Scenario B

Ms. O'Malley is a resident in your extended care facility. She has been losing weight, has no appetite, and is becoming more withdrawn. Her daughter has a new job and is not able to visit as many times a week as she had been.

1. What assessments would you think appropriate for Ms. O'Malley at this time?
2. What nursing interventions could you institute that might improve her nutritional status?
3. What could you do to help her loneliness now that her daughter cannot visit as often?

Scenario C

You are making home visits to an elderly patient to check his blood pressure. During the visit he tells you that he is having trouble with constipation.

1. What questions should you ask to further assess the problem?
2. Why is constipation a common problem for people over age 60?
3. Would you recommend the use of an over-the-counter laxative? Why or why not?
4. What dietary and lifestyle recommendations would you make?

chapter

29 Care of Patients with Disorders of the Upper Gastrointestinal System

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Objectives

Theory

1. Discuss obesity and its management, including bariatric surgery.
2. Compare the signs and symptoms of oral, esophageal, and stomach cancer.
3. Illustrate the cause of gastroesophageal reflux disease (GERD).
4. Explain the etiology and prognosis for Barrett's esophagus.
5. Describe the pathophysiology, means of medical diagnosis, and treatment for gastritis.
6. Compare and contrast the treatment and nursing care of the patient with GERD and a patient with a peptic ulcer.
7. Review the difference in the care of the patient with a nasogastric tube for decompression and care of the patient with a feeding tube.
8. Compare the care for a patient receiving total parenteral nutrition with care of the patient receiving enteral feedings.

Clinical Practice

1. Implement a teaching plan for a patient who has GERD.
2. Plan postoperative care for a patient having gastric surgery.
3. Demonstrate proper care of the patient with a Salem sump tube for gastric decompression.
4. Manage a tube feeding for the patient receiving formula via a feeding pump.
5. Review a nursing care plan for the patient with a gastrointestinal disorder.

Key Terms

achlorhydria (ă-chlŏr-HĪ-drē-ă, p. 657)
anastomosis (ă-năs-tō-MŌ-sĭs, p. 656)
bariatric (BĀ-rē-ĂT-rĭk, p. 641)
dumping syndrome (DŬM-pĭng SĬN-drōm p. 642)
dyspepsia (dĭs-PĔP-sē-ă, p. 646)
dysphagia (dĭs-FĀ-jē-ă, p. 643)
Helicobacter pylori (p. 649)
hematemesis (hē-mă-TĔM-ĕ-sĭs, p. 651)
melena (mĕ-LĒ-nă, p. 655)
roux-en-Y (roo-ĕn-WĪ, p. 642)
stomatitis (stō-mă-TĪ-tĭs, p. 643)
vagotomy (vă-GŎT-ō-mē, p. 656)

EATING DISORDERS

ANOREXIA NERVOSA

Anorexia nervosa is classified as a psychological disorder (see Chapter 46), but it has serious nutritional consequences. In many contemporary cultures, the emphasis on a slim body has influenced young women's body image. The patient with anorexia nervosa refuses to eat adequate quantities of food and is in danger of literally starving to death. Although it is a psychiatric disorder, the patient may be admitted to the medical floor for treatment of malnutrition by enteral or parenteral therapy. Diagnosis requires extensive interviewing and treatment—including behavior modification and nutrition support—which may take months to years.

BULIMIA NERVOSA

Bulimia nervosa is another psychological disorder covered in Chapter 46. The bulimic patient consumes large quantities of food and then induces vomiting to get rid of it so that weight is not gained. Laxatives may be taken to purge the system after an eating binge. Some patients with anorexia nervosa also are bulimic. Some individuals practice bulimia occasionally, without harm. When it is practiced frequently, it can lead to severe fluid and electrolyte imbalances, starvation, and death. Treatment of bulimia includes psychotherapy, antidepressant medication, and behavior modification.

OBESITY

Obesity is a worldwide problem, and is particularly prevalent in industrialized nations. Over two thirds of adults in the United States are overweight or obese, and over one third are obese. In the United States, obesity is associated with over 112,000 deaths related to cardiovascular disease, 15,000 deaths due to cancer, and over 35,000 deaths from other causes related to being overweight (Weight-Control Information Network, 2010). Children are showing a trend for increasing obesity. There is an ongoing search to see if there is a genetic predisposition to this disorder. Prevention of obesity and encouraging healthy and nutrition dense foods are goals of *Healthy People 2020*.

Etiology and Pathophysiology

Several factors must interact for obesity to occur, including genetics, a diet of foods high in calories and fat, lack of exercise, and overconsumption of food. Some medications increase appetite. Known contributors to obesity include readily available high-calorie prepackaged and high-fat fast food, plus "supersized" portions available in restaurants.

For some people overeating is a reaction to stress; for others overeating is a substitute for absent pleasures. Some obese people seem to metabolize nutrients differently than others. The way a person develops fat cells and deposits fat is another factor in obesity. Genetic predisposition is most likely a factor since obesity seems to occur among family members.

Signs and Symptoms

A person is considered obese if he weighs more than 20% above the ideal weight for his height, age, and body type. Approximately 3 million Americans are *morbidly obese*, defined as 100% over ideal body weight, or having a body mass index over 40.

Obese patients should be counseled to lose weight in order to avoid developing one or more of the many diseases in which obesity is a contributing factor. Complications of obesity include:

- Diabetes mellitus
- Hypertension
- Hyperlipidemia
- Coronary artery disease
- Obstructive sleep apnea
- Cholelithiasis
- Arthritis with back and/or knee problems
- Increased susceptibility to infectious disease and decreased wound healing.

? Think Critically

You have a friend who is overweight and she asks your opinion about the effectiveness and safety of over-the-counter "diet" pills. How would you respond?

Diagnosis

To determine whether a patient is obese, the following measurements are used:

- Height and weight chart: if more than 20% above ideal body weight for age and body build, the patient is considered obese.
- Measure the waist and then the hip circumference. Calculate the waist-to-hip ratio (waist measurement divided by the hip measurement). If the ratio is more than 1.0 in men or 0.8 in women, it indicates that the person is overweight. This is a more accurate indicator for obesity in the elderly.
- A body mass index (BMI) of more than 30 indicates obesity.

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$$

Thyroid function should be determined to ascertain that hypothyroidism is not a cause of the weight gain.

Treatment

A general health assessment should be conducted before a patient is placed on a weight reduction diet. A physician will usually prescribe a lower-calorie diet and exercise. The patient is taught ways to change thinking about food and weight. Those with a BMI over 40 may have surgery to achieve weight reduction if they meet established criteria. Participation in a support group and behavior modification with some sort of reward for weight loss are part of the total treatment plan. Teaching stress reduction and alternate ways of coping are essential to success. Medications that suppress appetite or block fat absorption may be used on a short-term basis. Sibutramine (Meridia) is the commonly used appetite suppressant. It is a selective serotonin reuptake inhibitor, which enhances the feeling of fullness when eating; sibutramine can be combined with norepinephrine, which increases the metabolic rate, thereby burning more calories. Side effects of sibutramine include dry mouth, insomnia, and constipation. Orlistat (Xenical) inhibits lipase, causing fats to remain partially undigested and unabsorbed. Gastrointestinal side effects of orlistat include diarrhea (sometimes uncontrolled), abdominal cramping, and nausea.

Elder Care Points

The elderly may become obese due to decreased mobility from arthritis or other joint disorders. Cooking and eating are less appealing if the person is living alone, and snacking on junk food may replace meals. Metabolic rate slows with age, and a decreased calorie intake is needed to maintain a normal weight.

Bariatric Surgery. **Bariatric** surgery reduces gastric capacity. The patient undergoes extensive counseling and assessment. The patient must agree to modify his lifestyle and follow the stringent regimen required to lose weight and keep weight off. Three common types of bariatric surgery are gastric restrictive, malabsorptive, and gastric restrictive combined with malabsorptive surgery.

Restrictive procedures. *Laparoscopic adjustable gastric banding* is performed by placing an inflatable band around the fundus of the stomach. This procedure may be performed laparoscopically. The band is inflated and deflated via a subcutaneous port to change the size of the stomach as the patient loses weight. For *vertical banded gastroplasty*, the surgeon creates a small stomach pouch by placing a vertical line of staples. A band is placed to provide an outlet to the small intestine (Figure 29-1).

Malabsorptive and combination procedures. The total gastric bypass procedure causes severe nutritional deficiencies and is no longer recommended. The roux-en-Y gastric bypass (RYGB) limits the stomach size, and the duodenum and part of the jejunum are bypassed. This limits the absorption of calories.

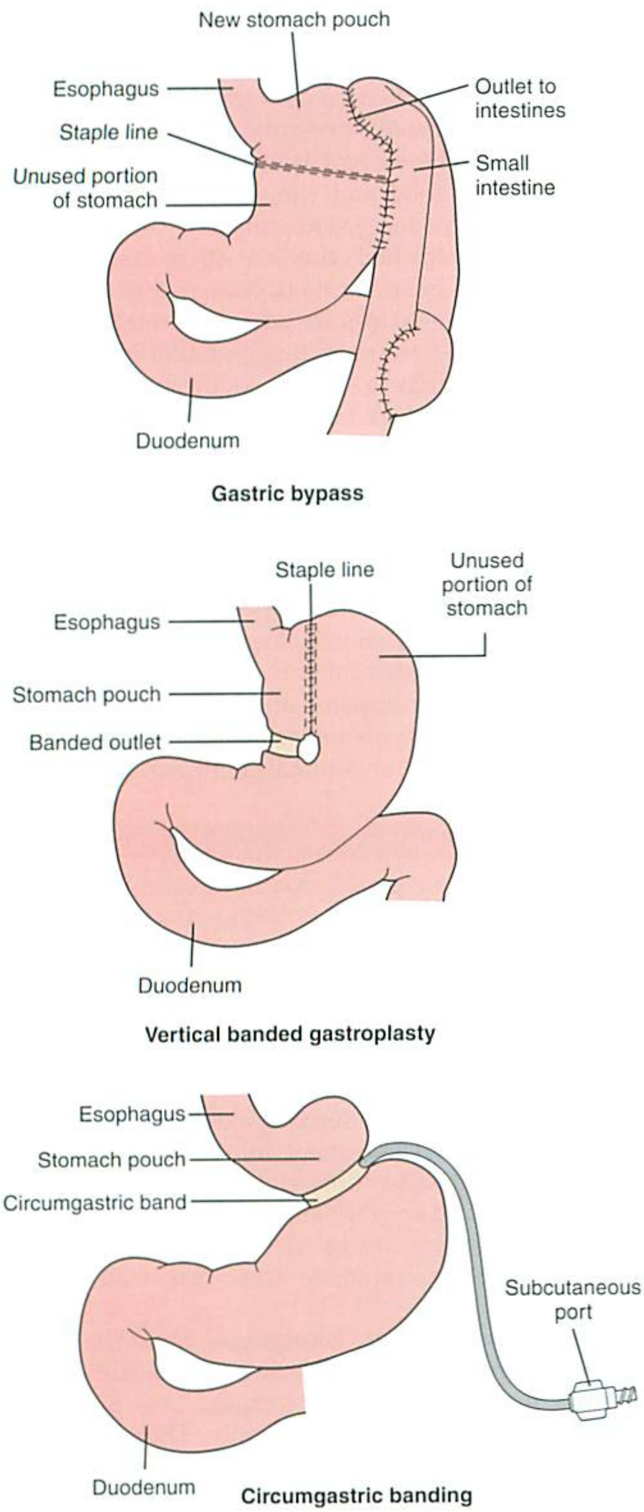

FIGURE 29-1 Bariatric surgical procedures.

