

INTRODUCTION

- ❖ *Most common cancer among females – Ca. Breast*
- ❖ *Leading cause of death among women of 40 – 55 yrs.*
- ❖ *NICPR- most frequently seen cancer among Indian women.*
- ❖ *Annual incidence in Kerala – 14.9/lakh*

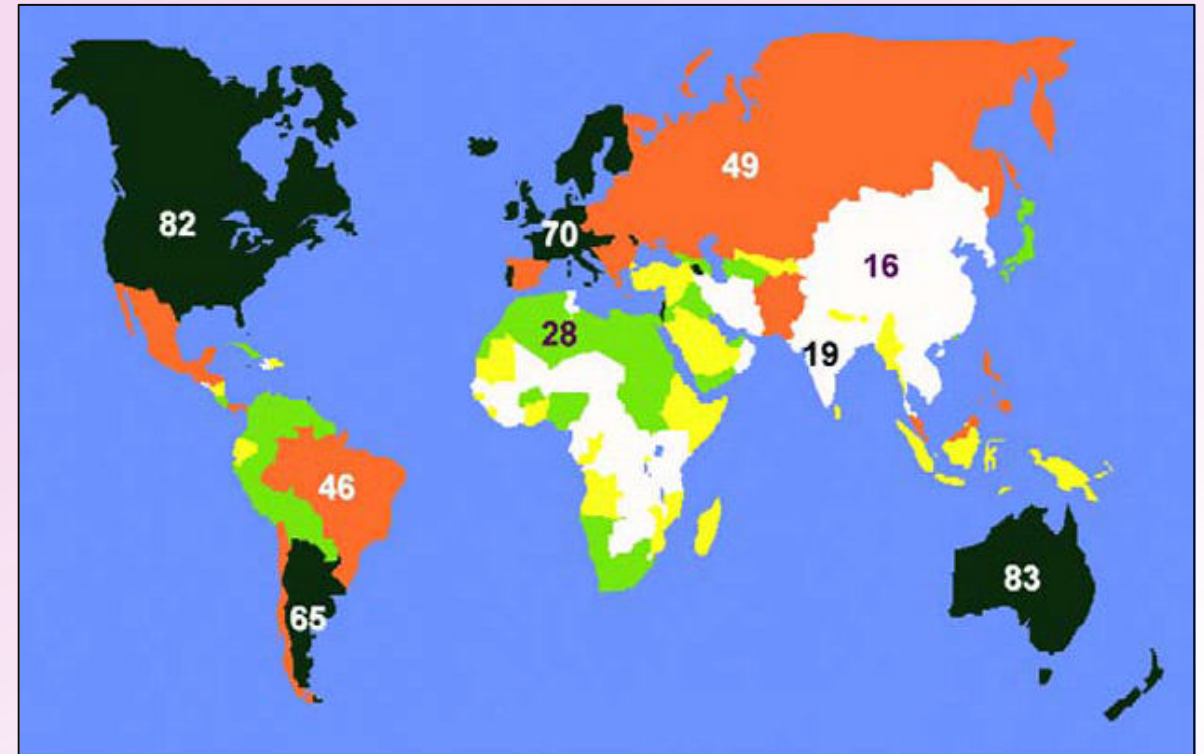


Fig. 1.01 Global incidence rates of breast cancer. Age-standardized rates (ASR) per 100,000 population and



Think Pink!

O C T O B E R

BREAST
Cancer
AWARENESS MONTH

ANATOMY OF BREAST

Abdul Kalam

AETIOPATHOLOGY

Adila Rahim

VARIANTS OF CA BREAST

Afsana Faby Khan

TNM STAGING

Ahna Ahmed

HISTORY, CLINICAL EXAMINATION

Abi Shamsudheen

INVESTIGATIONS

Aiswarya S

TREATMENT OF LABC

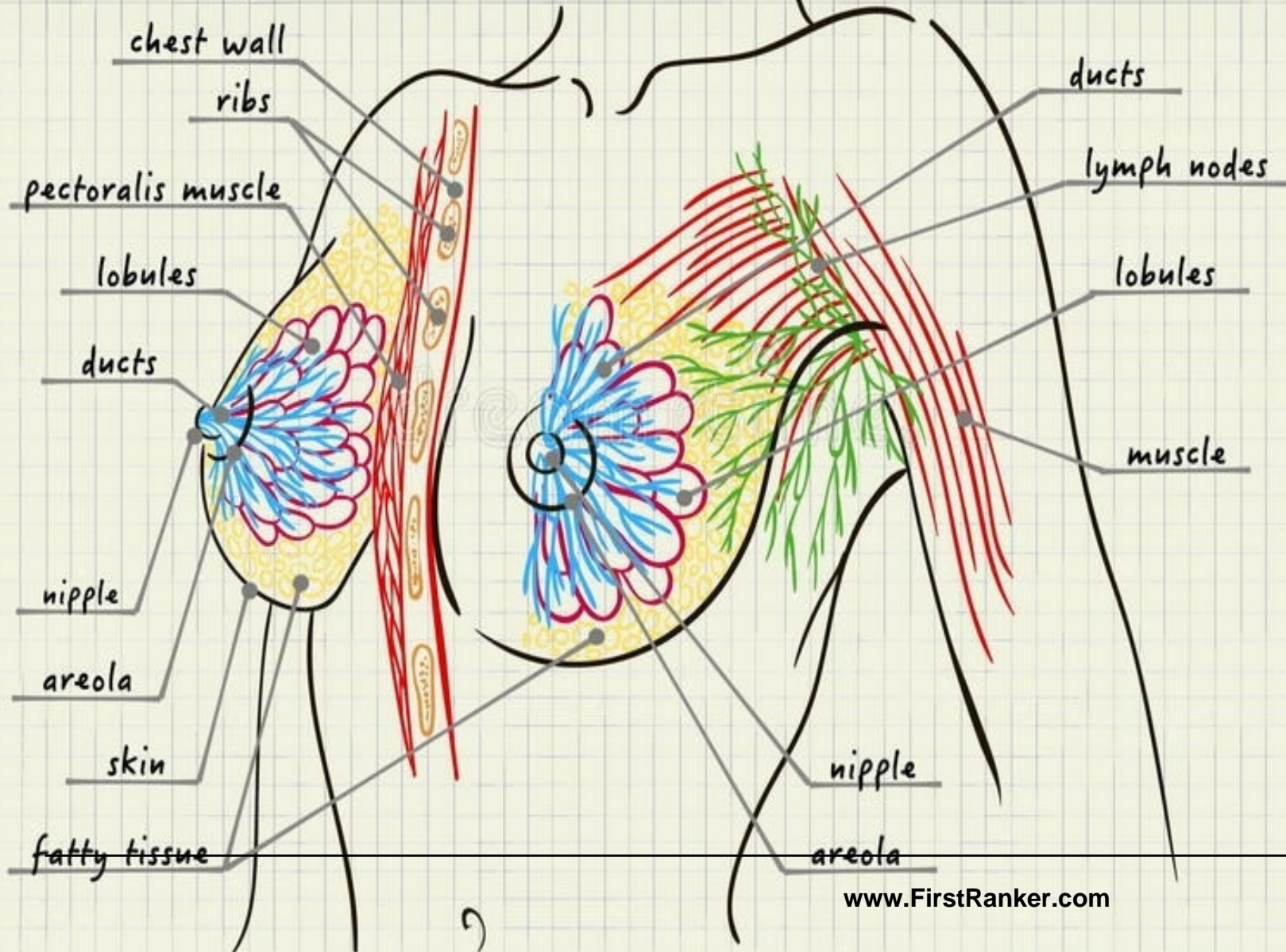
Alex Shibu

TREATMENT OF LABC

Alfia Hussain

PROGNOSIS ,COMPLICATIONS, FOLLOW UP

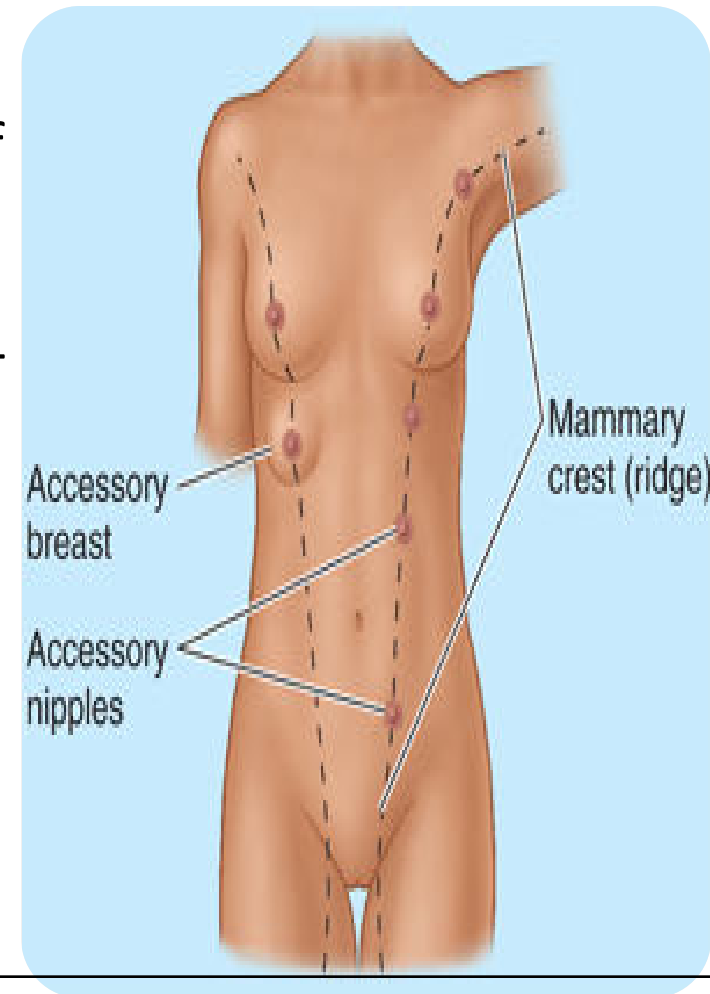
Alida Francis



Abdul Kalam C.J
Roll no. 1

DEVELOPMENT

- Modified sweat gland ,derived from ectoderm
- Development begins at 5th or 6th week of intrauterine life
- Ectodermal thickening in the chest area - **mammary ridge/milk line/line of Schultz**
- **Axilla to inguinal region**
- In humans, these ridge disappears except for a small portion over pectoral region



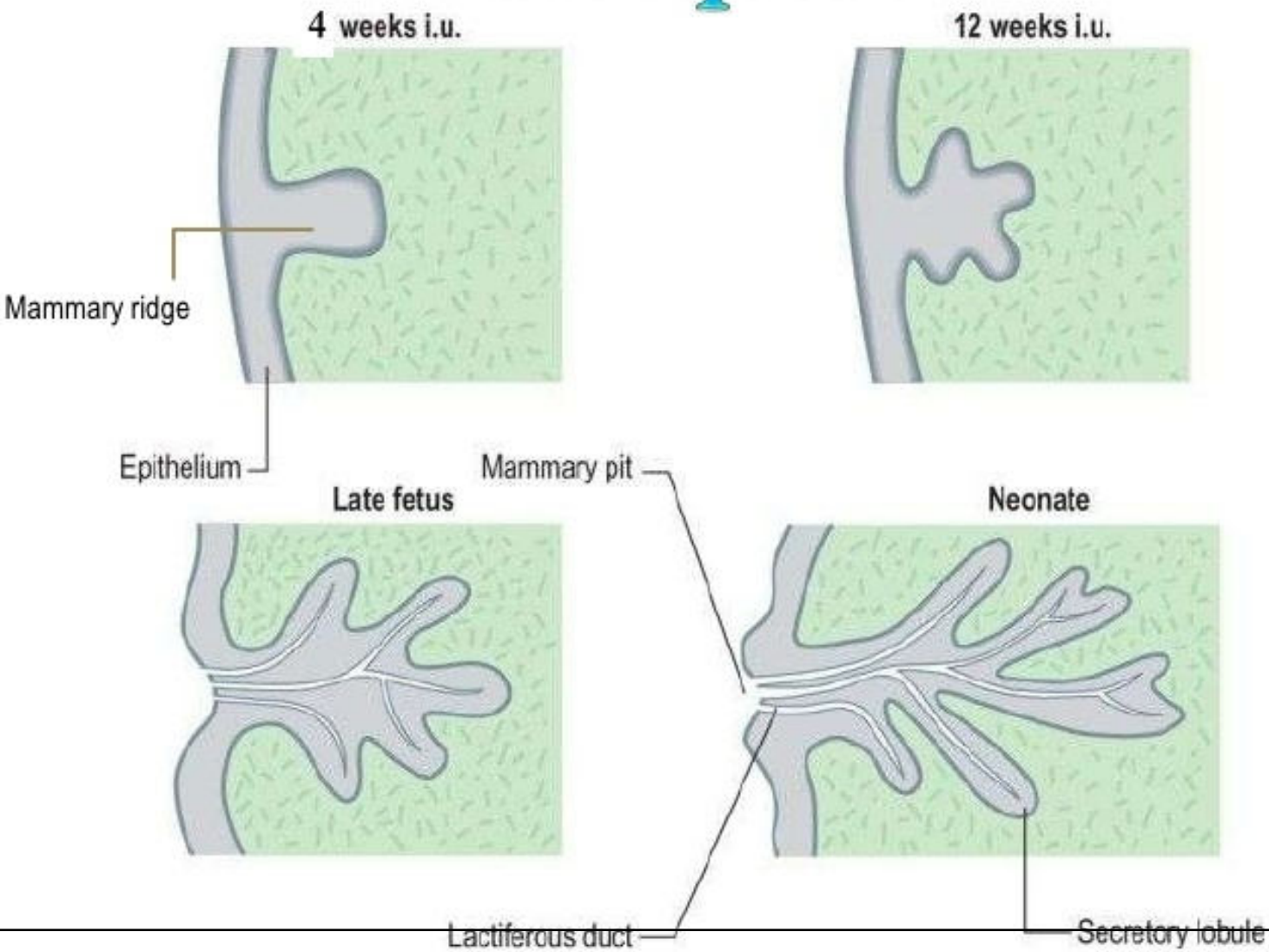
Formation of mammary gland

- Persisting part of the mammary ridge is first converted into a mammary pit
- Secondary buds(15-20) grow down from floor of the pit
- These buds divide & subdivide to form lobes
- Entire solid system is canalized later

Growth of mammary gland, at puberty caused by;

- Estrogen – development of ductal system.
- Progesterone – stimulates development of secretory alveoli

Development

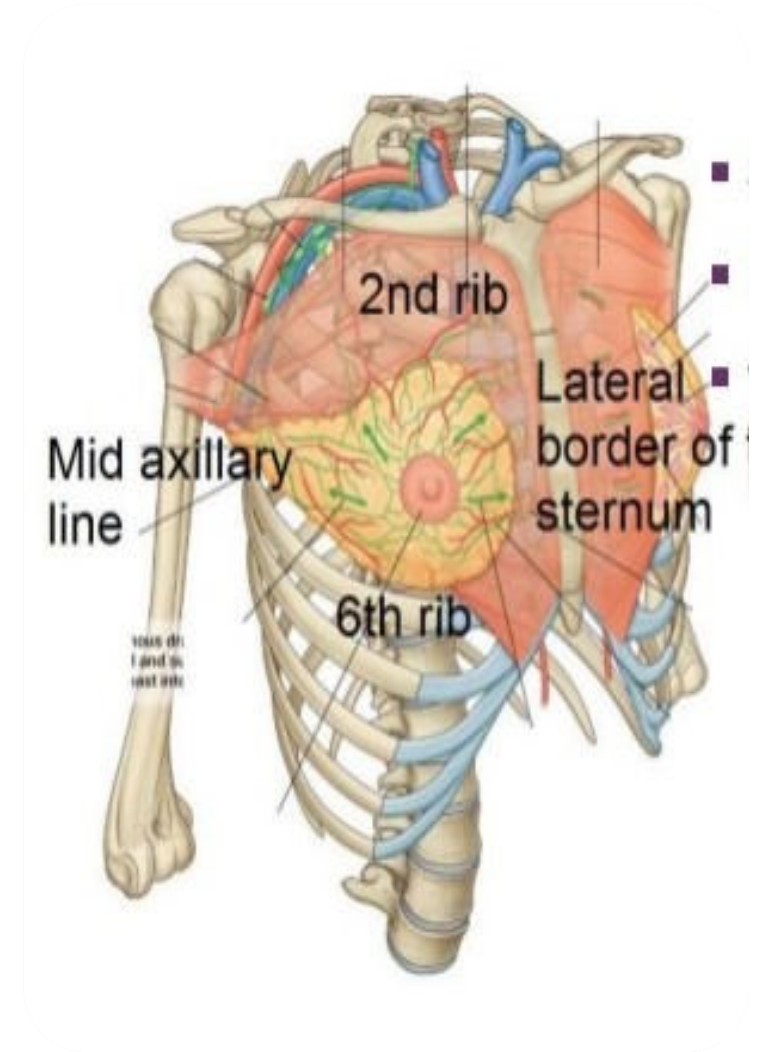


❑ SITUATION:

Superficial fascia of pectoral region

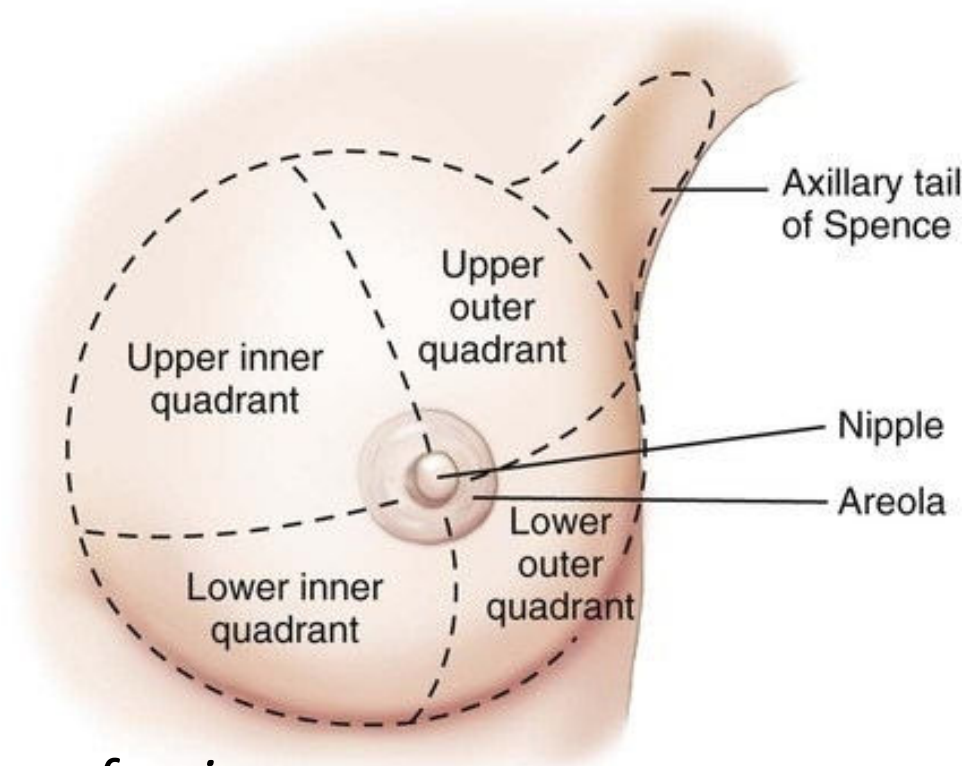
❑ EXTENT OF BASE

- Vertically – second to sixth rib in the mid clavicular line
- Horizontally – from lateral border of sternum to anterior axillary line
- A thin layer of mammary tissue extends from below the clavicle to 7th/8th rib and from midline to edge of latissimus dorsi posteriorly (surgical imp.)



Divided into 4 quadrants :

- UPPER INNER
- UPPER OUTER
- LOWER INNER
- LOWER OUTER



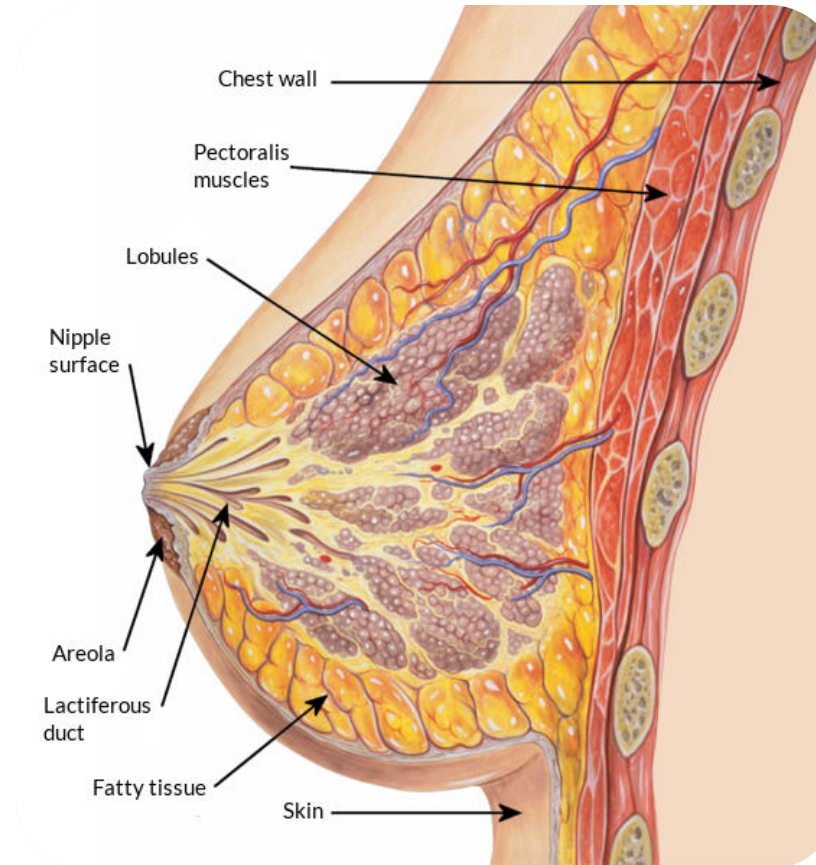
AXILLARY TAIL OF SPENCE -

*Passes through an opening in the deep fascia
(**Foramen of Langer**) and lies deep to deep
fascia*

Upper outer quadrant is the most frequently affected quadrant by carcinoma (60%) as the breast tissue is denser in this area

DEEP RELATIONS

- Deep pectoral fascia
- Muscles
 - i. Pectoralis major
 - ii. Serratus anterior
 - iii. External oblique
- Anterior chest wall

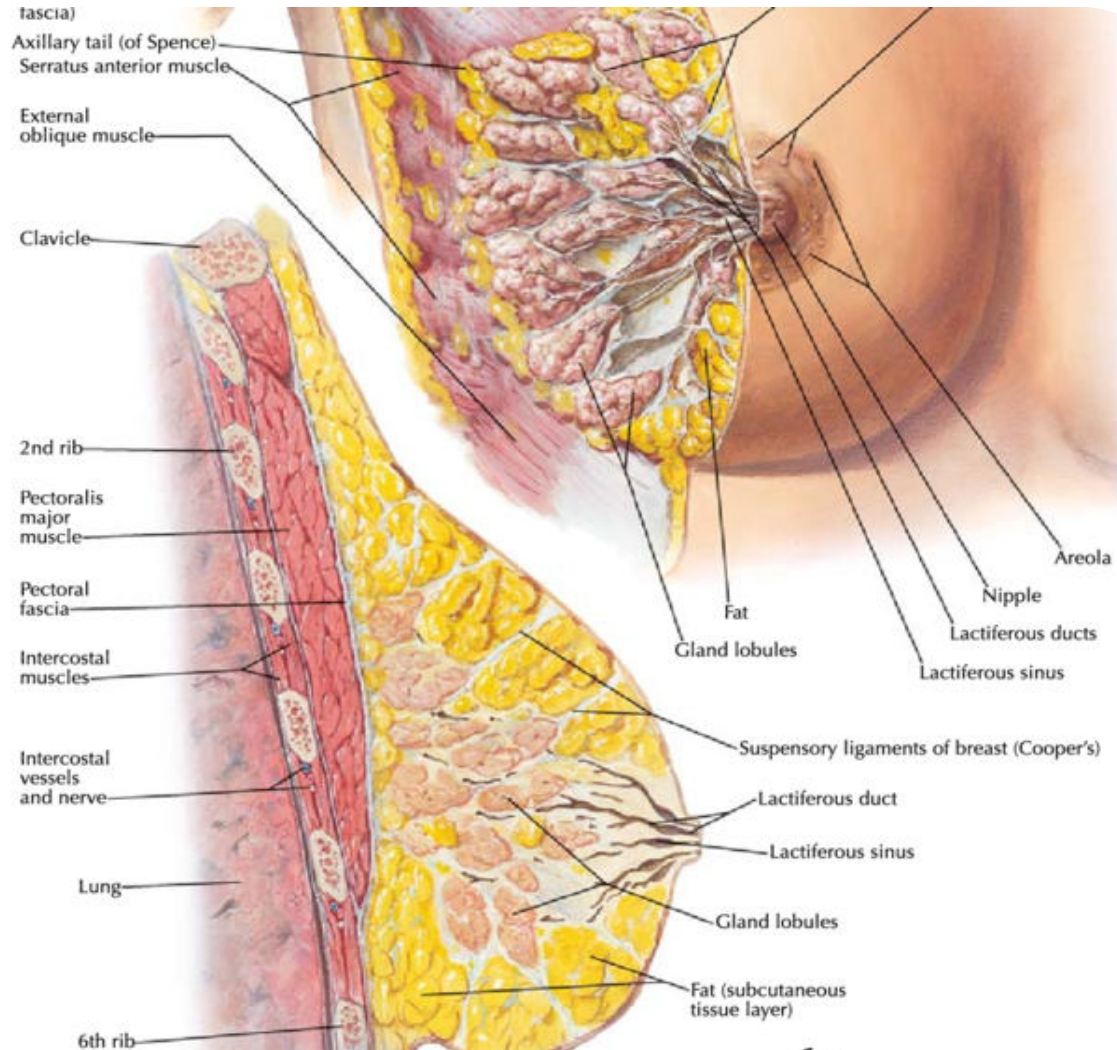


STRUCTURE

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- Skin
- Parenchyma
- Stroma

