Chapter 28 GI and Accessory Organs
Structure and Function
° Organs of the digestive system [corresponds to Figure 29-1]
  o Mouth
  o Tongue (taste buds, papillae)
  o Teeth
  o Salivary glands (parotid, submandibular, sublingual)
  o Pharynx [corresponds to Figure 28-2]
    • Nasopharynx
    • Oropharynx
    • Laryngopharynx
  o Esophagus
  o Stomach [corresponds to Figure 28-3]
    • Cardiac (upper) and pyloric (lower) sphincters
    • Mechanical and chemical digestion
    • Terms: rugae, mechanical digestion, chemical digestion, chyme
  o Vagus nerve
  o Small intestine [corresponds to Figure 28-4]
    o Duodenum
    o Jejunum and ileum
      • Terms: peristalsis, peritoneum, cecum, anus
    o Large intestine
      • Ascending, transverse, descending, sigmoid colon
  o Rectum [corresponds to Figure 28-5]
° Physiology of defecation
° Accessory organs
  o Liver – some of > 100 functions include:
    • Storage of glycogen
    • Production of bile to break down fats
    • Modification of fats
    • Detoxification of alcohol and drugs
    • Storage of vitamins
    • Synthesis of urea
    • Formation of blood protein plasma
    • Destruction of old blood cells
  o Gallbladder
    • Stores and concentrates bile
    • Releases bile into duodenum as a reaction to hormone cholecystokinin
  o Pancreas
    • Secretes enzymes to break down food (amylase, lipase, trypsin)
    • Makes insulin to help body metabolize glucose

Upper GI Disorders
Common Disorders[corresponds to Box 28-1]
Disorders of the Oral Cavity
° Dental conditions – caries or cavities
° Oral infections (stomatitis)
  o Thrush – *Candida* infection
° Periodontal disease
  o Term: pyorrhea
  o Risk factors: poor oral hygiene, alcohol and tobacco use; diabetes, stress, hormonal changes of puberty and pregnancy
  o Manifestations: gingivitis, bleeding gums, no pain
  o Prevention: good oral care with flossing and brushing
  o Treatment: pocket reduction, soft tissue grafts, regenerative procedures, dental implants
° Leukoplakia – usually painless, white patches; may be precursor to cancer
  o Biopsy if persists for 2 weeks
° Oral cancer [corresponds to Figure 28-6]
  o Manifestations:
    • Difficulty chewing, swallowing and speaking
    • Swollen areas in the mouth
    • Numbness in the mouth
    • Pain in the mouth or ear
    • Swollen cervical lymph nodes
  o Treatment:
    • Surgery
    • Radiation therapy
    • Chemotherapy
    • Possible modified neck dissection (with tracheostomy)
  o Priorities in nursing care:
    • Maintaining patent airway; may need to place nasogastric tube [corresponds to Procedure 16-1]
    • Allow client to verbalize fears and feelings about changed body image.
    • Check frequently for bleeding or hoarseness; suction as needed.
    • Keep head of bed elevated.
    • Give oral care q 2 hr.

