
CHAPTER 48

Gastrointestinal Problems

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Priority Concepts

Elimination; Nutrition

I. Anatomy and Physiology

A. Functions of the gastrointestinal (GI) system

1. Process food substances
2. Absorb the products of digestion into the blood
3. Excrete unabsorbed materials
4. Provide an environment for microorganisms to synthesize nutrients, such as vitamin K.
5. For risk factors associated with the GI system, see [Box 48-1](#).

B. Mouth

1. Contains the lips, cheeks, palate, tongue, teeth, salivary glands, muscles, and maxillary bones
2. Saliva contains the enzyme amylase (ptyalin), which aids in digestion.

C. Esophagus

1. Collapsible muscular tube about 10 inches (25 cm) long
2. Carries food from the pharynx to the stomach

D. Stomach

1. Contains the cardia, fundus, body, and pylorus
2. Mucous glands are located in the mucosa and prevent autodigestion by providing an alkaline protective covering.
3. The lower esophageal (cardiac) sphincter prevents reflux of gastric contents into the esophagus.
4. The pyloric sphincter regulates the rate of stomach emptying into the small intestine.
5. Hydrochloric acid kills microorganisms, breaks food into small particles, and provides a chemical environment that facilitates gastric enzyme activation.
6. Pepsin is the chief coenzyme of gastric juice, which converts proteins into proteoses and peptones.
7. Intrinsic factor comes from parietal cells and is

necessary for the absorption of vitamin B₁₂.

8. Gastrin controls gastric acidity.

E. Small intestine

1. The duodenum contains the openings of the bile and pancreatic ducts.
2. The jejunum is about 8 feet (2.4 meters) long.
3. The ileum is about 12 feet (3.7 meters) long.
4. The small intestine terminates in the cecum.

F. Pancreatic intestinal juice enzymes

1. Amylase digests starch to maltose.
2. Maltase reduces maltose to monosaccharide glucose.
3. Lactase splits lactose into galactose and glucose.
4. Sucrase reduces sucrose to fructose and glucose.
5. Nucleases split nucleic acids to nucleotides.
6. Enterokinase activates trypsinogen to trypsin.

G. Large intestine

1. About 5 feet (1.5 meters) long
2. Absorbs water and eliminates wastes
3. Intestinal bacteria play a vital role in the synthesis of some B vitamins and vitamin K.
4. Colon: Includes the ascending, transverse, descending, and sigmoid colons and rectum
5. The ileocecal valve prevents contents of the large intestine from entering the ileum.
6. The internal and external anal sphincters control the anal canal.

H. Peritoneum: Lines the abdominal cavity and forms the mesentery that supports the intestines and blood supply

I. Liver

1. The largest gland in the body, weighing 3 to 4 pounds (1.4 to 1.8 kg)
2. Contains Kupffer cells, which remove bacteria in the portal venous blood
3. Removes excess glucose and amino acids from the portal blood
4. Synthesizes glucose, amino acids, and fats
5. Aids in the digestion of fats, carbohydrates, and proteins
6. Stores and filters blood (200 to 400 mL of blood stored)
7. Stores vitamins A, D, and B and iron
8. The liver secretes bile to emulsify fats (500 to 1000 mL of bile/day).
9. Hepatic ducts
 - a. Deliver bile to the gallbladder via the cystic duct and to the duodenum via the common bile duct
 - b. The common bile duct opens into the duodenum, with the pancreatic duct at

the ampulla of Vater.

- c. The sphincter prevents the reflux of intestinal contents into the common bile duct and pancreatic duct.

J. Gallbladder

1. Stores and concentrates bile and contracts to force bile into the duodenum during the digestion of fats
2. The cystic duct joins the hepatic duct to form the common bile duct.
3. The sphincter of Oddi is located at the entrance to the duodenum.
4. The presence of fatty materials in the duodenum stimulates the liberation of cholecystokinin, which causes contraction of the gallbladder and relaxation of the sphincter of Oddi.

K. Pancreas

1. Exocrine gland
 - a. Secretes sodium bicarbonate to neutralize the acidity of the stomach contents that enter the duodenum
 - b. Pancreatic juices contain enzymes for digesting carbohydrates, fats, and proteins.
2. Endocrine gland
 - a. Secretes glucagon to raise blood glucose levels and secretes somatostatin to exert a hypoglycemic effect
 - b. The islets of Langerhans secrete insulin.
 - c. Insulin is secreted into the bloodstream and is important for carbohydrate metabolism.

II. Diagnostic Procedures (Box 48-2)

A. Upper GI tract study (barium swallow)

1. Description: Examination of the upper GI tract under fluoroscopy after the client drinks barium sulfate
2. Preprocedure: Withhold foods and fluids for 8 hours prior to the test.
3. Postprocedure
 - a. A laxative may be prescribed.
 - b. Instruct the client to increase oral fluid intake to help pass the barium.
 - c. Monitor stools for the passage of barium (stools will appear chalky white for 24 to 72 hours postprocedure) because barium can cause a bowel obstruction.



B. Capsule endoscopy

1. Description: A procedure that uses a small wireless camera shaped like a medication capsule that the client swallows; the test will detect bleeding or changes in the lining of the small intestine.
2. The camera travels through the entire digestive tract and sends pictures to a small box that the client wears like a belt; the small box saves the pictures, which are then transferred to a computer for viewing once the test is complete.
3. The client visits the primary health care provider's (PHCP's) office in the morning and swallows the capsule, the recording belt is applied by the office staff, and then the client returns at the end of the day so that pictures can be transferred to the computer.
4. Preprocedure: A bowel preparation will be prescribed. The client will need to maintain a clear liquid diet on the evening before the exam; additionally, NPO (nothing by mouth) status is maintained for 3 hours before and after swallowing the capsule (time for NPO status is prescribed by the PHCP but is usually 2 to 3 hours).

C. Gastric analysis

1. Description

- a. Gastric analysis requires the passage of a nasogastric (NG) tube into the stomach to aspirate gastric contents for the analysis of acidity (pH), appearance, and volume; the entire gastric contents are aspirated, and then specimens are collected every 15 minutes for 1 hour.
- b. Medication, such as histamine or pentagastrin, may be administered subcutaneously to stimulate gastric secretions; some medications may produce a flushed feeling.
- c. Esophageal reflux of gastric acid may be diagnosed by ambulatory pH monitoring; a probe is placed just above the lower esophageal sphincter and connected to an external recording device. It provides a computer analysis and graphic display of results.

2. Preprocedure

- a. Fasting for at least 12 hours is required before the test.
- b. Use of tobacco and chewing gum is avoided for 24 hours before the test.

- c. Medications that stimulate gastric secretions are withheld for 24 to 48 hours.

3. Postprocedure

- a. Client may resume normal activities.
- b. Refrigerate gastric samples if not tested within 4 hours.



D. Upper GI endoscopy

1. Description

- a. Also known as esophagogastroduodenoscopy
- b. Following sedation, an endoscope is passed down the esophagus to view the gastric wall, sphincters, and duodenum; tissue specimens can be obtained.

2. Preprocedure

- a. The client must be NPO for 6 to 8 hours before the test.
- b. A local anesthetic (spray or gargle) is administered along with medication that provides moderate sedation just before the scope is inserted.
- c. Medication may be administered to reduce secretions, and medication may be administered to relax smooth muscle.
- d. The client is positioned on the left side to facilitate saliva drainage and to provide easy access of the endoscope.
- e. Airway patency is monitored during the test, and pulse oximetry is used to monitor oxygen saturation; emergency equipment should be readily available.

3. Postprocedure

- a. Monitor vital signs.
- b. Client must be NPO until the gag reflex returns (1 to 2 hours).
- c. Monitor for signs of perforation (pain, bleeding, unusual difficulty in swallowing, elevated temperature).
- d. Maintain bed rest for the sedated client until alert.
- e. Lozenges, saline gargles, or oral analgesics can relieve a minor sore throat (not given to the client until the gag reflex returns).



E. Fiberoptic colonoscopy

1. Description

- a. Colonoscopy is a fiberoptic endoscopy study in which the lining of the large intestine is visually examined; biopsies and polypectomies can be performed.
- b. Cardiac and respiratory function is monitored continuously during the test.
- c. Colonoscopy is performed with the client lying on the left side with the knees drawn up to the chest; position may be changed during the test to facilitate passing of the scope.

2. Preprocedure



- a. Adequate cleansing of the colon is necessary, as prescribed by the PHCP.
- b. A clear liquid diet is started on the day before the test. Red, orange, and purple (grape) liquids are to be avoided.
- c. Consult with the PHCP regarding medications that must be withheld before the test.
- d. Client is NPO for 4 to 6 hours prior to the test.
- e. Moderate sedation is administered intravenously.
- f. Medication may be administered to relax smooth muscle.

3. Postprocedure

- a. Monitor vital signs.
- b. Provide bed rest until alert.
- c. Monitor for signs of bowel perforation and peritonitis ([Box 48-3](#)).
- d. Remind the client that passing flatus, abdominal fullness, and mild cramping are expected for several hours.
- e. Instruct the client to report any bleeding to the PHCP.



The client receiving oral liquid bowel

cleansing preparations or enemas is at risk for fluid and electrolyte imbalances.

F. Laparoscopy is performed with a fiberoptic laparoscope that allows direct visualization of organs and structures within the abdomen; biopsies may be obtained.



G. Endoscopic retrograde cholangiopancreatography (ERCP)

1. Description

- a. Examination of the hepatobiliary system is performed via a flexible endoscope inserted into the esophagus to the descending duodenum; multiple positions are required during the procedure to pass the endoscope.
- b. If medication is administered before the procedure, the client is monitored closely for signs of respiratory and central nervous system depression, hypotension, oversedation, and vomiting.

2. Preprocedure

- a. Client is NPO for 6 to 8 hours.
- b. Inquire about previous exposure to contrast media and any sensitivities or allergies.
- c. Moderate sedation is administered.

3. Postprocedure

- a. Monitor vital signs.
- b. Monitor for the return of the gag reflex.
- c. Monitor for signs of perforation or peritonitis (see [Box 48-3](#)).

H. Magnetic resonance cholangiopancreatography (MRCP)

1. Description: Uses magnetic resonance to visualize the biliary and pancreatic ducts in a noninvasive way.
2. Preprocedure and postprocedure: see ERCP

I. Endoscopic ultrasonography

1. Description: Provides images of the GI wall and digestive organs.
2. Preprocedure and postprocedure: Care is similar to that implemented for endoscopy.



Following endoscopic procedures, monitor for the return of the gag reflex before giving the client any oral substance. If the gag reflex

has not returned, the client could aspirate.

J. Computed tomography (CT) scan

1. Description

- a. Noninvasive cross-sectional view that can detect tissue densities in the abdomen, including in the liver, spleen, pancreas, and biliary tree.
- b. Can be performed with or without contrast medium.

2. Preprocedure

- a. Client is NPO for at least 4 hours.
- b. If contrast medium will be used, assess for previous sensitivities and allergies.

3. Postprocedure: No specific care is required.



K. Paracentesis

1. Description and preprocedure (see [Priority Nursing Actions](#))



Priority Nursing Actions

Paracentesis

1. Ensure that the client understands the procedure and that informed consent has been obtained.
2. Obtain vital signs, including weight, and assist the client to void.
3. Position the client upright.
4. Assist the primary health care provider (PHCP), monitor vital signs, and provide comfort and support during the procedure.
5. Apply a dressing to the site of puncture.
6. Monitor vital signs, especially blood pressure and pulse, because these parameters provide information on rapid vasodilation postparacentesis; weigh the client postprocedure, and maintain the client on bed rest.
7. Measure the amount of fluid removed.
8. Label and send the fluid for laboratory analysis.
9. Document the event, client's response, and appearance and amount of fluid removed.

Reference

Ignatavicius, Workman, Rebar (2018), p. 1177.



2. Postprocedure

- a. Monitor vital signs.
- b. Measure fluid collected, describe, and record.
- c. Label fluid samples and send to the laboratory for analysis.
- d. Apply a dry sterile dressing to the insertion site; monitor the site for bleeding.
- e. Measure abdominal girth and weight.

- f. Monitor for hypovolemia, electrolyte loss, mental status changes, or encephalopathy.
- g. Monitor for hematuria caused by bladder trauma.
- h. Instruct the client to notify the PHCP if the urine becomes bloody, pink, or red.



The rapid removal of fluid from the abdominal cavity during paracentesis leads to decreased abdominal pressure, which can cause vasodilation and resultant shock; therefore, heart rate and blood pressure must be monitored closely.



L. Liver biopsy

1. Description: A needle is inserted through the abdominal wall to the liver to obtain a tissue sample for biopsy and microscopic examination.
2. Preprocedure
 - a. Assess results of coagulation tests (prothrombin time, partial thromboplastin time, platelet count).
 - b. Administer a sedative as prescribed.
 - c. Note that the client is placed in the supine or left lateral position during the procedure to expose the right side of the upper abdomen.
3. Postprocedure
 - a. Assess vital signs.
 - b. Assess biopsy site for bleeding.
 - c. Monitor for peritonitis (see [Box 48-3](#)).
 - d. Maintain bed rest for several hours as prescribed.
 - e. Place the client on the right side with a pillow under the costal margin for 2 hours to decrease the risk of bleeding, and instruct the client to avoid coughing and straining.
 - f. Instruct the client to avoid heavy lifting and strenuous exercise for 1 week.

M. Stool specimens

1. Testing of stool specimens includes inspecting the specimen for consistency and color and testing for occult blood.
2. Tests for fecal urobilinogen, fat, nitrogen, parasites,

pathogens, food substances, and other substances may be performed; these tests require that the specimen be sent to the laboratory.

3. Random specimens are sent promptly to the laboratory.
4. Quantitative 24- to 72-hour collections must be kept refrigerated until they are taken to the laboratory.
5. Some specimens require that a certain diet be followed or that certain medications be withheld; check agency guidelines regarding specific procedures.

N. Urea breath test

1. The urea breath test detects the presence of *Helicobacter pylori*, the bacteria that cause peptic ulcer disease.
2. The client consumes a capsule of carbon-labeled urea and provides a breath sample 10 to 20 minutes later.
3. Certain medications may need to be avoided before testing. These may include antibiotics or bismuth subsalicylate for 1 month before the test; sucralfate and omeprazole for 1 week before the test; and cimetidine, famotidine, ranitidine, and nizatidine for 24 hours before breath testing.
4. *H. pylori* can also be detected by assessing serum antibody levels.