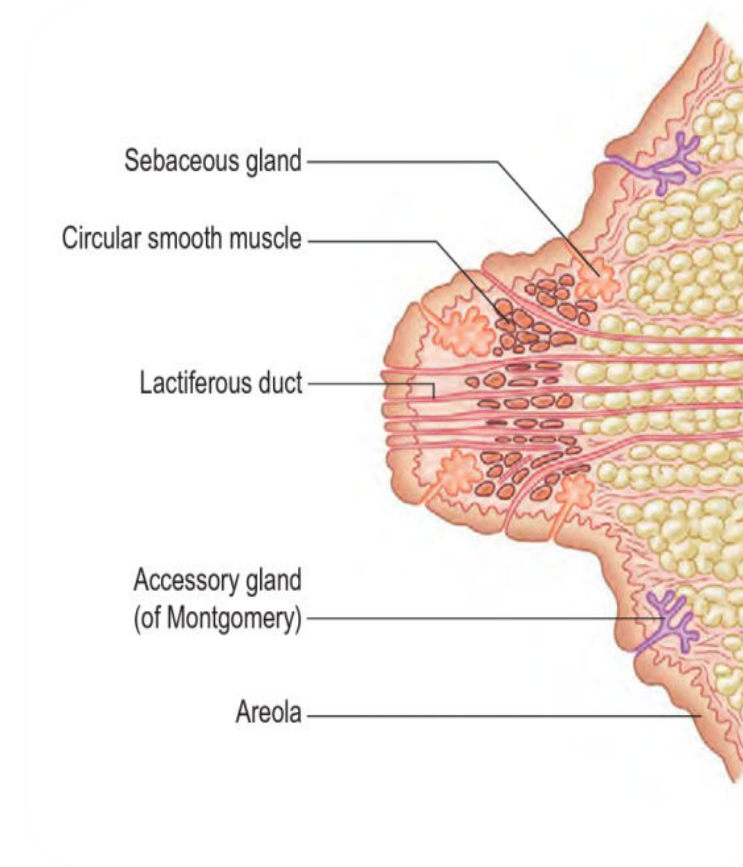


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Sagittal section

❑ NIPPLE

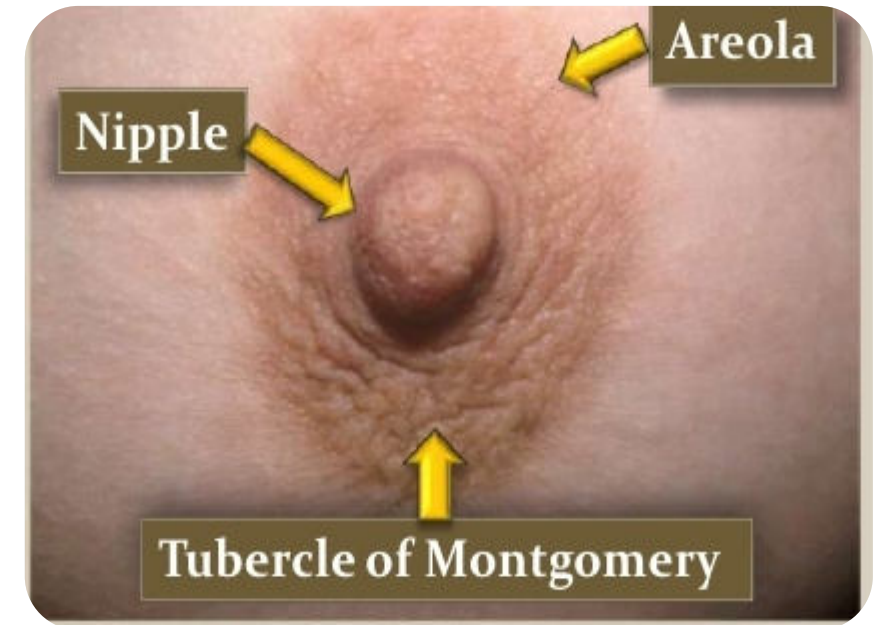
- A conical projection in 4th intercostal space
- Contains circular and longitudinal muscles
- Pierced by 15-20 lactiferous ducts
- Supplied by 4th intercostal nerve



Infiltration of the lactiferous duct by tumor and subsequent fibrosis causes
RECENT RETRACTION OF THE NIPPLE

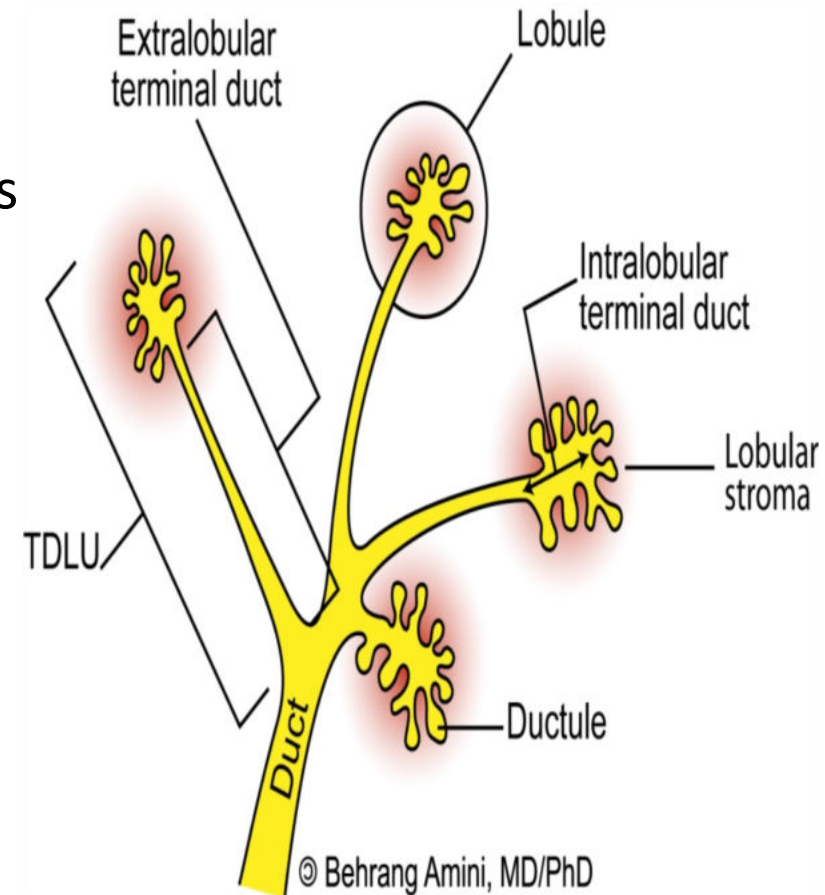
☐ AREOLA

- Skin surrounding the base of the nipple
- Pigmented circular area
- Contains sebaceous, sweat and accessory glands

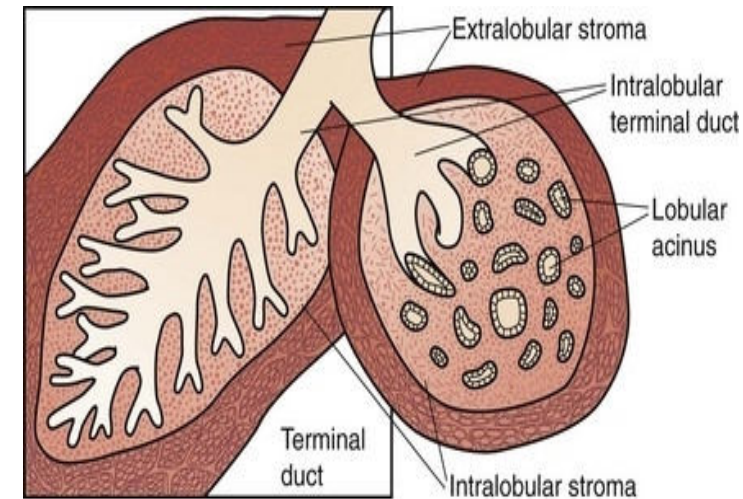
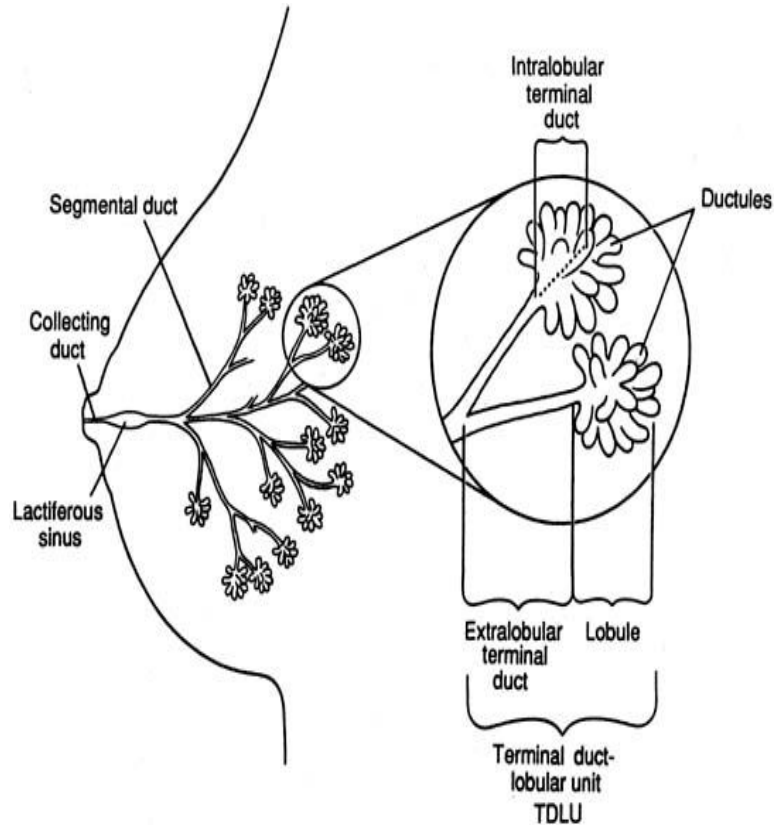


MONTGOMERY'S TUBERCLES are sebaceous gland that are enlarged during pregnancy and lactation. They produce oily secretions that lubricate nipple and areola and prevent it from cracking

- Compound tubulo -alveolar gland
- 15-20 lobes - each has a cluster of alveoli, and is drained by a lactiferous duct
- Lobule- basic structural unit
- 10- 100 lobules → ductules → lactiferous duct.
- Lactiferous sinus is the terminal dilatation of the duct. It act as a reservoir for milk or abnormal discharge



- Terminal duct + lobule = Terminal Duct Lobular Unit (TDLU)



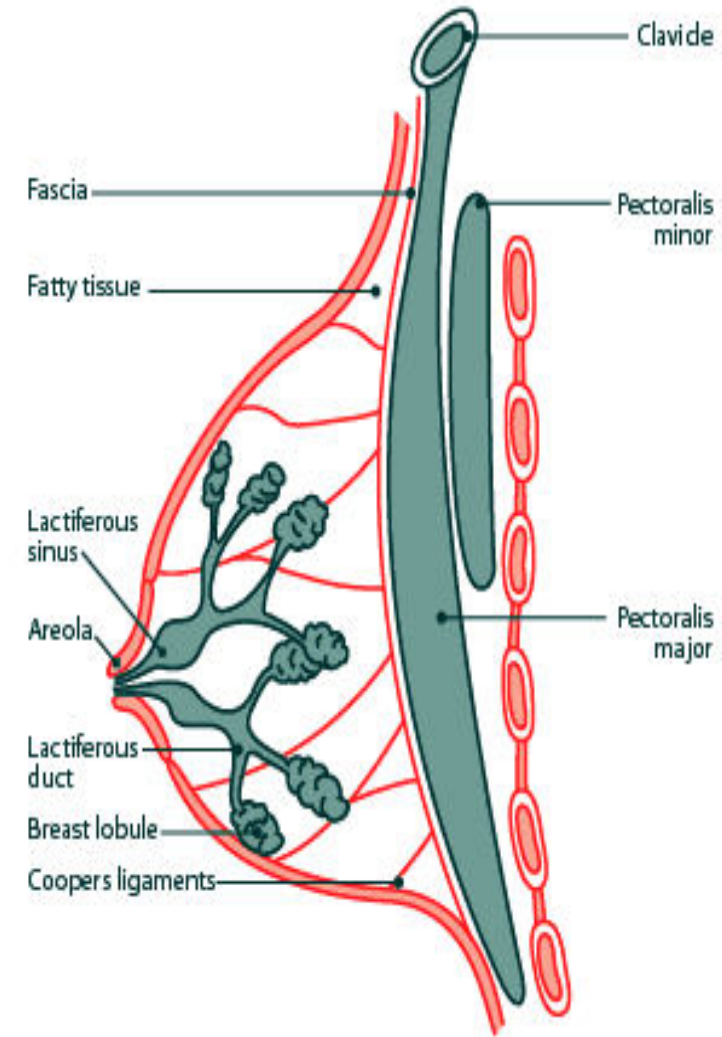
Most cancers and benign lesions arise in the terminal duct either inside or just proximal to the lobule.

i. Fibrous stroma

1. Supporting framework of the gland
2. Forms septa known as the suspensory ligaments of Cooper
3. Anchor the skin to the pectoral fascia

ii. Fatty stroma

1. Main bulk of the gland
2. Distributed all over the breast;
3. except beneath the areola & nipple



Infiltration of the suspensory ligaments of Cooper by tumor cells result in **puckering** or **dimpling of the skin**

BLOOD SUPPLY

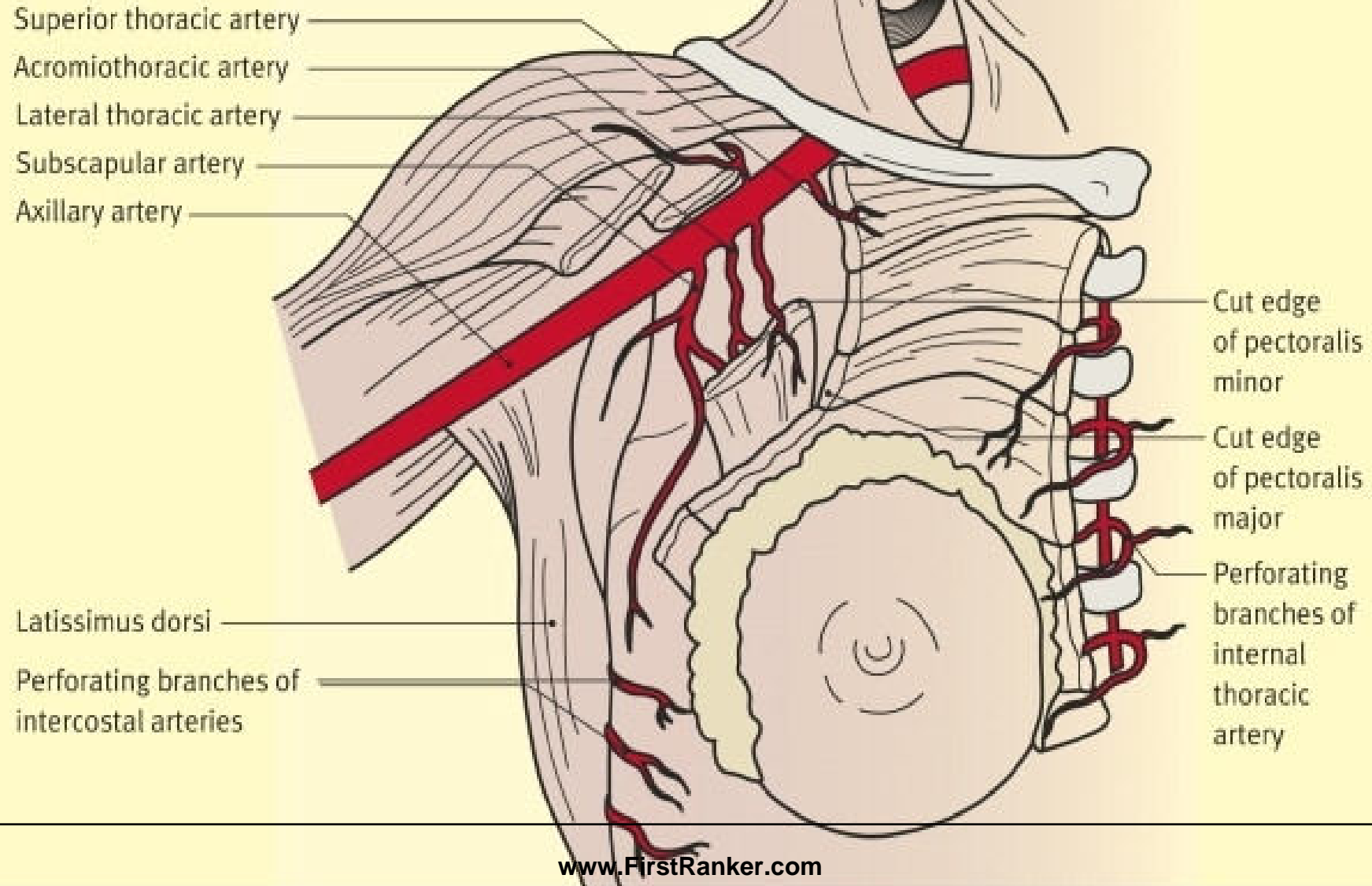
□ ARTERIAL SUPPLY

- Perforating branches of **internal thoracic Artery**
- Branches of **axillary artery**
 - i. Lateral thoracic artery
 - ii. Superior thoracic artery
 - iii. Thoracoacromial artery
- Lateral branches of 2nd - 4th **posterior intercostal arteries**

Arterial supply of the breast

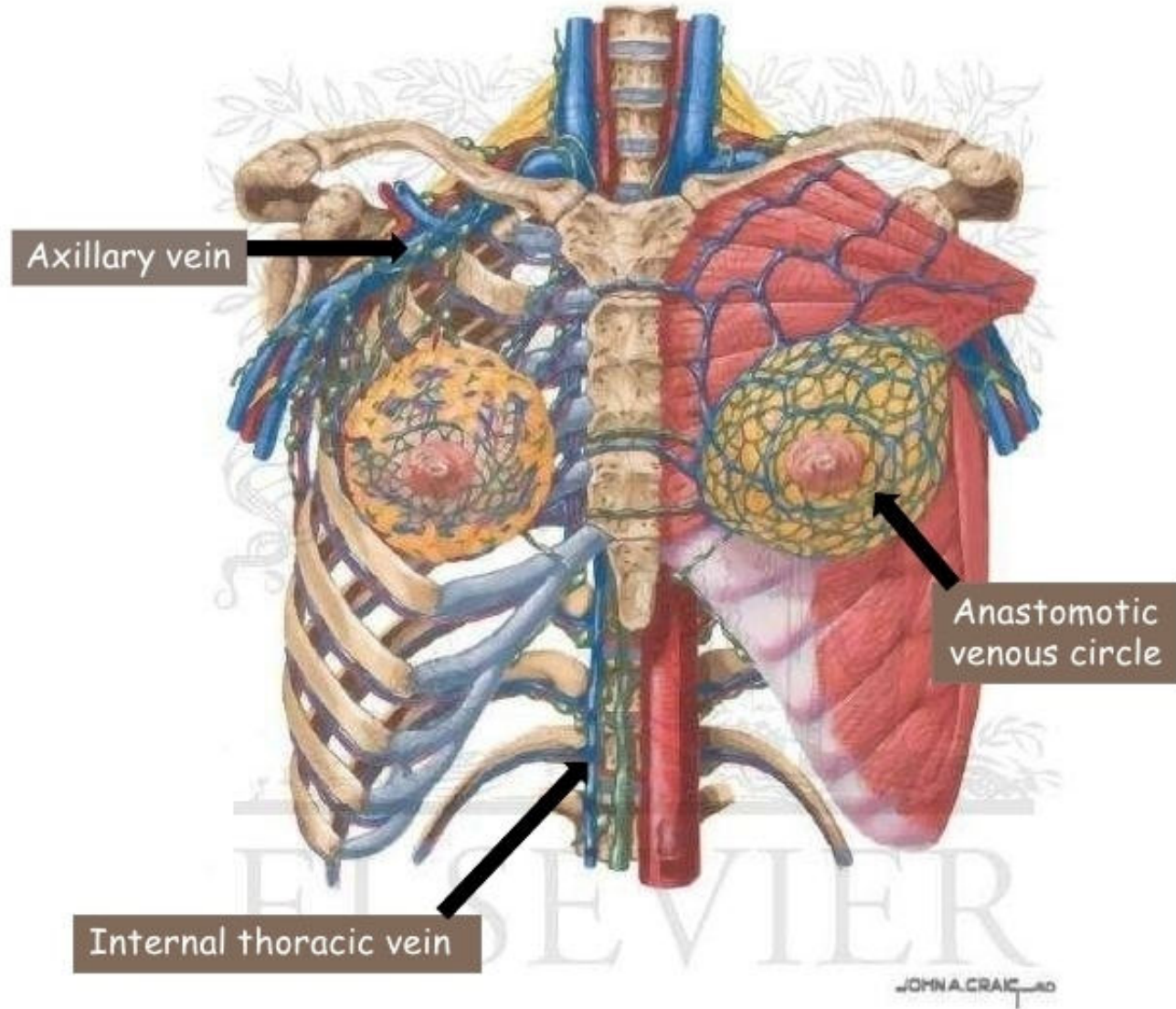
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☐ VENOUS DRAINAGE

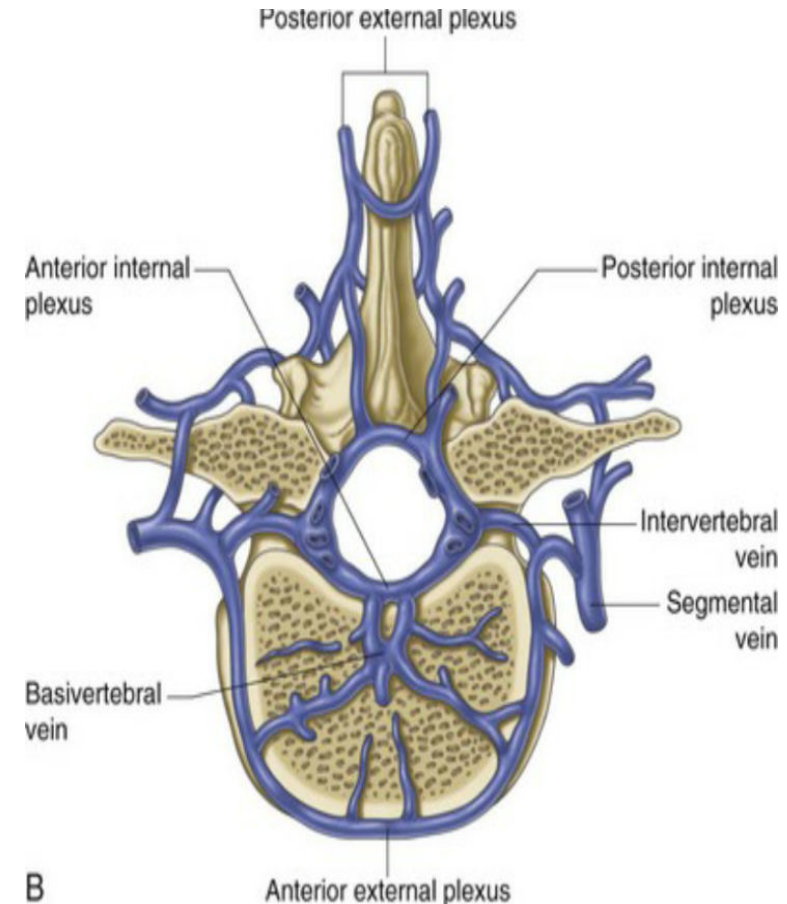
- Veins follow the arteries. First they converge around the nipple to form an anastomotic venous circle and then form 2 sets of veins
- Superficial veins - internal thoracic vein and into the superficial veins of the lower part of neck
- Deep veins - axillary and posterior intercostal veins



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Batson's vertebral venous plexus

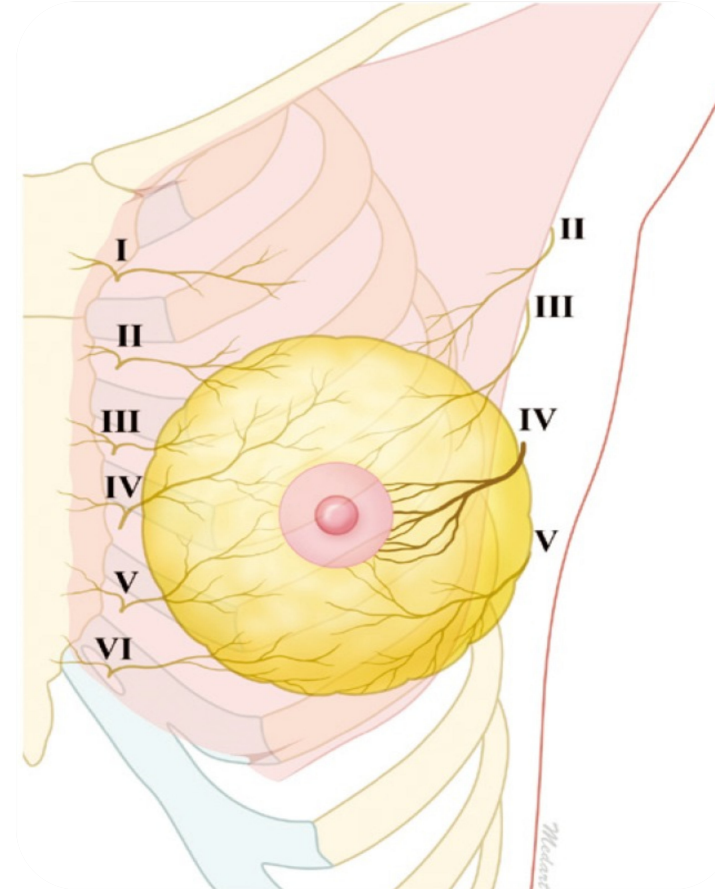
- Network of valveless veins
- Through posterior intercostal veins, venous drainage communicates with paravertebral venous plexus



Route for metastasis to the **axial skeleton** and **Central nervous system** --- **most common site : LUMBAR VERTEBRA**

NERVE SUPPLY

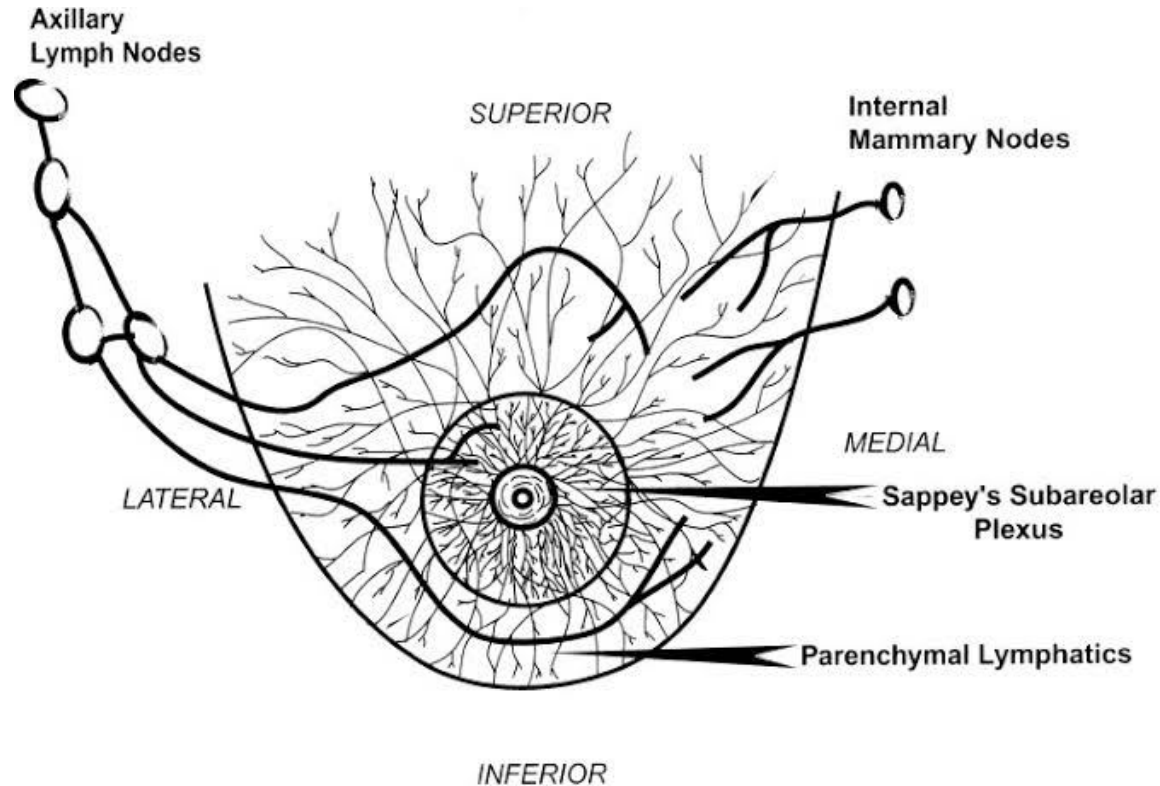
- Anterior and lateral cutaneous branches of 4th to 6th intercostal nerves
- Sensory fibres to skin and autonomic fibres to smooth muscles and blood vessels