Think Critically

What impact on nutritional status might a roux-en-Y bypass have on an individual? Why? What might be the physical long-term consequences?

Complications. With the RYGB procedure, there is danger of leakage of stomach contents into the abdomen in the early postoperative period. Later, gastric stretching may cause the staple line to break and a leak to occur. Signs and symptoms are tachycardia, dyspnea, or restlessness. An upper gastrointestinal (GI) series or computed tomography scan can diagnose the problem. The band in the vertical banding procedure may erode into the stomach over time and cause leakage. RYGB patients are also at risk for **dumping syndrome**, which results in nausea, weakness, sweating, and diarrhea. Other complications of major surgery may occur in the respiratory and cardiovascular systems (see Chapter 5 for complications of surgery). There is greater risk of pulmonary dysfunction, thrombus formation, and death, for the obese patient. About a third of patients who undergo bariatric surgery develop gallstones. Ursodeoxycholic acid therapy can be used to treat the gallstones, although poor compliance and cost are issues for this therapy (Patel et al., 2009).

All bariatric surgery patients are at risk of nutritional deficiencies. Those with the RYGB procedure are most likely to develop deficiencies of iron, vitamin B_{12}, calcium, and folate. Supplements must be taken for life.

NURSING MANAGEMENT

Assessment (Data Collection)

Data collection includes establishing whether there is a family history of obesity, determining contributing factors, and obtaining an accurate record of eating patterns for a 7-day period. Physical assessment includes measuring weight and height, calculating BMI, and taking a skinfold thickness measurement. A general health assessment is performed.

Nursing Diagnosis and Planning

Examples of nursing diagnoses relevant to the care of obese patients include:

- Disturbed body image related to excess weight
- Imbalance nutrition more than body requirements related to high fat diet
- Chronic low self-esteem related to excess weight

Goals should be long term, and expected outcomes might include:

- Patient will make positive statements about decreasing body size.

- Patient will consume less fatty food and more fruit and vegetables.
- Patient will verbalize feelings of self-worth.

Implementation

The diet and exercise plan should be designed according to the patient's lifestyle and preferences. Encourage the patient to keep an eating and exercise diary. Weekly meetings for counseling and evaluation are important to provide guidance. Offer support by being available to talk about the positive aspects and frustrations of staying on the diet. Discourage fad diets and emphasize the importance of a well-balanced, nutritious, low-calorie diet. Commercial programs are available to assist patients with weight reduction. Weight Watchers and TOPS (Take Off Pounds Sensibly) are two commercial programs that have shown good long-term results with maintenance of normal weight.

Preoperative and postoperative care for the bariatric surgery patient depends on the type of surgical procedure performed, but general principles are similar to other types of abdominal or abdominal laparoscopic surgery. Because of the weight and size of the client, lifting apparatus must be available as well as an extra-wide bed and chair. Hospitalization may be for 1 to 5 days depending on the procedure and the patient. If a nasogastric (NG) tube is in place, do not reposition it, as you might disrupt the suture line. Feedings are designed in consultation with a dietitian; you would anticipate feeding progression in the early postoperative period, then onto multiple small meals, a balanced meal plan, and possibly parenteral nutrition (PN) in high-risk patients (National Clearinghouse Guidelines, 2009). For example, feedings begin with 1 ounce of clear liquid at a time, advancing to pureed foods, juice, thinned soups, and milk. The diet is increased in 1-ounce increments taken over 5 minutes until the patient's appetite is satisfied. The diet is maintained for 6 weeks and then progressed to regular foods. Nausea, vomiting, and discomfort may occur, especially if too many liquids are ingested. The patient remains under medical supervision to monitor for vitamin deficiency or malnutrition.

Evaluation

The patient's diet and exercise diary should be evaluated each week if possible. Weight is tracked on a graph to show progress in weight loss. If the outcomes are not being met, the plan's interventions must be reconsidered.

UPPER GASTROINTESTINAL DISORDERS

STOMATITIS

Stomatitis is a generalized inflammation of the mucous membranes of the mouth. Causes include trauma from ill-fitting dentures or malocclusions of the teeth, poor oral hygiene, and nutritional deficiencies. Excessive smoking, excessive drinking of alcohol, pathogenic microorganisms, radiation therapy, and drugs (especially those used in chemotherapy for malignancies and anticonvulsants) are other contributors to the problem.

Common symptoms of stomatitis include pain and swelling of the oral mucosa, increased salivation or excessive dryness, severe halitosis, and sometimes fever. Small crater-like aphthous ulcers may appear in the mouth, commonly called "canker sores."

Treatment of stomatitis is chiefly symptomatic, unless a specific infectious causative agent is identified. Nursing measures to control the symptoms of stomatitis—including special mouth care, artificial saliva, and diet—are discussed in Chapter 8.

Complementary and Alternative Therapies

Lysine for Canker Sores

Many people who develop "canker sores" from food sensitivities or stomach upset often can heal them more quickly by taking the dietary supplement lysine three or four times a day. This often helps cut the time of a "fever blister" on the lips as well (Dugdale, 2009).

DYSPHAGIA

Dysphagia means difficulty in swallowing. It is the most common symptom of disorders of the esophagus and varies from a mild sensation that something is sticking in the throat, to a complete inability to swallow solids or liquids. Tumors, esophageal diverticula, inflammation, or motility disorders from a neurologic disorder may cause swallowing problems. If the patient is experiencing choking or difficulty with swallowing, he is kept on nothing-by-mouth (NPO) status. A modified barium swallow test is ordered to determine the specific cause. Videofluoroscopy is used during the test to visualize the swallowing process.

Treatment and Nursing Management

Have the patient take some "practice swallows" before beginning the meal. Watch to see that the larynx rises with each swallow. Observe the kinds of food the patient can tolerate and the conditions under which difficulties are experienced. Knowing the consistency and temperature of the foods most easily ingested by the patient is helpful. Some patients may strangle on liquids, but will tolerate soft and semisolid foods. Others may have the feeling that high-fiber foods are not moving past a certain point in the esophagus. Measures that may be helpful in relieving dysphagia include instructing the patient to chew the food more thoroughly or to eat semisoft or pureed foods. Drinking liquids throughout the meal may help; however, **liquids will cause many patients to choke. If thin liquids are a problem, adding thickener to liquids makes them easier to swallow.** Sitting upright with the head forward and the neck flexed with the chin slightly tucked aids in swallowing. Head position may be altered, depending on the particular type of problem present. A speech pathologist should be consulted to design the most effective therapy for the patient.

The patient may be a candidate for neuromuscular electrical stimulation (NMES). One type of NMES device stimulates muscle at rest, to compensate for muscle wasting. Another NMES device is used for patients who have swallowing issues related to neurologic disorders such as stroke. Some helpful strategies to improve swallowing include licking lollipops to strengthen tongue movements, practicing vowel sounds to stimulate movement, and sucking or blowing through a straw to strengthen the soft palate (Nazarko, 2010). Meals should be served in a relaxing atmosphere with pleasant surroundings and relief from emotional stress.

Nursing diagnoses for patient with swallowing problems are:

- Impaired swallowing
- Risk for imbalanced nutrition: less than body requirements
- Risk for aspiration

Elder Care Points

The older patient may have experienced a stroke that has impaired swallowing ability. Swallowing pills is a frequent difficulty for this age group. Instruct the elderly patient to take a drink of water, swallow, place the pill on the back of the tongue, take another drink of water, tuck the chin down slightly and swallow; follow by drinking at least 6 to 8 ounces of water.

Patients with chronic dysphagia are subject to respiratory problems resulting from the aspiration of food into the respiratory tree. Both acute and chronic dysphagia are likely to produce nutritional deficiencies and electrolyte imbalances. If the dysphagia is such that the patient cannot swallow sufficient amounts of food for adequate nutrition, tube feeding may be indicated. This sometimes is necessary when the dysphagia is the result of cerebral damage, as in cerebrovascular accident.

Clinical Cues

When your patient has a swallowing problem, the oral suction equipment should always be readily available. Aspiration of food or mucus can occur quickly. The patient or family should be taught how to quickly use the oral suction apparatus (Yankauer).

If the patient cannot swallow anything because of a neurologic condition (see Chapters 22 and 24), or if the esophagus is obstructed and cannot be corrected surgically, the patient must have a gastrostomy. An opening in the wall of the stomach is created, and a permanent feeding tube is sutured in place. Nursing interventions for feeding tubes are discussed later in this chapter.

CANCER OF THE ORAL CAVITY

Etiology, Pathophysiology, and Signs and Symptoms

In May 2010, there were approximately 25,800 new cases of oral cancer in the United States (American Cancer Society, 2010). Although the specific cause is unknown, oral or throat cancer is curable if discovered early. Cell mutation occurs until an area of cells becomes neoplastic. A genetic factor is most likely present. Oral and pharyngeal cancer risks are cigarette smoking, use of smokeless tobacco, pipe smoking, and heavy alcohol use. The human papillomavirus is another risk factor. Leukoplakia, a precancerous lesion, may occur on the tongue or mucosa. Dental examinations should include inspection for this lesion. Sores or discolorations on the lips or in the mouth that do not heal within 2 weeks should be checked by a physician.

Diagnosis and Treatment

Diagnosis is made by physical examination and biopsy. Oral cancer treatment varies depending on the structures involved. Radiation, chemotherapy, and surgery are treatment options. *Mandibulectomy* (removal of the mandible), *hemiglossectomy* (removal of half of the tongue), or *glossectomy* (removal of the tongue) with resection of other parts of the mouth may be necessary. If the cancer has spread to the cervical lymph nodes, radical or modified neck dissection is performed. This surgery involves wide excision of the primary tumor with removal of the regional lymph nodes, the deep cervical lymph nodes, and lymph channels. A tracheostomy accompanies these procedures to protect the airway (see Chapter 14). A drain is placed to prevent fluid accumulation. Tube feedings are used as long as swallowing is difficult.

