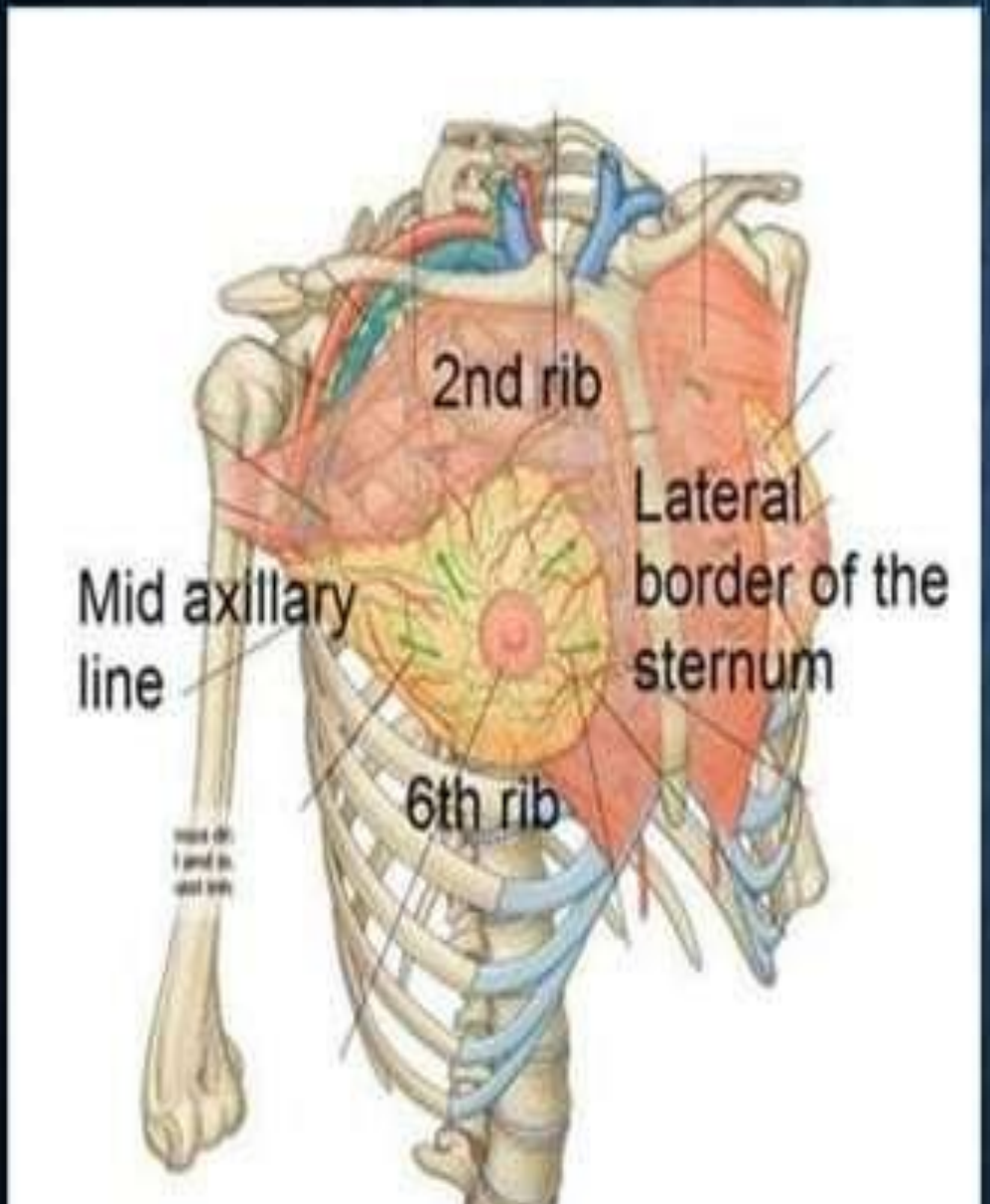
BREAST

DR. SUDHIR KUMAR JAIN
M.B.B.S, M.S, M.B.A, FRCS, FACS, FICS
DIRECTOR PROFESSOR
DEPARTMENT OF SURGERY
MAULANA AZAD MEDICAL COLLEGE

ANATOMY

- Breast is a modified sebaceous gland lying between the subcutaneous areolar tissue and the pectoral fascia
- Composed of branching system of ducts, ductules that end up in acini, that are the chief milk producing glands.
- Acini join together to form lobules and lobes, that form the functional unit, termed as lobular unit.
- Each lobe is drained by an individual collecting duct.



EXTENT

- Vertical: From 2nd – 6th ribs
- Horizontal: From side of sternum to mid axillary line
- 2/3rd of tissue lies over the pectoralis minor
- 1/3rd lies over the serratus anterior
- Breast lies over the subcutaneous tissue and separated from the muscle by deep fascia

