Oncology

OVERVIEW

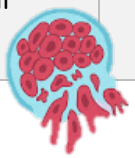
- Differentiate malignant vs benign tumor
  - Differentiation
  - Metastasis
  - Effects

- 2nd leading cause of death in the US
- Mostly occur in adults older than **55 yrs old**
- Leading cause of cancer death: men vs women

Men	Women
1) Lung 2) Prostate 3) Colorectal	1) Lung 2) Breast 3) Colorectal

Malignant vs Benign Tumor

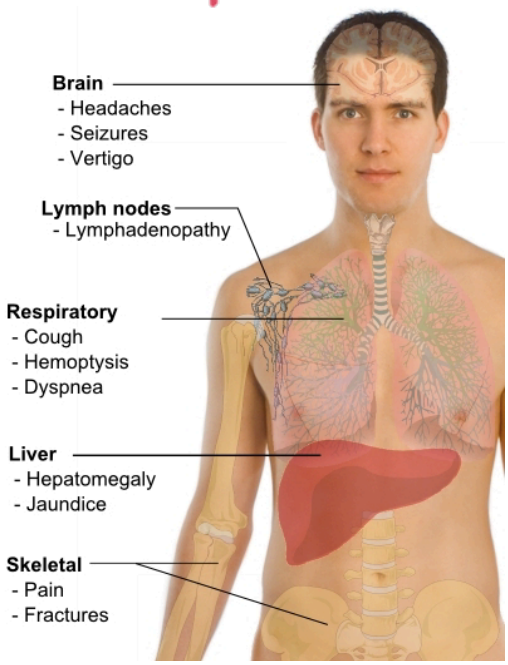
Malignant	Benign
- Ambitious - Aims to "survive" and "conquer new territories"' - **Undifferentiated** –does not look like a cell in that organ - Invades and spread - Growth rate depends on the tumor - **Metastasize** - Causes lots of **systemic effects** like weight loss or inflammation - Causes extensive tissue damage - Will cause death if untreated	- Does not travel - **Well differentiated –** looks like a cell from the organ of origin - Slow growth - No **generalized effects** – only local - Usually no tissue damage - Usually does not lead to death unless interference with vital organs



Cancer Metastasis

- What are some common area that cancer spreads?

Most common sites and their symptoms



Carcinogenesis

- Define **carcinogenesis**
- Happens due to a _____

- What are some factors causing **carcinogenesis**?

- Which carcinogen is the most lethal one?

- Secondhand smoking exposed ppl have _____**%** higher risk of getting cancer

Assessments

- What are some factors you should check to identify high-risk cancer pts?

- What should you do if a pt has higher risk of getting cancer?

Carcinogenesis

- **Def:** process of transforming normal cells into **cancer cells**
- Each process if affected by **gene mutations**
    - Some mutations are **inherited** while others are due to **external factors** (like pollutants)
        - → 90% of mutations are inherited mutations in **specific cells**
- Factors inducing carcinogenesis
    - **Viruses**
        - → HPV, Hep B, Epstein Barr
    - **Bacteria**
        - → H. Pylori
    - **Physical agents:**
        - → Sunlight, radiation, **tobacco (most lethal)**, asbestos
    - **Hazardous chemicals:**
        - → **Tobacco**, cigar, pipes, chewable tobacco, workplace chemicals, etc.
    - **Lifestyle:**
        - → Diet (high fat, alcohol, salted or smoked meat, nitrate containing food, red and processed meat)
        - → Obesity
        - → Insufficient activity
- **Tobacco** is the most lethal carcinogen
    - Accounts for 1/3rd of all cancer deaths
        - → Lungs
        - → Head and neck
        - → Esophagus
        - → Stomach
        - → Pancreas
        - → Kidneys
        - → AML
    - Secondhand smoking increases lung cancer risk by **20-30%**

ASSESSMENTS

- Factors determining high risk pts
    - History of maternal and paternal sides
    - Check up to 3 generations: **parent, sibling, child**
    - Family members who had cancer at young ages
    - Multiple cancers in one person
    - 2 or more close family with the **same cancer**
    - Others
- Suggestions for high-risk pts
    - Refer to **genetic testing**
        - → Offer support if genetic testing is positive
    - Education about options
        - → Some pts may not want to see results
    - Suggest support groups
    - Others

Diagnostics

- What are the 3 main important things to determine in cancer pts to decide treatment?
- What is the most accurate way to check for cancer?
- _____ plays an important role in determining cancer **prognosis**

- What kinds of tests are done to check for **metastasis**?

