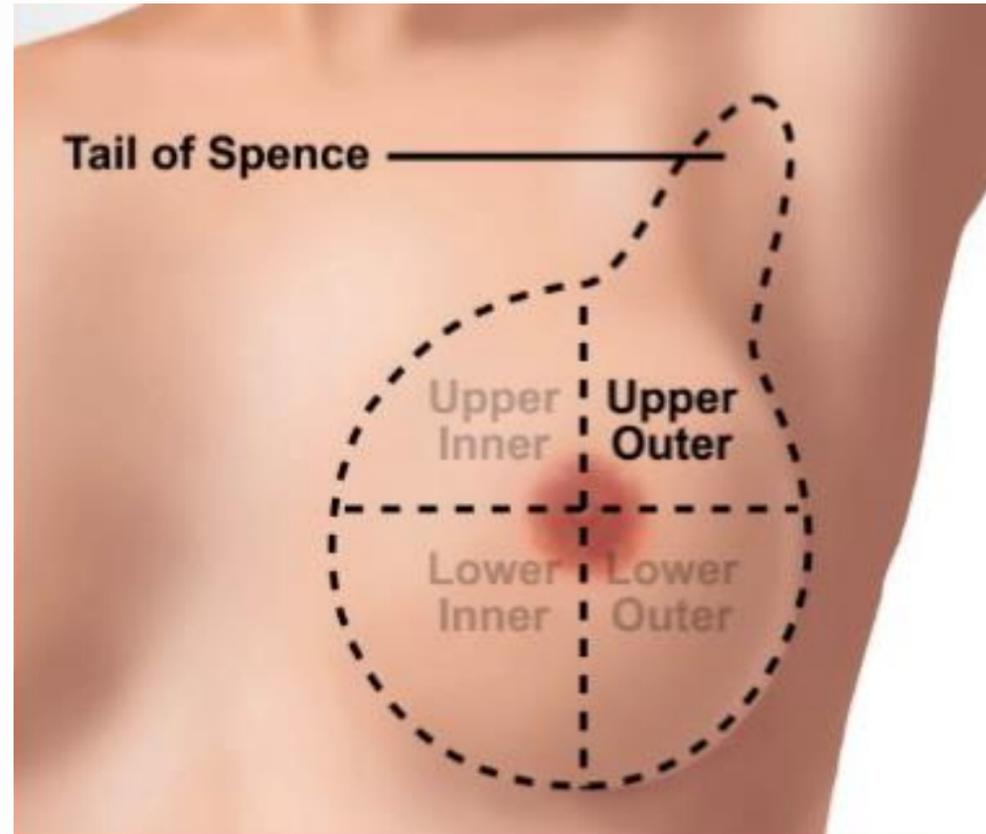


- Adjust the head of the bed to 45° and ask the patient to lie down.
- Begin palpation on the asymptomatic breast first and then repeat all examination steps on the contralateral breast.
- Ask the patient to place the hand on the side being examined behind their head to fully expose the breast.
- A variety of techniques exist, but the most often used are the radial "wagon wheel" or "spoke" method, the vertical strip method, and the concentric circle's method.

If a lump is detected, assess the following characteristics:

1. Location
2. Size
3. Shape
4. Consistency: stony hard, firm, rubbery, spongy and soft
5. Mobility and Attachment
6. Color and texture of the overlying skin changes
7. Temperature
8. Surface: smooth, nodular
9. Tenderness
10. Edge: regular, irregular

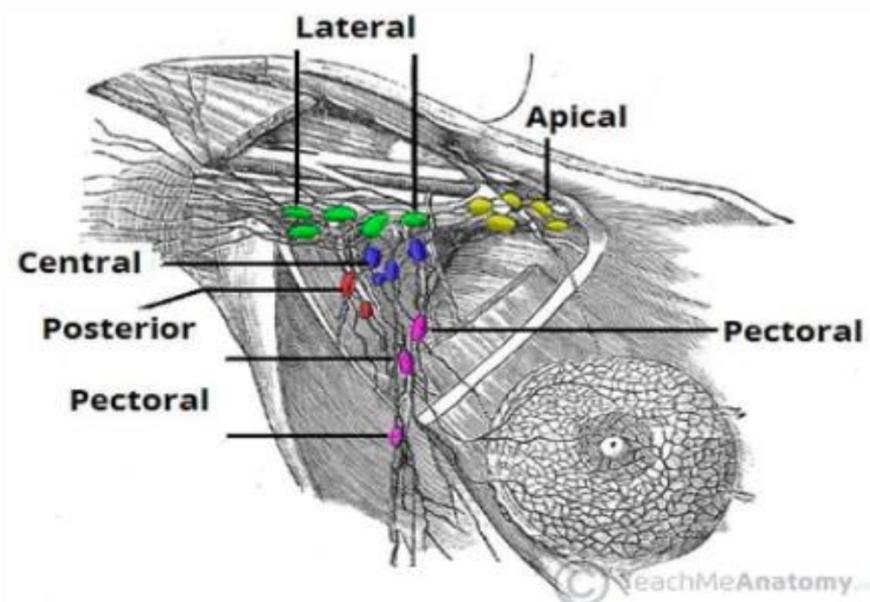
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- Palpate the axillary tail of breast tissue.