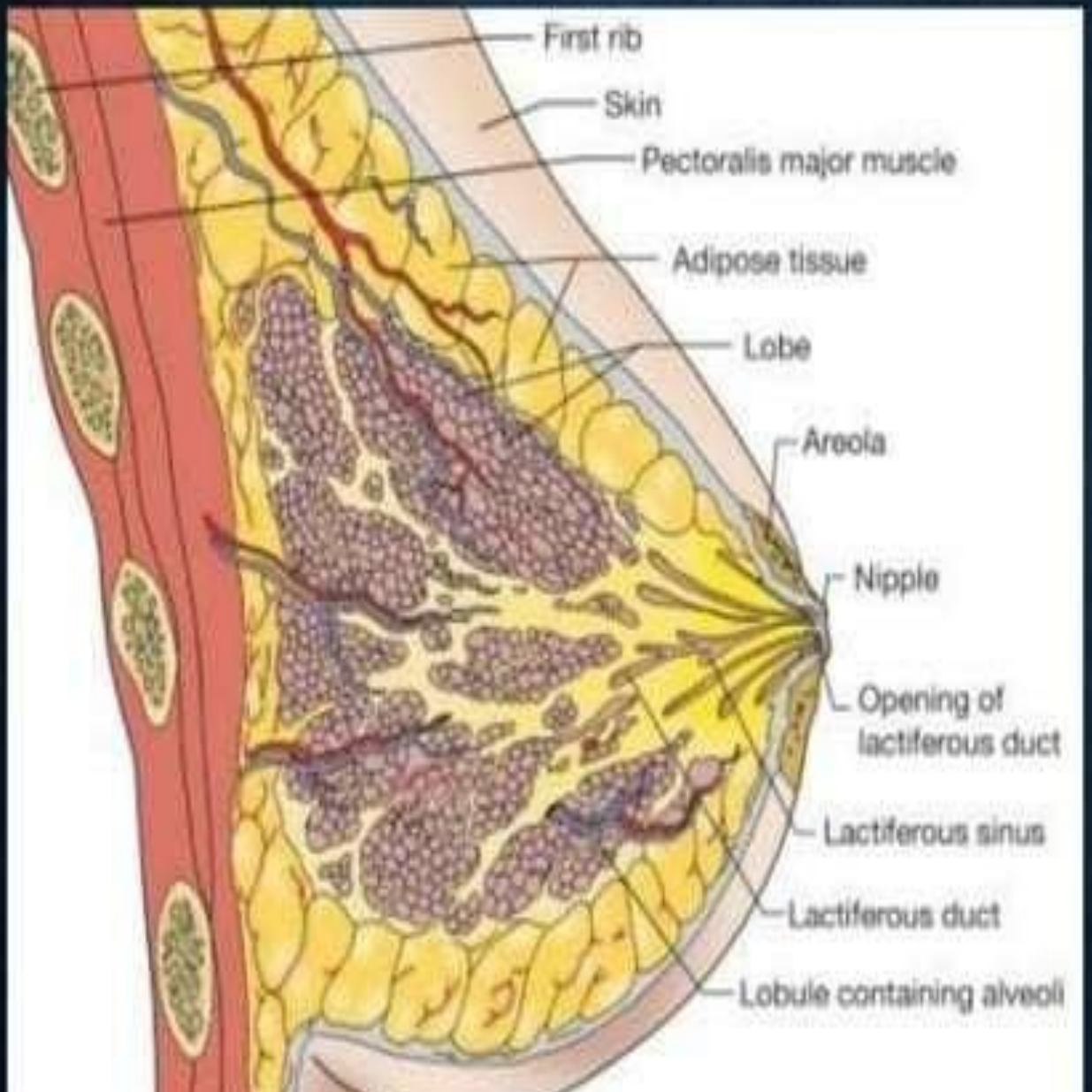
ANATOMY

AXILLARY TAIL OF SPENCE:

- Extension from the outer part of gland
- Reaches up to the 3rd rib in the axilla
- Lies under deep fascia
- Comes in direct contact with the axillary lymph nodes

ARCHITECTURE OF THE BREAST

- Acini → Lobules → Lobes
- Lobes are arranged in a radiating fashion like spokes of a wheel
- Converge onto the nipple
- Each lobe is drained by a collecting duct
- 10-15 collecting ducts
- Each duct drains a segmental system of smaller ducts and lobules


First rib
Skin
Pectoralis major muscle
Adipose tissue
Lobe
Areola
Nipple
Opening of lactiferous duct
Lactiferous sinus
Lactiferous duct
Lobule containing alveoli