O. Esophageal pH testing for gastroesophageal reflux disease

1. Used to diagnose or evaluate the treatment for heartburn or reflux disease
2. A probe is inserted into the nostril and is situated in the esophagus.
3. pH is tested over a period of 24 to 48 hours.



P. Liver and pancreas laboratory studies

1. Liver enzyme levels (alkaline phosphatase [ALP], aspartate aminotransferase [AST], and alanine aminotransferase [ALT]) are elevated with liver damage or biliary obstruction. Normal reference intervals: ALP, 38-126 U/L (0.65-2.14 μ kat/L); AST, 0 to 35 U/L (0 to 35 U/L); ALT, 4 to 36 U/L (4 to 36 U/L).
2. Prothrombin time is prolonged with liver damage. Normal reference interval: 11 to 12.5 seconds.
3. The serum ammonia level assesses the ability of the liver to deaminate protein byproducts. Normal reference interval: 10 to 80 mcg/dL (6 to 47 mcmol/L).
4. An increase in cholesterol level indicates *pancreatitis* or biliary obstruction. Normal reference interval: less than 200 mg/dL (less than 5.0 mmol/L).
5. An increase in bilirubin level indicates liver damage or biliary obstruction. Normal reference intervals: total, 0.3 to 1.0 mg/dL (5.1 to 17 mcmol/L); indirect, 0.2 to

0.8 mg/dL (3.4 to 12 mcmol/L); direct, 0.1 to 0.3 mg/dL (1.7 to 5.1 mcmol/L).

6. Increased values for amylase and lipase levels indicate pancreatitis. Normal reference intervals: amylase, 60 to 120 Somogyi units/dL (100 to 300 U/L); lipase, 0 to 160 U/L (0 to 160 U/L).

III. Assessment: See [Chapter 12](#) for abdominal assessment techniques.

IV. Gastrointestinal Tubes: See [Chapter 69](#) for information regarding these tubes.

V. Gastroesophageal Reflux Disease

A. Description

1. The backflow of gastric and duodenal contents into the esophagus.
2. The reflux is caused by an incompetent lower esophageal sphincter (LES), pyloric stenosis, or motility disorder.

B. Assessment

1. Heartburn, epigastric pain
2. Dyspepsia
3. Nausea, regurgitation
4. Pain and difficulty with swallowing
5. Hypersalivation



C. Interventions

1. Instruct the client to avoid factors that decrease LES pressure or cause esophageal irritation, such as peppermint, chocolate, coffee, fried or fatty foods, carbonated beverages, alcoholic beverages, and cigarette smoking.
2. Instruct the client to eat a low-fat, high-fiber diet and to avoid eating and drinking 2 hours before bedtime and wearing tight clothes; also, elevate the head of the bed on 6- to 8-inch (15 to 20 cm) blocks.
3. Avoid the use of anticholinergics, which delay stomach emptying; also, nonsteroidal anti-inflammatory medications (NSAIDs) and other medications that contain acetylsalicylic acid need to be avoided.
4. Instruct the client regarding prescribed medications, such as antacids, H₂-receptor antagonists, or proton pump inhibitors.
5. Instruct the client regarding the administration of prokinetic medications, if prescribed, which accelerate gastric emptying.
6. Surgery may be required in extreme cases when medical management is unsuccessful; this involves a fundoplication (wrapping a portion of the gastric

fundus around the sphincter area of the esophagus); surgery may be performed by laparoscopy.

VI. Gastritis

A. Description

1. Inflammation of the stomach or gastric mucosa
2. Acute gastritis is caused by the ingestion of food contaminated with disease-causing microorganisms or food that is irritating or too highly seasoned, the overuse of aspirin or other NSAIDs, excessive alcohol intake, bile reflux, or radiation therapy.
3. Chronic gastritis is caused by benign or malignant ulcers or by the bacteria *H. pylori*, and also may be caused by autoimmune diseases, dietary factors, medications, alcohol, smoking, or reflux.

B. Assessment (Box 48-4)



C. Interventions

1. Acute gastritis: Food and fluids may be withheld until symptoms subside; afterward, and as prescribed, ice chips can be given, followed by clear liquids, and then solid food.
2. Monitor for signs of hemorrhagic gastritis such as hematemesis, tachycardia, and hypotension, and notify the PHCP if these signs occur.
3. Instruct the client to avoid irritating foods, fluids, and other substances, such as spicy and highly seasoned foods, caffeine, alcohol, and nicotine.
4. Instruct the client in the use of prescribed medications, such as antibiotics to treat *H. pylori*, and antacids.
5. Provide the client with information about the importance of vitamin B₁₂ injections if a deficiency is present.

VII. Peptic Ulcer Disease

A. Description

1. A peptic ulcer is an ulceration in the mucosal wall of the stomach, pylorus, duodenum, or esophagus in portions accessible to gastric secretions; erosion may extend through the muscle.
2. The ulcer may be referred to as *gastric*, *duodenal*, or *esophageal*, depending on its location.
3. The most common peptic ulcers are gastric ulcers and duodenal ulcers.

B. Gastric ulcers

1. Description

- a. A gastric ulcer involves ulceration of the mucosal lining that extends to the submucosal layer of the stomach.

- b. Predisposing factors include stress, smoking, the use of corticosteroids, NSAIDs, alcohol, history of gastritis, family history of gastric ulcers, or infection with *H. pylori*.
- c. Complications include hemorrhage, perforation, and pyloric obstruction.



2. Assessment (Box 48-5)



3. Interventions

- a. Monitor vital signs and for signs of bleeding.
- b. Administer small, frequent bland feedings during the active phase.
- c. Administer H₂-receptor antagonists or proton pump inhibitors as prescribed to decrease the secretion of gastric acid.
- d. Administer antacids as prescribed to neutralize gastric secretions.
- e. Administer anticholinergics as prescribed to reduce gastric motility.
- f. Administer mucosal barrier protectants as prescribed 1 hour before each meal.
- g. Administer prostaglandins as prescribed for their protective and antisecretory actions.



4. Client education

- a. Avoid consuming alcohol and substances that contain caffeine or chocolate.
- b. Avoid smoking.
- c. Avoid aspirin or NSAIDs.
- d. Obtain adequate rest and reduce stress.



5. Interventions during active bleeding


- a. Monitor vital signs closely.
- b. Assess for signs of dehydration, hypovolemic shock, sepsis, and respiratory insufficiency.
- c. Maintain NPO status and administer intravenous (IV) fluid replacement as prescribed; monitor intake and output.
- d. Monitor hemoglobin and hematocrit.

- e. Administer blood transfusions as prescribed.
- f. Prepare to assist with administering medications as prescribed to induce vasoconstriction and reduce bleeding.

6. Surgical interventions

- a. Total **gastrectomy**: Removal of the stomach with attachment of the esophagus to the jejunum or duodenum; also called *esophagojejunostomy* or *esophagoduodenostomy*
- b. **Vagotomy**: Surgical division of the vagus nerve to eliminate the vagal impulses that stimulate hydrochloric acid secretion in the stomach
- c. **Gastric resection**: Removal of the lower half of the stomach and usually includes a vagotomy; also called *antrectomy*
- d. **Gastroduodenostomy**: Partial gastrectomy, with the remaining segment anastomosed to the duodenum; also called **Billroth I** (Fig. 48-1)
- e. **Gastrojejunostomy**: Partial gastrectomy, with the remaining segment anastomosed to the jejunum; also called **Billroth II** (Fig. 48-2)
- f. **Pyloroplasty**: Enlargement of the pylorus to prevent or decrease pyloric obstruction, thereby enhancing gastric emptying

7. Postoperative interventions

- a. Monitor vital signs.
-  b. Place in a Fowler's position for comfort and to promote drainage.
- c. Administer fluids and electrolyte replacements intravenously as prescribed; monitor intake and output.
- d. Assess bowel sounds.
- e. Monitor NG suction as prescribed.
- f. Maintain NPO status as prescribed for 1 to 3 days until peristalsis returns.
- g. Progress the diet from NPO to sips of clear water to 6 small bland meals a day, as prescribed when bowel sounds

return.



h. Monitor for postoperative

complications of hemorrhage, **dumping syndrome**, diarrhea, hypoglycemia, and vitamin B₁₂ deficiency.



Following gastric surgery, do not irrigate or

remove the NG tube unless specifically prescribed because of the risk for disruption of the gastric sutures. Monitor closely to ensure proper functioning of the NG tube to prevent strain on the anastomosis site. Contact the surgeon if the tube is not functioning properly.

C. Duodenal ulcers

1. Description

- a. A duodenal ulcer is a break in the mucosa of the duodenum.
- b. Risk factors and causes include infection with *H. pylori*; alcohol intake; smoking; stress; caffeine; and the use of aspirin, corticosteroids, and NSAIDs.
- c. Complications include bleeding, perforation, gastric outlet obstruction, and intractable disease.



2. Assessment (see [Box 48-5](#))



3. Interventions

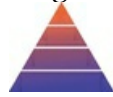
- a. Monitor vital signs.
- b. Instruct the client about a bland diet, with small, frequent meals.
- c. Provide for adequate rest.
- d. Encourage the cessation of smoking.
- e. Instruct the client to avoid alcohol intake; caffeine; and the use of aspirin, corticosteroids, and NSAIDs.
- f. Administer medications to treat *H. pylori* and antacids to neutralize acid secretions as prescribed.
- g. Administer H₂-receptor antagonists or proton pump inhibitors as prescribed to block the secretion of acid.

4. Surgical interventions: Surgery is performed only if

the ulcer is unresponsive to medications or if hemorrhage, obstruction, or perforation occurs.

D. Dumping syndrome

1. Description: The rapid emptying of the gastric contents into the small intestine that occurs following gastric resection



2. Assessment

- a. Symptoms occurring 30 minutes after eating
- b. Nausea and vomiting
- c. Feelings of abdominal fullness and abdominal cramping
- d. Diarrhea
- e. Palpitations and tachycardia
- f. Perspiration
- g. Weakness and dizziness
- h. Borborygmi (loud gurgling sounds resulting from bowel hypermotility)



3. Client education ([Box 48-6](#))

VIII. Vitamin B₁₂ Deficiency: See [Chapter 44](#) for more information.

IX. Bariatric Surgery

A. Description

1. Surgical reduction of gastric capacity or absorptive ability that may be performed on a client with morbid obesity to produce long-term weight loss
2. Surgery may be performed by laparoscopy; the decision is based on the client's weight, body build, history of abdominal surgery, and current medical disorders.



3. Obese clients are at increased postoperative

risk for pulmonary and thromboembolic complications and death.

4. Surgery can prevent the complications of obesity, such as diabetes mellitus, hypertension and other cardiovascular disorders, or sleep apnea.



5. The client needs to agree to modify her or his

lifestyle, lose weight and keep the weight off, and obtain support from available community resources such as the American Obesity Association, American Society of Bariatric Surgery, or Overeaters Anonymous.

B. Types ([Fig. 48-3](#))

C. Postoperative interventions

1. Care is similar to that for the client undergoing laparoscopic or abdominal surgery.
2. As prescribed, if the client can tolerate water, clear liquids are introduced slowly in 1-ounce (30 mL) cups for each serving once bowel sounds have returned and the client passes flatus.
3. As prescribed, clear fluids are followed by puréed foods, juices, thin soups, and milk 24 to 48 hours after clear fluids are tolerated (the diet is usually limited to liquids or puréed foods for 6 weeks); then the diet is progressed to nutrient-dense regular food.



D. Client teaching points about diet (Box 48-7)

X. Gastric Cancer: See [Chapter 44](#) for more information.

XI. Hiatal Hernia

A. Description

1. A **hiatal hernia** is also known as *esophageal* or *diaphragmatic hernia*.
2. A portion of the stomach herniates through the diaphragm and into the thorax.
3. Herniation results from weakening of the muscles of the diaphragm and is aggravated by factors that increase abdominal pressure such as pregnancy, **ascites**, obesity, tumors, and heavy lifting.
4. Complications include ulceration, hemorrhage, regurgitation and aspiration of stomach contents, strangulation, and incarceration of the stomach in the chest with possible necrosis, peritonitis, and mediastinitis.

B. Assessment

1. Heartburn
2. Regurgitation or vomiting
3. Dysphagia
4. Feeling of fullness



C. Interventions

1. Medical and surgical management are similar to those for gastroesophageal reflux disease.
2. Provide small frequent meals and limit the amount of liquids taken with meals.
3. Advise the client not to recline for 1 hour after eating.
4. Avoid anticholinergics, which delay stomach emptying.


XII. Cholecystitis


A. Description

1. Inflammation of the gallbladder that may occur as an

- acute or chronic process
- 2. Acute inflammation is associated with gallstones (cholelithiasis).
- 3. Chronic **cholecystitis** results when inefficient bile emptying and gallbladder muscle wall disease cause a fibrotic and contracted gallbladder.
- 4. Acalculous cholecystitis occurs in the absence of gallstones and is caused by bacterial invasion via the lymphatic or vascular system.

B. Assessment

- 1. Nausea and vomiting
- 2. Indigestion
- 3. Belching
- 4. Flatulence
-  5. Epigastric pain that radiates to the right shoulder or scapula
- 6. Pain localized in the right upper quadrant and triggered by a high-fat or high-volume meal
- 7. Guarding, rigidity, and rebound tenderness
- 8. Mass palpated in the right upper quadrant

-  9. **Murphy's sign** (cannot take a deep breath when the examiner's fingers are passed below the hepatic margin because of pain)
- 10. Elevated temperature
- 11. Tachycardia
- 12. Signs of dehydration

C. Biliary obstruction (choledolithiasis)

- 1. Jaundice
- 2. Dark orange and foamy urine
- 3. Steatorrhea and clay-colored feces
- 4. Pruritus

D. Interventions

- 1. Maintain NPO status during nausea and vomiting episodes.
- 2. Maintain NG decompression as prescribed for severe vomiting.
- 3. Administer antiemetics as prescribed for nausea and vomiting.
- 4. Administer analgesics as prescribed to relieve pain and reduce spasm.
- 5. Administer antispasmodics (anticholinergics) as prescribed to relax smooth muscle.
- 6. Instruct the client with chronic cholecystitis to eat

small, low-fat meals.