Nursing Management

Postoperative care includes close monitoring of respiratory status, airway, and oxygenation. Cold packs and elevation of the head are used to prevent excessive swelling in the neck that might compress the airway, circulation, and nerves. Aseptic wound care and tracheostomy care are provided. Nutritional support is an ongoing concern and is very important in the healing process. Many of these patients are malnourished before surgery. See Chapter 8 for the specific care of the cancer patient undergoing radiation and/or chemotherapy.

Think Critically

You are caring for a young woman who was recently informed that she would need surgery and radiation treatment for oral cancer. What are the implications for her sense of body image and psychological well-being?

CANCER OF THE ESOPHAGUS

Etiology and Pathophysiology

Cigarette smoking is a major cause of esophageal cancer in the United States. When combined with heavy alcohol consumption, the risk for esophageal cancer greatly increases. Both substances are irritants to the mucosa of the esophagus. Cigarettes and smokeless tobacco are responsible for 14,530 deaths from esophageal cancer annually (American Cancer Society, 2009a). The cancer is usually well advanced when discovered. The tumor is either adenocarcinoma or squamous cell cancer.

Gastroesophageal reflux disease (GERD) is a cause of Barrett's esophagus, which is a precancerous condition. One percent of patients with Barrett's esophagus eventually develop esophageal cancer (Mayo Clinic Health Letter, 2010). The cellular changes caused by irritation of the stomach fluids may eventually become malignant.

Signs, Symptoms, and Diagnosis

Signs and symptoms may include progressive dysphagia, a feeling of fullness in the throat, regurgitation of foods, or foul breath. At first the dysphagia only occurs with meat, but then with soft foods and eventually even with liquids. Pain occurs late in the disease and is substernal, epigastric, or in the back and occurs with swallowing. Weight loss is typical. Barium swallow with fluoroscopy may show a narrowed esophagus. Definitive diagnosis is by esophagogastroduodenoscopy (EGD) and biopsy.

? Think Critically

A 76-year-old Chinese man complains of progressive difficulty swallowing and fullness of the throat. When making clinical decisions, what would be the most effective approach for this patient?

Treatment

Care of the patient with Barrett's esophagus is focused on encouraging measures to prevent GERD and on regular checkups. Patients should be encouraged not to use tobacco products and not to indulge in heavy alcohol use.

? Think Critically

If a patient who smokes is awaiting surgery for esophageal cancer, is it appropriate to prevent him from smoking?

An esophagectomy, or removal of most of the esophagus, may be performed if cancer is localized just to the esophagus. Newer forms of treatments may be combined and include radiofrequency ablation (RFA), which uses bursts of radiofrequency energy to burn away abnormal cells; cryotherapy, which freezes abnormal cells and causes sloughing of dead tissues; photodynamic therapy, which uses a medication that causes damaged cells to be sensitive to light; and endoscopic mucosal resection, which is a procedure wherein a saline solution is injected under the abnormal tissue, which makes it easier to suction away (Mayo Clinic Health Letter, 2010). For patients who have advanced-stage cancer, palliative care includes the insertion of expanding metal stents or high-dose intraluminal brachytherapy (radiation source is placed internally near the abnormal tissue) to relieve severe dysphagia (Sreedharan et al., 2009).

Nursing Management

Postoperative care is the same as for any patient having thoracic or abdominal surgery. Maintaining a patent airway is the top priority. Nutrition is initially supplied by parenteral fluids. When bowel sounds return, small amounts of water are given orally every hour. Gradual progression to small, frequent, bland meals is the next step. The patient should be upright when eating to prevent regurgitation. Pain, increased temperature, and dyspnea may indicate leakage of the feeding into the mediastinum. Intolerance of food is evidenced by vomiting and abdominal distention. The patient may need a feeding tube for several weeks or a gastrostomy tube to sustain nutrition.

HIATAL HERNIA (DIAPHRAGMATIC HERNIA)

Etiology and Pathophysiology

Loss of muscle strength and tone, factors that cause increased intra-abdominal pressure (such as obesity or multiple pregnancies), and congenital defects contribute to the formation of a hiatal hernia. Hiatal hernia is the result of a defect in the wall of the diaphragm where the esophagus passes through; this creates protrusion of part of the stomach or the lower part of the esophagus up into the thoracic cavity. Women are more frequently affected with hiatal hernia than are men.

Signs and Symptoms

Signs and symptoms of hiatal hernia include indigestion, belching, and substernal or epigastric pain or feelings of pressure after eating caused by reflux of gastric fluid into the esophagus. The symptoms are more severe when the patient lies down.

Diagnosis and Treatment

Hiatal hernia is diagnosed by an upper GI series. Treatment includes weight reduction, avoidance of tight-fitting clothes around the abdomen, administration of antacids and histamine (H_2)-receptor antagonists, and elevation of the head of the bed on 6- to 8-inch blocks. If esophagitis is present, proton pump inhibitors are used. The patient is instructed not to eat within several hours of going to bed. Intake of alcohol, chocolate, caffeine, and fatty food is limited, and smoking should be avoided. Ingestion of fats relaxes the sphincter, allowing reflux (Pinto & Schub, 2009). Occasionally a patient with reflux esophagitis, which is caused by the hernia, may bleed extensively. If bleeding or discomfort cannot be controlled, surgical correction of the hernia is required.

Nursing Management

The patient with hiatal hernia is taught ways to prevent pain and reflux. If weight is above normal, encourage weight reduction. Remind the patient to stay upright for 2 hours after eating and not to eat for 3 hours before bedtime. Lifting or moving heavy items is to be avoided. If the head of the bed cannot be raised, a wedge pillow should be used to elevate the upper body; this position helps prevent reflux and assists gravity in maintaining the stomach in the abdominal cavity. Prescribed H_2-receptor antagonists or proton pump inhibitors should be taken at bedtime to prevent reflux and damage from acid entering the esophagus. The patient should avoid foods that cause bloating, which increases abdominal pressure. Increased abdominal pressure may push the stomach upward through the diaphragmatic defect.

GASTROESOPHAGEAL REFLUX DISEASE

Etiology and Pathophysiology

Gastroesophageal reflux disease (GERD) is a syndrome, not a disease. Ninety percent of patients with GERD have a hiatal hernia. GERD occurs equally in men and women. It is caused by transient relaxation of the lower esophageal sphincter. The relaxation allows fluids or food to reflux into the esophagus from the stomach. Delayed stomach emptying is another factor. Certain foods and medications contribute to this mechanical problem. Being overweight is common among patients with GERD. GERD may contribute to bronchoconstriction and asthma symptoms due to irritation of the upper airway by gastric secretions. About 75% of patients with asthma have GERD (Nazario, 2009).

Signs and Symptoms

Heartburn **(dyspepsia)** and reflux are the most common symptoms of GERD. Other symptoms may include chest pain, coughing, dysphagia, belching, flatulence, and bloating after eating. Some patients do not experience symptoms; for those who do, the symptoms are aggravated by lying down.

Diagnosis

GERD is diagnosed by EGD and sometimes barium esophagram. Occasionally, other tests such as an esophageal manometry, ambulatory 24-hour pH monitoring, or radionuclide measurement of gastric emptying are performed. Esophageal manometry measures pressures in the esophagus; pressures will be increased during episodes of reflux. For 24-hour pH monitoring, a tiny tube with a transducer is introduced into the esophagus to take measurements of the esophageal pH.

Treatment and Nursing Management

Diet therapy, lifestyle changes, drug therapy, and education are the mainstays of GERD treatment. The diet should exclude foods that cause sphincter relaxation. Drug therapy may include antacids, H_2-receptor antagonists, proton pump inhibitors, and prokinetic drugs (Table 29-1). Check for drug interactions with other drugs the patient is taking. Verify that the patient can afford the drugs prescribed, as some are very expensive.

Patient Teaching

Measures to Decrease the Symptoms of GERD

DIETARY ALTERATIONS

- Avoid any food in the diet that increases gastric acid and causes pain.
- Avoid high-fat and spicy foods, including garlic.
- Do not eat large meals; instead, eat four to six small meals a day.
- Eat slowly and chew food thoroughly, and avoid using a straw for liquids to decrease belching and reflux.
- Avoid carbonated beverages as they increase bloating.
- Eliminate or limit alcohol, tomato-based products, caffeine, citrus juice, raw onions, chocolate, peppermint, and spearmint from the diet. These foods either relax the esophageal sphincter or increase acid production.

LIFESTYLE ALTERATIONS

- Wait 2 to 3 hours after eating before lying down.
- Do not wear clothes that constrict around the middle of the body.
- If overweight, lose the extra pounds; a 10% weight loss can decrease symptoms considerably.
- Sleep with the head of the bed elevated 4 to 6 inches with blocks or a foam bolster pillow.
- Take medications as directed in relationship to meals and bedtime.
- Stop smoking as it may stimulate gastric acid secretion.
- Participate in regular stress-reducing activities such as exercise, meditation, deep breathing, and laughter.

Safety Alert

Proton Pump Inhibitors and Cardiac Problems

The Food and Drug Administration (FDA) has issued a warning that long-term use of the proton pump inhibitors esomeprazole (Nexium) or omeprazole (Prilosec) may increase the risk of heart problems. Patients taking these drugs should consult their health care provider.