- How can we stage cancer? (4 factors)? When should it be done? Why do we need to stage it?

- Describe each stage of cancer is staging 1~4

- Describe each stage of cancer in TNM staging

- Cancer grading determines _____ and _____

- Define **differentiation**
- Why is differentiation important?
- What are the 2 grades of cancer? (describe them)

DIAGNOSING OF CANCER

- Determine:
  - Presence of cancer and **extent**
    - → Cancer presence can be checked either by **biopsy** or fine needle aspiration
  - Type of cancer
  - If cancer has metastasized or not
    - → **Metastasis** makes a big difference in the prognosis
- Evaluate the function of involved and uninvolved organs and systems
- Usually multiple tests are done
  - Address the pts anxiety and stress during the testing period and waiting period
  - **PET, MRI,** and other screening tests for determining metastasis
- Staging of cancer
  - Depends on:
    - → **Size of tumor**
    - → **Local invasion**
    - → **Lymph node involvement**
    - → **Distant mets**
  - Should be done **prior to** treatment
  - Provides **baseline data**
  - Determines treatment **options** and **prognosis**

Stage 1~4	**Description**
Stage 1	Localized
Stage 2	Spread to nearest lymph
Stage 3	More extensive lymph node invasion
Stage 4	Distant spread; usually means **terminal**

TNM staging	*Description*
T	Indicates extent of **primary tumor** (how large it is)
N	Indicates absence or presence and extent of regional lymph node involvement
M	Indicates absence or presence of distant mets (spread to other organs)

- Grading of cancer (classification of tumor cells)
  - Determines:
    - → The type of tissue the tumor **originated from**
    - → **Differentiation** (how much does the tumor look like a "typical" cell of that organ?)
  - Helps with prognosis based on **differentiation** = poor differentiation means bad prognosis
    - → Grade 1: well differentiation and resembles the tissue of origin
    - → Grade 4: poorly differentiated, more aggressive, and responds less to t/t

Treatments

- What are the 3 treatment options?

Radiation

- Why might a pt choose **radiation therapy** over other options?

- Radiation therapy is best for _____

- Radiation therapy cannot used for _____ cancer

- What are the 2 general side effects of radiation?
- Name the specific skin issues caused by radiation
- A pt will receive radiation therapy, when is the pt likely to develop skin issues?

- Name some specific organ side effects due to radiation

- What are the nurs management for skin side effects? (how to take care of skin, education, what to check for, etc.)
- What are the nurs interventions for wet desquamation?

TREATMENTS

- Radiation therapy
- Surgery
- Chemotherapy

Radiation Therapy

- Purpose:
  - Cure
  - Control cancer
  - Reduce size **before surgery**
  - Prevent local recurrence
  - Prevent metastasis
  - Palliative measure

- Most effective on **replicating cells** → body cells undergoing frequent division are most vulnerable (like bone marrow, lymphatic tissue, epithelium, GI, hair follicles, etc.)
- Used as **localized treatment**, not systemic (unlike chemo)
  - Tissue within the exposure is affected
- Side effects: skin and organs affected
  - Most common AE is skin issues (esp. **radiation dermatitis)**
    - → Acute toxicities usually develop after 2 weeks
    - → Can become so severe that pt has to stop treatment
    1) **Dry erythema** (that can cause permanent skin color change)
    2) **Wet desquamation** –dermis is exposed and drainage of serous fluid
    3) **Ulceration**
  - Localized tissue responses in organs receiving radiation
    - → Stomach or colon
      - ✓ Anorexia
      - ✓ N/v
      - ✓ Diarrhea
    - → Thoracic
      - ✓ Esophageal irritation
      - ✓ Chest pain
      - ✓ Dysphagia
- Nursing management (mostly skin)
  - Avoid using:
    - → Soaps
    - → Powders
    - → Lotions
    - → Ointments (unless prescribed)
    - → Aluminum based deodorant
    - → Rubbing or scratching area
  - Use **lukewarm water** to bathe exposed area, NO SOAP
  - Educate pt to only use **electric razor**
  - Do not apply any **extreme temperature** pads (hot or cold)
  - Do not wear **tight clothing**
  - Avoid sun if possible
  - Manage **wet desquamation** by:

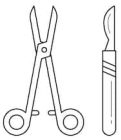
→ Checking for infection frequently
→ Not disrupting **blisters** (should report)
→ Avoiding frequent washing
→ Only using **prescribed ointments/creams**
→ Putting **non-adhesive dressing**
→ Consulting wound care nurse if needed

Surgery

- Surgery can be either _____, _____, _____, or _____

Surgical Treatment

- Diagnostic
  - Done via **biopsy** (wide excision, local excision, needle biopsy, fine needle aspiration)
- Primary treatment
- Prophylactic surgery (prevention)
- Reconstructive surgery
- Palliative (for pain)



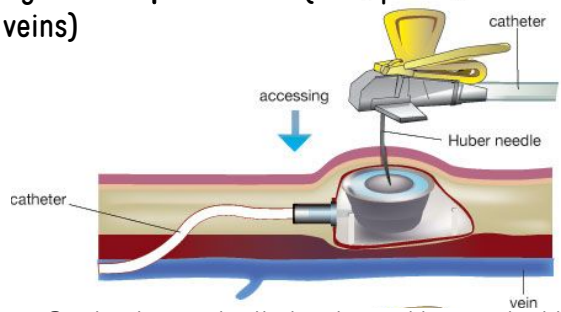
Chemotherapy

- What is the main **purpose of chemo**?
- Chemo targets mainly _____
- What are the different routes to give chemo?

Chemotherapy

- Purpose: to kill tumor cells by **interfering with cellular functions and reproduction**
  - Kills **rapidly dividing cells** as chemo targets different cell phases **during their reproduction**
- Usually combined with other treatments for better results
- Can be given via different routes:
  - **IV**
  - **Oral**
  - **Intrathecal** (in spinal fluid)
  - **Intra-abdominal**

- Should only be administered by a specially trained nurse
  - Regular nurses can only monitor pts with chemo
- Needs special **precautions**
  - Requires 2 RNs to check dose, route, rate, etc.
  - Personnel should wear chemo gear
  - Should be disposed in specific ways
- Management of **port-a-cath** (an implanted device that allow easy access to a pt's veins)



  - Device is surgically implanted beneath skin
  - Used to inject chemo
  - Once the **huber needle** is inserted, it becomes a **central line**
  - Needs to be **flushed daily with heparin** unless fluid is running; if huber needle is not inserted, need to **flush every month with heparin**
- **GI effects** are the most common side effects
  - Management of n/v:
    → Avoid strong odor, spicy, and fried foods

- A nurse is about to administer chemo, what are some precautional measures to take?
- How do we take care of **port-a-cath**? What about **huber needles**?
- What are your top concerns for a pt receiving chemo? (SE related)
- What are the general nurs managements for chemo SE?

- How can you manage n/v?
- How can **ativan** (anti-anxiety med) help with n/v?

→ Administer antiemetics (before meals)
→ Administer anti-anxiety meds **like Ativan** (can mitigate n/v if given via **IV push)**
→ Administer corticosteroids
→ Encourage pt to eat **bland food**
✓ Baked chicken
✓ Baked potato
✓ White rice
✓ Coke or ginger ale
✓ Pasta
✓ Others

- How can you manage diarrhea?

○ Management of diarrhea:
→ Encourage food with **low fiber** and **low bulk**
→ Avoid **high fiber foods**: whole wheat, bran, seeds and nuts, dried fruits, and raw vegetables
→ Administer **Imodium** or **Lomotil** as ordered (antidiarrheal meds)
→ Discourage dairy, hot, and cold foods
→ Bland diet is recommended

- How can you manage stomatitis and mucositis?

○ Management of stomatitis and mucositis
→ **Stomatitis** is inflammation of mouth and lips; **mucositis** is **painful** inflammation and ulceration in oral cavity and anywhere along GI tract
→ May have to give opioid for pain and or lidocaine
→ Give **magic mouthwash (biotin mouthwash)**
→ Assess mouth frequently
→ Give **sodium bicarbonate** by mouth and or **NS** 4 times a day
→ Educate use of oral hygiene and use of **soft toothbrush**
→ Hydrate pt
→ No alcohol!
→ Recommend soft and bland food
→ Give straw for drinking to bypass sores
→ Keep lips moist

- What are some educations to give pts with stomatitis and mucositis?

- A pt has chronic fatigue due to chemo, what should you assess for?