7. Instruct the client to avoid gas-forming foods.
8. Prepare the client for nonsurgical and surgical procedures as prescribed.

E. Surgical interventions

1. **Cholecystectomy** is the removal of the gallbladder.
2. **Choledocholithotomy** requires incision into the common bile duct to remove the stone.
3. Surgical procedures may be performed by laparoscopy.

F. Postoperative interventions



1. Monitor for respiratory complications caused by pain at the incisional site.



2. Encourage coughing and deep breathing.
3. Encourage early ambulation.
4. Instruct the client about splinting the abdomen to prevent discomfort during coughing.
5. Administer antiemetics as prescribed for nausea and vomiting.
6. Administer analgesics as prescribed for pain relief.



7. Maintain NPO status and NG tube suction as prescribed.
8. Advance diet from clear liquids to solids when prescribed and as tolerated by the client.
9. Maintain and monitor drainage from the T-tube, if present (Box 48-8).

XIII. Cirrhosis

A. Description

1. A chronic, progressive disease of the liver characterized by diffuse degeneration and destruction of hepatocytes
2. Repeated destruction of hepatic cells causes the formation of scar tissue.
3. Cirrhosis has many causes and is due to chronic damage and injury to liver cells; the most common are chronic hepatitis C, alcoholism, **nonalcoholic fatty liver disease (NAFLD)**, and **nonalcoholic steatohepatitis (NASH)**.



B. Complications

1. Portal hypertension: A persistent increase in pressure in the portal vein that develops as a result of obstruction to flow.
2. **Ascites**

- a. Accumulation of fluid in the peritoneal cavity that results from venous congestion of the hepatic capillaries
 - b. Capillary congestion leads to plasma leaking directly from the liver surface and portal vein.
- 3. Bleeding **esophageal varices**: Fragile, thin-walled, distended esophageal veins that become irritated and rupture
- 4. Coagulation defects
 - a. Decreased synthesis of bile fats in the liver prevents the absorption of fat-soluble vitamins.
 - b. Without vitamin K and clotting factors II, VII, IX, and X, the client is prone to bleeding.
- 5. Jaundice: Occurs because the liver is unable to metabolize bilirubin and because the edema, fibrosis, and scarring of the hepatic bile ducts interfere with normal bile and bilirubin secretion
- 6. Portal systemic encephalopathy: End-stage hepatic failure characterized by altered level of consciousness, neurological symptoms, impaired thinking, and neuromuscular disturbances; caused by failure of the diseased liver to detoxify neurotoxic agents such as ammonia
- 7. Hepatorenal syndrome
 - a. Progressive renal failure associated with hepatic failure
 - b. Characterized by a sudden decrease in urinary output, elevated blood urea nitrogen and creatinine levels, decreased urine sodium excretion, and increased urine osmolarity



C. Assessment (Fig. 48-4)



D. Interventions

1. Elevate the head of the bed to minimize shortness of breath.
2. If ascites and edema are absent and the client does not exhibit signs of impending coma, a high-protein diet supplemented with vitamins is prescribed.
3. Provide supplemental vitamins (B complex; vitamins A, C, and K; folic acid; and thiamine) as prescribed.
4. Restrict sodium intake and fluid intake as prescribed.
5. Initiate enteral feedings or parenteral nutrition as

- prescribed.
6. Administer diuretics as prescribed to treat ascites.
 7. Monitor intake and output and electrolyte balance.
 8. Weigh client and measure abdominal girth daily (Fig. 48-5).
 9. Monitor level of consciousness; assess for precoma state (tremors, delirium).
 10. Monitor for **asterixis**, a coarse tremor characterized by rapid, nonrhythmic extensions and flexions in the wrist and fingers (Fig. 48-6).
 11. Monitor for **fetor hepaticus**, the fruity, musty breath odor of severe chronic liver disease.
 12. Maintain gastric intubation to assess bleeding or esophagogastric balloon tamponade to control bleeding varices if prescribed.
 13. Administer blood products as prescribed.
 14. Monitor coagulation laboratory results; administer vitamin K if prescribed.
 15. Administer antacids as prescribed.
 16. Administer lactulose as prescribed, which decreases the pH of the bowel, decreases production of ammonia by bacteria in the bowel, and facilitates the excretion of ammonia.
 17. Administer antibiotics as prescribed to inhibit protein synthesis in bacteria and decrease the production of ammonia.
 18. Avoid medications such as opioids, sedatives, and barbiturates and any hepatotoxic medications or substances.
 19. Instruct the client about the importance of abstinence of alcohol intake.
 20. Prepare the client for paracentesis to remove abdominal fluid.
 21. Prepare the client for surgical shunting procedures if prescribed to divert fluid from ascites into the venous system.

XIV. Esophageal Varices

A. Description

1. Dilated and tortuous veins in the submucosa of the esophagus
2. Caused by portal hypertension, often associated with liver **cirrhosis**; are at high risk for rupture if portal circulation pressure rises
3. Bleeding varices are an emergency.
4. The goal of treatment is to control bleeding, prevent complications, and prevent the recurrence of bleeding.

B. Assessment

1. Hematemesis
2. **Melena**
3. Ascites
4. Jaundice
5. Hepatomegaly and splenomegaly
6. Dilated abdominal veins
7. Signs of shock



Rupture and resultant hemorrhage of esophageal varices is the primary concern, because it is a life-threatening situation.



C. Interventions

1. Monitor vital signs.
2. Elevate the head of the bed.
3. Monitor for orthostatic hypotension.
4. Monitor lung sounds and for the presence of respiratory distress.
5. Administer oxygen as prescribed to prevent tissue hypoxia.
6. Monitor level of consciousness.
7. Maintain NPO status.
8. Administer fluids intravenously as prescribed to restore fluid volume and electrolyte imbalances; monitor intake and output.
9. Monitor hemoglobin and hematocrit values and coagulation factors.
10. Administer blood transfusions or clotting factors as prescribed.
11. Assist in inserting an NG tube or a balloon tamponade as prescribed; balloon tamponade is not used frequently because it is very uncomfortable for the client and its use is associated with complications.
12. Prepare to assist with administering medications to induce vasoconstriction and reduce bleeding.
13. Instruct the client to avoid activities that will initiate vasovagal responses.
14. Prepare the client for endoscopic procedures or surgical procedures as prescribed.

D. Endoscopic injection (sclerotherapy)

1. The procedure involves the injection of a sclerosing agent into and around bleeding varices.
2. Complications include chest pain, pleural effusion, aspiration pneumonia, esophageal stricture, and perforation of the esophagus.

E. Endoscopic variceal ligation

1. The procedure involves ligation of the varices with an

elastic rubber band.

2. Sloughing, followed by superficial ulceration, occurs in the area of ligation within 3 to 7 days.

F. Shunting procedures

1. Description: Shunt blood away from the esophageal varices
2. Portacaval shunting involves anastomosis of the portal vein to the inferior vena cava, diverting blood from the portal system to the systemic circulation (Fig. 48-7).
3. Distal splenorenal shunt (see Fig. 48-7)
 - a. The shunt involves anastomosis of the splenic vein to the left renal vein.
 - b. The spleen conducts blood from the high-pressure varices to the low-pressure renal vein.
4. Mesocaval shunting involves a side anastomosis of the superior mesenteric vein to the proximal end of the inferior vena cava.
5. Transjugular intrahepatic portosystemic shunt (TIPS)
 - a. This procedure uses the normal vascular anatomy of the liver to create a shunt with the use of a metallic stent.
 - b. The shunt is between the portal and systemic venous system in the liver and is aimed at relieving portal hypertension.

XV. Hepatitis

A. Description

1. Inflammation of the liver caused by a virus, bacteria, or exposure to medications or hepatotoxins
2. The goals of treatment include resting the inflamed liver to reduce metabolic demands and increasing the blood supply, thus promoting cellular regeneration and preventing complications.

B. Types of **hepatitis** include hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis D virus (HDV), and hepatitis E virus (HEV).



C. Assessment and stages of viral hepatitis (Box 48-9)

XVI. Hepatitis A

A. Description: Formerly known as *infectious hepatitis*

B. Individuals at increased risk

1. Crowded conditions (e.g., day care, nursing home)
2. Exposure to poor sanitation



C. Transmission

1. Fecal-oral route
2. Person-to-person contact
3. Parenteral
4. Contaminated fruits or vegetables, or uncooked shellfish
5. Contaminated water or milk
6. Poorly washed utensils

D. Incubation and infectious period

1. Incubation period is 2 to 6 weeks.
2. Infectious period is 2 to 3 weeks before and 1 week after development of jaundice.

E. Testing

1. Infection is established by the presence of HAV antibodies (anti-HAV) in the blood.
2. Immunoglobulin M (IgM) and immunoglobulin G (IgG) are normally present in the blood, and increased levels indicate infection and inflammation.
3. Ongoing inflammation of the liver is evidenced by the presence of elevated levels of IgM antibodies, which persist in the blood for 4 to 6 weeks.
4. Previous infection is indicated by the presence of elevated levels of IgG antibodies.

F. Complication: Fulminant (severe acute and often fatal) hepatitis



G. Prevention

1. Strict hand washing
2. Stool and needle precautions
3. Treatment of municipal water supplies
4. Serological screening of food handlers
5. Hepatitis A vaccine: Two doses are needed at least 6 months apart for lasting protection. For additional information, refer to <http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-a.html>
6. Immune globulin: For individuals exposed to HAV who have never received the hepatitis A vaccine; administer immune globulin during the period of incubation and within 2 weeks of exposure.
7. Immune globulin and hepatitis A vaccine are recommended for household members and sexual contacts of individuals with hepatitis A.
8. Preexposure prophylaxis with immune globulin is recommended to individuals traveling to countries with poor or uncertain sanitation conditions.



Strict and frequent hand washing is key to preventing the

spread of all types of hepatitis.

XVII. Hepatitis B

A. Description

1. Hepatitis B is nonseasonal.
2. All age groups can be affected.

B. Individuals at increased risk

1. IV drug users
2. Clients undergoing long-term hemodialysis
3. Health care personnel



C. Transmission

1. Blood or body fluid contact
2. Infected blood products
3. Infected saliva or semen
4. Contaminated needles
5. Sexual contact
6. Parenteral
7. Perinatal period
8. Blood or body fluid contact at birth

D. Incubation period: 6 to 24 weeks

E. Testing

1. Infection is established by the presence of hepatitis B antigen–antibody systems in the blood.
2. The presence of hepatitis B surface antigen (HBsAg) is the serological marker establishing the diagnosis of hepatitis B.
3. The client is considered infectious if these antigens are present in the blood.
4. If the serological marker (HBsAg) is present after 6 months, it indicates a carrier state or chronic hepatitis.
5. Normally, the serological marker (HBsAg) level declines and disappears after the acute hepatitis B episode.
6. The presence of antibodies to HBsAg (anti-HBs) indicates recovery and immunity to hepatitis B.
7. Hepatitis B early antigen (HBeAg) is detected in the blood about 1 week after the appearance of HBsAg, and its presence determines the infective state of the client.

F. Complications

1. Fulminant hepatitis
2. Chronic liver disease
3. Cirrhosis
4. Primary hepatocellular carcinoma



G. Prevention

1. Strict hand washing
2. Screening blood donors

3. Testing of all pregnant women
4. Needle precautions
5. Avoiding intimate sexual contact and contact with body fluids if test for HBsAg is positive.
6. Hepatitis B vaccine: Adult and pediatric forms; there is also an adult vaccine that protects against hepatitis A and B.
7. Hepatitis B immune globulin is for individuals exposed to HBV through sexual contact or through the percutaneous or transmucosal routes who have never had hepatitis B and have never received hepatitis B vaccine.

XVIII. Hepatitis C

A. Description

1. HCV infection occurs year-round.
2. Infection can occur in any age group.
3. Infection with HCV is common among IV drug users and is the major cause of posttransfusion hepatitis.
4. Risk factors are similar to those for HBV, because hepatitis C is also transmitted parenterally.

B. Individuals at increased risk

1. Parenteral drug users
2. Clients receiving frequent transfusions
3. Health care personnel



C. Transmission: Same as for HBV, primarily through blood

D. Incubation period: 5 to 10 weeks

E. Testing: Anti-HCV is the antibody to HCV and is measured to detect chronic states of hepatitis C.

F. Complications

1. Chronic liver disease
2. Cirrhosis
3. Primary hepatocellular carcinoma



G. Prevention

1. Strict hand washing
2. Needle precautions
3. Screening of blood donors

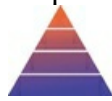
XIX. Hepatitis D

A. Description

1. Hepatitis D is common in the Mediterranean and Middle Eastern areas.
2. Hepatitis D occurs with hepatitis B and causes infection only in the presence of active HBV infection.
3. Coinfection with the delta agent (HDV) intensifies the acute symptoms of hepatitis B.



4. Transmission and risk of infection are the same as for HBV, via contact with blood and blood products.



5. Prevention of HBV infection with vaccine also prevents HDV infection, because HDV depends on HBV for replication.

B. High-risk individuals

1. Drug users
2. Clients receiving hemodialysis
3. Clients receiving frequent blood transfusions

C. Transmission: Same as for HBV

D. Incubation period: 7 to 8 weeks

E. Testing: Serological HDV determination is made by detection of the hepatitis D antigen (HDAg) early in the course of the infection and by detection of anti-HDV antibody in the later disease stages.

F. Complications

1. Chronic liver disease
2. Fulminant hepatitis



G. Prevention: Because hepatitis D must coexist with

hepatitis B, the precautions that help prevent hepatitis B are also useful in preventing delta hepatitis.

XX. Hepatitis E

A. Description

1. Hepatitis E is a waterborne virus.
2. Hepatitis E is prevalent in areas where sewage disposal is inadequate or where communal bathing in contaminated rivers is practiced.
3. Risk of infection is the same as for HAV.
4. Infection with HEV presents as a mild disease except in infected women in the third trimester of pregnancy, who have a high mortality rate.