Table 29-1 Commonly Prescribed Drugs for Upper Gastrointestinal Disorders

CLASSIFICATION*	ACTION	NURSING IMPLICATIONS	PATIENT TEACHING
Antacids			
There are four antacid families consisting of compounds of aluminum, magnesium, calcium, and sodium. Gelusil, Maalox, Mylanta-II, Riopan, Di-Gel, Amphojel, Gaviscon	Neutralize stomach acid	Aluminum hydroxide compounds promote constipation, whereas magnesium hydroxide compounds promote diarrhea. Sodium compounds may adversely affect hypertension and heart failure. All antacids may adversely affect the dissolution and absorption of other drugs. One hour should be allowed between antacid administration and administration of another drug. Magnesium compounds are used cautiously in patients with renal insufficiency.	Antacids for treatment of peptic ulcer should be taken seven times a day: 1 hr and 3 hr after meals, and at bedtime. Separate from other drug administration by 2 hr. Shake liquid preparations well before pouring from container. Chew antacid tablets thoroughly, and follow with a glass of water or milk. Report problems of constipation or diarrhea to the physician. Take even after pain has disappeared; consult physician.
Histamine (H_2)-Receptor Antagonist			
Cimetidine (Tagamet) Famotidine (Pepcid) Nizatidine (Axid) Ranitidine (Zantac)	Suppress acid secretion by blocking H_2 receptors on parietal cells	Cimetidine may interact with many other drugs; check drug interactions for other drugs patient is receiving. Cimetidine may cause confusion and other CNS effects. Separate administration of these drugs and antacids by 1 hr. Monitor for decreased abdominal pain and ulcer symptoms.	These drugs should be taken with meals and at bedtime. Once-a-day dose should be taken at bedtime. Advise patient to avoid cigarettes, aspirin, and other NSAIDs. Advise to avoid alcohol or only consume it in moderation and only in conjunction with food. Advise to use stress-reduction techniques.
Proton Pump Inhibitors			
Omeprazole (Prilosec) Omeprazole and sodium bicarbonate (Zegerid) Lansoprazole (Prevacid) Dexlansoprazole (Kapidex)	Suppress secretion of gastric acid	May cause headache, nausea, vomiting, or diarrhea. Use is preferably limited to 4-8 wk.	Follow regimen of diet and stress reduction for ulcer healing.
Misoprostol (Cytotec)	Prevents gastric ulcers caused by long-term therapy with NSAIDs	May cause diarrhea or abdominal pain. Not safe during pregnancy.	
Rabeprazole (Aciphex)		Do not crush delayed-release tablets.	This is a slow-release preparation that acts throughout the day. Teach patient to wear sunscreen as drug may cause sun sensitivity.
Pantoprazole (Protonix)		Do not crush tablets.	A slow-release preparation.
Esomeprazole (Nexium)		Do not administer with digoxin, rabeprazole, or iron salts.	May affect absorption of digoxin, rabeprazole, and iron salts.
Miscellaneous			
Sucralfate (Carafate)	Sucralfate provides protective coating barrier over ulcer crater	Monitor for constipation.	Take only as directed. Wait 30 min before taking any other drug.

*Names of generic drugs are listed first, followed by the brand names of drugs in parentheses.

Continued

Table 29-1 Commonly Prescribed Drugs for Upper Gastrointestinal Disorders—cont'd

CLASSIFICATION	ACTION	NURSING IMPLICATIONS	PATIENT TEACHING
Antimicrobials			
Clarithromycin (Biaxin)	Suppresses protein synthesis in bacteria Used to kill *Helicobacter pylori*	Assess for drug allergy. Report hematuria or oliguria. Administer every 12 hr to maintain serum levels. Do not crush tablets. Monitor for diarrhea, abdominal pain, or signs of jaundice.	May cause diarrhea, anorexia, or nausea. Must be taken at regular intervals to be effective. Take the entire prescription. Taking acidophilus between doses may alleviate diarrhea. Increase fluid intake if diarrhea occurs.
Amoxicillin (Amoxil)	Causes cell wall of bacteria to swell and burst, preventing replication	Assess for drug sensitivity. Assess for side effects. Monitor renal function. Monitor for blood in stool and abdominal pain.	Take on an empty stomach with a full glass of water. Take at regular intervals around the clock to sustain blood levels. Take entire prescription.
Tetracycline	Bacteriostatic Inhibits protein synthesis in microorganism	Assess for drug sensitivity. Monitor CBC, liver, and kidney functions. Increases effect of warfarin and digoxin. Decreases effect of penicillin and oral contraceptives.	Do not take with dairy products or antacids; separate by 2 hr. Avoid sun exposure. Avoid using Clinistix, Diastix, or Tes-Tape for diabetic urine testing.
Metronidazole (Flagyl)	Kills amebas and *Trichomonas;* degrades DNA in organism	Do not give during second and third trimesters of pregnancy. Increases action of anticoagulants. Decreases action of phenobarbital and phenytoin. May cause toxicity if administered with cimetidine or lithium. Patient should have vision examination before and after therapy. Monitor for neurotoxicity. Discontinue if fever, chills, rash, or itching occurs.	Do not drink alcohol during or for 48 hr after therapy has ended. May cause severe vomiting and prostration. Urine may turn dark brown. Notify physician of numbness or tingling. Dizziness may occur; avoid hazardous activities. May cause dry mouth; chew sugarless gum or sip water frequently.
Antispasmodics			
Dicyclomine hydrochloride (Bentyl, Antispas) Propantheline bromide (Pro-Banthine)	Block acetylcholine, thereby decreasing smooth-muscle spasm and GI motility and inhibiting gastric acid secretion	These drugs interact with many other drugs; check each drug patient is taking for interactions. Most of these drugs are contraindicated in glaucoma, prostatic hypertrophy, myasthenia gravis, and other conditions; consult information on each drug individually. May predispose to drug-induced heat stroke. Monitor vital signs and urine output carefully.	Take 30-60 min before meal. Patient can suck on hard candy to relieve mouth dryness unless contraindicated. Drink 2500-3000 mL of fluid to prevent constipation. Avoid driving and hazardous activities if drug causes dizziness, sleepiness, or blurred vision. Report rash or skin eruption to physician.
Metoclopramide (Reglan)	Hastens gastric emptying and relaxes pyloric and duodenal segments of GI tract	Assess for neurologic or psychotropic side effects such as restlessness, anxiety, ataxia, or hallucinations. Not for long-term use.	Take before meals.

CBC, complete blood count; *CNS*, central nervous system; *GI*, gastrointestinal; *NSAIDs*, nonsteroidal anti-inflammatory drugs.

If these therapies do not control the problem, endoscopic noninvasive therapies often are effective. Laparoscopic surgical fundoplication—wherein the fundus of the stomach is wrapped around the esophagus to create a new valve junction (Figure 29-2)—is effective in 92% of patients (Fisichella & Patti, 2009). This is the same procedure used to correct a hiatal hernia.

? Think Critically

Many patients with GERD and hiatal hernia do not really modify their diet and lifestyle, over the long term; instead they rely on medications, which can be expensive, to decrease their symptoms. What measures could you use to show patients that lifestyle changes may control symptoms without medication?

Complications

Irritation results when stomach contents containing hydrochloric acid, pepsin, and other enzymes are refluxed into the esophagus. Constant irritation may cause cellular changes, such as the precancerous lesions in Barrett's esophagus. Reflux is also a risk factor for aspiration of stomach contents and pneumonitis. Acid reflux into the mouth, over time, may cause dental caries.

GASTROENTERITIS

Gastroenteritis is inflammation of the stomach and small intestine. It is caused by intake of food or water contaminated with a virus, a pathogenic bacteria, or parasites. The Norwalk virus is a common cause, as are *Giardia* and *Shigella*. Signs and symptoms of gastroenteritis include vomiting, diarrhea, abdominal cramping, and distention. Fever, elevated white blood cell count, and blood or mucus in the stool may occur. In healthy adults the disorder is self-limiting and does not require hospitalization. The young child, the elderly, and the chronically ill may need intravenous (IV) therapy to take in enough fluid to compensate for the fluid lost during gastroenteritis.

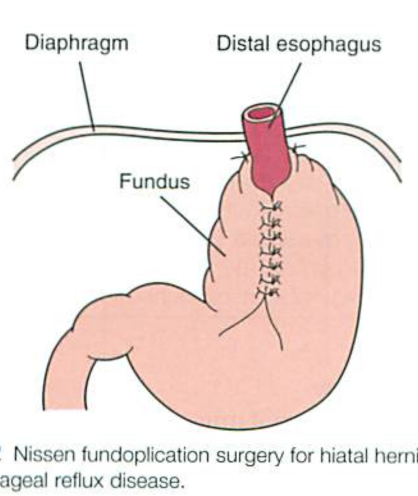

FIGURE 29-2 Nissen fundoplication surgery for hiatal hernia or to treat gastroesophageal reflux disease.

The gastroenteritis patient should be kept NPO until vomiting has stopped. When tolerated, fluids containing glucose and electrolytes should be started (Pedialyte, Gatorade). If diarrhea continues beyond 3 or 4 days, stool studies for the causative organism should be performed. Therapy to eradicate the causative agent can then be started. Rest is important during the course of the vomiting and diarrhea. After 24 to 48 hours, medication may be prescribed for the vomiting, abdominal cramping, and diarrhea.

Nutrition Considerations

Dietary Guidelines for the Patient with Vomiting

- Liquid diet for 12 to 24 hours. Frequent, small amounts of clear liquids are best.
- Avoid milk, ice cream, pudding, cheese, yogurt, citrus juice, and cream soups.
- Foods allowed on the liquid diet are electrolyte solutions, carbonated beverages, bouillon, unflavored gelatin, apple juice, peach or pear juice, plain hard candy, sugar, honey, sugar substitutes, and frozen Popsicles.
- When nausea and vomiting stop:
  - Add some of the following foods for the next 12 to 24 hours: soda crackers, toast and jelly without butter, tea, rice, pretzels, bananas, applesauce, cooked cream of wheat or cream of rice, and fruit or vegetable juice (BRATT diet: banana, rice, applesauce, tea, and toast).
  - If above diet is tolerated without further symptoms, add the following foods for the next 12 to 24 hours: potatoes (not fried), soups, soft eggs, custards, puddings, white turkey meat or white chicken meat, and cottage cheese.
  - If no further symptoms occur, resume a regular diet but avoid highly seasoned foods, greasy or fried foods, heavy fatty foods, excessively hot or cold foods, raw vegetables, coffee, colas, and milk products. Avoid those foods for 1 week after symptoms have stopped.

GASTRITIS

Etiology

The main cause of gastritis is ***Helicobacter pylori*** bacteria. Other contributors to acute gastritis are drinking excessive amounts of alcohol, infection from eating contaminated food, and ingestion of drugs, such as aspirin, ibuprofen, corticosteroids, or nonsteroidal anti-inflammatory drugs (NSAIDs).

Pathophysiology

Gastritis is not a disease; it is an acute or chronic inflammation of the mucous membrane lining the stomach. *Atrophic* gastritis involves all layers of the stomach. It is seen in association with gastric ulcer and malignancies of the stomach. Gastritis associated with uremia is common in the patient with kidney failure. The excessive urea that builds up from the kidney failure causes gastric irritation. Untreated chronic gastritis may progress to ulcer formation and upper GI hemorrhage.

Signs, Symptoms, and Diagnosis

In both acute and chronic gastritis, the main symptoms are anorexia, nausea, vomiting, pain and tenderness in the stomach region, hiccoughs, and sometimes diarrhea. The patient with chronic gastritis may have no symptoms and may suddenly experience massive hemorrhage from the stomach. Diagnosis is by history, physical examination, and endoscopic examination.

Treatment and Nursing Management

Acute gastritis usually is of very short duration. Treatment consists of withholding all foods by mouth and administering drugs that slow down the peristaltic action of the GI tract. If severe dehydration or nausea and vomiting occur, fluids may be given IV. The patient with gastritis must be watched closely for signs of fluid and electrolyte imbalance.

Elder Care Points

If an elderly patient experiences vomiting and is unable to retain fluids for 12 hours, a trip to the emergency department for IV fluids may be needed to prevent severe dehydration.

