Anatomy and Physiology of The G.I.

- GI system begins with the mouth and ends at the anus.
- Divided into the Upper & Lower GI tract along with Accessory Structures.
- Function - digestion & distribution of food.

Upper GI Tract: Mouth, Esophagus, Stomach

- Mouth:
  - Food chewed (masticated), salivary gland secretions amylase that acts on starch
- Esophagus:
  - Begins at the base of pharynx ends at the opening between the esophagus & stomach.
Upper GI Tract: Mouth, Esophagus, Stomach

- A sphincter (upper esophageal or hypopharyngeal) keeps food or fluid from re-entering the pharynx.

* Stomach:
  - Holds ingested food temporarily, uses mechanical & chemical action to mix food with digestive enzymes to make a semi-liquid (chyme) which passes through the pyloric sphincter into the duodenum.

Lower GI tract = Small Intestines - duodenum, jejenum & ileum
Large Intestines - ascending colon, transverse colon, descending colon, sigmoid colon, rectum, anus

Accessory Structures:

- Peritoneum – not a structure but encloses the abdominal organs
- Liver:
  - The largest glandular organ
  - It forms and releases bile, process vits, proteins, fats and CHO, stores glycogen, contributes to blood coagulation, metabolizes chemicals (including drugs), bacteria & foreign matter, forms antibiotics & immunizing substances.
Accessory Structures:

• Gallbladder
  – Stores bile and release it when food is ingested (especially fatty food)

• Pancreas:
  – Endocrine - produces the hormones insulin & glucagon
  – Exocrine - produces various protein, fat, & carbohydrate - digesting enzymes

Assessment

• History
  – Identify specific problem and its causes
  – Includes chief complaint, past history, and a focus assessment of current nutritional, metabolic, and elimination patterns
  – History of weight loss or gain
  – Gather data about why the client has sought treatment and current symptoms

Assessment

– GI assessment
– Assess past medical and surgical disorders and their treatment; family history; work history; allergy history; medication
Physical Examination

• General Appearance
  – Assess overall physical condition
  – Evaluate general appearance: Age, Wt., height, hygiene, energy, breathing pattern, emotional attitude, and mental status

• Skin
  – Inspect: Abnormal color—jaundiced; sclera; skin of the face and abdomen—spider angiomas and scars
  – Assess dryness of the oral mucosa and skin turgor.
  – In dark skin patient inspect
    • Gums, conjunctiva for cyanosis
    • Sclera and hard palate for jaundice

Physical Examination

• Mouth
  – Examine lips, tongue for sores, cracks, lesions, moisture, etc. Check for missing teeth or dentures for fit.

• Abdomen
  – Supine position
  – Inspection
  – Auscultation
  – Palpation
  – Percussion

Abdominal Assessment

  – Quadrants: Umbilicus—the center point
  – Inspect: Abdomen’s contour (flat, round, concave, or distended); effort associated with breathing. Distention may cause dyspnea;
  – Auscultation: listen to bowel sounds for a full 5min in each quadrant to confirm absence BS
  – BS may be active, hypoactive, hyperactive, or absent
Physical Examination

- Measurement of abdominal girth; percussion of the abdomen; abdominal palpation; probing lower liver margin

- Anus
  - Inspect and palpate for hemorrhoids, fissures (small tears), rashes, inflammation or drainage.

Stools and Bowel Function

- Stools
  - Examine shape, color, amount, & consistency

- Prevention of Problems -- Teach:
  - Fluid Intake (Adequate)
  - Food Intake (Healthy Diet)
  - Regular Exercise
  - Regular Bowel Habits
  - Medications and their affects

Diagnostic Tests:

- Radiographic Studies:
  - Use radiopaque contrast media to ID location & structural appearance of organs or masses.
  - Radiopaque contrast media and fluoroscopy may be used to observe the shape and contour of empty organs and how these hollow structures fill with and evacuate radiopaque dye.
Upper GI Series
(Barium Swallow)

- Consists of X-ray films of:
  - Lower esophagus
  - Stomach
  - Duodenum
- Contrast medium – barium sulfate
- Purpose – to detect:
  - Structural problems (stricture, varices, swallowing dysfunction, aspiration)
  - Hiatal hernia
  - Ulcers
  - Tumors
  - Inflammation

http://www.webmd.com/hw-popup/Duodenum

Upper GI Series
(Barium Swallow)

- Preparation:
  - NPO for 8-12 hours before procedure
- Patient:
  - Drinks barium, moves into several positions to promote flow of barium by gravity
  - Spot films taken to evaluate position, patency, and filling defects

http://www.webmd.com/hw-popup/Barium-swallow

Upper GI Series
(Barium Swallow)

- Post procedure:
  - Encourage fluids
  - Laxatives PRN
  - Cleansing enema
  - Teaching client stool white, streaky or clay colored
Small bowel Series

- Small intestine fluoroscopy after ingestion of contrast medium.
- Used to detect:
  - Tumor
  - Inflammation
  - Obstruction of the jejunum, or ileum
- The test takes 5 to 6 hours

Lower GI Series (Barium Enema)

- Series of X-Rays of the colon (large intestines) using barium
- To identify:
  - Tumors, polyps, inflammation, strictures, abnormalities of the colon
- Rectal instillation of barium (1 to 1.5 L), follow flow of barium on a fluoroscope. Client instructed to retain the barium during the test (30 min)

Lower GI Series (Barium Enema)

- Prep:
  - Low residue diet 1-2 days before test
  - Clear Liquid diet evening before the test
  - Laxative evening prior to test
  - NPO after midnight
  - Cleansing enema morning before the test
- Post procedure:
  - Encourage fluid intake
  - Teaching stool white to clay color
**Cholecystography (Gallbladder Series)**