Assess Nipple areolar complex (NAC) for expressible nipple discharge by placing both hands on the breast on either side of the areola and gently but firmly pressing down into the breast tissue and if there any discharge should assess the characteristics (color / consistency / volume)

Examine the axilla for lymphadenopathy:

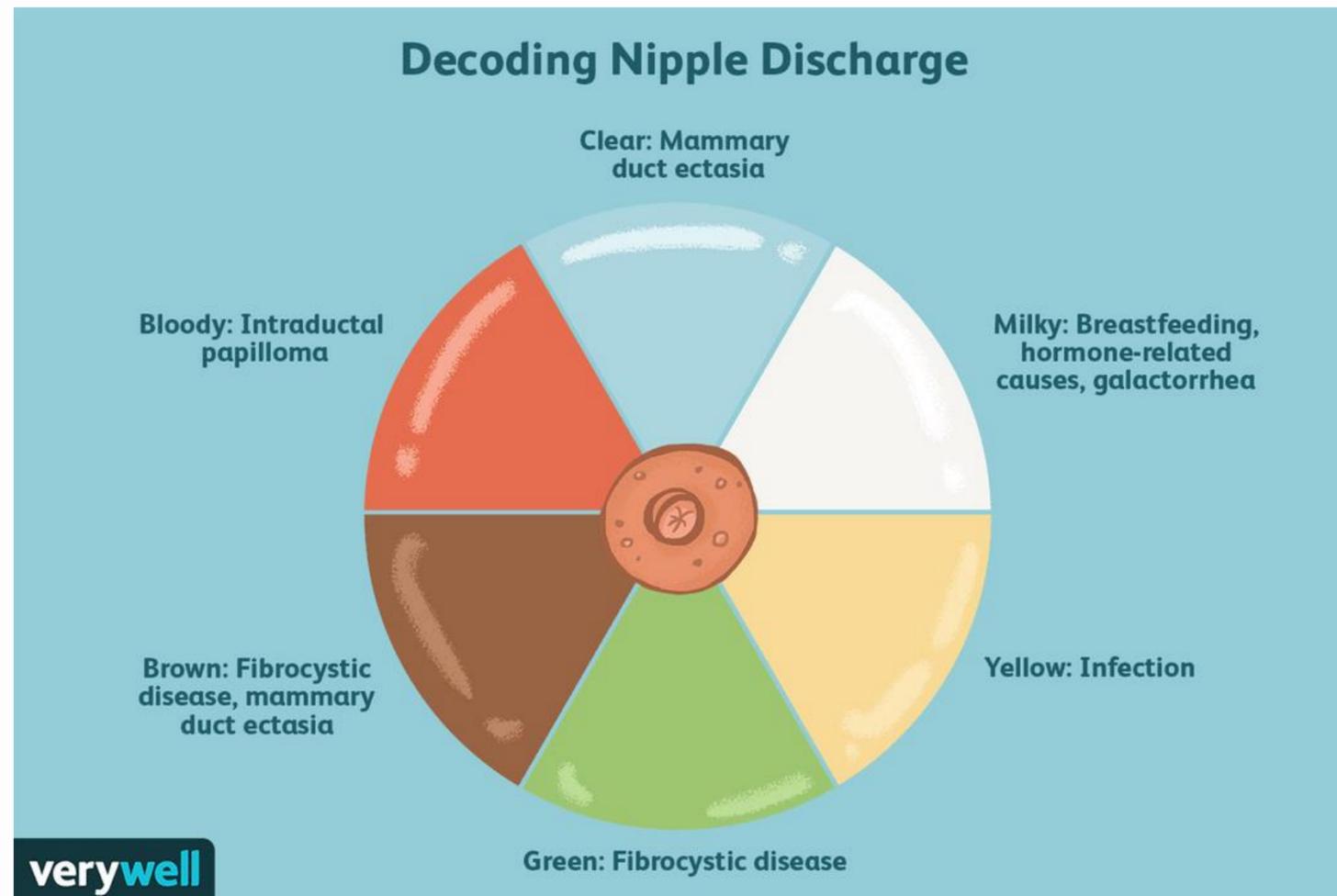
- The patient's arm should be lifted out at an angle of 45° supported along your own ipsilateral forearm.
- Examination of axilla should cover the pectoral (anterior), central (medial), subscapular (posterior), humoral (lateral), and apical groups of lymph nodes, subclavian lymph trunk.
- As with any masses, approximate document number, size, texture, mobility, and delimitation of any palpable lymph nodes.



- In the end: Documentation

Differential Diagnosis

- Benign & malignant conditions cause similar symptoms; however, benign changes are much more common.
- Any mass is potentially malignant until proven otherwise because the consequences of missing a malignancy are very severe, perhaps even fatal.
- Not all breast lumps are palpable. Some patients are asymptomatic, and incidental abnormal findings are found on screening.
- Patients are usually worried about breast cancer whatever the breast symptoms are, so their concerns must be addressed.



Intraductal Papilloma

- The most common cause of bloody discharge in young women.
- Benign papillary neoplasm within the ducts.
- Small soft swelling near the areola.

Benign

Fibrocystic Changes
Fibroadenomas
Breast Cysts
Breast Abscesses
Inflammations of the breast

Malignant

Breast Cancer

U1 FIBROCYSTIC Changes

- Rubbery, Mobile, Bilateral.
- Most prominent premenstrually.
- Tend to resolve post-mentruation.
- These changes are common in young women.
- Most common site is the upper outer quadrant of the breast.

U2 FIBROADENOMA

- Smooth, Mobile, Discrete, Rubbery.
- Benign overgrowths of parts of the terminal duct lobules.
- They are the 2nd most common cause of breast mass in women under 35 years old.

03 BREAST CYSTS

- Smooth.
- Fluid filled sacs.
- They are most commonly found in women between the ages of 35-55 years old.
- Cysts may occur in multiple clusters.
- Most are benign, but further investigations should be done when at aspiration:
 1. Blood-stained contents.
 2. Residual mass following the aspiration.
 3. The cyst recurs rapidly.

