



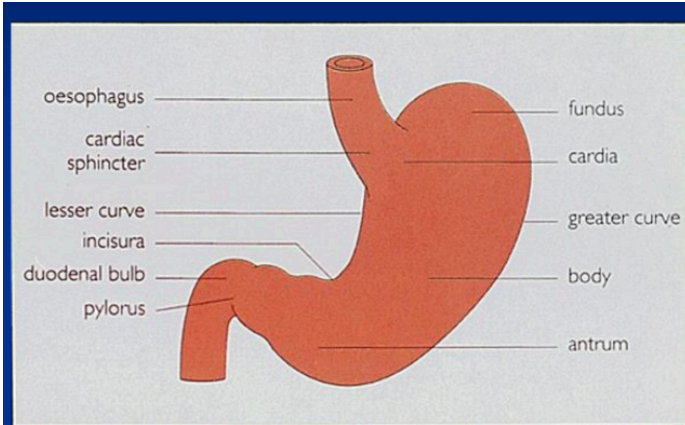
NCM 116: MEDICAL SURGICAL NURSING 2

LECTURE

A.Y 2025-2026 | 3RD YEAR 2ND SEM | DR. ROBERTO SALVADOR

GASTROINTESTINAL SYSTEM

GIT: ANATOMY AND PHYSIOLOGY



- 23 - 26 foot long
- The main GIT starts from the mouth→Esophagus→Stomach→SI→LI
- The accessory organs are the
 - Salivary glands
 - Liver
 - Gallbladder
 - Pancreas

MOUTH

- Contains the lips, cheeks, palate, tongue, teeth, salivary glands, masticatory/ facial muscles and bones
- Anteriorly bounded by the lips
- Posteriorly bounded by the oropharynx
- Important for the mechanical digestion of food
- The saliva contains SALIVARY AMYLASE or PTYALIN that starts the INITIAL digestion of carbohydrates

ESOPHAGUS

- A hollow collapsible tube
- Length- 10 inches
- Made up of stratified squamous epithelium
- Posterior to the trachea and heart
- Functions to carry or propel foods from the oropharynx to the stomach
- Swallowing or deglutition is composed of three phases:

STOMACH

- J-shaped organ in the epigastrium
- Contains four parts- the fundus, the cardia, the body and the pylorus
- The cardiac sphincter prevents the reflux of the contents into the esophagus
- The pyloric sphincter regulates the rate of gastric emptying into the duodenum
- Capacity is 1,500 ml
- The functions of the stomach are generally to digest the food (proteins) and to propel the digested materials into the SI for final digestion
- The Glands and cells in the stomach secrete digestive enzymes:

- INNERVATION

- Secretory activity regulation

- Vagus nerve (parasympathetic) increases secretory activity
- Stimulation of sympathetic nerves decreases secretory activity
- Has 3 phase:

- **Cephalic phase:** preparation for digestion; triggered by sight, odor, taste, or thought of food
- **Gastric phase:** begins when food enters stomach; more gastric juice and hydrochloric acid secreted
- **Intestinal phase:** initiated by partially digested food entering small intestine; continued gastric secretion

1. Parietal cells- HCl acid and Intrinsic factor
2. Chief cells- pepsin→ digestion of PROTEINS!
3. Antral G-cells- gastrin

GASTROINTESTINAL SYSTEM

4. Argentaffin cells- serotonin
5. Mucus neck cells- mucus

Processes:

- Acts as storage reservoir for food
- Continues mechanical breakdown of food
- Begins process of protein digestion
- Mixes food with gastric juices into thick fluid: chyme
- Connects esophagus and small intestine
- Pyloric sphincter controls emptying of stomach into duodenum
 - Empties completely in 4 - 6 hours post normal meal
 - Large volumes speed process
 - Solid and fats slow process

- Absorbs water
- Eliminates wastes
- Bacteria in the colon synthesize Vitamin K
- Appendix participates in the immune system
- Approximately 5 feet long, with parts:
 - The cecum→ widest diameter, prone to rupture
 - The appendix
 - The ascending colon
 - The transverse colon
 - The descending colon
 - The sigmoid→ most mobile, prone to twisting
 - The rectum

SMALL INTESTINE

- Grossly divided into the Duodenum, Jejunum and Ileum
- The ileum is the longest part (about 12 feet)
- Longest segment of the GI tract 7000cm
- Area for secretion and absorption
- Ileo-cecal valve controls passage of intestinal contents in the large intestine
- The intestinal glands secrete digestive enzymes that finalize the digestion of all foodstuff
- Enzymes for carbohydrates→ disaccharidases
- Enzymes for proteins→ dipeptidases and aminopeptidases
- Enzyme for lipids→ intestinal lipase

Chemical digestion of foods by enzymes

- Amylase acts on starches
- Trypsin and chymotrypsin act on proteins
- Lipases act on lipids
- Bile salts emulsify triglycerides
- Intestinal enzymes continue to further break down starches and protein
- Absorption of almost all food products, water, vitamins and most electrolytes; (i.e. 10 L of fluid enters small intestine; < 1L reaches large intestine daily)

SYMPATHETIC	PARASYMPATHETIC
<ul style="list-style-type: none"> • generally inhibitory • Decreased gastric secretions • Decreased GIT motility • But: increased sphincteric tone and constriction of blood vessels 	<ul style="list-style-type: none"> • generally excitatory • Increased gastric secretions • Increased gastric motility • But: decreased sphincteric tone and dilation of blood vessels

FUNCTION OF THE DIGESTIVE SYSTEM

- To break down food particles into the molecular form for digestion.
- To absorb into the bloodstream the small molecules produced by digestion
- To eliminate undigested and unabsorbed foodstuffs and other waste products from the body

CHEWING AND SWALLOWING

- Process of digestion begins with this act
- Saliva is excreted from 3 pairs of glands
 - Parotid
 - submaxillary
 - sublingual
- 1.5 liters of saliva is secreted daily

GASTROINTESTINAL SYSTEM

- Saliva contains enzyme Ptyalin or salivary amylase
- Contains mucus and water which helps to lubricate the food facilitating swallowing
- As food is swallowed the epiglottis covers the trachea
- Esophageal sphincter relaxes to permit bolus of food to enter the stomach

GASTRIC FUNCTION

- Stomach mixes and stores foods with secretion
- Secretes gastric acid, HCL 2.4L per day
- Also secretes Pepsin and Intrinsic factor
- Function of gastric secretion is to breakdown food and destroy most ingested bacteria
- Chyme, food mixed with gastric secretions
- Pyloric sphincter
- Digestive process continues in the duodenum.
- Accessory digestive organs, pancreas, liver and gall bladder
- Digestive enzymes
 - Trypsin - digest proteins
 - Amylase - digest starch
 - lipase - digest fats
- Bile - emulsifies fat
- Carbohydrates
 - disaccharides - sucrose, maltose and galactose.
 - monosaccharides - glucose and fructose
- major role is absorption
 - duodenum - iron and calcium
 - jejunum - fats, protein, carbohydrate, Na, chloride
 - ileum - Vit B12 and bile salts

COLONIC FUNCTION

- 4 hrs after eating residual waste passes through the ileo-cecal valve
- Bacteria assist in completing the breakdown of waste material
- 12 hours after a meal

- Feces 75% water, 25% solid
- Indole and skatole
- bile

LIVER

- The largest internal organ
- Located in the right upper quadrant
- Contains two lobes- the right and the left
- The hepatic ducts join together with the cystic duct to become the common bile duct
- Functions to store excess glucose, fats and amino acids
- Also stores the fat soluble vitamins- A, D and the water soluble- Vitamin B12
- Produces the BILE for normal fat digestion
- The Von Kupffer cells remove bacteria in the portal blood
- Detoxifies ammonia into urea

GALLBLADDER

- Located below the liver
- The cystic duct joins the hepatic duct to become the bile duct
- The common bile duct joins the pancreatic duct in the sphincter of Oddi in the first part of the duodenum
- Stores and concentrates bile
- Contracts during the digestion of fats to deliver the bile
- Cholecystokinini released by the duodenal cells, causing the contraction of the gallbladder and relaxation of the sphincter of Oddi
- The exocrine function of the pancreas is the secretion of digestive enzymes for carbohydrates, fats and proteins
- Pancreatic amylase→ carbohydrates
- Pancreatic lipase (steapsin)→ fats
- Trypsin, Chymotrypsin and Peptidases→ proteins
- Bicarbonate→ to neutralize the acidic chyme. Stimulated by SECRETIN

METABOLISM

GASTROINTESTINAL SYSTEM

- Biochemical reaction occurring at cellular level, which produces and provides energy to maintain life
- Metabolic reactions are either anabolic or catabolic
 - Anabolic processes involve simple molecules combining to build more complex structures, i.e. amino acids bind to form proteins
 - Catabolic processes involve the breakdown of complex structures to simpler forms, i.e. breakdown of carbohydrates releasing ATP, energy molecule necessary for cellular activity
- **Kilocalorie**
 - Measurement of energy value of food
 - Amount of heat energy needed to raise temperature of 1 kilogram of water 1 degree centigrade

CATEGORIES OF NUTRIENTS

- **Carbohydrates**
 - Primary Sources: plant foods: sugars (milk, fruits) and starches (grains, root vegetables)
 - Energy value: 4 kcal per gram; excess converted to glycogen or fat
 - Recommended daily intake: 125 - 175 gm (mostly complex)
 - Body function: converted to glucose for cellular function
 - Deficiency: over time tissue wasting since protein and fats are broken down and metabolic acidosis could result
- **Proteins**
 - Primary Sources
 - Complete (all essential amino acids): animal products
 - Incomplete (lack some amino acids): plant source: legumes, nuts
 - Energy value: 4 kcal per gram
 - Recommended daily intake
 - Male: 56 gm
 - Female 45 gm

- Additional needed with growth, pregnancy, tissue repair and healing
- Body function: building body tissues, enzymes, hormones, hemoglobin

- **Fats**

- Source:
- Saturated fats: animal products, coconuts
- Unsaturated fats: seeds, nuts, vegetable oil; cholesterol: meats, milk products, egg yolks
 - Energy value: 9 kcal per gram
 - Recommended daily intake
 - 30% or less of daily caloric intake
 - < 10% saturated fat
 - Cholesterol no more than 250 mg
 - Body function
 - Fatty acids are essential for body cell membranes for some substances, including hormones
 - Concentrated source of cell fuel
 - Deficiency: excessive weight loss and skin lesions

VITAMINS

- Fat Soluble: A, D, E, K which are produced or stored in body and can reach toxic levels
 - Vitamin A: needed for vision, skin and mucous membrane integrity
 - Vitamin D
 - Needed for calcium homeostasis
 - Body produces: formed by sunlight action in skin
 - Additive to milk
 - Vitamin E: antioxidant
 - Vitamin K
 - Needed for clotting proteins by the liver
 - Body produces: synthesized by bacteria in large bowel