ARCHITECTURE

Lobule

↓

Ductules

↓

Subsegmental Duct

↓

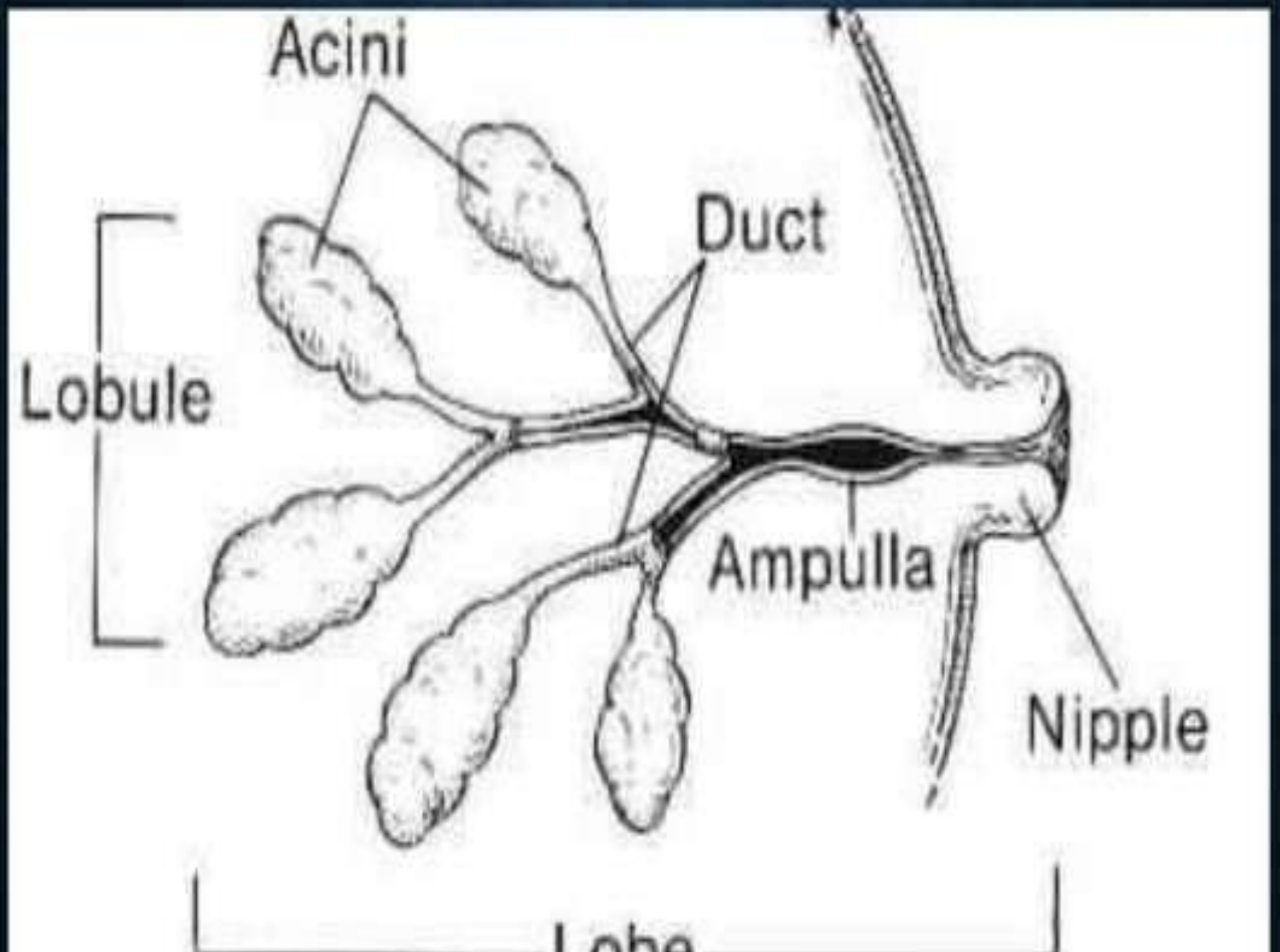
Segmental duct

↓

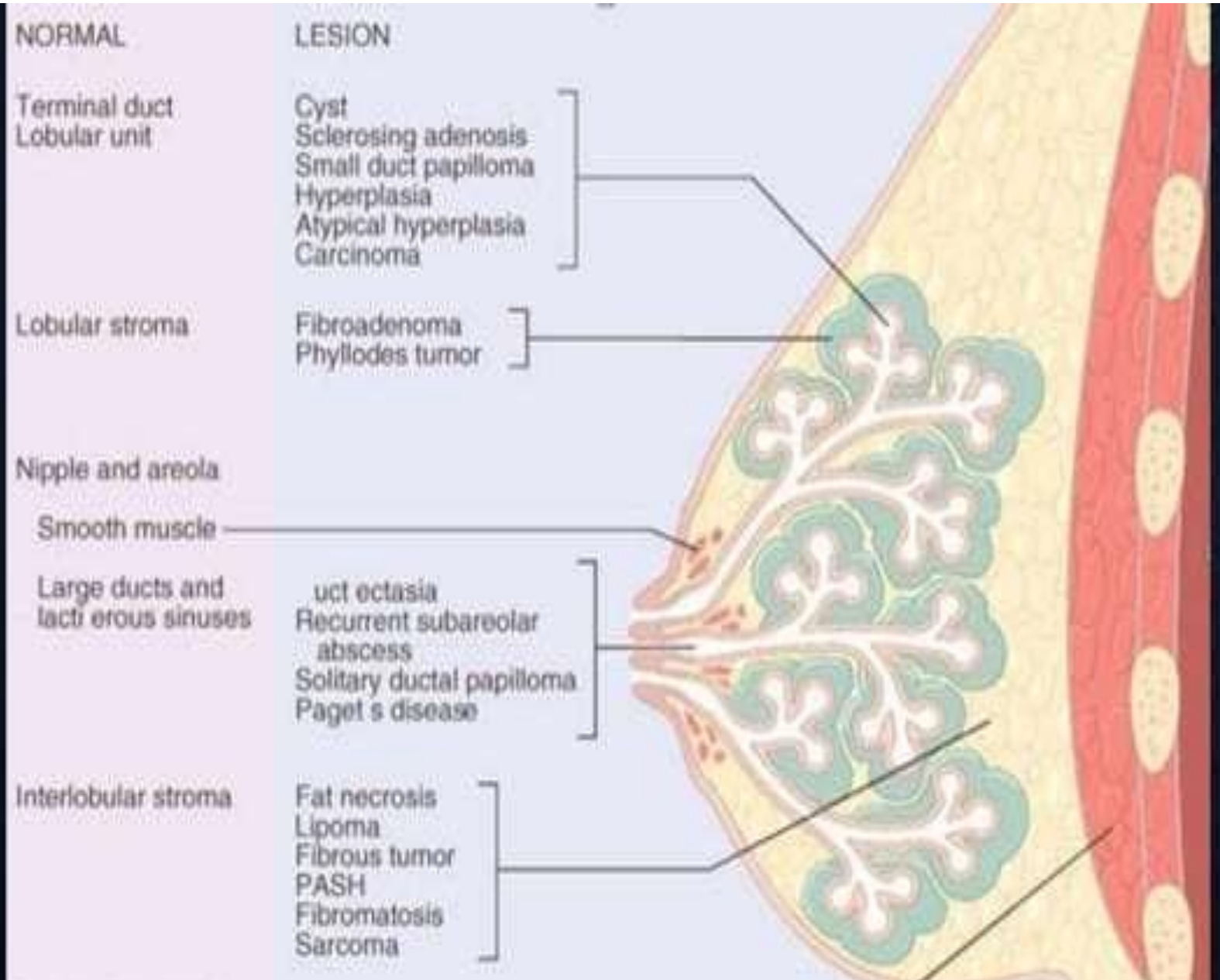
Lactiferous sinus

↓

Collecting Duct


Acini
Duct
Lobule
Ampulla
Nipple
Lobe

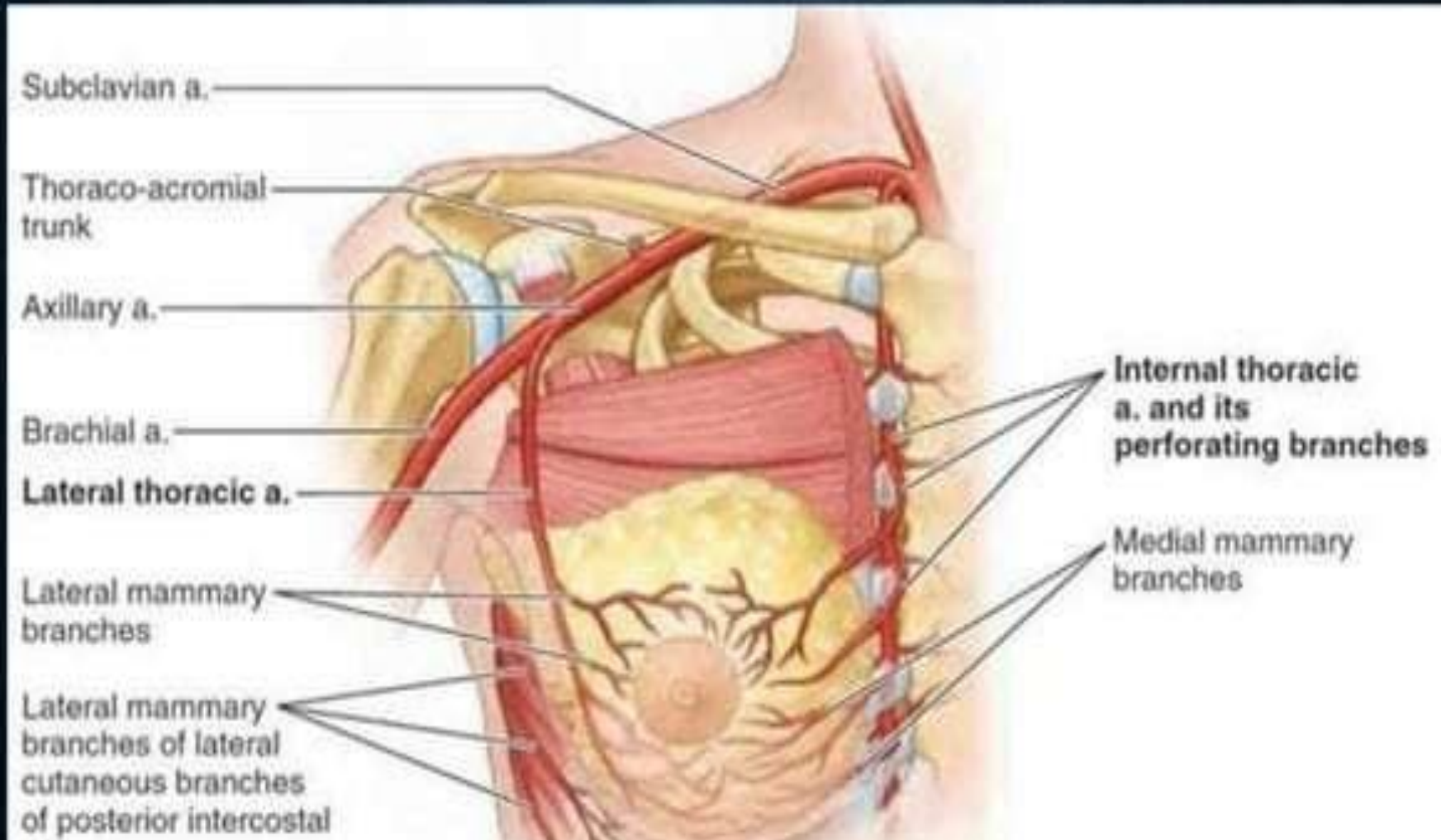
- Large ducts are the sites of:
  - Duct Papilloma
  - Duct ectasia
- Distal ducts are the site of:
  - Fibroadenoma
  - Cyst formation
  - Sclerosing adenosis


NORMAL
LESION
Terminal duct Lobular unit
Cyst
Sclerosing adenosis
Small duct papilloma
Hyperplasia
Atypical hyperplasia
Carcinoma
Lobular stroma
Fibroadenoma
Phyllodes tumor
Nipple and areola
Smooth muscle
Large ducts and lacti erous sinuses
uct ectasia
Recurrent subareolar abscess
Solitary ductal papilloma
Paget s disease
Interlobular stroma
Fat necrosis
Lipoma
Fibrous tumor
PASH
Fibromatosis
Sarcoma

ARTERIAL SUPPLY

- 3 major vessels
- Lateral Thoracic artery (br. of 2nd part of axillary artery)
- Perforating branches of internal mammary artery via 2nd, 3rd, 4th spaces
- Lateral branches of 2md, 3rd, 4th intercostal arteries