Chronic gastritis is not as easily treated as acute gastritis. Diet therapy is of primary importance in chronic gastritis because the patient frequently admits to indiscretion in his dietary and drinking habits and finds it difficult to change. The diet for these patients is devoid of spicy or acidic foods. Tact and patience may convince the patient to follow the prescribed diet.

Treatment for chronic gastritis consists of antispasmodics to decrease the pain of stomach spasms, antacids, an H_2-receptor antagonist such as ranitidine to decrease acid secretions and change pH, or a proton pump inhibitor to decrease the secretion of hydrochloric acid. If *H. pylori* is present, antibiotic therapy is administered.

PEPTIC ULCER

Etiology

About 25 million people in the United States have experienced a peptic ulcer. *H.* is rich in an enzyme that may cause corrosion of the upper GI mucosa by damaging its mucous coating, making it more susceptible to damage from gastric acid and pepsinogen. Duodenal ulcers and some prepyloric ulcers are associated with an increased amount or hyperacidity of the gastric juices, and 70% are associated with *H. pylori.* Gastric ulcers, by contrast, are characterized by normal or abnormally low levels of hydrochloric acid, but 90% have been associated with *H. pylori. H. pylori* is also implicated in the development of gastric cancer (Pinto & Schub, 2009).

Elder Care Points

By age 60, approximately 60% of the population in the United States is infected with the *H. pylori* bacterium. However, most people never have symptoms of gastritis, and few develop ulcers.

Both gastric and duodenal ulcers tend to occur in families. Relatives of people with gastric or duodenal ulcers have three times the expected rate for ulcer formation. A genetic link has been found.

Neither hot spicy foods nor caffeine has been proven to be a risk factor for ulcers, but these substances make symptoms worse in many people. Gastric ulcers do occur in those who are poorly nourished because of poverty or because of poor eating habits. Despite the stereotype of the hard-driving executive suffering from an ulcer and ingesting antacid tablets, there is a greater incidence of ulcers in blue-collar workers and among laborers.

Stress does have a bearing on the progression of peptic ulcer. Tension, anxiety, and prolonged stress do alter gastric function. Prolonged physiologic stress produces what is known as a *physiologic stress ulcer,* which is believed to be the result of unrelieved stimulation of the vagus nerves and decreased perfusion to the stomach. A stress ulcer is pathologically and clinically different from a chronic peptic ulcer. It is more acute and more likely to produce hemorrhage. Perforation occurs occasionally, and pain is rare. Stress ulcers are a hazard for patients who are severely ill and in intensive care units for prolonged periods. Patients with multiple trauma, burns, or multisystem disorders are subject to physiologic stress ulcers. Such patients often receive medication to prevent ulcer formation.

Drug-induced ulcers are most often caused by aspirin, NSAIDs, alcohol, and glucocorticoids (Clin-eguide, 2009). Cigarette smoking is known to be a causative factor in peptic ulcer, particularly if over one-half pack a day is smoked (Clini-eguide, 2009).

Safety Alert

Monitor NSAID Use and Acetaminophen

There is an increased risk of peptic ulcer in individuals taking regular doses of over-the-counter (OTC) NSAIDs such as ibuprofen and naproxen. When combined with more than 2 g of acetaminophen per day, the risk increases. Daily doses of acetaminophen over 2 g along with other NSAIDs increase the risk of upper GI bleeding by twofold. Encourage patients who regularly take an NSAID to check the labels on pain, sleep, and cold medications to monitor acetaminophen intake (Kernisan, 2010).

Pathophysiology

Normally, the upper GI mucosa can resist corrosion; all areas exposed to the hydrochloric acid and pepsin in gastric juices have an ample supply of mucous glands that secrete a protective alkaline mucus, but ulcers develop when the mucosa cannot protect itself from corrosive substances, such as gastric acid, pepsinogen, alcohol, bile salts, and irritating food substances. A *peptic ulcer* is an ulceration with loss of tissue of the upper GI tract. The term includes both duodenal and gastric ulcers (Figure 29-3). The most common site for development of a peptic ulcer is in the first few centimeters of the duodenum, just beyond the pyloric muscle.

Signs and Symptoms

Subjective symptoms of uncomplicated ulcer include epigastric pain that might be described as burning, gnawing, cramping, or aching and that usually comes in waves that last several minutes. The daily pattern of pain is associated with the secretion of gastric juices in relation to the presence of food, which can act as a buffer. **For example, with a gastric ulcer the pain is diminished in the morning when secretion is low and after meals when food is in the stomach, and pain is most severe before meals and at bedtime.** Discomfort often appears for several days or weeks and then subsides, only to reappear weeks or months later. Other subjective symptoms include nausea, loss of appetite, and sometimes weight loss. Spontaneous vomiting accompanies duodenal ulcer more often than gastric ulcer.

Elder Care Points

The elderly patient may not display the typical symptoms. Pain is less typical and may be poorly localized, or it may be described as lower chest discomfort or left-sided pain. Anorexia, weight loss, general weakness, anemia, nausea, and painless vomiting may occur; peptic ulcer is difficult to diagnose in this population.

Gastrointestinal Bleeding. Signs of acute GI bleeding include complaints of weakness and feeling faint, nausea and vomiting, restlessness, thirst, and mental confusion. **Hematemesis** is the vomiting of bright red blood, which indicates an active bleed or blood that has been sitting with gastric juices looks like coffee grounds. Diarrhea, decreased blood pressure, rapid pulse, and other signs of hypovolemic shock may occur. Blood in the GI tract acts as a cathartic and causes diarrhea. If bleeding from the upper GI system is profuse, maroon or bright red blood may appear in stool because of the rapid transit of the blood through the intestinal tract. Black stools almost always indicate the presence of digested blood, which means that the source of bleeding is in the upper GI tract.

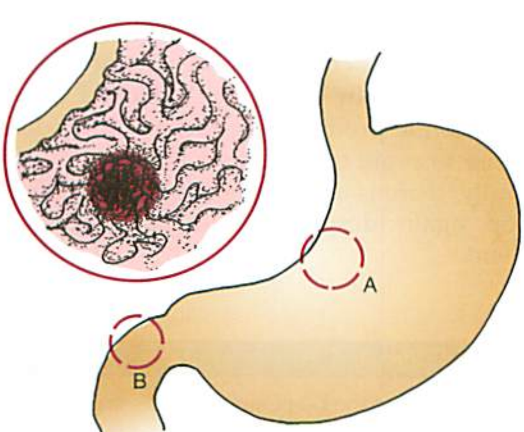

FIGURE 29-3 Peptic ulcers. *A*, Gastric. *B*, Duodenal.

Clinical Cues

Remember that iron salts can cause the stool to be black and that the ingestion of beets can cause the stool to be bright red.

Estimates of blood loss from the GI tract are based in part on blood pressure readings and pulse rates. Blood pressure and pulse rate should be monitored every 15 to 30 minutes when there is evidence of extensive GI hemorrhage. **Changes in the vital signs that signal hypovolemic shock do not appear until after the patient has lost 20% or more of the blood volume.** Central venous pressure readings also are helpful in determining the amount of blood lost, especially in hypertensive patients, whose blood pressure may not reflect hypovolemia.

Additional data useful in determining the status of patients with GI bleeding include hematocrit and hemoglobin levels. These levels can be normal or even slightly elevated at the beginning of a bleeding episode. It takes 4 to 6 hours for the body to shift fluids from other compartments to the intravascular compartment. The shift of fluid changes the ratio of formed elements to fluids in the blood. The white cell count may be elevated in massive GI bleeding, probably because of the body's response to injury or hypovolemia. An elevated level of blood urea nitrogen can indicate digestion of large amounts of blood.

Diagnosis

The technique most commonly used to diagnose peptic ulcer is an upper GI series. Endoscopy can help locate the site of ulceration and bleeding and can differentiate between benign and malignant ulcerations and between the esophageal ulcer and a *diverticulum* (pouching of the intestinal wall).

A gastric analysis to measure the level of hydrochloric acid in gastric juices may be helpful in some cases, but there is significant variation in gastric acid levels among patients with peptic ulcer. Serum tests for *H. pylori* detect antibodies, indicating active or recent infection. The urea breath test involves the measurement of gas released in the breath following ingestion of a radiolabeled urea isotope; when *H. pylori* is present, the test is positive.

Think Critically

How do the symptoms of a gastric ulcer differ from those of a hiatal hernia?

When the patient is experiencing extensive GI bleeding, the patient's condition is stabilized and diagnostic procedures are done to locate the source of bleeding. These procedures include endoscopic examination of the esophagus, stomach, and small intestine. Barium studies may be ordered.

Treatment

Peptic ulcer is treated conservatively at first, to avoid surgery. Medications to relieve pain from local irritation of the intestinal mucosa include antacids, which reduce the pain of ulcer by neutralizing gastric acid (see Table 29-1).

Treatment of gastric bleeding is begun by inserting a large-bore NG tube and using a normal saline lavage to monitor the quantity of bleeding and evacuate the blood, clots, and stomach contents. This allows the stomach to constrict, halting the blood flow. Antacids are given via the tube to neutralize pepsin and help stop the bleeding. H_2-receptor antagonists or proton pump inhibitors are used to decrease or stop acid secretion (see Table 29-1). Eighty percent of GI bleeding will stop with these treatments.

If there is major blood loss, transfusions of whole blood, packed cells, or fresh frozen plasma may be necessary. Normal saline, Plasmanate (plasma protein fraction), and Ringer's solution may be administered until blood is available. Maintenance of fluid balance is extremely important. Intake and output must be measured and recorded accurately. Oxygen therapy is started to maximize tissue oxygenation.

If the presence of *H. pylori* has been determined, treatment consists of the administration of clarithromycin (Biaxin) plus another antibiotic, an H_2 inhibitor, and a proton pump inhibitor. Sucralfate (Carafate) tablets may be used for short-term (up to 8 weeks) treatment of duodenal ulcer. Sucralfate has negligible acid-neutralizing capacity, as the action of this drug is local. Its benefits probably derive from its adherence to the ulcer site, providing protection from further damage by gastric juices. Misoprostol (Cytotec) is used to replace gastric prostaglandins depleted by NSAID therapy and helps to prevent ulcer formation caused by NSAIDs. Sedatives are sometimes prescribed for the peptic ulcer patient to help reduce anxiety and relieve tension.

! Safety Alert

Proton Pump Inhibitor Drug Interactions

Because proton pump inhibitors slow the liver's ability to metabolize and clear some drugs from the bloodstream, they should be used with caution in patients taking diazepam (Valium), phenytoin (Dilantin), and warfarin (Coumadin). Patients taking a proton pump inhibitor along with any of these three drugs should be watched closely for signs of toxicity.