GASTROINTESTINAL SYSTEM

- Water Soluble: B vitamins and C which are excreted and seldom reach toxic levels
 - Vitamin B1 (Thiamin) needed for function of heart, muscles, nerves
 - Vitamin B2 (riboflavin) needed to utilize other nutrients
 - Vitamin B6 (pyridoxine) needed for protein metabolism
 - Vitamin B12 (cyanocobalamin)
 - Essential for red blood cell formation
 - Not found in any plant foods
 - Vitamin C (ascorbic acid)
 - Antioxidant
 - Needed for healing wounds
 - Found in citrus fruits, vegetables
 - Niacin (nicotinamide) needed for carbohydrate and fat metabolism
 - Biotin needed for catabolism of fatty acids and carbohydrates
 - Pantothenic acid needed for steroid, heme synthesis
 - Folic acid (folacin) needed for formation of red blood cells, health of nervous system

- changes in bowel habits and characteristics
- current medication intake
- tobacco and alcohol use

Physical Examination

- Inspection
- Auscultation
- Percussion
- Palpation
- Assessment of the mouth, abdomen and rectum
- Lie the patient supine with knee flexed
- Inspect for previous scars, shape
- Bowel sounds
 - normoactive - BS q 5 to 20 secs
 - hypoactive - 1-2 sounds in 2 minutes
 - hyperactive - 5-6 sounds in < 30secs
 - absent - no sound in >3-5 mins
 - Tympany or dullness
 - Divide the four quadrants
 - Inspection of the anal area (DRE)

MINERALS

- Necessary for maintenance of body's structures and functioning
- Major minerals needed include: calcium, phosphorus, potassium, sulfur, sodium, chloride, magnesium
- Trace elements (necessary in small amounts) include: iron, iodine, copper, zinc, selenium

THE NURSING PROCESS OF GIT DISORDER

ASSESSMENT

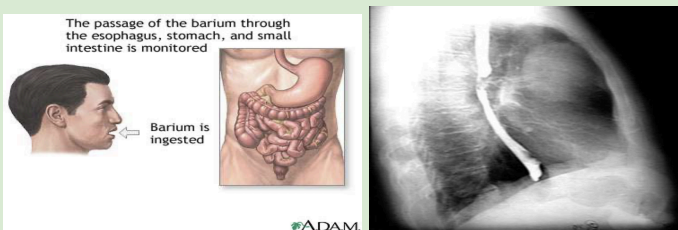
Health History Nursing History

- Elicit information regarding;
 - pain, indigestion
 - intestinal gas, nausea and vomiting
 - hematemesis

Laboratory Procedures

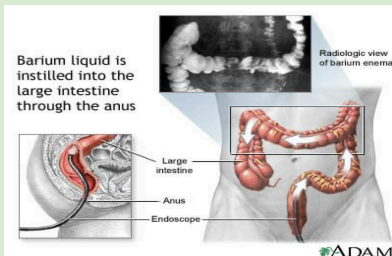
UPPER GIT STUDY : BARIUM SWALLOW

- Examines the upper GI tract
- Barium sulfate is usually used as contrast
- Detect or exclude anatomic or functional derangement of the upper GI organ or sphincter
- Aids in the diagnosis of ulcers, varices, tumors, regional enteritis and malabsorption syndrome
- Upper GIT study: barium swallow
- Pre-test: NPO post-midnight, low residue diet
- Post-test: Laxative is ordered, increase pt fluid intake, instruct that stools will turn white, monitor for obstruction



LOWER GIT STUDY : BARIUM ENEMA

- Examines the lower GI tract
- Barium is instilled rectally
- Pre-test: Clear liquid diet and laxatives, NPO post-midnight, cleansing enema prior to the test
- Post-test: Laxative is ordered, increase patient fluid intake, instruct that stools will turn white, monitor for obstruction
- Detects the presence of tumors, polyps and other lesions of the small intestines
- Demonstrate any abnormal anatomy or malfunction of the bowel.



FECALYSIS

- Examination of stool consistency, color and the presence of occult blood.
- Special tests for fat, nitrogen, parasites, ova, pathogens and others
- FECALYSIS: Occult Blood Testing
 - Instruct the patient to adhere to a 3-day meatless diet
 - No intake of NSAIDS, aspirin and anti-coagulant
 - Screening test for colonic cancer

BREATH TEST

- Urea breath test
 - detect the presence of Helicobacter Pylori
- Hydrogen breath test
 - evaluate carbohydrate absorption

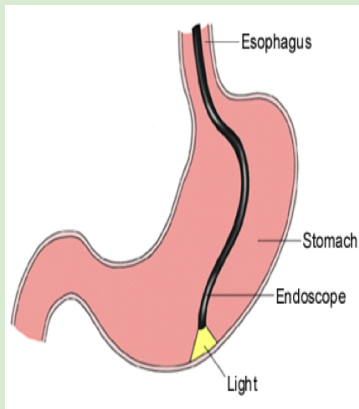
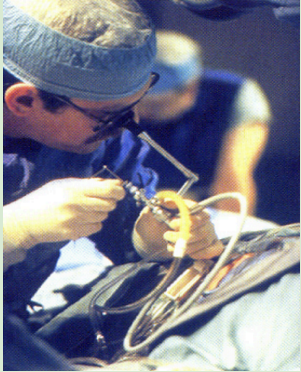
GASTRIC ANALYSIS

- Aspiration of gastric juice to measure pH, appearance, volume and contents
- Pre-test: NPO 8 hours, avoidance of stimulants, drugs and smoking
- Post-test: resume normal activities
- Yields information about the secretory activity of the gastric mucosa
- Presence or degree of gastric retention in patients thought to have pyloric or duodenal obstruction
- Useful for diagnosis of Zollinger Ellison Syndrome

GASTROINTESTINAL SYSTEM

esophagogastroduodenoscopy (EGD)

- Visualization of the upper GIT by endoscope
- Pre-test: ensure consent, NPO 8 hours, pre-medications like atropine and anxiolytics



- Pretest: NPO
- Intra-test: position : LEFT lateral to facilitate salivary drainage and easy access
- Post-test: NPO until gag reflex returns, place patient in SIMS position until he awakens, monitor for complications, saline gargles for mild oral discomfort

CHOLECYSTOGRAPHY

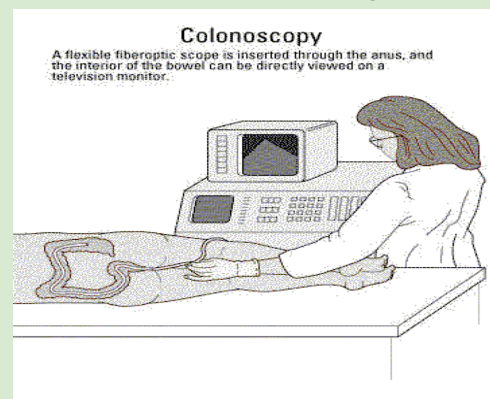
- Examination of the gallbladder to detect stones, its ability to concentrate, store and release the bile
- Pre-test: ensure consent, ask allergies to iodine, seafood and dyes; contrast medium is administered the night prior, NPO after contrast administration
- Post-test: Advise that dysuria is common as the dye is excreted in the urine, resume normal activities

PARACENTESIS

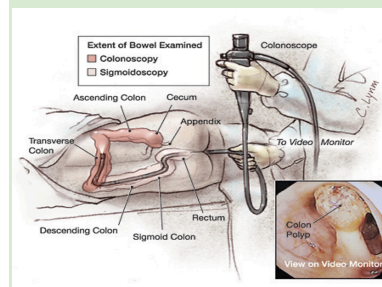
- Removal of peritoneal fluid for analysis
- Pre-test: ensure consent, instruct to VOID and empty bladder, measure abdominal girth
- Intra-test: Upright on the edge of the bed, back supported and feet resting on a foot stool

LOWER GI- SCOPY

- Use of endoscope to visualize the anus, rectum, sigmoid and colon
- Evaluate rectal bleeding, acute or chronic diarrhea, change in bowel patterns, ulcerations, polyps, tumors
- Pre-test: consent, NPO 8 hours, cleansing enema until return is clear
- Intra-test: position is LEFT lateral, right leg is bent and placed anteriorly
- Post-test: bed rest, monitor for complications like bleeding and perforation



- Intra-test: position is LEFT lateral, right leg is bent and placed anteriorly
- Post-test: bed rest, monitor for complications like bleeding and perforation



LIVER BIOPSY

- Pretest
- Consent
- NPO
- Check for the bleeding parameters
- Liver biopsy
- Intratest
 - Position: Semi fowler's LEFT lateral to expose right side of abdomen
- Post-test: position on RIGHT lateral with pillow underneath, monitor VS and complications like bleeding, perforation. Instruct to avoid lifting objects for 1 week

COMMON GIT SYMPTOMS AND THEIR MANAGEMENT

CONSTIPATION

- An abnormal infrequency and irregularity of defecation
- Multiple causations
- Pathophysiology
 - Interference with three functions of the colon
 - 1. Mucosal transport
 - 2. Myoelectric activity
 - 3. Process of defecation
- NURSING INTERVENTIONS
 - Assist physician in treating the underlying cause of constipation
 - Encourage to eat HIGH fiber diet to increase the bulk
 - Increase fluid intake
 - Administer prescribed laxatives, stool softeners
 - Assist in relieving stress

DIARRHEA

- Abnormal fluidity of the stool
- Multiple causes
 - Gastrointestinal Diseases
 - Hyperthyroidism
 - Food poisoning
- Nursing Interventions
 - Increase fluid intake- **ORESOL** is the most important treatment
 - Determine and manage the cause
 - Anti-diarrheal drugs

DUMPING SYNDROME

- A condition of rapid emptying of the gastric contents into the small intestine usually after a gastric surgery
- Symptoms occur 30 minutes after eating
- PATHOPHYSIOLOGY
 - Foods high in CHO and electrolytes must be diluted in the jejunum before absorption takes place.
 - The rapid influx of stomach contents will cause distention of the jejunum early symptoms

- The hypertonic chyme will draw fluid from the blood vessels to dilute the high concentrations of CHO and electrolytes
- Later, there is increased blood glucose stimulating the increased secretion of insulin. Then, blood glucose will fall causing reactive hypoglycemia
- ASSESSMENT FINDINGS: early symptoms
 - Nausea and Vomiting
 - Abdominal fullness
 - Abdominal cramping
 - Palpitation
 - Diaphoresis
- ASSESSMENT FINDINGS: LATE symptoms:
 - Drowsiness
 - Weakness and Dizziness
 - Hypoglycemia
- NURSING INTERVENTIONS
 - Advise patient to eat LOW-carbohydrate HIGH-fat and HIGH-protein diet
 - Instruct to eat SMALL frequent meals, including MORE dry items.
 - Instruct to AVOID consuming FLUIDS with meals
 - Instruct to LIE DOWN after meals
 - Administer anti-spasmodic medications to delay gastric emptying

