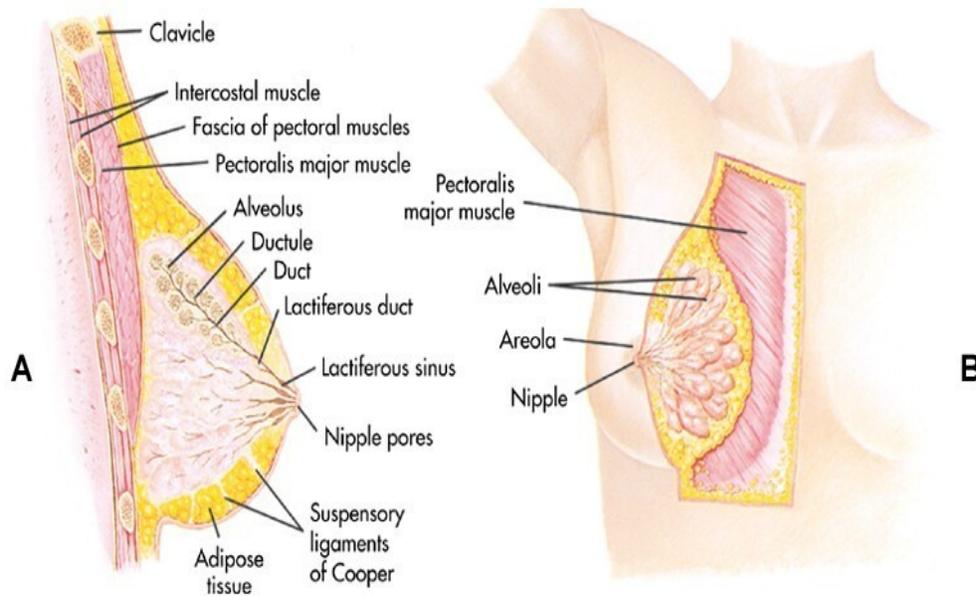


# Reproductive System

## Conditions of the Breast

### Breast A&P

\*Review on own



Modified from Thibodeau GA, Patton KT: *Anatomy and physiology*, ed 5, St. Louis, 2003, Mosby.

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### Benign Breast Disorders

- Mammary Duct Ectasia
  - Benign breast disease in peri and postmenopausal female involving the ducts in the subareolar area
  - Usually involve several bilateral ducts
  - Signs and symptoms:
    - Nipple discharge that is multicolored and sticky, inflammation
    - Initially painless but can progress to pain around nipple and areola swelling
    - Not associated with malignancy
  - Treatment:
    - Warm compresses, antibiotics, may require surgical excision of ducts
- Gynecomastia
  - Overdevelopment of mammary glands in male
  - During puberty and after 40 years old
  - Increased estrogen
  - Usually nonmalignant biopsy in older male to rule out cancer
- Fibrocystic Breast Condition
  - Most frequent lesion of the breast
  - Fluid-filled cysts

- Ages 35-50 years
  - Hormone sensitive: occurs during reproductive years and disappears with menopause
  - Clinical Manifestations:
    - Round, palpable lumps – movable, tender, multiple, bilateral
    - Larger & more tender pre-menstrual
  - Diagnosis:
    - Aspiration or surgical biopsy
    - Cysts do not become malignant, makes malignant lumps difficult to find
  - Treatment:
    - Supportive bra
    - Heat & cold application
    - Mild analgesics
    - Dietary changes – eliminate caffeine & theophylline, decrease salt
    - Medications –
      - diuretics (cysts are fluid-filled:: reduces swelling)
      - danazol (estrogen agonist:: decreases estrogen stimulation)
  - Teach BSE!!!
- Fibroadenoma
    - Common breast tumor usually in young women and adolescents (15-25 yrs), increase in African American
    - Possible cause is increased estrogen sensitivity in localized area of breast
    - Signs & Symptoms:
      - Non tender, round, firm, movable, usually unilateral
      - Always benign and often stop at 2-3 cm; do not become malignant
    - Diagnosis and treatment:
      - excision and biopsy

### **Malignant Breast Disorders**

#### Paget's Disease

- rare type of cancer involving skin of nipple and usually areola
- Most people with Paget disease of breast also have one of more tumors inside same breast
- Can occur in both women and men, but mostly women
- -Usually unilateral
- Signs & Symptoms:
  - Crusted, scaly, and red
  - Blood or yellowish discharge
  - Nipple flat or inverted
  - Burning or itching sensation

#### Breast Cancer

- Incidence

- 1 in 8 American women affected
- #1 incidence of cancer in women (other than skin CA)
- #2 mortality of cancer in women (lung CA #1)
- Less than 1% occur in men
- Risk factors:
  - Female
  - Increasing age (age 50 or greater)
  - Previous history of breast cancer
  - Family history of breast cancer (first degree)
  - Nulliparity
  - First pregnancy after age 30
  - Genetic mutations: BRCA 1 & BRCA 2
  - Obesity
  - High fat diet
  - Alcohol consumption
  - Exposure to x-rays (CXR)
  - Estrogen use (BCP, HRT)
  - History of cancer in other organs: ovarian, colon, uterine
  - Atypical hyperplastic breast disease
  - Early menses (less than 12) & late menopause (greater than 55)