Disorders of Esophagus
° Perforated esophagus rare but serious
  o Manifestations: chest pain, elevated temperature, difficulty breathing; respiratory impairment, shock, or sepsis.
  o Treatment: surgery required to prevent death.
  o Report signs!
° Esophagitis – irritation from swallowed substance or reflux of acid
° Achalasia of esophagus – cardiac sphincter does not relax; food held in esophagus
  o Manifestations: feeling of fullness and food not going down; regurgitation
  o Treatment: medication and balloon dilatation (may need to be repeated); surgery to cut into sphincter to allow food to pass into stomach
° Gastroesophageal reflux disease (GERD) [corresponds to Figure 28-7]
  o May be seen in young children (see Chapter 44)
o Manifestations: heartburn, sore throat, dysphagia, chest pain
o Treatment:
  • Medications such as Tagamet, Pepcid and Prilosec
  • Lifestyle changes:
    ↑ Not lying down for 3 hr after eating
    ↑ Keeping head elevated during sleep
    ↑ Avoiding alcohol and tobacco
    ↑ Weight loss if overweight
    ↑ Eating small meals more often; avoiding spicy foods
° Esophageal diverticulum – outpouching of inner esophageal wall
  o Manifestations: regurgitation, difficulty swallowing, eructation, halitosis, sour taste in mouth
  o Treatment:
    • Intake of soft, easily chewed foods
    • High Fowler’s position for 2 hr after eating
    • Feeding tube to allow healing
    • Surgery
° Hiatal hernias [corresponds to Figure 28-8]
  o Sliding – more common
  o Paraesophageal
  o Manifestations:
    • If small, hiatal hernias are asymptomatic.
    • Larger hernias: pyrosis (heartburn), regurgitation, reflux, esophagitis, pain
  o Treatment:
    • Small hiatal hernias not treated
    • Head of bed elevated or client sits upright for 30 minutes after eating
    • Antacids; Tagamet, Pepcid, Zantac, Axid
    • Nutritional management and lifestyle changes
    • Surgery
    • Fundoplication in severe cases [corresponds to Figure 28-9]
° Esophageal cancer
  o Manifestations:
    • Difficulty swallowing for 6 months or longer (most common symptom)
    • Intermittent fullness or pain in chest area
    • Progressive weight loss
    • Excessive salivation; halitosis
    • Hiccoughs; food regurgitation
  o Diagnosis [corresponds to Table 28-1]
    • Esophagogram, upper GI (UGI), esophagogastroduodenoscopy (EGD), biopsy, physical presentation
  o Treatment:
    • Surgery (esophageal resection with grafting using a section of the colon or a Dacron graft), radiation, chemotherapy
• Dilation or stents to relieve dysphagia
  o Nursing care: promote swallowing and monitor for complications; monitor I&O and weight daily; manage pain; reassure client

Stomach Disorders
  ° Acute gastritis
    o Causes [corresponds to Figure 28-10]
      • Chemotherapy or radiation therapy
      • Food contaminated with toxins
      • Alcohol, food allergies
      • Medications such as NSAIDS (ibuprofen) and salicylates (aspirin)
      • Stress from burns, shock, multisystem trauma, surgery
    o Manifestations:
      • Pyrosis (heartburn), indigestion, abdominal distention, pain
      • Nausea, vomiting
      • Hematemesis, melena
    o Tests for GI disorders [corresponds to Table 28-1]
    o Treatment: eliminate cause of irritation; eat bland diet of soft foods and liquids; antacids; possible IV medication (Tagamet)

  ° Chronic gastritis
    o Type A: stomach cannot secrete intrinsic factor needed to absorb vitamin B₁₂; leads to pernicious anemia (see Chapter 26)
    o Manifestations:
      • May be asymptomatic
      • Weakness, fatigue
      • GI upset, vague discomfort following meals
      • Anemia
    o Treatment: B₁₂ injections for Type A

  ° Peptic ulcer disease (PUD)
    o *H. pylori* bacterium [corresponds to Figure 28-11]
    o Cultural groups prone to PUD and other gastric disorders [corresponds to Box 28-2]
    o Manifestations:
      • Pain or a burning sensation in midsternum with radiation to back; dull, gnawing pain and feeling of emptiness
      • Dyspepsia (combination of nausea, distention and burping)
      • Vomiting, hematemesis
    o Collaborative care
      • Diagnostic tests:
        ↑ Urea breath test to detect presence of *H. pylori* (see Table 28-1), blood tests; biopsy
      • Treatment:
        ↑ 2-week regimen of two antibiotics (tetracycline, metronidazole, amoxicillin) and proton pump inhibitor (omeprazole and lansoprazole) or histamine antagonist (ranitidine, cimetidine, famotidine); Pepto-Bismol
↑ Alter food intake to reduce episodes; take frequent small meals; stop smoking; avoid alcohol.