Low sac pressure

=

Soft & Fluctuant



High sac pressure

=

Hard & Painful

04 BREAST ABSCESS

Lactational

- Occurs in breastfeeding women.
- Usually located peripherally in the breast.

Non-Lactational

- Occurs mostly in young female smokers.
- Located more centrally in the breast, under the areola.
- Often associated with nipple inversion.
- Occasionally, it may produce a discharge through a fistula at the edge of the areola.

Types of Inflammations of the Breast

- Due to:
 1. Infection.
 2. Autoimmunity.
 3. Foreign Body
- The patient usually present with edema, erythema, pain.

Acute Mastitis

- Bacterial.
- Occurs in the early weeks of lactation.

Mammary Duct Ectasia

- Non-bacterial.

Traumatic Fat Necrosis

- Mostly due to trauma.

Breast Cancer

Solid, firm/ hard masses with an irregular outline, unlike the surrounding breast tissue. Usually painless.

Breast cancer incidence increases with age.

BC is rare in males and has a strong genetic predisposition.

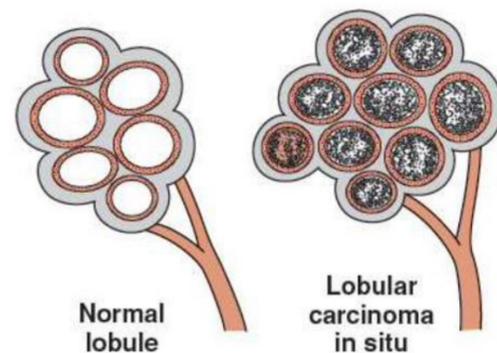
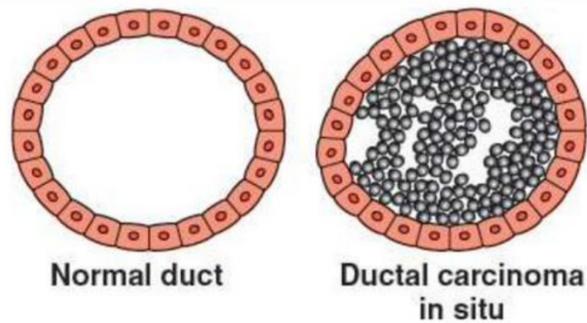
BREAST CANCER

Non-Invasive

Invasive

Ductal Carcinoma
in Situ

Lobular Carcinoma
in Situ



1. Invasive Ductal Carcinoma.
2. Invasive Lobular Carcinoma.
3. Medullary Carcinoma.
4. Colloid Mucinous Carcinoma.
5. Tubular Carcinoma.
6. Inflammatory Carcinoma.

Radiological Assessment

1. Mammography
2. Ultrasound
3. Magnetic resonance imaging (MRI)

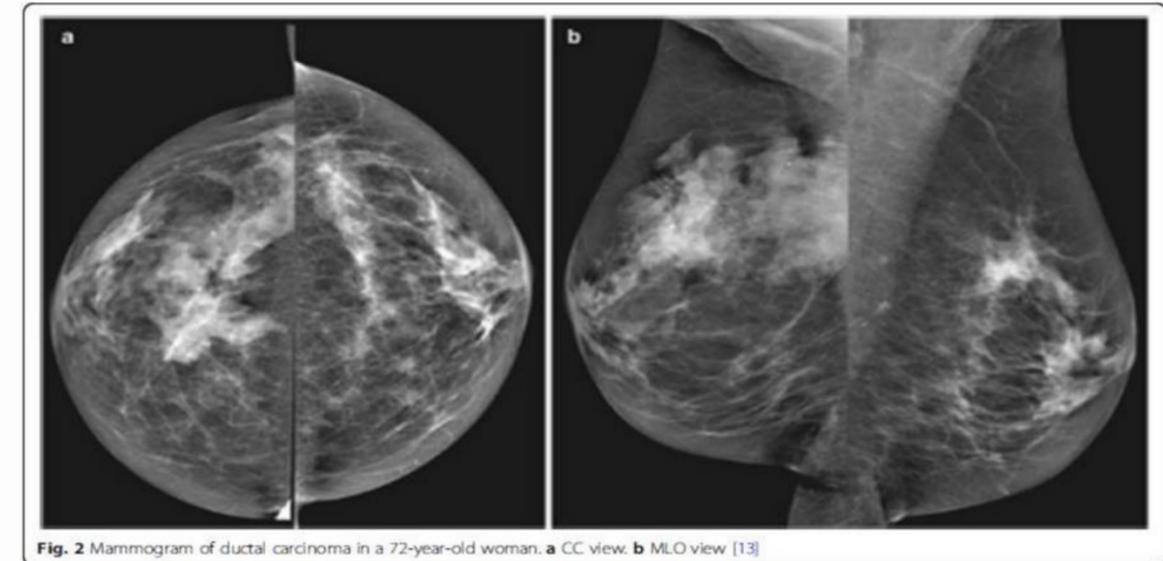
- **Mammography**

- It is a well-established low dose x-ray technique
- The standard planes mammogram is obtained in the mediolateral oblique views (MLO) and craniocaudal (CC) views
- A mammogram is image that helps to identifying morphologically suspicious findings in breast cancers include masses, asymmetric calcifications, and deformed breast areas.

-
- In women over 35 years mammography is usually performed (because women under 35 years; their dense breast tissue gives false positive results).
 - So The sensitivity of mammography has an inverse relationship with breast density.