PERNICIOUS ANEMIA

- Results from Deficiency of vitamin B12 due to autoimmune destruction of the parietal cells, lack of INTRINSIC FACTOR or total removal of the stomach
- ASSESSMENT
 - Severe pallor
 - Fatigue
 - Weight loss
 - Smooth BEEFY-red tongue
 - Mild jaundice
 - Paresthesia of extremities
 - Balance disturbance
- NURSING INTERVENTION
 - Lifetime injection of Vitamin B 12 weekly initially, then MONTHLY

NURSING CARE OF CLIENTS WITH NUTRITIONAL DISORDER

Impact of Nutritional Disorders

- Affect many body systems and organs
- Can result in serious and chronic health disorders
- Involve multiple issues including developmental, sociocultural, psychologic and physiologic factors

OBESITY

- One-third of Americans are obese
- Increased incidence in women, African Americans, economically disadvantaged
- Rising in children and young adults
- Obesity results from excess energy intake, decreased energy expenditure or combination
- Appetite affects food intake; regulated by central nervous system (hunger and satiety centers of hypothalamus)
- Hormonal effects: thyroid, insulin, leptin (produced by fatty tissues)
- Insulin associated with body fat distribution
 - Upper body obesity (central obesity)
 - Waist-hip ratio > 1 males; 0.8 females
 - More intra-abdominal fat
 - Higher levels of free fatty acids
 - Higher risk for cardiovascular complications
 - Lower body obesity (peripheral obesity)
 - Waist/hip ratio < 0.8
 - Common in females
 - Risk cardiovascular complications
 - More difficult to treat
- Complications
 - Morbid obesity: weight is >100 lbs. over ideal body weight; increased mortality
 - Increased risk of insulin resistance and Diabetes Type 2
 - Altered reproductive function; in women Polycystic ovarian syndrome (PCOS)

- Increased risk for cardiovascular disease
- Collaborative care
 - Exercise
 - Diet
 - Behavior modification
- Diagnosis
 - Body Mass Index
 - Identify percentage of fat in body
 - Calculated by weight (kg) divided by height in meters squared (m²)
 - At ideal body weight: males have 10 – 20% body fat; females: 20 -30%
 - Tests to determine physiologic cause or complication of obesity
 - Thyroid Profile (T3, T4, TSH): thyroid problem
 - Serum glucose: Diabetes Type 2
 - Serum cholesterol
 - Lipid profile (LDL, HDL levels)
 - Electrocardiogram (effects on cardiac status)
- For Men
 - 50 kg (110 lbs) first 5 ft then add 2.3kg (5lbs) per inch over 5 inch
- For Women
 - 45.5 kg (100 lbs) plus 2.3 kg or 5 lbs per inch over 5 feet
- Treatment
 - Exercise
 - Dietary and behavior modifications
 - Surgery
 - Medications
 - Sibutramine (Meridia): appetite suppressants, acts on CNS, increases metabolic rate
 - Orlistat (Xenical) inhibits fat absorption from GI tract

MALNUTRITION

- inadequate intake of nutrients; major (calories, carbohydrates, proteins, fats) or micronutrients (vitamins, minerals)
- Incidence and Prevalence

GASTROINTESTINAL SYSTEM

- Groups at risk in U. S. include young, poor, elderly, homeless, low-income women, ethnic minorities
- More than half of all hospitalized clients are malnourished from serious illness or surgery
- PATHOPHYSIOLOGY
 - Starvation (inadequate dietary intake)
 - Acute stress: hypermetabolism and catabolism (as with illness or trauma)
 - Protein-calorie malnutrition (PCM): condition of many hospitalized clients
 - Kwashiorkor: chronic protein deficiency with adequate calories for energy
 - Marasmus: insufficient protein and calories for body's needs
- COMPLICATIONS
 - Impaired mobility
 - Skin and tissue breakdown including pressure ulcer
 - Delayed wound healing, increased risk for infection
 - Postural hypotension related to decrease in cardiac output
- GOAL
 - Restore ideal body weight
 - Replace and restore adequate nutrition
- DIAGNOSTICS
 - Calculation of Body Mass Index (BMI) $<18 - 20/m^2$
 - Serum albumin reduced ($<3.0g/dL$)
 - Total lymphocyte count is reduced
 - Electrolytes: Potassium is often low with severe malnutrition
 - Specialized procedures to evaluate malnutrition
 - Bioelectric impedance analysis
 - Total daily energy expenditure
- Fluid and Dietary Management
 - Correction of imbalances, particularly potassium, magnesium, calcium
- Gradual re-introduction of protein and calories; vitamins and minerals
- Fat and lactose introduced lastly
- Gradual refeeding to prevent further electrolyte imbalances, malabsorption and diarrhea
- Enteral Nutrition
 - Tube feedings used to meet caloric and protein requirements in clients unable to consume adequate food
 - Used for clients with difficulty swallowing, unresponsiveness, oral or neck trauma/surgery, anorexia, serious illness
 - May be total nutrition or used as a supplement
 - Tubes
 - Nasogastric or nasoduodenal (small-caliber soft tubes)
 - Gastrostomy or jejunostomy tubes
 - Tube placement checked by monitoring pH
 - Stomach pH <4
 - Jejunum pH >6
 - Some institutions also measure length of nasal tubes at set intervals
- Complications
 1. Head of bed elevated at least 30 degrees during feeding and 1 hour post
 2. Tube in jejunum decreases aspiration risk
 3. Formulas with fiber added can reduce diarrhea
 4. Additional water is administered to prevent dehydration

TOTAL PARENTERAL NUTRITION (TPN)

- Total Parenteral Nutrition (TPN) also called hyperalimentation is intravenous administration of carbohydrates, protein, electrolytes, vitamins, minerals, and fat emulsions
- Usually administered through a central vein, sometimes with triple lumen catheter;

GASTROINTESTINAL SYSTEM

lesser concentrations may be given through peripheral vein

- Used with clients who have undergone major surgery, trauma, or are seriously malnourished
- Frequently maintained at home by client and family with monitoring by home health nurses
- Complications
 - Pneumothorax, malposition with insertion of central venous catheter; correct placement and no pneumothorax is confirmed by post-insertion x-ray prior to initiation of TPN solution
 - Potential for leakage, clotting off, dislodgement, breakage; frequent observation and infused using locked tube connections and a pump
 - Infection: high glucose solutions are good media for bacteria and skin is disrupted from line insertion; Meticulous sterile technique with tubing and dressing changes according to protocols
 - Fluid overload, electrolyte imbalance, hyperglycemia; Frequent monitoring of electrolytes, chemistries to guide solution content; blood glucose levels monitored by fingerstick every 6 hours

CLIENT WITH AN EATING DISORDER

ANOREXIA NERVOSA

1. Severely disturbed eating behavior and weight management
 - a. Maintains weight loss by restricted calorie intake
 - b. Sometimes includes excessive exercise
 - c. Have extreme fear of gaining weight
 - d. May exhibit binge-purge behavior
2. More common in females beginning in adolescence
3. Clients have body weight less than 85% expected for age
4. Often show physiological manifestations associated with starvation

5. May develop serious complications affecting cardiac, electrolyte, acid-base status
6. Clients tend to be obsessive, perfectionistic

BULIMIA NERVOSA

1. Severely disturbed eating behavior and weight management
 - a. Client performs binge eating followed by purging 5-10 per week
 - b. Foods eaten during binge are usually high in calories and fat
 2. Client induces vomiting by stimulating gag reflex or takes excessive quantities of laxatives or diuretics
 3. Clients weight is usually normal or slightly overweight
 4. Develop complications with fluid, electrolyte imbalance
- Collaborative care
 1. Clients may require hospitalization if weight <75% normal
 2. Treatment involves nutrition, behavioral and psychologic aspects; anti-depressant therapy
 3. Families support and involvement is essential to treatment
 4. Nursing care
 - a. Nursing role in identifying clients and referring them for treatment
 - b. Early intervention may prevent altered growth and development of complication

CONDITIONS OF THE GIT UPPER GIT SYSTEM

CONDITIONS OF THE ESOPHAGUS

HATAL HERNIA

- Protrusion of the esophagus into the diaphragm thru an opening
 - Occurs more often in women
 - Two-types - Sliding hiatal hernia (most common) and Axia hiatal hernia
- ASSESSMENT FINDINGS IN HIATAL HERNIA

GASTROINTESTINAL SYSTEM

1. Heartburn
2. Regurgitation
3. Dysphagia
4. 50% without symptoms

- **DIAGNOSTIC TEST**
 - Barium swallow and fluoroscopy
- **NURSING INTERVENTIONS**
 1. Provide small frequent feedings
 2. AVOID spine position for 1 hour after eating
 3. Elevate the head of the bed on 8 inch block
 4. Provide pre-op and post-op care

ESOPHAGEAL VARICES

- Dilation and tortuosity of the submucosal veins in the distal esophagus
- **ETIOLOGY:** Commonly caused by PORTAL hypertension secondary to liver cirrhosis
- This is an emergency condition
- **ASSESSMENT FINDINGS FOR EV:**
 - Hematemesis
 - Melena
 - Ascites
 - Jaundice
 - Hepatomegaly/splenomegaly
- Signs of Shock -tachycardia, hypotension, tachypnea, cold clammy skin, narrowed pulse pressure
- **DIAGNOSTIC PROCEDURE:** Esophagoscopy
- **NURSING INTERVENTIONS**
 1. Monitor VS strictly. Note for signs of shock
 2. Monitor for LOC
 3. Maintain NPO
 4. Monitor blood studies
 5. Administer O2
 6. Prepare for blood transfusion
 7. Prepare to administer Vasopressin and Nitroglycerin
 8. Assist in NGT and Sengstaken-Blakemore tube insertion for balloon tamponade
 9. Prepare to assist in surgical management:
 - a. Endoscopic sclerotherapy
 - b. Variceal ligation
 - c. Shunt procedures

CONDITIONS OF THE STOMACH

GASTRO-ESOPHAGEAL REFLUX

- Backflow of gastric contents into the esophagus
- Usually due to incompetent lower esophageal sphincter, pyloric stenosis or motility disorder
- Symptoms may mimic ANGINA or MI

FACTORS CONTRIBUTING TO GASTROESOPHAGEAL REFLUX

1. Increased gastric volume (post meals)
2. Position pushing gastric contents close to gastroesophageal juncture (such as bending/lying down)
3. Increased gastric pressure (obesity or tight clothing)
4. Hiatal hernia

MANIFESTATIONS

- a. Heartburn after meals, while bending over, or recumbent
- b. May have regurgitation of sour materials in mouth, pain with swallowing
- c. Atypical chest pain
- d. Sore throat with hoarseness