- ID stones in the gallbladder or common bile duct and tumors
- Must be done before other GI exams with barium are done
- Prep – 6 dye tablets one every 5 min after the evening meal then NPO until the test is done

http://www.mcghealth.org/printer/internet/Greystone/images/ki_0054.gif

**Cholangiography**

- Determines patency of the ducts from the liver and gallbladder
- Dye usually given IV or through T-tube performed through the skin or through upper GI.
- Need consent form
- Must know allergies – Iodine or Shellfish
- Post-procedure – encourage liquids to promote dye excretion

**Radionuclide Imaging**

- Radioactive element - IV or PO
- Natural or synthetic
- Detects lesions of liver, pancreas and evaluating gastric emptying
- Scans the size of the organ
- Contraindicated if pregnant
Computed Tomography (CT)

- Detects structural abnormalities (metastatic lesions)
- Contrast used PO or IV
- NPO 6 – 8 hours before test
- Bowel may be cleaned
- Possibly drugs to decrease peristalsis or improve gastric motility

Nonradiographic Studies

- MRI – Magnetic Resonance Imaging
  - Used to visualize soft tissue structures.
  - NPO 6-8 hours
  - Remove any metal and jewelry
- Ultrasonography (Ultrasound)
  - High frequency sound waves are directed toward the body, the returning sound waves then interpreted and recoded electronically
- Percutaneous Liver Biopsy
  - Needle inserted through ABD wall into liver to obtain a small amt. of liver tissue
  - Coagulation studies Before biopsy – complication - bleeding
  - Pt usually sedated (may be at bedside or in X-ray Dept.)
  - Place pt in supine position w/ rolled towel under R) lower ribs, as MD starts to insert needle ask pt to take deep breath and hold it.

Gastrointestinal Endoscopy

- Direct visualization of the lumen of the GI tract using a flexible fiberoptic endoscope
- General Pt. Care:
  - Obtain consent
  - NPO after midnight
  - Sedative pre-op
  - Pt is awake during procedure
Common GI Endoscopic Procedures

- Esophagogastroduodenoscopy (EGD)
  - Visualization of esophagus, stomach, and duodenum.
  - Client NPO after midnight
  - Consent signed

Esophagogastroduodenoscopy (EGD)

- Post procedure
  - maintain NPO until gag reflex
  - Client may c/o of sore throat use saline gargles or ice chips
  - Monitor for GI BL.

Common GI Endoscopic Procedures

- Panendoscopy
  - Examination of upper and lower GI tract.
- Endoscopic retrograde cholangiopancreatography (ERCP)
  - Endoscopic and radiographic examination to visualize the biliary and pancreatic ducts
- Peritoneoscopy
- Proctosigmoidoscopy
  - Examination of rectum and sigmoid colon with rigid endoscope

http://video.about.com/heartburn/Heartburn-Reflux-Endoscopy.htm
Colonoscopy
- Colonoscopy
  - Provides visualization of the large intestine and distal part of the small intestine.
  - Laxative and enema given to clear the colon from stool and liquid diet the day before procedure.

Lab Tests
- Gastric Analysis
  - NPO 8 - 12 hours before the test
  - Small NG inserted and gastric content aspirated every 15 min for at least 1 hour to check PH
- Hydrogen Breath Testing
  - Used to detect CHO malabsorption or lactose intolerance

Lab Tests
- PY test
  - To detect H. pylori
  - Client ingests C-urea capsule, wait 10 min then blows up a balloon.
  - The air in the balloon is analyzed for gastric urease if it is present it indicate H. pylori
  - Antibiotics or bismuth should be avoided for 1 month before the test
  - No proton pump inhibition for 2 wks
  - NPO for 6 hours before the test
Lab Tests

• Stool Analysis

• Biopsy

Caring for Client with Disorders of the Upper Gastrointestinal Tract
Chapter 51

Disorders That Affect Eating

• Anorexia – lack of appetite
  – Illness, effects of drugs, emotional stress, fear, or psychological problems
  – S & S
    • Not hungry, nausea, wt. loss, vitamins deficiency
  Diagnostic findings:
    • Low hgb, RBC’s, and low serum albumin, electrolytes and protein
  – Medical management include high calorie diet, high calorie supplement, TPN, psychiatric treatment
• Anorexia Nervosa
Anorexia

- Nursing care for client with anorexia
  - Provide small frequent meals.
  - Intake, output, and daily wt.
  - Encourage family members to bring favorite food
  - Offer food according to likes.
  - Serve hot foods hot and cold foods cold
  - Encourage eating with company
  - Calorie count
  - Offer nourishing beverages exp. Ensure, 2cal,instant breakfast
  - Consult Dr., and dietitian.
  - Provide supplement as needed

Nausea & Vomiting

- Etiology
  - Drugs
  - Infections (bacteria or viral)
  - GI inflammation
  - Intestinal obstruction
  - Food poisoning
  - Early pregnancy
  - Uremia
  - Emotional stress

Nausea & Vomiting

- S&S
  - Unpleasant feeling
  - Loss of appetite
  - Vomiting
  - If prolonged monitor for S&S of dehydration, weakness, Wt. loss, and nutritional deficiencies
Nausea & Vomiting

• Diagnostic Findings:
  – Low Na and CL
  – H&H may be high
  – Increased bicarbonate

• Management:
  – IV fluids
  – Electrolyte replacement
  – Treat the cause
  – Restriction of food intake (advancing slowly to regular diet)
  – Antiemetic

Cancer of The Oral Cavity

• Early detection --- better prognosis

• Etiology
  – Smoking particularly pipe smoking or chewing, excess alcohol ingestion, prolonged sun exposure

• Assessment findings
  – lesion, lump, pain or soreness and bleeding, difficulty eating or tasting food, leukoplakia (white patch on the tongue may become cancerous.

