

Oncology Rotation

By: Laila Nazzal





Table of Contents



♡ 01

General Idea

♡ 02

Physical Examination

♡ 03

Abnormalities

♡ 04

Biopsy Taking

♡ 05

Benign Breast Lesions

♡ 06

Cancer Staging

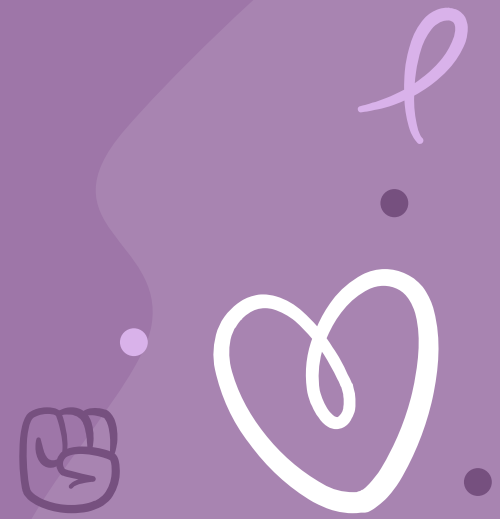
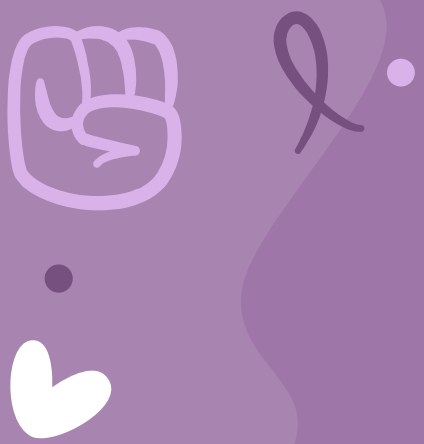
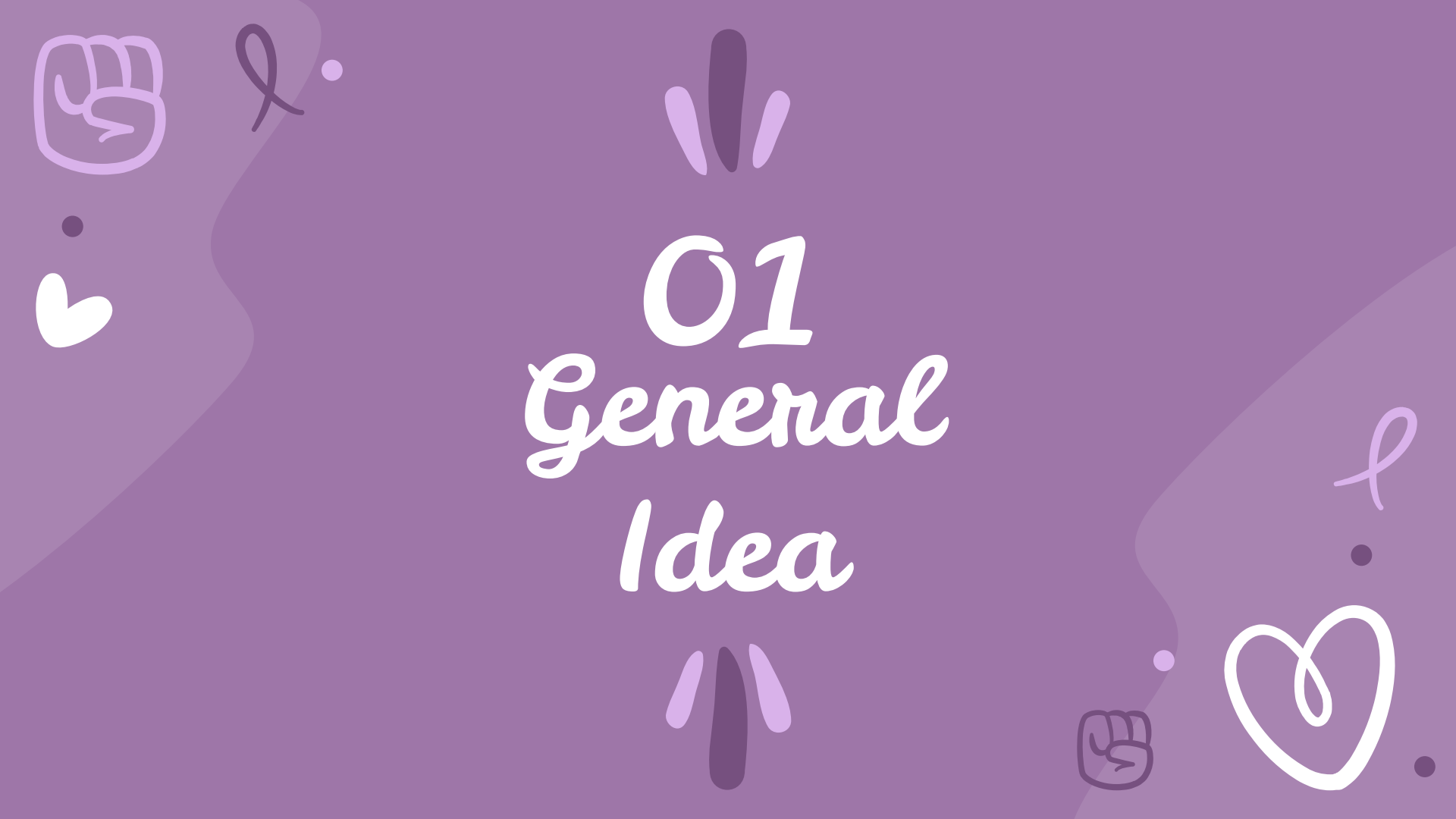
♡ 07

Treatment Modalities

♡ 08

Radiology





01 General Idea

Breast Profile:

A ducts

B lobules

C dilated section of duct to hold milk

D nipple

E fat

F pectoralis major muscle

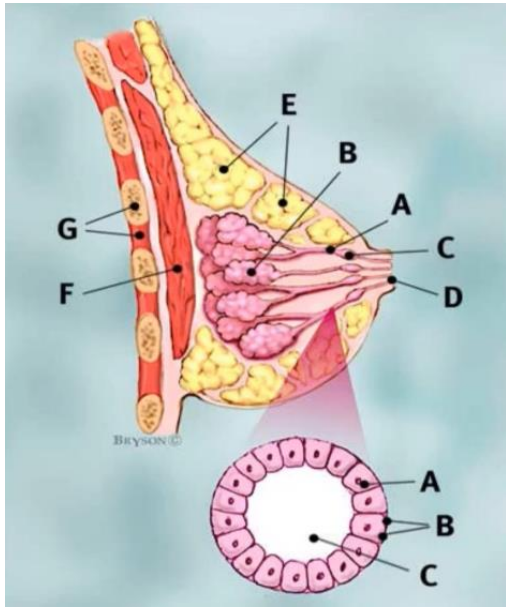
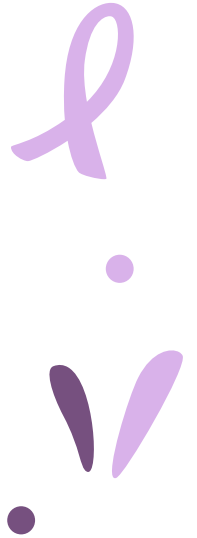
G chest wall/rib cage

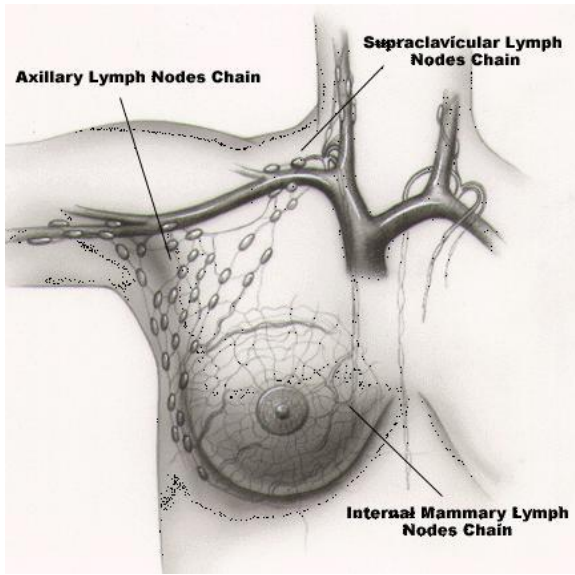
Enlargement:

A normal duct cells

B basement membrane

C lumen (center of the duct)





Breast Area:

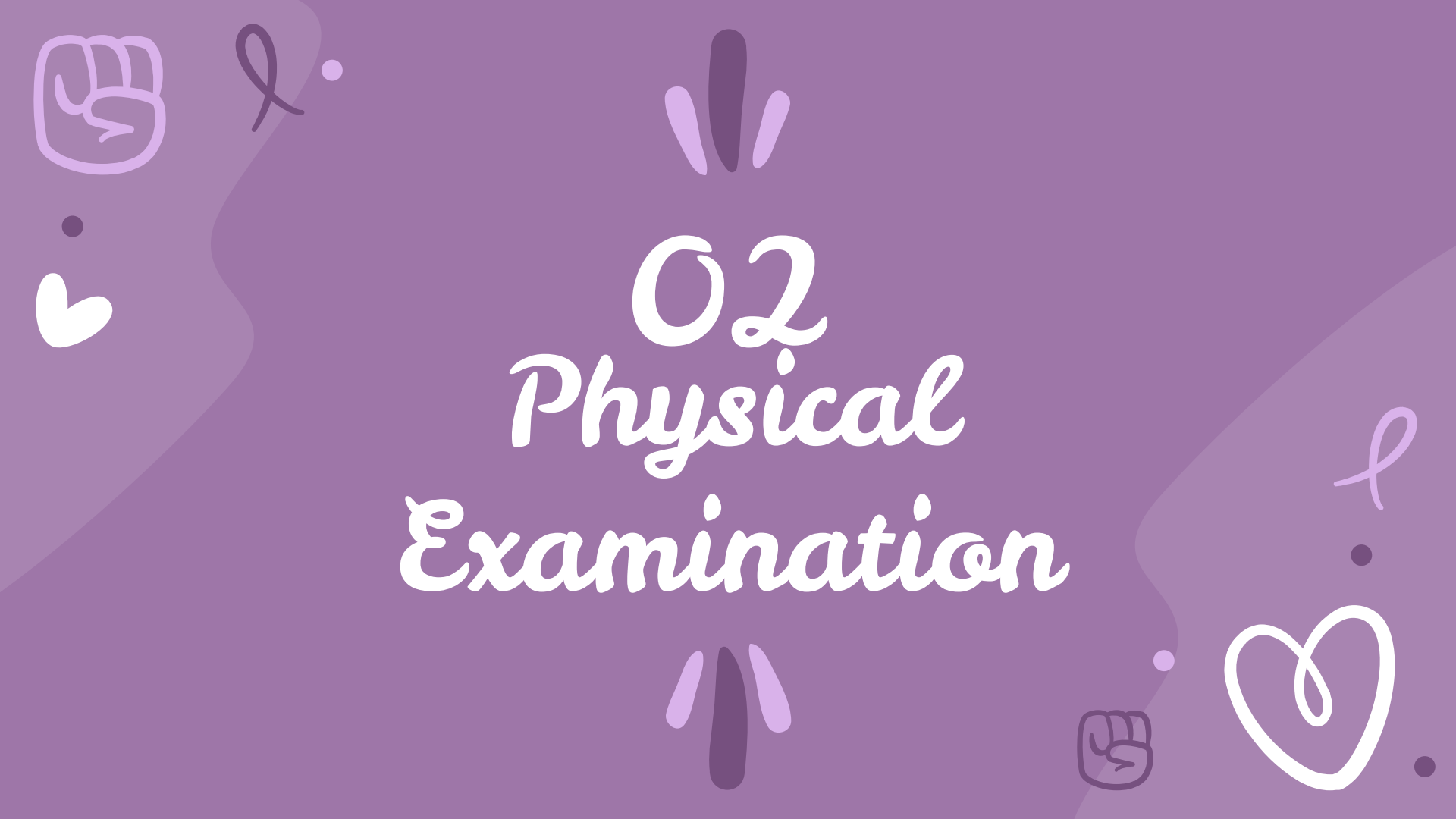
- From Sternum to mid axillary line
- From 3rd to 6th rib
- Breast bulge is the protruded



Coopers Ligament:

- It works as an internal bra
- Attaches the breast to the skin & to the chest wall
- Divides the breast into compartments/lobules

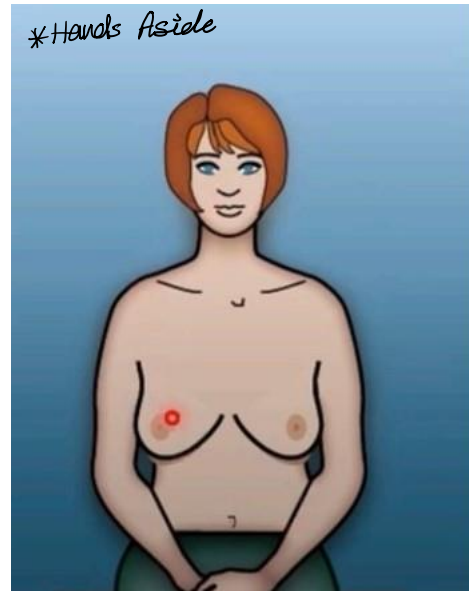


The background is a solid purple color with several abstract, darker purple shapes. There are four stylized icons: a hand with fingers curled in the top-left and bottom-right corners, a heart in the bottom-right corner, and two sets of three vertical bars (one dark purple, two light purple) positioned above and below the text. The text is centered and written in a white, cursive font.

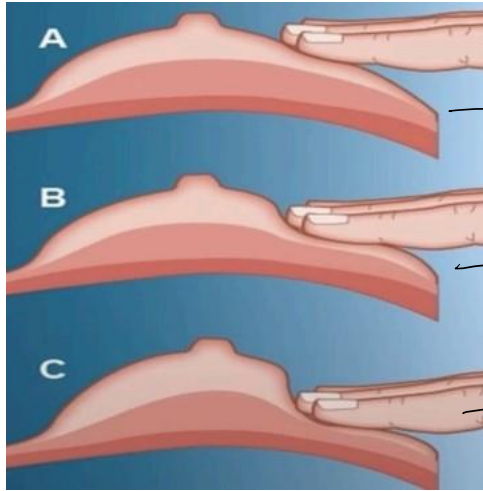
02
Physical
Examination

1-Inspection

- While sitting normally
- Ask the patient to raise her hands (to show the inferior part clearly)
- Ask the patient to put her hands on her waist and lean forward (to contract pectoralis major muscle and make masses more visible)
- Inspect for: 1-symmetry 2-size 3-shape 4-skin changes [colour, shape, dimpling] 5-nipple 6-areolar complex



2-Palpation

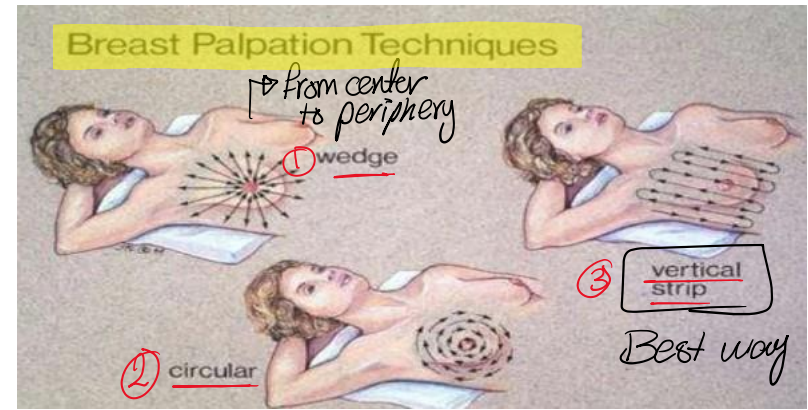


→ Superficial

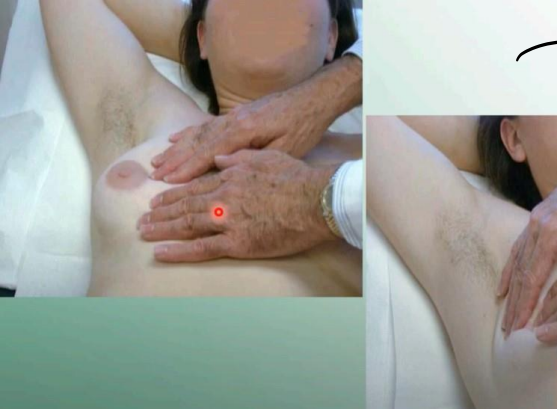
→ Intermediate

→ Deep

Levels of pressure for palpation of breast tissue shown in cross-sectional view of right breast.