COMPLICATIONS:

- A. Esophageal strictures, which can progress to dysphagia
- B. Barrett's esophagus: changes in cells lining esophagus with increased risk for esophageal cancer

DIAGNOSTIC TEST

- Endoscopy or barium swallow
- Gastric ambulatory pH analysis
 - Note for the pH of the esophagus, usually done for 24 hours
 - The pH probe is located 5 inches above the lower esophageal sphincter
 - The machine registers the different pH of the refluxed material into the esophagus

NURSING INTERVENTIONS

1. Instruct the patient to avoid stimulus that increases stomach pressure and decreases GES pressure

GASTROINTESTINAL SYSTEM

- Instruct to avoid spices, coffee, tobacco and carbonated drinks
- Instruct to eat **LOW-FAT, HIGH FIBER DIET**
- Avoid foods and drinks 2 hours before bedtime
- Elevate the head of the bed with an approximately 8 inch block
- Administer prescribed H₂-blockers, PPI and prokinetic meds like **CISAPRIDE, METOCHLOPRIMIDE**
- Advise proper weight reduction

MEDICATIONS:

- Antacids for mild to moderate symptoms, e.g, MAALOX, MYLANTA, GAVISCON
- H₂-receptor blockers:** decrease acid production given **BID** or more often, e.g, **cimetidine ranitidine, famotidine, nizatidine**
- Proton-pump inhibitors:** reduce gastric secretions, promote healing of esophageal erosion and relieve symptoms, e.g, **omeprazole** (prilosec); **lansoprazole** (prevacid) initially for 8 weeks; or 3-6 months
- Promotility agent:** enhances esophageal clearance and gastric emptying, e.g, metoclopramide (reglan)

BARRET'S ESOPHAGUS

- Result from long standing untreated GERD
- Precancerous condition that can lead to adenocarcinoma of the esophagus
- More common in middle aged men
- Heartburn and symptoms of peptic ulcer and esophageal strictures
- EGD

DIVERTICULUM

- Outpouching of mucosa and submucosa that protrude through weak portion of the musculature
- Zenker's diverticulum- most common and frequent in men older than 60 years old
- Dysphagia, fullness in the neck, belching, regurgitation of undigested food gurgling noises after eating

- Diverticulum becomes filled with food and regurgitate when assuming a recumbent position causing coughing
- Halitosis and sour taste is common
- Barium swallow
- Surgical removal of the diverticuli

CANCER OF THE ESOPHAGUS

- >3x more common in men
- Occurs in the fifth decade of life
- Chronic irritation, ingestion of alcohol and tobacco use
- GERD and Barrett's Esophagus
- Usually squamous cell epidermoid type

Pathophysiology

- Squamous cell carcinoma
 - Most common affecting middle or distal portion of esophagus
 - More common in African Americans than Caucasians
 - Risk factors cigarette smoking and chronic alcohol use
- Adenocarcinoma
 - Nearly as common as squamous cell affecting distal portion of esophagus
 - More common in Caucasians
 - Associated with Barrett's esophagus, complication of chronic GERD and achalasia

Manifestations

- Progressive dysphagia with pain while swallowing
- Choking, hoarseness, cough
- Anorexia, weight loss

Collaborative Care: Treatment goals

- Controlling dysphagia
- Maintaining nutritional status while treating carcinoma (surgery, radiation therapy, and/or chemotherapy)

Diagnostic Tests

- Barium swallow: identify irregular mucosal patterns or narrowing of lumen
- Esophagoscopy: allow direct visualization of tumor
- Chest xray, CT scans, MRI: determine tumor metastases

GASTROINTESTINAL SYSTEM

- d. Complete Blood Count: identify anemia
- e. Serum albumin: low levels indicate malnutrition
- f. Liver function tests: elevated with liver metastasis

Treatments: dependent on stage of disease, client's condition and preference

- a. Early (curable) stage: surgical restriction of affected portion with anastomosis of stomach to remaining esophagus; may also include radiation therapy and chemotherapy prior to surgery
- b. More advanced carcinoma: treatment is palliative and may include surgery, radiation and chemotherapy to control dysphagia and pain
- c. Complications of radiation therapy include perforation, hemorrhage, stricture

Nurse Diagnosis

- a. Imbalanced Nutrition: Less than body requirements (may include enteral tube feeding or parenteral nutrition in hospital and home)
- b. Anticipatory Grieving (dealing with cancer diagnosis)
- c. Risk for Ineffective Airway Clearance (especially during postoperative period if surgery was done)

GASTRITIS

- **Definition:** Inflammation of stomach lining from irritation of gastric mucosa (normally protected from gastric acid and enzymes by mucosal barrier)
- Inflammation of the gastric mucosa
- May be Acute or Chronic
- **Etiology:** Acute-bacteria, irritating foods, NSAIDS, alcohol bile and radiation
- **Etiology:** Chronic-Ulceration, bacteria, Autoimmune disease, diet, alcohol, smoking

a. Acute Gastritis

- 1. Disruption of mucosal barrier allowing hydrochloric acid and pepsin to have contact with gastric tissue: leads to

irritation, inflammation, superficial erosions

- 2. Gastric mucosa rapidly regenerates; self-limiting disorder

- **Cause of acute gastritis**

- a. Irritants include aspirin and other NSAIDS, corticosteroids, alcohol, caffeine
- b. Ingestion of corrosive substances: alkali or acid
- c. Effects from radiation therapy, certain chemotherapeutic agents

- **Erosive Gastritis:** form of acute which is stress-induced, complication of life-threatening condition (Curling's ulcer with burns); gastric mucosa becomes ischemic and tissue is then injured by acid of stomach

- **Chronic Gastritis**

- 1. Progressive disorder beginning with superficial inflammation and leads to atrophy of gastric tissues
- 2. Type A: autoimmune component and affecting persons of northern European descent; loss of hydrochloric acid and pepsin secretion; develops pernicious anemia
- 3. Type B: more common and occurs with aging; caused by chronic infection of mucosa by *Helicobacter pylori*; associated with risk of peptic ulcer disease and gastric cancer

Pathophysiology of Gastritis

- Insults > cause gastric mucosal > damage > inflammation, hyperemia and edema > superficial erosions > decreased gastric secretions, ulcerations and bleeding

Assessment (Acute)	Assessment (Chronic)
● Dyspepsia	● Pyrosis
● Headache	● Singultus
● Anorexia	● Sour taste in the mouth

GASTROINTESTINAL SYSTEM

<ul style="list-style-type: none"> ● Nausea/ Vomiting 	<ul style="list-style-type: none"> ● Dyspepsia
	<ul style="list-style-type: none"> ● N/V/ Anorexia
	<ul style="list-style-type: none"> ● Pernicious Anemia

DIAGNOSTIC PROCEDURE

- **EGD-** to visualize the gastric mucosa for inflammation
- Low levels of HCl
- Biopsy to establish correct diagnosis whether acute or chronic

NURSING INTERVENTIONS

1. Give BLANDS diet
 2. Monitor for signs of complications like bleeding, obstruction and pernicious anemia
 3. Instruct to avoid spicy foods, irritating foods, alcohol and caffeine
 4. Administer prescribed medications - H2 blockers, antibiotics, mucosal protectants
 5. Inform the need for Vitamin B12 injection if deficiency is present
- **Treatment:** Type B: eradicate H. pylori infection with combination therapy of two antibiotics (metronidazole and clarithromycin or tetracycline) and proton-pump inhibitor

PEPTIC ULCER DISEASE

- An ulceration of the gastric and duodenal lining
- May be referred as to location as Gastric ulcer in the stomach, or Duodenal ulcer in the duodenum
- Most common Peptic ulceration: anterior part of the upper duodenum

Definition and Risk Factor

- a. Break in mucous lining of GI tract comes into contact with gastric juice; affects 10% of US population

- b. Duodenal ulcers: most common; affect mostly males ages 30-55; ulcers found near pylorus
- c. Gastric ulcers: affect older persons (ages 55-70); found on lesser curvature and associated with increased incidence of gastric cancer
- d. Common in smokers, users of NSAIDS; familial pattern

PATHOPHYSIOLOGY OF PUD

- Disturbance in acid secretion and mucosal protection
 - Increased acidity or decreased mucosal resistance > erosion and ulceration
- **Pathophysiology**
 - a. Ulcers or breaks in mucosa of GI tract occur with
 1. H. pylori infection (spread by oral to oral, fecal-oral routes) damages gastric epithelial cells reducing effectiveness of gastric mucus
 2. Use of NSAIDS: interrupts prostaglandin synthesis which maintains mucous barrier of gastric mucosa
 - b. Chronic with spontaneous remissions and exacerbations associated with trauma, infection, physical or psychological stress

GASTRIC ULCER

- Ulceration of the gastric mucosa, submucosa and rarely the muscularis
- Risk factors:
 - Stress
 - Smoking
 - NSAIDS abuse
 - ALcohol
 - Helicobacter pylori infection
 - Type A personality and History of Gastritis
- Incidence is high in older adults
- Acid secretion is **NORMAL**
- **Zollinger Ellison Syndrome**
 - a. Peptic ulcer disease caused by gastrinoma (tumor in pancreas, stomach, or intestine which secretes gastrin)
 - b. Excess gastric acid leads to ulceration and often bleeding and perforation

GASTROINTESTINAL SYSTEM

- c. Excess hydrochloric acid production also leads to diarrhea and steatorrhea (excess fat in stools)

● ASSESSMENT

- Epigastric pain
 - Characteristic: Gnawing, sharp pain in the mid-epigastrium 1-2 hours **AFTER** eating, often **NOT RELIEVED** by food intake, sometime **AGGRAVATING** the pain
- Nausea
- Vomiting is more common
- Hematemesis
- Weight loss

● DIAGNOSTIC PROCEDURES

1. EGD to visualize the ulceration
2. Urea breath test for H. pylori infection
3. Biopsy - to rule out gastric cancer

● NURSING INTERVENTIONS

1. Give BLAND diet, small frequent meals during the active phase of the disease
2. Administer prescribed medications - H2 blockers, PPI, mucosal barrier protectants and antacids
3. Monitor for complications of bleeding, perforation and intractable pain
4. Provide teaching about stress reduction and relaxation techniques

● INTERVENTION FOR BLEEDING:

- Maintain on NPO
- Administer IVF and medications
- Monitor hydration status, hematocrit and hemoglobin
- Assist with SALINE lavage
- Insert NGT for decompression and lavage
- Prepare to administer blood transfusion
- Prepare to give VASOPRESSIN to induce vasoconstriction to reduce bleeding
- Prepare patient for SURGERY of warranted

● SPECIFIC MEDICATION INTERVENTIONS:

1. Proton-pump inhibitors often heal ulcers in 4 weeks
2. Histamine - 2 blockers are used for 8 weeks or longer to heal ulcers and can interact with other medications
3. Sulcralfate: binds to ulcer base forming protective barrier
4. Bismuth compounds (including Pepto-Bismol) stimulate mucosal bicarbonate and prostaglandin production to heal ulcers; antibacterial against H. pylori
5. Prostaglandin analogs (misoprostol): prevent NSAID - induced ulcers
6. Antacids: rapid relief of ulcer symptoms; need to be taken frequently and not with other medications, inexpensive

● SURGICAL PROCEDURES FOR PUD

- Total gastrectomy, vagotomy, gastric resection, Billroth I and II pyloroplasty

SURGICAL PROCEDURES FOR PUD

Post-operative Nursing Management:

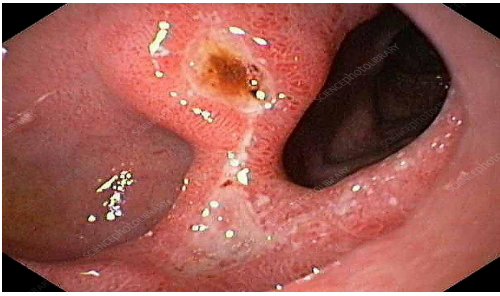
1. Monitor VS
2. Post-op position: FOWLERS
3. NPO until peristalsis returns
4. Monitor for bowel sounds
5. Monitor for complications of surgery
6. Monitor I and O, IVF
7. Maintain NGT
8. Diet progress: clear liquid→Full liquid→Six bland meals
9. Manage DUMPING SYNDROME

CONDITION OF THE DUODENUM

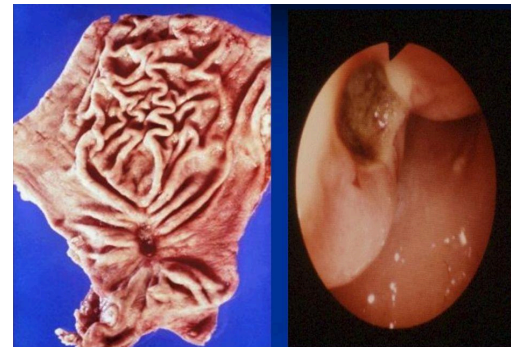
DUODENAL ULCER:

- Ulceration of duodenal mucosa and submucosa
- Usually due to increased gastric acidity
- Pain characteristic:
 - Burning pain in the mid-epigastrium 2-4 hours after eating or during the night, **RELIEVED** by food intake

GASTROINTESTINAL SYSTEM



Duodenal Ulcer	Gastric Ulcer
Pain occurs 90 min to 3h after meals; wakes up patients midnight to 3 am	Commonly pain occurs within a short time of food intake
Relieved by food, antacids, and H2 blockers; is not associated with vomiting (if atypical features occur think of complications)	Commonly accompanied by nausea, vomiting with food intake, and a variable response to medications
High gastric acid levels	Low gastric acid levels
H. pylori +++	H. pylori +++
Does not represent a malignancy	Malignancy +
Usually not accompanied by a high complication rate; when complications do occur it is usually pyloric stenosis or posterior penetration	25% of GUs will be accompanied by significant bleeding; higher mortality and morbidity than DUs



NURSING INTERVENTIONS

1. Same as for gastric ulceration
2. Patient teaching-avoid alcohol, smoking, caffeine and carbonated drinks
 - a. Take NSAIDs with meals
 - b. Adhere to medication regimen

CONDITIONS OF THE LOWER TRACT (Small and Large Intestine)

Conditions of the Small Intestine

CROHN'S DISEASE

- Also called Regional Enteritis
- An inflammatory disease of the GIT affecting usually the small intestine
- ETIOLOGY: Unknown
- The terminal ileum thickens, with scarring, ulcerations, abscess formation and narrowing of the lumen.

ASSESSMENT FINDINGS FOR CD

1. Fever
2. Abdominal distention
3. Diarrhea
4. Colicky abdominal pain
5. Anorexia/N/V

DIAGNOSTIC TESTS

- EGD and Biopsy



GASTROINTESTINAL SYSTEM

6. Weight loss
7. Anemia

Conditions of the Large Intestine

ULCERATIVE COLITIS

- Ulcerative and inflammatory condition of the GIT usually affecting the large intestine
- The colon becomes edematous and develops bleeding ulcerations
- Scarring develops overtime with impaired water absorption and loss of elasticity

ASSESSMENT FINDINGS FOR UC:

1. Anorexia
2. Weight loss
3. Fever
4. **SEVERE diarrhea with Rectal Bleeding**
5. Anemia
6. Dehydration
7. Abdominal pain and cramping

NURSING INTERVENTION FOR CD and UC:

1. Maintain NPO during the active phase.
2. Monitor for complications like severe bleeding, dehydration, electrolyte imbalance.
3. Monitor bowel sounds, stool and blood studies.
4. Restrict activities = rest and comfort
5. Administer IVF, electrolytes and TPN if prescribed.
6. Monitor complications of diarrhea.
7. Instruct the patient to AVOID gas-forming foods, MILK products and foods such as whole grains, nuts, RAW fruits and vegetables especially SPINACH, pepper, alcohol and caffeine.
8. Diet progression- clear liquid→LOW residue, high protein diet
9. Administer drugs- anti-inflammatory, antibiotics, steroids, bulk-forming agents and vitamin/iron supplements.

APPENDICITIS

- Inflammation of the vermiform appendix

- **ETIOLOGY:** usually fecalith, lymphoid hyperplasia, foreign body and helminthic obstruction
- **PATHOPHYSIOLOGY:**
 - Obstruction of lumen→increased pressure→decreased blood supply→bacterial proliferation and mucosal inflammation→ischemia→necrosis →rupture

ASSESSMENT FINDINGS FOR APPENDICITIS:

1. Abdominal pain: begins in the umbilicus then localizes in the RLQ (Mc Burney's point)
2. Anorexia
3. Nausea and Vomiting
4. Fever
5. Rebound tenderness and abdominal rigidity (if perforated)
6. Constipation or Diarrhea

DIAGNOSTIC TESTS:

1. CBC - reveals increased WBC count
2. Ultrasound
3. Abdominal X-ray

NURSING INTERVENTIONS

1. Preoperative Care

- a. NPO
- b. Consent
- c. Monitor for perforation and signs of shock
- d. Monitor bowel sounds, fever, and hydration status
- e. **POSITION of Comfort: RIGHT SIDELYING in a low FOWLERS**
- f. **Avoid Laxatives, enemas & HEAT APPLICATION**

2. Post-operative care

- a. Monitor VS and signs of surgical complications
- b. Maintain NPO until bowel function returns
- c. If rupture occurred, expect drains and IV antibiotics
- d. POSITION post op: **RIGHT side-lying, SEMI-FOWLERS to decrease tension on incision, and legs flexed to promote drainage**
- e. Administered prescribed pain medications

GASTROINTESTINAL SYSTEM

HEMORRHOIDS

- Abnormal dilation and weakness of the veins of the anal canal
- Various classified as Internal or External, Prolapsed, Thrombosed and Reducible
- **PATHOPHYSIOLOGY:**
 - Increased pressure in the hemorrhoidal tissue due to straining, pregnancy, etc→dilatation of veins

INTERNAL HEMORRHOIDS

- These dilated veins lie above the internal anal sphincter
- Usually, the condition is PAINLESS

EXTERNAL HEMORRHOIDS

- These dilated veins lie below the internal anal sphincter
- Usually, the condition is PAINFUL

ASSESSMENT FINDINGS FOR HEMORRHOIDS:

1. Internal hemorrhoids - cannot be seen on the peri-anal area.
2. External hemorrhoids - can be seen
3. Bright red bleeding with each defecation
4. Rectal/Periana pain
5. Rectal Itching
6. Skin tags

DIAGNOSTIC TEST:

1. Anoscopy
2. Digital Rectal Examination

NURSING INTERVENTIONS

PRE-OPERATIVE CARE:

1. Advise patient to apply cold packs to the anal/rectal area followed by a SITZ bath
2. Apply astringent like witch hazel soaks
3. Encourage HIGH-fiber diet and fluids
4. Administer stool softener as prescribed

POST-OPERATIVE CARE:

1. Position: Prone or Side-lying
2. Maintain dressing over the surgical site
3. Monitor for bleeding
4. Administer analgesics and stool softeners
5. Advise the use of SITZ bath 3-4 times a day

DIVERTICULOSIS AND DIVERTICULITIS

DIVERTICULOSIS

- Abnormal out-pouching of the intestinal mucosa occurring in any part of the LI most commonly in the sigmoid

DIVERTICULITIS

- Inflammation of the diverticulosis

PATHOPHYSIOLOGY:

- Increased intraluminal pressure, LOW volume in the lumen and Decrease muscle strength in the colon wall→herniation of the colonic mucosa

ASSESSMENT FINDINGS FOR D/D:

1. Left lower Quadrant pain
2. Flatulence
3. Bleeding per rectum
4. Nausea and Vomiting
5. Fever
6. Palpable, tender rectal mass

DIAGNOSTIC STUDIES

1. If no active inflammation, COLONOSCOPY and Barium Enema
2. CT scan is the procedure of choice
3. Abdominal X-ray

NURSING INTERVENTIONS

1. Maintain NPO during acute phase
2. Provide bed rest
3. Administer antibiotics, analgesics like meperidine (morphine is not used) and anti-spasmodics
4. Monitor for potential complications like perforation, hemorrhage and fistula
5. Increase fluid intake
6. Avoid gas-forming foods or HIGH roughage foods containing seeds, nuts to avoid trapping
7. Introduce soft, high fiber foods ONLY after the inflammation subsides
8. Instruct to avoid activities that increase intra-abdominal pressure

CONDITIONS OF THE GIT ACCESSORY ORGANS

THE LIVER

LIVER CIRRHOSIS

- A chronic, progressive disease characterized by a diffuse damage to the hepatic cells.
- The liver heals with scarring, fibrosis and nodular regeneration
 - a. End state of chronic liver disease
 - b. Progressive and irreversible
 - c. The tenth leading cause of death in the U.S.
- **ETIOLOGY:** Post-infection, Alcohol, Cardiac diseases, Schistosoma, Biliary obstruction
- **PATHOPHYSIOLOGY:**
 - a. Functional liver tissue gradually destroyed and replaced with fibrous scar tissue
 - b. As hepatocytes are destroyed, metabolic function are lost
 - c. Blood and bile flow within liver is disrupted
 - d. Portal hypertension develops

Alcoholic Cirrhosis (Laennec's cirrhosis)

- a. Alcohol causes metabolic changes in liver leading to fatty infiltration (stage in which abstinence from alcohol could allow liver to heal)
- b. With continued alcohol abuse, inflammatory cells infiltrate liver causing necrosis, fibrosis and destruction of liver tissue
- c. Regenerative nodules form, liver shrinks and is nodular
- d. Malnutrition commonly present

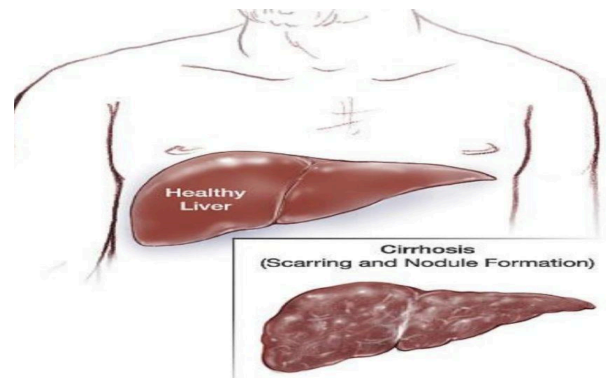
Biliary Cirrhosis

- Bile flow is obstructed and is retained within the liver causing inflammation, fibrosis and regenerative nodules to form.