Nerves do not control the secretion of milk (controlled by prolactin hormone)

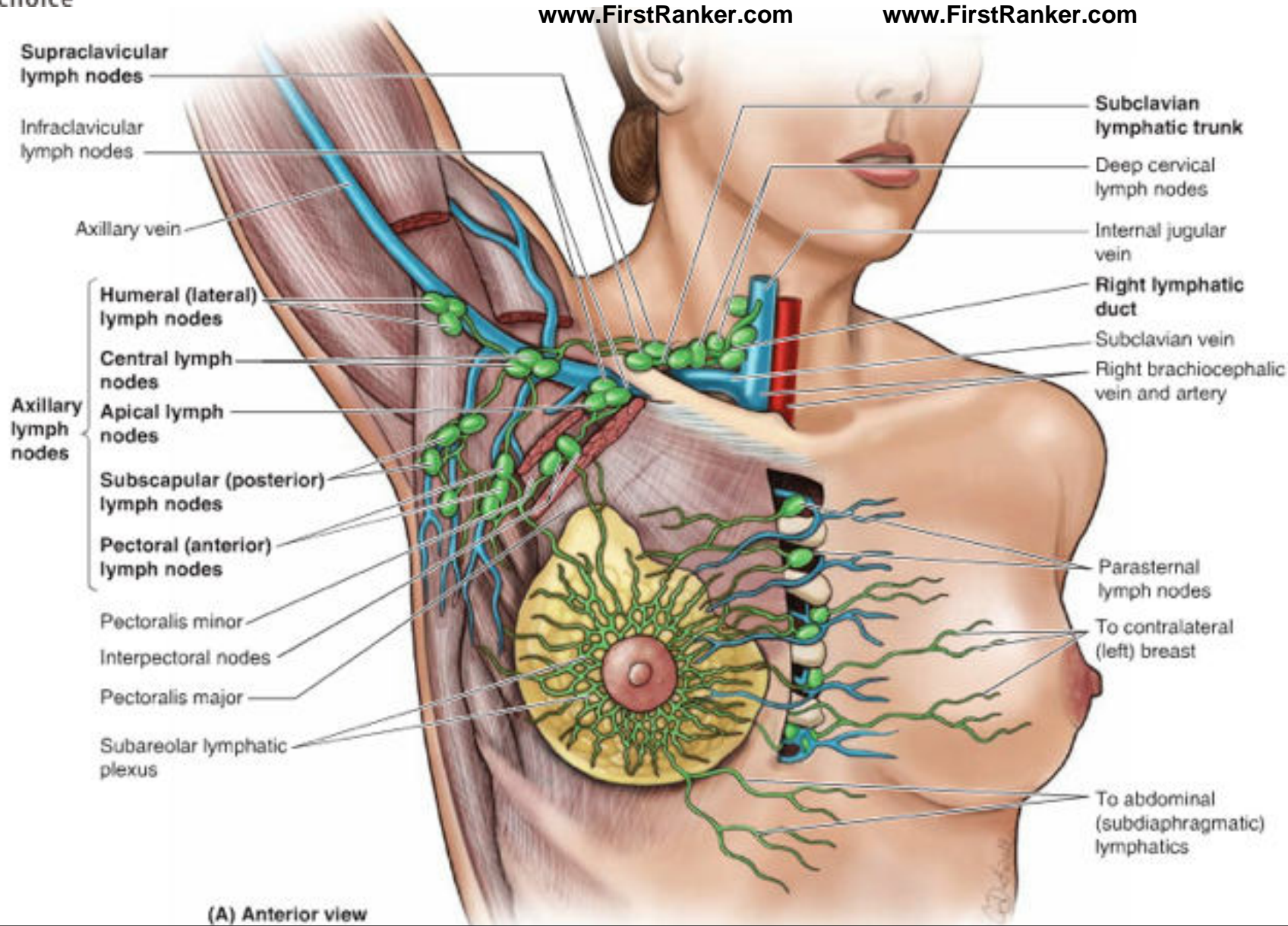
LYMPHATIC DRAINAGE

□ LYMPHATIC VESSELS



- **Superficial lymphatics –**
skin over the breast
- **Deep lymphatics -**
parenchyma, nipple and areola
- **Subareolar plexus of Sappey -**
a lymphatic plexus deep to areola

- The subareolar plexus of Sappey and outer quadrant of breast -> pectoral -> central -> apical.
- Part of upper quadrant also directly drain to deltopectoral and apical nodes.
- Inner quadrant -> internal mammary nodes and contralateral breast.
- Lower inner quadrant – traverses through the plexus in rectus sheath –communicate with subperitoneal plexus



(A) Anterior view

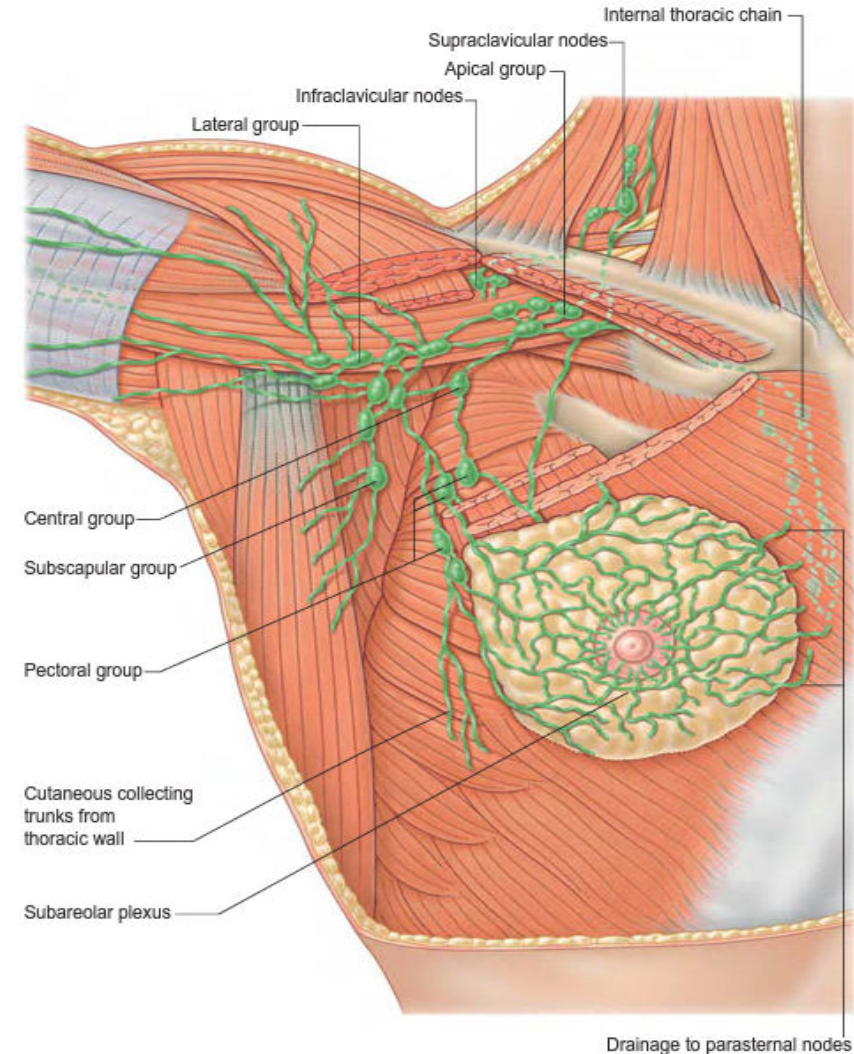
- **Axillary nodes (85%)**
- **Internal mammary(Parasternal) nodes**
- **Intercostal nodes**
- **Some lymph also reaches**
 - i. Supraclavicular nodes
 - ii. Cephalic(deltpectoral) node
 - iii. Subdiaphragmatic lymph plexus
 - iv. Subperitoneal lymph plexus

Sentinel node is defined as the first lymph node draining the tumour-bearing area of the breast

- **Axillary nodes :**

- Groups:**

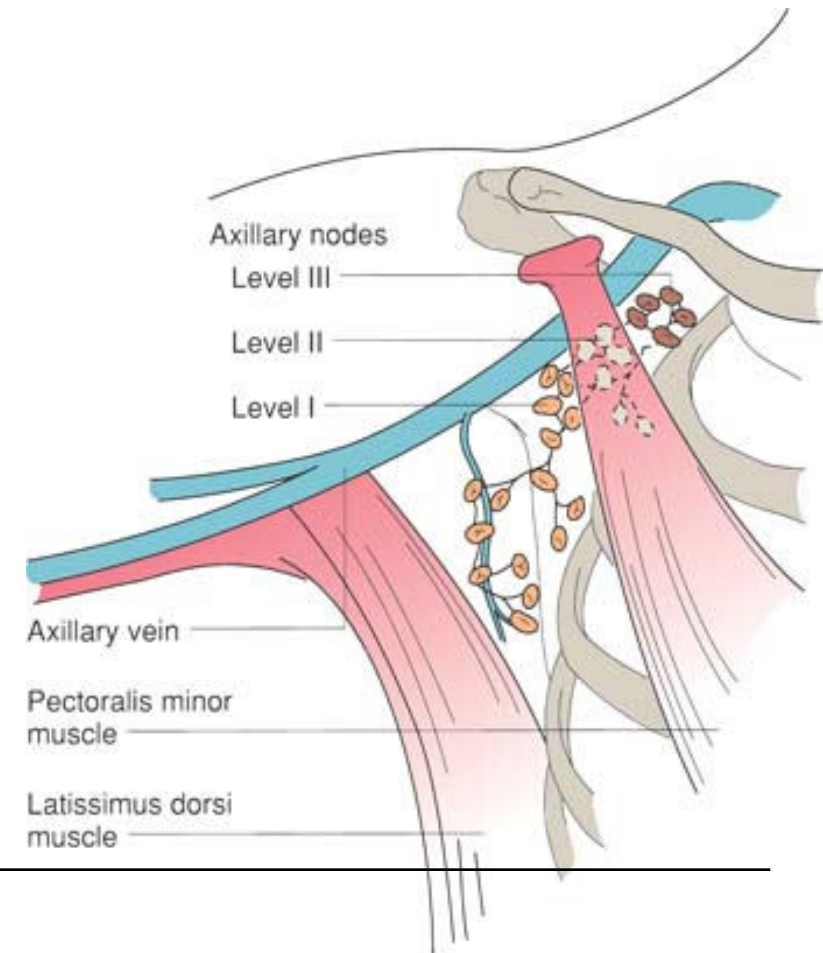
- Anterior(pectoral) –
Main drainage
 - Posterior (subscapular)
 - Lateral(brachial)
 - central
 - Apical
 - Interpectoral (Rotters)



LEVELS OF AXILLARY NODES

BERG 'S LEVEL

- Defined by their relationship to **pectoralis minor muscle**
- Level 1 -Below and lateral (anterior, lateral, posterior)
- Level 2 – Behind (central, inter pectoral)
- Level 3 - Above and medial (apical)



AETIOLOGY AND PATHOLOGY OF CARCINOMA BREAST

Adila Rahim
ROLL NO: 3



AETIOLOGICAL FACTORS

1. Geographical

– commonly seen in *Western world*

2. Age

- rare < 20 years
then incidence ↑ with age
by 90 years – 20 % women
are affected

3. Gender

females > males {< 0.5 %}

4. Genetic

BRCA 1

BRCA 2

p53

5. Family history

- more common in women with a family h/o breast & ovarian cancer
- 3-5 times more risk if first degree relative has Ca.breast
- accounts for less than 5% of all breast cancer

6. Diet

low in phyto-oestrogens

7. Alcohol intake

increase the risk of developing Ca. breast

Protective factors :

- breast feeding
- first child at early age
- late menarche
- early menopause

Risk factors:

- nulliparous women
- obesity (increased conversion of steroids to estradiol in body fat)

9. Oral contraceptives and HRT

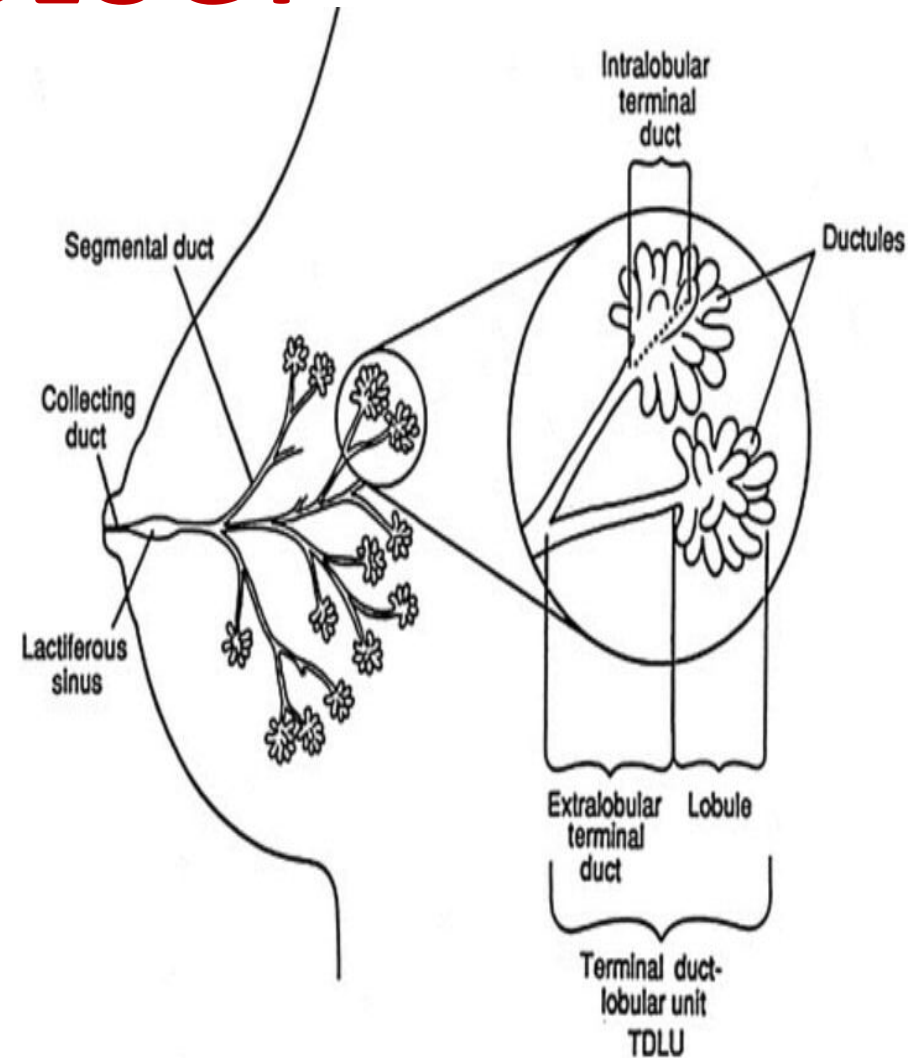
The benefits of these treatment will far outweigh the small putative risk; however, long term exposure to combined preparation of HRT does significantly increase the risk.

10. Previous exposure to radiation

- Hodgkin's disease – radiotherapy – increased risk – decade after treatment
- higher risk if radiotherapy received during breast development

PATHOLOGY

- Arises from the epithelium of duct system
- From the nipple end of the major lactiferous duct to the terminal duct unit which is in the breast lobule



PATHOGENESIS

- Genetic changes
- Hormonal influences
- Environmental variables

Genetic changes

- Over expression of HER2/NEU proto-oncogene
- Mutations of tumor suppressor genes like P53
- Gene array analysis of breast cancers has identified five major subtypes:

1. luminal A : ER+ , Her-2-ve
2. luminal B : ER+ ,PR+ , Her-2+
3. Her-2 receptor positive: ER-ve
4. triple negative : ER-ve , PR -ve , Her-2 -ve
5. miscellaneous group

- Mutation in BRCA1 or BRCA2 genes
 - responsible for one third of hereditary breast Ca
 - BRCA1 gene –
at chromosome 17 (50-80% risk)
 - BRCA2 gene –
at chromosome 13

Both are classic tumour suppressor genes and cancer arises only when both alleles are inactivated or defective

Hormonal influences

- Increased exposure to estrogen



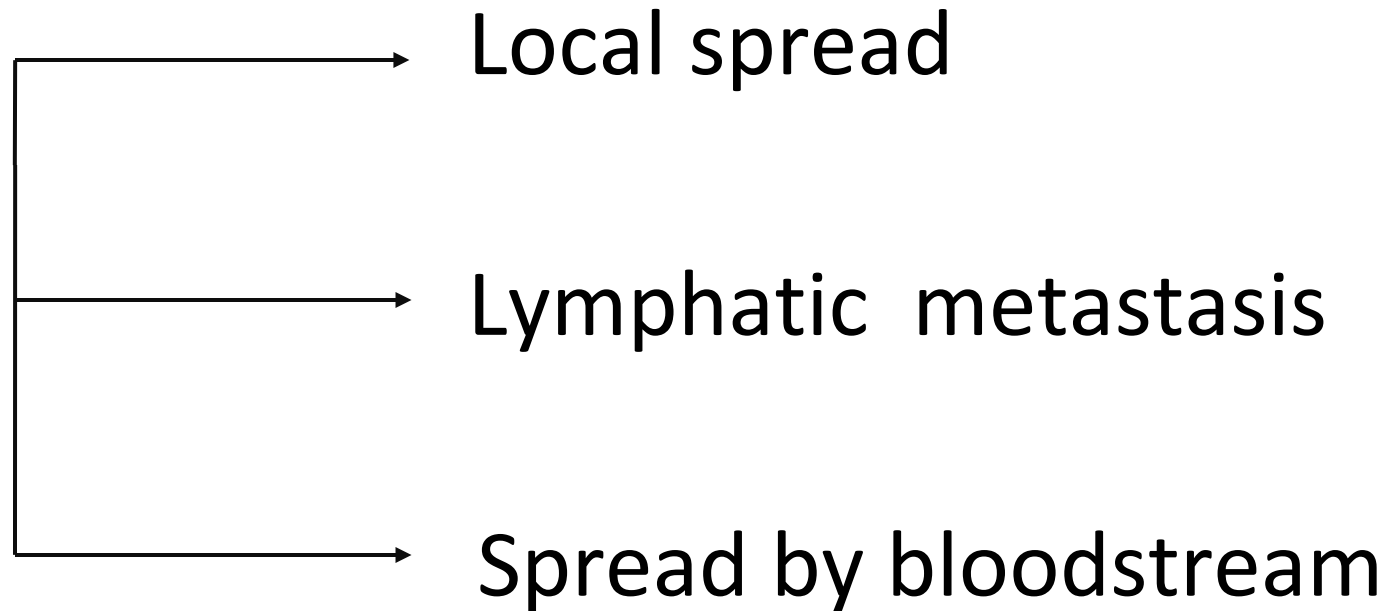
- Stimulate production of growth factors (TGF- α ,PDGF , FGF)



- Promote tumor development

SPREAD OF BREAST CANCER

By 3 means :



LOCAL SPREAD

Tumour increases in size

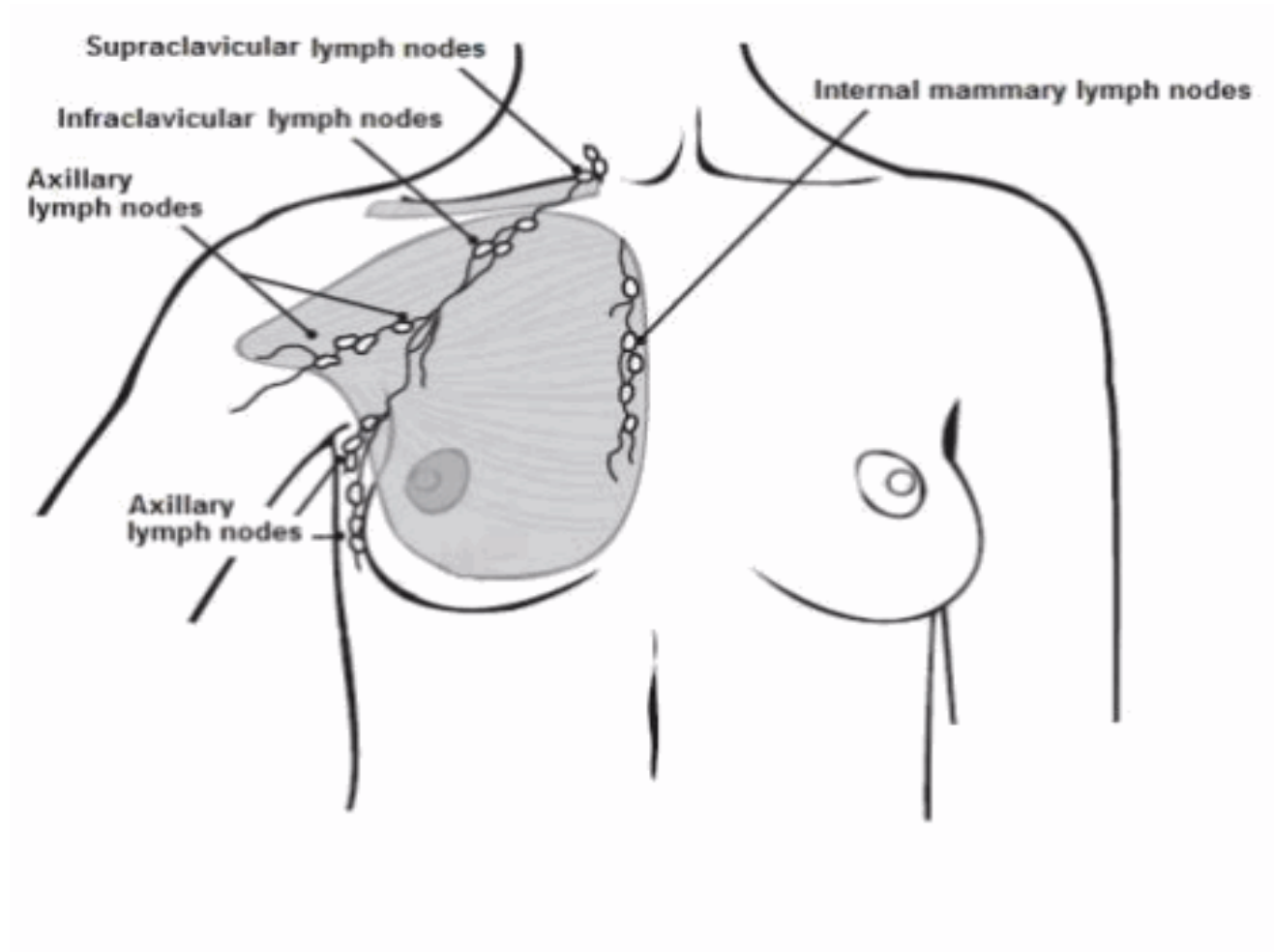


Invades other portions of breast

- It tends to involve skin
- May penetrate pectoral muscles and even the chest wall if diagnosed late

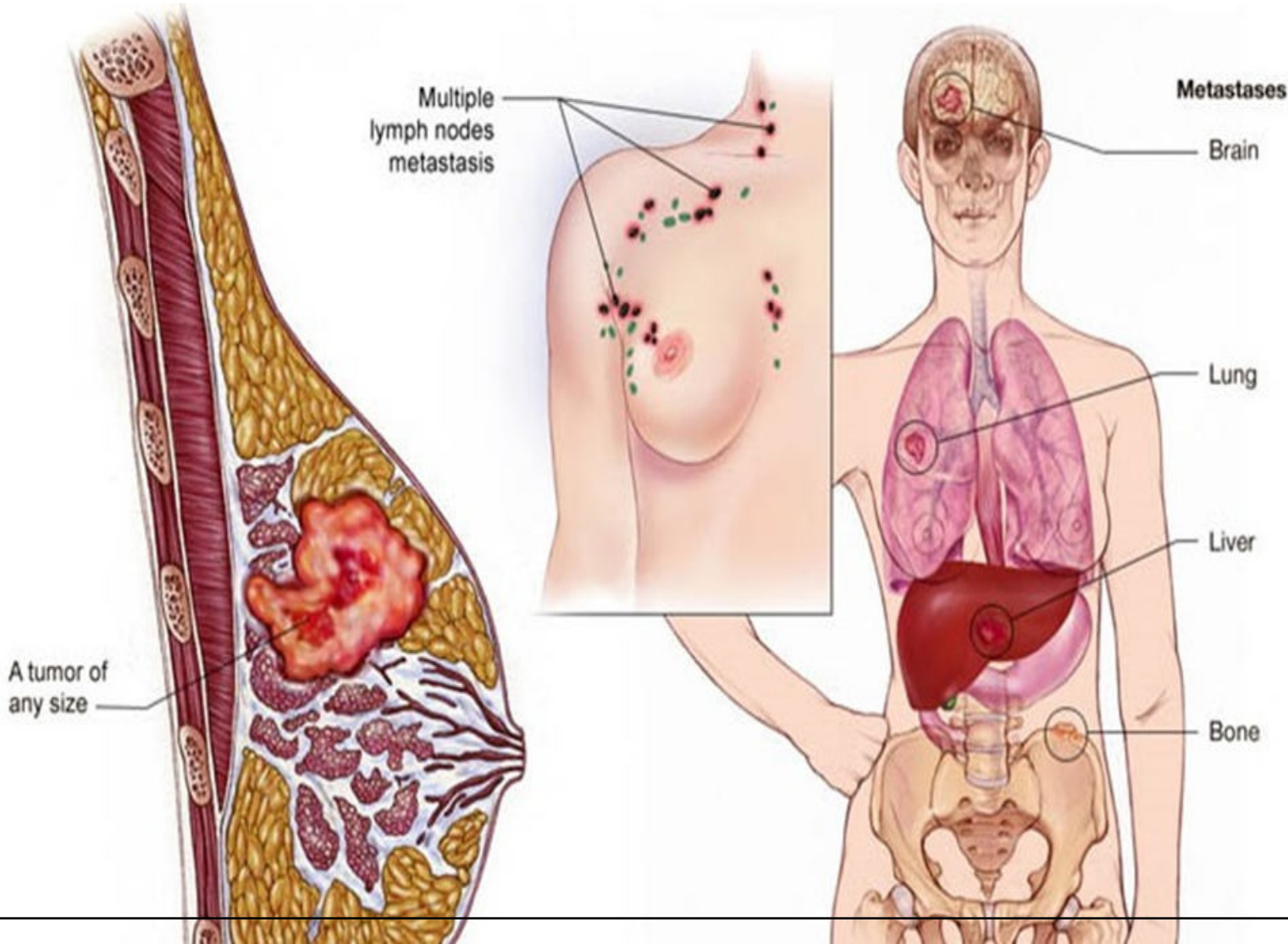
LYMPHATIC METASTASIS

- Primarily to axillary and internal mammary lymph nodes
- Tumours in the posterior one third of the breast drain to the internal mammary nodes