B. Individuals with increased risk

1. Travelers to countries that have a high incidence of hepatitis E, such as India, Burma (Myanmar), Afghanistan, Algeria, and Mexico
2. Eating or drinking of food or water contaminated with the virus



C. Transmission: Same as for HAV

D. Incubation period: 2 to 9 weeks

E. Testing: Specific serological tests for HEV include detection of IgM and IgG antibodies to hepatitis E (anti-HEV).

F. Complications

1. High mortality rate in pregnant women
2. Fetal demise



G. Prevention

1. Strict hand washing
2. Treatment of water supplies and sanitation measures



XXI. Client and Family Home Care Instructions for Hepatitis: See [Box](#)

48-10

XXII. Pancreatitis

A. Description

1. Acute or chronic inflammation of the pancreas, with associated escape of pancreatic enzymes into surrounding tissue
2. Acute pancreatitis occurs suddenly as 1 attack or can be recurrent, with resolutions.
3. Chronic pancreatitis is a continual inflammation and destruction of the pancreas, with scar tissue replacing pancreatic tissue.
4. Precipitating factors include trauma, the use of alcohol, biliary tract disease, viral or bacterial disease, hyperlipidemia, hypercalcemia, cholelithiasis, hyperparathyroidism, ischemic vascular disease, and peptic ulcer disease.

B. Acute pancreatitis



1. Assessment

- a. Abdominal pain, including a sudden onset at a midepigastic or left upper quadrant location with radiation to the back
- b. Pain aggravated by a fatty meal, alcohol, or lying in a recumbent position
- c. Abdominal tenderness and guarding
- d. Nausea and vomiting
- e. Weight loss
- f. Absent or decreased bowel sounds
- g. Elevated white blood cell count and elevated glucose, bilirubin, alkaline phosphatase, and urinary amylase levels
- h. Elevated serum lipase and amylase levels
- i. **Cullen's sign**
- j. **Turner's sign**



Cullen's sign is the discoloration of the abdomen and periumbilical area. Turner's sign is the bluish discoloration of the flanks. Both signs are indicative of pancreatitis.

2. Interventions



- a. Withhold food and fluid during the acute period and maintain hydration with IV fluids as prescribed.
- b. Administer parenteral nutrition for severe nutritional depletion.
- c. Administer supplemental preparations and vitamins and minerals to increase caloric intake if prescribed.
- d. An NG tube may be inserted if the client is vomiting or has biliary obstruction or paralytic ileus.
- e. Administer opiates as prescribed for pain.
- f. Administer H₂-receptor antagonists or proton pump inhibitors as prescribed to decrease hydrochloric acid production and prevent activation of pancreatic enzymes.
- g. Instruct the client in the importance of avoiding alcohol.
- h. Instruct the client in the importance of follow-up visits with the PHCP.
- i. Instruct the client to notify the PHCP if acute abdominal pain, jaundice, clay-colored stools, or dark-colored urine develops.

C. Chronic pancreatitis



1. Assessment

- a. Abdominal pain and tenderness
- b. Left upper quadrant mass
- c. Steatorrhea and foul-smelling stools that may increase in volume as pancreatic insufficiency increases
- d. Weight loss
- e. Muscle wasting
- f. Jaundice
- g. Signs and symptoms of diabetes

mellitus



2. Interventions

- a. Instruct the client in the prescribed dietary measures (fat and protein intake may be limited).
- b. Instruct the client to avoid heavy meals.
- c. Instruct the client about the importance of avoiding alcohol.
- d. Provide supplemental preparations and vitamins and minerals to increase caloric intake.
- e. Administer pancreatic enzymes as prescribed to aid in the digestion and absorption of fat and protein.
- f. Administer insulin or oral hypoglycemic medications as prescribed to control diabetes mellitus, if present.
- g. Instruct the client in the use of pancreatic enzyme medications.
- h. Instruct the client in the treatment plan for glucose management.
- i. Instruct the client to notify the PHCP if increased steatorrhea, abdominal distention or cramping, or skin breakdown develops.
- j. Instruct the client in the importance of follow-up visits.

XXIII. Pancreatic Tumors, Intestinal Tumors, and Bowel Obstructions: See [Chapter 44](#) for more information.

XXIV. Irritable Bowel Syndrome (IBS)

A. Description

1. Functional disorder characterized by chronic or recurrent diarrhea, constipation, and/or abdominal pain and bloating
2. Cause is unclear but may be influenced by environmental, immunological, genetic, hormonal, and stress factors

B. Interventions

1. Increase dietary fiber.
2. Drink 8 to 10 cups of liquids per day.
3. Medication therapy: Depends on the predominant symptoms of IBS (antidiarrheals versus bulk-forming laxatives; lubiprostone or linaclotide for constipation-predominant IBS and alosetron for diarrhea-predominant IBS)

XXV. Ulcerative Colitis

A. Description

1. An ulcerative and inflammatory disease of the bowel that results in poor absorption of nutrients.
2. Commonly begins in the rectum and spreads upward toward the cecum
3. The colon becomes edematous and may develop bleeding lesions and ulcers; the ulcers may lead to perforation.
4. Scar tissue develops and causes loss of elasticity and loss of the ability to absorb nutrients.
5. Colitis is characterized by various periods of remissions and exacerbations.
6. Acute **ulcerative colitis** results in vascular congestion, hemorrhage, edema, and ulceration of the bowel mucosa.
7. Chronic ulcerative colitis causes muscular hypertrophy, fat deposits, and fibrous tissue, with bowel thickening, shortening, and narrowing.

B. Assessment

1. Anorexia
2. Weight loss
3. Malaise
4. Abdominal tenderness and cramping
5. Severe diarrhea that may contain blood and mucus
6. Malnutrition, dehydration, and electrolyte imbalances
7. Anemia
8. Vitamin K deficiency

C. Interventions

1. Acute phase: Maintain NPO status and administer fluids and electrolytes intravenously or via parenteral nutrition as prescribed.
2. Restrict the client's activity to reduce intestinal activity.
3. Monitor bowel sounds and for abdominal tenderness and cramping.
4. Monitor stools, noting color, consistency, and the presence or absence of blood.
5. Monitor for bowel perforation, peritonitis (see [Box 48-3](#)), and hemorrhage.
6. Following the acute phase, the diet progresses from clear liquids to a low-fiber diet as tolerated.
7. Instruct the client about diet. Usually a low-fiber diet

is prescribed during an exacerbation episode; in addition, a high-protein diet with vitamins and iron supplements are prescribed.

8. Instruct the client to avoid gas-forming foods, milk products, and foods such as whole-wheat grains, nuts, raw fruits and vegetables, pepper, alcohol, and caffeine-containing products.
9. Instruct the client to avoid smoking.
10. Administer medications as prescribed, which may include a combination of medications such as salicylate compounds, corticosteroids, immunosuppressants, and antidiarrheals.

D. Surgical interventions

1. Performed in extreme cases if medical management is unsuccessful
2. Minimally invasive procedures are considered as a surgical option if the client is a candidate; clients who are obese, have had previous abdominal surgeries, or have adhesions may not be candidates.
3. Minimally invasive procedures can include laparoscopic procedures, robotic-assisted surgery, and natural orifice transluminal endoscopic surgery (NOTES).
4. Restorative proctocolectomy with ileal pouch–anal anastomosis (RPC-IPAA)
 - a. Allows for bowel continence
 - b. May be performed through laparoscopic procedure
 - c. Involves a 2-stage procedure that includes removal of the colon and most of the rectum; the anus and anal sphincter remain intact.
 - d. An internal pouch known as a reservoir (J-pouch, S-pouch, or pelvic pouch) is created using the small intestine and connected to the anus, followed by creation of a temporary ileostomy through the abdominal skin to allow healing of the internal pouch and all anastomosis sites.
 - e. In the second surgical procedure (within 1 to 2 months), the ileostomy is closed.
5. Total proctocolectomy with permanent ileostomy
 - a. Performed if the client is not a candidate for RPC-IPAA or if the client prefers this type of procedure.
 - b. The procedure involves the removal of

the entire colon (colon, rectum, and anus, with anal closure).

- c. The end of the terminal ileum forms the stoma or ostomy, which is located in the right lower quadrant.



6. Preoperative interventions

- a. Consult with the enterostomal therapist to help identify optimal placement of the ostomy.
- b. Instruct the client on dietary restrictions; the client may need to follow a low-fiber diet for 1 to 2 days before surgery.
- c. Parenteral antibiotics are administered 1 hour before the surgical opening.
- d. Address body image concerns and allow the client to express concerns; a visit from an ostomate may be helpful to the client.

7. Postoperative interventions

- a. A pouch system with a skin barrier is usually placed on the stoma postoperatively; if a pouch system is not covering the stoma, a petrolatum gauze dressing is placed over the stoma as prescribed to keep it moist, followed by a dry sterile dressing.
- b. Monitor the stoma for size, unusual bleeding, or necrotic tissue.
- c. Monitor for color changes in the stoma.



- d. Note that the normal stoma

color is pink to bright red and shiny, indicating high vascularity.



- e. Note that a pale pink stoma

indicates low hemoglobin and hematocrit levels and a purple-black stoma indicates compromised circulation, requiring PHCP notification.



- f. Assess the functioning of the ostomy.

- g. Expect that stool is liquid in the immediate postoperative period but

becomes more solid depending on the area of creation—ascending colon, liquid; transverse colon, loose to semiformal; and descending colon, close to normal.

- h. Monitor the pouch system for proper fit and signs of leakage; the pouch is emptied when it is one-third full.
- i. Fecal matter should not be allowed to remain on the skin; skin assessment and care are a priority.
- j. Monitor for dehydration and electrolyte imbalance.
- k. Administer analgesics and antibiotics as prescribed.
- l. Instruct the client to avoid foods that cause excess gas formation and odor.
- m. Instruct the client about stoma care and irrigations if prescribed (Box 48-11).
- n. Instruct the client that normal activities may be resumed when approved by the PHCP.



A stoma that is purple-black in color

indicates compromised circulation, requiring immediate PHCP notification.

XXVI. Crohn's Disease

A. Description

- 1. An inflammatory disease that can occur anywhere in the gastrointestinal tract but most often affects the terminal ileum and leads to thickening and scarring, a narrowed lumen, fistulas, ulcerations, and abscesses
- 2. Characterized by remissions and exacerbations

B. Assessment


- 1. Fever
- 2. Cramp-like and colicky pain after meals
- 3. Diarrhea (semisolid), which may contain mucus and pus
- 4. Abdominal distention
- 5. Anorexia, nausea, and vomiting
- 6. Weight loss
- 7. Anemia



- 8. Dehydration



9. Electrolyte imbalances



10. Malnutrition (may be worse than that seen in ulcerative colitis)

C. Interventions: Care is similar to that for the client with ulcerative colitis; however, surgery may be necessary but is avoided for as long as possible because recurrence of the disease process in the same region is likely to occur.

XXVII. Appendicitis

A. Description

1. Inflammation of the appendix
2. When the appendix becomes inflamed or infected, rupture may occur within a matter of hours, leading to peritonitis and sepsis.

B. Assessment

1. Pain in the periumbilical area that descends to the right lower quadrant



2. Abdominal pain that is most intense at McBurney's point

3. Rebound tenderness and abdominal rigidity
4. Low-grade fever
5. Elevated white blood cell count
6. Anorexia, nausea, and vomiting



7. Client in side-lying position, with abdominal guarding and legs flexed
8. Constipation or diarrhea

C. Peritonitis: Inflammation of the peritoneum (see [Box 48-3](#))

D. Appendectomy: Surgical removal of the appendix



1. Preoperative interventions

- a. Maintain NPO status.
- b. Administer fluids intravenously to prevent dehydration.
- c. Monitor for changes in level of pain.
- d. Monitor for signs of ruptured appendix and peritonitis (see [Box 48-3](#)).
- e. Position the client in a right side-lying or low to semi-Fowler's position to promote comfort.
- f. Monitor bowel sounds.
- g. Apply ice packs to the abdomen for 20 to 30 minutes every hour if prescribed.
- h. Administer antibiotics as prescribed.

- i. Avoid laxatives or enemas.



Avoid the application of heat to the

abdomen of a client with appendicitis. Heat can cause rupture of the appendix leading to peritonitis, a life-threatening condition.

2. Postoperative interventions

- a. Monitor temperature for signs of infection.
- b. Assess incision for signs of infection such as redness, swelling, and pain.
- c. Maintain NPO status until bowel function has returned.
- d. Advance diet gradually as tolerated and as prescribed, when bowel sounds return.



- e. If rupture of the appendix

occurred, expect a drain to be inserted, or the incision may be left open to heal from the inside out.

- f. Expect that drainage from the drain may be profuse for the first 12 hours.



- g. Position the client in a right

side-lying or low to semi-Fowler's position, with legs flexed, to facilitate drainage.

- h. Change the dressing as prescribed and record the type and amount of drainage.
- i. Perform wound irrigations if prescribed.
- j. Maintain NG suction and patency of the NG tube if present.
- k. Administer antibiotics and analgesics as prescribed.

XXVIII. Diverticulosis and Diverticulitis

A. Description

1. Diverticulosis

- a. **Diverticulosis** is an outpouching or herniation of the intestinal mucosa.
- b. The disorder can occur in any part of the intestine but is most common in the sigmoid colon.

2. Diverticulitis

- a. **Diverticulitis** is the inflammation of 1

or more diverticula that occurs from penetration of fecal matter through the thin-walled diverticula; it can result in local abscess formation and perforation.

- b. A perforated diverticulum can progress to intra-abdominal perforation with generalized peritonitis.

B. Assessment



1. Left lower quadrant abdominal pain that increases with coughing, straining, or lifting
2. Elevated temperature
3. Nausea and vomiting
4. Flatulence
5. Cramp-like pain
6. Abdominal distention and tenderness
7. Palpable, tender rectal mass may be present.



8. Blood in the stools



C. Interventions

1. Provide bed rest during the acute phase.
2. Maintain NPO status or provide clear liquids during the acute phase as prescribed.
3. Introduce a fiber-containing diet gradually, when the inflammation has resolved.
4. Administer antibiotics, analgesics, and anticholinergics to reduce bowel spasms as prescribed.
5. Instruct the client to refrain from lifting, straining, coughing, or bending to avoid increased intra-abdominal pressure.
6. Monitor for perforation (see [Box 48-3](#)), hemorrhage, fistulas, and abscesses.
7. Instruct the client to increase fluid intake to 2500 to 3000 mL daily, unless contraindicated.
8. Instruct the client to eat soft high-fiber foods, such as whole grains; the client should avoid high-fiber foods when inflammation occurs, because these foods will irritate the mucosa further.
9. Instruct the client to avoid gas-forming foods or foods containing indigestible roughage, seeds, nuts, or popcorn, because these food substances become trapped in diverticula and cause inflammation.
10. Instruct the client to consume a small amount of bran daily and to take bulk-forming laxatives as prescribed

to increase stool mass.