Posthepatic Cirrhosis

- Chronic hepatitis B or C and unknown cause leads to liver shrinkage and nodule formation with extensive liver cell loss and fibrosis

Liver physiology and Pathophysiology	
Normal Function	Abnormality in function
1. Stores glycogen	= Hypoglycemia
2. Synthesizes proteins	= Hypoproteinemia
3. Synthesizes globulins	= Decreased Antibody formation
4. Synthesizes Clotting factors	= Bleeding tendencies
5. Secreting bile	= Jaundice and pruritus
6. Converts ammonia to urea	= Hyperammonemia
7. Stores Vit and minerals	= Deficiencies of Vit and min
8. Metabolizes estrogen	= Gynecomastia, testes atrophy



● MANIFESTATIONS:

- a. Early: liver enlargement and tenderness, dull ache in RUQ, weight loss, weakness, anorexia, diarrhea or constipation
- b. Progress to impaired metabolism causing bleeding, ascites, gynecomastia in men, infertility in women, jaundice, neurological changes, peripheral edema, anemia, low WBC and platelets

ASSESSMENT FINDINGS:

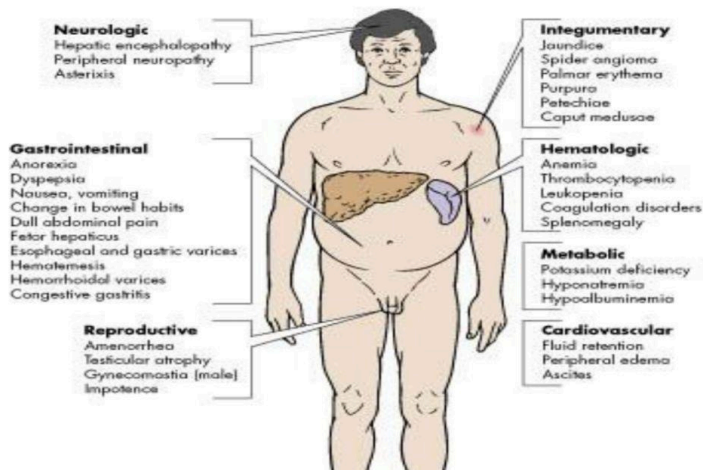
1. Anorexia and weight loss
2. Jaundice
3. Fatigue
4. Early morning nausea and vomiting
5. RUQ abdominal pain
6. Ascites
7. Signs of Portal Hypertension

COMPLICATIONS:

- a. Portal hypertension: shunting of blood to collateral blood vessels leading to engorged veins in esophagus, rectum and abdomen, ascites
- b. Splenomegaly: anemia, leucopenia, thrombocytopenia

GASTROINTESTINAL SYSTEM

- c. Ascites: accumulation of abdominal fluid rich on protein; hypoalbuminemia, sodium and water retention
- d. Esophageal varices: thin walled dilated veins in esophagus which may rupture leading to massive hemorrhage
- e. Hepatic encephalopathy: from accumulated neurotoxins in blood; ammonia produced in gut is not converted to urea and accumulates in blood; medications may not be metabolized and add to mental changes including personality changes, slowed mentation, asterixis (liver flap); progressing to confusion, disorientation and coma
- f. Hepatorenal syndrome: renal failure with azotemia



DIAGNOSTIC TESTS:

- a. Liver function tests (ALT, AST, alkaline phosphatase, GGT); elevated, but not as high as with acute hepatitis
- b. CBC and platelets: anemia, leucopenia, thrombocytopenia
- c. Prothrombin time: prolonged (impaired coagulation due to lack of Vitamin K)
- d. Serum electrolytes: deficiencies in sodium, potassium, phosphate, magnesium
- e. Bilirubin: elevated
- f. Serum albumin: hypoalbuminemia
- g. Serum ammonia: elevated
- h. Serum glucose and cholesterol
- i. Abdominal ultrasound: evaluation of liver size and nodularity, ascites
- j. Upper endoscopy: diagnose and possibly treat esophageal varices
- k. Liver biopsy: may be done to diagnose cirrhosis; may be deferred if bleeding times are elevated

NURSING INTERVENTIONS

1. Monitor VS, I and O, Abdominal girth, weight, LOC, and bleeding
2. Promote rest. Elevate the head of the bed to minimize dyspnea
3. Provide moderate to LOW-protein (1g/kg/day) and LOW-sodium diet 75-100 gms/day
4. Provide supplemental vitamins (especially K) and minerals
 - a. Medications are used to treat complications and effects of cirrhosis; all liver toxic drugs (Sedatives, hypnotics, acetaminophen) and alcohol must be avoided
 - b. Diuretics: Spironolactone (Aldactone) (works against increased aldosterone levels), furosemide (Lasix)
 - c. Medications to decrease manifestations of hepatic encephalopathy by reducing number of ammonia forming bacteria in bowel
- d. Page 284 (hindi ko masilayan ang d syug)
- e. Ferrous sulfate and folic acid to treat anemia
- f. Vitamin K to reduce risk of bleeding
- g. Antacids to decrease risk of acute gastritis
- h. Oxazepam (Serax) benzodiazepine anti-anxiety/sedative drug not metabolized by liver; used to treat acute agitation
5. Administer prescribed:
 - Diuretics = to reduce ascites and edema
 - Lactulose = to reduce NH₄ in the bowel
 - Antacids and Neomycin = to kill bacterial flora that cause NH₄ production
6. Avoid hepatotoxic drugs
 - Paracetamol
 - Anti-tubercular drugs
7. Reduce the risk of injury
 - Side rails reorientation
 - Assistance in ambulation

GASTROINTESTINAL SYSTEM

- Use of electric razor and soft-bristled toothbrush

8. Keep equipment ready including **Sengstaken-Blakemore tube**, IV fluids, Medications to treat hemorrhage

CONDITION OF THE LIVER

Nursing Interventions	Rationale
1. Low sodium Diet	To reduce edema
2. Low protein diet	To reduce NH production
3. Benadryl and mild soap	To relieve pruritus
4. Pressure onto injection site	To prevent bleeding
5. Assist in paracentesis	Done to relieve abdominal pressure
6. Administer Medications:	
■ Diuretics, Neomycin, Lactulose	
■ Albumin, Amino acid	
■ Vitamin K (menadione)	

NURSING CARE

- a. Health promotion includes education about relationship of alcohol and drug abuse with liver disorders; avoidance of vital hepatitis
- b. Home care includes teaching family to participate in disease management, possible hospice care

NURSING DIAGNOSIS

- a. Excess Fluid Volume
- b. Disturbed Thought Processes: Early identification of encephalopathy and appropriate interventions, i.e. client safety, avoidance of hepatotoxic medications, low-protein diet, medications to treat
- c. Ineffective Protection: Risks associated with impaired coagulation, esophageal varices, acute gastritis
- d. Impaired Skin Integrity: Bile deposits on skin cause severe pruritus; topical treatments
- e. Imbalanced Nutrition: Less than body requirements

CANCER OF THE LIVER

BACKGROUND

- a. Primary liver cancer is uncommon in the U.S.
- b. Common cancer worldwide

- c. Usually advanced at time of diagnosis with poor prognosis

PATHOPHYSIOLOGY

- a. Most primary cancers arise from liver parenchymal cells
- b. Incidence is linked to alcoholic cirrhosis and chronic hepatitis B or C
- c. Tumor interferes with normal hepatic function causing biliary obstruction, portal hypertension, and metabolic disruption
- d. Tumors grow rapidly and metastasize early

MANIFESTATIONS

- a. Insidious at first and masked by chronic hepatitis or cirrhosis
- b. Abdominal pain and mass in RUQ often presenting symptoms

DIAGNOSTIC TESTS

1. **Tumors identified** by CT scan or MRI
2. Liver biopsy may be done to identify the tumor type
3. Serum AFP (alpha-fetoprotein) rises with hepatocellular cancer

TREATMENT

1. Small, localized tumor may be resected surgically but often cancer has metastasized when diagnosed
2. Radiation therapy may be used to shrink tumor
3. Chemotherapy including direct continuous hepatic artery infusion

NURSING CARE

1. Client needs to avoid hepatotoxic drugs and alcohol
2. Focus of care is on pain control; early referral to hospice

LIVER TRAUMA

PATHOPHYSIOLOGY

- a. Blunt or penetrating trauma as with motor vehicle accidents, gunshot or stab wounds can damage liver
- b. Bleeding is usually the primary problem, but may not be immediately apparent (liver is very vascular)

GASTROINTESTINAL SYSTEM

- c. Includes hematoma on surface or within parenchyma, liver laceration or disruption of vessels attached to liver

- ↓
○ Inflammation, Mucosal Damage and WBC infiltration

COLLABORATIVE CARE

- Diagnostic tests: Diagnostic peritoneal lavage with CT scan, CBC
- Treatment: May include immediate surgery and/or treatment to restore blood volume and promote hemostasis including intravenous fluids, blood and clotting products

NURSING DIAGNOSIS

- Deficient Fluid Volume: related to hemorrhage
- Risk for Infection: related to wound or abdominal contamination
- Altered Protection: related to impaired coagulation

CONDITIONS OF THE GALLBLADDER

THE GALLBLADDER CHOLECYSTITIS

- Inflammation of the gallbladder
- Can be acute or chronic
- Acute cholecystitis** usually is due to gallbladder stones
- Chronic cholecystitis** is usually due to long standing gallbladder inflammation

CHOLELITHIASIS

- Formation of GALLSTONES in the biliary apparatus
- Predisposing FACTORS:**
 - “F”
 - Female
 - Fat
 - Forty
 - Fertile
 - Fair
- PATHOPHYSIOLOGY:**
 - Supersaturated bile, Biliary stasis
↓
 - Stone formation
↓
 - Blockage of Gallbladder