SPREAD BY THE BLOODSTREAM

- By this route skeletal metastases occur
- Lumbar vertebrae, femur, thoracic vertebrae, rib and skull; deposits are osteolytic
- Common sites : liver , lungs, brain , adrenal glands and ovary



TRANSCOELOMIC SPREAD

- Through mediastinal LN into peritoneal cavity.
- Cause secondaries in liver, peritoneum, ovary (Krukenberg tumours)

Note :

-- *Present concept of Krukenberg – haematogenous and lymphatic modes.*

-- *Older concepts of transcoelomic spread no longer accepted.*



VARIANTS OF CARCINOMA BREAST

Afsana Faby Khan
Roll no. 4

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Epithelial tumours		Adenomas	
Invasive ductal carcinoma, not otherwise specified	8500/3	Tubular adenoma	8211/0
Mixed type carcinoma		Lactating adenoma	8204/0
Pleomorphic carcinoma	8022/3	Apocrine adenoma	8401/0
Carcinoma with osteoclastic giant cells	8035/3	Pleomorphic adenoma	8940/0
Carcinoma with choriocarcinomatous features		Ductal adenoma	8503/0
Carcinoma with melanotic features			
Invasive lobular carcinoma	8520/3	Myoepithelial lesions	
Tubular carcinoma	8211/3	Myoepitheliosis	
Invasive cribriform carcinoma	8201/3	Adenomyoepithelial adenosis	
Medullary carcinoma	8510/3	Adenomyoepithelioma	8983/0
Mucinous carcinoma and other tumours with abundant mucin		Malignant myoepithelioma	8982/3
Mucinous carcinoma	8480/3		
Cystadenocarcinoma and columnar cell mucinous carcinoma	8480/3	Mesenchymal tumours	
Signet ring cell carcinoma	8490/3	Haemangioma	9120/0
Neuroendocrine tumours		Angiomatosis	
Solid neuroendocrine carcinoma		Haemangiopericytoma	9150/1
Atypical carcinoid tumour	8249/3	Pseudoangiomatous stromal hyperplasia	
Small cell / oat cell carcinoma	8041/3	Myofibroblastoma	8825/0
Large cell neuroendocrine carcinoma	8013/3	Fibromatosis (aggressive)	8821/1
Invasive papillary carcinoma	8503/3	Inflammatory myofibroblastic tumour	8825/1
Invasive micropapillary carcinoma	8507/3	Lipoma	8850/0
Apocrine carcinoma	8401/3	Angiolipoma	8861/0
Metaplastic carcinomas	8575/3	Granular cell tumour	9580/0
Pure epithelial metaplastic carcinomas	8575/3	Neurofibroma	9540/0
Squamous cell carcinoma	8070/3	Schwannoma	9560/0
Adenocarcinoma with spindle cell metaplasia	8572/3	Angiosarcoma	9120/3
Adenosquamous carcinoma	8560/3	Liposarcoma	8850/3
Mucoepidermoid carcinoma	8430/3	Rhabdomyosarcoma	8900/3
Mixed epithelial/mesenchymal metaplastic carcinomas	8575/3	Osteosarcoma	9180/3
Lipid-rich carcinoma	8314/3	Leiomyoma	8890/0
Secretory carcinoma	8502/3	Leiomyosarcoma	8890/3
Oncocytic carcinoma	8290/3		
Adenoid cystic carcinoma	8200/3	Fibroepithelial tumours	
Acinic cell carcinoma	8550/3	Fibroadenoma	9010/0
Glycogen-rich clear cell carcinoma	8315/3	Phyllodes tumour	9020/1
Sebaceous carcinoma	8410/3	Benign	9020/0
Inflammatory carcinoma	8530/3	Borderline	9020/1
Lobular neoplasia		Malignant	9020/3
Lobular carcinoma in situ	8520/2	Periductal stromal sarcoma, low grade	9020/3
Intraductal proliferative lesions		Mammary hamartoma	
Usual ductal hyperplasia			
Flat epithelial atypia		Tumours of the nipple	
Atypical ductal hyperplasia		Nipple adenoma	8506/0
Ductal carcinoma in situ	8500/2	Syringomatous adenoma	8407/0
Microinvasive carcinoma		Paget disease of the nipple	8540/3
Intraductal papillary neoplasms			
Central papilloma	8503/0	Malignant lymphoma	
Peripheral papilloma	8503/0	Diffuse large B-cell lymphoma	9680/3
Atypical papilloma		Burkitt lymphoma	9687/3
Intraductal papillary carcinoma	8503/2	Extranodal marginal-zone B-cell lymphoma of MALT type	9699/3
Intracystic papillary carcinoma	8504/2	Follicular lymphoma	9690/3
Benign epithelial proliferations			
Adenosis including variants		Metastatic tumours	
Sclerosing adenosis			
Apocrine adenosis		Tumours of the male breast	
Blunt duct adenosis		Gynaecomastia	
Microglandular adenosis		Carcinoma	
Adenomyoepithelial adenosis		Invasive	8500/3
Radial scar / complex sclerosing lesion		In situ	8500/2

HISTOLOGICAL VARIANTS

- According to whether they have penetrated the limiting basement membrane.
- Those remain within – **NON INVASIVE/IN SITU CA.**
- Those that spread beyond – **INVASIVE/INFILTRATING CA.**
- **PAGET'S DISEASE OF NIPPLE** -- Cancer of nipple-areola complex ----
--- often associated with underlying INSITU/INVASIVE CA.

IN SITU

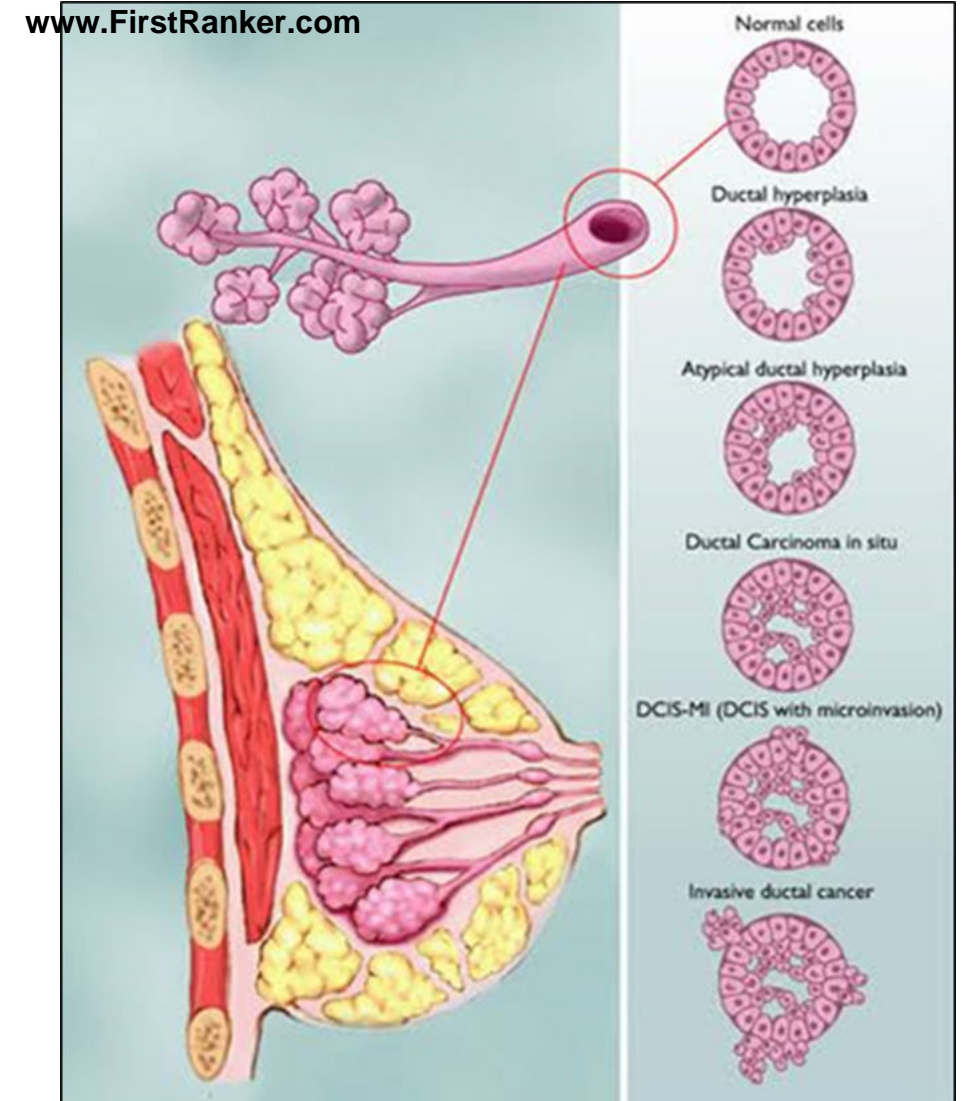
- ☐ DUCTAL CA. IN SITU(DCIS)
- ☐ LOBULAR CA. IN SITU(LCIS)

INVASIVE

- ☐ INVASIVE DUCTAL CA.
 - ✓ *NO SPECIAL TYPE(NST)*
 - ✓ *SPECIALISED TYPES*
- ☐ INVASIVE LOBULAR CA.
- ☐ INFLAMMATORY CARCINOMA
- ☐ OTHERS

DUCTAL CARCINOMA IN SITU

- Subtypes :
 - Solid
 - Comedo
 - Micropapillary
 - Papillary
 - Cribriform
- HIGH GRADE**
- LOW GRADE**
- Frequently associated with calcifications:
MAMMOGRAPHY detection
 - Excellent prognosis



- May turn invasive – same breast and quadrant as early DCIS

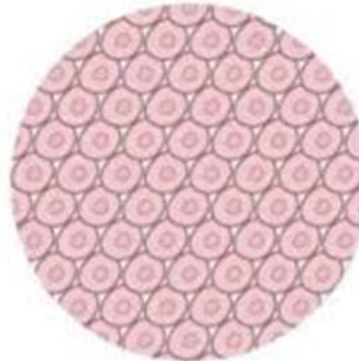
VAN NUYS SCORING FOR DCIS

- SCORING BASED ON

- ✓ Patient's age
- ✓ Grade of DCIS
- ✓ Resection margin
- ✓ Size of disease



Grade 1

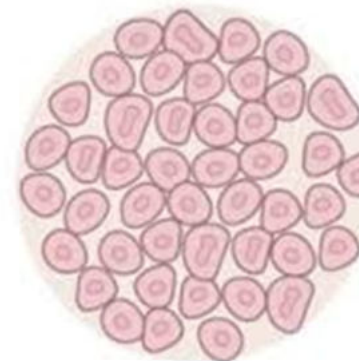


Glandular/Tubular Differentiation:
>75% of tumor forms glands

Nuclear Pleomorphism:
Uniform cells with small nuclei similar in size to normal breast epithelial cells

Mitotic Count:
< 7 mitoses per 10 high power fields

Grade 2

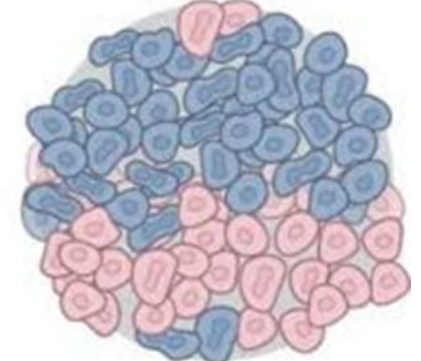


Glandular/Tubular Differentiation:
10% to 75% of tumor forms glands

Nuclear Pleomorphism:
Cells larger than normal with open vesicular nuclei, visible nucleoli, and moderate variability in size and shape

Mitotic Count:
8-15 mitoses per 10 high power fields

Grade 3



Glandular/Tubular Differentiation:
<10% of tumor forms glands

Nuclear Pleomorphism:
Cells with vesicular nuclei, prominent nucleoli, marked variation in size and shape

Mitotic Count:
> 16 mitoses per 10 high power fields

An attempt to objectively determine aggressiveness of DCIS in terms of likelihood of “local recurrence”.

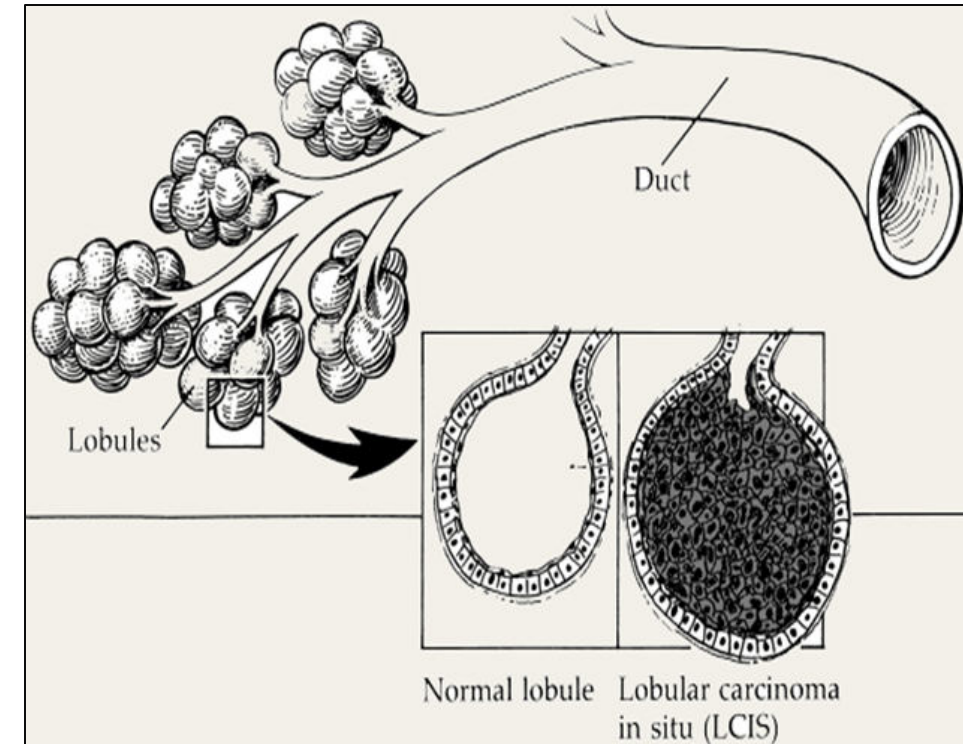
	1	2	3
	www.FirstRanker.com	www.FirstRanker.com	
DCIS SIZE (CM)	<=1.5	1.6-4.0	>=4.1
DCIS GRADE	GRADE 1 NO NECROSIS	GRADE 2 NECROSIS	GRADE 3
EXCISION MARGIN(MM)	>10	1-9	<1
PERSON'S AGE	>60	40-60	<40

Each of these factors scored from 1-3 & sum-total of values for 3 parameters taken.

POINTS	%OF LOCAL RECURRENCE	5 YR SURVIVAL	RISK	PROCEDURE
4-6	1%	97-99%	LOW	LUMPECTOMY ONLY
7-9	20%	73-84%	INTERMEDIATE	LUMPECTOMY + RT
10-12	50%	34-51% www.FirstRanker.com	HIGH	TOTAL MASTECTOMY

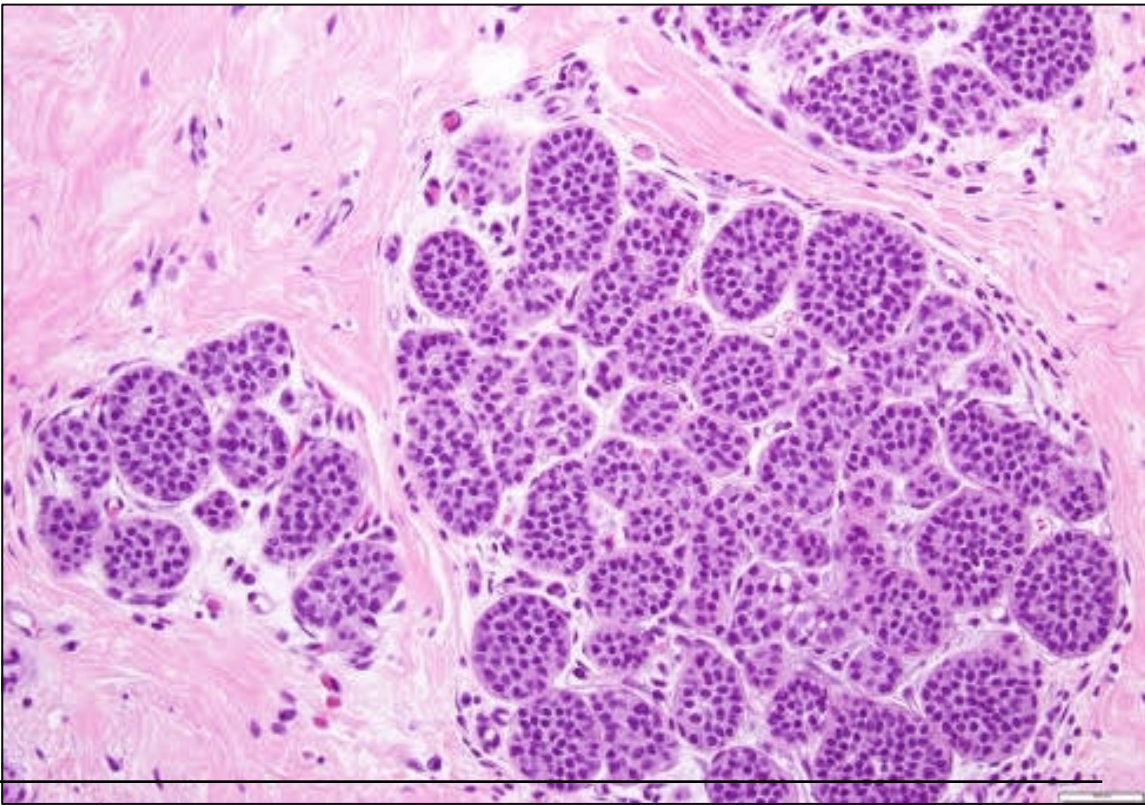
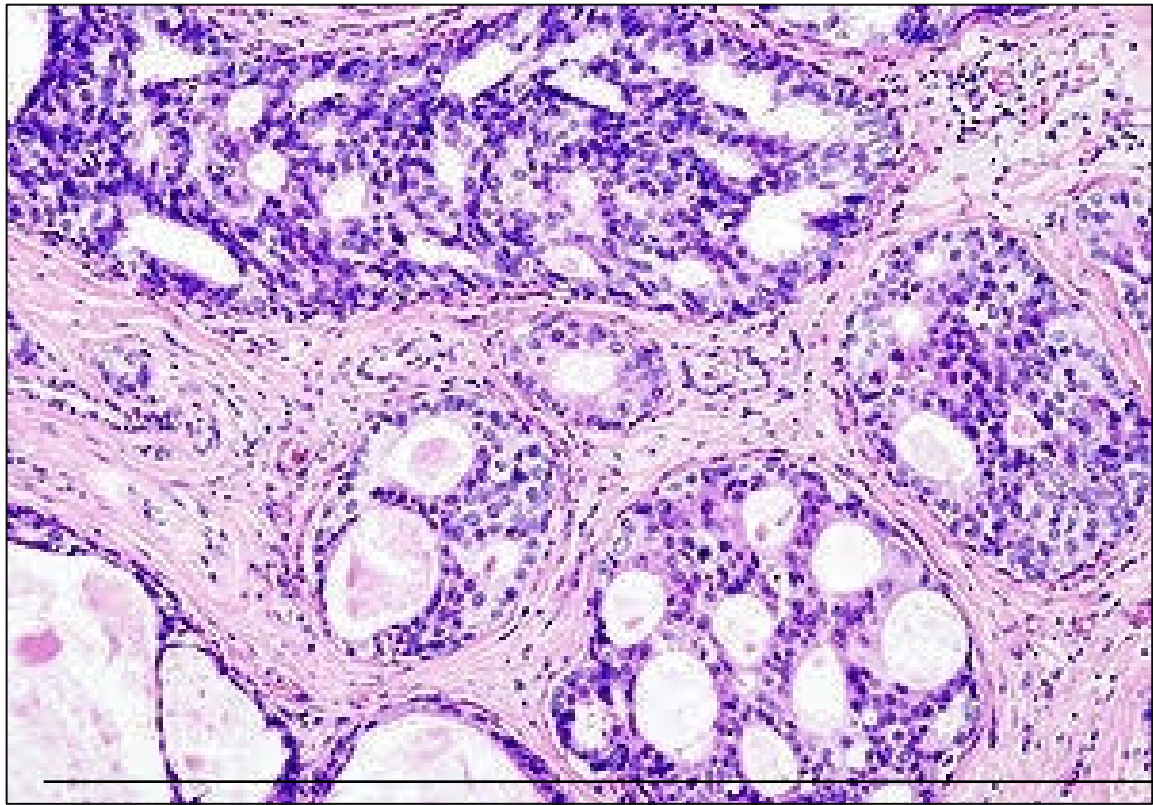
LOBULAR CARCINOMA IN SITU

- Usually **incidental finding** – calcification rare
- May turn invasive in one-third women.
- Often, multifocal and bilateral.
- **Marker of increased risk of Ca. of both breasts**



DCIS

LCIS



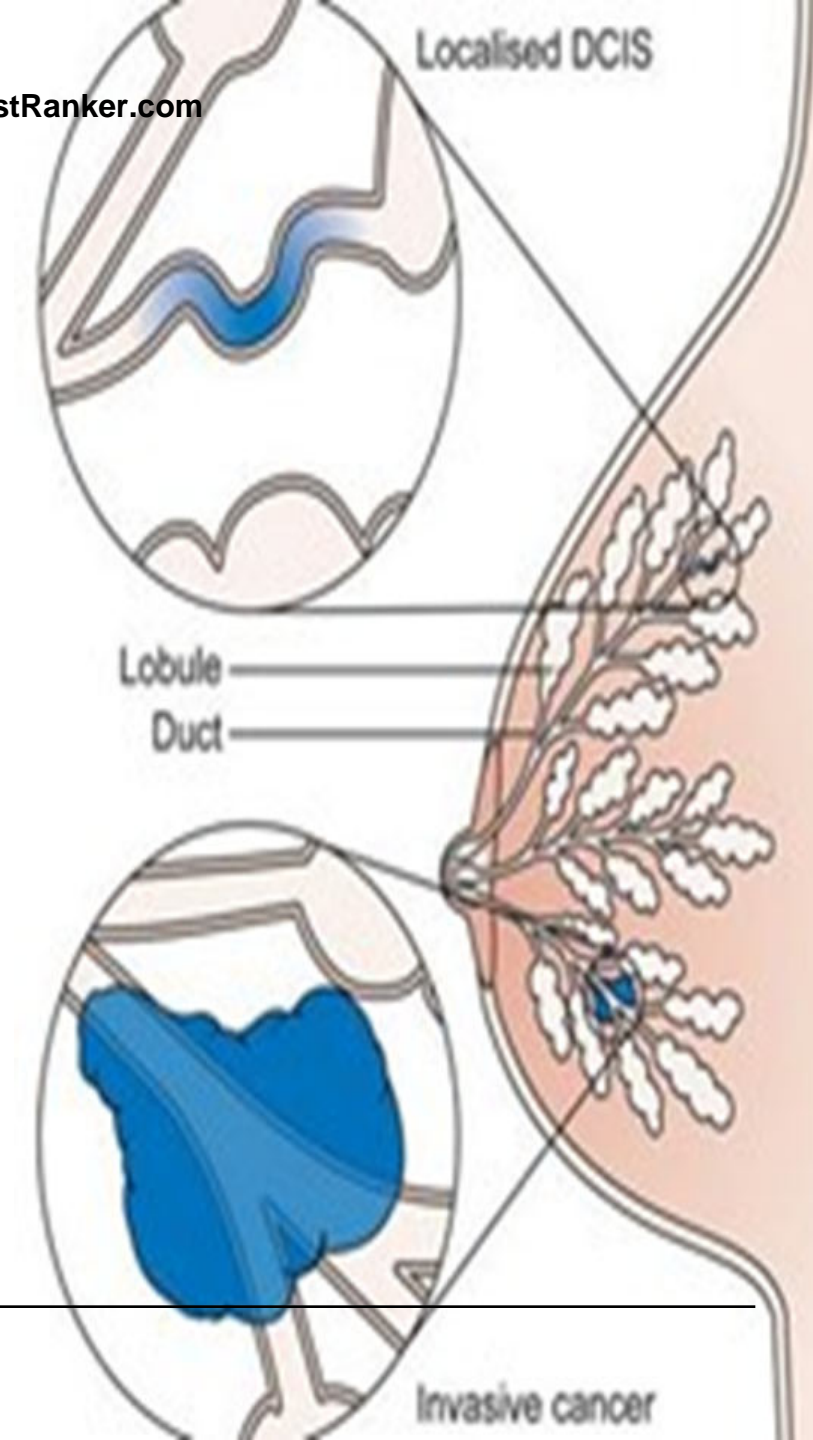
FOOTE AND STEWART CLASSIFICATION OF INVASIVE CA BREAST

- I. Paget's disease of the nipple
- II. Invasive ductal carcinoma
 - A. Adenocarcinoma with productive fibrosis (scirrhous, simplex, NST) 80%
 - B. Medullary carcinoma 4%
 - C. Mucinous (colloid) carcinoma 2%
 - D. Papillary carcinoma 2%
 - E. Tubular carcinoma (and ICC) 2%
- III. Invasive lobular carcinoma 10%
- IV. Rare cancers (adenoid cystic, squamous cell, apocrine)



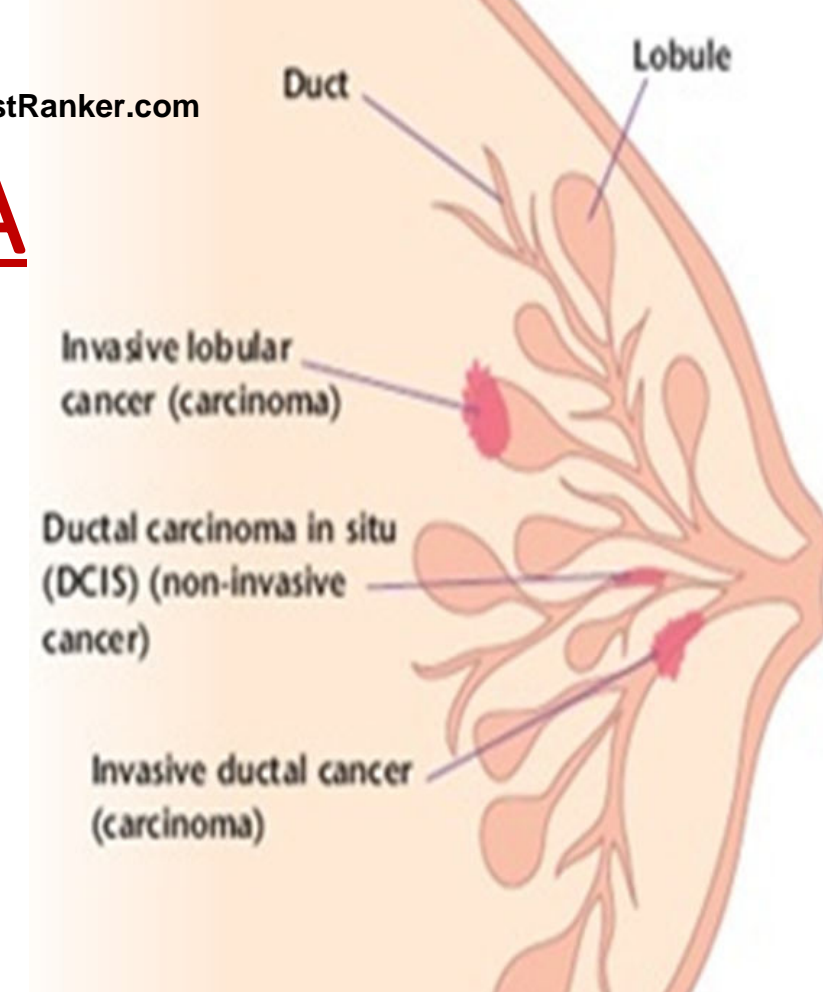
INVASIVE DUCTAL CARCINOMA

- **Most common type of breast cancer -- 70– 80 %**
- Usually associated with DCIS
- Desmoplastic response – hard, palpable mass
- **2/3RD – Estrogen /Progesterone expression**
1/3RD - HER2/NEU overexpression