• Diagnosis
  • Biopsy

Cancer of The Oral Cavity

• Medical and surgical management
  – Surgical removal, radiation and chemotherapy
  – Tracheostomy and TF may be needed

• Nursing intervention:
  – Maintain patent airway, adequate fluid intake (TPN or PEG may be necessary)
  – Management of impaired communication
  – Care of the endotracheal or tracheostomy tube
  – Position client flat on abd or side with head turned to the side
  – Keep tracheostomy tray and suction available at bed side
  – Emotional support
GI Intubation

• Purposes:
  – Gastric decompression – larger tubes
  – Gastric Lavage
  – Installation of nutrition &/or meds – smaller tubes

• Types:
  – Nasogastric - nose to stomach via esophagus
  – Orogastric – through mouth into stomach
  – Nasoenteric – through nose, esophagus, & stomach to the small intestine
  – Gastrostomy – through ABD wall into stomach (PEG)
  – Jejunostomy – through ABD wall into jejunum (small intestine)

Enteral Tube Placement

NGT Management

• Intake & Output
• Keep Mucous Membranes Moist
• Frequent Mouth Care
• Analgesic Throat Sprays
• S/S of Dehydration
• S/S of Infection
• Monitor:
  – S/S of Occluded NGT
    • N & V
    • ABD Distention
  – Secretions – Output
• Irrigation of NGT – use Normal Saline
• Check Equipment Frequently
• Check Placement Prior to Giving Meds (aspirate stomach content to check pH to verify placement)
Flushing a GI Tube:

- Flush at least every four hours: before, between, and after medication administration; before and after bolus feedings; and after checking for gastric residuals.
- Use at least 30 mL syringe.
- Flush with at least 30 mL of warm water.
- Administer liquid forms of medications whenever possible.
- Try pancreatic enzymes to unclog an occluded tube as ordered or per institution policy.
- Follow institution policy for flushing protocol.

Gastroesophageal Reflux Disease (GERD)

- Etiology:
  - Lower Esophageal Sphincter fails to fully close allowing the stomach contents to flow freely into the esophagus.
  - Predisposing factors: obesity and pregnancy
- S/S:
  - Epigastric pain/discomfort (dyspepsia)
  - Burning sensation in the esophagus (pyrosis)
  - Regurgitation
  - Dysphagia
  - Esophagitis may lead to scarring and stricture
  - Aspiration Pneumonia
  - Respiratory Distress
  - Bleeding may occur (hematemesis, or melena may cause anemia)
  - The client may think he/she is having heart attack

Gastroesophageal Reflux Disease (GERD)

- Diagnosis
  - Barium swallow, stool for occult blood, upper GI endoscopy
- Treatment:
  - Diet & Lifestyle Changes:
    - Avoid foods & beverages several hours before HS
    - Avoid alcohol, peppermint, licorice, citrus fruits, caffeine
    - Avoid foods high in fat
    - Weight loss (if needed)
    - Avoid tight fitting clothing
    - Elevate head of bed
    - No smoking
    - Medication: proton pump inhibitor, H2 receptor
  - Surgical – Fundoplication – tightens the LES by wrapping the fundus around the lower esophagus and suturing it in place.
  - If esophageal stricture occurred distalation may be needed
Esophageal Diverticulum

- Sac or pouch in one or more layers of the wall of the esophagus
- **Etiology**
  - Congenital or acquired weakness in the esophageal wall
  - Can cause esophagitis or ulceration
  - Zenker's diverticulum occurs at the pharyngeal-esophageal juncture common in men than women
- **Assessment:**
  - Difficulty or pain swallowing
  - Foul Breath
  - Belching
  - Regurgitation
  - Coughing
  - Auscultation in upper chest may reveal gurgling sounds

**Diagnosis:**
- Barium swallow – no esophagoscopy

**Medical & Surgical Management**
- Bland, soft or liquid diet (passes easier)
- Smaller, frequent meals (4 – 6 meals / day)
- Surgical excision of Diverticulum

**Nursing Management**
- Teaching about the disease and dietary modification

Hiatal Hernia (Diaphragmatic)

- Protrusion of part of stomach into lower portion of thorax

- **Two Types:**
  - Axial or Sliding
  - Paraesophageal

- **Etiology**
  - Common in women
  - Multiple Pregnancies
  - Obesity
  - Loss of muscle strength and tone occurs with aging
  - Congenital muscle weakness or weakness from trauma

[Image](http://www.dhmc.org/shared/adam/graphics/images/en/7126.jpg)
Hiatal Hernia (Diaphragmatic)

- **Symptoms:**
  - Heartburn, belching, substernal or epigastric pain after eating, reflux only with sliding hernia, client may vomit and regurgitation
- **Management:**
  - Medically same as GERD
  - Stretch esophagus endoscopically (may have to repeat often)
  - Surgically restore stomach to proper position and repair diaphragm

Cancer of The Esophagus

- No c/o until it is progressed
- **S & S**
  - Vague discomfort, difficulty swallowing (dysphagia), wt. loss, regurgitation, and hemoptysis.
  - Pain is a late symptom back pain and respiratory distress.
- **Diagnosis**
  - Barium swallow, biopsy taken by EGD or esophagoscopy
- **Medical & Surgical Management**
  - Surgery removal of the affected part of the esophagus may need to replace the removed part with jejunum
  - Palliative if client is not surgical candidate. Laser surgery, dilatation of the obstructed part, a prosthesis may be used to widen the narrowed area.