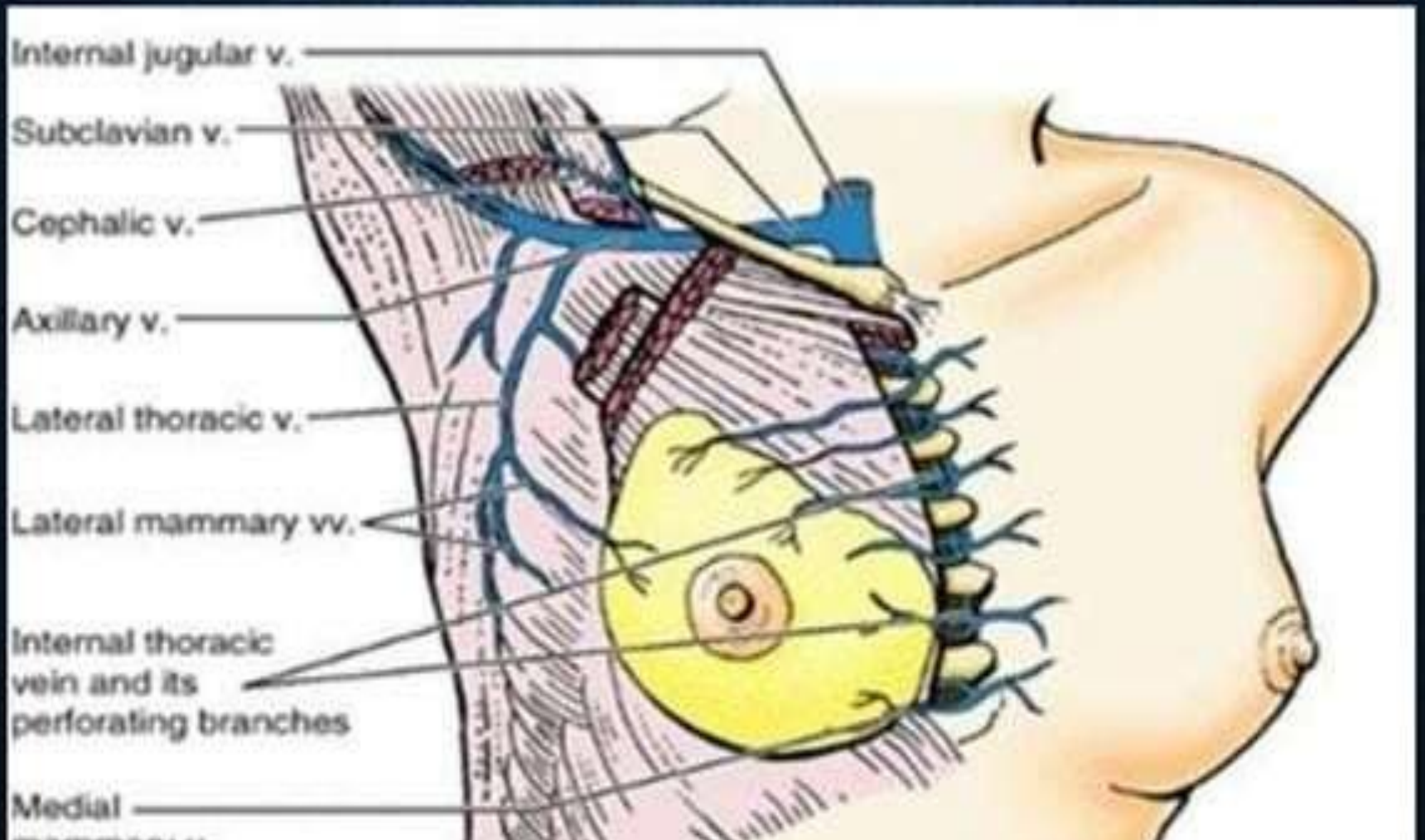
ARTERIAL SUPPLY



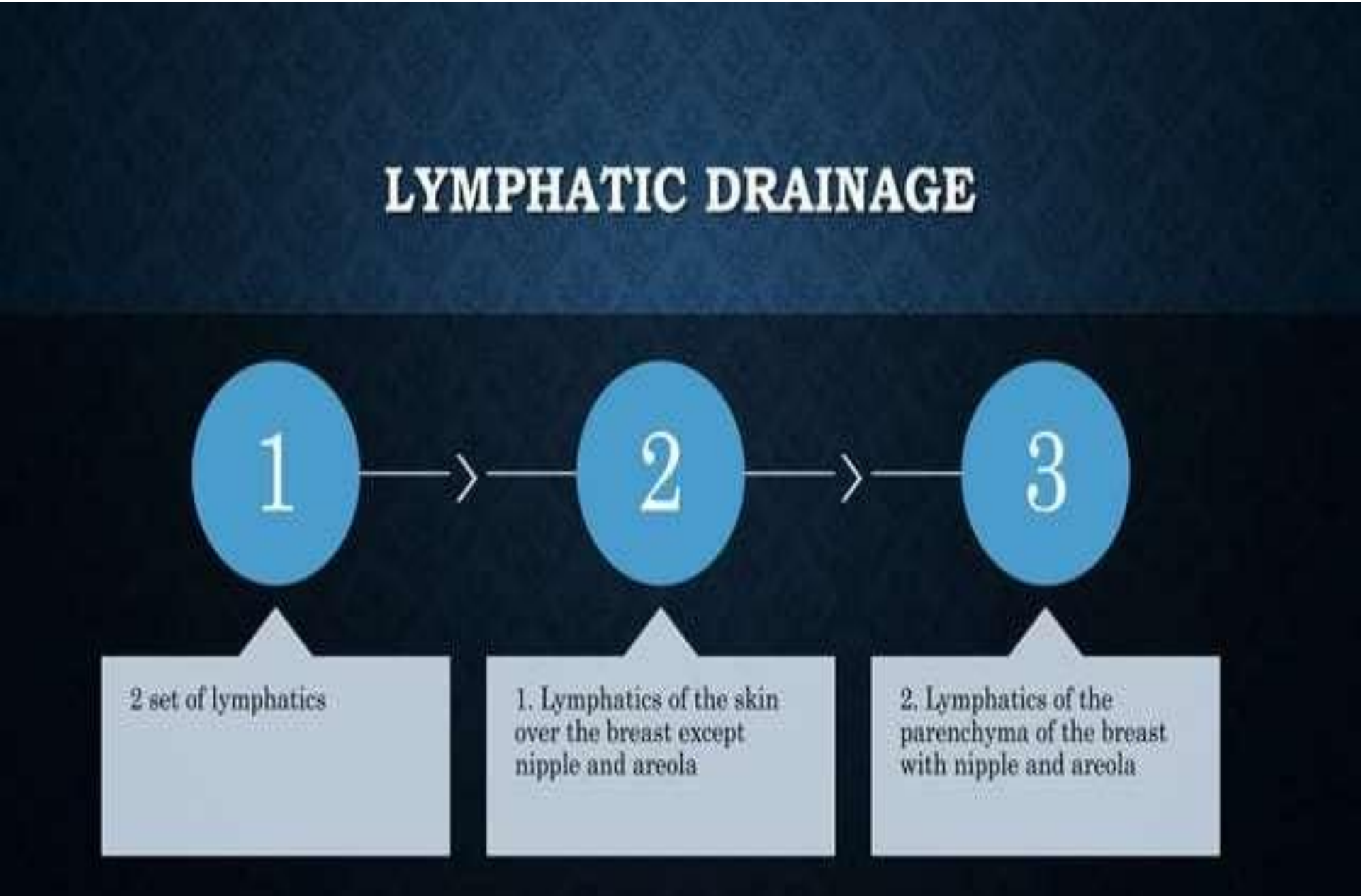
VENOUS DRAINAGE

- 3 major veins
- Axillary vein
- Internal Mammary Vein
- Intercostal Veins

VENOUS DRAINAGE



LYMPHATIC DRAINAGE



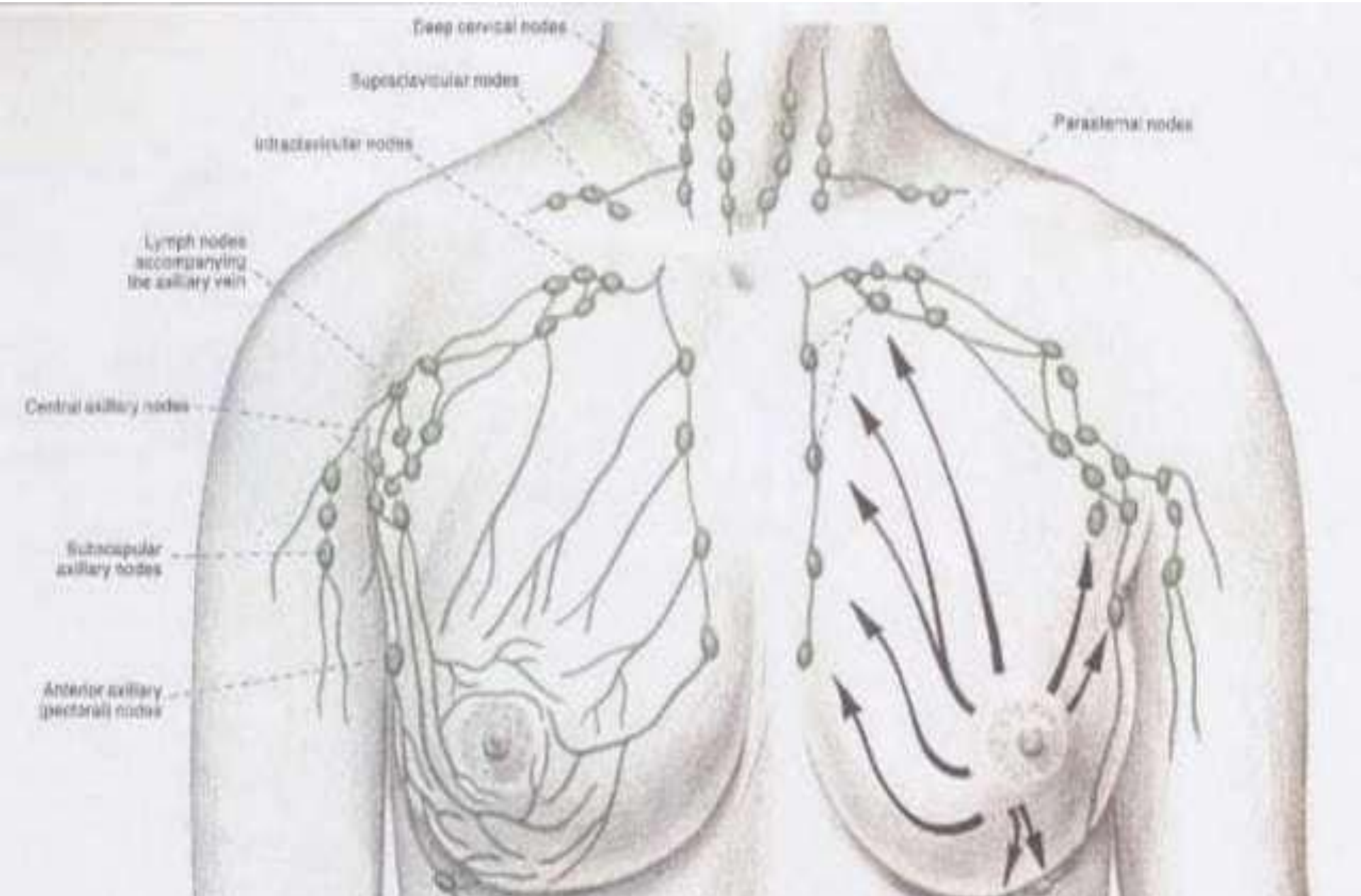
LYMPHATIC DRAINAGE

- Lymphatics of the skin (Except nipple and areola)
  - Pass in radial direction
  - End in surrounding nodes
- From outer side- Axillary nodes
- From upper part- Supraclavicular nodes
- From Inner part- Internal mammary nodes
- Lymphatics of nipple and areola → Subareolar plexus of Sappy → Communicates with the lymphatics of breast tissue

LYMPHATIC DRAINAGE

- Lymphatics of breast parenchyma
  - 75%- Axillary lymph nodes
  - 25%-medial and lateral part of breast ⟶ Internal mammary nodes

- Axillary lymph nodes are arranged in 5 sets:
  - Anterior- along lateral thoracic veins
  - Posterior- along subscapular vessels
  - Lateral- along axillary vein
  - Central- along Intercostobrachial
  - Apical- known as infraclavicular lymph nodes


Deep cervical nodes
Supraclavicular nodes
Infraclavicular nodes
Parasternal nodes
Lymph nodes accompanying the axillary vein
Central axillary nodes
Subscapular axillary nodes
Anterior axillary (pectoral) nodes

INVESTIGATIONS

MAMMOGRAPHY

- Soft tissue x-ray of breast
- Low voltage, high amperage x-rays
- Dose-0.1 rad
- 2 views- a) Cranio-caudal (CC) b) Medio-lateral oblique (MLO)

MAMMOGRAPHY

Normal mammogram

Benign cyst (not cancer)

Cancer

MAMMOGRAPHY

- Uses:
  - Breast screening to detect carcinoma breast at an early stage.
  - To detect tumors which are not clinically palpable (<0.5cm)
  - For evaluation of opposite breast in proven cases of carcinoma of one breast
  - Follow up cases of carcinoma breast after treatment.

ULTRASONOGRAPHY

- Useful in young women
- To distinguish solid from cystic lesions
- To detect impalpable breast lumps