D. Surgical interventions

1. Colon resection with primary anastomosis may be an option.
2. Temporary or permanent colostomy may be required for increased bowel inflammation.

XXIX. Hemorrhoids

A. Description

1. Dilated varicose veins of the anal canal
2. May be internal, external, or prolapsed
3. Internal hemorrhoids lie above the anal sphincter and cannot be seen on inspection of the perianal area.
4. External hemorrhoids lie below the anal sphincter and can be seen on inspection.
5. Prolapsed hemorrhoids can become thrombosed or inflamed.
6. Hemorrhoids are caused from portal hypertension, straining, irritation, or increased venous or abdominal pressure.

B. Assessment



1. Bright red bleeding with defecation
2. Rectal pain
3. Rectal itching

C. Interventions

1. Apply cold packs to the anal-rectal area followed by sitz baths as prescribed.
2. Apply witch hazel soaks and topical anesthetics as prescribed.
3. Encourage a high-fiber diet and fluids to promote bowel movements without straining.
4. Administer stool softeners as prescribed.

D. Surgical interventions: May include ultrasound, sclerotherapy, circular stapling, band ligation, or simple resection of the hemorrhoids (hemorrhoidectomy)



E. Postoperative interventions following hemorrhoidectomy

1. Assist the client to a prone or side-lying position to prevent bleeding.
2. Maintain ice packs over the dressing as prescribed until the packing is removed by the PHCP.
3. Monitor for urinary retention.
4. Administer stool softeners as prescribed.
5. Instruct the client to increase fluids and high-fiber foods.
6. Instruct the client to limit sitting to short periods of time.

7. Instruct the client in the use of sitz baths three or four times a day as prescribed.

Box 48-1

Risk Factors Associated with the Gastrointestinal System

- Allergic reactions to food or medications
- Cardiac, respiratory, and endocrine disorders that may lead to slowed gastrointestinal (GI) movement or constipation
- Chronic alcohol use
- Chronic high stress levels
- Chronic laxative use
- Chronic use of aspirin or nonsteroidal antiinflammatory drugs (NSAIDs)
- Diabetes mellitus, which may predispose to oral candidal infections or other GI disorders
- Family history of GI disorders
- Long-term GI conditions, such as ulcerative colitis, that may predispose to colorectal cancer
- Neurological disorders that can impair movement, particularly with chewing and swallowing
- Previous abdominal surgery or trauma, which may lead to adhesions
- Tobacco use

Box 48-2

Common Gastrointestinal System Diagnostic Studies

- Capsule endoscopy
- Endoscopic retrograde cholangiopancreatography (ERCP)
- Magnetic resonance cholangiopancreatography (MRCP)
- Endoscopic ultrasound
- Fiberoptic colonoscopy
- Gastric analysis
- Gastrointestinal motility studies
- Hydrogen and urea breath test
- Laparoscopy: Liver and pancreas laboratory studies
- Liver biopsy

- Paracentesis
- Stool specimens
- Upper gastrointestinal endoscopy or esophagogastroduodenoscopy
- Upper gastrointestinal tract study (barium swallow)
- Videofluoroscopic swallowing study
- Informed consent is obtained for a diagnostic study that is invasive.

Box 48-3

Signs of Bowel Perforation and Peritonitis

- Guarding of the abdomen
- Increased temperature and chills
- Pallor
- Progressive abdominal distention and abdominal pain
- Restlessness
- Tachycardia and tachypnea

Box 48-4

Assessment Findings in Acute and Chronic Gastritis

Acute

- Abdominal discomfort
- Anorexia, nausea, and vomiting
- Headache
- Hiccups
- Reflux

Chronic

- Anorexia, nausea, and vomiting
- Belching
- Heartburn after eating
- Sour taste in the mouth
- Vitamin B₁₂ deficiency

Box 48-5

Assessment: Gastric and Duodenal Ulcers

Gastric

- Gnawing, sharp pain in or to the left of the midepigastric region occurs 30 to 60 minutes after a meal (food ingestion accentuates the pain).
- Hematemesis is more common than melena.

Duodenal

- Burning pain occurs in the midepigastric area 1.5 to 3 hours after a meal and during the night (often awakens the client).
- Melena is more common than hematemesis.
- Pain is often relieved by the ingestion of food.

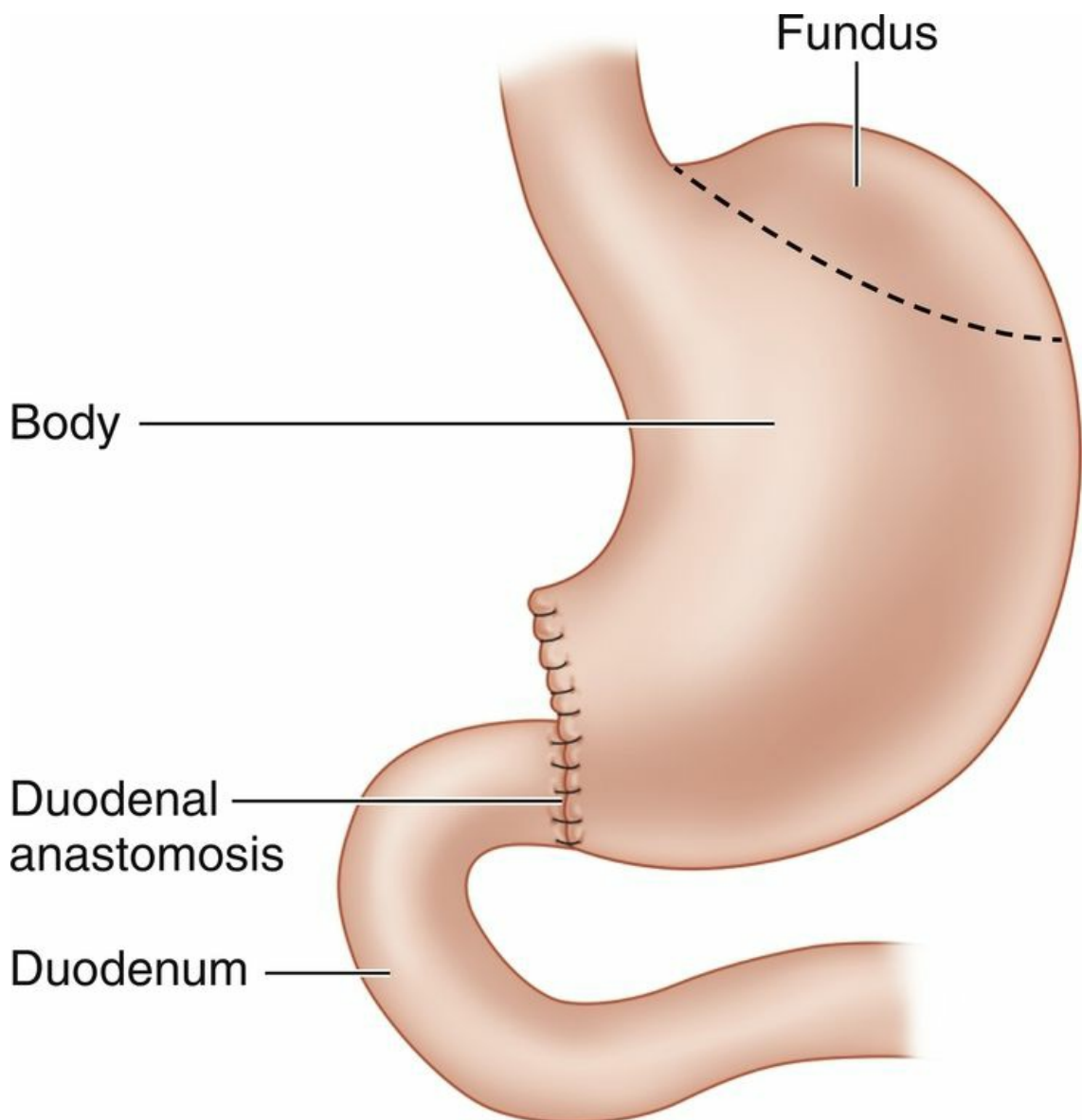


FIG. 48-1 The Billroth I procedure (gastroduodenostomy). The distal portion of the stomach is removed, and the remainder is anastomosed to the duodenum.

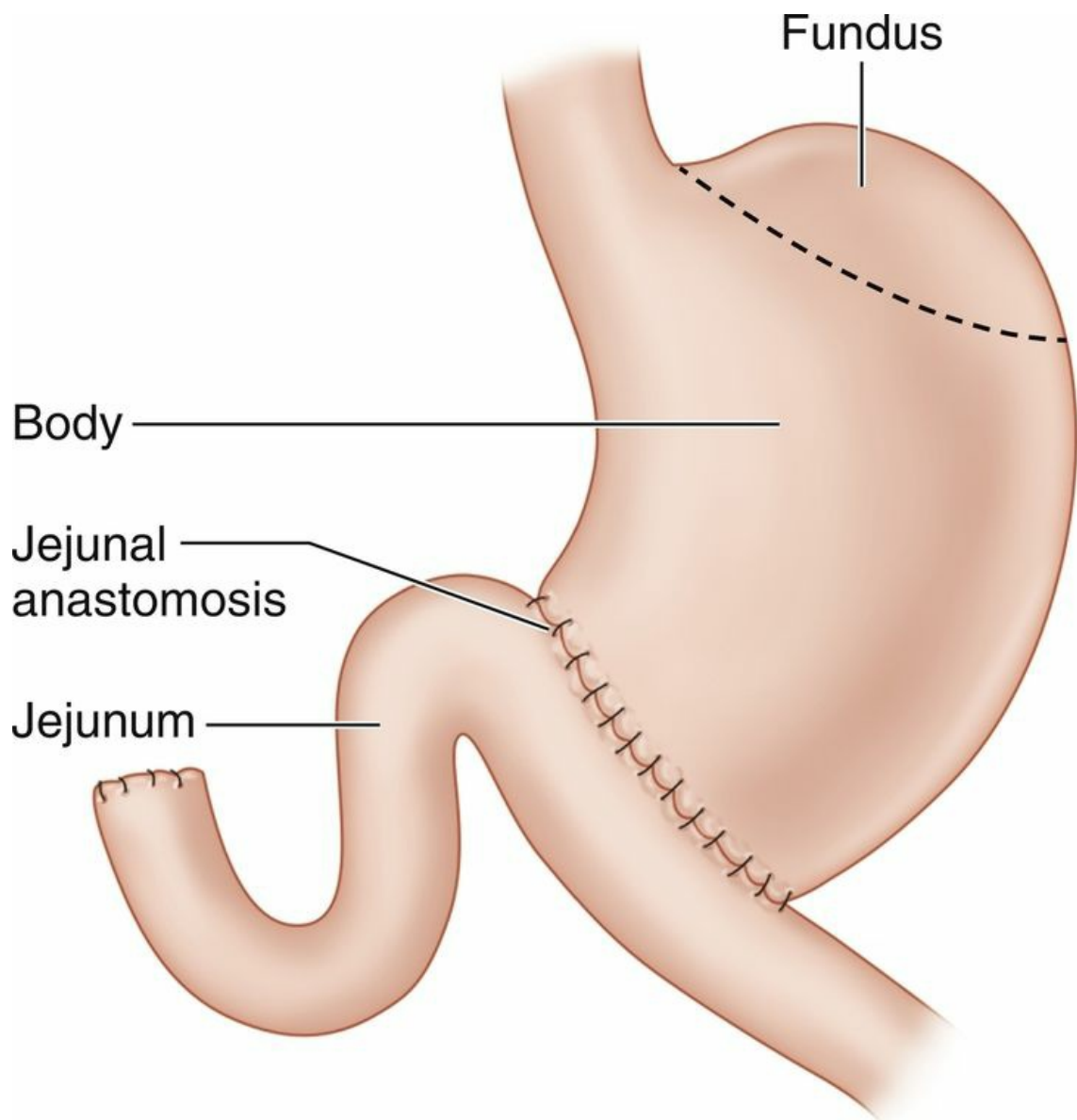


FIG. 48-2 The Billroth II procedure (gastrojejunostomy). The lower portion of the stomach is removed, and the remainder is anastomosed to the jejunum.

Box 48-6

Client Education: Preventing Dumping Syndrome

- Avoid sugar, salt, and milk.
- Eat a high-protein, high-fat, low-carbohydrate diet.
- Eat small meals and avoid consuming fluids with meals.
- Lie down after meals.
- Take antispasmodic medications as prescribed to delay gastric emptying.

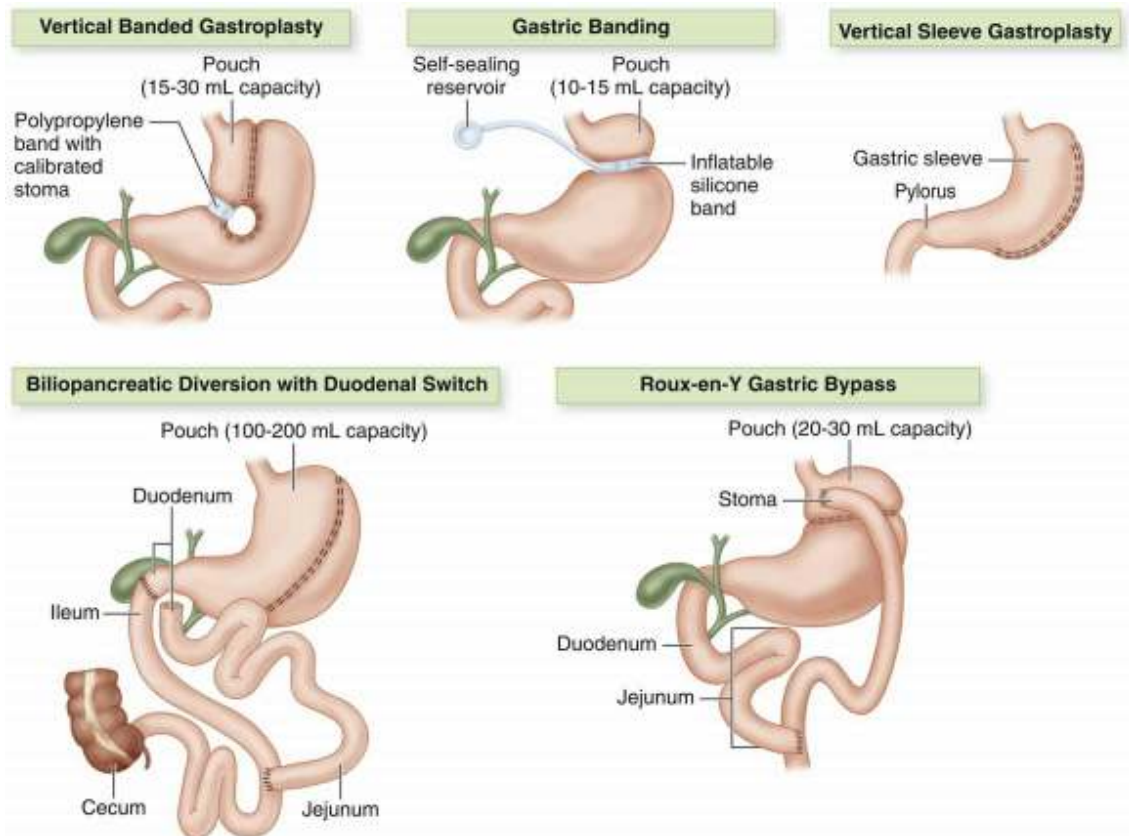


FIG. 48-3 Bariatric surgical procedures.

