BREAST

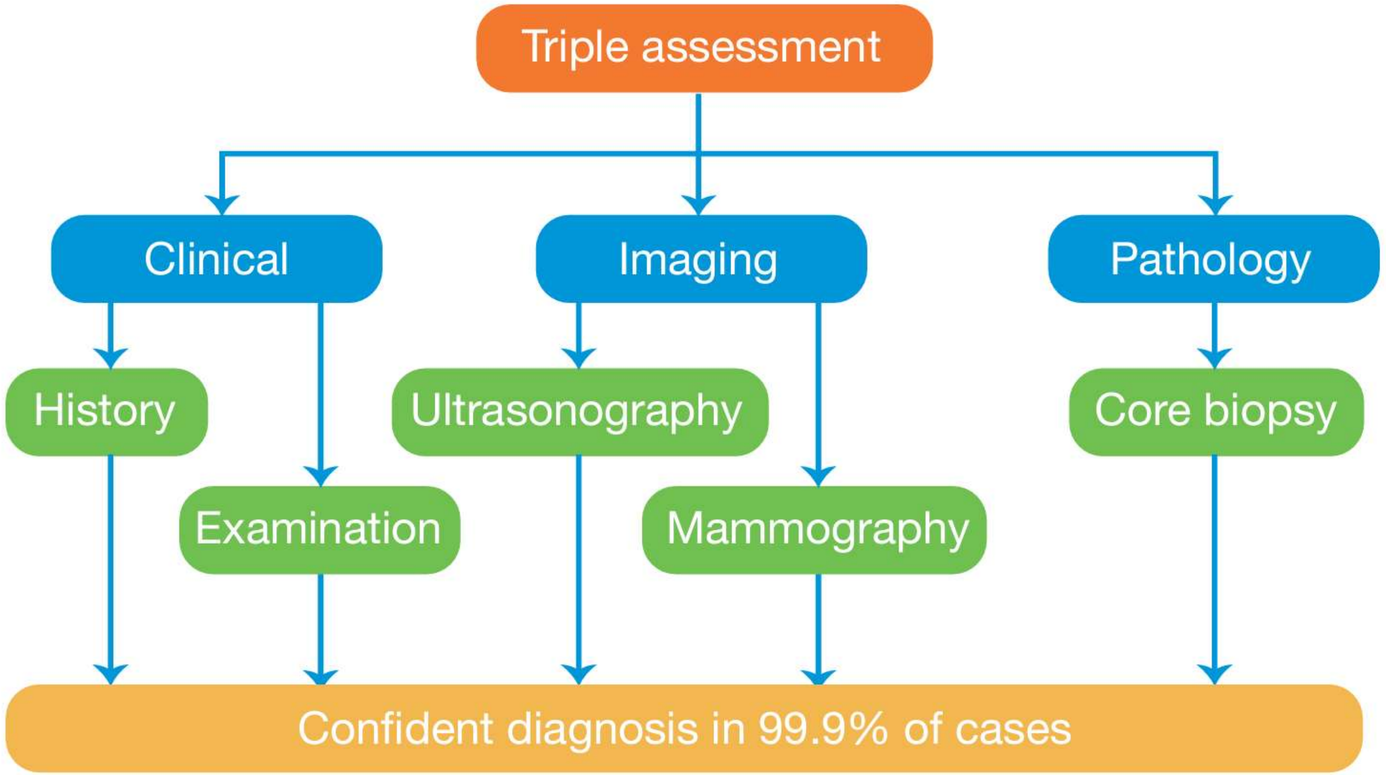
OUTLINE

- Carcinoma breast
- Phyllodes Tumor
- ANDI
- Galactocele
- Gynecomastia
- Mastalgia

CARCINOMA BREAST

TRIPLE ASSESSMENT

- Clinical examination
- Radiological imaging
- Tissue sampling
  - FNAC
  - core needle biopsy



Radiological imaging

- Ultrasonography - young women
  - cystic from solid lesions
  - therapeutic aspiration
  - guided biopsy/ fnac
  - benign from malignant
- Mammography - initial screening tool
  - -1mGy per film
  - BIRADS scoring

TABLE 58.1 Breast Imaging Reporting and Database System (BI-RADS).