↑ Medications [corresponds to Box 28-3]

↑ Surgical procedures [corresponds to Table 28-2]
  - Vagotomy, pyloroplasty, gastroenterostomy, Billroth I or Billroth II
  - Complications of gastric surgery [corresponds to Box 28-4]

  o Bleeding ulcer
    • Manifestations: hematemesis, coffee-ground emesis, tarry or bright red stools; faintness, nausea, bloody stools progressing to hypotension, thready pulse, palpitations, and diaphoresis
    • Treatment: rapid blood replacement for > 1 liter blood loss; iced saline lavage through NG tube; IV to maintain fluid balance

  o Perforated peptic ulcer
    • Manifestations
      ↑ Sudden, severe upper abdominal pain that increases; referred pain to the right shoulder
      ↑ Fever, diaphoresis, rapid shallow breathing
      ↑ Vomiting
      ↑ Signs of shock
      ↑ Abdomen may be rigid and boardlike
    • Treatment: immediate surgery

  o Stress ulcer
    • Manifestations
      ↑ Progressively worsening erosions appearing 24 hours after a stressful situation
      ↑ When stress combined with nervous system trauma, ulcers often very deep may perforate
    • Treatment
      ↑ NG tube to decompress stomach; histamine antagonists to inhibit acid secretion; antacids; possible surgery

  o Pyloric obstruction
    o Manifestations
      • Nausea and vomiting; constipation; epigastric fullness; anorexia; spasm; weight loss
    o Treatment
      • NG tube for decompression; IV fluids and nutrition as needed; pyloroplasty [corresponds to Figure 28-12]
      ↑ Terms: gavage, lavage

      • Sengstaken-Blakemore tube – pressure on bleeding vessels
        ↑ Single-lumen or double-lumen tube; keep “pigtail” above client’s midline to prevent reflux of stomach fluids
      ↑ Gastrostomy tube – direct administration of liquid feeding
        - Term: dumping syndrome [corresponds to Box 28-4]
→ Total parenteral nutrition (TPN) or hyperalimentation (HAL) – IV nutrition through central line (often subclavian vein); solutions high in sugar content; may need to monitor glucose

° Gastric cancer
  o Manifestations: weight loss, anorexia, weakness, anemia, blood in the stool, vomiting with coffee-ground emesis, jaundice, emaciation and cachexia (general weight loss and wasting)
  o Diagnosis by gastric analysis; biopsy via endoscopy
  o Treatment
    • Subtotal gastrectomy - Billroth I and II [corresponds to Figure 28-13]
    • Chemotherapy, radiation therapy; palliative measures
    • Gastronomy or jejunostomy tube (direct feeding tube)
    • Total gastrectomy (removal of the stomach) anastomosis (alignment and suturing) of the esophagus to the jejunum
  o Nursing care: monitor fluid balance closely; check NG tube and test stomach contents for occult blood; check VS often and watch for signs of shock (decreasing BP); help relieve client anxiety by explaining procedures, listening, and answering questions; teach about self-care

° Obesity – 20% over normal weight
  o Caused by consumption of more calories than are burned daily; sedentary lifestyles and fast foods; emotional pain and self-esteem issues; stress; malfunctioning thyroid or pituitary glands
  o Associated manifestations:
    • SOB, poor exercise tolerance, diaphoresis
    • Cardiac complications, peripheral vascular disease, hypertension, atherosclerosis
    • Diabetes mellitus, gall bladder disease
    • Osteoarthritis
    • Cancer
    • Sleep apnea
  o Diagnosis when endocrine or other disorders are ruled out
  o Treatment:
    • Dietary regimen and consistent exercise
    • Psychotherapy and behavioral modification
    • Support groups
    • Gastroplasty (gastric stapling)
    • Roux-en-Y gastric bypass (most common GI surgery for weight loss) [corresponds to Figure 28-14]
  o Nursing care
    • Inspect abdomen for contours, scars, masses, and areas of distention and peristalsis, if visible
    • Auscultate the abdomen for air movement, peristalsis, and flatus
    • Presurgical nursing care:
      ↑ Monitor vital signs, oxygenation saturation; calculate and record I&O; monitor IV site and catheter.
If esophagus is affected, supervise client during meals.
Take daily weights; work with dietician; offer supplemental high-protein drinks for clients taking in less than body requirements.
Observe for patency of NG tube.
Notify care provider of bleeding or excessive drainage.
Teach client having partial or total gastrectomy about dietary requirements and lifelong B₁₂ injections.
Allow client to verbalize fears and emotions.