NURSING MANAGEMENT

Assessment (Data Collection)

Begin by asking the patient to describe the chief complaint (patient's perception of the main problem).

Focused Assessment

Data Collection for Peptic Ulcer

Assess the following areas:

HISTORY
- Pain: characteristics, what affects pain, what relieves it; when pain began
- Nausea or vomiting; presence of "coffee-ground" emesis
- Dark "tarry" stool, or maroon colored stool
- Anorexia, weight loss

PHYSICAL ASSESSMENT
- Vital signs and changes from baseline
- Presence of restlessness, confusion, or thirst
- Skin tone
- Appearance and amount of emesis
- Stool color, characteristics, frequency
- Abdominal tenderness, rigidity, guarding, bloating
- Bowel sounds

LABORATORY DATA
- Complete blood count (CBC)
- Blood urea nitrogen (BUN)

Nursing Diagnosis and Planning

Common nursing diagnoses, expected outcomes, and interventions for the patient with a peptic ulcer are found in Nursing Care Plan 29-1. Before a peptic ulcer can be successfully controlled, the patient must understand how and why the ulcer developed in the first place. Once the predisposing factors are understood, it is easier to avoid them. Unless the patient can cooperate fully, there is a strong possibility that ulcers will develop again despite medical or even surgical treatment.

Think Critically

How does reviewing the purpose, schedule, and side effects of medications prescribed for ulcers increase the likelihood of patient compliance?

Nursing Care Plan 29-1 Care of the Patient with a Bleeding Peptic Ulcer

Scenario

Mr. Lee is a 47-year-old long-distance truck driver admitted to the hospital with a tentative diagnosis of bleeding peptic ulcer. He has had recurrent bouts of epigastric pain that is more pronounced before meals and at bedtime. Mr. Lee states that he eats "whenever I can grab a bite." He eats mostly fried and spicy foods and he smokes two packs of cigarettes a day. He went to the physician because of fatigue and discomfort that seemed to be getting progressively worse in spite of antacid use. He also admits to having some vomiting episodes with blood in the secretions. Mr. Lee is the sole support of his wife and four children and is very concerned about the expense of hospitalization and the time away from work. He is scheduled for an endoscopic examination of the esophagus, stomach, and duodenum.

Problem/Nursing Diagnosis

Worried about costs of hospitalization/Anxiety related to expenses, time off work, and worry about what is wrong with him.

Supporting Assessment Data

Subjective: "I'm the only one working"; expresses worry over hospital expenses; worried about blood in vomitus.
Objective: Self-treated with antacids and continued to work until symptoms progressed.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will verbalize reduction in anxiety before discharge.	Encourage verbalization of concerns and fears.	Verbalizing fears may decrease their intensity.	Verbalizing specific concerns about finances and expresses fear that blood is a sign of serious illness.
Patient will devise plan to cover hospital expenses so as to decrease anxiety.	Advocate for financial consultation regarding hospital expenses.	A plan for meeting financial obligation will somewhat decrease anxiety.	Appointment with social worker to discuss financial situation.
Patient will verbalize understanding of diagnosis and treatment of his condition.	Explain all diagnostic procedures and medications.	Decreases the fear of the unknown and lowers anxiety.	Brochure given about endoscopic procedures and test for *Helicobacter pylori*; reviewed purpose of each medication.
	Assess usual coping techniques and teach new ways to cope as necessary.	Establishes usual coping methods and provides data for other coping methods to be taught.	Uses smoking and television as relaxation.
	Reinforce wife's assurances that they can manage expenses at home.	Reinforcement of information helps patient remember.	Wife says he tends to be a "worry wart"; reinforced information about her ability to cope with expenses.
	Encourage relaxation techniques.	Relaxation techniques help decrease anxious feelings.	Taught relaxation exercise and encouraged to practice it. Continue plan.

Problem/Nursing Diagnosis

Abdominal pain and discomfort/Pain related to irritation and possible ulceration of gastric mucosa.

Supporting Assessment Data

Subjective: Recurrent bouts of epigastric pain more pronounced before meals.
Objective: Epigastric tenderness increases with gentle palpation.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will verbalize relief of pain.	Assess location and severity of pain every shift.	Provides data regarding condition and need for medication.	Pain is epigastric at 3/10; now occurring between meals.
Patient will verbalize ways to prevent gastric pain.	Administer ordered antacids, antispasmodics, and H_2 inhibitors.	Medications neutralize stomach acid or decrease acid production.	Taking medications as ordered.
	Give caffeine-free diet.	Caffeine causes more stomach acid production.	No caffeine drinks; bland diet.

ac, before meals; *BP*, blood pressure; *CBC*, complete blood count; *GI*, gastrointestinal; *Hct*, hematocrit; *Hgb*, hemoglobin; *hs*, at bedtime; *pc*, after meals; *PO*, orally.

Continued

Nursing Care Plan 29-1 Care of the Patient with a Bleeding Peptic Ulcer—cont'd

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will verbalize ways to prevent gastric pain—cont'd.	Encourage him to quit smoking.	Smoking constricts blood vessels, decreasing perfusion to stomach. Decreased perfusion makes the stomach more susceptible to inflammation.	Encouraged him to quit smoking; said he would think about it. Provided community resource information for stopping smoking.
	Give frequent feedings to neutralize gastric acid.	Keeping food in the stomach helps neutralize acid.	Eating a snack every 2 hr between meals. Continue plan.

Problem/Nursing Diagnosis

Vomiting episodes with blood/Risk for increased bleeding (gastrointestinal) related to irritation of gastric mucosa.

Supporting Assessment Data

Subjective: States has experienced blood-streaked vomitus; history suggestive of peptic ulcer; increasing fatigue.
Objective: Blood-tinged vomitus and blood in stool (positive guaiac test); pale conjunctiva; below-normal Hgb and Hct.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will have no signs of intestinal blood loss by discharge. Hemoglobin and hematocrit will be within normal levels within 30 days.	Monitor CBC count for evidence of continued bleeding.	CBC count may indicate if bleeding is occurring.	Hgb 11.9 g/dL and Hct 32.
	Assess vomitus for blood.	Blood in vomitus indicates bleeding is still occurring.	No vomitus this shift.
	Check stool for occult blood as ordered.	Blood in stool indicates GI bleeding.	Stool positive for occult blood ×2.
	Monitor vital signs and assess for continued or rapid blood loss as ordered.	Active bleeding will be reflected by vital signs.	Pulse 92 and BP 138/86.
	Teach about foods high in iron (i.e., meat and green leafy vegetables) to correct anemia.	Eating foods high in iron helps correct anemia.	Agrees to try and eat more spinach, chard, and lean beef.
	Administer iron supplements as ordered.	Iron supplementation helps correct anemia.	Iron supplement not ordered yet. Continue plan.

Postprocedure

Mr. Lee's physician found a duodenal ulcer on endoscopic examination. He has prescribed sucralfate (Carafate), 1 g PO qid 1 hr ac and hs; ranitidine (Zantac), 300 mg hs; and Mylanta II, 30 mL 30 min pc, in hopes of healing the ulcer and preventing surgery.

Problem/Nursing Diagnosis

No knowledge of risk factors for peptic ulcer/Deficient knowledge related to factors that contribute to peptic ulcer and information about medications.

Supporting Assessment Data

Subjective: States was unaware that cigarette smoking contributed to ulcers; never has heard of the medications prescribed for him, except for the antacid.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will verbalize factors that contribute to ulcer formation. Patient will attempt to quit smoking within 2 wk.	Instruct in contributing factors of ulcer formation (i.e., explain how the eating behavior of "grab a bite" and eating spicy or fried foods are contributing to ulcer formation).	Understanding how behavior affects health may help the patient to make better choices.	Acknowledged that smoking, his diet, and lifestyle contribute to his ulcer. States that he will quit eating foods that cause pain (i.e., spicy foods); has cut smoking down to ½ pack per day, states he will try to quit; will begin exercise program for stress reduction.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will attempt to quit smoking within 2 wk—cont'd.	Assist him to learn new ways to cope with stress.	Practicing relaxation and deep breathing helps decrease stress.	Taught deep-breathing exercise.
	Discuss smoking cessation strategies (i.e., set a stop date, enlist help of family, use of a prescribed nicotine patch, substituting an activity such as chewing gum).	Nicotine is very addictive and having a formalized plan increases success.	Expresses interest in talking to doctor about getting a prescription for the nicotine patch.
	Discuss ways to manage proper eating when on the road (e.g., packing healthy snacks or choosing baked foods, not fried).	Knowing good food choices for his situation can help him eat properly when on the road.	Discussed food places that have appropriate choices. Wife agrees to pack fruits and whole grain crackers.
Patient will verbalize reason for each medication, dosage schedule, and side effects.	Teach action, dosage, and side effects of sucralfate (Carafate), ranitidine (Zantac), and Mylanta II. Obtain feedback for material taught.	Understanding how to take medications and what to expect, or report, helps with compliance and prevents toxic reactions.	Went over each medication and gave list with dosages. Discussed possible side effects and what to report to the physician.

Critical Thinking Questions

1. How would you interact with this patient to try to help him quit smoking?
2. What does he need to know about taking an antacid if he is taking other medications?
3. Considering he is a truck driver and on the road a lot, what can you do to help him change his diet?

Implementation

Blood pressure and pulse rate are measured regularly. Observe skin color, observe for diaphoresis or thirst, and look for other signs of continued blood loss such as restlessness. Watch for impending hypovolemic shock. Measure intake and output and note the character of vomitus, aspirated gastric fluid, and stools. Measure and record the patient's daily weight. **Melena** stools (black, tarry stools with digested blood) cause an unpleasant odor and the room must be kept as free of odor as possible.

Diet counseling is a top priority once the patient is stable. Currently, most authorities believe that it is best to restrict only those foods that the patient identifies with the onset of symptoms. It is generally agreed that the kind of food is less important than when the food is eaten; therefore the patient is instructed to eat at frequent and regular intervals throughout the day, rather than in two or three large meals. Meals should not be skipped. Alcohol and caffeine should be excluded.

Evaluation

The nurse can point out signs of improvement that will help to relieve the patient's anxiety. For example, if an NG tube is being used to lavage and decompress the stomach there will be a decreased showing of hematemesis as the bleeding resolves. **After the bleeding has apparently stopped and the patient's vital signs have stabilized, there must be continuous monitoring for signs of persistent or renewed bleeding.**

Complications

The three major complications of peptic ulcer are hemorrhage, perforation, and obstruction. Hemorrhage occurs when the ulcer erodes vessels, causing bleeding into the stomach. Signs of hemorrhage include the vomiting of blood. If the hemorrhage is unchecked, hypovolemic shock may occur.