Cancer of The Esophagus

- **Nursing Management**
  - Dietary consult
  - Small frequent meals, high calorie high protein soft or liquid diet.
  - Measures to decrease air include avoid carbonated beverages, no straw
  - Client may need NG, PEG, or TPN
  - If client had surgery provide pre & post operative care
Gastritis

- Inflammation of the stomach lining
  - Acute or Chronic
- Etiology:
  - Diet: Reflux of duodenal contents; ASA, Steroids, NSAIDs, Alcohol, Caffeine; Smoking; Ingestion of poisons or corrosive materials; Food allergies, Infection (bacterial or viral); & Gastric Ischemia
- Assessment Findings:
  - Epigastric fullness, pressure, &/or pain
  - Anorexia
  - N & V
  - Sometimes – fever, diarrhea, & ABD cramping if caused by bacterial or viral dz
  - If caused by corrosives or toxic substance may lead to bleeding (hematemesis or melena)

Gastritis

- Diagnosis:
  - CBC, stool for occult blood, gastroscopy, PY test
- Medical & Surgical Management:
  - Depend on the cause
  - Acute - NPO, IV fluids, antibiotics &/or antiemetics
  - Antacids, H2 antagonists, and proton pump inhibitors may be used
- Nursing Management
  - Teach: Diet, Drug therapy, Avoidance of irritating substances, Follow-up with MD
  - Observe stool & vomitus for blood

Peptic Ulcer (PUD)

- Ulcer occurring in the lower end of the esophagus, stomach, duodenum or jejunum where there is a loss of tissue due to contact with hydrochloric acid & pepsin
- Tend to recur and becomes malignant
- Pathophysiology and Etiology:
  - H pylori infection transmit by oral-oral or fecal-oral. It is believed to secrets enzyme that depletes stomach mucus
Peptic Ulcer (PUD)

- NSAIDS
- Tobacco
- Severe physiological stressors as in ICU
- Family history a genetic component may exist

Assessment Findings:
- Abdominal pain, burning, occurs 1 to several hours after meals type (epigastric area)
- Disturbance of sleep
- Heartburn
- Vomiting
- Hematemesis
- Melena
  - Eating sometimes relieves pain

**PUD (continued)**

**Diagnostic Tests:**
- EGD or upper GI series
- Biopsy
- Breath test for H pylori

**Medical Management:**
- Avoid food that is known to increase acid production:
  - Milk & milk products, alcohol, caffeine, decaffeinated coffee
- Small frequent meals, avoid spicy or irritating foods
- Medications to treat H pylori (Antibiotics, proton pump inhibitor and bismuth).
- If bleeding: NPO, gastric lavage with saline, blood transfusion and IV fluids.
  - Endoscopic laser therapy and injection of epinephrine to control bleeding.

**PUD (continued)**

**Surgeal management:**
- Gastrectomy – partial or total gastrectomy
  - Complications:
    - Gastrectomy pt will need B12 injections or intranasal for life
    - Gastrojejunostomy – dumping syndrome (weakness, dizziness, sweating, palpitation, abdominal cramps, low BP, diarrhea) due to large amount of hypertonic chyme is rapidly emptied into the jejunum.

**Nursing Management:**
- Small frequent meals
- Avoid agents at high risk for causing PUD
- To take meds as prescribed
- Nutritional supplements
  - Report S & S of bleeding (coffee ground emesis, black tarry stools, epigastric pain) to Dr.
  - Follow up exam with MD
- Hospital Pts. – V/S, I & O, H & H; Help develop coping mechanism to relieve or reduce stress, manage NPO
Cancer of The Stomach

- Contributing factors:
  - Chronic inflammation of the stomach
  - Native of Japan, Africa, Latinos
  - Hereditary
  - Ingestion of toxins, alcoholism, food preserved with nitrate or cooked with charcoal

- S & S
  - Vague, feeling of fullness, anorexia, wt. loss, anemia, +ve occult blood, late symptoms pain.

Cancer of The Stomach

- Diagnosis
  - CT, biopsy, barium swallow, ultrasound

- Medical and Surgical Management
  - Subtotal or total gastrectomy
  - Chemotherapy and radiation

- Nursing Management
  - Identify high risk group and provide teaching, provide post operative care, health and nutrition assessment

Gerontologic Considerations

- The elderly are more prone to develop dehydration as they tend to have fewer physiologic reserves to compensate for fluid loss
- Wt. loss are common in the older adult and can result from ill-fitting dentures or dysphagia
- Salivary glands become less active by age and the number of test buds are reduced contributing to anorexia in the elderly
Caring for Clients With Disorders of the Lower GI

Chapter 52

Altered Bowel Elimination

• Constipation
  – Stool become dry, compact & difficult & painful to pass
• Etiology:
  – Insufficient fiber in diet
  – Decreased fluid intake
  – Ignoring/resisting urge to defecate
  – Emotional stress
  – Drugs that slow motility as opioids, antihypertension and antidepressant
  – Inactivity
  – Anatomical disorder of the colon including strictures, or stenosis
  – Chronic use of laxatives
  – Lead poisoning
  – Impaired GI motility

Constipation

• Assessment Findings
  – Client c/o of feeling bloated, fullness at the rectal area, pain, hard dry stool, rectal bleeding, hypoactive bowel sound
• Diagnosis
  • History, ABD x ray barium enema
• Medical management
  – Enema, or laxative oral or suppository, stool softener and dietary management
Constipation
Nursing Management
– High fiber diet – lots of raw fruits & veggies
– Whole grain breads, bran & cereals
– Drink 8 or more glasses of water, fruit juice, &/or hot beverages per day
– Exercise

Diarrhea
• Frequent passage of larger than normal amounts of liquid or semi liquid stool.
• Etiology
  – Due to increased peristalsis causing cramping & stools to pass quickly through the GI tract decreasing time for water to be absorbed in the large intestine
  – 3 major problems: Dehydration, Electrolyte Imbalance, Vitamin Deficiency
    – Lactose intolerance, food allergies or intolerance, uremia (toxemia, T nitrogen w/ renal failure), diverticulitis, ulcerative colitis, malabsorption, obstructions; rapidly ↑ fiber in diet, spicy foods, over use of laxatives, adverse effects of drugs (antibiotics), infections (bacterial, viral, parasitic) IBS, over eating
• Assessment Findings
  – Stools watery and frequent may contain mucus, sign of dehydration, hyperactive bowel sound, abd discomfort, client may c/o tenesmus, and skin around anal area excoriated