ULTRASONOGRAPHY

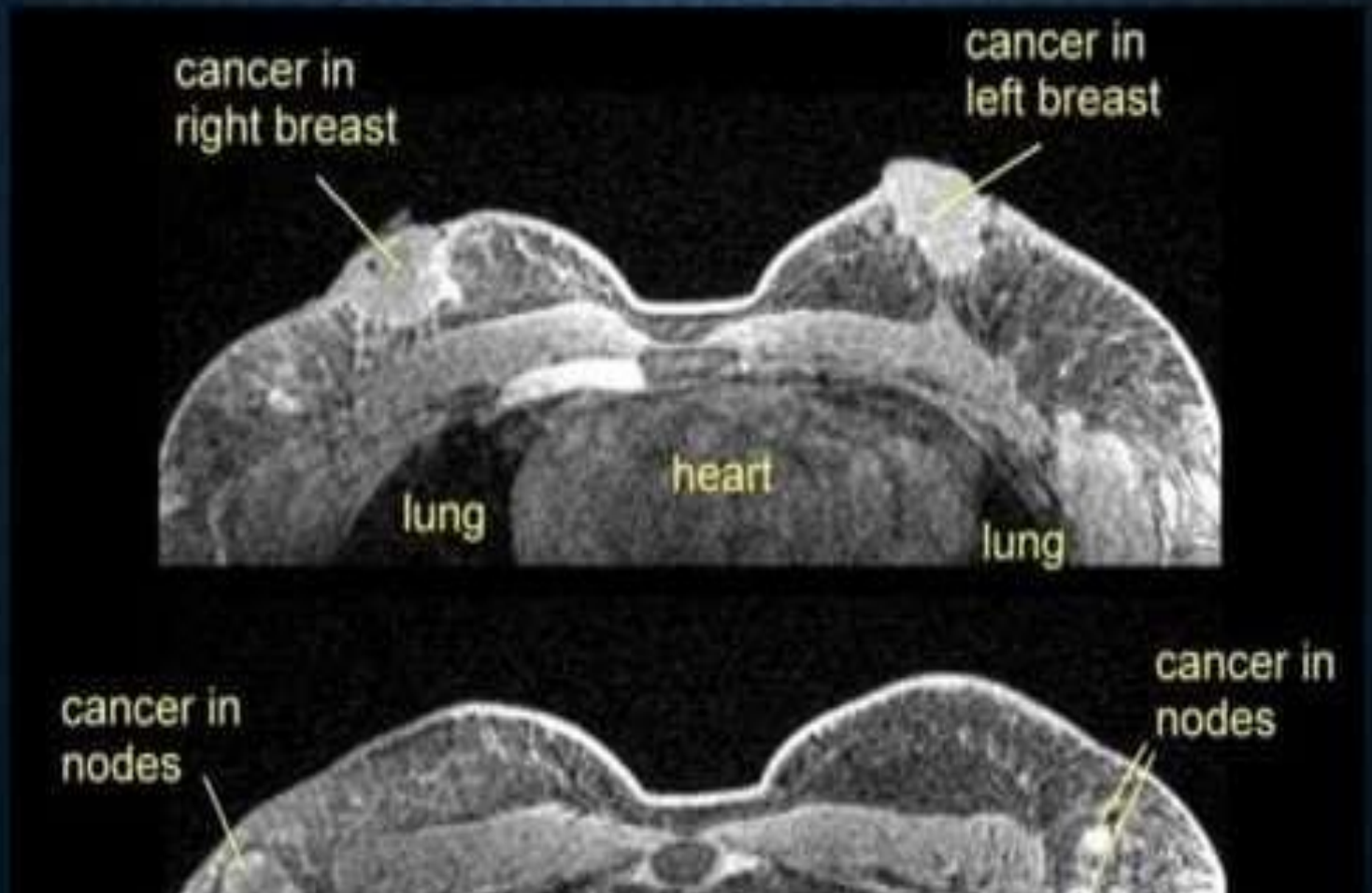
Solid lesion appearing as irregular hyperechoic lesion

Cystic lesion appearing as oval, well circumscribed hyperechoic lesion

MRI

- Uses:
  - To distinguish scar from recurrence in patients who have previous breast conservation surgery for breast cancer.
  - For imaging breasts of patients with implants.
  - Screening tool in high risk breast cancer patients.
  - Management of axilla in both primary breast cancer as well as recurrent diseases.
  - Paget's disease of the nipple without radiographic evidence of primary tumour.

MRI


cancer in
right breast
cancer in
left breast
heart
lung
lung
cancer in
nodes
cancer in
nodes

MRI

- Routine screening of patients with MRI is recommended for the following:
  - Known BRCA1 or BRCA 2 gene mutation.
  - First degree relative with known BRCA1 or BRCA 2 gene mutation
  - Radiation therapy to the chest between the ages 10 and 30
  - Li fraumeni or Cowden syndormes or a first degree elative with one of these syndromes.

BIOPSY OF BREAST LESIONS

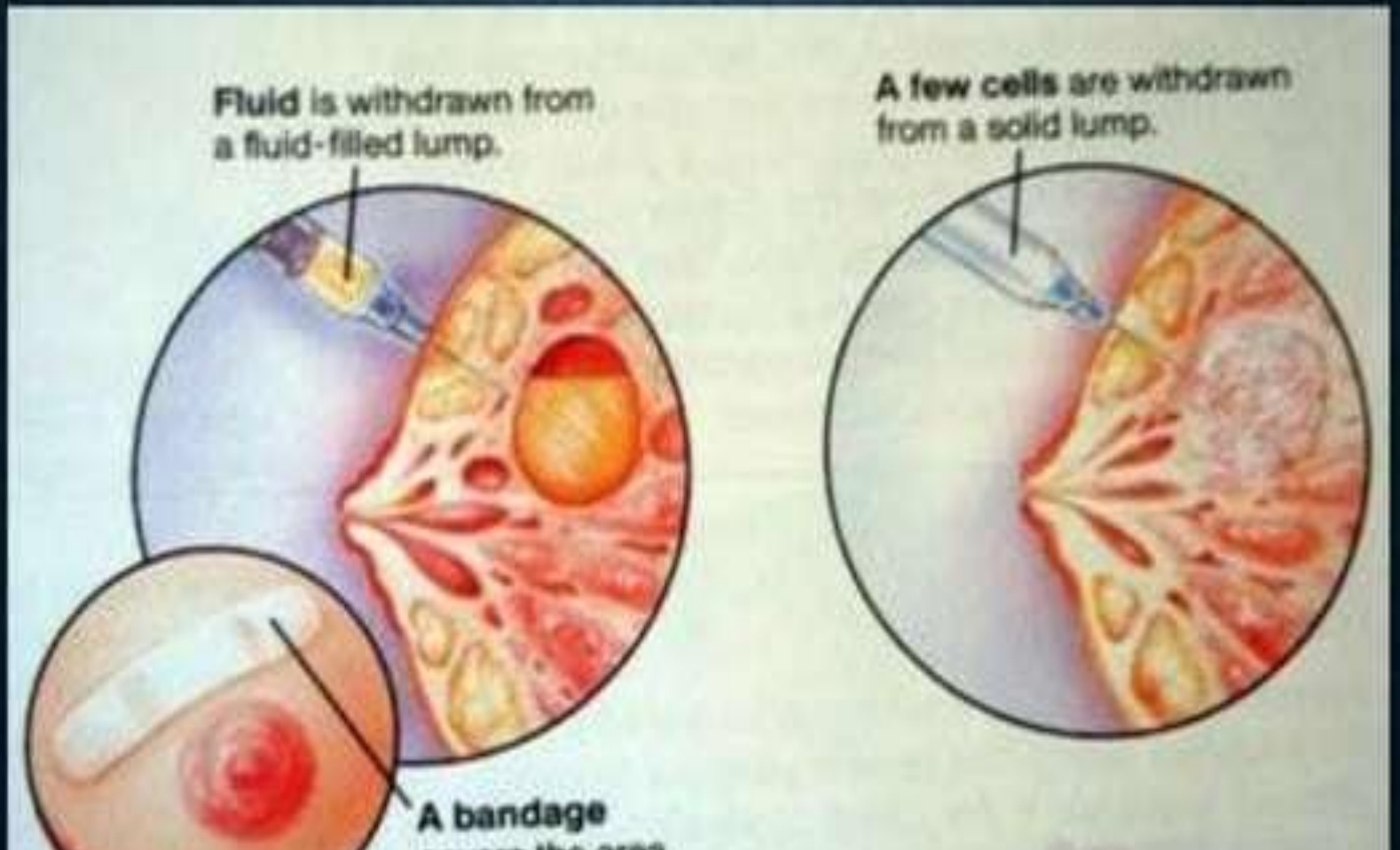
BIOPSY

- FNAC
- Trucut Biopsy
- Excisional/Incisional Biopsy

FNAC

- Using a 22 gauge needle and 10ml syringe
- Multiple passes are made through the lesion
- Fluid and cellular material is air dried and fixed on a slide
- Investigation of choice for tissue diagnosis in cases of breast lumps
- Use is limited in suspected cases of malignancy, as it cannot differentiate invasive from non-invasive carcinoma