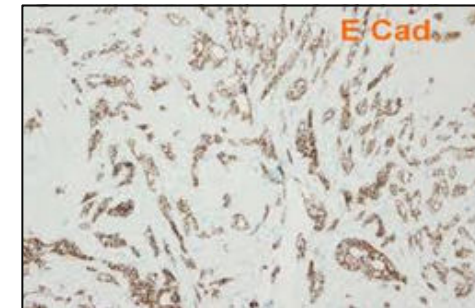
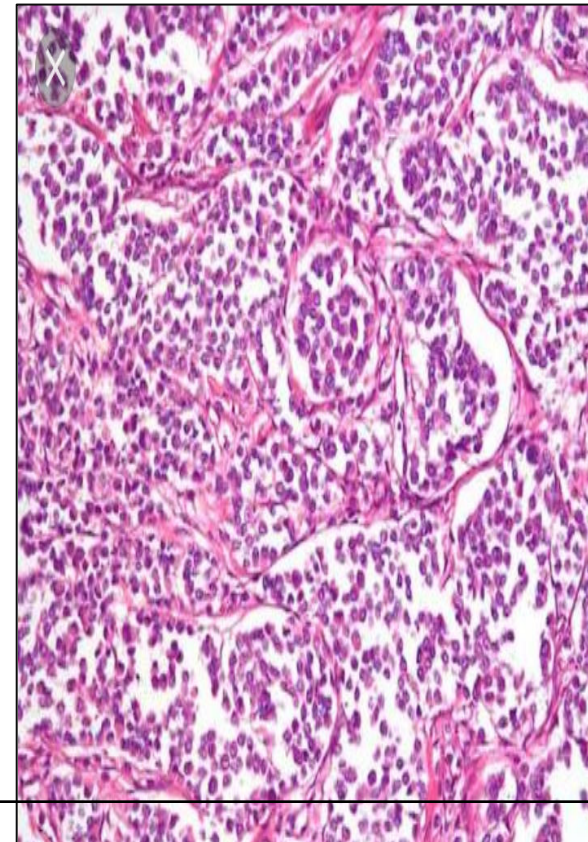
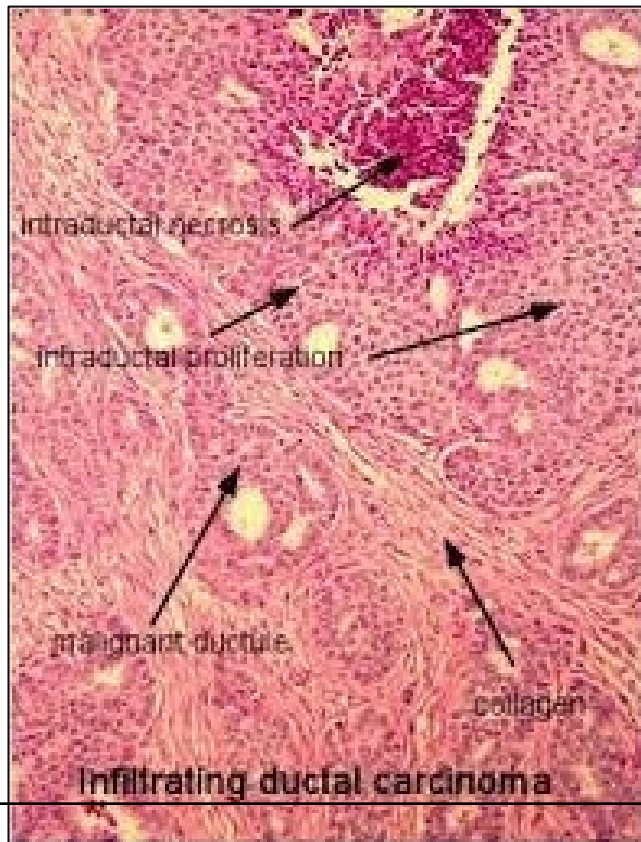
INVASIVE LOBULAR CARCINOMA

- In about 15% cases
- Subtypes:
 - ✓ classic -- better prognosis
 - ✓ pleomorphic
- **Multifocal &/ bilateral**- ↑ use of MRI for assessment
- In mixed type, if predominant lobular – immunohistochemical analysis with **e-cadherin antibody positive** .
- **Almost all – hormone receptor expression; HER2/NEU overexpression rare.**

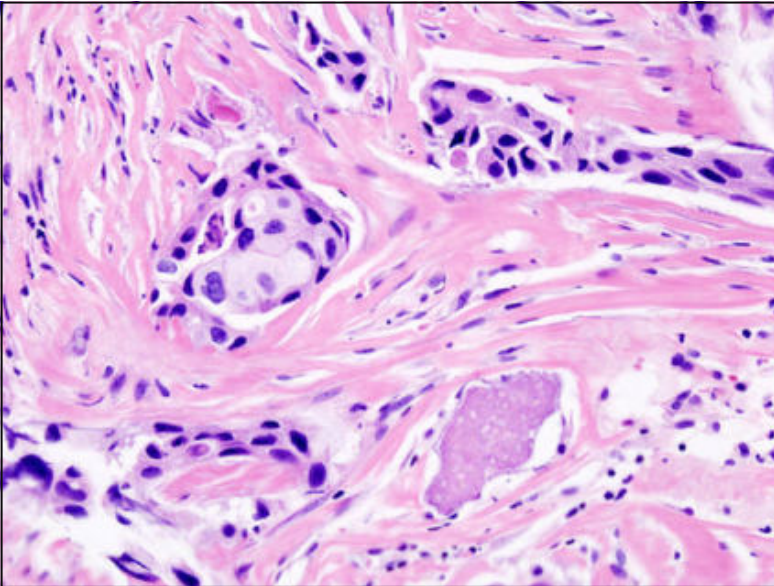


DUCTAL CA.

LOBULAR CA.



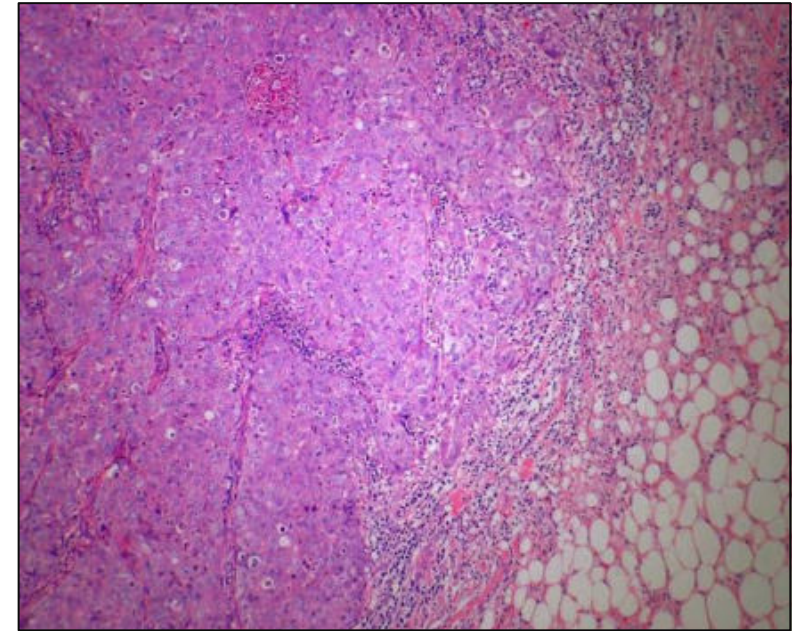
SCIRRHOUS CARCINOMA



- Adenocarcinoma with productive fibrosis.
- **Hard**, non-capsulated, whitish yellow, irregular
- Cartilaginous consistency
- Microscopy – malignant cells + **fibrous stroma**

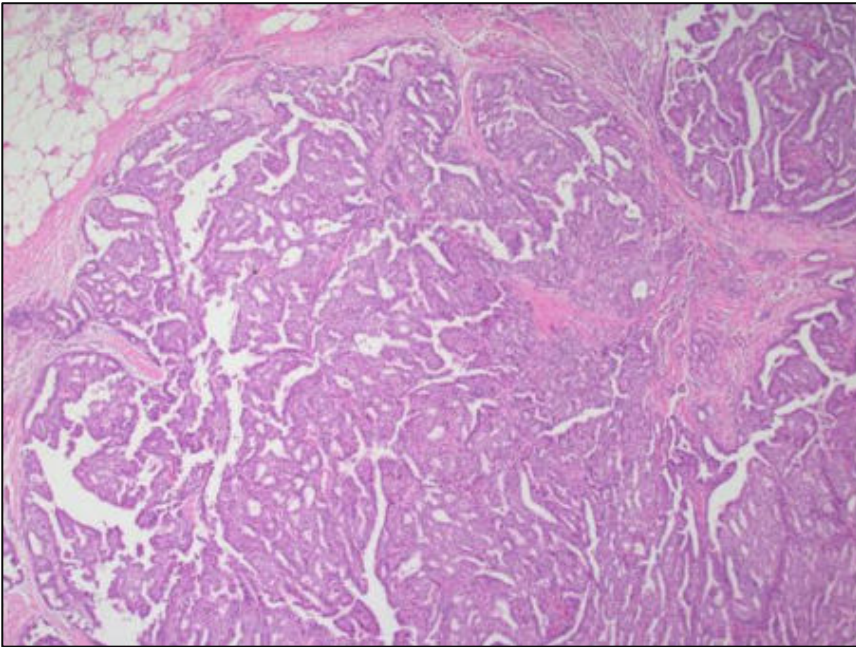
MEDULLARY / ENCEPHALOID CARCINOMA

- Sheets of anaplastic cells
+ marked lymphocytic reaction.
- Mistaken for fibroadenoma, clinically.
- High in women with **BRCA1** mutations.
- Lack estrogen / progesterone receptors
+
No HER2/NEU overexpression

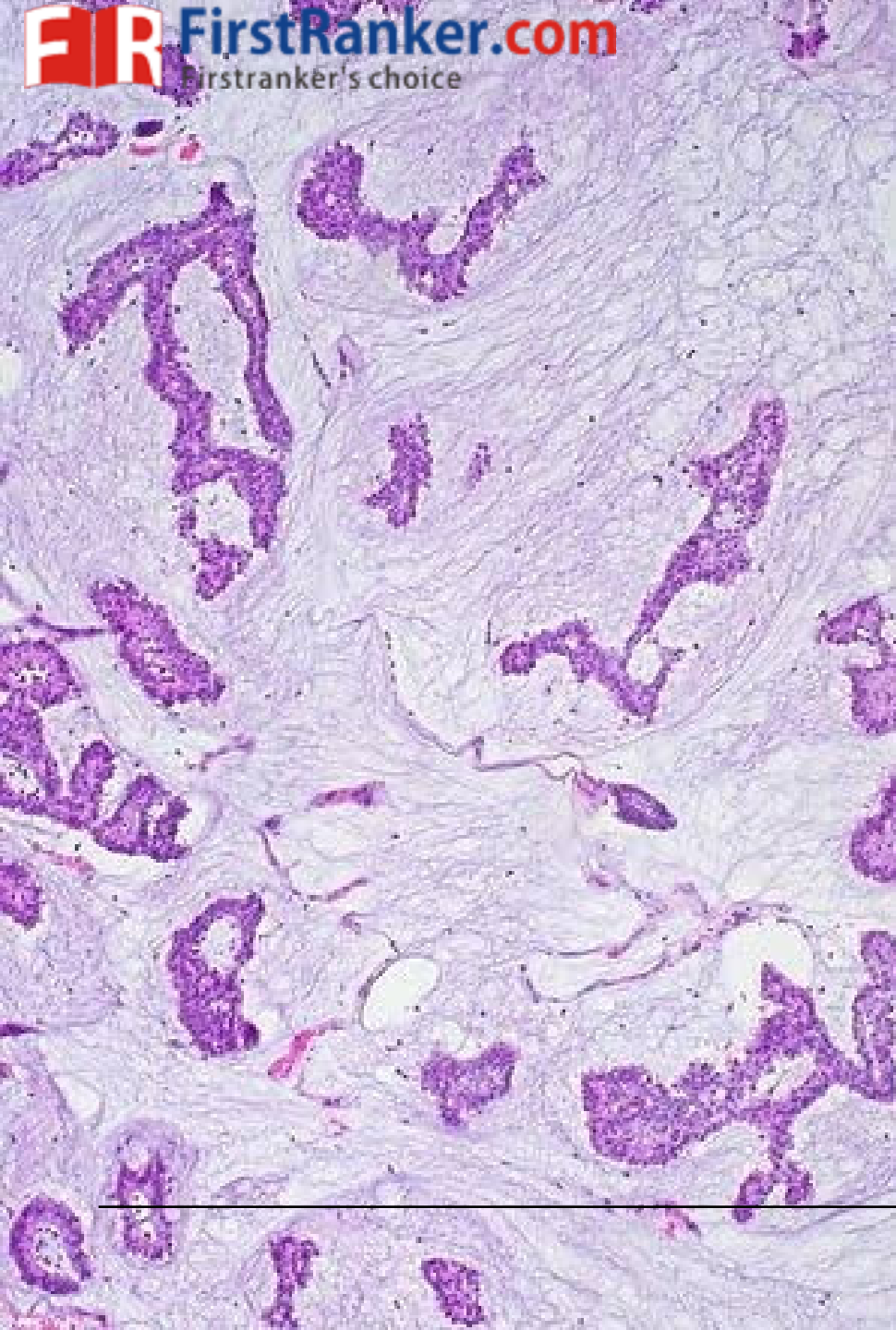


TRIPLE NEGATIVE

PAPILLARY CARCINOMA



- Rare
- Seen in **postmenopausal women**
- Tumors in the form of **papillary structures**
- Circumscribed and can be focally necrotic
- Prognosis better



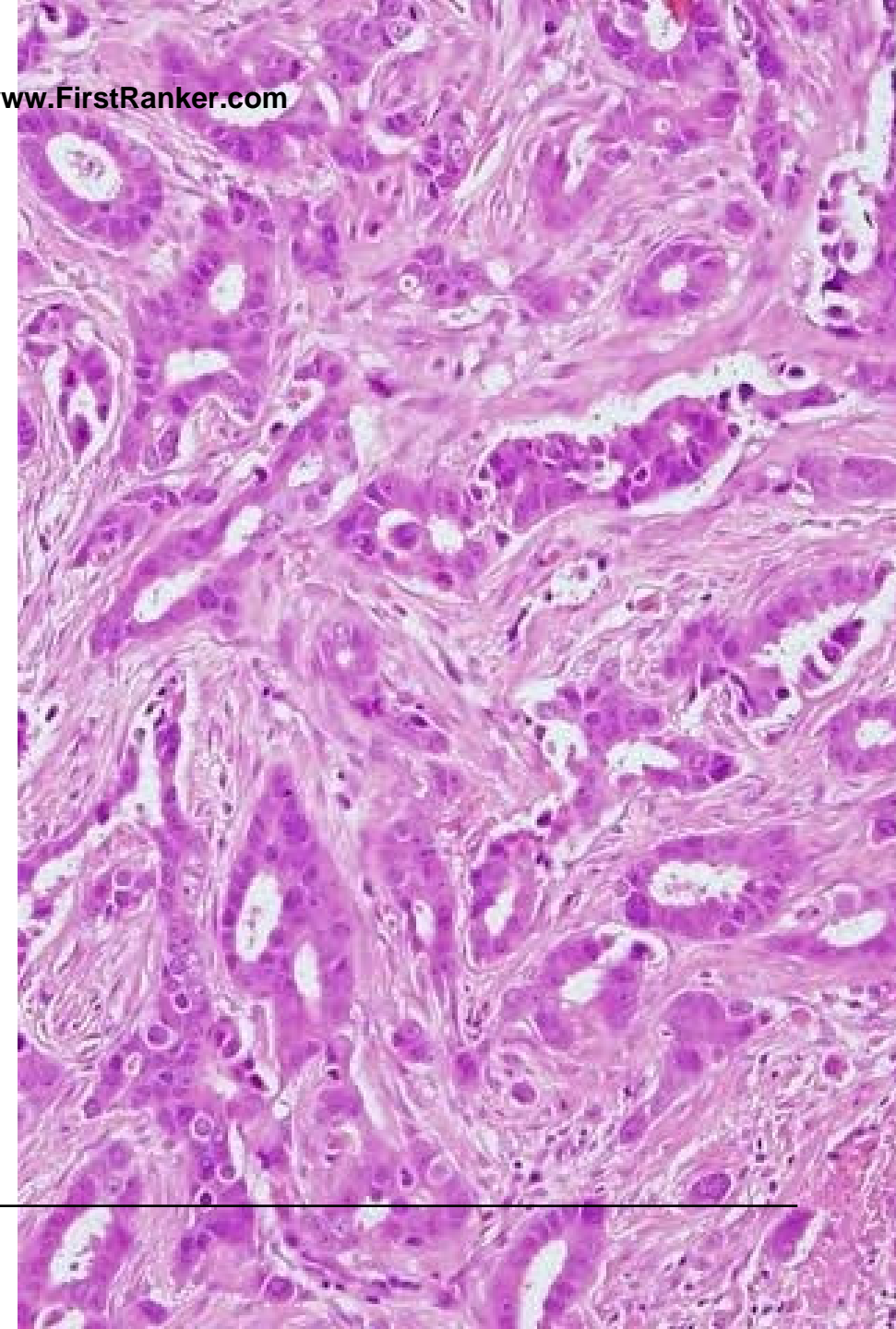
COLLOID/MUCINOUS CARCINOMA

- Rare, better prognosis
- Older people
- **Tumour cells – abundant mucin**
- **Soft, gelatinous, well-circumscribed**
- Express hormone receptors ;

No overexpression of HER2/NEU

TUBULAR CARCINOMA

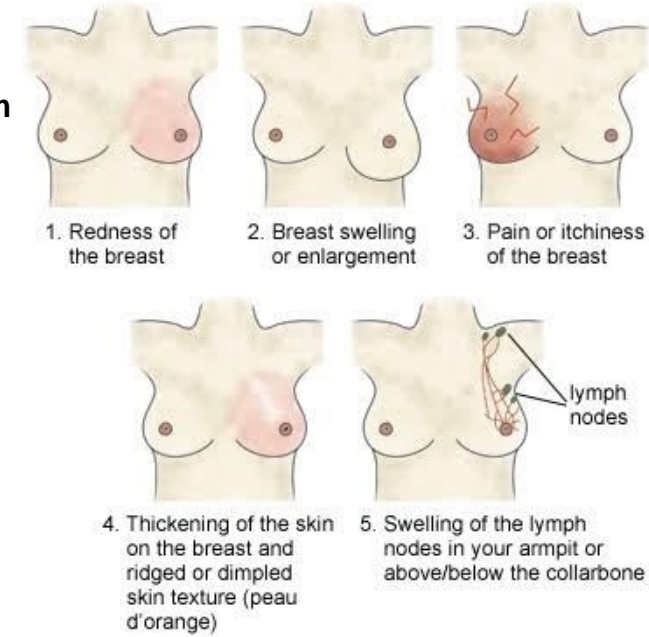
- Excellent prognosis
- **Well formed tubules**
- Seen as irregular mammographic densities
- **Express hormone receptors ;
No HER2/NEU overexpression**



INFLAMMATORY CARCINOMA / MASTITIS CARCINOMATOSIS

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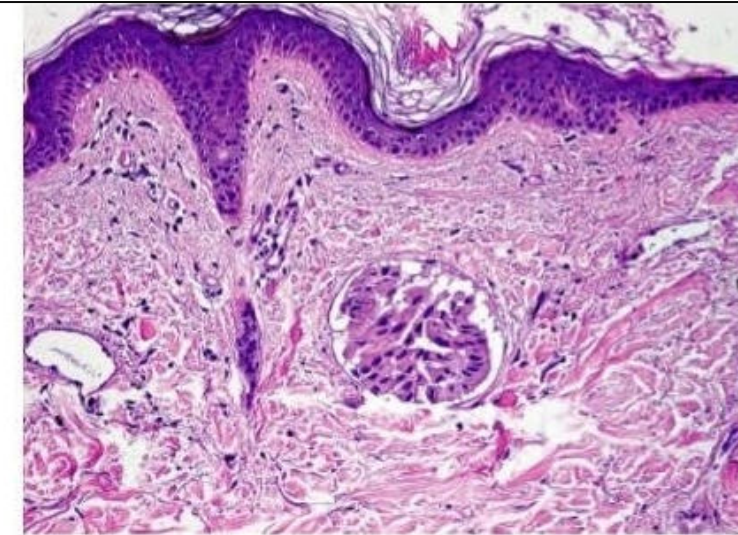


- Rare, highly aggressive , in **lactating/pregnant** women

- Poor differentiation ; diffusely infiltrative.

- Painful, swollen breast --- warm-- erythematous ---
---**cutaneous edema** ---usually no palpable mass

- **Ca. cells infiltrate subdermal lymphatics** - block



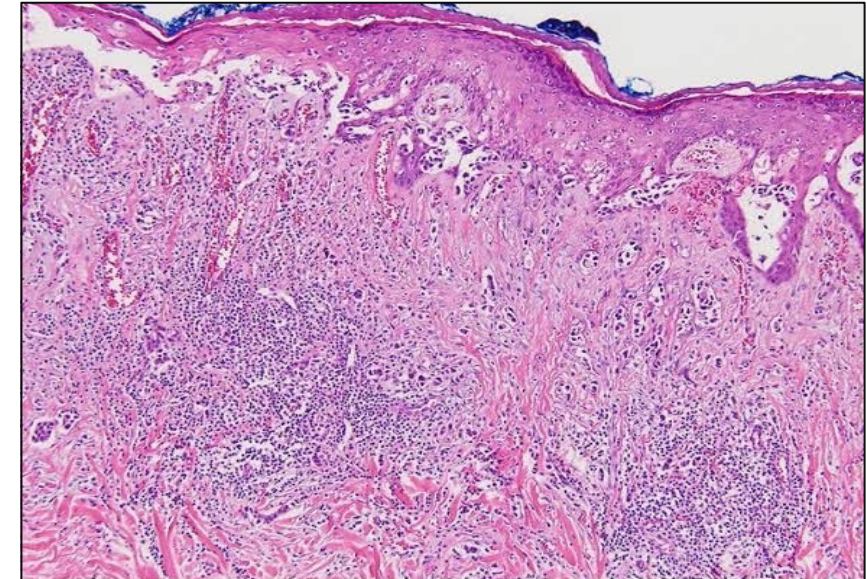
Large tumour embolus in a dermal lymphatic in a case of clinical appearance of inflammatory carcinoma

- **At least one-third of breast involved – mimics breast abscess.**

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PAGET'S DISEASE OF NIPPLE

- **Superficial manifestation of underlying breast carcinoma on nipple-areola complex**
- Eczema-like condition --- slow erosion and disappearance of nipple.
- Microscopy
 - **PAGET'S CELLS** :
large oval cells +
abundant, clear, pale stained cytoplasm
 - in **Malpighian layer of epidermis**



Paget disease with dermal invasion



TNM Staging Of Breast Cancer

Ahna Ahmed
Roll no. 5

T = TUMOR SIZE

- TX – can't be assessed
- T0 – no palpable tumor
- Tis (DCIS) – Ductal carcinoma in situ
- Tis (Paget) – Paget disease of nipple not associated with invasive carcinoma and/or carcinoma in situ
- T1 – Tumor ≤ 2 cm
- T2 – Tumor > 2 cm but ≤ 5 cm
- T3 – Tumor > 5 cm

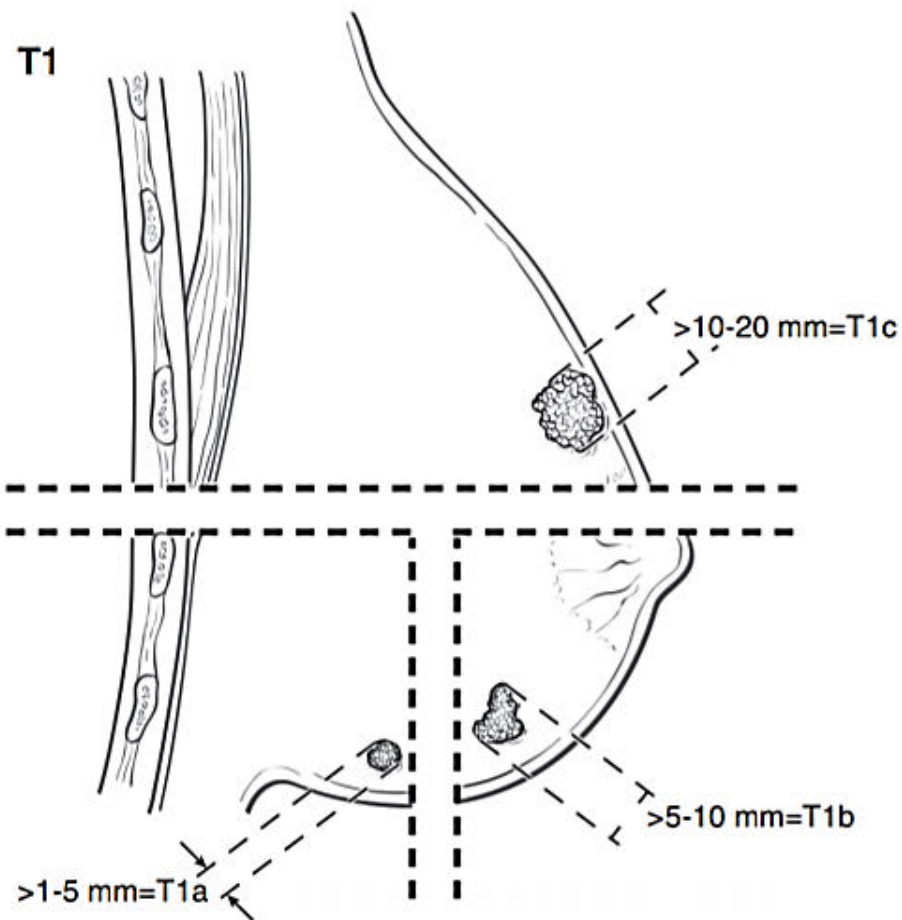


Fig. 48.3 T1 is defined as a tumor 20 mm or less in greatest dimension. T1mi is a tumor 1 mm or less in greatest diameter (not illustrated). T1a is defined as tumor more than 1 mm but not more than 5 mm in greatest dimension; T1b is defined as tumor more than 5 mm but not more than 10 mm in greatest dimension; T1c is defined as tumor more than 10 mm but not more than 20 mm in greatest dimension