Box 48-7

Dietary Measures for the Client Following Bariatric Surgery

- Avoid alcohol, high-protein foods, and foods high in sugar and fat.
- Eat slowly and chew food well.
- Progress food types and amounts as prescribed.
- Take nutritional supplements as prescribed, which may include calcium, iron, multivitamins, and vitamin B₁₂.
- Monitor and report signs and symptoms of complications, such as dehydration and gastric leak (persistent abdominal pain, nausea, vomiting).

Box 48-8

Care of a T-Tube

Purpose and Description

A T-tube is placed after surgical exploration of the common bile duct. The tube preserves the patency of the duct and ensures drainage of bile until edema resolves and bile is effectively draining into the duodenum. A gravity drainage bag is attached to the T-tube to collect the drainage.

Interventions

- Place the client in semi-Fowler's position to facilitate drainage.
- Monitor the output amount and the color, consistency, and odor of the drainage.
- Report sudden increases in bile output to the primary health care provider (PHCP).
- Monitor for inflammation and protect the skin from irritation.
- Keep the drainage system below the level of the gallbladder.
- Monitor for foul odor and purulent drainage and report its presence to the PHCP.
- Avoid irrigation, aspiration, or clamping of the T-tube without a PHCP's prescription.
- As prescribed, clamp the tube before a meal and observe for abdominal discomfort and distention, nausea, chills, or fever; unclamp the tube if nausea or vomiting occurs.

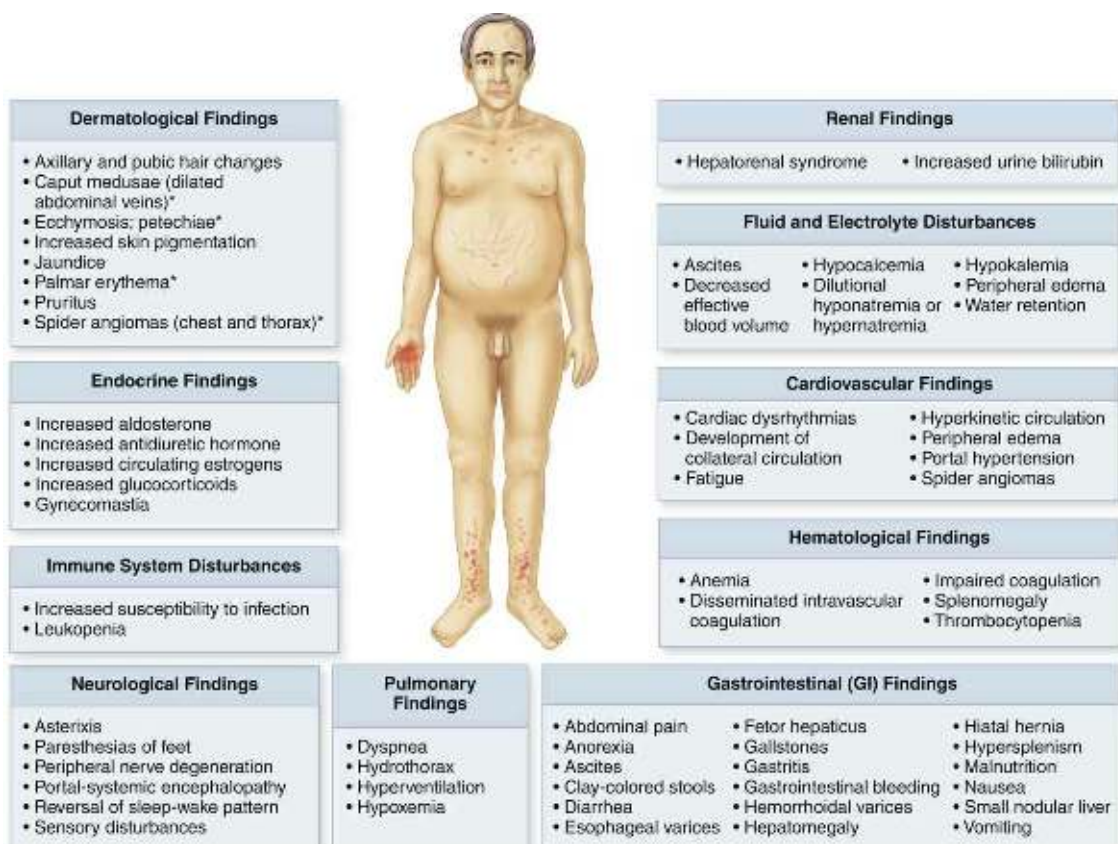


FIG. 48-4 Clinical picture of a client with liver dysfunction. Manifestations vary according to the progression of the disease. Some dermatological manifestations are noted in color (and marked with asterisks).

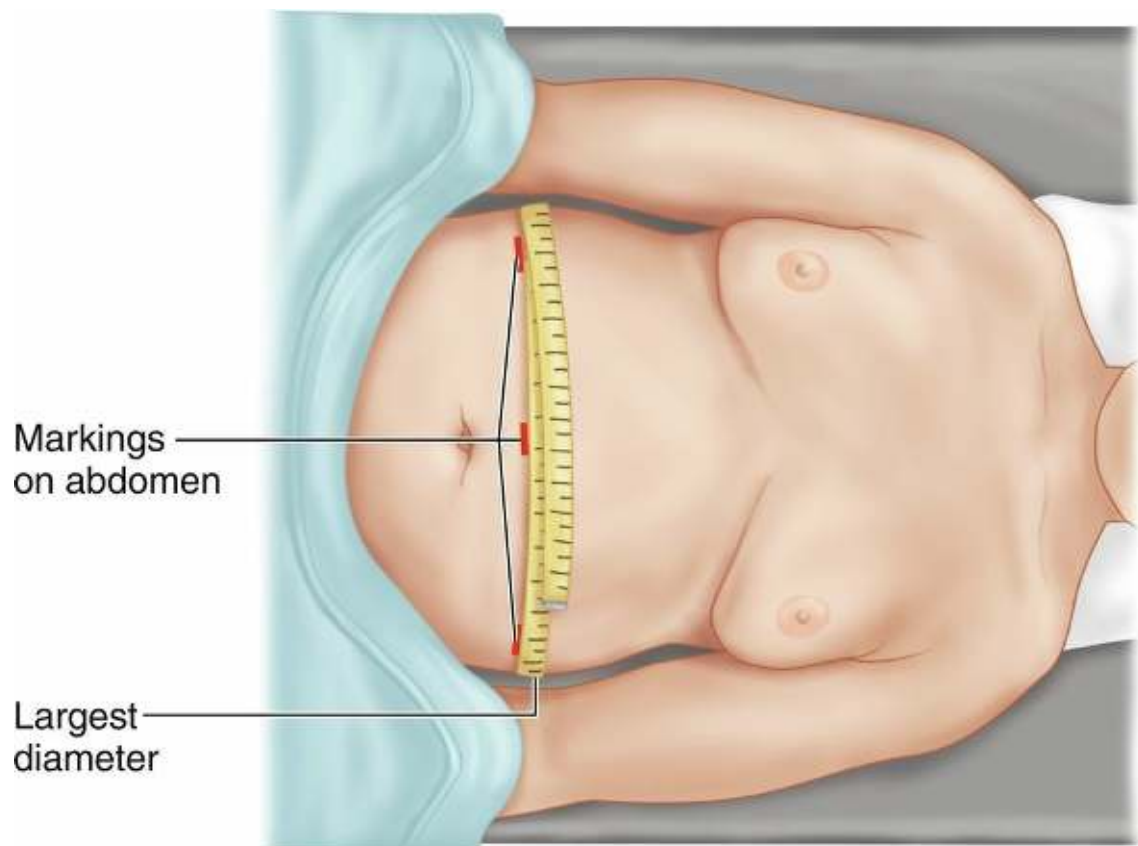


FIG. 48-5 How to measure abdominal girth. With the client supine, bring the tape measure around the client and take a measurement at the level of the umbilicus. Before removing the tape, mark the client's abdomen along the sides of tape on the client's flanks (sides) and midline to ensure that later measurements are taken at the same place.



FIG. 48-6 Eliciting asterixis (flapping tremor). Have the client extend the arm, dorsiflex the wrist, and extend the fingers. Observe for rapid, nonrhythmic extensions and flexions.

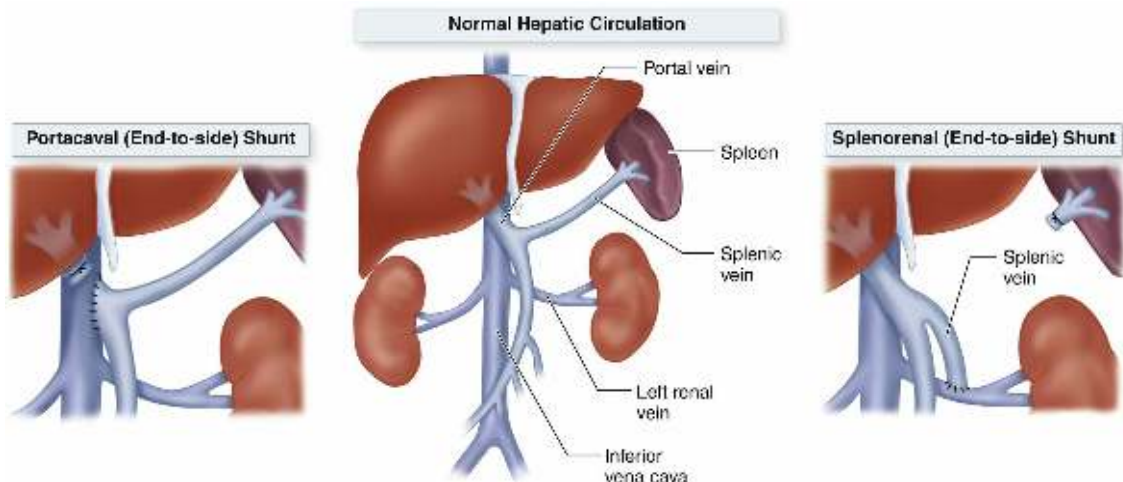


FIG. 48-7 Surgical shunting diverts portal venous blood flow from the liver to decrease portal and esophageal pressure.

Box 48-9

Stages and Assessment of Viral Hepatitis

Preicteric Stage

The first stage of hepatitis, preceding the appearance of jaundice; includes flu-like symptoms—malaise, fatigue; anorexia, nausea, vomiting, diarrhea; pain—headache, muscle aches, polyarthrits; and elevated serum bilirubin and enzyme levels.

Icteric Stage

The second stage of hepatitis; includes the appearance of jaundice and associated symptoms such as elevated bilirubin levels, dark or tea-colored urine, and clay-colored stools; pruritus; and a decrease in preicteric-phase symptoms.

Posticteric Stage

The convalescent stage of hepatitis, in which the jaundice decreases and the color of the urine and stool returns to normal; energy increases, pain subsides, there is minimal to absent gastrointestinal symptoms, and bilirubin and enzyme levels return to normal.

Box 48-10

Home Care Instructions for the Client with Hepatitis

- Hand washing must be strict and frequent.
- Do not share bathrooms unless the client strictly adheres to personal hygiene measures.
- Individual washcloths, towels, drinking and eating utensils, and toothbrushes and razors must be labeled and used only by the client.
- The client must not prepare food for other family members.
- The client should avoid alcohol and over-the-counter medications, particularly acetaminophen and sedatives, because these medications are hepatotoxic.
- The client should increase activity gradually to prevent fatigue.
- The client should consume small, frequent meals consisting of high-carbohydrate, low-fat foods.
- The client is not to donate blood.
- The client may maintain normal contact with persons as long as proper personal hygiene is maintained.
- Close personal contact such as kissing and sexual activity should be discouraged with hepatitis B until surface antigen test results are negative.
- The client needs to carry a MedicAlert card noting the date of hepatitis onset.
- The client needs to inform other health professionals, such as medical or dental personnel, of the onset of hepatitis.
- The client needs to keep follow-up appointments with the primary health care provider.

Box 48-11

Colostomy Irrigation

Purpose

An enema is given through the stoma to stimulate bowel emptying.

Description

Irrigation is performed by instilling 500 to 1000 mL of lukewarm tap water through the stoma and allowing the water and stool to drain into a collection bag.

Procedure

- If ambulatory, position the client sitting on the toilet.
- If on bed rest, position the client on her or his side.
- Hang the irrigation bag so that the bottom of the bag is at the level of the client's shoulder or slightly higher.
- Insert the irrigation tube carefully without force.
- Begin the flow of irrigation.
- Clamp the tubing if cramping occurs; release the tubing as cramping subsides.
- Avoid frequent irrigations, which can lead to loss of fluids and electrolytes.
- Perform irrigation at about the same time each day.
- Perform irrigation preferably 1 hour after a meal.
- To enhance effectiveness of the irrigation, massage the abdomen gently.

Practice Questions

529. The nurse is monitoring a client admitted to the hospital with a diagnosis of appendicitis who is scheduled for surgery in 2 hours. The client begins to complain of increased abdominal pain and begins to vomit. On assessment, the nurse notes that the abdomen is distended and bowel sounds are diminished. Which is the **most appropriate** nursing intervention?