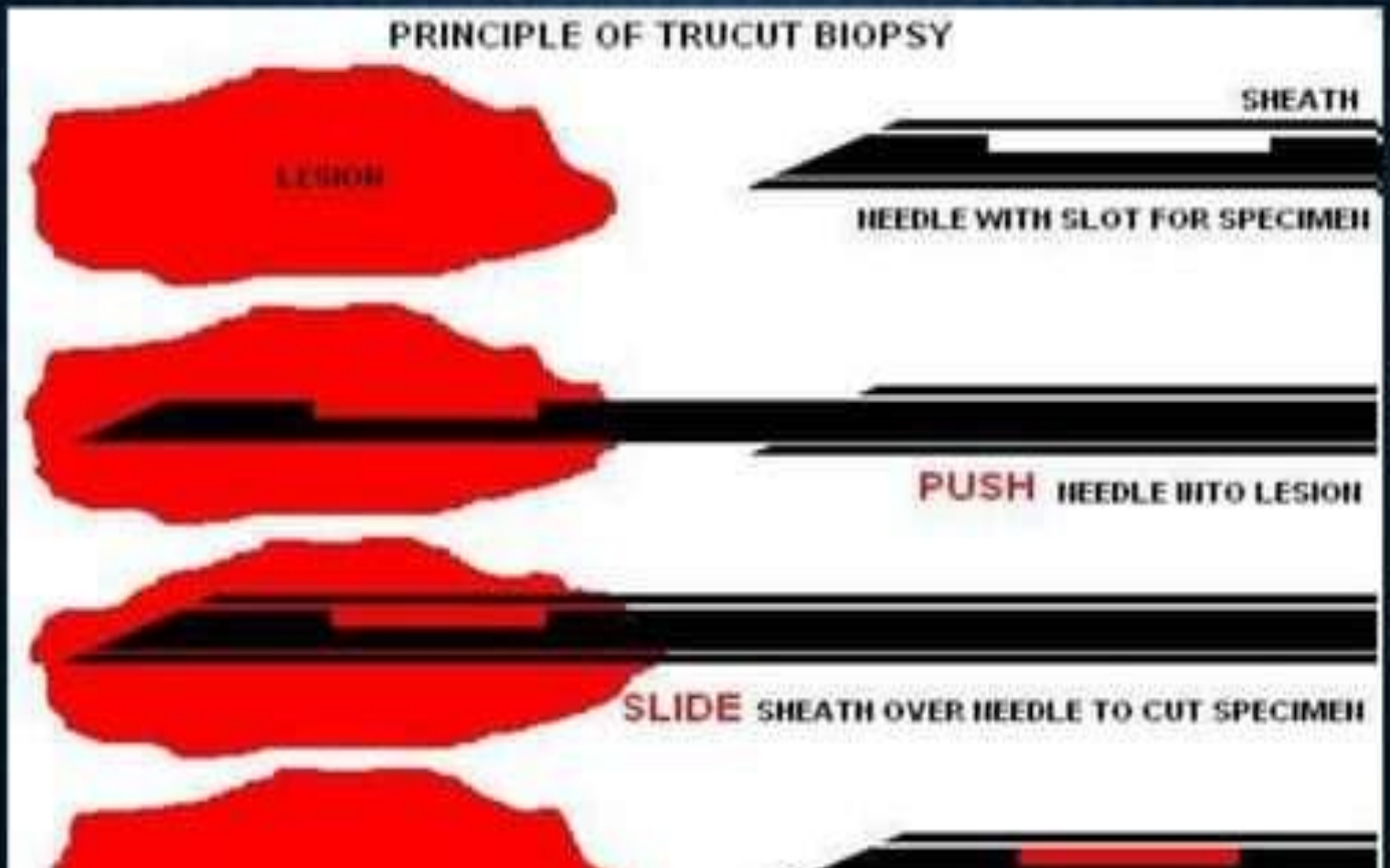
FNAC


Fluid is withdrawn from a fluid-filled lump.
A few cells are withdrawn from a solid lump.
A bandage

TRUCUT BIOPSY

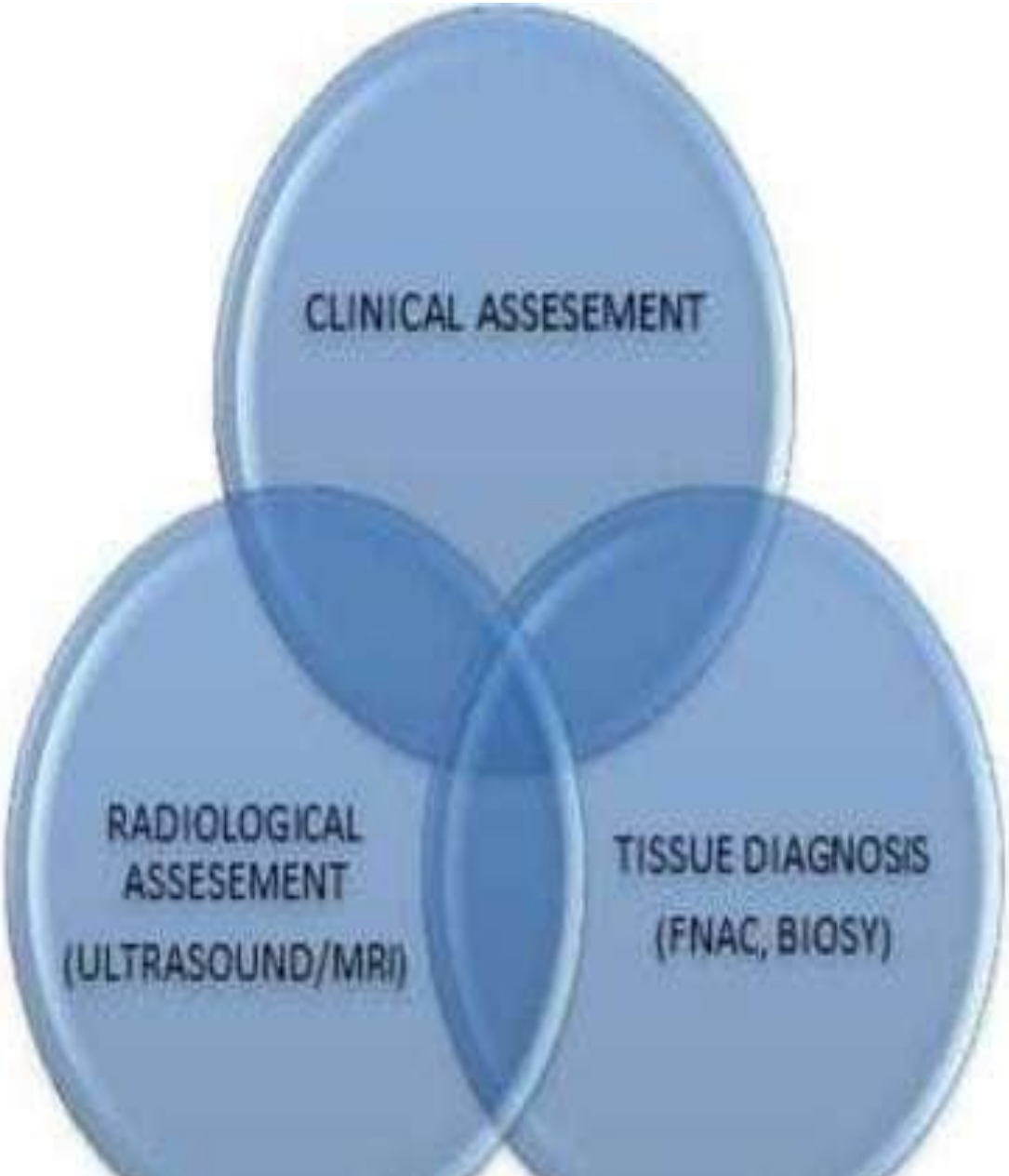
- Method of choice for obtaining tissue diagnosis in breast lesions
- May be performed under USG, MRI, mammographic guidance or clinically
- Helps in differentiating benign invasive from non-invasive cancers
- Helps in determining histological subtype, grade, receptor status of the tumour