Diarrhea
• Diagnosis
  – Stool culture to identify bacteria, Stool for Ova & parasites
  – Hemoccult, osirioscopy
• Medical and Surgical Management:
  – Rest the bowel; slowly progress diet from clear liquids to regular diet (BRAT diet)
  – Antidiarrheal agents
  – IV (fluid & electrolyte replacement)
  – Eliminating foods that cause diarrhea
  – TPN
  – Avoid caffeine & carbonated beverages (↑motility); no straws (↑gas & cramping)
  – Check weight, I & O report decreased urine output (↓ 500ml/24 hrs = dehydration)
  – Check skin turgor & mucous membranes
  – Assess anal area for skin irritation
  – Obtain history, assess bowel sound and abd assessment
  – Check vital signs
Irritable Bowel Syndrome (IBS or Spastic Colon)

• Syndrome (not a disease) marked by ABD pain often relieved by passing gas or stool
• Alternating episodes of constipation / diarrhea
• Women more affected than men
• Etiology
  – Cause is unknown heredity, psychological stress / illness, diet (rich, stimulating or irritating foods), alcohol, smoking, lactose intolerance, sometimes no precipitating factors
• Assessment Findings
  – Chronic constipation with sporadic diarrhea
  – Bloating, belching, or flatulence
  – ABD distention & pain relieved by defecation passage of mucus in stools with no clinical evidence of intestinal disease
  – May be intensified with stress

Diagnostic Findings

– Radiographic and endoscopic tests to rule out other disorders.

Management:

– Dietary changes (eliminating gas forming foods); high fiber diet or Metamucil
– Medications antispasmodics & anticholinergics such as bentyl, antidiarrheal agents used to relief diarrhea
– Support groups

Inflammatory Bowel Disease (IBD)

• Chronic illnesses characterized by exacerbations & remissions
• Immune system attacks the bowel
  – Crohn’s Disease
  – Ulcerative Colitis
Crohn’s Disease

- Chronic inflammatory condition can occur in any portion of the GI tract.
- General onset in young adulthood, more frequent in pt who smoke
- Etiology:
  - Inflammation through all layers of the bowel occurs randomly described as skip lesions (cobblestone appearance)
  - Hyperemia
  - Edema and ulcerations
  - Cause unknown
  - Genetic
  - Allergic and autoimmune response triggered by infection or diet
  - The role of stress in the development of symptoms has not been defined.

Crohn’s Disease

- Assessment Findings
  - ABD pain, distention and tenderness in the lower ABD quadrants may be associated with eating
  - Chronic diarrhea and fatigue
  - Growth failure in children and adolescents
  - Fever, anorexia, Wt loss, dehydration and nutritional deficiency.
  - Systemic symptoms referred to as extraintestinal manifestations of IBD include arthritis, arthralgias, skin lesions, inflammation in the eyes liver, gallbladder this extraintestinal manifestation become quiescent when IBD is under control.
  - Palpating the ABD may reveal mass

Crohn’s Disease

- Diagnostic Findings
  - Lab shows anemia, stool for occult BL, and WBC’s in stool, ↑ESR.
  - Barium enema shows inflammation in the large intestine.
  - Colonoscopy or sigmoidoscopy shows skip lesions, ulcerations, cobblestone appearance, or fistula. Biopsy confirm the diagnosis.
- Medical Management
  - Treatment supportive. High fiber diet if loose stool, low fiber diet and lactose free during severe inflammation
  - Elemental diet may be used
  - Supplemental vit, iron, antidiarrheal, antiperistaltic and rest the bowel, antiinflammatory corticosteroids, antibiotics, and immune modulating agents may be given.
Crohn’s Disease

- **Surgical Management**
  - Performed if intestinal obstruction, fistula, or perforation occurred.
  - Client may require intestinal transplant in severe cases or may need to be on TPN for life.
- **Nursing Management**
  - Teaching about diet and medication
  - Emotional support
  - Managing fluid and nutritional replacement.
  - VS, Wt, I & O refer to dietitian

Inflammatory Bowel Disease (IBD)

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>CROHN’S DISEASE</th>
<th>ULCERATIVE COLITIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset of symptoms</td>
<td>Gradual</td>
<td>Abrupt</td>
</tr>
<tr>
<td>Location</td>
<td>Diffuse</td>
<td>Localized</td>
</tr>
<tr>
<td>Distribution</td>
<td>Can occur at any location in the GI tract, most commonly found in the ileum</td>
<td>Rectum to cecum</td>
</tr>
<tr>
<td>Type of Lesion</td>
<td>Patchy, positioned between areas of normal tissue, &amp; referred to as skip lesions</td>
<td>Continuous from rectum to cecum, w/o areas of healthy tissue</td>
</tr>
<tr>
<td>Extent of Inflammation</td>
<td>May extend through all bowel layers; may be visible in the large intestine or invisable if located in the higher GI tract</td>
<td>Limited to mucosal lining</td>
</tr>
<tr>
<td>Blood in Stool</td>
<td>Occult</td>
<td>Visible</td>
</tr>
<tr>
<td>Weight Loss</td>
<td>Common</td>
<td>Less common but can occur</td>
</tr>
<tr>
<td>Perianal Disease</td>
<td>Typical (fistula formation, abscesses)</td>
<td>Atypical</td>
</tr>
<tr>
<td>Extraintestinal symptoms (joint pain, skin lesions, inflammatory conditions of the eyes)</td>
<td>Common</td>
<td>Less common but can occur</td>
</tr>
<tr>
<td>Biopsy Findings</td>
<td>Signs of chronic inflammation; granulomas</td>
<td>Signs of chronic inflammation; granulomas rare</td>
</tr>
<tr>
<td>Carcinogenesis</td>
<td>Rare</td>
<td>Common</td>
</tr>
</tbody>
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Ulcerative Colitis