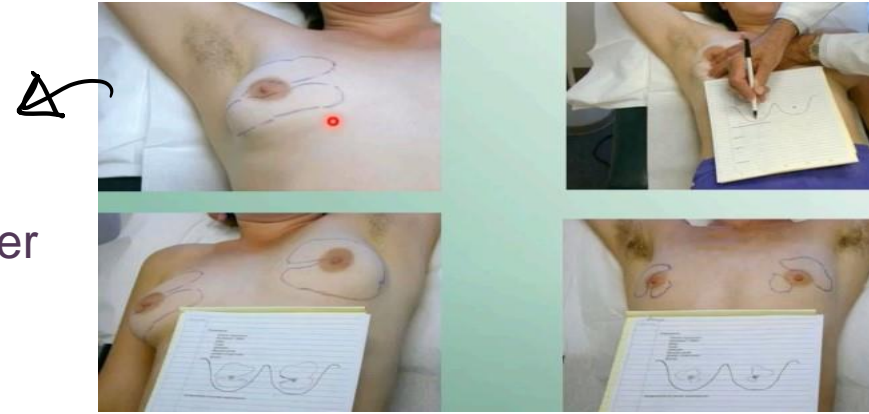


While setting position; Examining supraclavicular lymph nodes.



- Examine both; the breast mound & the breast area
- Patient's hand above her head while lying supine
- Rolling & dipping while examining with palmar aspect of 3 middle fingers

- Topography: drawing glandular structure for the patient to follow her



- Examine left LNs with left hand & vice versa.
- 6 groups of axillary lymph nodes [anterior, central, apical, medial, lateral & posterior]



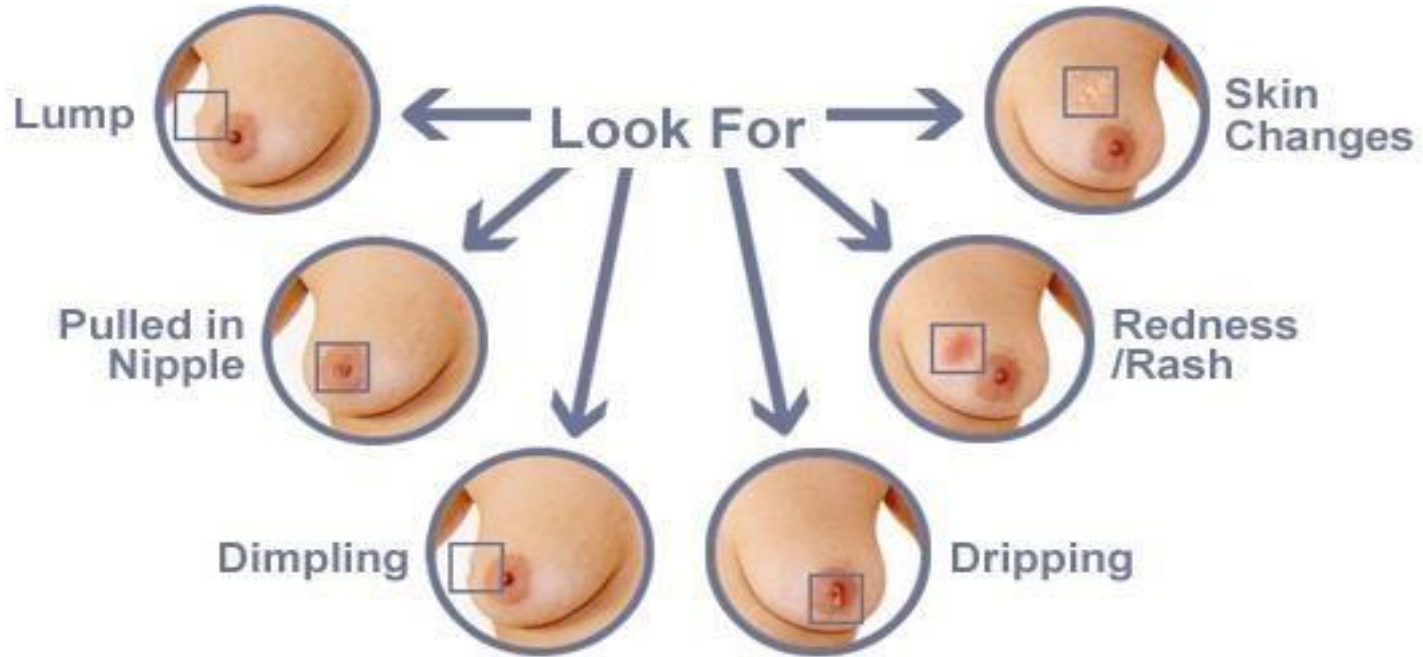


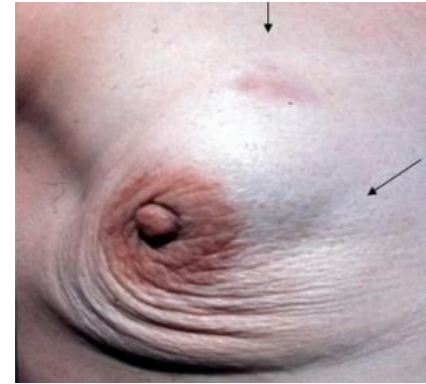
03

Abnormalities



Abnormalities Seen in Inspection





Retracted Nipple

Puckering of skin/Inversion.

Paget Disease of the Nipple

Abnormality in areolo-nipple complex causing destruction, itching & maceration -> Eczema like around the nipple.

Mass twisted the whole Breast

Nipple in the precess of retraction



Skin Ulceration



Inflammatory Carcinoma of the Breast

Red, hot, tender & firm



Retracted Nipple



Redness seen after raising patient's arms



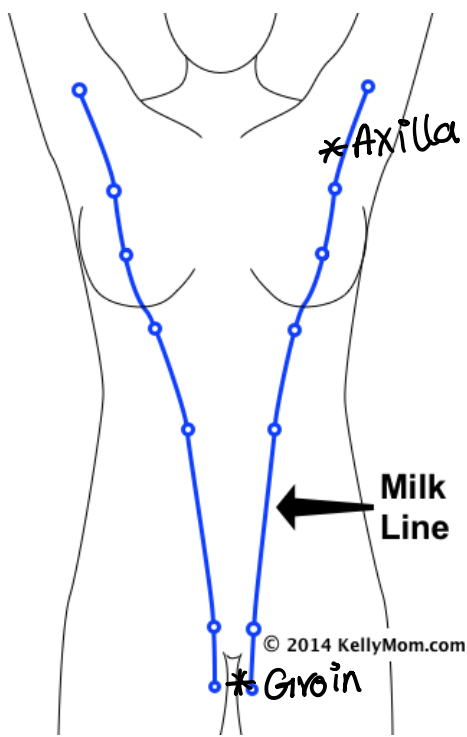
Peu-de Orange

Orange peel; caused by obstruction of lymphatics by malignancy



Accessory nipple in the axilla





Milk Line

- Precursors to mammary glands & nipples
- Mammalian develops breasts from this structure

Poly mastia

- An anomaly associated with milk line
- Multiple breasts



Skin dimpling

- Caused by invasion of malignant cells through coopers ligament (which is ligament anchoring breast to skin & chest wall)



Past paper 2.



04 Biopsy Taking

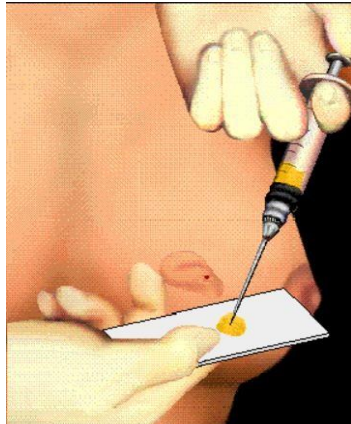
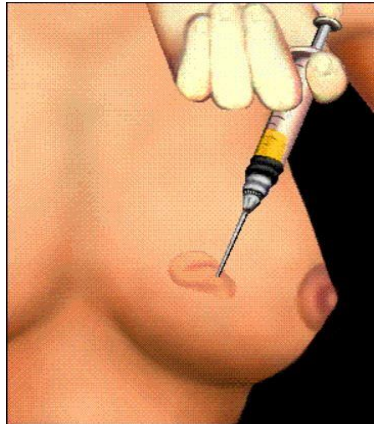


1-Fine Needle Aspiration (FNA)

- Done in office, minimal discomfort, relatively atraumatic.
- Sensitivity of 73-99%; may not always rule out cancer when it's negative.
- Ideal for simple cyst aspiration.
- Can't distinguish in-situ vs invasive cancer.
- Cytological examination.