• Post-surgical nursing care:
  Observe for airway patency and signs of aspiration.
  Encourage coughing, turning, deep breathing, and use of spirometer.
  Encourage client to verbalize feelings and fears.
  Assess vital signs and auscultate lung sounds.
  Assess pain level and medicate as needed.
  Evaluate bowel activity and wound healing. Monitor for inflammation, infection, drainage, and bleeding.
  Document wound healing and dressing changes.
  Teach client to splint wound when ambulating or coughing.
  Instruct client in dressing changes and wound care.
  Provide oral care.
  Teach about diet changes and self-care after discharge.
  Teach signs and symptoms to report immediately:
    - Increasing or severe epigastric pain
    - Blood in stools or emesis
    - Black and tarry stools
    - Dizziness or fainting

Lower GI Disorders

Elimination Disorders
° Factors that affect defecation [corresponds to Box 28-5]
° Flatulence – excessive gas in intestines
  o Caused usually by action of bacteria on foods, swallowed air, or gas diffused from bloodstream
  o Manifestations: gastric distention and flatus
    • Terms: distention, eructation
  o Treatment: medications to reduce intestinal gas; mechanical removal
  o Nursing care: administer medications as ordered; perform rectal tube procedure or return-flow enema (Harris flush)
° Constipation
  o Causes include poor food choices, lack of exercise, abdominal surgery, narcotics, laxative abuse
  o Manifestations [corresponds to Box 28-6]
    • Term: Valsalva maneuver
  o Treatment: cathartics, laxatives, enemas [corresponds to Table 28-3]
  o Nursing care:
    • Cleansing enemas (high or low) [corresponds to Table 28-4]
• Retention enemas
• Return-flow enema (Harris flush)

° Fecal impaction [corresponds to Figure 28-15]
  o Manifestations:
    • Liquid fecal seepage, no normal stool
    • Frequent but nonproductive urge to defecate
    • Rectal pain, generalized feeling of illness, anorexia
    • Distended abdomen, nausea and vomiting
  o Treatment: removal of feces
  o Nursing care:
    • Digital removal of impacted feces
    • Oil retention or cleansing enema
    • Suppositories, stool softeners

° Diarrhea
  o Causes: [corresponds to Table 28-5]
  o Manifestations: cramping, inability to control urge to defecate; fatigue, weakness, dehydration, electrolyte imbalance
  o Treatment: supportive, fluid replacement (usually resolves within a week if acute); Lomotil, Pepto Bismol, etc.; if chronic, treat underlying cause.
  o Nursing care: administer medications as ordered; monitor and support hydration; teach client about ways to prevent diarrhea.

° Bowel incontinence
  o Caused usually by problems of anal sphincter or its blood supply
  o Treatment: bowel training programs – assist client to bathroom at specified intervals.

Infectious/Inflammatory Disorders of the Intestines
° Enteritis – inflammation of intestines usually caused by ingested pathogens
  o Manifestations: vomiting, diarrhea, severe abdominal cramping, tenesmus (painful straining due to the constant urge to defecate); dehydration, poor nutritional absorption
  o Treatment: supportive
  o Nursing care: prevent dehydration, support nutrition

° Appendicitis – inflammation of vermiform appendix
  o Most common cause of emergency abdominal surgery in US; especially in adolescents and young adults, more males than females
  o Manifestations
    • Generalized abdominal pain localizing to the right lower quadrant at McBurney’s point [corresponds to Figure 28-16]
      ↑ Rebound tenderness
      ↑ Rovsing’s sign – pain when right leg is extended
    • Nausea, vomiting, anorexia, low temperature
    • Diagnosis by ultrasound, CAT scan, WBC count, temperature
  o Treatment: immediate surgery, intravenous antibiotics
  o Complication: peritonitis if appendix ruptures
  o Nursing care: routine postoperative care

° Crohn’s disease (regional enteritis)
o Manifestations:
  • Severe abdominal cramps unrelieved by defecation
  • Diarrhea, reduced nutritional absorption, electrolyte imbalance
  • Fatigue, weakness, fever
  • Dehydration, weight loss, malnutrition, anemia
  • Fissures and fistula formation
  • Steatorrhea
  • Partial or complete obstruction [corresponds to Figure 28-17]
  • Arthritis (associated symptom)

o Diagnosis:
  • Barium studies, colonoscopy and sigmoidoscopy, elevated WBC count and sedimentation rate, increased peristalsis, steatorrhea and occult blood in stool, decreased serum albumin level

o Treatment:
  • Antidiarrheal medications and sedatives
  • Antibiotics and anti-inflammatory agents, steroids
  • Possible infliximab (Remicade) infusion
  • Surgery