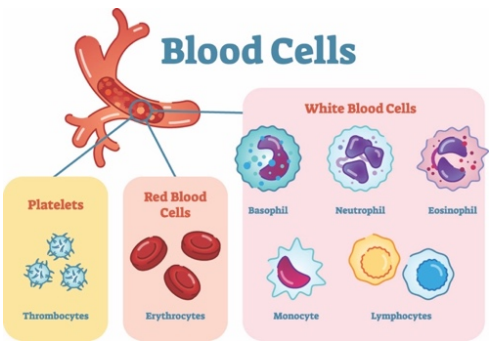
• Managing fatigue
○ Cancer fatigue may not go away even with resting
○ Assess for pain, dyspnea, **depression**, nutrition, electrolyte imbalance, etc.
○ Plan activity and rest (pts should not constantly be bed-ridden)
○ Check pt's hemoglobin and hematocrit
○ Check if pt has **insomnia** (common) and give sleeping pills as needed

<u>Myelosuppression</u>

MYELOSUPPRESSION

- Define **pancytopenic**

• Pt will be **pancytopenic**
○ Low platelet
○ Low RBC (H and H)
○ Low WBC



- Define **neutropenia**

- A chemo pt is suspected to neutropenic, what tests can you do to verify? (2 tests)
- If a pt has less than _____ of neutrophil in blood, it means _____

- What are the causes of neutropenia?

- A pt comes in with severe neutropenia, what can you do to manage it?

- What is your top concern for a pt who is neutropenic? What are your managements? (monitoring, labs, education, s/s to check for, etc.)

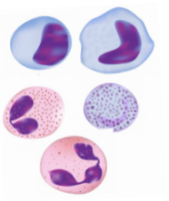
- What is the difference between **sepsis** and **septic shock**?

- Which one is more serious: sepsis or shock?

<u>Thrombocytopenia</u>

- Define **thrombocytopenia**
- What do you suspect to see in a thrombocytopenic pt?

Neutropenia



- Def: reduction in **neutrophils** → cannot fight bacteria → increased risk for bacterial infection
- Can be confirmed by:
  - **CBC with differential**
  - **Absolute neutrophil count (ANC)**
    - → If a pt has less than 500/mm^3 of neutrophil in blood → **very high risk of infection**
- Causes: chemo or radiation
- Can do **drug therapy:**
  - Hematopoietic growth factors to stimulate production or function of neutrophils
    - → **Neupogen**
    - → **Neulasta**
  - Give SQ
  - Make sure to warm med before giving to prevent burning
- Nursing management (infection prevention)
  - **Check v/s every 4 hrs (esp. if fever is present)**
  - **Monitor for WBC and differential every day**
  - Inspect any area with skin issue
  - Put pt in **private room**
  - Avoid any **rectal or vaginal procedures** (including urinary catheter if possible)
  - Encourage ambulation **to prevent pneumonia**
  - Do not give **IM injection** (due to risk of skin infection)
    - → IV and SQ is okay
  - Report the following:
    - → **Fever (temp> or = to 100.5F)**
    - → **Chills**
    - → **Edema**
    - → **Low BP**
    - → **Coughing**
    - → **Any s/s of infection**
- Sepsis and septic shock

Sepsis	Septic shock
Pt has 2 or more of the following: - Temp>100.4 F - HR>90 - RR>20 - WBC>12,000 or WBC<4000	Pt has symptom of **sepsis plus hypotension and circulatory collapse** - Body is no longer able to compensate for sepsis - Can lead to **death**

Thrombocytopenia

- Def: platelet count below **150,000/microliter**
- Classic symptom is **purpura**
- Nursing management (protective measures):
  - Only use **electric razor**
  - No IM injections

- What are the nurs management for thrombocytopenic pt? (education, what not to do, precautions, etc.)

- What should the nurse monitor very closely in thrombocytopenic pts? (prioritize)

<u>Anemia</u>

- What are the critical s/s of anemia the nurse should monitor? (v/s and physical s/s)

- What are some expected findings of anemic pts?

- What are the nurs managements for anemia?

<u>Graft vs Host Disease</u>

- Define it

<u>Alopecia</u>

- What are the 2 main causes of cia (r/t cancer)?