- Chronic inflammation usually limited to mucosal and submucosal layer of the colon and rectum
- **Etiology**
  - Unknown, genetic, infection, allergy and abnormal immune response play a role.
  - No healthy tissue appears between inflamed areas.
  - Confined to the distal area of the large intestine.
  - Inflammation cause ulcer, bleeding, abcess, toxic megacolon, perforation, peritonitis and septicemia.
Ulcerative Colitis

- Assessment Findings
  - Severe diarrhea, blood, mucus in stool
  - LLQ pain and cramps eating precipitated by eating.
  - Anorexia, dehydration and fatigue
  - Wt loss, urgency to defecate so severe causing incontinence.
- Diagnostic same as Crohn’s
- Medical and Surgical Management
  - Avoid food that cause discomfort
  - Support nutrition, TPN may be needed
  - BL transfusion to correct anemia.

Ulcerative Colitis

- Medication as in Crohn’s disease
- Surgery if perforation colon ressection and the client may need permanent ileostomy.
- In non emergency situation ileoanal pull through and anastomosis is performed.

Acute Abdominal Inflammatory Disorders:
Appendicitis

- Appendicitis – inflammation of a narrow, blind protrusion called the vermiform appendix at the tip of the cecum in the RLQ. Caused by a blockage of the lumen & followed by infection.
Appendicitis

- Etiology
  - When the opening of the appendix narrow or obstructed by tumor, hard mass of feces or foreign body it becomes inflamed, swollen, and may rupture causing peritonitis

- Assessment Findings:
  - 1st pain generalized through out the ABD – localizing in the RLQ at McBurny’s point
  - Rebound tenderness
  - Fever
  - N & V (possible)
  - ABD may be tense
  - May flex RI. Hip to relieve pain
  - Increased WBC
  - CT Scan – shows enlargement at the cecum
  - Rupture may occur 24 hours from onset of pain if not treated

Appendicitis

- Medical and Surgical Management:
  - Antibiotics
  - N P O
  - IV fluids
  - Analgesics – may hold so not to mask symptoms
  - Appendectomy
  - NO ENEMAS or LAXATIVES, no multiple palpation
    - may cause rupture

Appendicitis

- Nursing Management
  - Check vital signs
  - Assess pain
  - IV fluid
  - Preoperative care
  - Postoperative care
Peritonitis

- Infection in peritoneum
- Etiology:
  - Perforation of a peptic ulcer, the bowel, or appendix
  - Abdominal trauma (gunshot or knife wound)
  - IBD
  - Ruptured ectopic pregnancy
  - Infection during peritoneal dialysis

Peritonitis

- Assessment Findings
  - Severe ABD pain, distention, tenderness
  - N & V
  - Fever w/ increased infection
  - Rigid board-like ABD w/ guarding
  - Absent bowel sounds
  - Increased pulse & respiratory rates
  - Severe weakness, hypotension, and drop in temp. as client near death
- Diagnostic Findings
  - Elevated WBC
  - X-ray shows free air & fluid in peritoneum
  - CT scan identify structural changes in the organ

Peritonitis

- Medical and Surgical Management
  - NGT
  - IV fluids
  - Antibiotics
  - Analgesics
  - Antiemetics
  - Surgical closure of the tear
  - Client may need TPN
- Nursing Management
  - Check vital signs, I & O
  - NG, IV fluid
  - Administer prescribed meds
  - Post operative nursing care
  - Pain management and emotional support
Intestinal Obstruction

- Occurs when blockage interferes with normal progression of intestinal contents through intestinal tract – partial or complete
- Etiology
  - Mechanical: extremely dangerous - may be fatal – Severity depends on:
    - region of bowel affected
    - degree lumen is obstructed
    - degree blood circulation is cut off
- Adhesions - scar like tissue
- Intussusception – telescoping
- Volvulus – kinking
- Hernia – intestine protrudes through weakened area
- Tumor – abnormal growth of cells
- Impacted feces or barium
- Non-mechanical: adynamic (no peristalsis)
  Paralytic Ileus --happens 12 - 36 hrs after bowel surgery –
- It is important to listen to bowel sound post op

Intestinal Obstruction

- Assessment findings
  - ABD distention, vomiting may contain bile or feces
  - Severe intermittent cramps
  - Fever, increased pulse, rapid respiration and low BP
  - Bowel sound absent in functional obstruction
  - High pitched in mechanical obstruction
  - Constipation, decrease urine out put if shock
- Diagnostic Findings
  - ABD X ray shows air and fluid collection in segment in the intestine
  - Elevated WBC, decrease Na, K, Cl
  - CT abdomen
Intestinal Obstruction

- **Medical and Surgical Management**
  - NPO, IV fluid, NG to suction
  - Removal of the tumor or polyp during colonoscopy or surgically by removal of part of the intestine then end to end anastomosis or a temporary ostomy may be performed

- **Nursing Management**
  - Pain management, NG, VS, IV fluid, I & O

Diverticular Disorders

- **Diverticula** - sacs or pouches in intestine caused by herniation of mucosa through weak area of muscular coat - common in older people > 50 yrs old
  - Diverticularis - asymptomatic
  - Diverticulitis - inflamed diverticula

- **Etiology**
  - Fecal material becomes trapped in the pouches – may cause 1) swelling; 2) obstruction; 3) abscesses; 4) rupture