° Ulcerative colitis
  o Manifestations
    • Painful, severe diarrhea (most prevalent symptom), 10-20 stools per day with straining, cramping, and vomiting
    • Severe changes in bowel habits, weight loss, symptoms of infection, increased heart rate
    • Blood and mucus in watery stools
    • Malabsorption of nutrients; fluid and electrolyte imbalance, decreased calcium and albumin levels, anemia, fatigue and weakness
    • Scarring of the bowel
    • Deep ulcerations can cause:
      ↑ Perforation leading to peritonitis
      ↑ Hemorrhaging from the lesions
      ↑ Megacolon (enlarged colon)
    • Arthritis (associated symptom)

  o Diagnosis: sigmoidoscopy or colonoscopy with biopsy, stool specimens, CBC

  o Treatment:
    • Low-residue diet to decrease peristalsis, avoidance of milk products and highly spiced foods, eating foods high in protein and calories
    • Intravenous fluids and parenteral nutrition, vitamin and nutritional supplements
    • Stress management and lifestyle changes
    • Medications same as for Crohn’s disease
    • Surgery (colectomy with creation of an ileostomy)
Irritable Bowel Syndrome (IBS) – abnormal functioning of large bowel from unknown cause and without permanent damage
- Triggered by stressful and emotional situations and certain foods; women may have more symptoms during menses
- Manifestations:
  - Abdominal discomfort (most prevalent symptom), constipation or diarrhea; bloating and abdominal fullness, stools with mucus or blood, hyperactive bowel sounds
- Diagnosis by medical history and physical examination
- Treatment:
  - Focused on controlling symptoms
  - Medications to relieve constipation or diarrhea
  - Antispasmodics and tranquilizers
  - High fiber or low residue diet
  - Lifestyle changes to reduce stress
- Nursing care: manage pain and diarrhea; cleanse skin carefully and apply barrier cream to protect skin; check electrolyte levels for decreased potassium from fluid loss; teach client about controllable factors to improve health

Structural Disorders
- Abdominal hernias [corresponds to Figure 28-18]
  - Acquired hernia (coughing, straining, lifting, pregnancy)
  - Inguinal (indirect) hernias – in groin
  - Direct (or abdominal) hernia – in abdominal wall
  - Incisional hernia – abdominal hernia after surgery
  - Umbilical hernia – umbilicus incompletely closed
  - Manifestations:
    - Often asymptomatic
    - Pain or pressure in the herniated area, bulge or swelling
    - Terms: reducible hernia, incarcerated hernia, strangulated hernia
  - Treatment:
    - Herniorrhaphy for repair
    - Abdominal binder or truss
  - Nursing care: manage pain; provide routine postoperative care; monitor drainage and bleeding
- Diverticulosis/diverticulitis [corresponds to Figure 28-19]
  - Manifestations:
    - May be asymptomatic
    - Alternating constipation and diarrhea, crampy pain in the left lower quadrant, low-grade fever, bleeding, anemia, increased constipation, weakness, fatigue, narrow stools
  - Diagnosis by barium enema, colonoscopy or sigmoidoscopy, stool specimens
• Treatment:
  ↑ High-fiber diet, antibiotics, antispasmodics, tranquilizers, sedatives, pain medication, medications that soften the stool or provide bulk, mineral oil, Dulcolax suppositories
  ↑ In acute attack requiring hospitalization:
    - Pain control
    - NG tube to relieve nausea and vomiting
    - Intravenous fluids and antibiotics
  ↑ If perforation results in peritonitis:
    - Immediate surgery
    - Bowel resection and anastomosis
    - Temporary colostomy such as Hartman’s pouch procedure