(High-density breast implies more fibroglandular tissue and less adipose tissue-FAT-)

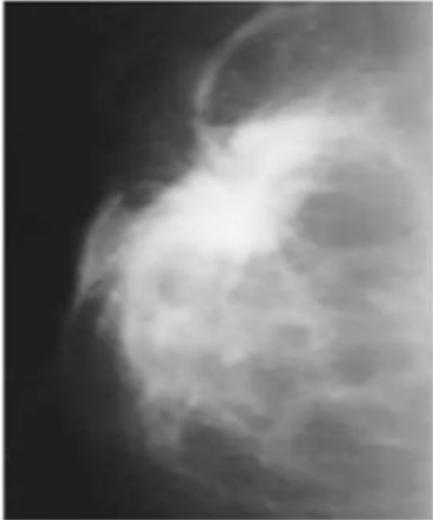
The oblique view includes the axillary tail, a common site for cancer



Recognition of breast cancer depends on:

- The detection of masses, particularly with irregular margins or "spiculated" (strands of tissue radiating out from an ill-defined mass ,producing a stellate appearance)
- Calcification: cluster of fine calcification
- Architectural distortion of breast structures

Breast Cancer



Mass with spiculated margins

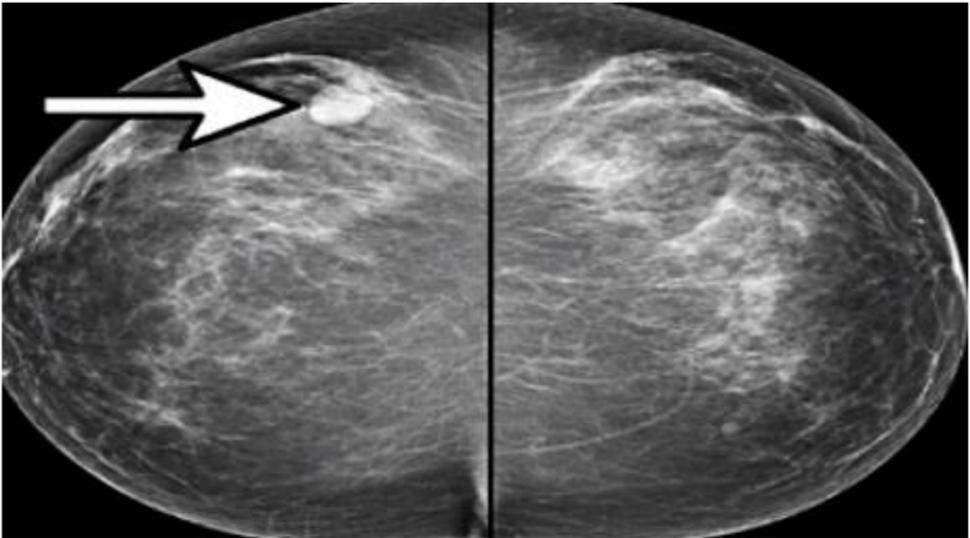


Clustered heterogeneous microcalcifications



Architectural distortion

Fibroadenoma



2. Ultrasound:

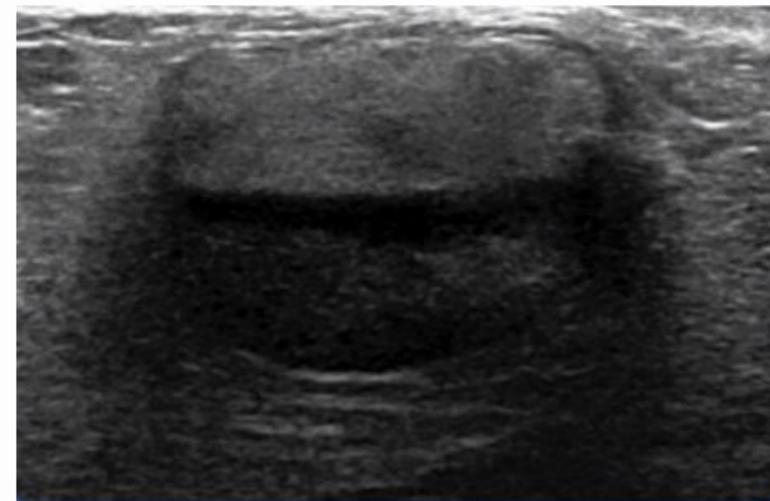
- Breast ultrasound uses high-frequency sound waves (linear probe 7-13 MHz) to map the internal structures of the breast.
- Ultrasound is the preferred in women under 30 years of age
- Ultrasound is particularly useful in assessing whether a lump is solid or cystic.
- Ultrasound can evaluate the morphology, orientation, internal structures, and margin of lesions in dense breasts on several planes. Evaluation of these features helps to differentiate benign and solid breast lesions



Normal Breast



Breast Cancer



Galactocele



Benign Simple Cyst

3. MRI:

- MRI can also be useful in the assessment of a new breast lump. It is not routinely used as it is more expensive with longer wait times but shows high sensitivity for detecting and delineating breast masses. It is the preferred modality for patients who have had previous breast augmentation surgery as the breast implants can distort the underlying parenchyma in mammography or ultrasound. It may also be a recommended approach for high-risk patients, such as those with known underlying BRCA mutations
- MRI imaging is more sensitive than mammography and ultrasound in the diagnosis of breast cancer

BI-RADS

- BI-RADS (Breast Imaging-Reporting and Data System) is a risk assessment and quality assurance tool developed by American College of Radiology that provides a widely accepted lexicon and reporting schema for imaging of the breast.
- Is ranging between 0 and 6 that is used in mammogram, breast ultrasound, and breast magnetic resonance imaging (MRI) reports
- **BIRADS 0** – insufficient or incomplete study
- **BIRADS 1** – normal study
- **BIRADS 2** – benign features
- **BIRADS 3** – probably benign (<2% risk of malignancy)
- **BIRADS 4** – suspicious features (divided into categories 4a, 4b, and 4c depending on the likelihood of malignancy)
- **BIRADS 5** – probably malignant (>95% chance of malignancy)
- **BIRADS 6** – malignant (proven malignant on tissue biopsy)