1. Administer the prescribed pain medication.
2. Notify the primary health care provider (PHCP).
3. Call and ask the operating room team to perform surgery as soon as possible.
4. Reposition the client and apply a heating pad on the warm setting to the client's abdomen.

530. A client admitted to the hospital with a suspected diagnosis of acute pancreatitis is being assessed by the nurse. Which assessment findings would be consistent with acute pancreatitis? **Select all that apply.**

- 1. Diarrhea
- 2. Black, tarry stools
- 3. Hyperactive bowel sounds
- 4. Gray-blue color at the flank
- 5. Abdominal guarding and tenderness
- 6. Left upper quadrant pain with radiation to the back

531. The nurse is assessing a client who is experiencing an acute episode of cholecystitis. Which of these clinical manifestations support this diagnosis? **Select all that apply.**

- 1. Fever
- 2. Positive Cullen's sign
- 3. Complaints of indigestion
- 4. Palpable mass in the left upper quadrant
- 5. Pain in the upper right quadrant after a fatty meal
- 6. Vague lower right quadrant abdominal discomfort

532. A client is diagnosed with viral hepatitis, complaining of "no appetite" and "losing my taste for food." What instruction should the nurse give the client to provide adequate nutrition?

- 1. Select foods high in fat.
- 2. Increase intake of fluids, including juices.
- 3. Eat a good supper when anorexia is not as severe.
- 4. Eat less often, preferably only 3 large meals daily.

533. A client has developed hepatitis A after eating contaminated oysters. The nurse assesses the client for which expected assessment finding?

- 1. Malaise
- 2. Dark stools
- 3. Weight gain
- 4. Left upper quadrant discomfort

534. A client has just had a hemorrhoidectomy. Which nursing interventions are appropriate for this client? **Select all that apply.**

- 1. Administer stool softeners as prescribed.
- 2. Instruct the client to limit fluid intake to avoid urinary retention.
- 3. Encourage a high-fiber diet to promote bowel movements without straining.
- 4. Apply cold packs to the anal-rectal area over the dressing until the packing is removed.
- 5. Help the client to a Fowler's position to place pressure on the rectal area and decrease bleeding.

535. The nurse is planning to teach a client with gastroesophageal reflux disease (GERD) about substances to avoid. Which items should the nurse include on this list? **Select all that apply.**

- 1. Coffee
- 2. Chocolate
- 3. Peppermint

- 4. Nonfat milk
- 5. Fried chicken
- 6. Scrambled eggs

536. A client has undergone esophagogastroduodenoscopy. The nurse should place **highest priority** on which item as part of the client's care plan?
1. Monitoring the temperature
 2. Monitoring complaints of heartburn
 3. Giving warm gargles for a sore throat
 4. Assessing for the return of the gag reflex
537. The nurse has taught the client about an upcoming endoscopic retrograde cholangiopancreatography (ERCP) procedure. The nurse determines that the client **needs further information** if the client makes which statement?
1. "I know I must sign the consent form."
 2. "I hope the throat spray keeps me from gagging."
 3. "I'm glad I don't have to lie still for this procedure."
 4. "I'm glad some intravenous medication will be given to relax me."
538. The primary health care provider has determined that a client has contracted hepatitis A based on flu-like symptoms and jaundice. Which statement made by the client supports this medical diagnosis?
1. "I have had unprotected sex with multiple partners."
 2. "I ate shellfish about 2 weeks ago at a local restaurant."
 3. "I was an intravenous drug abuser in the past and shared needles."
 4. "I had a blood transfusion 30 years ago after major abdominal surgery."
539. The nurse is assessing a client 24 hours following a cholecystectomy. The nurse notes that the T-tube has drained 750 mL of green-brown drainage since the surgery. Which nursing intervention is **most appropriate**?
1. Clamp the T-tube.
 2. Irrigate the T-tube.
 3. Document the findings.
 4. Notify the primary health care provider.
540. The nurse is monitoring a client with a diagnosis of peptic ulcer. Which assessment finding would **most likely** indicate perforation of the ulcer?
1. Bradycardia
 2. Numbness in the legs
 3. Nausea and vomiting
 4. A rigid, board-like abdomen
541. The nurse is caring for a client following a gastrojejunostomy (Billroth II procedure). Which postoperative prescription should the nurse question and verify?
1. Leg exercises
 2. Early ambulation
 3. Irrigating the nasogastric tube
 4. Coughing and deep-breathing exercises
542. The nurse is providing discharge instructions to a client following

gastrectomy and should instruct the client to take which measure to assist in preventing dumping syndrome?

1. Ambulate following a meal.
2. Eat high-carbohydrate foods.
3. Limit the fluids taken with meals.
4. Sit in a high-Fowler's position during meals.

543. The nurse is reviewing the prescription for a client admitted to the hospital with a diagnosis of acute pancreatitis. Which interventions would the nurse expect to be prescribed for the client? **Select all that apply.**

- 1. Maintain NPO (nothing by mouth) status.
- 2. Encourage coughing and deep breathing.
- 3. Give small, frequent high-calorie feedings.
- 4. Maintain the client in a supine and flat position.
- 5. Give hydromorphone intravenously as prescribed for pain.
- 6. Maintain intravenous fluids at 10 mL/hr to keep the vein open.

544. The nurse is providing discharge teaching for a client with newly diagnosed Crohn's disease about dietary measures to implement during exacerbation episodes. Which statement made by the client indicates a **need for further instruction**?

1. "I should increase the fiber in my diet."
2. "I will need to avoid caffeinated beverages."
3. "I'm going to learn some stress reduction techniques."
4. "I can have exacerbations and remissions with Crohn's disease."

545. The nurse is reviewing the record of a client with a diagnosis of cirrhosis and notes that there is documentation of the presence of asterixis. How should the nurse assess for its presence?

1. Dorsiflex the client's foot.
2. Measure the abdominal girth.
3. Ask the client to extend the arms.
4. Instruct the client to lean forward.

546. The nurse is reviewing the laboratory results for a client with cirrhosis and notes that the ammonia level is 85 mcg/dL (51 mcmol/L). Which dietary selection does the nurse suggest to the client?

1. Roast pork
2. Cheese omelet
3. Pasta with sauce
4. Tuna fish sandwich

547. The nurse is doing an admission assessment on a client with a history of duodenal ulcer. To determine whether the problem is currently active, the nurse should assess the client for which manifestation of duodenal ulcer?

1. Weight loss
2. Nausea and vomiting
3. Pain relieved by food intake

4. Pain radiating down the right arm
548. A client with hiatal hernia chronically experiences heartburn following meals. The nurse should plan to teach the client to avoid which action because it is contraindicated with a hiatal hernia?
1. Lying recumbent following meals
 2. Consuming small, frequent, bland meals
 3. Taking H₂-receptor antagonist medication
 4. Raising the head of the bed on 6-inch (15 cm) blocks
549. The nurse is providing care for a client with a recent transverse colostomy. Which observation requires **immediate** notification of the primary health care provider?
1. Stoma is beefy red and shiny
 2. Purple discoloration of the stoma
 3. Skin excoriation around the stoma
 4. Semiformed stool noted in the ostomy pouch
550. A client had a new colostomy created 2 days earlier and is beginning to pass malodorous flatus from the stoma. What is the correct interpretation by the nurse?
1. This is a normal, expected event.
 2. The client is experiencing early signs of ischemic bowel.
 3. The client should not have the nasogastric tube removed.
 4. This indicates inadequate preoperative bowel preparation.
551. A client has just had surgery to create an ileostomy. The nurse assesses the client in the immediate postoperative period for which **most** frequent complication of this type of surgery?
1. Folate deficiency
 2. Malabsorption of fat
 3. Intestinal obstruction
 4. Fluid and electrolyte imbalance
552. The nurse provides instructions to a client about measures to treat inflammatory bowel syndrome (IBS). Which statement by the client indicates a **need for further teaching**?
1. "I need to limit my intake of dietary fiber."
 2. "I need to drink plenty, at least 8 to 10 cups daily."
 3. "I need to eat regular meals and chew my food well."
 4. "I will take the prescribed medications because they will regulate my bowel patterns."
553. The nurse is monitoring a client for the **early** signs and symptoms of dumping syndrome. Which findings indicate this occurrence?
1. Sweating and pallor
 2. Bradycardia and indigestion
 3. Double vision and chest pain
 4. Abdominal cramping and pain

Answers

529. *Answer:* 2

Rationale: On the basis of the signs and symptoms presented in the question, the nurse should suspect peritonitis and notify the PHCP. Administering pain medication is not an appropriate intervention. Heat should never be applied to the abdomen of a client with suspected appendicitis because of the risk of rupture. Scheduling surgical time is not within the scope of nursing practice, although the PHCP probably would perform the surgery earlier than the prescheduled time.

Test-Taking Strategy: Note the **strategic words**, *most appropriate*. **Determine if an abnormality exists**, focus on the signs and symptoms in the question, and consider the complications that can occur with appendicitis. Noting that the signs presented in the question indicate a complication will assist in directing you to the correct option.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Implementation

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Clinical Judgment; Inflammation

Reference: Ignatavicius, Workman, Rebar (2018), pp. 1147-1148.

530. **Answer:** 4, 5, 6

Rationale: Grayish-blue discoloration at the flank is known as Grey-Turner's sign and occurs as a result of pancreatic enzyme leakage to cutaneous tissue from the peritoneal cavity. The client may demonstrate abdominal guarding and may complain of tenderness with palpation. The pain associated with acute pancreatitis is often sudden in onset and is located in the epigastric region or left upper quadrant with radiation to the back. The other options are incorrect.

Test-Taking Strategy: Noting that options 1 and 3 are **comparable or alike** will assist you in eliminating these options first. Then recall that black, tarry stools occur when there is gastrointestinal bleeding, so this can also be eliminated. From the remaining options, recall the anatomical location of the pancreas, the pain characteristics, and the effect of enzymes leaking into the tissues to direct you to the correct options.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Inflammation; Pain

Reference: Ignatavicius, Workman, Rebar (2018), p. 1199.

531. **Answer:** 1, 3, 5

Rationale: During an acute episode of cholecystitis, the client may complain of severe right upper quadrant pain that radiates to the right scapula or shoulder or experience epigastric pain after a fatty or high-volume meal. Fever and signs of dehydration would also be expected, as well as complaints of indigestion, belching,

flatulence, nausea, and vomiting. Options 4 and 6 are incorrect because they are inconsistent with the anatomical location of the gallbladder. Option 2 (Cullen's sign) is associated with pancreatitis.

Test-Taking Strategy: Focus on the **subject**, the location and characteristics of pain associated with cholecystitis. Recalling the anatomical location of the gallbladder will also direct you to the correct option.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Inflammation; Pain

Reference: Ignatavicius, Workman, Rebar (2018), p. 1193.

532. *Answer:* 2

Rationale: Although no special diet is required to treat viral hepatitis, it is generally recommended that clients consume a low-fat diet, as fat may be tolerated poorly because of decreased bile production. Small, frequent meals are preferable and may even prevent nausea. Frequently, appetite is better in the morning, so it is easier to eat a good breakfast. An adequate fluid intake of 2500 to 3000 mL/day that includes nutritional juices is also important.

Test-Taking Strategy: Focus on the **subject**, a diet for viral hepatitis. Think about the pathophysiology associated with hepatitis and focus on the client's complaints to direct you to the correct option.

Level of Cognitive Ability: Applying

Client Needs: Physiological Integrity

Integrated Process: Teaching and Learning

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Client Education; Infection

Reference: Ignatavicius, Workman, Rebar (2018), pp. 1184-1185.

533. *Answer:* 1

Rationale: Hepatitis causes gastrointestinal symptoms such as anorexia, nausea, right upper quadrant discomfort, and weight loss. Fatigue and malaise are common. Stools will be light- or clay-colored if conjugated bilirubin is unable to flow out of the liver because of inflammation or obstruction of the bile ducts.

Test-Taking Strategy: Focus on the **subject**, expected assessment findings. Recalling the function of the liver will direct you to the correct option. Remember that fatigue and malaise are common.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Clinical Judgment; Infection
Reference: Ignatavicius, Workman, Rebar (2018), p. 1183.

534. **Answer:** 1, 3, 4

Rationale: Nursing interventions after a hemorrhoidectomy are aimed at management of pain and avoidance of bleeding and incision rupture. Stool softeners and a high-fiber diet will help the client avoid straining, thereby reducing the chances of rupturing the incision. An ice pack will increase comfort and decrease bleeding. Options 2 and 5 are incorrect interventions.

Test-Taking Strategy: Focus on the **subject**, postoperative hemorrhoidectomy care. Recall that decreasing fluid intake will cause difficulty with defecation because of hard stool. Recognize that Fowler's position will increase pressure in the rectal area, causing increased bleeding and increased pain.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Implementation

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Lower GI Disorders

Priority Concepts: Elimination; Pain

Reference: Ignatavicius, Workman, Rebar (2018), p. 1140.

535. **Answer:** 1, 2, 3, 5

Rationale: Foods that decrease lower esophageal sphincter (LES) pressure and irritate the esophagus will increase reflux and exacerbate the symptoms of GERD and therefore should be avoided. Aggravating substances include coffee, chocolate, peppermint, fried or fatty foods, carbonated beverages, and alcohol. Options 4 and 6 do not promote this effect.

Test-Taking Strategy: Focus on the **subject**, food items to avoid. Use knowledge of the effect of various foods on LES pressure and GERD. However, if you are unsure, note that options 4 and 6 are the most healthful food items.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Teaching and Learning

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Upper GI Disorders

Priority Concepts: Client Education; Inflammation

Reference: Ignatavicius, Workman, Rebar (2018), pp. 1088, 1090.

536. **Answer:** 4

Rationale: The nurse places highest priority on assessing for return of the gag reflex. This assessment addresses the client's airway. The nurse also monitors the client's vital signs and for a sudden increase in temperature, which could indicate perforation of the gastrointestinal tract. This complication would be accompanied by other signs as well, such as pain. Monitoring for sore throat and heartburn are also

important; however, the client's airway is the priority.

Test-Taking Strategy: Note the **strategic words**, *highest priority*. Use the **ABCs—airway, breathing, and circulation**. The correct option addresses the airway.