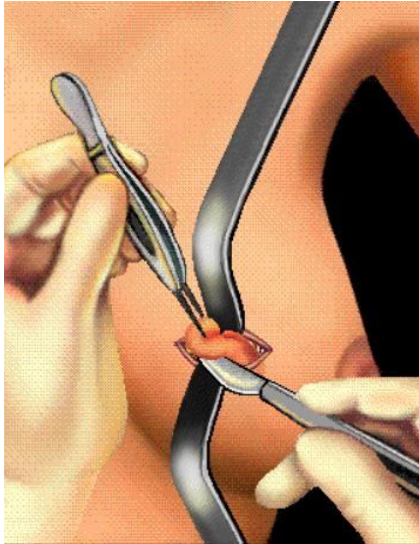
2-Trucut/Cone Needle Biopsy (CNB)

- Cutting needle.
- Greater trauma.
- High sensitivity -100%.
- Distinguish in-situ vs invasive cancer.
- Stereotactic mammography & US.
- Histological examination.



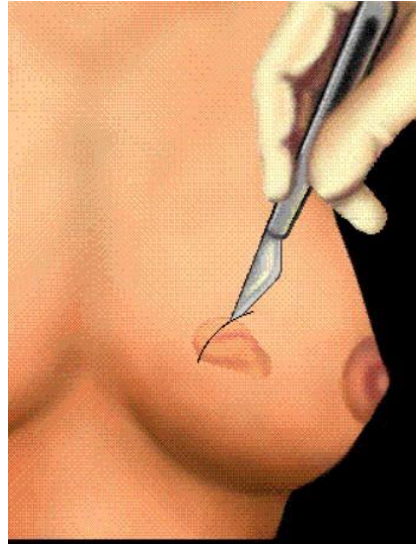
3-Incisional Biopsy

- Local anesthesia, often with mild sedation.
- Only part of the tumor is removed for Dx.
- Outpatient procedure.
- Done when the tumor is large.



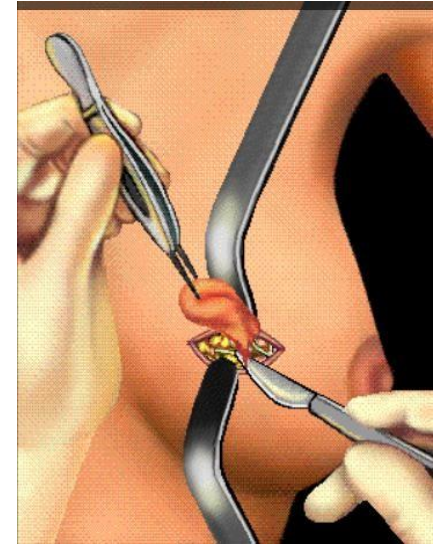
4-Excisional Biopsy

- The most common biopsy procedure.
- Outpatient procedure.
- The entire lump is taken out using a small incision.



5-Lumpectomy

- Excisional biopsy may be sufficient for the lumpectomy, if the margins were negative.
- With radiation therapy, it is as effective as modified radical mastectomy.

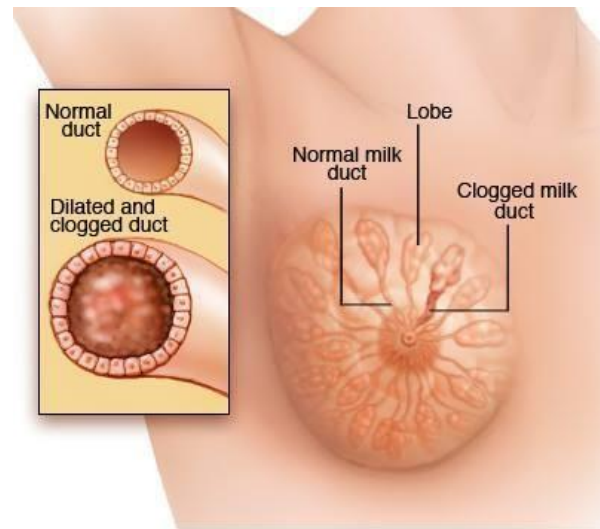


The background is a solid purple color with several abstract, hand-drawn shapes and icons. In the top left, there is a square icon with a stylized 'B' and a dot below it. In the top right, there is a vertical oval shape with two slanted lines on either side. In the bottom left, there is a white heart shape. In the bottom right, there is a white heart shape, a square icon with a stylized 'B', and a dot. The text is centered in the middle of the page.

05
Benign Breast
Lesions

1-Duct Ectasia:

- Bilateral inversion and displaying transverse slit pattern
- AKA Plasma cell mastitis.
- Condition Mimics cancer (nipple retraction, inversion, pain, nipple discharge).
- Disorder of peri- or post menopausal age.
- Self-limiting/Benign condition
- Dilatation & clogging of ducts



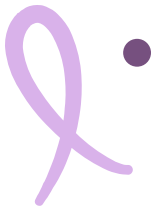
2-Mondor's Disease:

- Superficial thrombophlebitis in subcutaneous veins of breast.
- Presents as a tender cord like subcutaneous structure, pain, swelling and redness.
- It is USUALLY BENIGN and self-limiting, but it has been associated with breast cancer.
- Treated by NSAIDs.



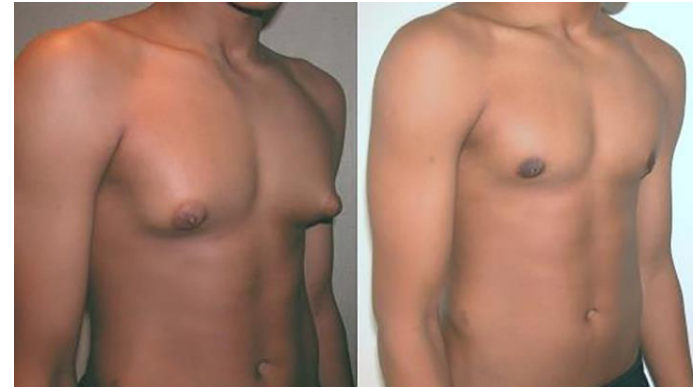


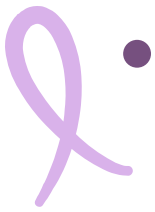
Gynecomastia



- Smears similar to fibroadenoma
- Sheets of cuboidal ductal cells & fragments of loose connective tissue stroma
- Bipolar, spindly myoepithelial cells & oncocytes
- Fragments of fibrous stroma & adipose tissue

- Enlargement of the breast, we have two types of gynecomastia.
- 1) The true one which is formed from ductal and glandular proliferation and usually this occurs in young patients, and those maybe related to certain drugs like chlorothiazides, digoxin, femodene, and prostatic enlargement medications. Or due to retained hormones due to liver cirrhosis, sometimes testicular tumors maybe associated with gynecomastia so we need to take detailed history. Young age group who get gynecomastia are motivated to get rid of it -> by excising the ductal system (the ductal system gives feminine, cuppy shape to the breast). This excision is done by -> donut mastopexy lumpectomy or DML.
- 2) Pseudo- gynecomastia occurs in old obese pts -> accumulation of fat in the breast area -> treated using liposuction maybe effective in this situation or excision of the large breast tissue containing the fat content.





Describe the nipple discharge in this picture and give your differential diagnosis:

It is a uni-ductal bloody discharge.

1. Intraductal papilloma (the commonest cause).
2. Ductal ectasia (the bloody discharge can be from a single duct or more) .
3. Ductal invasive carcinoma (uni-ductal spontaneous nipple discharge/the most serious).



Single duct bloody discharge



Please refer to Benign Breast Conditions [lecture by dr.Jamal Melhem](#) as there are many topics you should cover.