Breast Biopsy

Biopsy : removal a sample of tissue or fluid to be examined for signs of cancer

2 general types of breast biopsy:

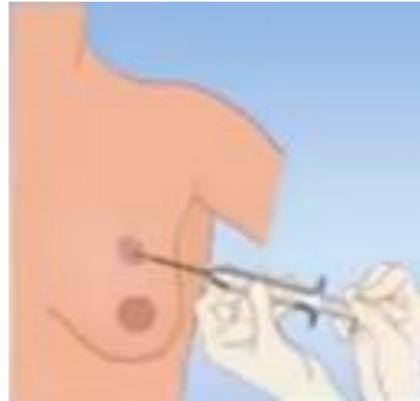
Needle biopsy

- Minimally invasive
- Little tissue
- Little scaring or pain

Surgical biopsy

- More tissue so more scaring
- More risk
- Accurate

Types of Needle Biopsy: **In palpable mass**



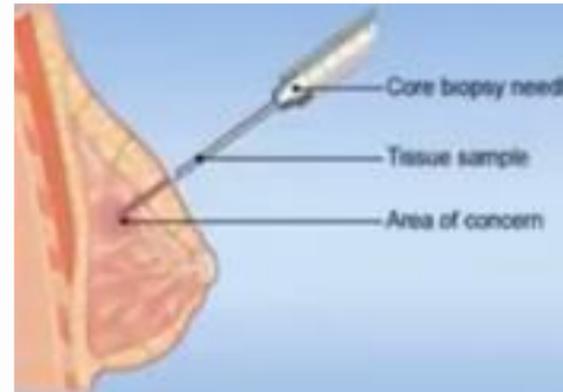
Fine Needle Aspiration (FNA)

A small needle is inserted through the skin to the site of an abnormal growth to collect and remove a sample of cells for analysis.

- Least invasive
- Fastest
- Easiest
- No stitches
- No scars

✗ Small sample can be insufficient for complete diagnosis

INVESTIGATIONS



Core Needle Biopsy

Large hollow needle is inserted through the skin to the site of an abnormal growth to collect and remove a sample of cells for analysis

- Intermediate sized sample
- Sticky tape, no stitches
- Removes more than FNA
- Multiple sample



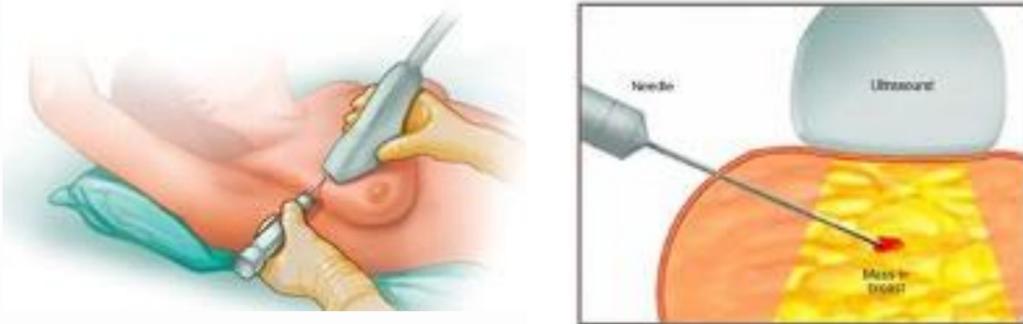
Directed Vacuum-Assisted Biopsy (DVAB)

Core needle + vacuum device
Using vacuum pressure, the abnormal cells and tissue are removed without having to withdraw the probe after each sampling as in core needle biopsy.

- More tissue obtained
- Typically multiple samples

Types of Needle Biopsy: **In non-palpable & deep mass**

1. Ultrasound-guided biopsy: During this type of biopsy, using ultrasound imaging to find the lump. The biopsy procedure is usually quick, but it may take a few days before the final tissue analysis (pathology report) is ready.



- Ultrasound-guided biopsy is less expensive than other biopsy methods, such as open surgical biopsy or stereotactic biopsy.
- **X** Very small lesions may be difficult to target accurately by ultrasound-guided core biopsy.

2. Stereotactic (x-ray guided) biopsy: During this type of biopsy, using a digital mammography x-ray machine to image the area of concern



- Stereotactic breast biopsy is performed as a non-surgical method of assessing a breast abnormality.
- The procedure is less invasive than surgical biopsy, leaves little or no scarring.
- Stereotactic breast biopsy is an excellent way to evaluate masses that are not visible on ultrasound.
- **X** It is limited in patient with thin breast.

Types of Needle Biopsy: **In non-palpable & deep mass**

3. MRI-guided biopsy: During this type of biopsy, using an MRI machine to localize the area of concern



- The procedure is less invasive than surgical biopsy, leaves little or no scarring.
- MRI is a noninvasive imaging technique that does not involve exposure to radiation.
- **X** The widespread use of this technique is limited by its high cost, availability, and length of the procedure.
- MRI-guided biopsy should not be considered if the lesion can be seen on [mammography](#) or on [ultrasound](#), where the biopsy can be performed more easily with less patient discomfort.