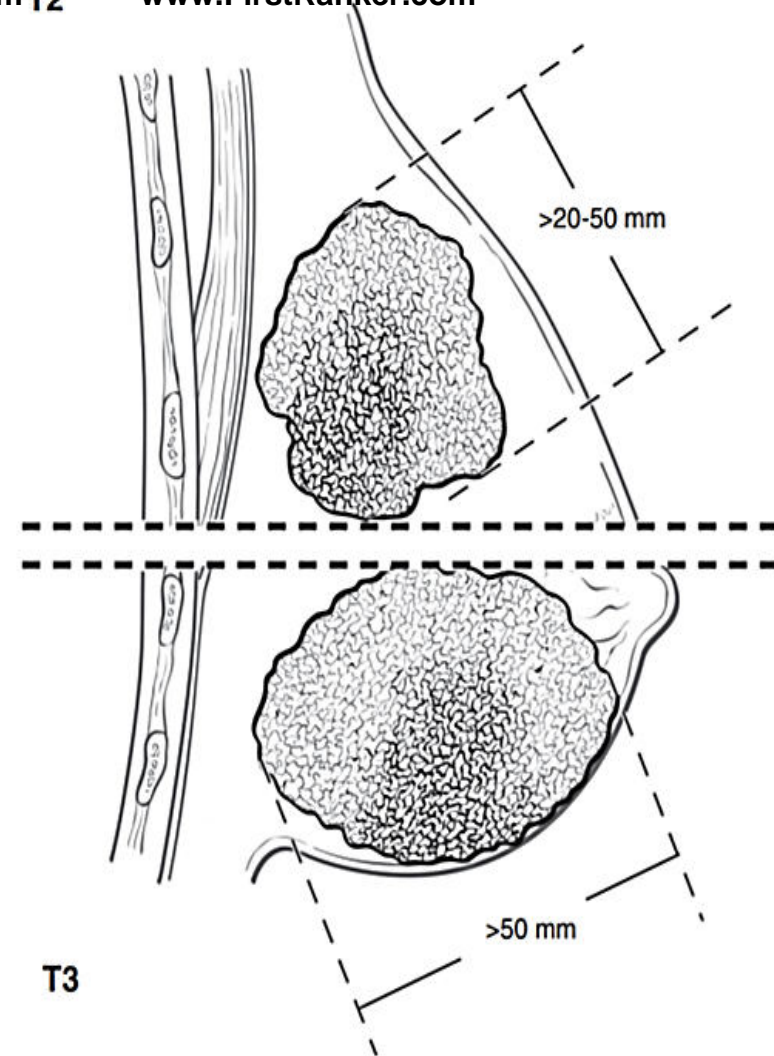


Fig. 48.4 T2 (above dotted line) is defined as tumor more than 20 mm but not more than 50 mm in greatest dimension, and T3 (below dotted line) is defined as tumor more than 50 mm in greatest dimension

T4

- tumor of any size with direct extension to the chest wall and/or to the skin (ulceration / macroscopic nodules)

T4a - extension to chest wall

T4b - skin involvement in the form of ulceration , macroscopic satellite nodules or oedema (including peau d' orange) that doesn't meet the criteria for inflammatory carcinoma

T4c - T4a + T4b

T4d - inflammatory carcinoma

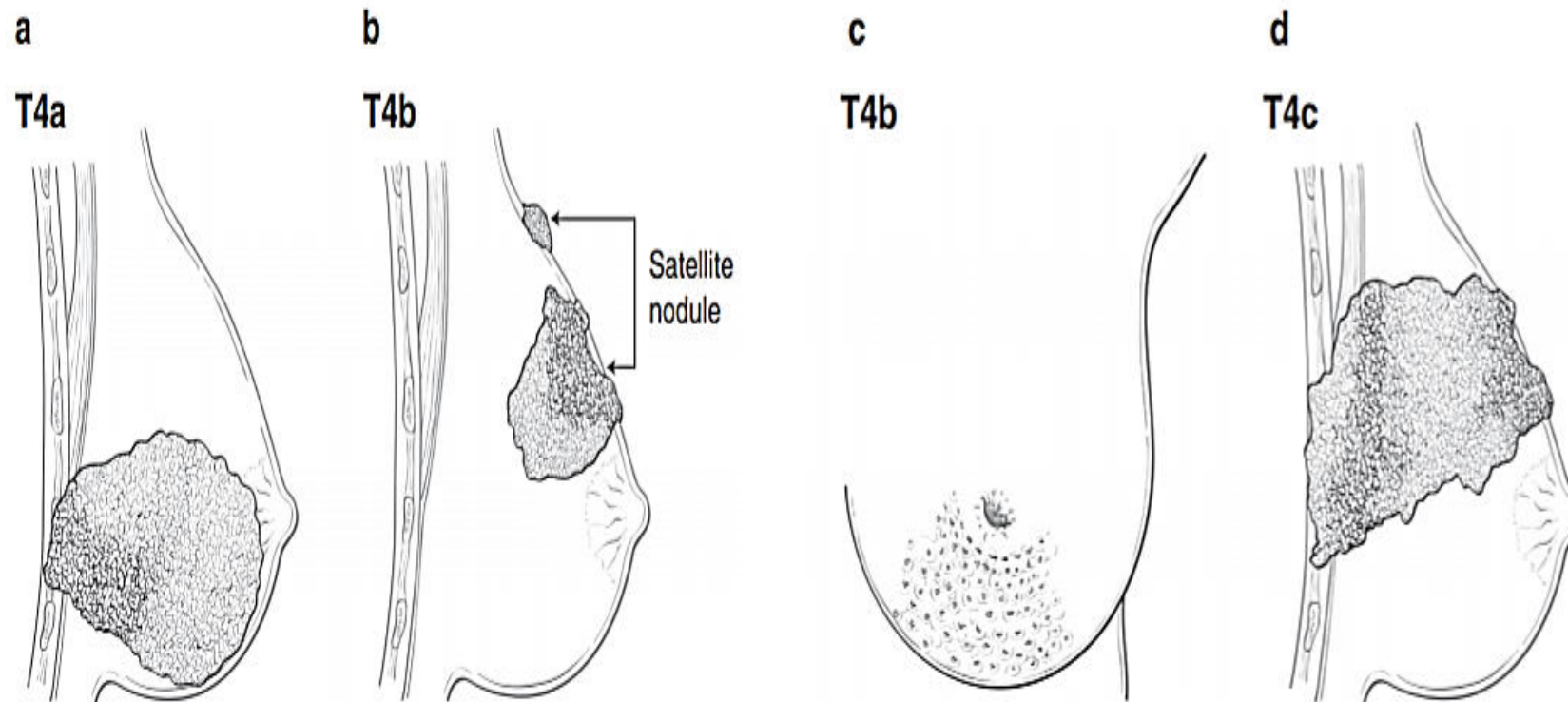


Fig.48.5 T4 is defined as a tumor of any size with direct extension to chest wall and/or to the skin (ulceration or skin nodules). (a) T4a is extension to the chest wall. Adherence/invasion to the pectoralis muscle is NOT extension to the chest wall and is not categorized as T4. (b) T4b, illustrated here as satellite skin nodules, is defined as edema (including peau d'orange) of the skin, or ulceration of the skin of the breast, or

satellite skin nodules confined to the same breast. These do not meet the criteria for inflammatory carcinoma. (c) T4b illustrated here as edema (including peau d'orange) of the skin. (d) T4c is defined as both T4a and T4b. T4d (not illustrated) is inflammatory cancer (see text for definition)



Figure 28.12 A close-up view of peau d'orange.



Figure 28.8 Skin nodules from breast cancer.

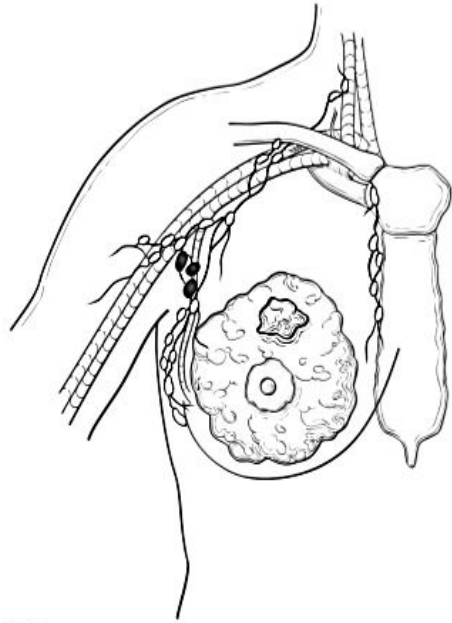


Figure 28.9 Extensive skin ulceration of the left breast from advanced breast cancer.

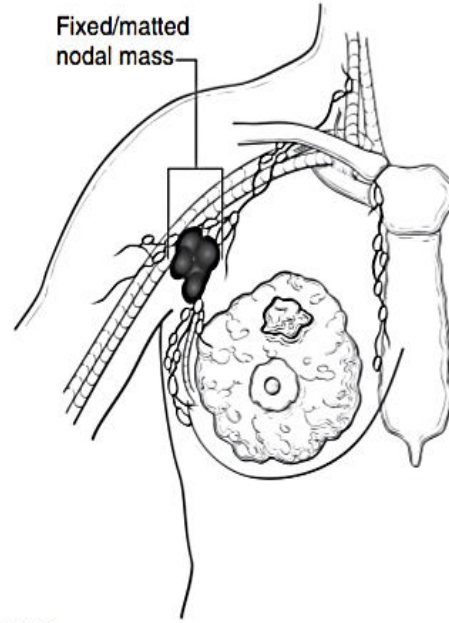
N = REGIONAL LYMPH NODES

- NX - regional lymph nodes cannot be assessed
- N0 - nodes absent
- N1 - mobile ipsilateral axillary lymph nodes (level I , II)
- N2 - N2a - ipsilateral fixed axillary lymph node (level I , II)
 - N2b - ipsilateral internal mammary node +ve in the absence of axillary lymph nodes
- N3 - N3a - ipsilateral infraclavicular lymph nodes
 - N3b - ipsilateral internal mammary lymph nodes and axillary lymph nodes
 - N3c - ipsilateral supraclavicular lymph nodes

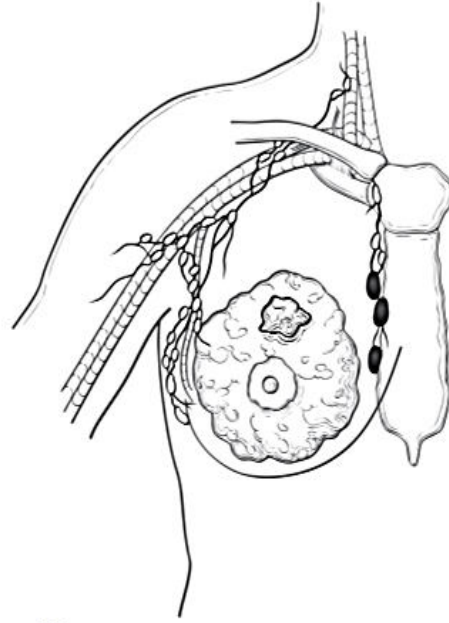
N1



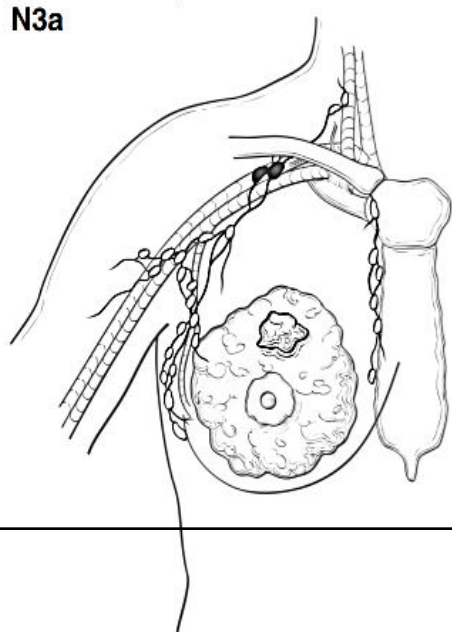
N2a



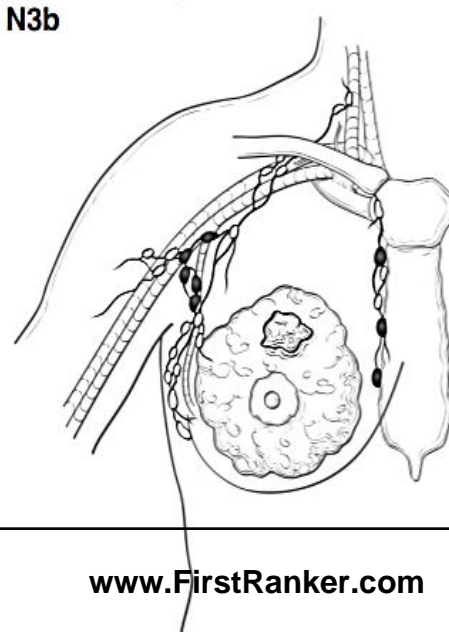
N2b



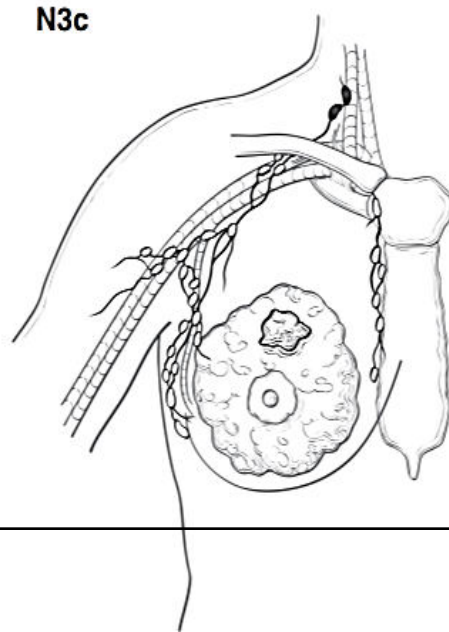
N3a



N3b



N3c



METASTASIS

M1 - Metastasis Present

M0 - Metastasis Absent

TNM STAGING

❖ TNM STAGE GROUPINGS

Stage 0	Tis	N0	M0
Stage IA	T1	N0	M0
Stage IB	T0	N1mi	M0
	T1	N1mi	M0
Stage IIA	T0	N1	M0
	T1	N1	M0
	T2	N0	M0
Stage IIB	T2	N1	M0
	T3	N0	M0

Stage IIIA	T0	N2	M0
	T1	N2	M0
	T2	N2	M0
	T3	N1	M0
	T3	N2	M0
Stage IIIB	T4	N0	M0
	T4	N1	M0
	T4	N2	M0
Stage IIIC	Any T	N3	M0
Stage IV	Any T	Any N	M1

SUMMARY OF STAGING

- Stage I and II - Early breast cancer (EBC)
- Stage IIIA and IIIB and IIIC - Locally advanced breast cancer (LABC)
- Stage IV - Metastatic breast cancer (MBC)

LOCALLY ADVANCED BREAST CARCINOMA

- Primary tumor > 5cm (T3)
- Chest wall extension (T4a)
- Skin involvement (T4b)
- Inflammatory carcinoma (T4d)
- Fixed axillary lymph node(N2a)
- Internal mammary node(N2b)
- N3 lymph node
- No evidence of distant metastasis

- ✓ **55 yr old postmenopausal obese female** presents with a **swelling in the right breast.**
- ✓ **Elder sister died of Carcinoma breast** at age of 40 yrs.
- ✓ No history of bony pain, hemoptysis, dyspnea.
- ✓ No history of jaundice, headache, seizures.
- ✓ **Menarche at age of 13 yrs.**
- ✓ Married at 25 yrs.
- ✓ **First childbirth at 28 yrs.**
- ✓ 3 children – **all were breastfed.**
- ✓ History of **recent retraction** of right nipple.
- ✓ **No history of discharge from nipple.**

INSPECTION

- ✓ Entire **affected breast** is at **higher level** than left.
- ✓ Breast as whole **pulled up and contracted** compared to normal side.
- ✓ **Dilated veins** seen on overlying skin.
- ✓ **Retraction and elevation of right nipple.**
- ✓ Visible **lump - 6x7 cm** – upper and lower outer quadrants of R.breast.
- ✓ **Edema of skin** over mass + **peau d' orange** appearance.
- ✓ Few **satellite skin nodules** seen – confined to same breast.

- ✓ Local rise of temperature
- ✓ **Fixity of skin** over mass
- ✓ **Hard lump – fixed to breast**
- ✓ Also **fixed to pectoral muscles**
- ✓ No fixity to chest wall
- ✓ Visible axillary swelling on right side- **matted, hard lymph nodes 5x3 cm**
involving both pectoral & central groups.
- ✓ No infraclavicular nodes
- ✓ **Empty supraclavicular fossa** – no palpable nodes.
- ✓ **No edema of right arm**
- ✓ **Contralateral breast and axilla - normal**

- ✓ No cervical LN enlargement.
- ✓ **No hepatomegaly and ascites**
- ✓ **No evidence of chest consolidation/ pleural effusion**
- ✓ Lumbar spine - normal



HISTORY AND CLINICAL EXAMINATION

Abi Shamsudheen

Roll no. 2

HISTORY TAKING

- AGE
- SPECIFIC COMPLAINTS
 1. LUMP - Duration
 - Onset
 - Rate of growth
 2. PAIN
 3. DISCHARGE FROM NIPPLE
 4. RETRACTION OF NIPPLE
 5. SKIN CHANGES – Ulceration, Fungation
 6. SWELLING IN AXILLA
 7. UPPER LIMB EDEMA

NIPPLE DISCHARGE

BLOOD	CARCINOMA, PAPILLOMA
PURULENT	MAMMARY ABCESS
GREENISH	DUCT ECTASIA
MILK	LACTATION ,GALACTOCELE
SEROUS	FIBROCYSTIC DISEASE, DUCT ECTASIA

To rule out metastasis:

- Bone pain ,swelling and pathological fracture
- Dyspnoea , haemoptysis , chest pain
- Jaundice , abdominal distension
- Headache , vomiting , seizures

General Symptoms: Loss of weight and appetite

PAST HISTORY

- Previous breast surgeries,
- Biopsies in same/ opposite breast
- Exposure to radiation
- Hysterectomy, oophorectomy
- Hormone replacement therapy
- Dyslipidemia

- **MENSTRUAL HISTORY**
 - Age at menarche
 - Age at menopause

- **OBSTETRIC HISTORY**
 - Age at first full term pregnancy
 - No of pregnancies
 - Lactational history
 - H/o long term OCP use

- **FAMILY HISTORY**
 - Breast or ovarian cancers
 - Any other malignancies like colorectal ca. or ca. prostate

CLINICAL EXAMINATION

- Obtain consent
- Adequate privacy
- Patient exposed to the waist in a well lit room

I. SITTING

II. RECUMBENT

III. SEMI-RECUMBENT (45°)

IV. LEANING FORWARDS

INSPECTION

Sitting and:

- i. Arms by the side
- ii. Arms raised above head
- iii. Arms on hip
- iv. Bending forwards

BREAST



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ASYMMETRY

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VISIBLE SWELLING

SKIN



DIMPLING, PUCKERING

PEAU D' ORANGE, ULCERATION,
FUNGATION, SKIN NODULES

**NIPPLE-
AREOLAR
COMPLEX**



DISCHARGE

DESTRUCTION

DEPRESSION (Retraction)

DISCOLOURATION

DISPLACEMENT

DEVIATION

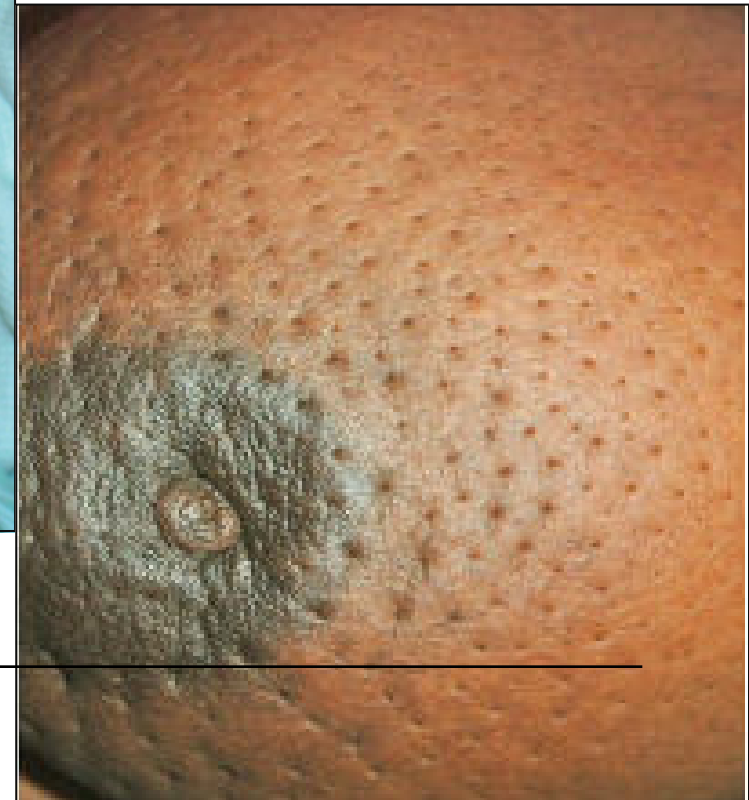
**ARMS
&THORAX**



CANCER EN CUIRASSE

BRAWNY EDEMA

www.FirstRanker.com





Cancer-en-cuirasse



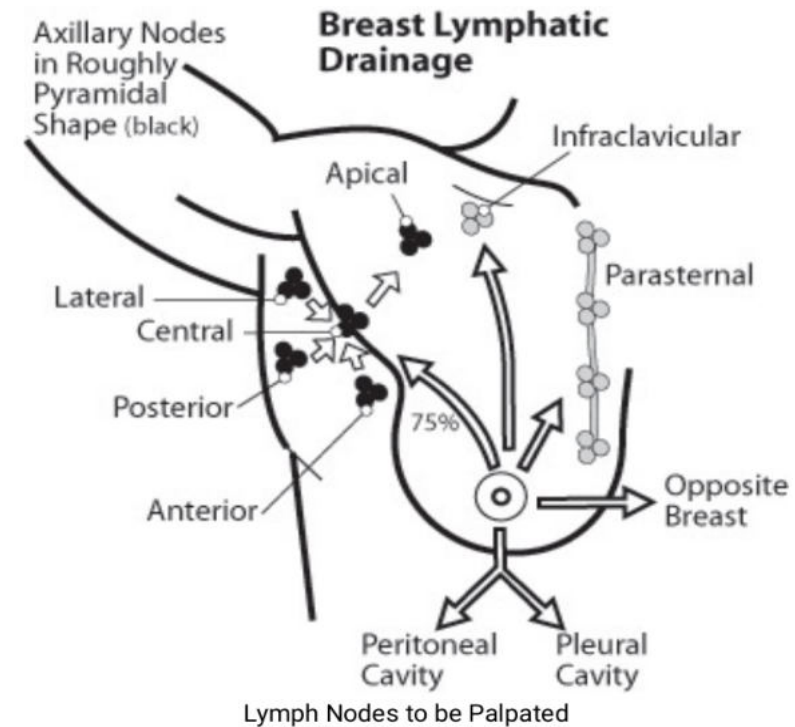
PALPATION

- Normal breast first
- Local rise in temperature
- Tenderness
- Lump - site, size, shape, extent, surface, borders, consistency
 - discrete lumps
 - multifocal& multicentric
- Fixity to
 - breast tissue
 - skin
 - pectoralis major
 - chest wall

REGIONAL LYMPH NODE EXAMINATION

- AXILLARY,
- SUPRACLAVICULAR
- INFRACLAVICULAR NODES

- Consistency
- Mobile or fixed



EXAMINATION FOR DISTANT METASTASES

- CONTRALATERAL BREAST AND AXILLA
 - CHEST – Pleural effusion, Consolidation
Chest wall nodules
 - ABDOMEN - Hepatomegaly
 - Ascites
 - Ovarian mass (Krukenberg tumor)
 - BONY TENDERNESS - vertebrae, long bones, skull
-
- CNS - Focal neurological deficit

INVESTIGATIONS



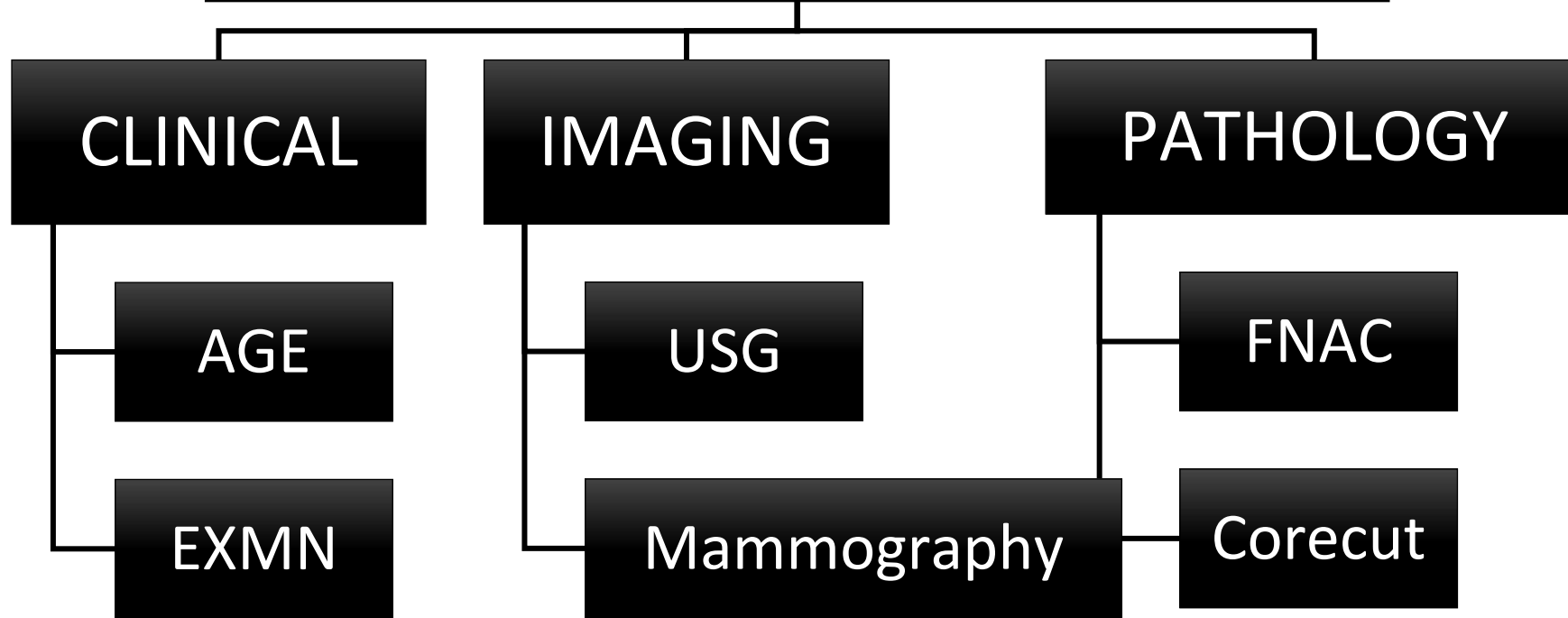
Aiswarya .S

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SPECIFIC INVESTIGATIONS

- DIAGNOSTIC - TRIPLE ASSESSMENT
- METASTATIC – STAGING INVESTIGATION
- TREATMENT RELATED

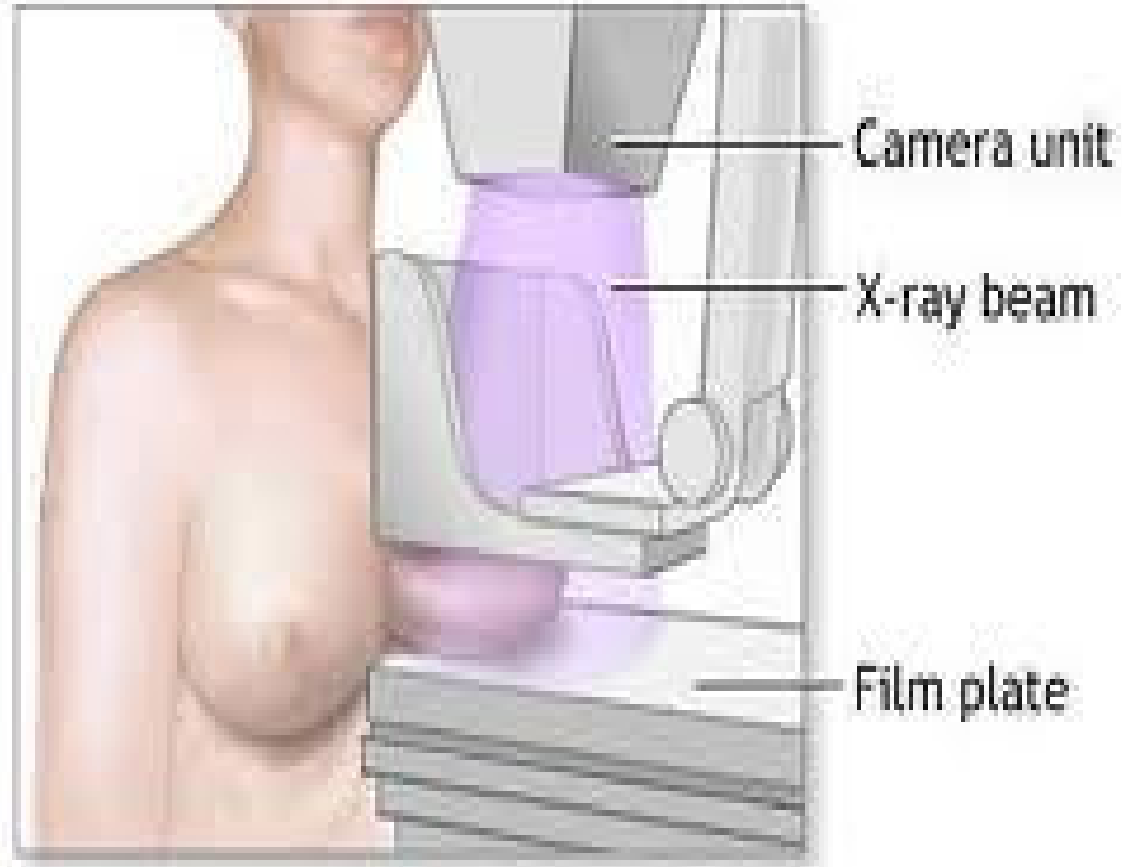
TRIPLE ASSESSMENT



Positive predictive value should exceed 99.9%

MAMMOGRAPHY

- MAMMOGRAM: soft tissue X-ray of breast.
- Preferred for females above 35 yrs
- X-ray plate is kept in direct contact with breast and a low voltage high amperage X-ray is used (0.1cGy)
- Breast is held within a compression device.