Level of Cognitive Ability: Analyzing

Client Needs: Safe and Effective Care Environment

Integrated Process: Nursing Process—Planning

Content Area: Foundations of Care: Diagnostic Tests

Health Problem: N/A

Priority Concepts: Clinical Judgment; Safety

Reference: Ignatavicius, Workman, Rebar (2018), p.1071.

537. **Answer:** 3

Rationale: The client does have to lie still for ERCP, which takes about 1 hour to perform. The client also has to sign a consent form. Intravenous sedation is given to relax the client, and an anesthetic spray is used to help keep the client from gagging as the endoscope is passed.

Test-Taking Strategy: Note the **strategic words**, *needs further information*. These words indicate a **negative event query** and ask you to select an option that is incorrect. Invasive procedures require consent, so option 1 can be eliminated. Noting the name of the procedure and considering the anatomical location will assist you in eliminating options 2 and 4.

Level of Cognitive Ability: Evaluating

Client Needs: Physiological Integrity

Integrated Process: Teaching and Learning

Content Area: Foundations of Care: Diagnostic Tests

Health Problem: N/A

Priority Concepts: Client Education; Safety

Reference: Lewis et al. (2017), p. 850.

538. **Answer:** 2

Rationale: Hepatitis A is transmitted by the fecal-oral route via contaminated water or food (improperly cooked shellfish), or infected food handlers. Hepatitis B, C, and D are transmitted most commonly via infected blood or body fluids, such as in the cases of intravenous drug abuse, history of blood transfusion, or unprotected sex with multiple partners.

Test-Taking Strategy: Focus on the **subject**, hepatitis A. Recalling the modes of transmission of the various types of hepatitis is required to answer this question. Remember that hepatitis A is transmitted by the fecal-oral route.

Level of Cognitive Ability: Analyzing

Client Needs: Safe and Effective Care Environment

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Infection; Inflammation

Reference: Lewis et al. (2017), p. 975.

539. *Answer: 3*

Rationale: Following cholecystectomy, drainage from the T-tube is initially bloody and then turns a greenish-brown color. The drainage is measured as output. The amount of expected drainage will range from 500 to 1000 mL/day. The nurse would document the output.

Test-Taking Strategy: Note the **strategic words**, *most appropriate*. Options 1 and 2 can be eliminated because a T-tube is not irrigated and would not be clamped with this amount of drainage. From the remaining options, you must know normal expected findings following this surgical procedure.

Level of Cognitive Ability: Applying

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Implementation

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Clinical Judgment; Elimination

Reference: Lewis et al. (2017), pp. 344, 1009.

540. *Answer: 4*

Rationale: Perforation of an ulcer is a surgical emergency and is characterized by sudden, sharp, intolerable severe pain beginning in the midepigastic area and spreading over the abdomen, which becomes rigid and boardlike. Nausea and vomiting may occur. Tachycardia may occur as hypovolemic shock develops. Numbness in the legs is not an associated finding.

Test-Taking Strategy: Focus on the **subject**, perforation. Option 2 can be eliminated easily because it is not related to perforation. Eliminate option 1 next because tachycardia rather than bradycardia would develop if perforation occurs. From the remaining options, note the **strategic words**, *most likely*, to help direct you to the correct option.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Upper GI Disorders

Priority Concepts: Clinical Judgment; Safety

Reference: Lewis et al. (2017), p. 912-913.

541. *Answer: 3*

Rationale: In a gastrojejunostomy (Billroth II procedure), the proximal remnant of the stomach is anastomosed to the proximal jejunum. Patency of the nasogastric tube is critical for preventing the retention of gastric secretions. The nurse should never irrigate or reposition the gastric tube after gastric surgery, unless specifically prescribed by the primary health care provider. In this situation, the nurse should clarify the prescription. Options 1, 2, and 4 are appropriate postoperative interventions.

Test-Taking Strategy: Note the words *question and verify*. Eliminate options 1, 2, and 4 because they are **comparable or alike** and are general postoperative measures. Also, consider the anatomical location of the surgical procedure to assist in directing you to the correct option.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Analysis

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Upper GI Disorders

Priority Concepts: Clinical Judgment; Safety

Reference: Ignatavicius, Workman, Rebar (2018), pp. 1208-1209.

542. **Answer:** 3

Rationale: *Dumping syndrome* is a term that refers to a constellation of vasomotor symptoms that occurs after eating, especially following a gastrojejunostomy (Billroth II procedure). Early manifestations usually occur within 30 minutes of eating and include vertigo, tachycardia, syncope, sweating, pallor, palpitations, and the desire to lie down. The nurse should instruct the client to decrease the amount of fluid taken at meals and to avoid high-carbohydrate foods, including fluids such as fruit nectars; to assume a low-Fowler's position during meals; to lie down for 30 minutes after eating to delay gastric emptying; and to take antispasmodics as prescribed.

Test-Taking Strategy: Eliminate options 1 and 4 first because these measures are **comparable or alike** and will promote gastric emptying. From the remaining options, select the measure that will delay gastric emptying.

Level of Cognitive Ability: Applying

Client Needs: Physiological Integrity

Integrated Process: Teaching and Learning

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Upper GI Disorders

Priority Concepts: Client Education; Nutrition

Reference: Lewis et al. (2017), pp. 917-918.

543. **Answer:** 1, 2, 5

Rationale: The client with acute pancreatitis normally is placed on NPO status to rest the pancreas and suppress gastrointestinal secretions, so adequate intravenous hydration is necessary. Because abdominal pain is a prominent symptom of pancreatitis, pain medications such as morphine or hydromorphone are prescribed. Meperidine is avoided, as it may cause seizures. Some clients experience lessened pain by assuming positions that flex the trunk, with the knees drawn up to the chest. A side-lying position with the head elevated 45 degrees decreases tension on the abdomen and may help ease the pain. The client is susceptible to respiratory infections because the retroperitoneal fluid raises the diaphragm, which causes the client to take shallow, guarded abdominal breaths. Therefore, measures such as turning, coughing, and deep breathing are instituted.

Test-Taking Strategy: Focus on the **subject**, care for the client with acute

pancreatitis. Think about the pathophysiology associated with pancreatitis and note the word *acute*. This will assist in selecting the correct options.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Analysis

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Pain; Inflammation

Reference: Lewis et al. (2017), pp. 1001-1002.

544. *Answer:* 1

Rationale: Crohn's disease is an inflammatory disease that can occur anywhere in the gastrointestinal tract but most often affects the terminal ileum and leads to thickening and scarring, a narrowed lumen, fistulas, ulcerations, and abscesses. It is characterized by exacerbations and remissions. If stress increases the symptoms of the disease, the client is taught stress management techniques and may require additional counseling. The client is taught to avoid gastrointestinal stimulants containing caffeine and to follow a high-calorie and high-protein diet. A low-fiber diet may be prescribed, especially during periods of exacerbation.

Test-Taking Strategy: Note the **strategic words**, *need for further instruction*. These words indicate a **negative event query** and ask you to select an option that is incorrect. Also, focus on the **information in the question** and that the question addresses exacerbation. Knowing that the client should consume a diet high in protein and calories and low in fiber will direct you to option 1. Options 2, 3, and 4 are correct statements.

Level of Cognitive Ability: Evaluating

Client Needs: Physiological Integrity

Integrated Process: Teaching and Learning

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Lower GI Disorders

Priority Concepts: Client Education; Elimination

Reference: Lewis et al. (2017), pp. 945-946.

545. *Answer:* 3

Rationale: Asterixis is irregular flapping movements of the fingers and wrists when the hands and arms are outstretched, with the palms down, wrists bent up, and fingers spread. Asterixis is the most common and reliable sign that hepatic encephalopathy is developing. Options 1, 2, and 4 are incorrect.

Test-Taking Strategy: Focus on the **subject**, the procedure for assessment of asterixis. Remember that asterixis is irregular flapping movements of the fingers and wrists. This will direct you to the correct option.

Level of Cognitive Ability: Applying

Client Needs: Health Promotion and Maintenance

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Clinical Judgment; Inflammation

Reference: Ignatavicius, Workman, Rebar (2018), pp. 1173, 1378.

546. *Answer:* 3

Rationale: Cirrhosis is a chronic, progressive disease of the liver characterized by diffuse degeneration and destruction of hepatocytes. The serum ammonia level assesses the ability of the liver to deaminate protein byproducts. Normal reference interval is 10 to 80 mcg/dL (6 to 47 mcmol/L). Most of the ammonia in the body is found in the gastrointestinal tract. Protein provided by the diet is transported to the liver by the portal vein. The liver breaks down protein, which results in the formation of ammonia. Foods high in protein should be avoided since the client's ammonia level is elevated above the normal range; therefore, pasta with sauce would be the best selection.

Test-Taking Strategy: Focus on the **subject**, an ammonia level of 85 mcg/dL (51 mcmol/L). Realizing that this result is above the normal range will direct you away from selecting high-protein foods, such as pork, cheese, eggs, and fish.

Level of Cognitive Ability: Applying

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Planning

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: GI Accessory Organs

Priority Concepts: Inflammation; Nutrition

Reference: Lewis et al. (2017), pp. 992-993, 995.

547. *Answer:* 3

Rationale: A frequent symptom of duodenal ulcer is pain that is relieved by food intake. These clients generally describe the pain as a burning, heavy, sharp, or "hungry" pain that often localizes in the midepigastria area. The client with duodenal ulcer usually does not experience weight loss or nausea and vomiting. These symptoms are more typical in the client with a gastric ulcer.

Test-Taking Strategy: Eliminate options 1 and 2 because they are **comparable or alike**; if the client is vomiting, weight loss will occur. Next, think about the symptoms of duodenal and gastric ulcer. Choose the correct option over option 4, knowing that the pain does not radiate down the right arm and that a pattern of pain-food-relief occurs with duodenal ulcer.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Upper GI Disorders

Priority Concepts: Clinical Judgment; Inflammation

Reference: Heuther & McCance (2017), p. 916.

548. *Answer:* 1

Rationale: Hiatal hernia is caused by a protrusion of a portion of the stomach above the diaphragm where the esophagus usually is positioned. The client usually experiences pain from reflux caused by ingestion of irritating foods, lying flat following meals or at night, and eating large or fatty meals. Relief is obtained with the intake of small, frequent, and bland meals; use of H₂-receptor antagonists and antacids; and elevation of the thorax following meals and during sleep.

Test-Taking Strategy: Focus on the **subject**, the action contraindicated in hiatal hernia. Thinking about the pathophysiology that occurs in hiatal hernia will direct you to the correct option.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Teaching and Learning

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Upper GI Disorders

Priority Concepts: Client Education; Pain

Reference: Heuther & McCance (2017), pp. 911-912.

549. **Answer:** 2

Rationale: Ischemia of the stoma would be associated with a dusky or bluish or purple color. A beefy red and shiny stoma is normal and expected. Skin excoriation needs to be addressed and treated but does not require as immediate attention as purple discoloration of the stoma. Semiformed stool is a normal finding.

Test-Taking Strategy: Note the **strategic word**, *immediate*, and focus on the **subject**, the observation that requires primary health care provider notification. Note the words *purple discoloration* in option 2. Recall that purple indicates ischemia.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Lower GI Disorders

Priority Concepts: Clinical Judgment; Tissue Integrity

Reference: Ignatavicius, Workman, Rebar (2018), p. 1132.

550. **Answer:** 1

Rationale: As peristalsis returns following creation of a colostomy, the client begins to pass malodorous flatus. This indicates returning bowel function and is an expected event. Within 72 hours of surgery, the client should begin passing stool via the colostomy. Options 2, 3, and 4 are incorrect interpretations.

Test-Taking Strategy: Focus on the **subject**, that the client is passing flatus from the stoma. Think about the normal functioning of the gastrointestinal tract and note the time frame in the question to assist in answering correctly.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Lower GI Disorders

Priority Concepts: Clinical Judgment; Elimination

Reference: Lewis et al. (2017), p. 960.

551. *Answer:* 4

Rationale: A frequent complication that occurs following ileostomy is fluid and electrolyte imbalance. The client requires constant monitoring of intake and output to prevent this from occurring. Losses require replacement by intravenous infusion until the client can tolerate a diet orally. Intestinal obstruction is a less frequent complication. Fat malabsorption and folate deficiency are complications that could occur later in the postoperative period.

Test-Taking Strategy: Note the **strategic word**, *most*. Also note the **subject**, an ileostomy. Remember that ileostomy drainage is liquid, placing the client at risk for fluid and electrolyte imbalance.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Lower GI Disorders

Priority Concepts: Clinical Judgment; Elimination

Reference: Lewis et al. (2017), p. 962.

552. *Answer:* 1

Rationale: IBS is a functional gastrointestinal disorder that causes chronic or recurrent diarrhea, constipation, and/or abdominal pain and bloating. Dietary fiber and bulk help produce bulky, soft stools and establish regular bowel elimination habits. Therefore, the client should consume a high-fiber diet. Eating regular meals, drinking 8 to 10 cups of liquid a day, and chewing food slowly help promote normal bowel function. Medication therapy depends on the main symptoms of IBS. Bulk-forming laxatives or antidiarrheal agents or other agents may be prescribed.

Test-Taking Strategy: Note the **strategic words**, *need for further teaching*. These words indicate a **negative event query** and the need to select the incorrect client statement. Think about the pathophysiology associated with IBS to answer correctly. Also, note the word *limit* in option 1. With IBS, dietary fiber and bulk is important to assist in controlling symptoms.

Level of Cognitive Ability: Evaluating

Client Needs: Physiological Integrity

Integrated Process: Teaching and Learning

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Lower GI Disorders

Priority Concepts: Client Education; Inflammation

Reference: Lewis et al. (2017), pp. 946, 949.

553. *Answer:* 1

Rationale: Early manifestations of dumping syndrome occur 5 to 30 minutes after eating. Symptoms include vertigo, tachycardia, syncope, sweating, pallor, palpitations, and the desire to lie down.

Test-Taking Strategy: Note the **strategic word**, *early*. Think about the pathophysiology associated with dumping syndrome and its etiology to answer correctly.

Level of Cognitive Ability: Analyzing

Client Needs: Physiological Integrity

Integrated Process: Nursing Process—Assessment

Content Area: Adult Health: Gastrointestinal

Health Problem: Adult Health: Gastrointestinal: Upper GI Disorders

Priority Concepts: Elimination; Nutrition

Reference: Ignatavicius, Workman, Rebar (2018), pp. 1117-1118.