

Benign Breast Conditions

- The breast is made up of
 - Glands (parenchyma) with no capsule
 - Stroma : Adipose and Fibrous tissue (Cooper ligaments)
 - Nipple-Areolar Complex with Montgomery glands
- With age the amount of Fibroglandular Tissue FGT decreases thus the breast becomes more fatty, this is according to the ACR system
 - ACR1 : < 25% FGT tissue : most fatty : older age : most sensitive for mammogram imaging
 - ACR2 : 25-50% FGT
 - ACR3 : 50-75% FGT
 - ACR4 : > 75% FGT tissue : most fibrous : younger age : least sensitive for mammogram imaging
- Carcinomas of the breast metastasize early on through the lymph pathways and as most carcinomas of the breast develop in the upper lateral quadrant, lymph node metastases often occur in the axilla of the same side
- Embryology : the breasts develop from the milk ridges from ectoderm
- Histology : group of lobules (made from acini and intralobular terminal ducts) ~ drain via extralobular terminal ducts ELTD to the lactiferous duct ~ lactiferous sinus ~ the nipple
- Terminal ductal lobular unit (TDLU) is the basic histopathological unit of the mammary gland which consist of one lobule and it's ELTD

Benign Breast Diseases

- Acute Mastitis
 - Caused by staph aureus from feeding infant's mouth or normal skin flora
 - Treatment : frequent breast emptying / cold compresses / antibiotics / drainage in refractory cases
- Periductal Mastitis
 - Seen in smokers which causes vitamin A deficiency
 - Affects the subareolar ducts
- Plasma Cell Mastitis aka Mammary Duct Ectasia
 - Causes ducts dilatation with plasma cell infiltration
 - Associated with smoking
 - Periareolar firm painful mass with green-brown nipple discharge and nipple retraction
 - It is the most common cause for green nipple discharge
 - Characterized by diffuse bilateral large segmental rod calcifications
 - May present with nipple inversion
 - Affects mainly postmenopausal women
 - It is often associated with both aerobic and anaerobic bacterial infection

- Treatment is conservative but antibiotics can be used
- Fat Necrosis
 - Caused by trauma to the breast causing a calcified oil cyst
 - Characterized by eggshell calcifications deep in the skin
 - May have foam cells as they undergo saponification
- Fibrocystic Changes
 - Affect premenopausal women and thought to be hormone mediated
 - Presentation : Premenstrual bilateral breast pain with or without milky discharge
 - Biopsy confirms the diagnosis
 - ◆ Non proliferative diseases : cysts or stromal fibrosis
 - ◆ Proliferative without atypia : sclerosing adenosis (punctate calcifications) and ductal hyperplasia
 - ◆ Proliferative with atypia : atypical ductal or lobular hyperplasia (x5 risk for breast cancer)
 - Treatment : we can give OCPs or tamoxifen for severe cases but usually self limiting

Benign Breast Neoplasms

- Fibroadenoma
 - The most common benign breast tumor
 - Mobile painless well defined mass
 - Characterized by popcorn calcifications
 - Can have malignant potential
 - Occurs mostly in adolescents
 - Treated conservatively
- Phyllodes Tumor
 - Painless unifocal multinodular lump
 - Biopsy reveals leaf like architecture
 - They are larger and grow faster than fibroadenomas but associated with them in 20% of cases (1 in 5)
 - Small malignant potential
 - Treatment : surgical excision and if recurrent mastectomy
- Intraductal Papilloma
 - Can be solitary or multiple
 - Solitary lesions are the most common cause of bloody nipple discharge and are large and central
 - Treatment : excisional biopsy
- Galactocele aka Milk Retention Cyst
 - The most common benign breast tumor in lactating women
 - Basically caused by obstruction
 - They are not painful unless they get infected
 - Diagnosed by FNA revealing milky secretions

- Resolve spontaneously
- Gynecomastia : Breast enlargement in men due to increased estrogen to testosterone ratio
 - Physiological
 - ◆ Neonatal : placental transfer of estrogen / bilateral
 - ◆ Pubertal : pubertal androgen imbalance that resolves by age 17
 - ◆ Senile : hyperestrogenism
 - Pathological
 - ◆ Malignancies : Leydig cell tumor, Sertoli cell tumor, ectopic hCG-producing tumors like lung cancer
 - ◆ Liver cirrhosis
 - ◆ Hyperthyroidism
 - ◆ Due to decreased testosterone : Chronic kidney disease / Klinefelter syndrome / Mumps orchitis / castration / trauma to both testes
 - ◆ Drugs : antiandrogens / cimetidine / spironolactone / marijuana / estrogen receptor modulators
 - Idiopathic