ASSESSMENT FINDINGS FOR CHOLECYSTITIS:

- Indigestion, belching and flatulence
- Fatty food intolerance
- Epigastric pain that radiates to the scapula or localized at the RUQ
- Mass at the RUQ
- Murphy's sign
- Jaundice
- Dark orange and foamy urine

DIAGNOSTIC PROCEDURES

- Ultrasonography - can detect the stones
- Abdominal X-ray
- Cholecystography
- WBC count increased
- Oral cholecystography cannot visualize the gallbladder
- ERCP: Reveals inflamed gallbladder with gallstone

NURSING INTERVENTIONS

- Maintain NPO in the active phase
- Maintain NGT decompression
- Administer prescribed medications to relieve pain. **Usually Demerol (MEPERIDINE)**
 - Codeine and Morphine may cause spasm of the Sphincter→increased pain. **Morphine** cause **MOREPAIN**
- Instruct patient to **AVOID HIGH-fat diet and GAS-forming foods**
- Assist in surgical and non-surgical measures
- Surgical procedures - Cholecystectomy, Choledochotomy, laparoscopy

PHARMACOLOGIC THERAPY

- Analgesic - Meperidine
- Chenodeoxycholic acid - to dissolve the gallstones
- Antacids
- Anti-emetics

NURSING INTERVENTIONS

Post-operative Nursing Intervention:

- Monitor for surgical complications

GASTROINTESTINAL SYSTEM

2. Post-operative position after recovery from anesthesia - LOW FOWLERS
3. Encourage early ambulation
4. Administer medication before coughing and deep breathing exercises
5. Advise client to splint the abdomen to prevent discomfort during coughing
6. Administer analgesics, antiemetics, antacids
7. Care of the biliary drainage or T-tub drainage
8. Fat restriction is only limited to 4-6 weeks. Normal diet is resumed.

CONDITION OF THE PANCREAS

THE PANCREAS: EXOCRIN FUNCTION

PANCREATITIS

- Inflammation of the pancreas
- Can be acute or chronic
- ETIOLOGY and PREDISPOSING FACTORS:
 - **Alcoholism**
 - Hypercalcemia
 - Trauma
 - **Hyperlipidemia**
 - Biliary tract disease - cholelithiasis
 - Bacterial disease
 - PUD
 - Mumps
- PATHOPHYSIOLOGY:
 - Self-digestion of the pancreas by its own digestive enzymes principally TRYPSIN
 - Spasm, edema or block in the Ampulla of Vater→reflux of proteolytic enzymes→auto digestion of the pancreas→inflammation

ACUTE PANCREATITIS

1. Interstitial pancreatitis: milder form leading to inflammation and edema of pancreatic tissue; often self-limiting
2. Necrotizing pancreatitis: inflammation, hemorrhage, and necrosis of pancreatic tissue
 - a. With pancreatitis, large volume of fluid shifts from circulation into retroperitoneal space, peripancreatic space, abdominal cavity

PATHOPHYSIOLOGY

- Autodigestion of pancreatic tissue
- ↓
- Hemorrhage, Necrosis and Inflammation
- ↓
- KININ ACTIVATION will result to increased permeability
- ↓
- Loss of Protein-rich fluid into the peritoneum HYPIVOLEMIA

ASSESSMENT FINDINGS:

1. Abrupt onset of continuous severe epigastric and abdominal pain, radiating to back and relieved somewhat by sitting up and leaning forward; initiated by fatty meal or alcohol intake
 - a. Abdominal pain - acute onset, occurring after heavy meal or alcohol intake
2. Abdominal guarding
3. Bruising on the flanks and umbilicus
4. N/V
5. Hypotension and hypovolemia
6. Signs of shock
7. Fever, cold, and clammy skin
8. 24 hours later: jaundice
9. 3 to 6 days: retroperitoneal bleeding, bruising in flanks (Turner sign) or around umbilicus (Cullens sign)

DIAGNOSTIC TESTS

1. Serum amylase and serum lipase
2. Ultrasound
3. WBC
4. Serum calcium
5. CT scan
6. Hemoglobin and hematocrit

NURSING INTERVENTION

1. Assist in pain management. Usually, Demerol is given. Morphine is AVOIDED
2. Assist in correction of Fluid and Blood loss
 - a. Complications: Intravascular volume depletion leads to
 - i. 1 Acute tubular necrosis
 - ii. 2 Acute respiratory distress syndrome (ARDS): 3-7 days pos

GASTROINTESTINAL SYSTEM

- iii. 3 Local complications of pancreatic necrosis, abscess, pseudocysts, pancreatic ascites

CHRONIC PANCREATITIS

1. Characterized by gradual destruction of functional pancreatic tissue
2. Irreversible process
3. Primary risk is alcoholism
4. 10-20% idiopathic

MANIFESTATIONS

1. Recurrent episodes of epigastric and LUQ abdominal pain radiating to back, pain lasts from days to week increased frequency
2. Anorexia, nausea and vomiting, weight loss, flatulence, constipation, and steatorrhea (fatty, frothy, foul-smelling stools)

COMPLICATIONS

1. Malabsorption, malnutrition, peptic ulcer disease
2. Pancreatic pseudocyst or abscess, stricture of common bile duct
3. Diabetes mellitus
4. Increased risk for pancreatic cancer
5. Risk of narcotic addiction

COLLABORATIVE CARE

- a. Acute pancreatitis is usually mild, self-limiting disease with care focused on eliminating causative factors, reducing pancreatic secretions, supportive care
- b. Severe necrotizing pancreatitis required intensive care management
- c. Chronic pancreatitis focuses on pain management and treatment of malabsorption and malnutrition

TREATMENT

- a. Acute pancreatitis is supportive and includes hydration, pain control, and antibiotics
- b. Chronic pancreatitis includes pain management without causing drug dependence

NURSING INTERVENTIONS

1. Place patient on NPO to inhibit pancreatic stimulation
2. NGT insertion to decompress distention and remove gastric secretions
3. Maintain on bed rest
4. Position patient in SEMI-FOWLERS to decrease pressure on the diaphragm
5. Deep breathing and coughing exercises
6. Provide parenteral nutrition
7. Introduce oral feedings gradually - HIGH carbo, LOW fat
8. Maintain skin integrity
9. Manage shock and other complications
10. Medications may include:
 - a. Pancreatic enzyme supplements to reduce steatorrhea
 - b. H2 blockers or proton pump inhibitors to decrease gastric secretions
 - c. Octreotide (Sandostatin) to suppress pancreatic secretion

NURSING DIAGNOSIS

- a. Pain
- b. Impaired Nutrition: Less than body requirement
- c. Risk for Deficient Fluid Volume
- d. Home Care: Client and Family teaching to include prevention of future attacks including abstinence from alcohol and smoking; low fat diet; monitoring for signs of infection (as with abscess formation)

QUICK SUMMARY (pg 350)

PEPTIC ULCER

- Ulceration of mucosa; In the stomach or duodenum
- Outstanding Symptom: **PAIN**
- Nursing Goal:** Allow ulcer to heal, prevent complication
- Rest:** Physical and Mental
- Eliminate certain foods
- Medications:** Antacid, H2 blockers, Proton Pump inhibitors, antibiotics, mucosal protectants
- Surgery:** Vagotomy, Billroth 1 and 2

GASTROINTESTINAL SYSTEM

LIVER CIRRHOSIS

- Destruction of liver with replacement by scars
- Common causes:** Alcoholism, post-hepatic
- Manifestations related to liver derangements
- Jaundice, Ascites, splenomegaly, bleeding, enceph
- Nursing Goal:** Control manifestations and maximize liver function
- Encourage rest
- Avoid hepatotoxic drugs
- Diet:**
 - HIGH** calorie
 - Restricted** protein
 - LOW** Na
- Weight client and measure abdominal girth daily
- Provide skin care for jaundice and edema
- Assess for bleeding: esophageal, rectal, cutaneous
- DRUGS:** Antacids, Diuretics, Albumin, Neomycin and Lactulose

CHOLECYSTITIS

- Inflammation of the gallbladder commonly caused by cholelithiasis (Female, Fat, Forty, Fertile, Fair)
- Manifestations:** Fat intolerance, RUQ pain, Nausea and Vomiting, Jaundice, Murphys sign
- Nursing Goal:** Relieve symptoms and assist in stone removal
- Administer MEPERIDINE, avoid morphine
- Maintain Fluid and electrolyte balance
- Maintain a LOW fat diet
- Semi-fowlers position
- Care of the T-tube

PANCREATITIS

- Inflammation of the pancreas brought about by the digestion of the organ by the enzyme it produces
- Common causes:** Alcoholism, stone
- Manifestations:** Extreme upper abdominal pain radiating into the back, vomiting,

nausea, Abdominal distention, Steatorrhea and weight loss

- Laboratory: ELEVATED** lipase and amylase
- Nursing Goal: relieve symptoms, maintain blood volume and GIT rest
- NPO
- Provide IVF and parenteral nutrition
- Drugs: MEPERIDINE, never morphine, Antacids, Anticholinergics
- After Acute Phase: LOW fat diet, avoid alcohol, fat and vitamin replacements

CLIENT WITH PERITONITIS

- Inflammation of peritoneum, lining that covers wall (parietal peritoneum) and organs (visceral peritoneum) of abdominal cavity
- Enteric bacteria enter the peritoneal cavity through a break of intact GI tract (e.g., perforated ulcer, ruptured appendix)

PATHOPHYSIOLOGY

- a. Peritonitis results from contamination of the normal sterile peritoneal cavity with infections or chemical irritants.
- b. Release of bile or gastric juices initially causes chemical peritonitis; infection occurs when bacteria enter the space.
- c. Bacterial peritonitis usually caused by these bacteria (normal bowel flora): Escherichia coli, Klebsiella, Proteus, Pseudomonas
- d. Inflammatory process causes fluid shift into peritoneal space (third spacing); leading to hypovolemia, then septicemia.