° Intestinal obstruction
    o Causes
      • Mechanical obstruction: adhesions, strangulated hernia, tumors, fecal impaction, foreign bodies, volvulus, intussusception
      • Functional (or nonmechanical) obstruction: paralytic ileus or adynamic ileus after GI surgery, peritonitis, narcotics
    o Small-bowel manifestations:
      • Rapid onset
      • Bowel distends with gas and fluid leading to possible necrosis, perforation and peritonitis
      • Wavelike pains and vomiting, passage of blood and mucus but no flatus or stool
      • In mechanical obstruction, high pitched bowel sounds proximal to obstruction, absent bowel sounds distal to obstruction
      • In functional obstruction, absent bowel sounds
      • Extremely vigorous peristaltic waves, fecal emesis, dehydration and electrolyte imbalance; if unrelieved, hypovolemic shock and death
    o Large-bowel manifestations:
      • Develop more slowly
      • Abdominal distention, visible intestinal loops, cramping abdominal pain, fecal vomiting
      • Bowel may empty distal to obstruction
      • In complete intestinal obstruction:
        ↑ Bowel sounds absent, vomiting, abdominal pain, distended abdomen, dehydration; decreased BP, shock and death may result
    o Diagnosis by X-rays; contrast medium may be used
    o Treatment: relief of obstruction
      • Gastrointestinal tube with a mercury weight
      • Intravenous fluids and electrolyte replacement
      • Surgery
Nursing care: focus on promoting bowel function and detecting lack of function; be prepared to insert NG tube for gastric decompression; provide comfort measures

Cancerous Disorders

° Colorectal cancer [corresponds to Figure 28-20]
  o Manifestations
    • Occult blood in stool
    • Changes in bowel habits or shape of stool
    • Gas pains, fullness, distention, cramps
    • Weight loss, malaise, nausea and vomiting, anemia
    • Bowel obstruction or perforation
  o Diagnosis by sigmoidoscopy or colonoscopy, CEA (carcinoembryonic antigen), CAT scan
  o Treatment
    • Surgery most common treatment [corresponds to Figures 28-22A-D]
    • Chemotherapy and radiation therapy used in combination
    • Complications include urinary retention and paralytic ileus
    • Fecal diversion ostomies
      ↑ Ileostomy
      ↑ Colostomy [corresponds to Figure 28-23]
      ↑ Classified according to:
        - Status (permanent or temporary)
        - Location [corresponds to Figure 28-23]
        - Construction of the stoma
      ↑ Ostomy management
      ↑ Stoma and skin care
        - Fecal material (effluent)
        - Peristomal skin [corresponds to Box 28-7]
        - Appliance (pouch or bag) [corresponds to Procedure 28-2]
          Pouch to collect effluent
          Outlet at the bottom for easy emptying
          Faceplate
      ↑ Odor control
  o Nursing care: focus on physical and emotional support; support nutrition; help client talk about and cope with change in body image; teach self-care; observe stoma for healing and monitor for infection

Anorectal Disorders

° Hemorrhoids [corresponds to Figure 28-24]
  o Causes: constipation, diarrhea, pregnancy, prolonged sitting or standing, venous congestion due to congestive heart failure, portal hypertension
  o Manifestations:
    • Anal itching, bleeding during a bowel movement
    • If hemorrhoid prolapses or is thrombosed (contains clotted blood):
      ↑ Pain and discomfort
Edema and inflammation; possible infection and severe pain

- Treatment:
  - Stool softeners, bulk-forming laxatives
  - Hemorrhoidectomy, sclerotherapy, cryotherapy
  - Rubber band ligation (uncommon)
  - High fiber diet, 10 glasses of water per day
  - Sitz baths
  - Topical medications (witch hazel or steroids)

- Anal fissure – cracklike ulcer in anal canal; treated like hemorrhoids
- Anorectal abcess – from bacteria entering skin (Escherichia coli, staphylococci, or streptococci)
  - Manifestation: purulent drainage, redness, swelling, and fever
  - Treatment: incision and drainage; sitz baths, analgesic cream

- Pilonidal cyst
  - Congenital defect, affects hirsute males
  - Manifestations if infected: pain, tenderness, swelling, drainage
  - Treatment: antibiotics; surgical removal and closure if recurrent
  - Nursing care: focus on relieving pain and maintaining rectal function; encourage water, fruit juice, and high-fiber diet; administer topical analgesics and anesthetics; observe for signs of infection
  - Nursing Process Care Plan: Client with Constipation