Surgical Biopsy

Incisional: only the abnormal part is removed

Excisional : removing of the abnormal area of the breast and the margin of the normal tissue around it may be removed

Advantages

- Yields largest tissue sample

Disadvantages

- May required stitches
- Can leave a scar
- Slightly higher risk than needle biopsies.
- Longer recovery.

Lab tests that might be done on breast (or lymph node) biopsy samples

- **E-cadherin** is a test that might be used to help determine if the tumor is ductal or lobular. (The cells in invasive lobular carcinomas are often negative for E-cadherin.)
- **D2-40 (podoplanin) or CD34** are special tests that might be used to help identify the different types of vascular invasion in a tumor
- **Ki-67** is a way to measure how fast the cancer cells are growing and dividing. Higher values for Ki-67 (typically over 30%) mean that many cells are dividing, so the cancer is likely to grow and spread more quickly.

in patient with nipple discharge

Tests that may be done include:

- Prolactin blood test
- Thyroid blood tests
- Head CT scan or MRI to look for pituitary tumor
- Mammography
- Ultrasound of breast
- Breast biopsy
- Ductography or ductogram: an x-ray with contrast dye injected into the affected milk duct
- Skin biopsy , if Paget disease is a concern

Breast Cancer Staging

Breast cancer staging is an important process used to determine the extent and spread of breast cancer within the body. The TNM system, which stands for Tumor, Node, and Metastasis, is a widely accepted staging system used by healthcare professionals to classify breast cancer based on various factors. This system provides important information that helps guide treatment decisions and predict prognosis.

The TNM system evaluates three key aspects of breast cancer:

Size of the tumor (T): How large is the area of cancer?

Spread to lymph nodes (N): Has the cancer spread to nearby lymph nodes?

Metastasis to distant sites (M): Has the cancer spread to other areas of the body?

I Values for Breast Cancer Staging (Tumor)

TX means that the size of the cancer can't be assessed.

Tis (DCIS). DCIS means ductal carcinoma in situ. It is a pre invasive breast cancer. The cancer cells are in breast ducts and have not started to spread into the surrounding breast tissue.

Tis (Paget). Paget's disease is a rare skin condition of the nipple that is associated with some breast cancers.

S T A G I N G

T1 means that the tumour is 2 centimetres (cm) across or less.

T1 is further divided into 4 groups:

- **T1mi** means the cancer is 0.1 cm across or less
- **T1a** means the cancer is more than 0.1 cm but not more than 0.5 cm
- **T1b** means the cancer is more than 0.5 cm but not more than 1 cm
- **T1c** means the cancer is more than 1 cm but not more than 2 cm

P A G E 5 0

T2 means the cancer is more than 2 cm but no more than 5 cm.

T3 means the cancer is bigger than 5 cm.

T4 is divided into 4 groups:

- **T4a** means the cancer has spread into the chest wall
- **T4b** means the cancer has spread into the skin and the breast might be swollen
- **T4c** means the cancer has spread to both the skin and the chest wall
- **T4d** means inflammatory carcinoma. This is a rare type of breast cancer

N Values for Breast Cancer Staging (lymph node)

Clinical staging

means that the doctor stages after examining the patient and looking at test and scan results. Doctors use clinical staging if they don't have surgery straight away.



Pathological staging

means that the doctor stages the cancer by using the tissue removed during the operation.

1. Clinical node staging

cNX means it is not possible to assess the lymph nodes for example, if they were previously removed.

cN0 means there are no signs of cancer in the lymph nodes following scans and examination.

cN1 means the cancer cells have spread to one or more lymph nodes in the lower or middle part of the armpit (axillary lymph nodes). The lymph nodes move a little (mobile) when they are felt and are not stuck to surrounding tissue.

cN1mi means the cancer cells in the lymph nodes are very small. These are called micrometastases. They are larger than 0.2 mm, but no larger than 2 mm.

cN2 is divided into 2 groups:

- **cN2a** means the cancer cells in the armpit are stuck together or fixed to other areas of the breast such as the muscle.
- **cN2b** means there are cancer cells in the lymph nodes behind the breastbone (the internal mammary nodes). There is no sign of cancer in the axillary lymph nodes.

cN3 is divided into 3 groups:

- **cN3a** means there are cancer cells in the lymph nodes below the collarbone (infraclavicular).
- **cN3b** means there are cancer cells in the axillary lymph nodes and behind the breastbone (the internal mammary nodes)
- **cN3c** means there are cancer cells in the lymph nodes above the collarbone (supraclavicular).

2. Pathological node staging

pNX means it is not possible to assess the lymph nodes for example, if they were previously removed.

pN0 means there are no cancer cells in any nearby nodes or only small clusters of cancer cells less than 0.2 mm across (isolated tumour cells).

pN1 is divided into 4 groups:

- **pN1mi** means the cancer cells in the lymph nodes are very small. These are called micrometastases. They are larger than 0.2 mm but are less than 2 mm.
- **pN1a** means that there are cancer cells in 1 to 3 in the axillary lymph nodes and at least one is larger than 2 mm.
- **pN1b** means there are cancer cells in the sentinel lymph nodes behind the breastbone (the internal mammary sentinel nodes).
- **pN1c** means there are cancer cells in 1 to 3 in the axillary lymph nodes and in the sentinel lymph nodes behind the breastbone.

2. Pathological node staging

pN2 is divided into 2 groups:

- **pN2a** means there are cancer cells in 4 to 9 lymph nodes in the axillary lymph nodes, and at least one is larger than 2 mm.
- **pN2b** means there are cancer cells in the lymph nodes behind the breastbone (the internal mammary nodes), which have been seen on a scan or felt by the doctor (clinically detected). There is no evidence of cancer in the axillary lymph nodes.

pN3 is divided into 3 groups:

- **pN3a** means there are cancer cells in 10 or more of axillary lymph nodes and at least one is larger than 2 mm, or there are cancer cells in the nodes below the collarbone(infraclavicular).
- **pN3b** means there are cancer cells in the axillary lymph nodes and the internal mammary nodes .
- **pN3c** means there are cancer cells in lymph nodes above the collarbone.