Examples of Pre-cancerous lesions

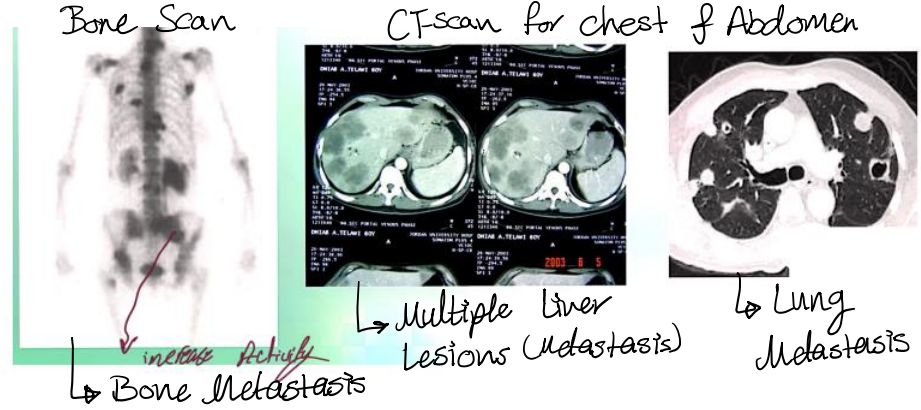
1. Leukoplakia of the tongue
(It presents as a white patch on oral or other mucosa/ 15 % malignant transformation to squamous cell carcinoma / DDX: Oral candidiasis, how to differentiate? Candidiasis scrapes off).
 2. Colon in FAP.
 3. Colon in HNPCC.
 4. Thyroid gland in MENS II.
 5. Breast in BRCA mutations.
- Surgery has a role in 1st cancer prevention.



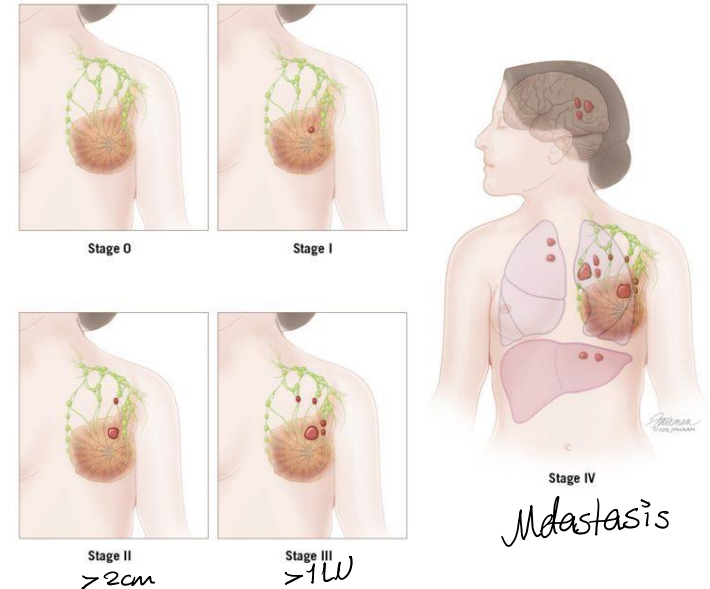


06
Cancer
Staging

- For staging breast CA we do CT-scan for chest & abdomen to rule out metastasis (Lung, Liver,...) and bone scan to rule out metastasis to bones.

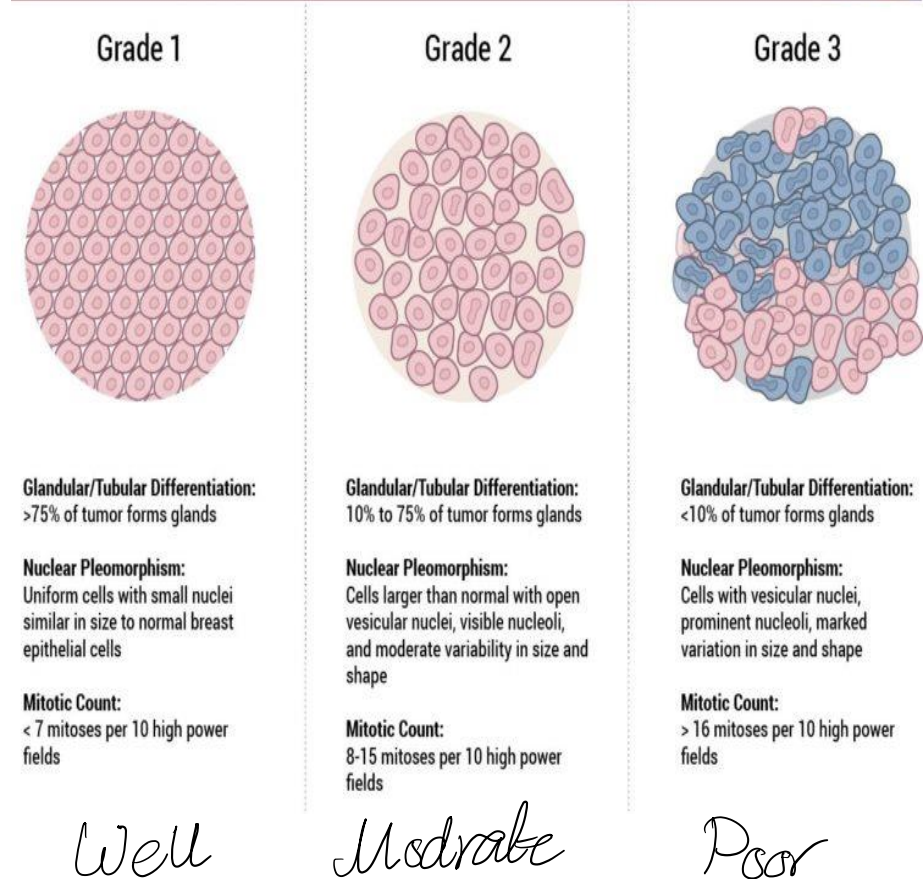


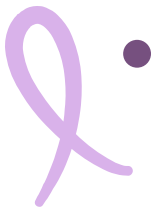
- Simplified staging system:
 - I. Small lesion without lymph node involved
 - II. >2cm with a lymph node involved
 - III. More than one lymph node involved
 - IV. Metastasis to other organs like liver or lung



- Histological Graded:
 1. Well differentiated
 2. Moderately differentiated
 3. Poorly differentiated
- Based on:
 1. Glandular/tubular differentiation
 2. Nuclear pleomorphism
 3. Mitotic count
- It helps in giving an impression about the aggressiveness of the tumor; which helps to guide chemotherapy choice

More detailed staging system mentioned in the [lecture by dr. Jamal Melhem](#) if you'd like to go back.





Sentinel Lymph Node :

- Aims to accurately stage the axilla without the morbidity of axillary clearance.
- Technique used to identify the first nodes that tumor drains to.
- Can be located following the injection of either Radioisotope or Blue dye.
- Combination of isotope and blue dye can be injected in peritumoural, sub dermal or subareolar site.
- Allows more detailed examination of nodes removed.

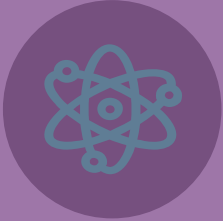
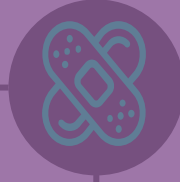




07 Treatment Modalities



Treatment



Radio-therapy



Surgery



Chemo-therapy



- *Surgical Option in Breast CA*



*Radical
Mastectomy*

Remove of the
muscle & the
whole breast &
lymph nodes



*Modified
Radical
Mastectomy*

Remove the whole
breast & lymph
nodes



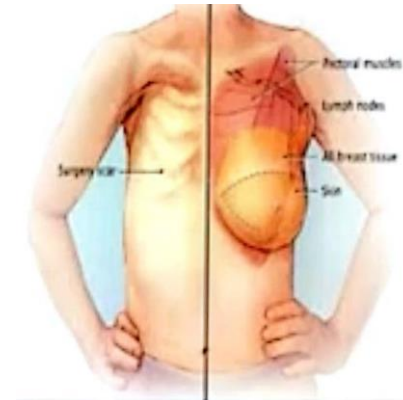
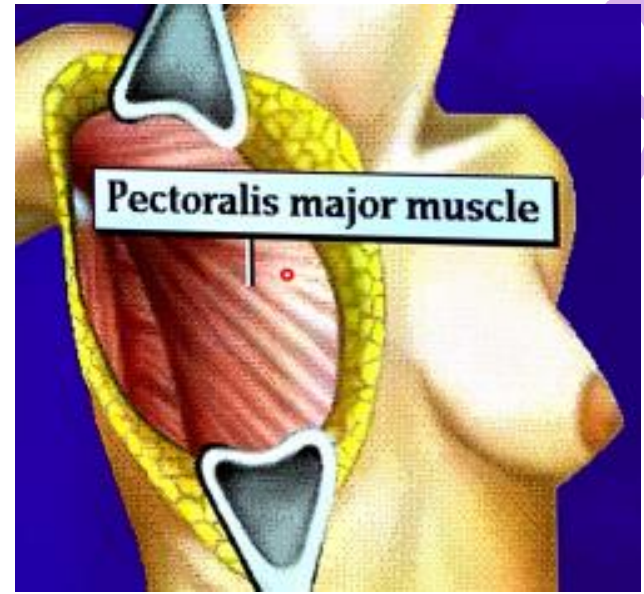
*Wide Local
Excision*