Diverticular Disorders

- **Assessment findings**
  - Constipation/diarrhea
  - Flatulence, Pain and tenderness in LLQ
  - Rectal bleeding maroon color like “currant jelly” stool
  - CT scan shows inflammation, colonoscopy or barium enema (not in the acute stage)

- **Medical and Surgical Management**
  - Diet high fiber, avoid food that contain seeds, Metamucil to prevent constipation, Increase fluid intake, and avoid constipation
  - In severe cases, NPO, IV fluids, Antibiotics
  - If perforation occur surgery may need temporary colostomy
Hernia

- Protrusion of any organ from the cavity where it normally is confined
  - Inguinal – more prevalent in men
    - protrusion @ inguinal opening: direct or indirect (most common type)
  - Umbilical – usually in children when umbilical orifice fails to close after birth or in obese adults w/ prolonged abd. distention
  - Femoral – more prevalent in women – intestines descend through femoral ring – higher incidences of strangulation
  - Incisional – from scar tissue

- Intra-abdominal pressure from straining to lift something heavy, straining for BM, coughing, sneezing forcefully, etc. – this causes a segment of intestine to move to weak area of abd muscle thin or stretched from inadequate amt of collagen (may be present @ birth or develop from aging, abd. surg., obesity, or prolonged abd. distention)

- Assessment
  - Swelling in the area of protrusion - no other S/S – coughing, bearing down = more obvious (ex: when a baby cries); occasional pain - subsides w/ reduction
  - Incarcerated = severe pain – may become strangulated = obstruction

- Treatment & management
  - Truss (apparatus that presses hernia & prevents protrusion)
  - Manual reduction (self)
  - Herniorrhaphy - surgical - intestine repositioned in abd cavity & abd wall repaired – (out pt.)
  - Hernioplasty - weakened area reinforced w/ wire, fascia, or mesh (usually due to prolonged hernia or obesity) (out pt.)

- Nursing Management: Teaching
  - Avoid constipation; use of Truss; proper body mechanics; splinting to cough or sneeze;
  - follow all MD orders
  - Report S/S of complications (bleeding, infection, S/S of incarceration & strangulation)
Cancer of The Colon & Rectum

Chief Characteristic
– changes in bowel habits
Blood in stool, stool may appear thin and pencil-like from passing around the mass pain is a late symptom

Cancer of The Colon & Rectum

• Diagnosis
  – Colonoscopy, CT scan
• Medical and Surgical Management
  – Surgery, Radiation, Chemotherapy
• Nursing management
  – Pre and post operative abd surgery

Anorectal Disorders

• Hemorrhoids
  – dilated veins in or out side of anal sphincter
• S/S  – localized pain & bleeding, perianal itching, tenderness & swelling
• Causes  – Prolonged sitting, straining at stool, pregnancy, prolonged labor, portal hypertension or any condition that interferes w/ venous blood return
• DIAGNOSIS - external can be seen - internal seen w/proctosigmoidoscopy
Anorectal Disorders

• Medical and Surgical Management
  – Non-surgical = local anesthetic ointment, astringent pads, warm soaks (sitz bath), stool softeners, diet to prevent constipation
  – Surgical = ligate (tie off), infrared photo coagulation (destroys protein & water), Hemorrhoidectomy (surgical removal) (internal packing and external dressing)

• Anorectal Abscess
  – infection w/ collection of pus between internal & external sphincter - (common in Crohn's Disease) causes pain & swelling, poss. fever & foul smelling drainage from anus
  – Tx - sitz bath, analgesics, antibiotics, poss. I & D. *Contact isolation

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• Anorectal Disorders

• Anal Fissure
  – linear tear in anal tissue
  – Cause – constipation
  – S/S - pain and bleeding
  – Tx - anesthetic cream, sitz bath, analgesics, prevention of constipation

• Anal Fistula
  – Tunnel connecting anal canal to perianal area - usually from unhealed abscess - inflamed, purulent drainage
  – Tx - antibiotics, fistulotomy (incision of fistula), * fistulectomy (excision of fistula)
  – Nursing Mgt: teaching - administer meds, keep area clean, *contact isolation

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Anorectal Disorders

• Pilonidal Sinus
  – infection in hair follicles in sacrococcygeal area above anus (Pilonidal Cyst) - enhanced by poor personal hygiene, obesity, & trauma to area - causes pain, swelling & purulent drainage

• Tx
  – abscess drained & tissue incised, purulent material and hair removed - cavity packed

• Nursing
  – teach family to remove packing, clean & redress area

Disorders of the Liver

• Jaundice
• Cirrhosis
• Hepatitis
• Tumors of the Liver

Jaundice

• (icterus) greenish-yellow discoloration of tissue caused by abnormally high concentration of bilirubin in the blood

• Bilirubin: produced by liver, spleen, & bone marrow & byproducts of hemolysis elevated when:
  • 1) Excessive destruction of RBCs
  • 2) Liver can't excrete bilirubin normally

• Jaundice:
  • 1) Hemolytic
  • 2) Hepatocellular
  • 3) Obstructive
Cirrhosis

- Degenerative liver disorder caused by generalized cellular damage

**Assessment**
- Chronic fatigue, anorexia, dyspepsia, nausea, vomiting, diarrhea or constipation, wt. loss, clay-colored or whitish stools, dark or "tea colored" urine, abd discomfort, SOB, easy bruising or bleeding, itchy skin (pruritus), enlarged liver, enlarged spleen, distended abd, jaundice, edema in legs & feet, veins over abd dilated, bright pink palms, spider veins visible (spider angiomata), in men breast enlargement & testicular atrophy

**Tests**
- biopsy of liver, ultrasound, PT, platelet count, CT, MRI, liver scan

**Complications of Cirrhosis:**
- Portal Hypertension
- Esophageal Varices
- Ascites
- Hepatic Encephalopathy

**Medical Management**
- No specific cure! - aim is to prevent further deterioration
- Vitamins & nutritional supplements
- NO ALCOHOL!!
- Diet restrictions - decrease protein intake low or no Na
- Meds to help control S/S
- Liver transplant - option to Tx failure or chronic disease
Cirrhosis (cont.)