Category	Assessment	Probability of malignancy	Follow-up recommendation
0	Assessment is incomplete	Not applicable	Need for additional imaging evaluation and/or prior mammograms for comparison
1	Negative	Essentially 0%	Routine annual screening mammography (for women over age 40)
2	Benign finding(s)	Essentially 0%	Routine annual screening mammography (for women over age 40)
3	Probably benign finding	>0% but ≤2%	Initial short-term follow-up (usually 6 months) examination
4	Suspicious abnormality:		Biopsy should be considered
	4a: Findings needing intervention with a low suspicion for malignancy	>2 to ≤10%	
	4b: Intermediate suspicion of malignancy	>10% to ≤50%	
	4c: Findings of moderate concern, with high suspicion for malignancy	>50% to <95%	
5	Highly suggestive of malignancy	≥95%	Requires biopsy or surgical treatment
6	Known biopsy-proven malignancy	Not applicable	Category reserved for lesions identified on imaging study with biopsy proof of malignancy prior to definitive therapy

PATHOLOGY OF BREAST CANCER

- Invasive Ductal carcinoma
- Invasive lobular carcinoma
- Medullary carcinoma
- Mucinous carcinoma
- Papillary carcinoma
- Tubular carcinoma

Invasive ductal carcinoma	Invasive lobular carcinoma	Medullary carcinoma	Mucinous carcinoma	Papillary carcinoma	Tubular carcinoma
M/c (80%)	Multifocal multicentric and bilateral	20% b/l and 50% associated with DCIS	Older patients	7th decade	Peri menopausal or early menopause
Perimenopausal And post menopausal	Small cells, rounded nuclei, Scant cytoplasm	Frequent in BRCA1	Extracellular pools of mucin	Papillae present	
Chalky white / , gritty	Intra cytoplasmic mucin present	Dense lymphoreticular infiltrate	Glistening mass with fibrosis	Axillary lymph node mets	LN node and distant mets rare
Firm hard mass	Poorly defined diffuse mass	Bulky deep seated lesions	Firm mass	Usually small lesions <3cm	

TABLE 58.4 Molecular classification of breast cancer.

Classification	Hormone receptor	HER2/ neu	Others
Luminal A	Positive (either or both ER/PR)	Negative	Ki-67 low
Luminal B	Positive (either or both ER/PR)	Negative	Ki-67 high
Basal type (triple negative)	Negative	Negative	Ki-67 usually high
HER2/neu enriched	Negative	Positive	Ki-67 high
Claudin low	Negative	Negative	Claudin low

ER, oestrogen receptor; HER2/neu, human epidermal growth factor receptor 2/neu; PR, progesterone receptor.

STAGING

T STAGING

- Tx - can’t be assessed
- T0- no tumor
- Tis - DCIS
- T1- < 2cm
- T2 - 2-5cm
- T3- > 5cm
- T4 a - chest wall
- T4b- skin
- T4c - both
- T4d - inflammatory CA

N STAGING

- Nx - can’t be assessed
- N0 - no nodes
- N1 - I/L mobile axillary nodes (level 1, level II)
- N2a - I/L axillary nodes fixed or matted
- N2b- I/L internal mammary nodes on absence of axillary node
- N3a - I/L infraclavicular nodes
- N3b- I/L internal mammary + axillary nodes
- N3c- I/L supraclavicular nodes

- M0 - no mets
- M1- mets +

EARLY BREAST CANCER

- Stage 1 and II (upto T3N1M0)
- Dx- mammogram and biopsy
- Stage - CXR, LFT , USG abdomen
- Aims of treatment- CURE!!
    - Breast conservation
    - Prevention of distant mets
    - Prevent local recurrence