M Values for Breast Cancer Staging (metastasis)

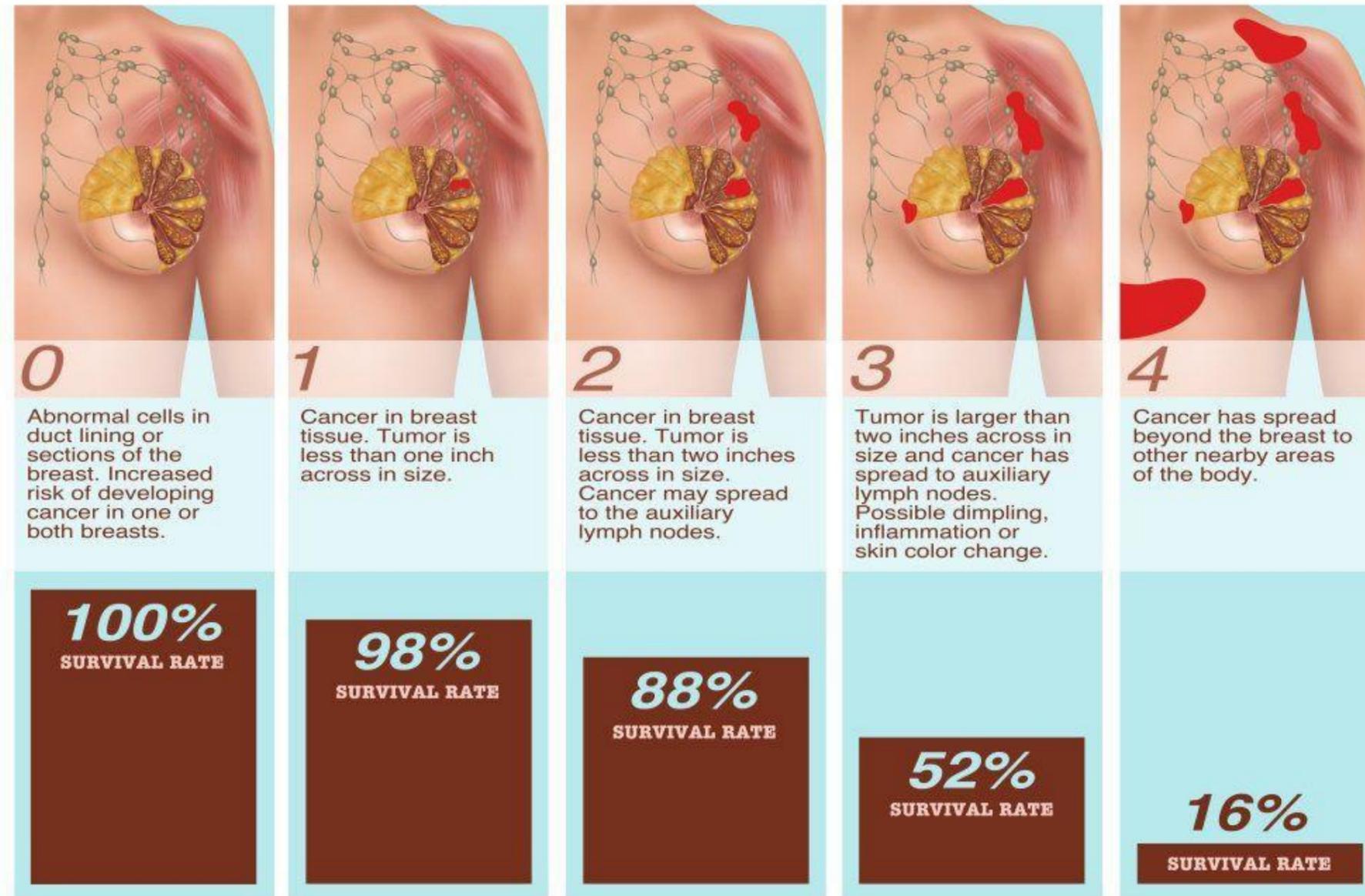
M0 means that there is no sign that the cancer has spread.

cM0(i+) means there is no sign of cancer spread to a different part of the body on physical examination or scans. But cancer cells are present in the blood, bone marrow, or lymph nodes far away from the breast. The cells are found by laboratory tests.

cM1 means the cancer has spread to another part of the body. This is seen on scans or felt by the doctor.

pM1 means that cancer measuring more than 0.2 mm has spread to another part of the body. This has been confirmed by looking at a tissue sample removed during a biopsy or surgery.

Stages of Breast Cancer



Immunohistochemistry

- Immunohistochemistry (IHC) is a valuable technique used in the diagnosis and characterization of breast cancer.
- It involves the use of specific antibodies to detect and visualize specific proteins or molecular markers within breast tissue samples.
- Immunohistochemistry plays an important role in identifying key markers that help classify breast cancer subtypes, such as hormone receptor status (estrogen receptor, progesterone receptor) and HER2 status (human epidermal growth factor receptor 2).
- These markers provide important information about the behavior of the tumor and guide the selection of appropriate treatment strategies.