Perforation is erosion of the ulcer through all walls of the stomach or intestine. A spilling of the contents of the GI tract into the peritoneal cavity ensues; it constitutes a surgical emergency because of the danger of hemorrhage and peritonitis. **Perforation is characterized by a sudden and severe pain in the upper abdomen that persists and increases in intensity and sometimes is referred to the shoulders.** The abdomen is rigid and boardlike and extremely tender. In a short time the patient shows signs of shock.

Obstruction occurs as a result of scarring and loss of musculature at the pylorus, narrowing the stomach outlet, and is manifested chiefly by persistent vomiting.

Surgical Treatment

Surgical treatment becomes necessary when a chronic ulcer fails to respond to medical treatment; when complications such as perforation, obstruction, or hemorrhage occur; or when malignancy is present.

In *pyloroplasty with truncal or proximal gastric vagotomy,* the pylorus, which has been narrowed by scarring, is widened. The branches of the vagus (tenth cranial) nerve that stimulate acid secretion in the stomach are selectively severed **(vagotomy)** so that the stomach does not receive impulses from the brain and therefore does not secrete hydrochloric acid. A vagotomy is often done at the same time that a gastric resection is performed.

Subtotal gastrectomy (gastric resection) consists of removing a part of the stomach and then joining the remaining portion to the small intestine by anastomosis. **Anastomosis** is the joining of two hollow organs by suturing the open ends together so that they become one continuous tube. An *antrectomy,* in which the gastrin-producing portion of the stomach (the antrum) is removed, may be done in conjunction with a truncal vagotomy. When the fundus of the stomach is anastomosed to the duodenum, the procedure is known as a *Billroth I.* In the *Billroth II* procedure, the duodenum is closed and the fundus of the stomach is anastomosed to the jejunum. *Total gastrectomy* is the surgical removal of all of the stomach. The esophagus is anastomosed to the small intestine (Figure 29-4).

Nursing Care of the Patient Undergoing Gastric Surgery

Preoperative care. The diet of the patient is restricted to liquids during the day before surgery. The patient is kept NPO, an NG tube is inserted, and gastric suction is begun to remove all stomach contents before surgery.

The patient receives routine preparations necessary for all major abdominal surgery. These include enemas so that the colon is emptied of fecal material. If the patient has had a barium enema, the nurse should look for and report returns that contain whitish material. This is barium, and it will become hardened if left in the colon, thus presenting the possibility of a fecal impaction later on.

Postoperative care. Care of the patient having gastric surgery is routine, with the following exceptions. After surgery in which part of the stomach has been removed, care must be taken in handling the NG tube to avoid injury to the sutures and to prevent introduction of infectious agents. The surgeon will write specific orders about irrigating fluids and movement of the gastric tube.

After the tube is removed, the patient is given small amounts of liquid to determine tolerance. These liquids are gradually increased. The patient's ability to take them without nausea, vomiting, or abdominal distress is assessed. If the liquids are well tolerated, the patient progresses to small, frequent feedings. Within 6 months, most patients are able to take three regular meals a day. The remaining portion of the stomach stretches to accommodate more and more food. Patients who have

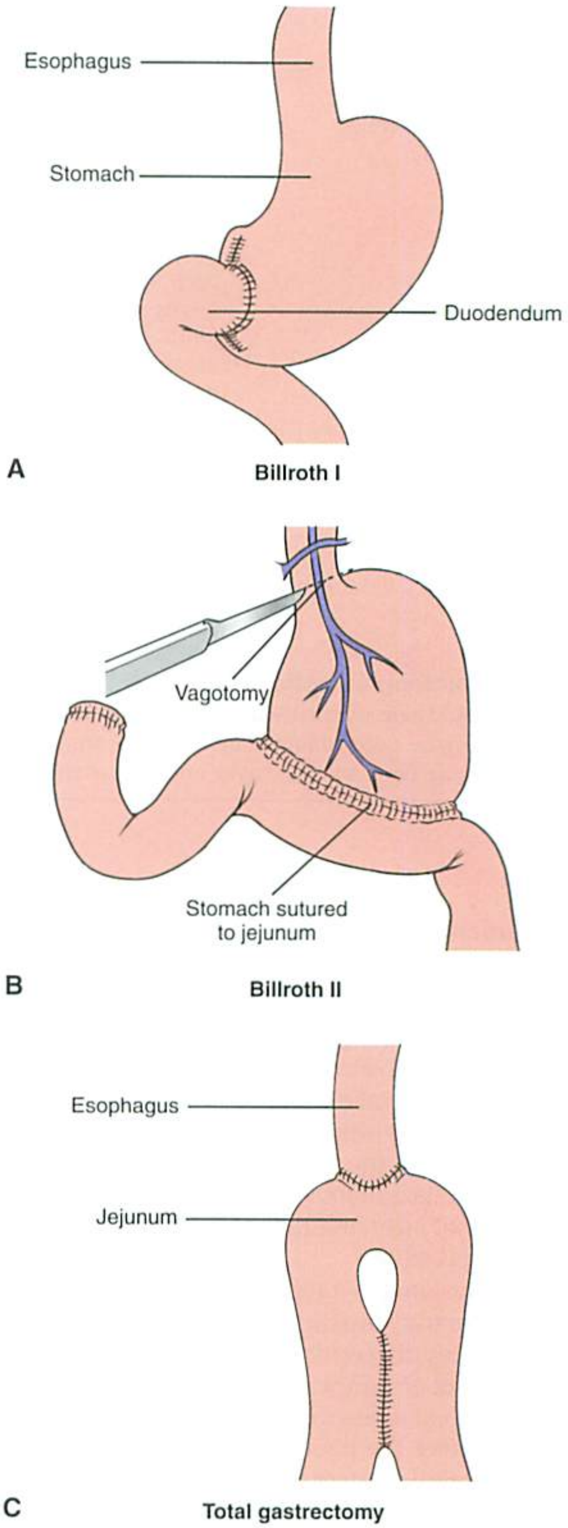

FIGURE 29-4 Stomach surgical procedures. **A,** Billroth I. **B,** Billroth II. **C,** Total gastrectomy.

had a *total* gastrectomy have restricted diets. They are usually restricted to small, frequent feedings of easily digested semisolids for the rest of their lives. Before discharge, the hospital dietitian usually is called to help the patient and his family learn about the special diet needed after undergoing gastric surgery.

Dumping Syndrome. Some patients who have had a gastrectomy experience a complication known as the "dumping syndrome." The patient has nausea, weakness, abdominal pain, and diarrhea and may feel faint and perspire profusely or experience palpitations after eating. These sensations are caused by the rapid passage of large amounts of food and liquid into the jejunum. This occurs because part or all of the stomach and duodenum has been surgically removed. The progress of the ingested foods and fluids is not slowed by passing through the upper portion of the GI tract. When a patient experiences dumping syndrome, instruction is given to avoid eating large meals and to drink a minimum of fluids during the meal. Fluids may be taken in small amounts later, between meals. If sweet foods and liquids seem to aggravate the condition—and they sometimes do—the patient should try to avoid them. It also may be helpful for the patient to lie down flat for 30 minutes after a meal.

GASTRIC CANCER

It is estimated that cancer of the stomach caused 10,620 deaths in 2009 in the United States (National Cancer Institute, 2009). It is usually discovered very late. The 5-year survival rate is 75% if the disease is caught fairly early and only 30% in those with advanced disease. Metastasis to surrounding organs is common.

Etiology

The cause of gastric cancer is unknown, but pernicious anemia and **achlorhydria** (absence of hydrochloric acid) are often present. It is believed that a diet high in smoked, highly salted, or spiced foods may be a contributor. Food preservatives such as nitrates or nitrites increase the risk. The presence of *H. pylori*—particularly if present from an early age—is a definite factor. Genetic influence plays a role as the risk is increased in family members and in those with blood group A.

Pathophysiology

Gastric cancer grows primarily from the mucous glands. Most tumors arise in the antrum or pyloric area. The lesion begins as an ulcerative crater with an irregular border and a raised margin. The tumor eventually spreads through the layers of the stomach and spreads to the lymph nodes, the liver, and the ovaries in women.

Nutrition Considerations

Prevention of Gastric Cancer

Refraining from eating a diet high in smoked and salted foods or pickled vegetables helps prevent gastric cancer. Eating a diet high in fruits and vegetables, particularly those high in beta-carotene and vitamin C, decreases stomach cancer risk. People who eat a lot of red meat each week have double the risk of gastric cancer. Foods such as bacon and many "lunch meats" are high in nitrites, which are carcinogenic. When eating those foods, drinking orange juice reduces the quantity of nitrites. The ascorbic acid in the orange juice counteracts the nitrite concentration.

Cultural Considerations

Stomach Cancer Incidence

Stomach cancer is almost double in incidence in African American individuals as in non-Hispanic whites. Native Americans and Hispanic Americans are also at an increased risk for stomach cancer. *Helicobacter pylori* is more common in Hispanic and African American individuals. Research with minority populations is underway to determine how *H. pylori* is transmitted in these populations in an effort to decrease stomach cancer incidence.

Signs and Symptoms

Signs and symptoms are similar to those of peptic ulcer, but may be just intermittent abdominal distress. Belching and the use of antacids may relieve the distress. The patient may become pale and weak and complain of fatigue, weakness, dizziness, and sometimes shortness of breath. Anemia is the underlying cause of those symptoms. There is often blood in the stool.

Diagnosis

Diagnosis is by upper GI series and endoscopic examination of the stomach with biopsy. Anemia, verified with a complete blood count, is usually present. Tumor markers such as carcinoembryonic antigen and carbohydrate antigen (CA) 19-9 are useful in determining the degree of invasion of the tumor, and liver metastasis.

Treatment and Nursing Management

Surgical intervention may relieve symptoms such as obstruction, or may debulk the tumor. The same surgical procedures are used as for peptic ulcer. There is only a 40% 5-year cure rate with surgery for gastric cancer. In Japan, laparoscopic surgery for the removal of small tumors is being studied. Adjuvant therapy of radiation and/or chemotherapy may be employed. Radiation has proved to be of value only for palliation. 5-Fluorouracil (5-FU) and cisplatin or 5-FU with epirubicin and cisplatin are the preferred chemotherapy protocols today. Studies are being conducted on the use on directly infusing the chemotherapy into the peritoneal space. A recent study showed that a targeted therapy drug (targets cells that divide rapidly) called trastuzumab (Herceptin) helped patients with metastatic gastric cancer. Other investigational drugs include bortezomib (Velcade), sunitinib (Sutent), and sorafenib (Nexavar) (American Cancer Society, 2009b). Cancer therapy and nursing care are discussed in

Chapter 8. Nursing care after surgery is the same as for the patient who underwent surgery for a peptic ulcer but with excision of involved lymph nodes.