Remove the
tymour with safety
margin around it



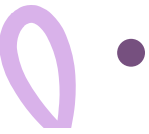
1-Radical Mastectomy:

- In this surgery the muscles of the chest (e.g., pectoralis major & pectoralis minor) along with the breast and lymph nodes are all removed.
- It's now rarely performed.
- Usually reserved for very large cancers that have grown into the muscle.
- Loose shoulder stability.

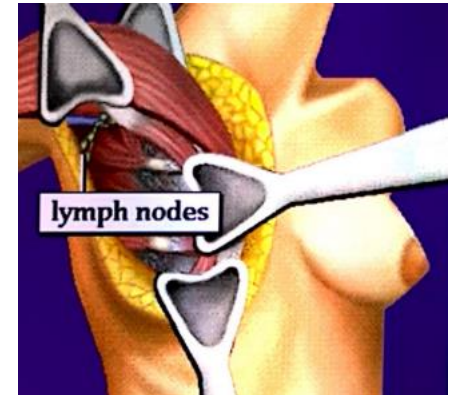
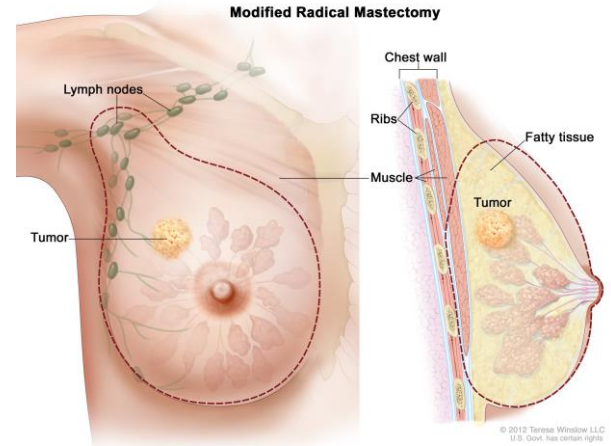




2-Modified Radical Mastectomy:

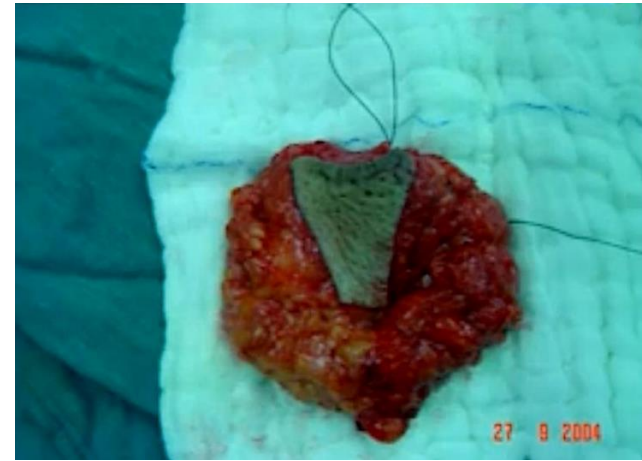


- The entire breast tissue is removed together with the cancer & some of the lymph nodes in the armpit.
- The muscles of the chest & arm are preserved.
- Do skin sparing mastectomy or replace it by silicone or saline implant.

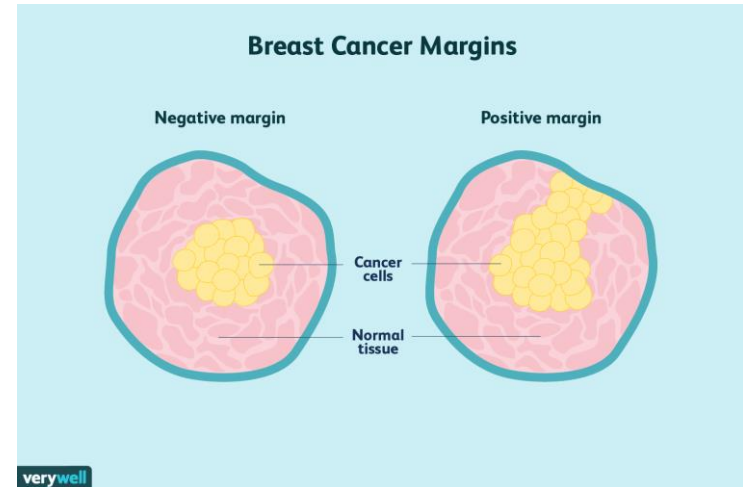


3-Wide Local Excision:

- Remove the tumour with safety margin around it (checked by histo-pathology).
- It's followed by radio-therapy.



→ Sort of Wide Local Excisions

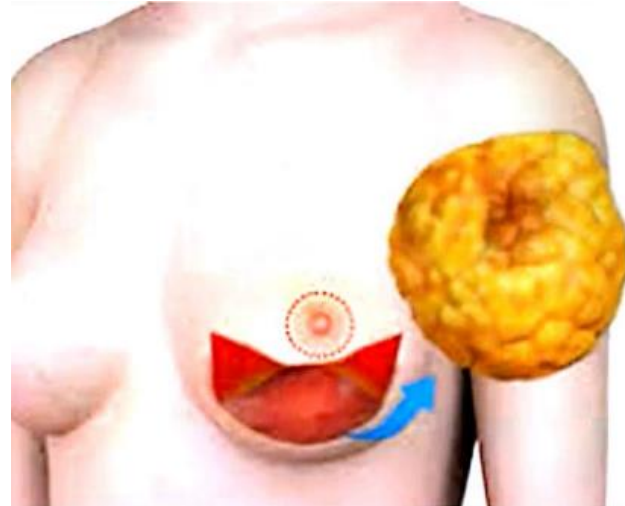


Skin Spearing Mastectomy:



- Nipple is removed.

Nipple Spearing Mastectomy:



- Nipple is speared.

Reconstruction of Breast



TRAM Flap



Local Flap



LD Flap



*Onco Plastic
Procedures*



1-Transverse Rectus Abdominus Myocutaneous:

- TRAM flap almost fatty flap taken from lower abdomen.
- Less popular.



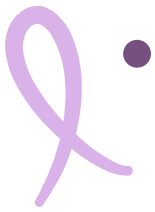
2-Local Flaps:



↳ Axillary LN Dissection



3-Latssimus Dorsi:

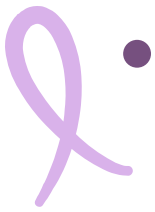


- Large defects in medium-sized or small breast.
- Good option, less complication but we loss its function.
- Might atrophy with time (it's purely muscle).



