# Mastitis/ Fibrocystic change/ Fibroadenoma

# Mastitis

## 1) Acute Mastitis :

- •Occurs during the first month of breastfeeding.
- •Caused by a local bacterial infection when breast is most vulnerable due to cracks and fissures in nipples. From this portal of entry, S. aureus or streptococci invade breast tissue.
- •One duct system or sector of breast is involved.

- •Infection may spread to entire breast.
- •Staphylococcal abscesses- single or multiple,
- •Streptococci- spread infection in the form of cellulitis.
- Breast-erythematous and painful.
- Fever is present.

# 2) Duct Ectasia

- Presents as a palpable periareolar mass with thick, white nipple secretions and occasionally with skin retraction.
- •Occurs in 5<sup>th</sup> or 6<sup>th</sup> decade of life in multiparous women.
- Pain and erythema-uncommon.

# Morphology

- •Ectatic dilated ducts are filled with inspissated secretions and numerous lipid-laden macrophages.
- •When ruptured marked periductal and interstitial chronic inflammatory reaction consisting of lymphocytes, macrophages, and plasma cells.

- Granulomas mayform around cholesterol deposits and secretions.
- •Subsequent fibrosis irregular mass with skin and nipple retraction.

#### 3) Granulomatous Mastitis:

•Can be a manifestation of systemic granulomatous diseases (e.g. polyangiitis, sarcoidosis, TB) or of disorders that are localized to breast (granulomatous lobular mastitis, rare infections).

#### Granulomatous lobular mastitis:

- •Uncommon disease, occurs in parous women.
- •Granulomas are closely associated with lobules, suggesting disease may be caused by a hypersensitivity reaction to antigens expressed during lactation.

 Localized infections are most common in immunocompromised patients or adjacent to foreign objects such as breast prostheses or nipple piercings.

#### **FIBROCYSTIC CHANGES**

- Changes in female breast that range from innocuous to patterns associated with increased risk of breast carcinoma.
- Arise during reproductive period of life, may persist after menopause.
- Small minority-forms of epithelial hyperplasia.

- Alterations subdivided into nonproliferative and proliferative patterns.
- Nonproliferative lesions- cysts and/or fibrosis and adenosis focally.
- Proliferative lesions-epithelial cell hyperplasia.

# **Nonproliferative Change**

- Most common type of alteration.
- Involved areas show ill-defined, diffusely increased density and discrete nodularities.

# Morphology

#### Gross

 Cysts-multifocal and bilateral, may be single large cyst.

- Cysts: <1cm to 5cm in diameter.
- Brown to blue cysts filled with serous, turbid fluid.
- Secretory products may calcify, appear as microcalcifications in mammograms.

#### Microscopy:

Three principal morphologic changes: cystic change often with apocrine metaplasia, fibrosis, and focally adenosis.

#### Cysts-

- In smaller cysts, epithelium-cuboidal to columnar, sometimes multilayered focally.
- In larger cysts, epithelium-flattened or atrophic.

- Mild epithelial proliferation- small papillary projections.
- Frequently, cysts are lined by large polygonal cells that have an abundant granular, eosinophilic cytoplasm, with small, round, deeply chromatic nuclei, called **apocrine metaplasia.**

#### Stroma-

 Compressed fibrous tissue with loss of its normal delicate, myxomatous appearance and lymphocytic infiltrate.

#### **Adenosis-**

- •Defined as an increase in number the ofacini per
- Focal aderesile.
- •Calcifications-occasionally within lumens.

Apocrine cysts. Cells with round nuclei and abundant granular eosinophilic cytoplasm, resembling cells of normal apocrine sweat glands, line the walls of a cluster of small cysts. Secretory debris is present.



#### **Proliferative Change Disease Without Atypia**

- Lesions characterized by proliferation of epithelial cells without atypia.
- Small increase in risk of subsequent carcinoma in either breast.

#### **Gross**:

not distinctive, dominated by coexisting fibrous or cystic changes.

## Microscopy-

- Wide spectrum
- Ducts, ductules, or lobules may be filled with orderly cuboidal cells, within which small gland patterns can be discerned (fenestrations) or as papilloma or sclerosing adenosis.
- No atypia.

- Papilloma within a dilated duct, composed of multiple branching fibrovascular cores into ductal lumen.
- Sclerosing Adenosis-Increased number of acini that are compressed and distortedin the central portion of lesion by dense stromal fibrosis.

#### A) Normal duct or acinus

# B, Epithelial hyperplasia. With irregular slitlike - fenestrations



#### A) Ductal papilloma

#### B) Sclerosing adenosis



# Proliferative Breast Disease with Atypia

- Hyperplasia with atypia is present in ducts or lobules.
- Moderately increased risk of carcinoma.

A) Atypical ductal hyperplasia with regularly spaced cells showing cribriform spaces.

# B) Atypical lobular hyperplasia





# Fibroadenoma

- •Most common benign fibroepithelial tumor of female breast.
- •Increase in estrogen activity contributes to its development.
- •Usually in young women; peak incidence- 3<sup>rd</sup> decade of life.

# Morphology

#### **Gross:**

- •Discrete, usually solitary, freely movable nodule, 1-10 cm in diameter.
- Rarely multiple tumors and rarely may exceed 10 cm in diameter (giant fibroadenoma)
- •Well-circumscribed, smooth, or mildly lobulated masses.
- •Cut surface- bulging, uniform gray white, and gelatinous or mucoid.

#### Microscopy:

- •Loose fibroblastic stroma containing ductlike, epithelium-lined spaces of various forms and sizes.
- •Ductlike or glandular spaces are lined with single or multiple layers of cells that are regular and have welldefined, intact basement membrane.

#### **Two patterns:**

- Pericanalicular fibroadenoma- Ductal spaces are open, round to oval, and regular.
- •Intracanalicular fibroadenoma- Duct spaces are compressed by extensive proliferation of stroma.

 A) Proliferation of both duct and periductal fibromyxomatous stroma.
Note intracanalicular pattern of slit-like duct

#### B) Pericanalicular pattern: duct with round or oval duct





# **Clinical features**

- Present as solitary, discrete, movable painless masses.
- •May enlarge late in menstrual cycle and during pregnancy.
- •After menopause, may regress and calcify.
- •Almost never become malignant.

# THANK YOU