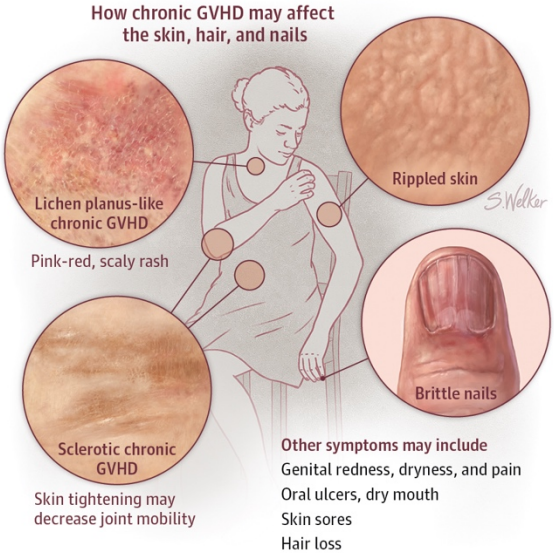
    - Do not put Foley unless absolutely needed
    - Use soft toothbrush only
    - Avoid use of **aspirin** and other **NSAIDs**
- Nursing priority monitoring:
    1) Assess for s/s of **intracranial bleeding**
        → Can lead to irreversible brain damage
        → Monitor for LOC and neutron status
    2) Monitor for **v/s changes**, **drop in H and H**, and any other bleedings

Anemia

- Monitor the following:
    - Dyspnea (since anemia can cause low O2 circulation)
    - s/s of hypovolemia → hypotension
    - Altered v/s (including O2)
- Some pts are more tolerant towards anemia that others; **pt will show s/s of SOB and low O2 sat if pt is not-tolerant**
- Nursing management:
    - Administer IV fluids and packed red blood cells (**PRBC**) as ordered
    - Administer O2 to keep saturation above **92%**

Graft vs Host Disease

- Def: autoimmune disorder after bone marrow transplant from donor



ALOPECIA

- Can occur due to **chemo** or **radiation**
    - Temporary with chemo but permanent with radiation
- Suggestions:
    - Haircut
    - Wig
    - Scarf
    - Others

Breast Cancer

BEAST CANCER

Overview

- About 12% of women get it
- **Men can also get it!**
- Increase chances with increasing age
- 5-10% of all breast cancer is hereditary
  - The defective gene is **inherited from parent**
- Higher death rates in **African American women**
  - Due to socioeconomic difference
- Risk factors –no single specific cause but a combo of **genetic, hormonal,** and **environmental** (possibly)
  - Being female
  - Aging
  - Personal hx of breast cancer
  - Family hx of cancer
    - → Only 1st degree (mother, sister, grandmother, and child)
    - → Higher risk if a family member got cancer **before menopause** (prior 50yrs old)
    - → 80% of the pts do not have family hx
    - → Refer pt to **genetic testing**
  - **BRCA1** and **BRCA2** mutation is almost a 100% indicator of breast cancer; increases risk by 7 times
  - Lifestyle: obesity and alcohol (2-5 drinks daily)
  - **Hormonal factors:**
    - → Early menarche (before 12 yrs)
    - → Late menopause (after 55)
    - → No full-term pregnancies or late age for first full term pregnancy
    - → Long-term use of hormonal therapy (post-menopausal)

- What are the risk factors of breast cancer?
- What are some things to check for family hx of breast cancer?
- What are the 2 main genes that are definitive markers of breast cancer?
- What are some hormonal factors that can cause breast cancer?

Difference of Cyst and Malignant Tumor

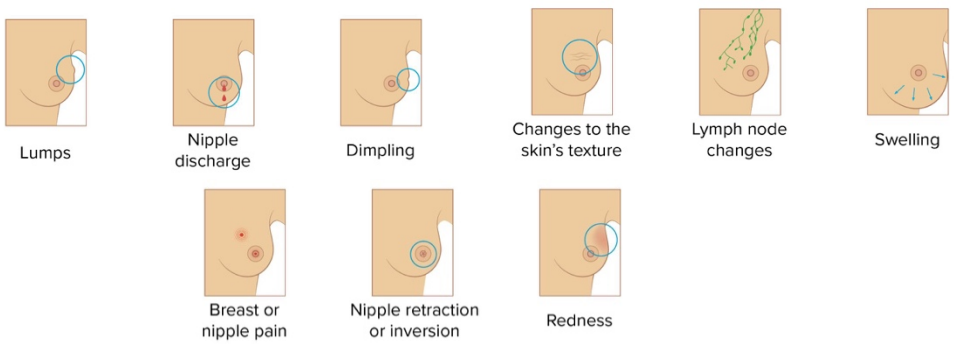
- What is the difference between cyst and tumor?