MANIFESTATIONS

- Dependent on severity and extent of infection, age and health of client. Presents with "Acute abdomen"
1. Abrupt onset of diffuse, severe abdominal pain
 2. Pain may localize near site of infection (may have rebound tenderness)
 3. Intensifies with movement
 4. Entire abdomen is tender with boardlike guarding or rigidity of abdominal muscle

GASTROINTESTINAL SYSTEM

- Decreased peristalsis leading to paralytic ileus; bowel sounds are diminished or absent with progressive abdominal distention; pooling of GI secretions lead to nausea and vomiting

COMPLICATIONS

- May be life-threatening; mortality rate overall 40%
- Abscess
- Fibrous adhesions
- Septicemia, septic shock; fluid loss into abdominal cavity leads to hypovolemic shock

DIAGNOSTIC TESTS

- WBC with differential: elevated WBC to 20,000; shift to left
- Blood cultures: identify bacteria in blood
- Liver and renal function studies, serum electrolytes: evaluate effects of peritonitis
- Abdominal x-rays: detect intestinal distention, air-fluid levels, free air under diaphragm (sign of GI perforation)
- Diagnostic paracentesis

MEDICATIONS

A. Antibiotics

- Broad-spectrum before definitive culture results identifying specific organism(s) causing infection
- Specific antibiotics treating causative pathogens

B. Analgesics

SURGERY

- Laparotomy to treat cause (close perforation, removed inflamed tissue)
- Peritoneal Lavage: washing out peritoneal cavity with copious amounts of warm isotonic fluid during surgery to dilute residual bacteria and remove gross contaminants
- Often have drain in place and/or incision left unsutured to continue drainage

TREATMENT

- Intravenous fluids and electrolytes to maintain vascular and electrolyte balance

- Bed rest in Fowler's position to localize infection and promote lung ventilation
- Intestinal decompression with nasogastric tube or intestinal tube connected to suction
- Relieves abdominal distension secondary to paralytic ileus
- NPO with intravenous fluids while having nasogastric suction

CANCER OF STOMACH

- Adenocarcinoma most common form involving mucus-producing cells of stomach in distal portion
- Begins as localized lesion (in situ) progresses to mucosa; spreads to lymph nodes and metastasizes early in disease to liver, lungs, ovaries, peritoneum

RISK FACTORS

- H. pylori infection
- Genetic predisposition
- Genetic predisposition
- Chronic gastritis, pernicious anemia, gastric polyps
- Achlorhydria (lack of hydrochloric acid)
- Diet high in smoked foods and nitrates

MANIFESTATIONS

- Disease often advanced with metastasis when diagnosed
- Early symptoms are vague: early satiety. Anorexia, indigestion, vomiting, pain after meals not responding to antacids
- Later symptoms weight loss, cachexia (wasted away appearance), abdominal mass, stool positive for occult blood

COLLABORATIVE CARE

- Support client through testing
- Assist client to maintain adequate nutrition

DIAGNOSTIC TESTS

- CBC indicates anemia
- Upper GI series, ultrasound identifies a mass
- Upper endoscopy: visualization and tissue biopsy of lesion

TREATMENT

GASTROINTESTINAL SYSTEM

- Surgery if diagnosis made prior to metastasis
 1. Partial gastrectomy with anastomosis to duodenum: Billroth I or gastroduodenostomy
 2. Partial gastrectomy with anastomosis to jejunum: Billroth II or gastrojejunostomy
 3. Total gastrectomy (if cancer diffuse but limited to stomach) with esophagojejunostomy
- Radiation and/or chemotherapy to control metastatic spread
- Palliative treatment including surgery, chemotherapy; client may have gastrostomy or jejunostomy tube inserted

COMPLICATIONS ASSOCIATED WITH GASTRIC SURGERY:

1. Dumping Syndrome
2. Anemia: iron deficiency and/or pernicious
3. Folic acid deficiency
4. Poor absorption of calcium, vitamin D

PANCREATIC CANCER

- Accounts for 2% of cancers; most are adenocarcinoma; most common site is head of the pancreas
- Very lethal death within 1-3 years after diagnosis
- Incidence increases after age 50; slightly higher in females; and slightly higher African Americans

RISK FACTORS

- a. Smoking
- b. Chemical or Environmental toxins
- c. High fat diet
- d. Chronic pancreatitis
- e. Diabetes Mellitus

MANIFESTATIONS

- a. Usually nonspecific; up to 85% persons seek health care with advanced case
- b. **Slow onset:** anorexia, nausea, weight loss, flatulence, dull epigastric pain
- c. Cancer in head of pancreas causes bile obstruction resulting in jaundice, clay colored stools, dark urine, pruritus

- d. **Late:** Palpable mass and ascites

TREATMENT

- a. Surgery is indicated in early cancers
- b. Pancreatoduodenectomy (Whipples procedure)
- c. Radiation and chemotherapy

CANCER OF THE LIVER

- Common cancer worldwide
- Usually advanced at time of diagnosis with poor prognosis
 - a. Most primary cancers arise from liver parenchymal cells
 - b. Incidence is linked to alcoholic cirrhosis and chronic hepatitis B or C
 - c. Tumor interferes with normal hepatic function causing biliary obstruction, portal hypertension, and metabolic disruption
 - d. Tumors grow rapidly and metastasize early

MANIFESTATIONS

- a. Insidious at first and masked by chronic hepatitis or cirrhosis
- b. Abdominal pain and mass in RUQ often presenting symptoms

DIAGNOSTIC TESTS

1. Tumors identified by CT scan or MRI
2. Liver biopsy may be done to identify the tumor type
3. Serum AFP (alpha-fetoprotein) rises with hepatocellular cancer

TREATMENT

- Small, localized tumor may be resected surgically but often cancer has metastasized when diagnosed
- Radiation therapy may be used to shrink tumor
- Chemotherapy including direct continuous hepatic artery infusion

CLIENT WITH COLORECTAL CANCER

- Third most common cancer diagnosed
- Affects sexes equally

GASTROINTESTINAL SYSTEM

- Five-year survival rate is 90%, with early diagnosis and treatment
- Large intestine and rectum most common GI site affected by cancer
- Most malignancies begin as adenomatous polyps and arise in rectum and sigmoid
- Spread by direct extension to involve entire bowel circumference and adjacent organs
- Metastasize to regional lymph nodes via lymphatic and circulatory systems to liver, lungs, brain, bones, and kidneys

RISK FACTORS

- a. Family history
- b. Inflammatory bowel disease
- c. Diet high in Fat, calories, protein

MANIFESTATIONS

- a. Often produces no symptoms until it is advanced
- b. Presenting manifestation is bleeding; also change in bowel habits (diarrhea or constipation); pain, anorexia, weight loss, palpable abdominal or rectal mass; anemia

COMPLICATIONS

- a. Bowel obstruction
- b. Perforation of bowel by tumor, peritonitis
- c. Direct extension of cancer to adjacent organs; recurrences within 4 years

COLLABORATIVE CARE

- Focus is on early detection and intervention
- Screening
- Digital rectal exam beginning at age 40, annually
- Fecal occult blood testing beginning at age 50, annually
- Colonoscopies or sigmoidoscopies beginning at age 50, every 3-5 years

DIAGNOSTIC TESTS

- a. **CBC:** anemia from blood loss, tumor growth
- b. **Fecal occult blood** (guaiac or hemoccult testing): all colorectal cancers bleed intermittently
- c. **Carcinoembryonic antigen (CEA):** not used as screening test, but is a tumor marker

and used to estimate prognosis, monitor treatment, detect recurrence

- d. **Colonoscopy or sigmoidoscopy:** tissue biopsy of suspicious lesions, polyps
- e. **Chest xray, CT scans, MRI, ultrasounds:** to determine tumor depth, organ involvement, metastasis

SURGERY

- Surgical resection of tumor, adjacent colon, and regional lymph nodes is treatment of choice
- Whenever possible anal sphincter is preserved and colostomy avoided; anastomosis of the remaining bowel is performed
- Tumors of rectum are treated with abdominoperineal resection (A-P resection) in which sigmoid colon, rectum, and anus are removed through abdominal and perineal incisions and permanent colostomy created

COLOSTOMY

1. Ostomy made in colon if obstruction from tumor
 - a. Temporary measure to promote healing of anastomoses
 - b. Permanent means for fecal evacuation if distal colon and rectum removed
- **Radiation therapy**
 - a. Used as adjunct with surgery; rectal cancer has high rate of regional recurrence if tumor outside bowel wall or in regional lymph nodes
 - b. Used preoperatively to shrink tumor
- **Chemotherapy:** Used postoperatively with radiation therapy to reduce rate of rectal tumor recurrence and prolong survival

NURSING CARE

- a. Prevention is primary issue
- b. Client teaching
- c. Diet:
 - i. Decrease amount of fat, Refined sugar, Red meat
 - ii. Increase amount of fiber

- iii. Diet high in fruits and vegetables, whole grains, legumes

CLIENT WITH HERNIA

- Defect in abdominal wall that allows abdominal contents to protrude out of abdominal cavity

RISK FACTORS

- a. Trauma
- b. Surgery
- c. Increased intra-abdominal pressure from pregnancy, obesity, weight lifting, tumors
- d. May be congenital (Defect present at birth) or acquired (weakening of normal abdominal musculature)

1. Reducible hernia

- a. Abdominal contents (peritoneum, bowel, other organs) protrude through abdominal wall to form a sac covered by skin and subcutaneous tissues
- b. Contents return inside when pressure returns to normal or when manual pressure applied

2. Incarcerated Hernia - Contents of hernia cannot be returned to abdominal cavity

3. Strangulated Hernia - Blood supply to bowel contents in hernia is compromised leading to necrosis, untreated can result in perforation and peritonitis

CLASSIFICATION OF HERNIAS ACCORDING TO LOCATION

A. INGUINAL HERNIA: Occur in the Groin

- 1. **Indirect:** Occurs congenitally; sac of abdominal contents protrudes through internal inguinal ring into inguinal canal; may descend into scrotum
- 2. **Direct:** Acquired defects from weakness of posterior inguinal wall
- 3. Often cause lump in groin while lifting or straining

B. FEMORAL HERNIA:

- 1. Peritoneal sac protrudes through femoral ring
- 2. Common in pregnant or obese women

C. UMBILICAL HERNIA: congenital or acquired

- 1. More common in females
- 2. Risk factors include multiple pregnancies, ascites, abdominal tumors
- 3. Prone to strangulation

D. INCISIONAL or VENTRAL HERNIA

- 1. Occur at previous surgical incision or post abdominal tear
- 2. Risk factors include poor wound closure or infection, age, debility, obesity, poor nutrition, excessive incisional stress

COLLABORATIVE CARE

- a. Diagnosis made upon physical examination
- b. Felt when client coughs or bears down

SURGERY

- a. Herniorrhaphy: surgical repair of hernia done electively and prevents incarceration, strangulation, perforation; often done as out-patient surgery
- b. Abdominal wall defect closed by suture and may have mesh inserted over defect
- c. Incarcerated or painful hernia necessitates emergency surgical repair; if infarcted bowel involved may necessitate bowel restriction
- d. Post-operatively heavy lifting and manual work restricted for 3 weeks
- e. For hernias not surgically repaired: Client may be taught to reduce by lying down and pushing gently against mass, or by wearing truss or binder to control protrusion of hernia

NURSING CARE

- Focus for clients with hernias not surgically repaired.
 - 1. Teaching to prevent complications
 - 2. Seeking medical attention if strangulation occurs

3. Post operative care for clients who have had hernia repair
4. No activities to increase intra-abdominal pressure while healing
5. Usual care including pain management, asepsis, optimal nutrition