- TREATMENT
    - Surgery
    - Adjuvant therapy
    - Follow up

SENTINEL LYMPH NODE BIOPSY

- Sentinel node - first axillary node draining the breast
- Done in clinically node negative tumors
- Inject blue dye (patent blue or methylene blue) and radioisotope Tc 99 m labelled sulphur colloid.
- Flourescent dyes - fluorescein or indocyanin green
- Peritumoral or periareolar, subareolar or intradermal plane
- Blue coloured node or hot node (gamma camera) or fluorescent node (blue light-fluorescein or infrared light - indocyanine green) identified
- Incision made over the node, removed and sent for frozen section

- SLNB followed by wide excision of Tumor
- Contraindications - inflammatory breast cancer
    - T4 disease
    - h/o previous breast or chest wall surgery
    - breast scarring
    - radiotherapy
    - dye allergy

SURGERY

- Breast conservation surgery
  - Remove tumor with 1 cm margin
  - Axillary dissection
  - BCT - BCS + RT
  - ABSOLUTE CONTRAINDICATIONS
    - RT during pregnancy
    - Diffuse microcalcification
    - Widespread disease (multicentric)
    - Diffusely positive margins

- RELATIVE CONTRAINDICATIONS
    - Prior RT to chest wall and breast
    - Connective tissue disorders
    - 2 times postive surgical margins after Re- excision

- Mastectomy
  - Large tumors
  - Multicentric disease
  - Diffuse microcalcification
  - BRCA positive cancers
  - Local recurrence after BCS
  - Entire breast tissue including skin over the tumor , NAC and axillary tail

- Axillary lymph node dissection
  - In clinically or biopsy proven node postive tumors
  - 3 or more sentinel lymph nodes postive for macromets
  - Usually level I and II are removed
  - Level III removed if level I and II nodes are enlarged
- Breast reconstruction

Adjuvant therapy

- Post op RT to breast and chest wall
- Post op chemotherapy
  - All node positive tumors
  - Young women
  - LVI
  - close margins
  - ER/PR negative
  - High proliferation index
  - Taxanes, CMF OR CAF regimen
- Hormonal therapy for ER/ PR positive cases

LOCALLY ADVANCED BREAST CANCER

- stage III A and IIIB (N2 disease, T3, T4)
- Dx - mammogram and core needle biopsy
- Staging - Ct Chest and bone scan or PET Scan
- Treatment
  - NACT
  - surgery
  - Adjuvant treatment

NEO ADJUVANT CHEMOTHERAPY

- Downstaging the disease
- Controls micrometastasis
- Assess chemo sensitivity
- CAF, CMF regimen
- RESPONSE ASSESSMENT- 3 weeks after 2nd cycle
  - RECIST (Response Evaluation Criteria in Solid Tumors)
    - Complete response- no lesion clinically and on imaging
    - Partial response - >/= 30 % decrease in size
    - Stable disease - <30% decrease in size
    - Progressive disease- >/= 20% increase in size

- CR and PR - complete the NACT
- SD And PD - proceed with surgery and then start second line of chemo

Surgery

- MRM
- BCS - if initially T4 (chest wall or skin involvement or inflammatory CA) proceed with MRM
- If BCS planned - prior to NACT - radio opaque clip is placed at the centre of tumor
- 2cm all around the clip is excised

Adjuvant therapy

- RADIOTHERAPY
  - T3,T4,NI, N2,N3
  - Following BCS
- CHEMOTHERAPY
  - CAF,CMF regimens
  - Taxane based regimen
  - Indications
    - >1cm tumor
    - >0.5cm tumor with poor prognostic factors(LVI, high grade, Her-2-Neu , triple negative)
    - Node positive

- TARGETTED THERAPY
  - Trastuzumab for Her-2-Neu Postive tumors
- HORMONAL THERAPY
  - Premenopausal- Tamoxifen 20mg OD x 5yrs (low risk patients)
    x 10yrs (high risk patients)
  - Post menopause- Aromatase inhibitors
    - letrozole 2.5mg OD