Cyst	Tumor
- **Usually found in women who are on their** period - **Well-defined** - **Mobile** - **Pre-menstrual cysts may be tender**	- **Hard** - **Poorly defined** - **Non-tender**

Physical Assessment

Physical Assessment

- What are some expected findings for breast cancer during assessments?



- A pt with breast cancer asks why she has spider veins on her breast, what is your explanation?

- What are some of the more serious s/s of breast cancer? (name 3)

- What should you chart for any mass found during assessment?

<u>Diagnostics</u>

- What are the 4 diagnostics test you can do for breast cancer?

- What are the types of **mammograms**? (differentiate them)
- When should a pt start getting a **mammogram**?

- How can an **ultrasound** be useful for breast cancer?

- Which diagnostic tools are best for **high-risk** breast cancer pts?

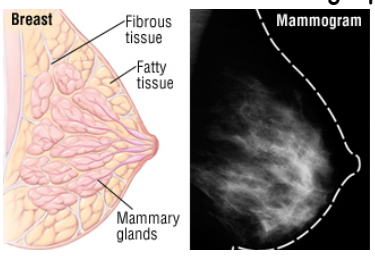
- _____ is the only test that confirms cancer; the others can detect _____

- What info can a biopsy tell you?

- Redness
- Prominent venous pattern
    - Can indicate **increase BF to "feed" tumor**
- Edema and pitting in skin
- New **nipple inversion**
- Serious s/s include **ulceration, rashes,** and **spontaneous discharge**
    - Should always be evaluated
- Palpable lymph nodes (normally, they should not be palpable)
- Detectable mass; if detected → chart the following
    - Size
    - Location
    - Shape
    - Consistency
    - Border delineation
    - Mobility of mass

Diagnostics

- **Mammogram:**
    - Can detect a breast tumor before it's palpable **(does not mean cancer)**
    - Can detect really small tumors (less than 1cm)
    - The American Cancer Society recommends women should get one yearly **after age of 44 until 55 yrs old, then pt may get one every other year**
        - → Pts who are at-risk (genetically) should start way earlier
    - Types:
        - → Digital mammography is a better option for **dense breasts**
        - → 3D mammography/contrast mammography
            - ✓ Injecting radiopaque material into breast
- Ultrasound
    - Used in adjunct to mammography (not alone)
    - Can distinguish **fluid filled sacs from tumors (does not mean it's cancer)**
- Breast MRI
    - Combo of MRI and mammography is used for **high risk women**



- **Biopsy**
    - The only test that **confirms cancer**
        - → The other diagnostics are used to detect **abnormalities, but does not necessarily mean cancer present**
    - Indicates **type of breast cancer**

Preventative Measures

- A pt has been identified as high-risk for breast cancer, what are some **preventative things** she can do?
- What are the SE of Tamoxifen?

Staging Breast Cancer

- Why is it important?
- What are the factors determining the stage?

- What does it mean to have a **stage 4 or M1** cancer?

Prognosis

- What are the 2 key factors in determining the prognosis of breast cancer?

- What is the **sentinel node**? Why is it important?

- What is **SLNB**?

- Removal of lymph nodes can cause _____

- What is a **triple negative cancer**?
- A pt has been diagnosed with triple negative cancer, why is that worse than regular breast cancer?
- A pt's test came out positive for Her2; what does that mean? What should she do?

Preventative Measures

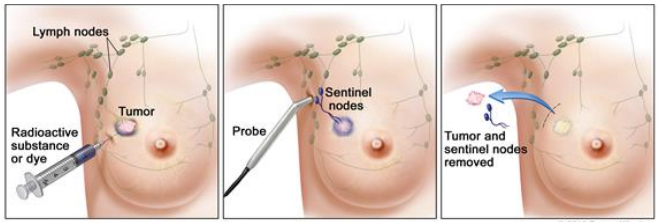
- Prophylactic chemo with **Tamoxifen** (estrogen modulator) for hormonal receptor positive breast cancer pts
  - MOA: deprives the tumor from the estrogen that it needs to feed off of
  - Puts women into **early menopause**
  - **Hot flashes** are the most common side effects
- Prophylactic mastectomy

Staging Breast Cancer

- Must be done **before deciding treatment**
- Factors determining stage:
  - Invasive vs non-invasive
  - Size
  - Number of lymph nodes involved
  - Metastasis
    - → Also known as **stage 4 cancer** or **M1 cancer**