In mammography, each breast is compressed horizontally, then obliquely and an x-ray is taken of each position

Indications of mammography

▣ SCREENING

- Positive family history
- General population >40 [in some countries]
- Axillary node palpable no lump palpable.
- Coarse nodular breast.
- Fibroadenosis

▣ DIAGNOSTIC

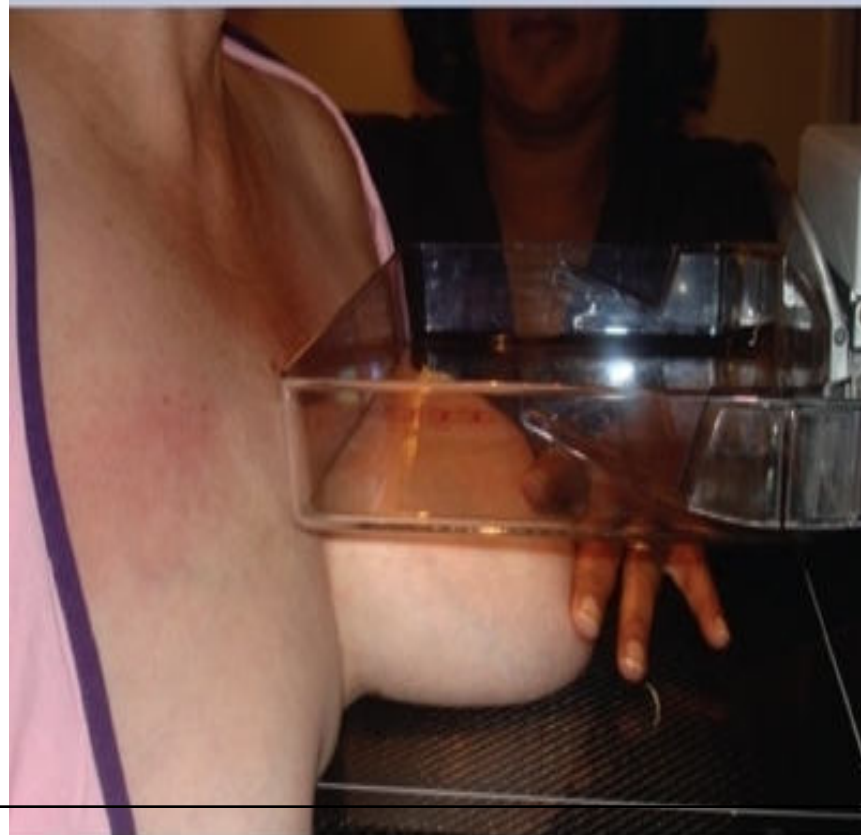
- Evaluation of suspicious breast lump.
- Imaging guided biopsy

▣ FOLLOW UP

Post operative follow up

CRANIOCAUDAL VIEW

- From above downward



MEDIOLATERAL OBLIQUE VIEW

- From side to side



SUPPLEMENTARY VIEWS

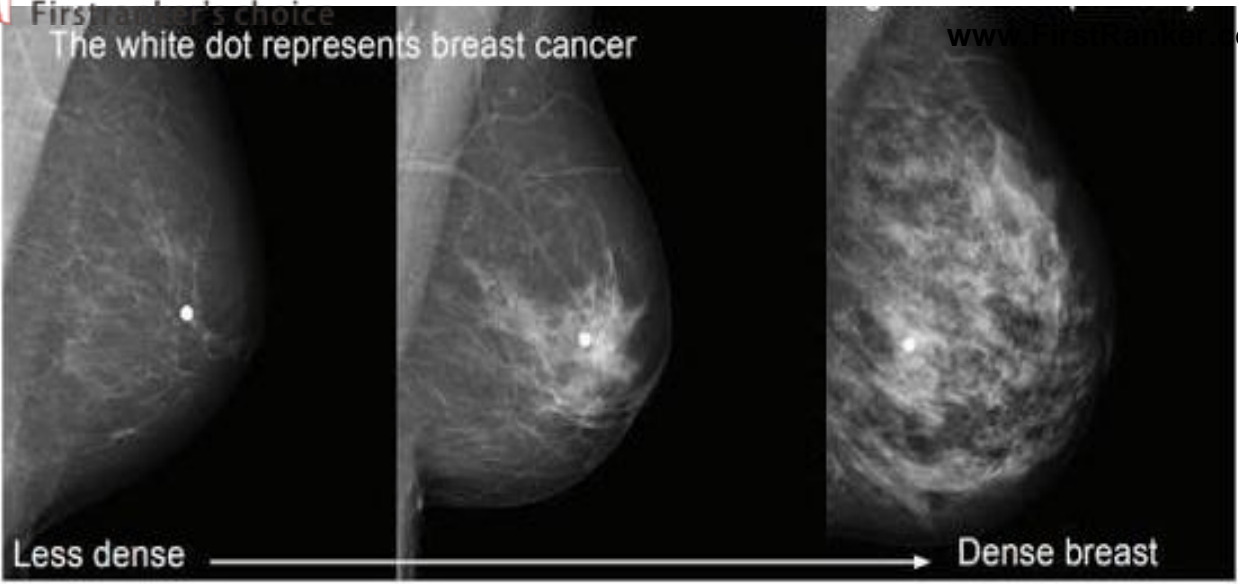
- Cleopatra/ Axillary view
 - Exaggerated craniocaudal view.
 - Better imaging of lateral portion of breast to axillary tail.

- Cleavage/ valley view
 - Better view of posteromedial portion of both breasts

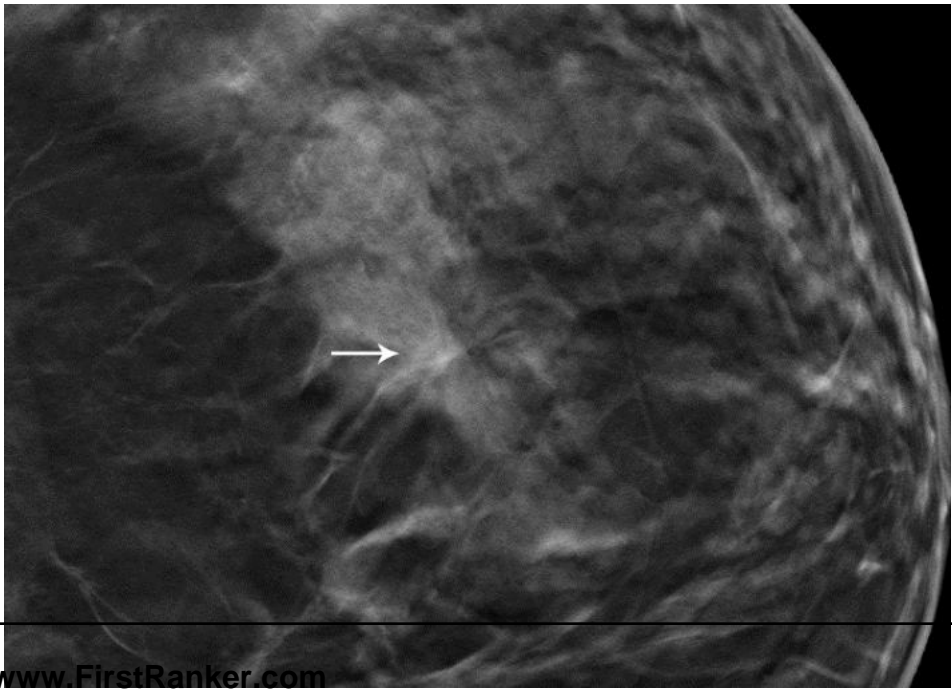
MAMMOGRAPHIC FINDINGS OF CA BREAST

- Mass lesion with clustered pleomorphic microcalcification
- Speckled mass lesion, ill defined margins, high density compared to surroundings
- Architectural distortion with Stellate lesions
- Taller than wider

FirstRanker's choice



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CONTRAST MAMMOGRAPHY

- Standard iodinated IV contrast agent is injected in one of major mammary duct and then soft tissue X-ray is taken.
- Intraductal tumor(ductal papilloma)- smooth filling defect.
- Ductal carcinoma – irregular filling defect.

DIGITAL MAMMOGRAM

- X ray film is replaced by detectors.
- X rays converted to electrical signals.
- Obtained data stored to computer.
- Better resolution.

XEROMAMOGRAPHY

- Photoconductor is used to produce final image on selenium paper
- ADVANTAGE : edge enhancement effect- useful in dense breasts
- DISADVANTAGE : exposure to high radiation dose and selenium plates are needed

BI - RADS

- The Breast Imaging Reporting and Data System.
 - Used to categorize the degree of suspicion of malignancy for a mammographic abnormality.
 - **BENEFITS:**
 - increased clarity in reporting
 - improved communication
 - facilitate research across different institutions
-

CATEGORY		RISK FACTOR	MANAGEMENT
0	NEED ADDITIONAL IMAGING / PRIOR EXAMINATIONS	NA	NEED ADDITIONAL IMAGING
1	NEGATIVE	ESSENTIALLY 0%	ROUTINE SCREENING
2	BENIGN	ESSENTIALLY 0%	ROUTINE SCREENING
3	PROBABLY BENIGN	>0% BUT ≤2%	SHORT INTERVAL FOLLOW UP

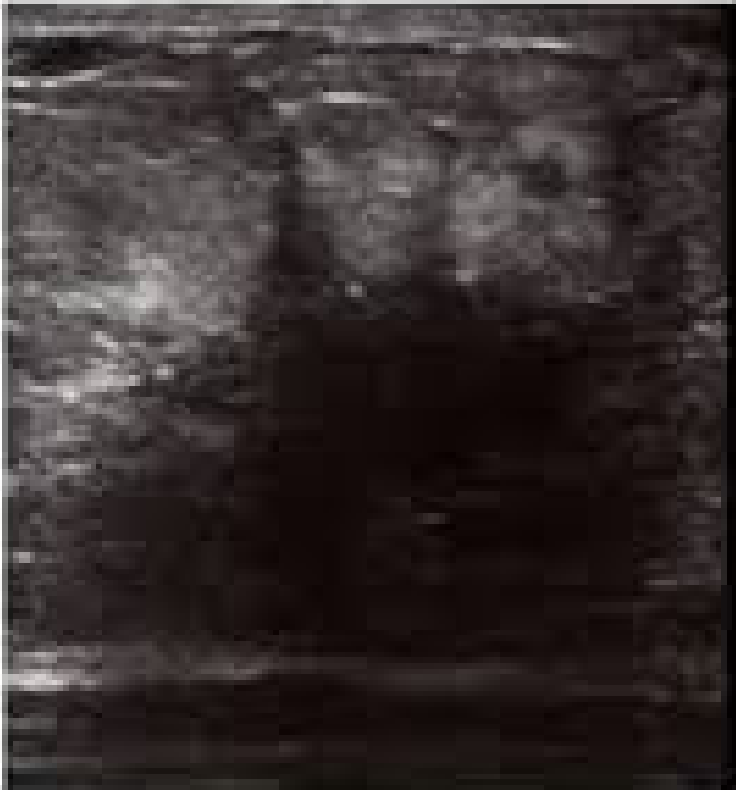
4	SUSPICIOUS	www.FirstRanker.com 4a. Low suspicion for malignancy (>2% to ≤10%) 4b. Moderate suspicion (>10% to ≤50%) 4c. High suspicion (>50% to ≤95%)	www.FirstRanker.com TISSUE DIAGNOSIS
5	HIGHLY SUGGESTIVE OF MALIGNANCY	>95%	TISSUE DIAGNOSIS
6	BIOPSY PROVEN MALIGNANCY	100%	SURGICAL EXCISION WHEN CLINICALLY APPROPRIATE

ULTRASONOGRAPHY

- Useful in young women (<35yrs) with dense breast
- Helps to distinguish cysts from solid lesions
- Looks for the :margin of lesion
 - : internal echoes
 - : retro tumour acoustic shadowing
 - : compressibility
 - : dimensions

- Cheaper
- Easily available
- No risk of radiation
- USG axilla – to assess axilla and to do guided FNAC of node

MALIGNANT LESION	BENIGN LESION
Irregular margin, irregular internal echoes, irregular posterior shadowing, non compressibility, ratio b/w AP to width dimensions more than 1	Smooth, rounded with well -defined margins, with weak internal echoes & compressibility.



Malignant Breast Lesion

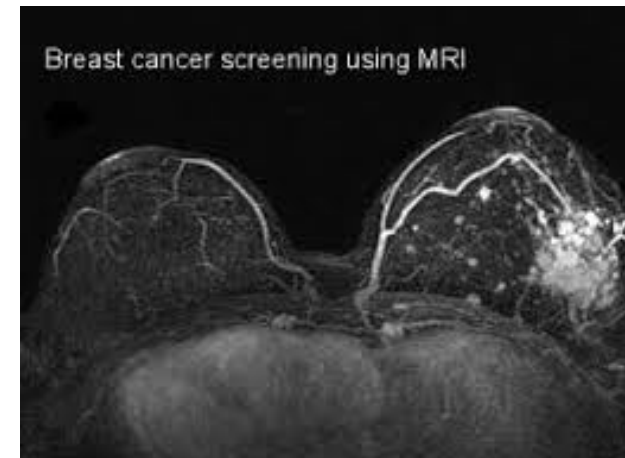
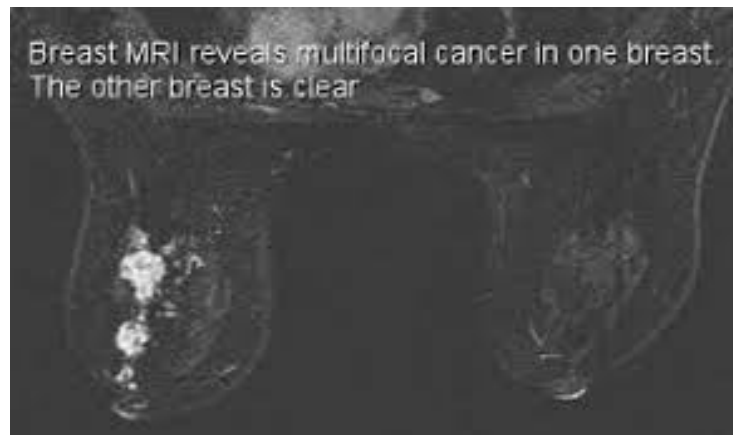
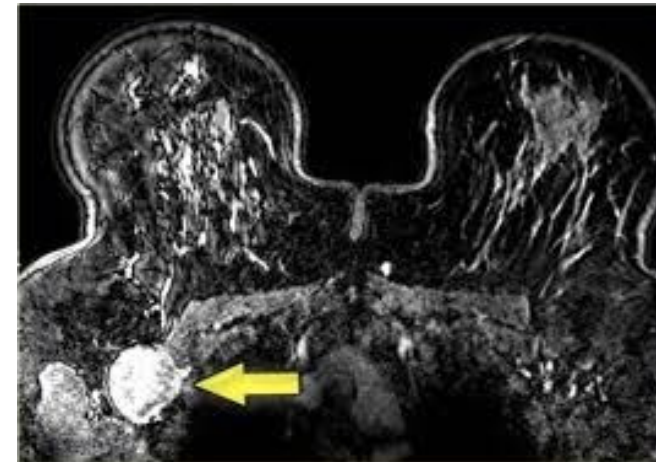
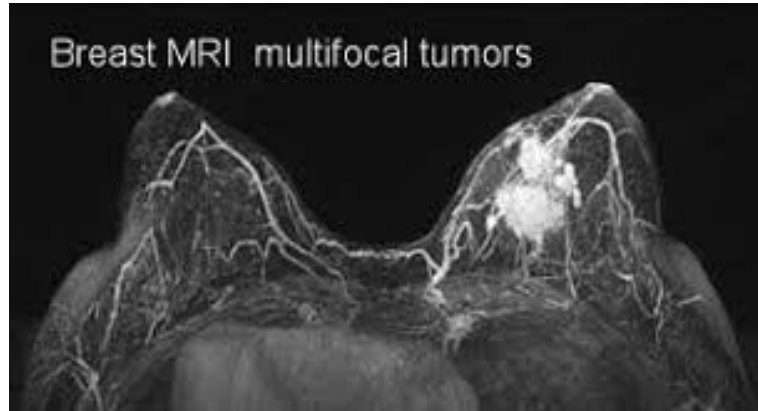


Benign Breast Cyst

DISADVANTAGES:

- False negative values
- 2% false positives
- Micro calcification cannot be detected
- Operator dependent
- Lesions $<1\text{cm}$ may not be identified

- To differentiate scar from recurrence in women who have had previous BCS
 - to assess multifocality & multicentricity in lobular cancer
 - to assess the extent of high grade ductal carcinoma in situ(DCIS)
 - to image the breasts of women with implants
-
- used as a screening tool in high risk women



Ductography

- : Contrast study of ducts in case of unilateral nipple discharge.
- : craniocaudal & mediolateral views

Breast ductal endoscopy

- : Direct visualisation of tumour in DCIS and Invasive ductal carcinoma
- : Techniquely difficult and demanding.

Thermography

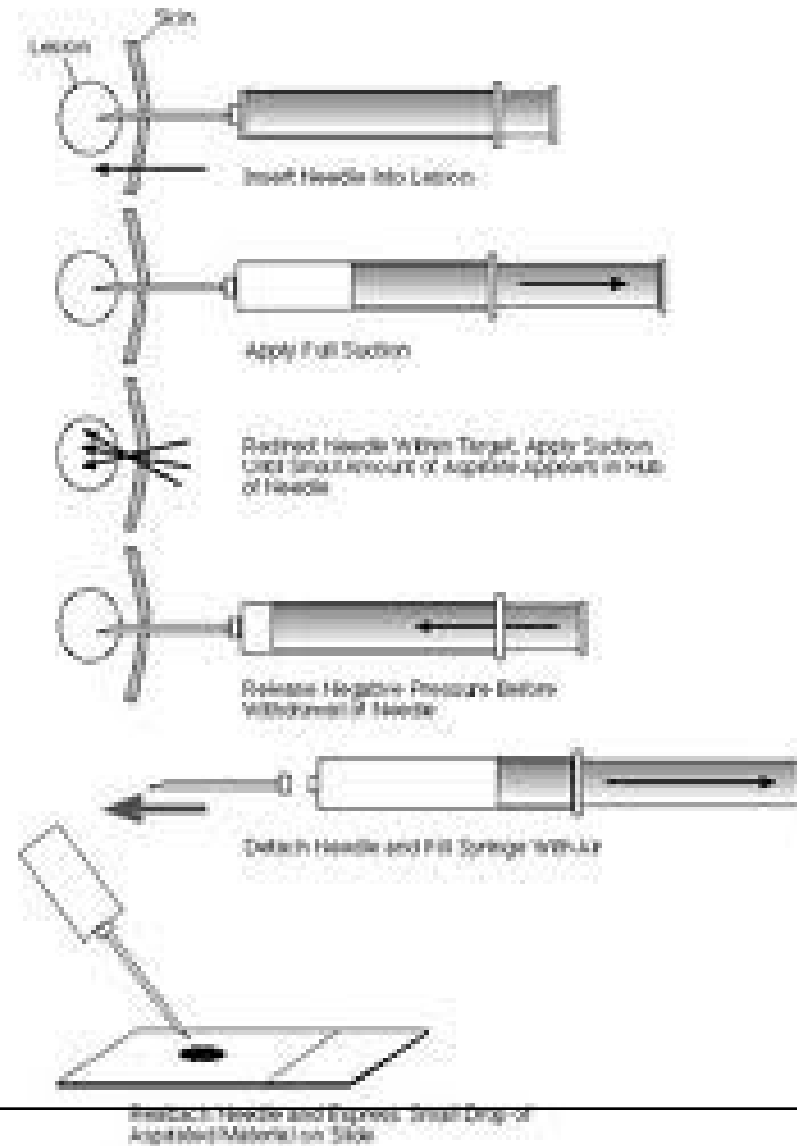
- : Malignant tumours are detected through different thermographic method
- : Not very sensitive test

FINE NEEDLE ASPIRATION CYTOLOGY

- Done with 23G needle using FNAC aspiration special syringe
 - Lump held firmly – needle passed – continuous aspiration – material collected on a slide
 - Air dried or wet fixed with 95% ethanol
 - Cytology – after staining under microscopy
-
- Minimum of six aspirations are done

- Stains used –
Leishman(air dried),
Papanicolaou,
Hematoxylin& eosin(wet
fixed)
- Done as an OP
procedure, Reliable &
Cheap
- It is least painful





FNAC SCORING

- C0 : No epithelial cells
 - C1 : Scanty epithelial cells
 - C2 : Benign cells
 - C3 : Atypical cells
 - C4 : Suspicious cells
 - C5 : Malignant cells
-

DISADVANTAGES OF FNAC

- False positive results <2%
- False negative: sampling error (but can repeat upto 3 times if suspicious)
- Cannot differentiate b/w invasive and in situ carcinoma
- Hormone receptor status cannot be assessed

CORECUT / TRUCUT BIOPSY

- Done under local anaesthesia
 - Obtains the core of tissue
 - Gives clear histologic evidence
 - Differentiate between in situ and invasive Ca.
 - ER, PR, Her2 status can be studied
-
- Mandatory before treatment of LABC

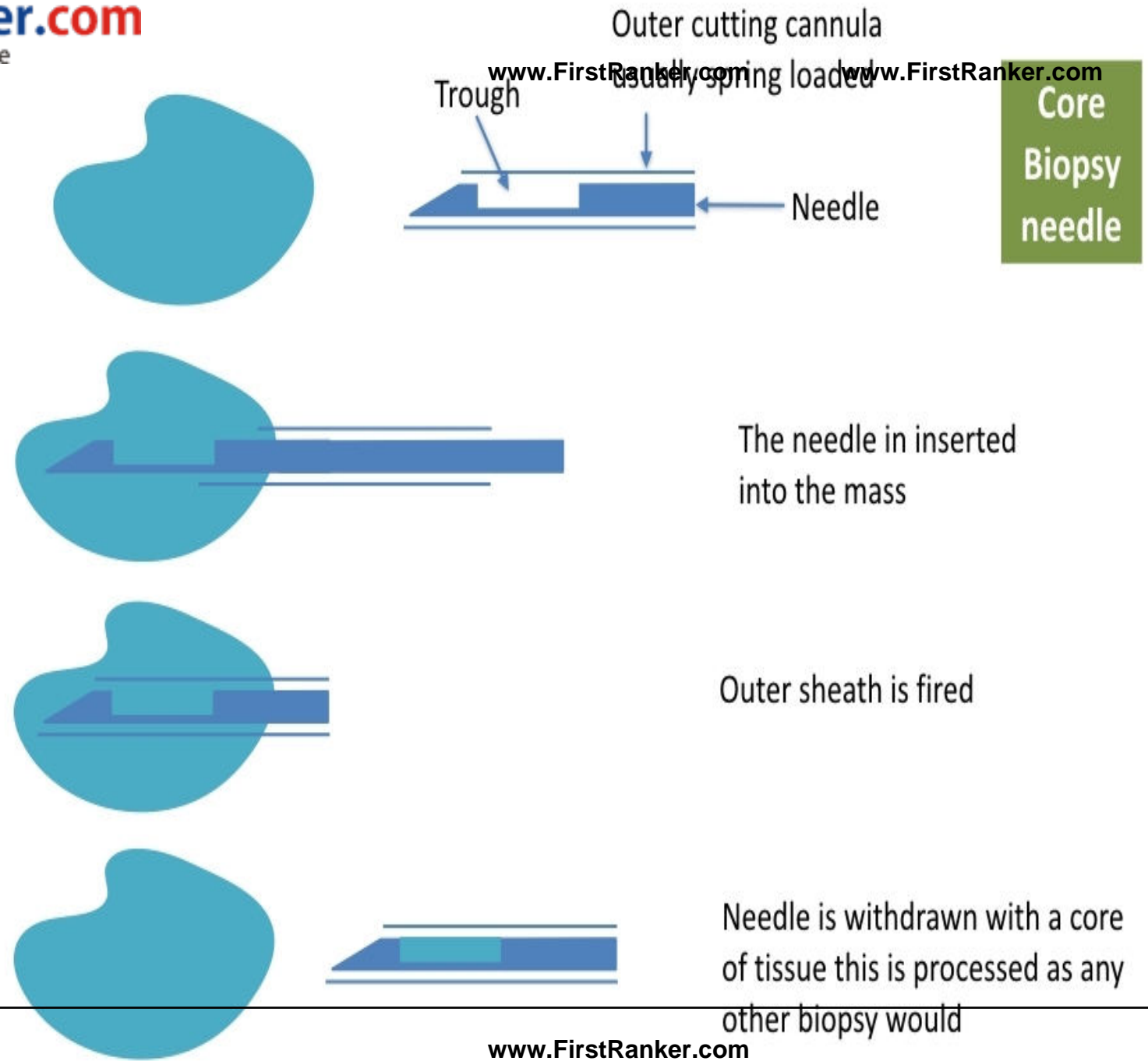


IMAGE GUIDED BIOPSIES

- Done when lump is not clearly palpable.
- 1. USG guided core needle biopsy
- 2. Stereotactic mammographic core needle biopsy
- 3. Mammography guided wire localisation
- 4. MRI guided core needle biopsy