FOLLOW UP OF CA BREAST

- Clinical examination every 3months x 2 yrs

  Flb every 6 months x 3yrs then yearly
- Mammogram yearly
- Patients with implants or BRCA mutation- yearly MRI

ANDI

- ABBERATION IN NORMAL DEVELOPMENT AND INVOLUTION OF BREAST
- benign breast disorders in different reproductive age group
- Based on change in 3 phases of physiology
  - Lobular development
  - Cyclical hormonal modifications
  - Involution

	NORMAL	DISORDER	DISEASE
EARLY REPRODUCTIVE YEARS - 15-25y	Lobular development →	Fibroadenoma →	Giant Fibroadenoma
	Stromal development →	Adolescent hypertrophy →	Gigantomastia
			(When major duct obstruction occurs) ↓
	Nipple eversion →	Nipple invasion → (↓ development of major ducts → short ducts - prevents protrusion)	• Subareolar abscess • Mammary duct Fistula
LATER REPRODUCTIVE YEARS 25-40y		Premenstrual enlargement	
	Cyclical changes of menstruation →	Cyclical mastalgia ± nodularity (FIBROADENOSIS) →	Incapacitating mastalgia Painful nodularity persisting > 1wk
	Epithelial hyperplasia of pregnancy →	Bloody nipple discharge	
INVOLUTION 35-55y	Lobular involution →	• Macrocysts • Sclerosing lesions	→ periductal fibrosis → NIPPLE RETRACTION
	Duct involution Dilatation →	Duct ectasia →	Periductal mastitis
	Sclerosis →	Nipple retraction	
	Epithelial turnover →	Epithelial hyperplasia →	Epithelial hyperplasia ± ATYPIA