Prognosis

- **Size of tumor** and **lymph node involvement (in axilla)** are the 2 key factors deciding prognosis
  - **Sentinel node** is the first node in the lymphatics receiving drainage from breast tumor → if this lymph tests positive for cancer, then the remaining lymph nodes are also affected
    - → **Sentinel Lymph Node Mapping and Biopsy (SLNB)** can determine this by injecting dye/radioactive isotope into beast; it will light up as it travels via lymph



    - → Only the affected lymph nodes will be taken out b/c too little lymph nodes can cause **lymphedema**
- **"Triple negative" breast cancers** are harder to treat –means that tumor is not fueled by the **estrogen, progesterone,** and **Her2**
  - Does not respond to **tamoxifen**

  - Her2 is a **gene that can cause cancer;** testing should be done
- Should check **metastasis**

Treatments

- Surgery
  - Goal is to gain **local control of disease**
  - Can be **total/simple** or **modified radical**
    - → Total: removing entire tissue and areolar complex

Treatment

- Differentiation **total/simple** vs **modified radical** surgery?

- What is **ALND**? When is it done?

- When is it best to use **radiation** for breast cancer?
- How often does the pt come for radiation?

- When is chemo used for breast cancer?
- What is the goal for breast cancer chemo?
- A pt undergoing chemo for breast cancer also has a surgery scheduled, she asks why; what is your explanation?
- How does **hormonal therapy** work for breast cancer?

Nurs Management

- A pt came out from ALND, what are your concerns?
- What is a s/s of lymphedema?

- What are your interventions to prevent lymphedema due to ALND?

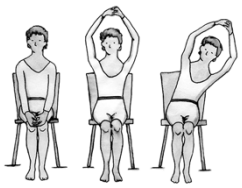
- What are your interventions for a pt who just came out from **mastectomy**?

    - → Radical: removing entire tissue, areolar complex, **parts of lymph nodes, portion of pectoralis major and minor muscles**
        - ✓ Severe disfiguring
        - ✓ Can impair arm mobility
  - Breast conservative treatment + radiation –removal of tumor without severely disfiguring breast
    - → Lumpectomy, wide excision, or partial mastectomy
  - **Axillary lymph node dissection (ALND)** is done if **cancer is invasive**
- Radiation (XRT)
  - Goal is to eradicate **residual microscopic** malignant cells
  - XRT can be followed by breast **conservation t/t**
  - Used for breast cancer stage **1 and 2**
  - Usually pt comes **5 times a week for 5-6 weeks**
  - Can cause mild to moderate **erythema** and **fatigue**
- Systemic chemotherapy
  - Goal is to prevent **recurrence and spread** of cancer
  - May be used in combo with XRT and **post-surgery**; sometimes can be used before surgery to shrink tumor
  - Used for pts with cancer that has **spread to lymph nodes or** if the tumor is **larger than 1cm**
- Hormonal therapy
  - Tumor needs to be **hormonal receptive**
    - → Means that tumor feeds off of estrogen and progesterone
  - If tumor is hormonal receptive = better response to t/t = better prognosis

Nursing Managements

- ALND management:
  - Complications
    - → Cellulitis
    - → Decreased arm mobility
    - → Lymphedema (tingling)

  - **Collateral circulation** may develop long-term
  - Main goal is to **prevent lymphedema**
    - → Avoid doing any procedures on affected arm (like IV, injection, BP measuring, etc.)
    - → Use only electric razor
    - → Do not use suntan lotion or insect repellent
    - → Avoid lifting object heavier than **10 lbs**
- Post mastectomy management
  - Make sure to look at surgical site in **privacy**
  - Educate pt that there may be multiple **drains**
  - Recommend **arm exercises** to prevent arm from getting stiff



Lung Cancer

- Why is lung cancer so fatal?

- Lung cancer originates from _____ mutation in _____
- What is the most common cause of lung cancer?

- How can you check **pack year history?**
- What are the classification of lung cancer?

Clinical Manifestation

- s/s of lung cancer depends on _____, _____, _____, and _____

- What are s/s of of lung cancer?

Diagnostics

- What are some diagnostics test to do for lung cancer? (which ones is best for abnormalities)
- What are the different options for biopsy in lung cancer?

- When is **fine needle aspiration** done?