#### Breast Self Exam /Awareness

\*favorable prognosis depends on early diagnosis

- Clinical Manifestations:
  - Non-tender lump –often in upper outer quadrant
  - Nipple discharge – bleeding or clear
  - Nipple retraction
  - Skin dimpling
  - Asymmetry of breasts – affected breast is elevated
  - Peau d’orange skin
  - Nodular axillary masses
  - Ulcerations (late)

#### Pathophysiology:

- Disease of breast tissue can progress to systemic involvement
- Progression of disease:
  - Begins as an atypical area then progresses to cancer in situ, then becomes invasive, then progresses to the lymph nodes and systemic circulation
  - As it grows it becomes attached to the chest wall or overlying skin
- Breast cancer metastasizes to the lungs, bone, mediastinal lymph nodes, liver, brain and skin

#### Diagnosis:

- Mammography – early detection and painless
- US – fluid vs solid mass
- MRI – decreased radiation exposure; dense breast tissue
  
- Biopsy
  - Needle: is a simple rapid and accurate procedure to detect breast cancer done with fine needle aspiration- review tissue on slide
  - Incisional: is done in OR, open biopsy where a piece of tissue is obtained and sent to lab for frozen section with potential for mastectomy if positive
  - Excisional: biopsy removes entire tumor with margin of tissue for biopsy and may be definitive treatment
  - Stereotactic: uses mammograms during biopsy to pinpoint location of tumor prior to biopsy
  - Sentinel Lymph Node Biopsy: helps surgeon identify lymph nodes that drained first from the tumor site
    - o dye is injected into tumor site, then the surgeon dissects the first lymph node that the dye has located, it is checked for malignancy
  
- Genetic Testing: BRCA 1 & BRCA 2 mutations; HER-2 gene
  
- Pathology:
  - Hormone Receptor Assays:
    - o Aids in typing and staging; helps with planning for treatment
    - o Estrogen +/- & Progesterone +/-
    - o Positive: slower growth rates, better outlook short-term and hormone dependent- means treatable with hormone therapy; can sometimes come back many years after treatment
    - o Negative: grow faster, if they come back after treatment it's often in the first few years. More common in women who haven't gone through menopause yet, not treatable with hormone therapy
    - o HER- 2: growth-promoting protein; breast cells with higher than normal levels of HER-2 are called HER-2 positive. (grow and spread faster than other breast cancers, respond to treatment that targets HER-2 protein)
    - o Triple negative (ER -/ PR -/HER 2 -): more aggressive, more common in younger women; Black & Hispanic.

#### Clinical Staging

- Stage I
  - Localized tumor
- Stage II
  - Up to 5 cm or axillary nodes involved
- Stage III
  - > 5 cm &/or extends to chest wall or skin
- Stage IV
  - Distant metastasis (lung, bone, liver, brain)

#### Treatment

- Surgery
  - Lumpectomy: considered breast conservation surgery, is a wide excision of tumor,

sentinel node dissection, &/or axillary node and radiation

- Wedge resection: removal of tumor and 2-3cm wedge of normal tissue surrounding it and portion overlying skin
- Total or simple mastectomy: is removal of entire breast, most or all axillary lymph nodes leaving the chest wall muscles
- Modified radical mastectomy: used for tumors greater than 2.5 cm, removal of breast and axillary nodes but the major chest wall muscles remain;
  - Most prefer this over lumpectomy when given a choice; have the choice of reconstruction and if chooses so can be done right away following mastectomy or can wait until post op recovery (6 months)
  - This surgery and breast conservation surgery with radiation are the most common options for resectable cancers, and those women diagnosed with early stage cancer. Overall survival rate with the lumpectomy & radiation is same as this surgery.
- Radical mastectomy: removal of entire breast, skin, chest wall muscles and axillary lymph nodes
  - Pre-op Nursing Care
    - Informed consent: 2 stage procedure (biopsy then treatment); patient must be informed of diagnosis & all treatment options; psychological impact
    - Patient teaching: teach post op expectations, TCDB, exercises, IV, drains, VS, drsg
    - Emotional support: body image changes
    - Nursing diagnoses: Deficient knowledge; Ineffective individual coping; Disturbed body image
  - Post-op Nursing Care
    - Pressure dressing- decreases bleeding, facilitates skin adherence
    - Drain (JP, hemovac)- prevents fluid build up
    - Incisional care
    - Pain management (incisional & phantom pain)
    - Arm mobility- placed in semi fowlers position with arm on affected side elevated on a pillow; post op exercises within first week; flexing and extending fingers early; hand and wrist; flex and extend elbow in first 24 hours; encourage self-care, no abduction in early stage
    - Risk for lymphedema