**Accessory Organ Disorders**

**Disorders of the Gallbladder**

- Cholecystitis/cholelithiasis/choledocholithiasis
  - Cholecystitis: inflammation of the gallbladder
    - Acute or chronic
    - Cause by irritation from stones or bile, obstruction of cystic duct or common bile duct
  - Cholelithiasis: formation of gallstones
  - Choledocholithiasis: formation of gallstones in common bile duct
  - Calculi (gallstones) [corresponds to Figure 28-25]
  - Manifestations:
    - Primary symptom epigastric pain with sudden nausea and vomiting following high-fat meal; pain in right upper quadrant, may radiate to back and shoulder, becomes colicky and spasmodic
    - Possible nausea, vomiting, fever; anorexia
    - Indigestion, flatulence, eructation
    - Possible obstructive jaundice
    - Clay-colored stool, dark amber urine
    - Elevated temperature and WBC count
    - If untreated, necrosis, gangrene, and perforation of gallbladder can occur.
  - Diagnosis by abdominal ultrasound, CAT scan, oral cholecystogram
    - Murphy’s sign – inability to tolerate pressure under right rib cage when taking deep breath
    - WBC counts and serum amylase may be elevated
Treatment:

• Nonsurgical treatment:
  ↑ Analgesics including meperidine (Demerol), antibiotics, antispasmodic medication
  - Morphine sulfate is contraindicated because can cause sphincter spasm
  ↑ Low-fat diet
  ↑ Parenteral nutrition
  ↑ Actigall and Chenix oral drugs to dissolve stones; take months to years
  ↑ Monoctanoin (Moctanin) fast-active dissolvent injected into duct; works in 1 to 3 days
  ↑ Extracorporeal shockwave lithotripsy (ESWL) – crushes stones from outside body
  ↑ Endoscopic retrograde cholangiopancreatography (ERCP) – visualization, can remove stones
• Surgical treatment - cholecystectomy – gall bladder removal
  ↑ Laparascopic or open abdominal approach
  ↑ T-tube drain [corresponds to Figure 28-26]

  o Nursing care: focus on pain relief, diet modification, postoperative care; monitor color and amount of drainage

Disorders of the Liver

° Hepatitis [corresponds to Table 28-6]
  o Usually from viral infection; also caused by bacterial infections, alcohol or drug use, autoimmune disorders
  o Manifestations – flu-like symptoms
  o Complications: liver damage, hepatomegaly, liver failure, cancer, peritonitis, portal hypertension leading to esophageal varices, chronic liver disease
  o Risk factors for contracting hepatitis:
    • Work in health care
    • IV drug use, multiple sex partners
    • Infants of mother who are positive for hepatitis B
  o Prevention of hepatitis A:
    • Good hand washing after oral or fecal contact
    • Using gloves and enteric precautions when caring for clients diagnosed with the illness
    • Vaccinations, if appropriate
  o Treatment
    • Rest, vitamin supplements and low-fat, high-carbohydrate diet; IV vitamins such as B and C, vitamin K injection if blood clotting is a problem; fluids; alcohol abstinence

° Cirrhosis of the liver [corresponds to Figure 28-27]
  o Most common causes: alcoholic liver disease and hepatitis C
  o Postnecrotic cirrhosis caused by exposure to toxins and infections
  o Laënnec’s cirrhosis
Manifestations:
- Fatigue, anorexia, nausea, weakness, weight loss, abdominal pain
- Spider angiomas (telangiectasis), bleeding easily, vitamin deficiencies
- Hepatomegaly, splenomegaly, ascites (fluid accumulations in the abdomen), umbilical hernia, dyspnea
- Mental dullness, decreased levels of consciousness
- Asterixis (flapping tremor)
- Jaundice
- Portal hypertension

Diagnosis of cirrhosis
- Liver serum enzymes, serum bilirubin; ammonia, albumin, and glucose levels; upper GI study, liver biopsy [corresponds to Figure 28-31]

Treatment: healthy diet and bed rest; possible liver transplant
- Paracentesis to drain fluid[corresponds to Figure 28-28]
- Portosystemic shunts to bring blood from portal vein to hepatic vein [corresponds to Figure 28-29]
- Sengstaken-Blakemore esophageal tube to put pressure to stop bleeding [corresponds to Figure 28-30]