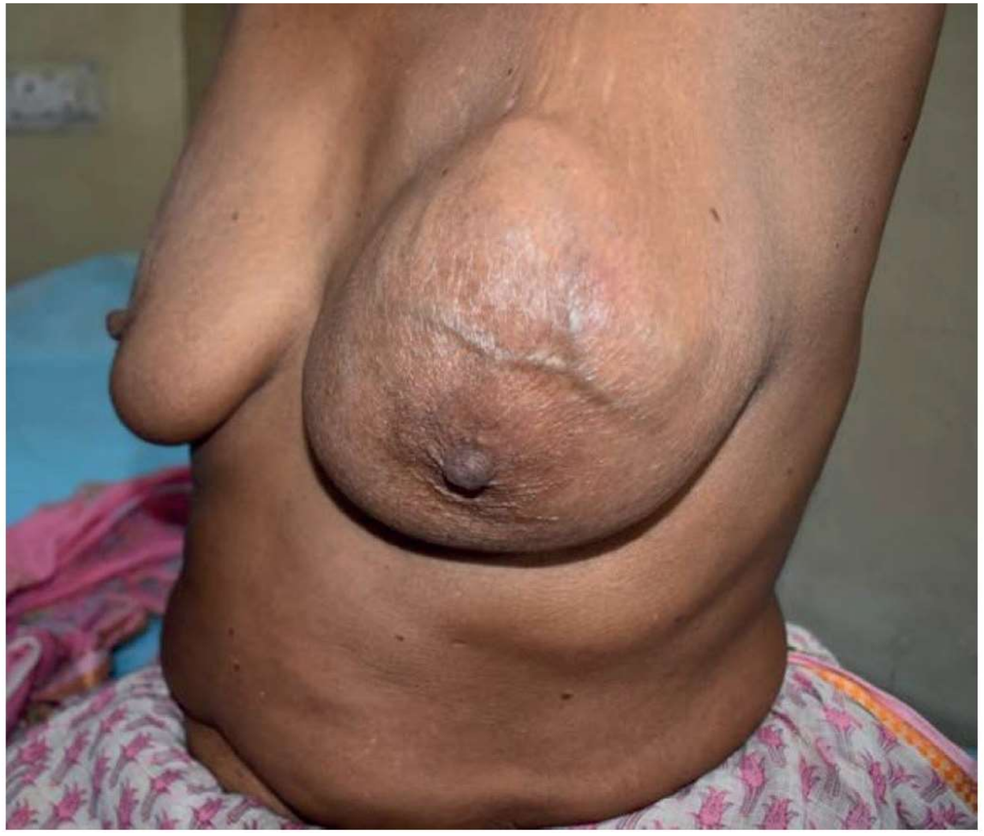
FIBROADENOMA

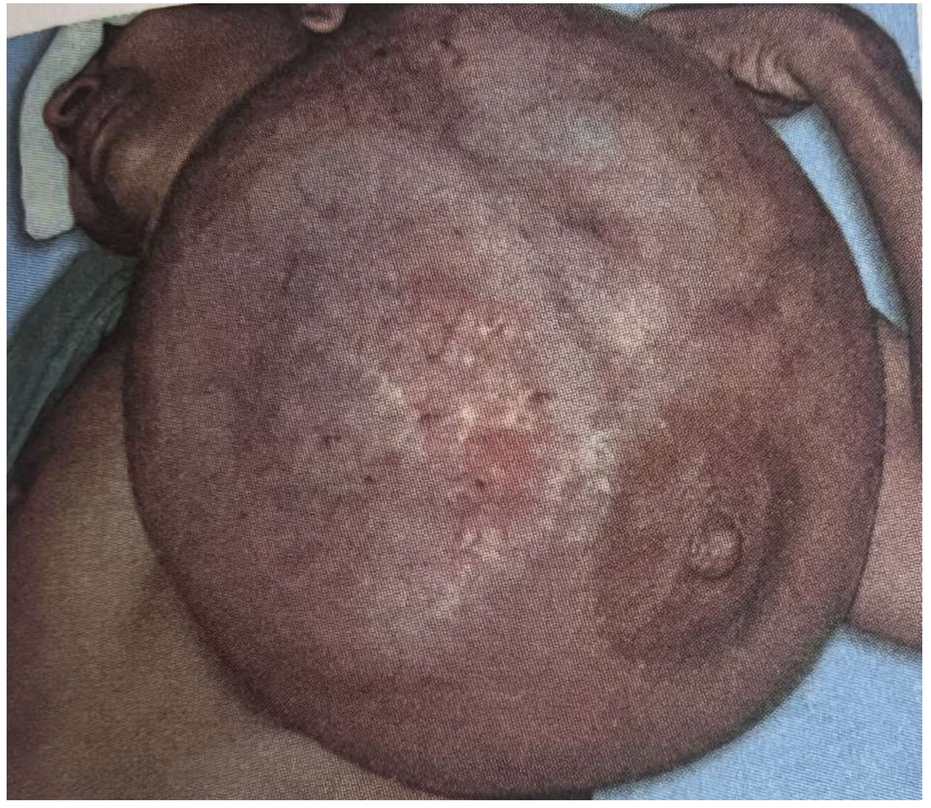
- Benign encapsulated tumor
- Hyperplasia of lobule of the breast
- Young females 15-25 yrs
- C/F - smooth, firm, mobile lump in the breast
- Types-
  - Gross - soft - >30yrs
    - hard - <30yrs
  - Microscopy - intracanalicular and pericanalicular

- Dx-
  - Clinical
  - USG
  - Mammogram- well localised smooth , may show popcorn calcification
  - FNAC
- Rx- Enucleation
  - Circumareolar incision (Webster’s)
  - Submammary incision(Gaillard Thomas incision
- Indication for surgery
  - >30yrs.
  - >5cm
  - Family h/o breast cancer
  - Suspicious features on imaging