LUNG CANCER

Overview

- Leading cause of cancer death
- Usually found **late**
  - **57%** of pts with lung cancer **spread to regional lymph nodes** and other sites by time of diagnosis
- 5yrs survival rate is about **17%**
- Originates from one **epithelial** cell mutation in the **tracheobronchial airways**
- Most common cause is **cigarette smoking** and **secondhand smoking**
  - Should always determine **pack year history** (number of packs per day multiplied by years of smoking)
- Classified into 2 classes:
  - **Small cell:**
    - → About 10-15% of lung cancer
    - → Very **aggressive** and grows fast
    - → **Spreads fast**
    - → More serious than non-small cell
  - **Non-small cell**
    - → About 85-90% of lung cancer
    - → **Poor 5 years survival rate**

Clinical Manifestations

- **Asymptomatic until late**
- s/s depends on:
  - Location
  - Size
  - Degree of obstruction
  - Mets
- Most common s/s:
  - Development of cough or change in cough characteristics
    - → Always check if pt has a sudden onset of coughing
  - Dyspnea
  - Hemoptysis
  - Chest or **shoulder pain**
  - Others

Diagnostics

- CXR
- **CT scan** (most accurate to see abnormalities)
- **Biopsy**
  - **Fiber optic bronchoscopy**
  - Transthoracic fine needle aspiration under CT guidance –this is done if bronchoscopy fails
  - Other scans and imaging tests can be done to **assess for Mets**

Treatment

- Depends on:
  - Cell type

Treatment

- When is **radiation** chosen as treatment option for lung cancer?

- What are some complications from lung cancer radiation?

- Chemo is often used for lung cancer to also treat mets in _____, _____, and _____

  - Stage
  - Pt's physiologic status (esp. **pulmonary** and **cardiac**)
- Options are combinations of the following:
  - Surgery
  - Radiation
    - → Done when resection of tumor cannot be done or prior to shrink size
    - → Can relieve pressure on vital structures
    - → Complication:
      - ✓ **Esophagitis**
      - ✓ **Pneumonitis**
      - ✓ **Radiation lung fibrosis**
      - ✓ **Pericarditis**
  - Chemo
    - → Used in **adjunct to radiation and or surgery**
    - → Reduce pain and pressure
    - → Can treat **brain, spinal cord,** and **pericardial Mets**

Colorectal Cancer

COLORECTAL CANCER

Overview

- Known as "disease of **western cultures**"
- Mean age of diagnosis is **70 yrs old**
- Risk factors:
  - Aging
  - Family hx (about 20% of cases)
  - **IBD**
  - Type 2 diabetes and obesity
  - Male gender
  - Being **African American** or **Jewish**
  - Lifestyle:
    - → Diet that is high in **fat, protein (red meat),** and low in fiber
    - → Alcohol
    - → Smoking
- **Early screening** is key
  - 5 years survival rate increases up to 90% if caught at early stage
  - Only 39% is detected early
  - Recommendation is to start screening **at age 45 yearly** for fecal-occult test; flexible sigmoidoscopy should be done **every 3 yrs;** colonoscopy should be done **every 10 yrs**
- Common spreading organs: **liver, peritoneum,** and **lungs**

- What are the risk factors of colorectal cancer?

- What are some diets that can increase risk of colorectal cancer?

- A pt asks when he should begin screening for colorectal cancer, what is your answer? (reg screening, sigmoidoscopy, and colonoscopy)

Clinical Manifestations

- What are some s/s of colorectal cancer? (which one is most common)

Clinical Manifestations

- Most common one is **change in bowel habits**
  - Second most common is blood in stool or **melena** (black tarry stool)
- Unexplained anemia

Change in Bowel Habits

Blood in Stool

Complications

- What are the 4 main complications caused by colorectal cancer?

Assessment and Diagnostics

- A pt with suspected colorectal comes in, what should you assess? What tests can be done?
- Which imaging tool is best to diagnose colon cancer along with biopsy?

Treatment

- What treatment is usually chosen?

- Differentiate **segmental resection** from **permanent ileostomy**

- Abdominal pain
- Cramping
- Distention in abdomen
- Others

Unexplained Weight Loss


Persistent Abdominal Discomfort

Complications

- Complete bowel obstruction
- **Perforation → peritonitis**
- Abscess formation
- Sepsis (shock)

Assessment and Diagnostics

- Assess abdomen
- Rectal exam
- Fecal occult test
- **Double contrast barium enema**
- **Colonoscopy**
  - Most cases can be diagnosed with this in addition to **biopsy**

Treatment

- Surgery
  - Main treatment
  - Can be **curative** or **palliative**
  - Range from **segmental resection** with anastomosis to **permanent ileostomy**
- Chemo
- Radiation