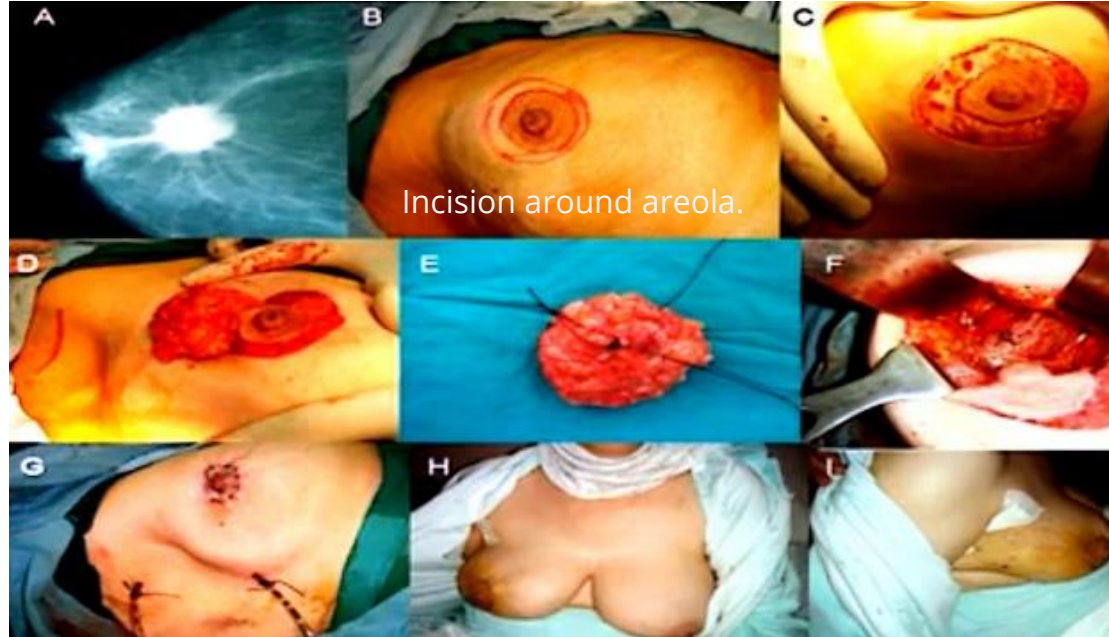


4-Onco Plastic Procedures:



- Like: "Doughnut Mastopexy Lumpectomy (DML)"

Tumor in center of breast with extension to nipple.



Incision around areola.


Tumor out.

Keeps part of dermis.



*Venous
Access
Catheter*

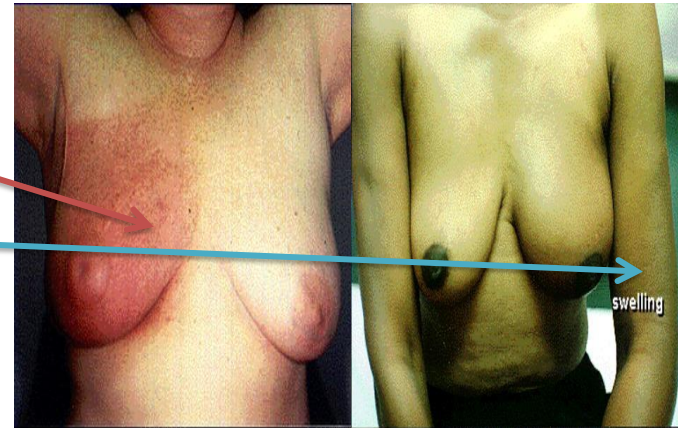
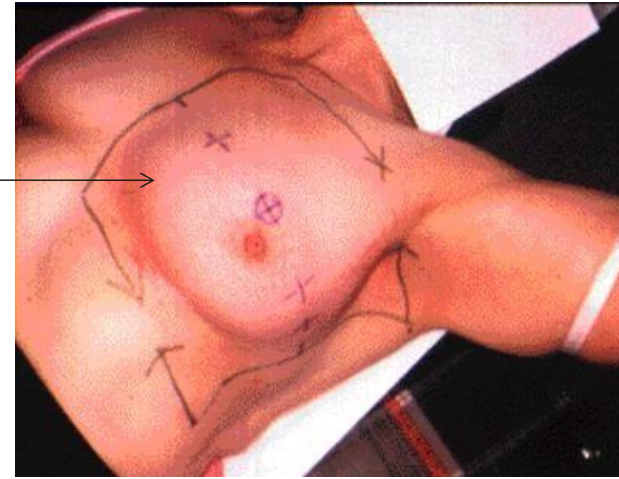


- 
- Small, flexible hollow tube.
 - Surgically placed into a large vein.
 - Can be left for several months.
 - Used for repeated infusions of chemotherapy drugs.



Radiotherapy:

- The preparation for radiotherapy is simulation.
- The area of treatment is outlined with ink lines and tattoos.
- Radiotherapy generally starts 3 weeks after surgery within a day or 2 after simulation.
- Side effects (self limited) : skin reddening & irritation/ darkening of the skin/ blistering/ minimal ↓ in blood counts/ mild fatigue/ lymphedema in the arm (arm sleeves are used to control the swelling).



Chemotherapy:

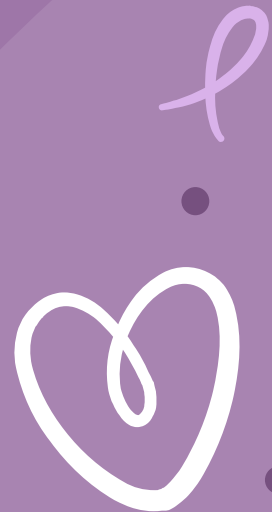
- To destroy tumor cells.
- Side effects : hair loss/ ↓ blood counts/ nausea & vomiting/ ↓ platelet count when high dose is used/ mouth sores/ diarrhea/ loss of appetite/ weight gain/ menopause.
- Uses : adjuvant chemotherapy (soon after surgery) / preoperative to shrink the breast size.
- The fast growing cells in malignant tissue are the more likely to respond to cytotoxic drugs.



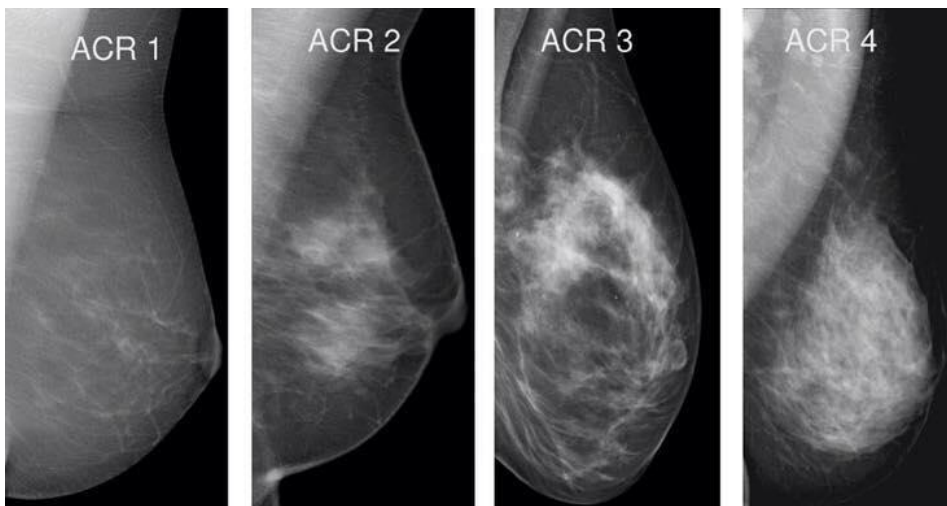


08

Radiology



ACR Classification of Breast density



- ACR = American College of Radiology
- There are four categories of mammographic density :
 - ACR 1 : almost entirely fatty.
 - ACR 2 : scattered areas of fibroglandular density.
 - ACR 3 : heterogeneously dense.
 - ACR 4 : extremely dense.

Why is Breast density important?



- Having dense breast tissue may increase your risk of getting breast cancer.
- Dense breasts also make it more difficult for doctors to spot cancer on mammograms.
- Dense tissue appears white on a mammogram.
- Lumps, both benign and cancerous, also appear white.
- So, mammograms can be less accurate in women with dense breasts.