PHYLLODES TUMOR

- Preciously known as cystosarcoma phyllodes
- AKA serocystic disease of Brodie
- usually benign
- >30yrs
- Mixed neoplasm- epithelial and mesenchymal elements
- C/F- large lesion with bosselated surface
    - Skin necrosis may be present (pressure necrosis)
    - Skin stretched red with dilated veins
    - Rapid growth





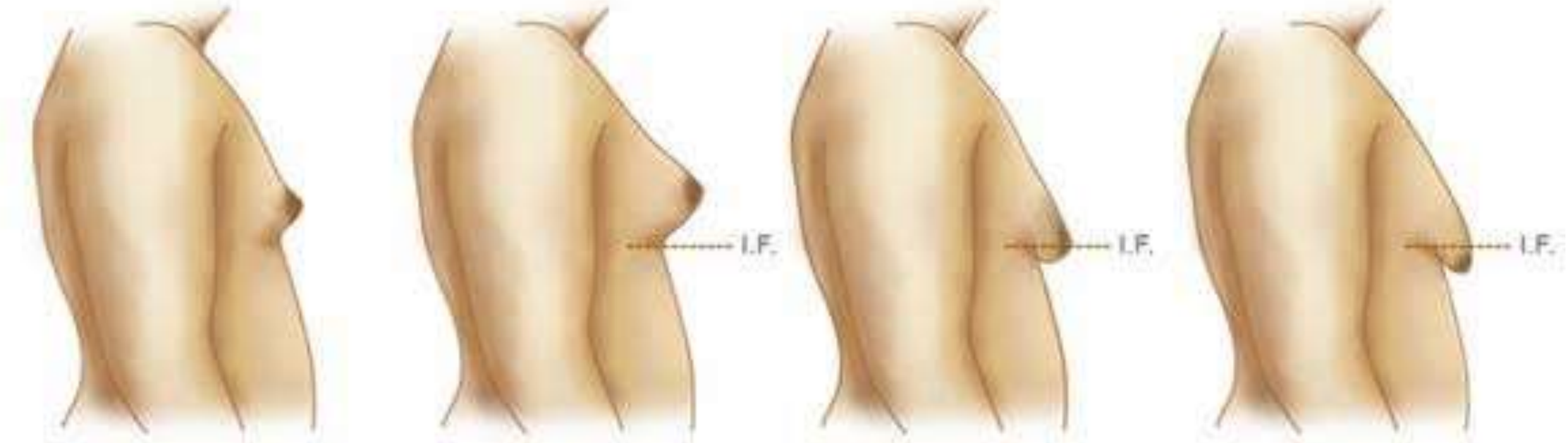
- Pathology
  - Gross - large capsulated with cystic spaces
  - Mircoscopy- cystic spaces with leaf like projections
- May be benign, borderline or malignant according to histological behaviour
  - Benign- mitotic rate <4/10 HPF
  - Borderline - 4-9 / 10 HPF
  - Malignant- >10/10 HPF
- Dx- USG, FNAC, core needle biopsy, CT chest
- Rx- WLE-2cm margin with overlying skin
  - If malignant, recurrent or massive tumors- total mastectomy
  - Post op RT for recurrent and malignant tumors , chemo for malignant tumors

GYNECOMASTIA

- Enlarged breast tissue in male
- Due to excess circulating oestrogen in relation to testosterone
- Types
  - Physiological -
    - Neonatal
    - Adolescent/ pubertal
    - Senescent
  - Pathological

PATHOLOGICAL GYNECOMASTIA

ESTROGEN EXCESS	ANDROGEN DEFICIENCY
Gonadal origin Germ cell tumors Stromal tumors	Testicular failure - primary- Klinefelter syndrome, kallmann syndrome, ACTH deficiency Secondary - trauma, irradiation, cryptorchidism
Extra gonadal Tumors - adrenal cortex CA, lung CA, HCC Edocrine disorders - thyroid Liver failure Drugs- digitalis, anabolic steroids	Renal failure Drugs - spirinolactone, cimetidine, phenytoin, ketoconazole