TRUCUT BIOPSY



EXCISIONAL BIOPSY

- Use is limited since the advent of trucut biopsy
- Reserved for cases where the histological results obtained via trucut biopsy are discordant with the radiological results



TRIPLE ASSESEMENT

- For any breast lump diagnosis is achieved via a combination of clinica, radiological and tissue diagnosis

01

Physiological- following pregnancy, lactation

02

Pathological

NIPPLE DISCHARGE


Nipple discharge
Milky
(Lactation, Galactocoele)
Blood
(Duct carcinoma, Duct papilloma, Duct ectasia, Pageta disease, Fibroadenosis
Non milky
Serous
E.g Early
Thick Creamy
E.g Duct Ectasia
Purulent (Yellow)
E.g Breast Abscess
Various shades (brown, green, black)
Fibroadenosis, duct

MANAGEMENT OF NIPPLE DISCHARGE


MANAGEMENT OF NIPPLE DISCHARGE
WITH LUMP
WITHOUT LUMP
TRIPLE ASSESEMENT
MANAGE ACCORDINGLY
LOCALISED TO ONE DUCT
INVOLVING MANY DUCTS
REMOVAL OF DUCT (MICRODOCHECTOMY AND HISTOPATHOLOGICAL EXAMINATION)
EXAMINE DISCHARGE FOR OCCULT BLOOD
HB +
HB-
AGE>40
AGE<40
OBSERVE
SIMPLE MASTECTOMY AND HISTOPATHOLOGICAL EXAMINATION
DISCHARGE MAY DISAPPEAR
LOCALISED TO ONE DUCT
LUMP MAY APPEAR
MICRODOCHECTOMY
LUMP EXCISION
TOTAL EXCISION OF

BREAST ABSCESS

- According to severity of onset:
- Acute
- Subacute
- Chronic

BREAST ABSCESS

- According to their position:
- Pre-mammary- Subareolar
- Intra-mammary
- Retro-mammary

- Acute Intra-mammary is the most common type. Accounts for 85% of breast abscess cases

ETIOLOGY

- >90% occur in lactating women
- Most common during 1st month lactation
- Most common organism is *Staphylococcus aureus*
- Source is Infants throat

CLINICAL FEATURES

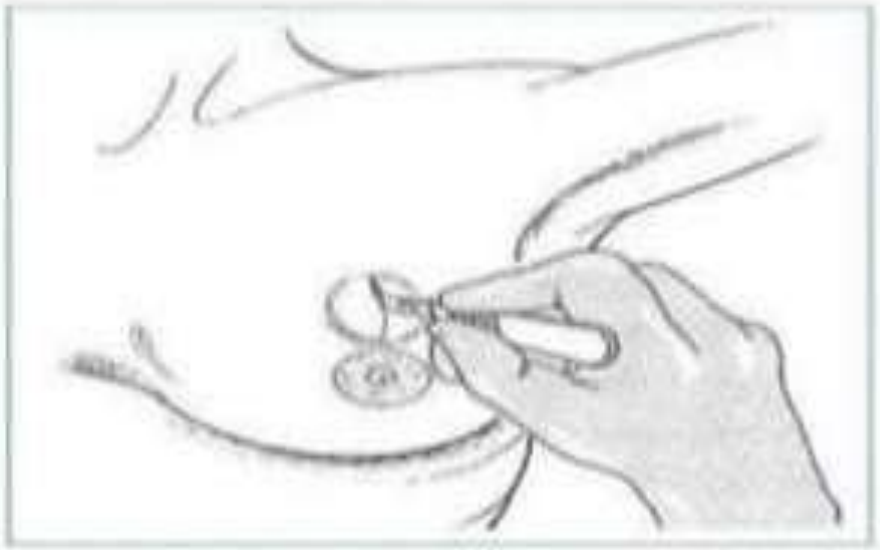
- I- STAGE OF CELLULITIS
  - Swollen, congested and painful, fever+
- II-STAGE OF LOCALISATION AND ASBCESS FORMATION
  - Tissue necrosis and abscess spreads to adjacent tissues. Fluctuation+. Overlying skin oedematous and indurated

BREAST ABSCESS

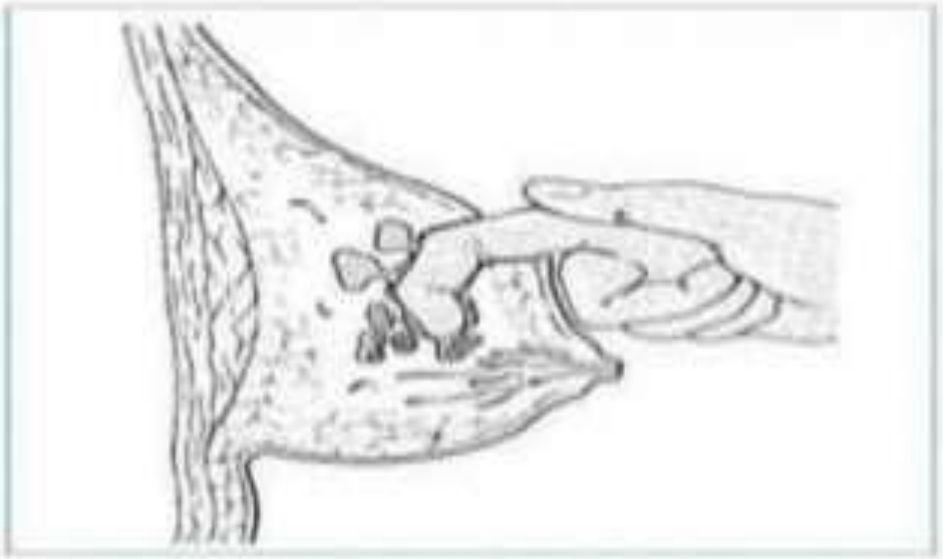
Breast Abscess: Gross overlying skin erythematous, oedematous, tender

TREATMENT

- Stage of Cellulitis:
  - Conservative- Analgesics, local heat
  - Antibiotics-Cloxacillin or Erythromycin
  - Infected breast should be emptied of milk using breast pump
- Stage of Abscess formation:
  - Incision and Draiange of thee abscess
  - Supportive Antibiotics



Incise



Break down loculations

THANK YOU