Complication: hepatic coma/ hepatic encephalopathy – toxic build-up of ammonia and nitrogen in blood; reversible with prompt treatment
- Manifestations: confusion, delirium, dementia, mood changes, asterixis, seizures, jaundice, increased sleepiness, coma
- Treatment
  - High-protein, high-carbohydrate, low-sodium diet
  - Lactulose by mouth or enema
  - Antibiotics such as neomycin and kanamycin
- Nursing care: administer medications and supplemental vitamins as ordered; provide small semisolid or liquid meals; restrict fluid to 1500 mL per day; monitor I&O carefully; observe stools for color, amount, and consistency; assess abdominal girth daily; administer enemas as ordered

Liver cancer – usually result of metastasis
- Risk factors: chronic hepatitis B or C, cirrhosis
- Manifestations: painful mass in right upper quadrant, weight loss, anorexia, fever, ascites, jaundice; liver failure may develop quickly
- Treatment: partial hepatectomy possible, radiation and chemotherapy usual treatments
- Nursing care: follow precautions; focus on supportive care, rest and comfort; monitor for possible complications; monitor lab results for clotting time and electrolytes; administer medications as ordered

Disorders of the Pancreas

Pancreatitis
- Acute pancreatitis –from blocked pancreatic duct, blunt trauma, or alcoholism
- **Manifestations:**
  - Severe epigastric pain plus abdominal pains radiating to the back
  - Nausea and vomiting, distended abdomen with hypoactive bowel sounds, weight loss
  - Elevated temperature
  - Jaundice in the skin and sclera
  - Hypotension, tachycardia, shock
  - Internal bleeding
  - Turner’s sign – bruising over flanks bilaterally
  - Cullen’s sign – bruising around umbilicus
  - Pancreatic pseudocysts – can rupture, leading to peritonitis

- **Diagnosis of acute pancreatitis:**
  - High serum amylase, lipase and WBCs, glucose, and liver enzymes; decreased serum calcium and magnesium; X-rays and abdominal ultrasound, CAT scan

- **Treatment focuses on eliminating the cause and reducing pancreatic secretions to minimize autodigestion.**
  - Antihistamines, medications for pain and anxiety, antibiotics
  - NPO and NG tube to decompress the stomach, rest GI tract, alleviate nausea and vomiting, and prevent stimulation of pancreas
  - IV fluids and total parenteral nutrition

- **Treatment: largely supportive; narcotic analgesics for pain, antibiotics to prevent or treat infection**

  - **Nursing care:** provide clear liquid diet to bland, low-fat diet as tolerated, increased carbohydrates and calories; teach client to avoid caffeine.

- **Chronic pancreatitis – tissue becomes fibrous**

  - **Manifestations:**
    - Recurrent pancreatic inflammation
    - Symptoms are same as acute pancreatitis, but less severe, plus flatulence, malabsorption, diarrhea, steatorrhea
    - Later, possible diabetes mellitus, abscess, fistula, pseudocyst formation

  - **Diagnosis:**
    - Decreased serum amylase and lipase levels; abdominal CAT scan and ultrasound; endoscopic retrograde cholangiopancreatography (ERCP) to visualize

  - **Treatment:**
    - Pain management, nutrition, enzyme and hormone replacement
    - Surgery to drain pancreatic pseudocysts
    - Histamine blockers to inhibit gastric secretions
    - Surgery – removal of part of pancreas

- **Pancreatic cancer – hard to diagnose**

  - **Manifestations:**
Initially vague (anorexia, fatigue, flatulence, nausea, steady dull pain in epigastrium that may radiate to back)

Gradual progressive weight loss and jaundice, clay-colored stools, dark urine, recent onset of diabetes mellitus

- Diagnosis: by CAT scan and biopsy, cytologic study of aspirate
- Treatment: surgery – Whipple’s procedure [corresponds to Figure 28-32]
- Nursing care: monitor for fluid and electrolyte imbalance, respiratory function, blood sugar stability, signs of hemorrhage; teach client to take enzymes to promote digestion

Critical Thinking Care Map: Caring for a Client with Ulcerative Colitis