Grade 1 Grade 2 Grade 3 Grade 4

- Evaluation - find the cause (hormonal studies)
    - USG / mammogram
    - FNAC
- Management- treat the cause
    - Androgen deficiency- testosterone replacement
    - Estrogen excess- danazol
    - No response to treatment - surgery - local excision/ liposuction/ subcutaneous mastectomy

GALACTOCELE

- Dilatation of lactiferous sinus
- Due to blockage of lactiferous ducts
- Seen in lactating women
- C/F - usually u/l large soft swelling
- May get calcified - hard - mimics carcinoma
- May get infected - abscess
- Dx- USG, FNAC- thick creamy greenish/brown fluid
- Rx- aspiration, excision . Abscess - drainage

MASTALGIA

- Pain in the breast
- Types
  - Cyclical
  - Non cyclical

- CYCLICAL -
  - Middle of cycle increases until day 27/28 and relieved at onset of menses.
  - B/l diffuse pain
  - Cause unclear
  - Considered causes - hormonal imbalance
    - high caffeine intake
    - low dietary essential fatty acids
    - water retention
  - Treatment - symptomatic treatment- topical NSAIDS
    - evening primrose oil
    - anti estrogen drugs / tamoxifen, danazol

- NON CYCLICAL
    - Any time of menstrual cycle
    - Before or after menopause
    - Well localised
    - Trigger point or spot present
    - May have duct ectasia/ peri ductal mastitis
    - Other causes to be ruled out

- Treatment
  - Breast examination
  - Imaging
  - If both normal reassure patient and symptomtic treatment

TABLE 58.2 Treatment of breast pain.

Exclude cancer	
Reassure	Use a VAS breast pain chart to record severity
Adequate support	Tight sports brassiere during the day
Consider medication	
Flax seed 30 g daily or oil of evening primrose	Rich sources of omega 3 fatty acids and γ-linolenic acid, respectively
Topical non-steroidal anti-inflammatory cream (diclofenac or piroxicam) four times a day	Useful in mild to moderate mastalgia
Consider systemic medication if pain score >3 on a VAS of 0-10	
Tamoxifen 10 mg daily	For 3–6 months
Danazol 50–300 mg daily	For 3–6 months
Ormeloxifene 30 mg twice a week	For 3–6 months used in both cyclical and non-cyclical mastalgia and for treating nodularity
LHRH agonist alone or with antioestrogen: tamoxifen or ormeloxifene	Short duration: use for 3 months for recalcitrant pain not relieved by the above medications

LHRH, luteinising hormone-releasing hormone; VAS, visual analogue scale.

Q. A 60 yr old post-menopausal lady came to the Surgery OPD with h/o a right sided breast lump of 2 months duration. It was painless and rapidly progressing. O/E Irregular, firm to hard mass of 5x6 cm with only breast tissue fixity. The right axilla showed multiple matted lymph nodes.

a). What are the investigations needed to have a definite diagnosis?

b). How will you stage the disease? And discuss the treatment

c). What are the post-operative complications of MRM?

Q. a)How will you pathologically classify carcinoma breast?

b) Describe the investigations and management of early breast carcinoma

Q. 45 Year old lady presented with lump in the left breast. On examination a 5*6 cm hard lump with Peaud orange appearance was seen. Examination of axilla - two mobile axillary lymph nodes were present.

a). What is the probable diagnosis

b). How will you investigate this case

c).Briefly describe management of this case

Q. A 45 year old lady is present with a painless hard lump in her right breast 4x4 cm in diameter in upper outer quadrant. On examination there is evidence of cutaneous edema (peau d' orange) but lump is not fixed to the pectoral muscle. The axillary lymph nodes were not enlarged. All systems within normal limits

a. Give your diagnosis

b. What is Triple assessment?

c. What are the necessary investigations?

d. How will you treat this case?

e. What is the reason for peau d' orange appearance in this condition?

THANK YOU