Postmastectomy Exercises:

- Prevent contractures
- Maintain muscle tone
- Improve lymph & blood circulation
- Increase mobility
- 10-12<sup>th</sup> day start pendulum swing
- Work towards full ROM 4-6 weeks
- Simple exercises like this can be painful and difficult

Post Op Care: Lymphedema

- Complication of extensive OR procedure
- Edema of the operative arm due to lymph node removal & decreased lymph drainage

- Occurs immediately or anytime during life as a result of trauma or infection
- Exercise & elevation help to decrease edema
- No BP or venipuncture on operative side (circulatory, r/f infection)
- Elastic pressure gradient sleeves- facilitates venous return, compresses to maintain max level of volume, manual massage- helps mobilize fluid accumulated

#### Post Op Nursing Care

- Ineffective Individual Coping
  - Denial & fear
  - Need support
  - Community resources- support groups, information, recovery kits, tools, prosthetics
  - Concerns with self-image, role, reactions of others; full impact may not occur until at home
  - Prosthesis: many forms and different prices
- Deficient Knowledge
  - Focus on self-care
  - Stress importance of continuing BSE, mammograms
  - Follow-up work up for mets
  - s/sx to report after going home
- Reconstructive Alternative
  - Reconstruction can begin during the original breast removal procedure or after some healing has occurred (~ 6 months)
  - A tissue expander (saline-filled implant) is often placed during the original procedure
  - Saline or silicone implants – permanent placement
  - Autologous flaps - for reconstruction (abdomen, back, buttocks, inner thighs)
  - Nipple reconstruction
    - tissue from the labia, abdomen, or inner thigh

#### Teaching Guide regarding Arm on Operative Side Following Mastectomy

- Hand Care- good hand washing and nail care
- Avoid...
  - cuts, scratches, pinpricks, hangnails, insect bites, burns and the use of strong detergents since these can lead to serious infection with increased swelling in the affected arm
- Do Not...
  - Carry your purse or anything heavy with affected arm
  - Wear a wristwatch or other jewelry on this arm
  - Cut or pick cuticles or hangnails on this hand
  - Work near thorny plants or dig in the garden
  - Reach into a hot oven
  - Hold cigarettes in this hand
  - Permit this arm to be used for injections, blood withdrawals, blood pressure
- DO...
  - Wear a loose rubber glove on this hand when washing dishes
  - Wear a thimble when sewing and take care to avoid pinpricks
  - Apply a good lanolin hand cream several times daily

Wear a life guard medical aid tag engraved to read 'CAUTION-LYMPHADENOMA ARM-NO TESTS

Contact MD if arm gets red, warm or unusually hard or swollen

Return for check-ups and re-measurement for a new gradient elastic sleeve in two months

### **Treatment Modalities- *Radiation*** (local control)

3 indications:

- Primary treatment or conjunctive with surgery to prevent local occurrence
- Shrink tumor before surgery
- Palliative for pain control (local or mets)
- External radiation
- Brachytherapy
- Side effects of radiation
- Skin care

### **Treatment Modalities-*Chemotherapy***

- Uses:
  - cytotoxic drugs to destroy cancer cells
  - Preop – shrink tumor, suppress growth
  - Fail to respond to hormone therapy
  - Breast CA responds well to chemo
  - Used prophylactic in Stage II – undetectable mets, therefore treat early
- Agents
  - Combo = best rather than single agent
  - Different actions on cell growth and divisions
  - Most common combo's:
    - CMF (cyclophosphamide/Cytosan), methotrexate, 5-FU (fluorouracil)
    - CAF (Cytosan, Adriamycin, 5-FU)
- Side effects
  - Healthy cells also affected, rapidly growing cells

### **Treatment Modalities - *Hormonal Therapy*** (hormone receptor positive cancer)

- Tamoxifen – antiestrogen; slows growth; runs risk of uterine CA & DVT/PE
  - Side effects: hot flashes, fatigue, mood swings, hair thinning/loss
- Anastrozole (Aromatase Inhibitors) - postmenopausal women; risk for OP & fx's
- Raloxifene (SERMs – prevents OP) less adverse effects
- Testosterone – used to be tx of choice, not anymore
- Surgery to remove sources of estrogen
  - Oophorectomy – premenopausal
  - Adrenalectomy – need cortisol and sodium replenishment post
  - Hypophysectomy – pituitary gland – all estrogen production, need cortisol post

### Genetics

- BrCA I mutations

- BrCA II mutations
  - Helps develop tx plan
  - Can do genetic testing for those at risk (two first-degree relatives with breast CA prior to age 50 or family h/o breast & ovarian cancer)
- Her-2
  - Antigen often found on surface of breast cancer cells
  - Trastuzumab (Herceptin) – monoclonal antibody, targeted therapy; blocks signals that tell cell to grow
    - Immunotherapy
    - Can be given alone or in combination with other chemotherapies