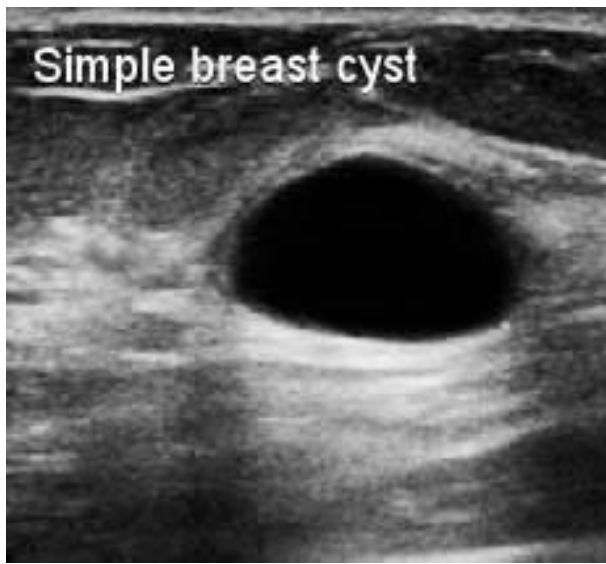




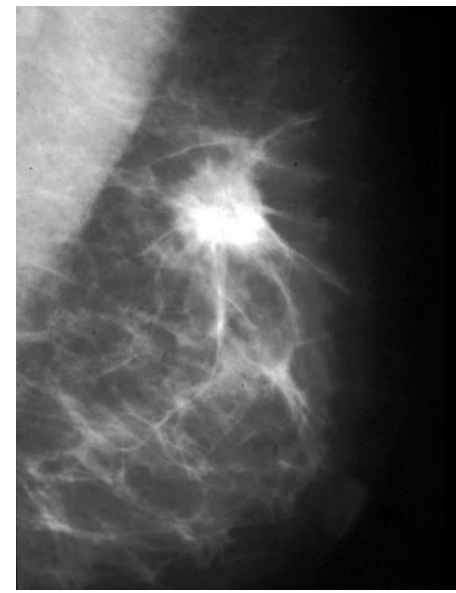
BI-RADS Classification

- BI-RADS = breast imaging reporting and data system
- 0 = assessment incomplete
1 = negative
2 = benign finding
3 = probably benign finding
4 = suspicious abnormality
5 = highly suspicious



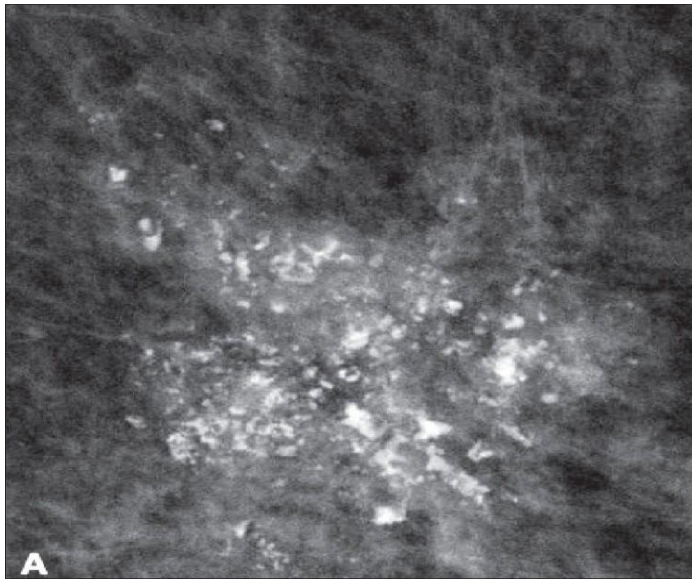


- On ultrasound, a cyst (containing air or fluid) would be black.
- A solid nodule would be white.



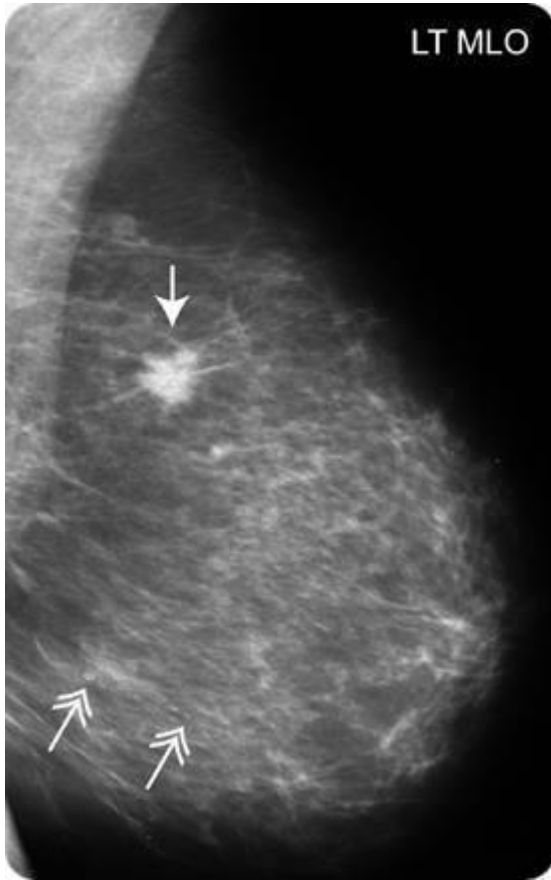
- This is a breast cancer on mammogram: dense mass with a spiculated margin.
- طالع منها زي أشعة الشمس





- Clustered microcalcification: five or more calcifications, each measuring less 1mm in one cubic cm, the possibility of malignancy increases as a size of individual calcification decreases and the total number of calcification per limit area increases.





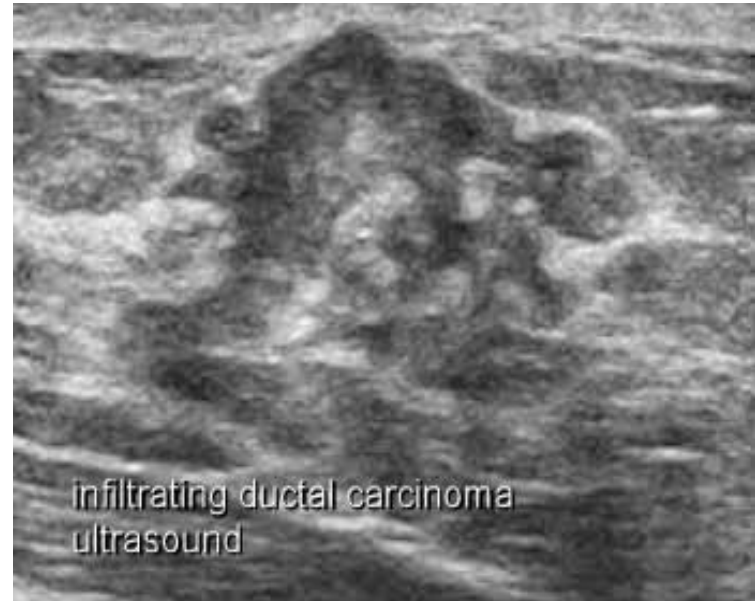
- The 2 major signs of malignancy in mammography:
 1. Mass with spiculated margins or stellate appearance (the single arrow).
 2. Microcalcifications (the double arrows).

1. Other mammographic images & details were mentioned in the [lecture by dr. Jamal Melhem & dr. Tayseer Al-Tawarah lecture.](#)



Breast Infiltrating Ductal Cancer Ultrasound

- ULTRASOUND for the BREAST follows Mammography, as it defines any nodule as a cyst or a solid mass.
- This shows an irregular ductal tumor with nodules infiltrating the area around it.





• Past Papers:

▪ A 56 year-old female patient came to the clinic with the breast lesion shown:

-The most likely diagnosis is?
breast cancer.

-The next step in management is?
radiography (mammogram) then biopsy.

▪ Mention two clinical findings:
Peau de orange, Nipple inversion

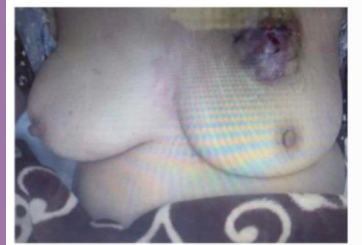
-What is your next investigation?
Mammogram

▪ Describe what you see:

Breast mass (Red/ heterogeneous/ ulcerated) on the RUQ of the left breast

-Two investigations:

Radiography and lesion biopsy.



- A 38 years-old lady presented with a swelling in her left axilla as shown in the picture.

-What is the gross finding?

Accessory breast tissue.

-What are the initial diagnostic investigations after history and physical exam?

Mammogram & Ultrasound, Tissue biopsy if the radiography was suspicious.

-
- A 65 years-old female presented with right breast lump and palpable matted axillary lymph nodes.

-What is the most likely diagnosis?

Breast cancer

-What is the next step in management?

Radiography (mammogram)



﴿وَلَنَبْلُوَنَّكُمْ حَتَّىٰ نَعْلَمَ الْمُجَاهِدِينَ مِنكُمْ
وَالصَّابِرِينَ وَتَبْلُوَ أَخْبَارَكُمْ﴾

حتى في البلاء رحمتُ الله تنزل؛ شفى
الله مرضانا وعافهم من كل سوء..~