And here's a table shows the molecular subtypes of breast cancer

Subtype	Receptor Status
Luminal A	ER positive and/or PR positive, HER2 negative
Luminal B	ER positive and/or PR positive, HER2 positive
HER2	ER negative and PR negative, HER2 positive
Basal	ER negative, PR negative, and HER2 negative

Treatment - Management of Nipple Discharge

The majority of cases of nipple discharge are benign and this symptom is rarely a presenting feature of breast cancer even when blood-stained. Clear single duct or blood stained discharge require further investigations; if a lump is present it should be managed by triple assessment. In the absence of a lump, the management of discharge as follow:

- **BILATERAL, MULTICOLOURED (non bloody/ white clear/ milky discharge), MULTIDUCT DISCHARGE**

If clinical examination and mammography are normal, no further treatment is required

- **CLEAR or BLOODY UNILATERAL DISCHARGE**

the diagnosis is likely to be an intraduct papilloma and excision of the affected duct (microdochectomy) is indicated. This is due to the possibility of upgrading to atypical ductal hyperplasia or DCIS upon excision. Surgical excision, in the form of lumpectomy with complete removal of the papilloma, is recommended

- **BREAST CANCER PRODUCING BLOODY NIPPLE DISCHARGE**

the presence of blood in the discharge should be confirmed by cytology. If mammogram (for women over 35 years) is performed with a biopsy of any abnormal tissue (IRREGULAR SHAPE or asymmetrical mass _ microcalcifications). Requires surgery and/or chemotherapy or radiation depending on the staging of the disease

- **GALACTORRHEA**

1. IN CASE of hyperprolactinemia:

- Dopamine agonists (treatment of choice): bromocriptine, cabergoline, quinagolide.
- Treat the underlying cause
 - Transsphenoidal resection of the pituitary adenoma (in case of prolactinomas)
 - Discontinue or lower the dose of the offending drug (in case of drug induced hyperprolactinemia, the most important category is dopamine antagonists. Dopamine inhibits prolactin secretion, so dopamine antagonists would therefore disrupt the inhibition and lead to increased prolactin secretion.)
 - Treatment of primary hypothyroidism .
 - Renal transplant for patients with CRF. (in case of CRF, probably due to decreased prolactin clearance or disordered hypothalamic regulation.)

2. In the case of normoprolactinemic galactorrhea : reassurance and avoidance of nipple stimulation

- **PURULENT DISCHARGE**

(mastitis / abscess) is treated with appropriate antibiotics, but abscesses need incision and drainage and wall biopsy of the abscess

- **NIPPLE DISCHARGE OF VARYING COLORS (ranging from white to green / black to gray)**

(mammary duct ectasia)

- o in mild cases that present only with intermittent nipple discharge, after excluding other diseases and confirming MDE, reassurance is adequate and all that is required.

- o In cases with consistent or recurrent symptoms and swelling, excision of the involved duct and surrounding inflammatory tissue is performed, termed a “microdochectomy.”

- o Oral antibiotics

Treatment - Management of Breast Lump

- Treatment of a new breast lump **depends on** whether the lump is benign or malignant and on the physical health and personal wishes of the patient.

Breast cyst:

- The majority of simple cysts aspirated disappear after aspiration, and the treatment is considered complete. Follow-up exams and imaging vary based on the cyst and findings from aspiration or biopsy. **Most cystic breast lesions are benign** and, therefore, do not require any oncological treatment. The rare **malignant cystic lesions** are treated as breast cancer would be treated(The treatment is a combination of surgical resection and adjuvant treatment);The adjuvant treatment includes hormonal therapy, chemotherapy, radiotherapy, immunotherapy, and the use of biological agents

Fibroadenoma:

- These lesions are benign and usually involute without requiring any further treatment (conservative). **Excision and biopsy** if rapid growth, greater than 3 cm size, painful, or causing the patient distress , increase in the BI-RADS category, and tissue diagnosis suggestive for atypical hyperplasia or suspected phyllodes tumor.

Fat necrosis, hematoma:

- Palpable areas of fat necrosis may enlarge, remain unchanged, regress, or resolve. It usually does not necessitate any surgical treatment, and clinical follow-up is sufficient in the patient population in which **pain is not present**, and cosmesis is not the primary concern. **However**, if fat necrosis is confirmed, and it does not resolve and/or it causes pain or distortion in the breast shape, **surgical removal is an option**. As far as mammography is concerned, a lesion classified as "benign" by mammogram may undergo yearly surveillance. A finding of "most likely benign" can be followed up in 6 months with a mammogram, and a biopsy is a next step if "malignancy suspected."

Gynecomastia:

Gynecomastia is classified into three grades depending on the amount of breast enlargement, skin excess, and ptosis.

The treatment for each Grade differs depending on the amount of skin excess and ptosis.

- Grade I: Small enlargement, no skin excess
- Grade II: Moderate enlargement, no skin excess
- Grade IIb: Moderate enlargement with extra skin
- Grade III: Marked enlargement with extra skin

Patients with **grade I or grade IIa** can be treated with liposuction and surgical excision.

If the patient presents **with grade IIb gynecomastia**, open surgical excision with possible skin resection is indicated if a large amount of ptosis is present

Breast abscess:

in general, abscesses require surgical incision and drainage to identify and remove the source of infection.

- **Smaller abscesses or lactational abscess** less than 3cm in size may resolve with oral antibiotics and needle aspiration, but there is a risk of recurrence.(If there is a recurrence of an abscess after needle aspiration, incision and drainage should be performed.)
- **Abscess in a non-lactating patient** have a higher rate of recurrence and often require multiple drainage procedures.
- **Abscesses in a non-lactating female** require referral to a triple assessment clinic to rule out underlying inflammatory breast cancer.

Note: patients should be encouraged to continue breastfeeding if possible, with an onward referral for definitive management.

Thanks!