- **Nsg Management**
  - monitor V/S
  - watch for alcohol withdrawal
  - daily wt.
  - I & O
  - measure abd
  - assist w/diet management
  - Report Immediately any changes in mental status or S/S of GI bleeding. (indicate secondary complications)

Hepatitis

- **Inflammation of liver (acute or chronic)**
  - **Viral - A,B,C,D,E, & G**
    - Preicteric - N & V; anorexia; fever; malaise; arthralgia; HA; RUQ discomfort; enlargement of spleen, liver & lymph nodes; wt loss; rash & urticaria (hives)
    - Icteric - jaundice; pruritus; clay-colored or light stools; dark urine; fatigue; + S/S of preicteric phase may continue
    - Posticteric - liver enlargement; malaise; fatigue; other S/S subside
  - **Noninfectious**
    - Autoimmune
    - Toxic
    - Drug-induced
    - S/S same as infectious

Assessing Ascites

A DISTENDED ABDOMEN, bulging flanks, and a protruding, displaced umbilicus are signs of ascites, free fluid in the peritoneal cavity. Cirrhosis, heart failure, renal failure, portal hypertension, chronic hepatitis, and cancer are common causes. Shifting dullness and a fluid wave indicate ascites.
Tumors of the Liver

- Abnormal mass of cells (benign or malignant) - may be primary or metastasis
- Causes of benign tumors = TB; fungal & parasitic infections; possibly oral contraceptives & anabolic steroids
- S&S vague jaundice, RUQ pain, wt loss, bl. Tendencies, and ascites.
- Medical and Surgical Management
  - Hepatic lobectomy, Chemo & radiation therapy
  - Cryosurgery
  - Percutaneous biliary or trans-hepatic drainage.

Gallbladder Diseases

- Cholelithiasis - gall stones – cause is unestablished - suspected causes are bile stasis, dietary factors (high fat), & infection
- Cholecystitis - inflammation or infection of gallbladder - chronic or acute — cholelithiasis & cholecystitis usually coexist
- S&S belching, nausea, RUQ discomfort/pain or cramps after high fat meals — increase w/ acute cholecystitis to fever, vomiting, severe pain (biliary colic) may radiate to back & shoulders

Gallbladder Diseases Treatment

- Treatment:
  - Medical - NPO w/ NG tube & antibiotics for acutely inflamed; low fat diet, analgesics
  - Surgical
    - Laparoscopic cholecystectomy – 3-4 small punctures in abd
    - Open cholecystectomy – abdominal incision
Pancreatitis

- Inflammation of pancreas (acute or chronic), secondary to organ’s own enzymes (trypsin) causes pancreas to digest itself.
- Acute: structural abnormalities, abdominal trauma, infections, metabolic disorders, vascular abnormalities, inflammatory bowel disease, heredity, alcohol or drug abuse, or re-feeding after prolonged fasting or anorexia, can be unidentifiable cause.
- Chronic: most caused by alcohol abuse.
- S&S:
  - Severe mid to upper abdomen pain radiate to both sides & back
  - N&V, flatulence, steatorrhea (fat in stool)
  - Fever, tachycardia, & shallow breathing

Cancer of Pancreas

- May be in the head, body or tail of pancreas – primary or metastasis.
- Nsg management:
  - If surgery, similar to pt with general abdominal surgery (NG, IVs, dressings, etc.)
- Teach Pt. & Family:
  - Diet
  - Medication
  - Blood sugar
  - Skin care
  - Chemotherapy & radiation therapy
  - Follow up with Dr. & report any of the following jaundice, dark urine, bleeding tendencies, vomiting, tarry stools, increased pain, swelling of extremities, abdominal enlargement, decreased urine output, weight loss, & calf pain

Ostomies

- Ostomy - opening between internal body structure & skin
- Ileostomy
  - Opening from distal small intestine
- Colostomy
  - Opening from the colon
- Indications
  - Inflammatory bowel disorders that is not responding to treatment, complications of ruptured intestines, irreversible obstruction, compromised blood supply or CA
- Stoma – should be bright red or pink
Ostomies

- Conventional ileostomy
  - Removal of the entire colon and rectum (total colectomy)
  - Location in the right lower quadrant
  - Stool liquid mushy
- Continent ileostomy (Kock pouch)
  - Creation of internal reservoir for storage of stool then the client use a catheter to empty it
Ostomies

- Preoperative nursing care
- Cleansing the bowel before procedure by using laxatives, NPO
- Postoperative nursing care including IV fluids, NPO, NG for suction and care of the stoma
- Increase fluid intake to prevent dehydration, avoid food producing gas, empty stoma when 1/3 to 1/2 full, use skin barrier, I & O, assess the site, amount and character of stool, and patient teaching about ileostomy care

Ostomies

- Colostomy
  - Location may be found anywhere R) lower quadrant to middle or left position on the abdomen
  - Colostomy irrigation
    - Use tepid water 500-1500 ml as prescribed
    - Ask client to sit on the toilet or on a chair
    - Place irrigation sheath over the stoma and directing the sheath into the toilet
    - Lubricate the distal end of catheter hung irrigation container so that the bottom of the container is 12 inches above the stoma
    - Insert the catheter tip 2-3 inches
    - Allow irrigation solution to flow slowly
    - If client c/o cramping clamp the tube have client take few deep breaths once cramps subsides continue irrigation
    - When the prescribed amount completed remove the catheter client may remain sitting or walk
    - Document

The End