LARGE NEEDLE BIOPSY WITH VACUUM SYSTEMS

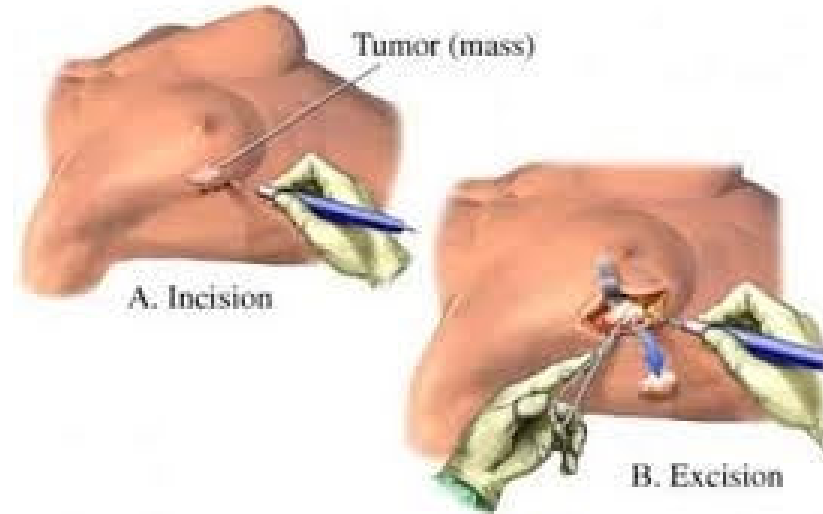
- Using 8G or 11G needles
- Useful – microcalcification / complete excision of benign lesions

MAMMOTOME

- A vacuum assisted breast biopsy device that uses image guidance such as x-ray, USG or MRI to perform breast biopsies
- Done as op procedure
- Removes only a small amount of healthy tissue and do not require sutures

INCISION BIOPSY

- Lesions >4cm – core biopsy & FNAC fails – but lesion is suspicious of malignancy in clinical examination and mammography



EDGE BIOPSY

- Done if ulceration or fungation present

STAGING INVESTIGATIONS

- Chest X-ray
- X-ray spine
- CT – chest, abdomen, brain
- MRI spine / pelvis
- Radioisotope bone scan
 - :T3, T4 advanced disease
 - :Advanced nodal disease
 - :Bone pain, bone swelling, pathological fractures
 - :Chest/ liver secondaries
- PET scan
- USG abdomen

ROUTINE INVESTIGATIONS

- Hb
- TC, DC
- Platelet count
- Serum electrolytes
- Liver function tests
- Renal function tests
- Tumor markers : , CEA, CA15-3,
CA27-29

NEWER INVESTIGATIONS

- Stereotactic core biopsy using computer mammography
- Vacuum assisted biopsy using 11G biopsy probe
- Needle localised biopsy under mammographic guidance
- I^{125} seed localisation biopsy

TREATMENT OF LABC

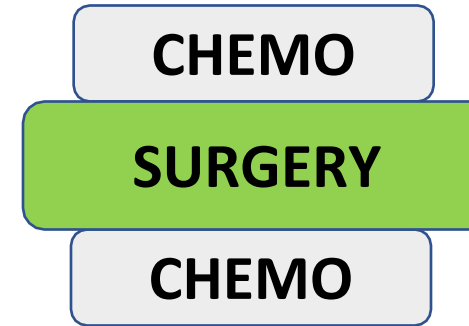
Alex Shibu

Roll no : 7

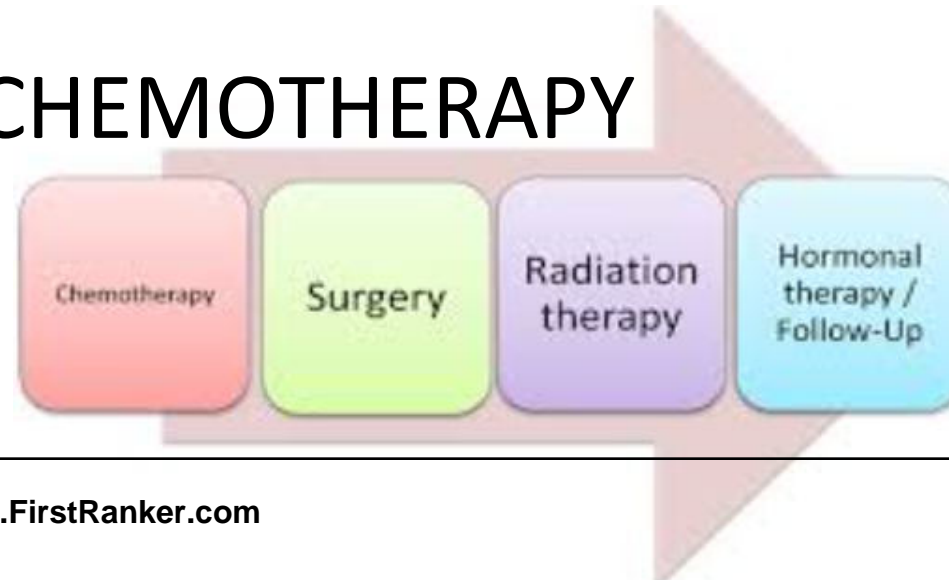


Treatment of LABC

Sandwich therapy



- NEOADJUVANT CHEMOTHERAPY
- SURGERY
- ADJUVANT CHEMOTHERAPY



- **Radiotherapy**

[local breast field and axilla(concurrent)]

- **Hormone therapy**

(selective estrogen receptor modulator – tamoxifen;
aromatase inhibitors – letrozole, anastrozole)

- **Targeted therapy**

(trastuzumab in HER2/neu positive cases)

CANDIDATES FOR NEOADJUVANT THERAPY

- LABC – stage III breast cancer
- HER2-neu positive cases
- Triple negative disease
- Early disease if BCS not possible due to large tumour in small breast

AIMS OF NEOADJUVANT CHEMOTHERAPY

- Down staging
- Chemo sensitivity assessment
- Treat micro metastasis

SANDWICH THERAPY

- First anterior / neo-adjuvant chemotherapy 3 - 4 cycles given.
- Followed by mastectomy - total or modified radical mastectomy (**MRM**—usually after 3 cycles of initial chemotherapy).
- Further chemotherapy (remaining cycles).

Different regimens are:

CAF	CEF	CMF	TAC/AC	Others
Cyclophosphamide	Cyclophosphamide	Cyclophosphamide	Taxane (Docetaxel/ Paclitaxel)	For Her - 2 Neu positive -
Adriamycin (Doxorubicin)	Epirubicin	Methotrexate	Adriamycin	AC followed by paclitaxel + Trastuzumab
5 Fluorouracil	5 Fluorouracil	5 Fluorouracil	Cyclophosphamide	Docetaxel + tratuzumab with CEF

- ✓ One day dose of all drugs of the regimen used as a standard at 3 weekly cycles for 6 cycles for stage III—CAF regime
- ✓ AC regime (Adriamycin and cyclophosphamide) with taxanes or AC regime (4 cycles) followed by taxanes (4 cycles)are also used.

RESPONSE

- ✓ **COMPLETE RESPONSE:** no palpable tumour
- ✓ **PARTIAL RESPONSE:** > 50% decrease in size
- ✓ **NON RESPONDERS:** < 50% decrease in size or increase in size up to 25%
- ✓ **PROGRESSIVE:** > 25% increase in size

- **Nonresponders and progressive disease** -
RT to breast, chest wall, axilla and supraclavicular region; taxanes; hormone therapy; surgery if operable.
- *Responders* - Total mastectomy/MRM.
After surgery remaining 2 or 3 cycles of chemotherapy are completed.
Later hormone therapy should be given for 5 years (tamoxifen 20 mg OD).

ADVERSE EFFECTS

- Alopecia
- Cystitis
- Leukopenia
- Stomatitis
- Marrow suppression
- GIT toxicity
- Cirrhosis
- Neuropathy
- Cardiac toxicity

MODIFIED RADICAL MASTECTOMY

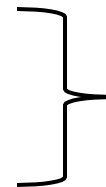
ADVANTAGES OVER RADICAL MASTECTOMY

Cosmetically better accepted

Function of shoulder maintained

TYPES

- ❖ Patey's operation
- ❖ Scanlon's operation
- ❖ Auchincloss' operation



Modifications of
Patey's operation

PATEY'S OPERATION

Total mastectomy with clearance of all axillary LN & removal of pectoralis minor

SCANLON'S OPERATION

Pectoralis minor is divided to reach level III LN

AUCHINCLOSS' OPERATION

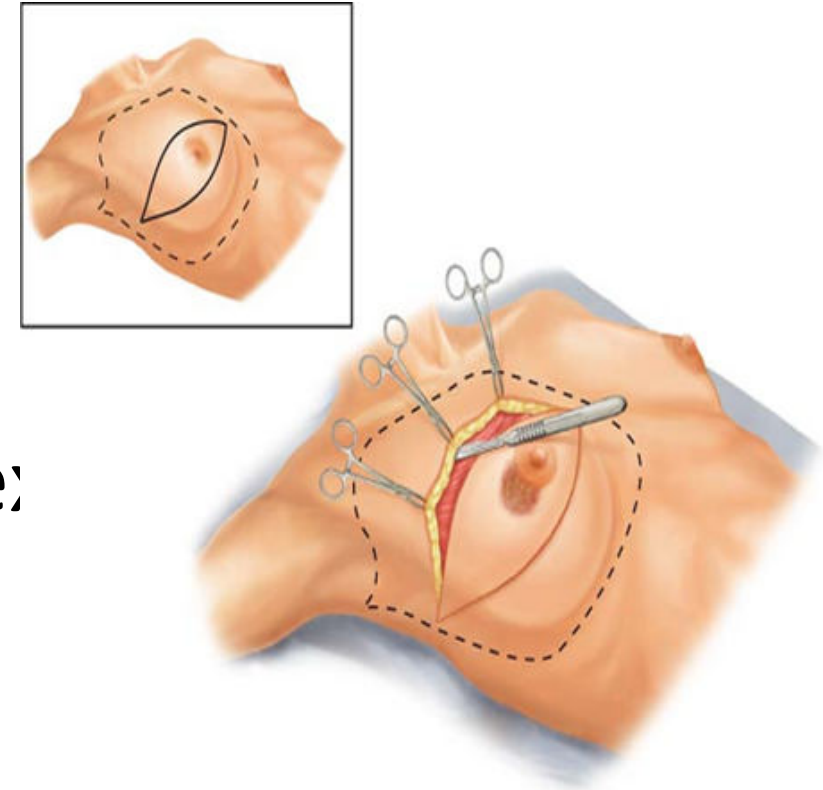
Pectoralis minor left intact.

Axillary lymph node dissection done.

It is the currently done method.

STEWART INCISION

- Oblique, elliptical incision angled towards axilla
- Should include entire areolar complex and previous scars if present
- Should be 1 – 2 cm away from the tumour margin, 2 skin edges should be of equivalent length



EXTENT OF DISSECTION

Medially , lat. Border of sternum

Laterally , mid axillary line

Superiorly , till clavicle

Inferiorly , till costal margin near insertion of rectus sheath

STRUCTURES REMOVED

- Whole Breast With Tumour
- Skin Over The Tumour
- Nipple-areola Complex
- Pectoral Fascia
- Fat , Fascia & LN Of Axilla

STRUCTURES PRESERVED

- Pectoralis major and minor
- Bell's nerve – Long thoracic nerve
- Thoracodorsal trunk
- Medial and lateral pectoral nerve
- Intercostobrachial nerve
- Axillary vein
- Cephalic vein

Intra-op

Bleeding

Injury to nerve

Early post-op

Chronic pain & numbness of UL

Wound infection

Hematoma

Seroma

Flap necrosis

Late post-op

Lymphoedema and Lymphosarcoma

Fibrosis

Frozen shoulder

Local recurrence

RADIOTHERAPY HORMONAL THERAPY TREATMENT OF INFLAMMATORY CARCINOMA BREAST RECONSTRUCTION

Alfia Hussain
Roll No. 8



RADIOTHERAPY

INDICATIONS

- Breast conservation surgery (breast Irradiation after surgery)
- In LABC -
- >4 positive Axillary lymph node.
 - Level iii node , supraclavicular , internal mammary lymph node.
 - Tumour size >5cm.
 - Resection margin positive.
 - Involvement of chest wall.
 - Lymphovascular invasion.
 - Inflammatory carcinoma.
-

MODES

EBRT(External Beam Radio Therapy)

Given over breast area, axilla, supraclavicular, internal mammary area.

BRACHYTHERAPY

Radiation source is placed inside or close to the area requiring treatment.



HORMONAL THERAPY

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Administered only if **ER/PR positive**.

Gives prophylaxis against carcinoma of opposite breast.

IN PREMENOPAUSAL WOMEN

- Tamoxifen
- Ovarian ablation by surgery / by LHRH agonist / by radiation
- Progestogens — medroxyprogesterone 400 mg
- Androgens — fluoxymesterone



In postmenopausal women

- Tamoxifen
- Aromatase inhibitor like Letrozole 2.5 mg OD
- Progestogens
- Androgens
- Medical adrenalectomy using Mitotane

It is a selective estrogen receptor modulator-**SERM**

Has anti estrogenic action in breast tissue & estrogenic action on other tissues

Dose- 20 mg/day for a period of 5 years.

Adverse effects- Hot flushing, weight gain, bone pain, amenorrhoea, increased risk of thromboembolism, vaginal dryness & atrophy, endometrial carcinoma



In postmenopausal women estrogen is produced from androgens secreted by adrenals

Inhibit aromatase enzyme that convert adrenal androgens to estrogen

Dose-2.5mg /day for a period of 5yrs

Adverse effects- vaginal dryness, hot flushes, vaginal bleeding, osteoporosis, cardiovascular problems

TARGETED THERAPY - TRASTUZUMAB

Given in HER-2 / neu positive cases

Monoclonal antibody **blocking HER-2/neu receptors** on cell membrane.

Given as IV infusion.

Dose

Loading - 4mg/kg

Maintenance - 2mg/kg/week for 1year

Adverse effect- Cardiac side effects.



In LABC

- **Radiotherapy is given pre operatively in case of non responders to chemotherapy to reduce size and down stage disease and post operatively if indicated.**
- **Hormone therapy should be started in all ER/PR +ve patients after completion of chemo and carried on for 5yrs.**
- **Targeted chemotherapy can be safely administered with neoadjuvant chemotherapy prior to mastectomy.**

TREATMENT OF INFLAMMATORY CARCINOMA

Pre-operative :

- Chemotherapy
- External radiotherapy

Surgery whenever possible after that chemotherapy and Tamoxifen is given.

+/- Breast reconstruction

BREAST RECONSTRUCTION



IMMEDIATE

In early stages of malignancy or in more advanced stages where the response to neoadjuvant chemotherapy is good. Not in LABC.

Advantages

- preservation of maximum breast skin envelope
- psychological and economical benefit

Disadvantages

- radiation to prosthesis
- prolonged surgical procedure

DELAYED

Done 3-9 months after surgery

Indications

Locally advanced diseases

Post operative radiation is needed

Unfit for prolonged surgery

Advantages

Avoids prosthesis exposure to radiation

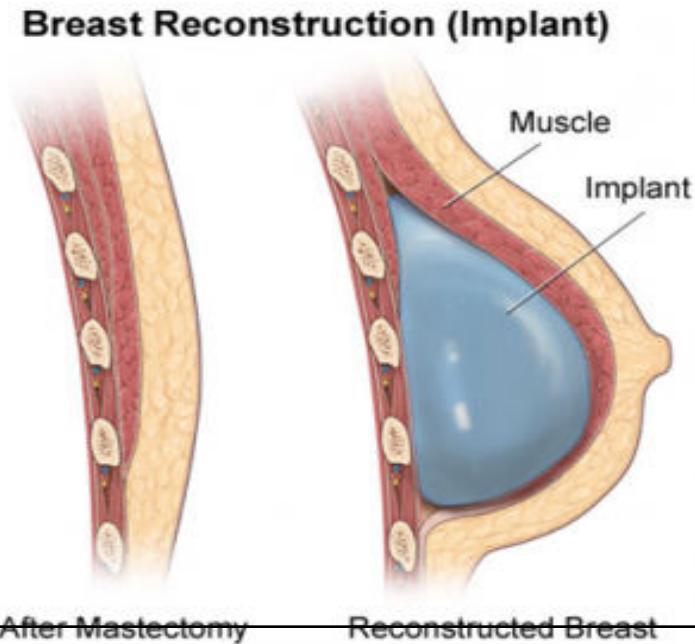
Avoids fibrosis and fat necrosis in TRAM flaps

Methods of Reconstructions

- Breast implants or expander.
- Flap reconstruction.
- Combined flap and implant or expander.
- Oncoplastic techniques.

SILICONE IMPLANTS

- most common type
- **submuscular** - placed below pectoralis major
- **subcutaneous** – if RM done

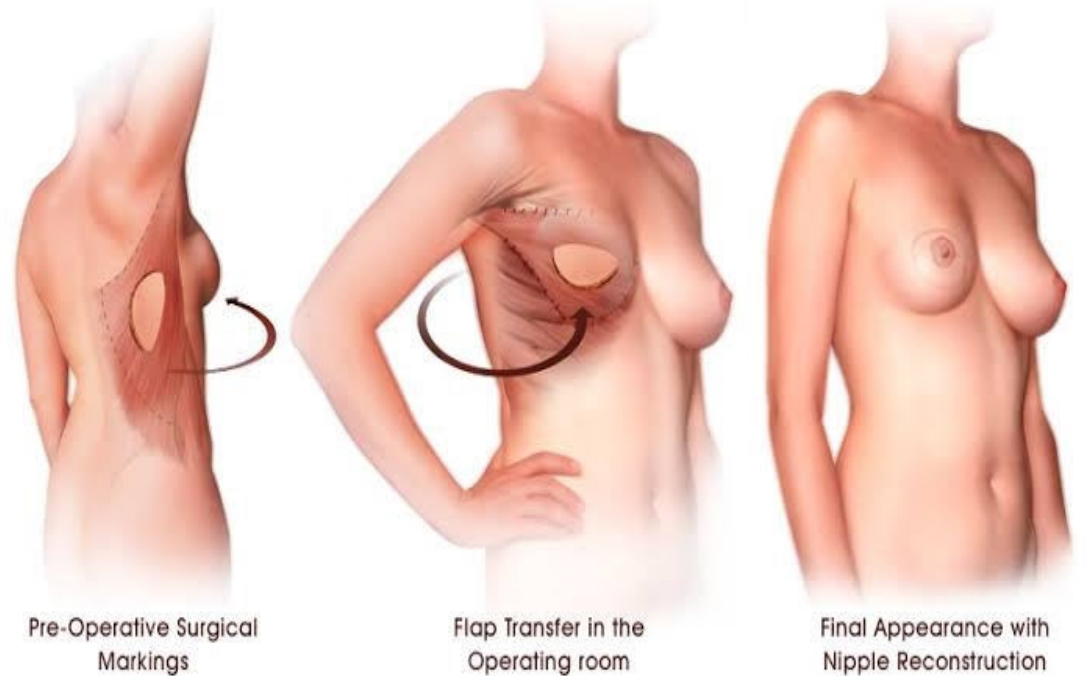


FLAP RECONSTRUCTION

▪ LATISSMUS DORSI FLAP-

- 1st mucocutaneous flap to be used.
- Based on **THORACODORSAL ARTERY**

Latissimus Dorsi Flap Reconstruction



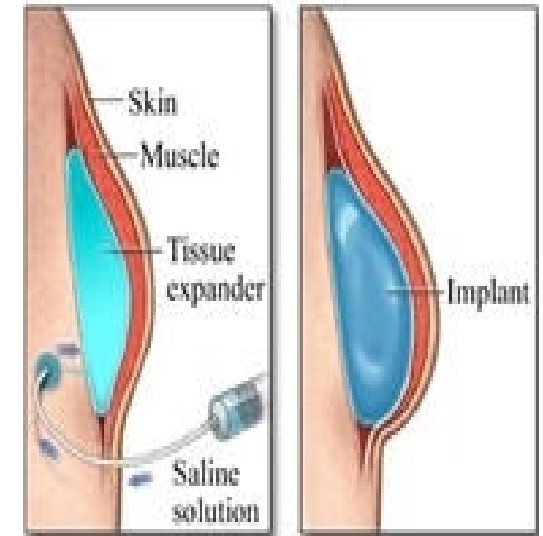
TRAM FLAP

- Most commonly used flap
- Skin and adipose tissue composition are very similar between the breast and the abdominal wall
- Based on superior epigastric artery or free flap using microvascular anastomoses of inferior epigastric to thoracodorsal vessel.



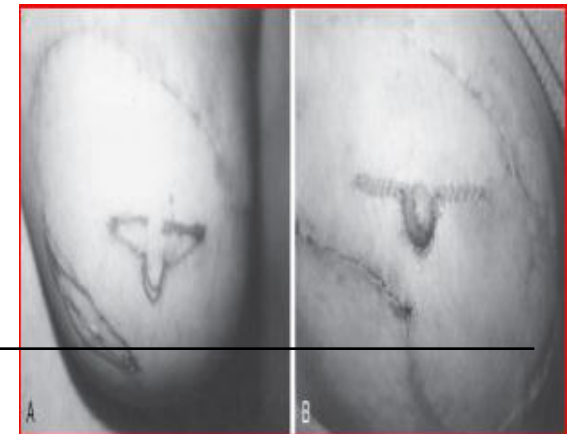
COMBINED

- Prior tissue expansion using an expandable saline prosthesis followed by replacement with silicon implant.
- LD/TRAM flap and silicon implant.
- In order to create some **ptosis** for the reconstructed breast



NIPPLE-AREOLAR RECONSTRUCTION

- Done 2 – 3 months after initial surgery under local anesthesia
- Nipple is created from local flaps of breast mount or prosthetic nipple
- Areola pigmentation (after 3wks of nipple creation) created **using Full thickness skin graft from hyperpigmented non hairy area of body(groin) or by medical tattooing.**



EXTERNAL BREAST PROSTHESIS



PROGNOSIS, **FOLLOW UP,** **COMPLICATIONS**

ALIDA FRANCIS

ROLL NO. 9



PROGNOSIS

- The best indicators of prognosis are
 - Tumour size
 - Grade
 - Lymph node status

PROGNOSTIC FACTORS

GOOD PROGNOSIS

1. Absence of any LN involvement
2. Stages I and II
3. Tumour size <1 cm
4. Histological grade – classic lobular, tubular, cribriform , medullary , mucinous, papillary , adenoid cystic
5. ER + and PR + tumours

BAD PROGNOSIS

1. Younger age(age<35 years)
 2. Higher grade
 3. Inflammatory ca.
 4. Extensive in situ involvement
 5. Lymph nodal involvement(more than 3 histologically positive nodes)
 6. Ca. male breast
 7. c-erb B2 (HER2/neu)
 8. p53 tumour suppressor gene mutation
 9. Aneuploidy
 10. Inner and lower quadrant tumours
-

ELSTON ELLIS

MODIFIED SCARFF BLOOM RICHARDSON GRADING

	1	2	3
NUCLEAR PLEOMORPHISM	Small Uniform Nuclei	Intermediate Nuclei	Large Prominent Nuclei
MITOTIC COUNT	<10% Mitosis	10-20% Mitosis	>20% Mitosis
TUBULE FORMATION	75% Cells In Tubule Form	10-75% Cells In Tubule Form	<10% Cells In Tubule Form

GRADING OF TUMOR

<u>GRADE</u>	<u>SCORE</u>
1	3-5
2	6-7
3	8-9

Nottingham Prognostic Index

(.2xTumor size in cm) + grade+ stage

Tumor grade : EEMBR histologic grade of tumor

Lymph node stage:

0 nodes : stage 1

upto 4 nodes : stage 2

>4 nodes : stage 3

INTERPRETATION OF NPI

BASED ON 5 YEAR SURVIVAL

≥ 2 to ≤ 2.4 : 93%

> 2.4 to ≤ 3.4 : 85%

> 3.4 to ≤ 5.4 : 70%

> 5.4 : 50%

- * Patients with breast cancer should be followed for life to detect recurrence and dissemination.
 - * Physical examination at regular intervals
 - * Self examination
 - * Yearly/ 2 yearly mammography of both breast
 - * Bone scan/ CT chest, abdomen/ tumor markers- not regular routine follow up
-

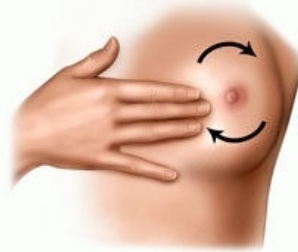
Breast Self-Examination

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1. Lie down and put your left arm under your head. Use your right hand to examine your left breast. With your 3 middle fingers flat, move gently in small circular motions over the entire breast, checking for any lump, hard knot, or thickening. Use different levels of pressure - light, medium, and firm - over each area of your breast. Check the whole breast, from your collarbone above your breast down to the ribs below your breast. Switch arms and repeat on the other breast.



2. Look at your breasts while standing in front of a mirror with your hands on your hips. Look for lumps, new differences in size and shape, and swelling or dimpling of the skin.



3. Raise one arm, then the other, so you can check under your arms for lumps.



4. Squeeze the nipple of each breast gently between your thumb and index finger. Report to your healthcare provider right away any discharge or fluid from the nipples or any lumps or changes in your breast.

COMPLICATIONS

1. ULCERATION

2. FUNGATION

3. METASTASIS

DISCUSSION OF CASE SCENARIO

- ✓ 55 yr old postmenopausal obese female pt.
- ✓ Lump in Rt. Breast
- ✓ Recent retraction of nipple
- ✓ +ve family h/o breast cancer
- ✓ O/E, hard lump fixed to breast tissue

Peau d'orange appearance

Nipple retraction & elevation

Skin nodules & skin fixity

Matted axillary LN



CARCINOMA BREAST



STAGING:
T4bN2aM0
STAGE IIIB



LABC