COMMON THERAPIES FOR DISORDERS OF THE GASTROINTESTINAL SYSTEM

GASTROINTESTINAL DECOMPRESSION

Abdominal distention with increased pressure within the abdominal cavity is very uncomfortable. Excess fluids and gases also interfere with ventilation of the lungs and normal function of other nearby organs.

Measures to relieve distention include inserting an NG tube to remove fluids and gas from the stomach. Gastrointestinal tubes vary in length, design, and purpose. The Levin tube and gastric sump tube are shorter because they are intended to reach only as far as the stomach. The Miller-Abbott, Cantor, and Harris tubes are longer tubes that are directed past the stomach and into the small intestine. Intestinal tubes are described in Chapter 30.

Clinical Cues

NG tube is a generic term that you may see in physicians' orders or in the nurses' or physicians' notes, or you may hear that term in report; however, the purpose of the therapy for the NG tube dictates the type of NG tube. Make sure that you clarify the purpose of the therapy and the type of tube before starting the care of the patient.

Nursing Management

During GI decompression the patient is observed for continuing signs of abdominal distention, which would indicate that excess fluids and gases are not being removed as intended. **Nausea, vomiting, complaints of feeling full or bloated, increasing shortness of breath, and increase in the girth of the abdomen are signs that the stomach and intestines are not being decompressed adequately.**

Applying too much suction can pull the gastric mucosa into the drainage openings, or "eyes," of the tube, causing damage to the mucosa and traumatic ulceration.

Assignment Considerations

Caring for a Patient with a Salem Sump Tube

When assigning assisted ambulation of the patient with a Salem sump tube, remind the CNA or UAP to keep the tube above the level of the stomach to prevent leaking of stomach contents from the pigtail. The main tube should be plugged for ambulation. The assistant can be instructed to reattach the tubing to the wall suction after ambulation is completed, but the nurse is ultimately responsible to follow up and verify that the tube and suction are functioning correctly.

Using a gastric sump tube (Salem, ventral) that has an air vent can help prevent this problem. Sump tubes are usually attached to continuous "low" suction; Levin tubes function best with intermittent suction. **Unless ordered otherwise, use the low setting for suction.** The connecting tubing leading to the suction machine works best if it is kept above the height of entry into the drainage container.

Clinical Cues

The blue pigtail on the Salem sump tube must be kept above the level of the stomach or it will leak stomach secretions. The pigtail can be cleared by instilling a few milliliters of air, and nothing but air should be instilled through it.

Irrigations with normal saline are usually ordered to keep the tube patent. The amount instilled should be added to the patient's intake count, and the amount of drainage is recorded as output for each shift. If the patient has had surgery on the intestinal tract, the irrigation procedure should be done with aseptic technique rather than clean technique.

The characteristics of the drainage are charted each shift. **If coffee-ground–like material is noticed in the tube, the drainage should be tested for presence of blood** by using a Hemastix strip dipped into the secretions. If blood unexpectedly appears in the drainage, the physician should be notified. Fluid and electrolyte imbalance problems that can be caused by continuous suction and irrigation are discussed in Chapter 3.

An NG tube is uncomfortable for the patient. The naris must be checked for signs of pressure, and the tube may need to be repositioned to relieve the problem. Common complaints are sore throat, dry mouth, earache (from congestion of the eustachian tube), and dry lips and nasal mucosa. Frequent mouth care and application of a lubricant to the lips and nares will help. A room humidifier can also be helpful, but this requires a physician's order. The physician may allow the patient to have limited amounts of ice chips, hard candy, or chewing gum to decrease the problem of dry mouth.

After the tube is removed, the patient is monitored for nausea, vomiting, and abdominal distention. Sometimes it is necessary to insert the tube again.

ENTERAL NUTRITION

If a patient has long-term difficulty taking in food orally, as when in a coma, enteral feeding is indicated. Current practice calls for a nasoduodenal tube, frequently the Dobbhoff or similar weighted-tip tube (Figure 29-5). The tube delivers special-formula liquid feedings into the duodenum.

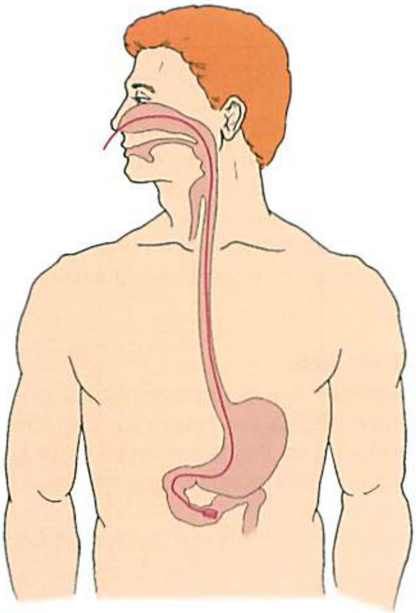

FIGURE 29-5 Small-bore feeding tube placement.

Clinical Cues

When you are working with a Dobbhoff tube always use a large syringe (10 mL or larger) to flush and to give medications because smaller syringes create too much pressure and may cause the tube to rupture.

These tubes are inserted by the physician or a registered nurse, and placement in the duodenum is confirmed by x-ray film before feedings are started. The feedings can be given at specified times throughout the day or on a continuous basis. If continuous tube feedings are ordered, they frequently are administered with a feeding pump.

The patient requiring long-term nutritional support for problems such as inability to swallow may undergo percutaneous endoscopic gastrostomy (PEG). A feeding gastrostomy tube is placed endoscopically through the abdominal wall (Figure 29-6). The patient then receives enteral feedings via the gastrostomy tube. The tube is marked with indelible ink at the point of exit so that correct placement can be checked daily. The area is observed for signs of infection and cleansed daily with soap and water until healing is complete. A 4 × 4 gauze dressing is used over the outside bumper while the area is healing. Box 29-1 presents nursing interventions for the patient receiving tube feedings. **Adding a feeding when there is too much residual from the last feeding may cause regurgitation and aspiration.**

Sometimes the feeding tube is placed in the jejunum via a jejunostomy. If this is the case, the tube is sutured in place, and the spot where the tube enters the abdominal skin is marked. The mark and suture are checked before beginning a feeding to make certain that the tube has not been dislodged. It is difficult to aspirate anything from a jejunostomy.

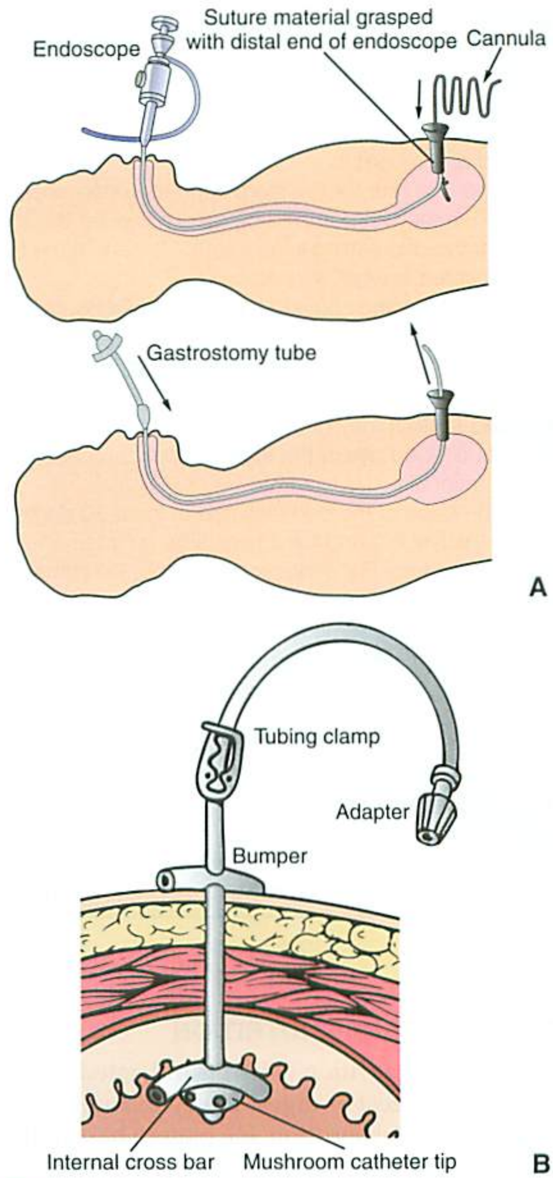

FIGURE 29-6 Percutaneous endoscopic gastrostomy. **A,** Gastrostomy tube placement via percutaneous endoscopy. The gastrostomy tube is inserted through the esophagus into the stomach and pulled through a stab wound made in the abdominal wall. **B,** A retention disk on the inside of the stomach and a bumper disk on the outside secure the tube.

Safety Alert

Jejunostomy Tube Displacement

If a jejunostomy tube has moved or the suture is broken, no feeding should be given. Peritonitis may occur if feeding formula spills into the peritoneal cavity. The tube must be replaced by the physician. Always document that placement was checked and whether the suture is intact and the mark is at the skin. If displacement has occurred, document what action was taken.

Box 29-1 Nursing Interventions for the Patient Receiving Enteral (Tube) Feedings

- Be certain tube placement has been checked by x-ray film and is correct.
- Check and record the residual volume every 4 hours or as ordered and record it.
- Verify the drip rate for the feeding on the order sheet.
- Assess the feeding pump to be certain it is set up correctly and that the drip setting is accurate. Be certain the formula being instilled is what was ordered.
- Change the feeding bag and tubing every 24 hours. Change the irrigation set every 24 hours also.
- When continuous feeding is ordered, add only 4 hours of formula to the bag at a time to prevent bacterial growth; a closed system may be used for 24 hours.
- Do not use food dye in the formula as it can cause complications.
- Keep the head of the bed elevated at least 30 degrees during the feeding and for 1 hour after an intermittent or bolus feeding. For continuous feeding, keep the patient in a semi-Fowler's position.
- Monitor laboratory values: blood urea nitrogen, electrolytes, hematocrit, albumin, and glucose.
- Monitor for diarrhea or excessive gas.
- Monitor and record intake and output.
- Monitor and record the patient's weight at least weekly.
- Flush the tube with 30 to 60 mL of water every 4 hours during continuous feeding, and before and after each intermittent feeding.
- Flush with 30 mL of warm water before and after each individual medication; do not mix medications together or with the feeding formula. Use liquid medications whenever possible.
- If tube becomes clogged, flush with 30 mL of water in a 50-mL piston syringe; use gentle pressure.
- Provide mouth care every 4 hours.
- Clean the nares and around the tube in the naris each shift or twice a day. Inspect the naris for pressure areas.
- Change the tape securing the tube to the nose if it becomes loose or soiled.

FOR GASTROSTOMY TUBE

- Assess the insertion site for signs of infection or excoriation.
- Rotate the tube 360 degrees every day and check for ¼-inch play in and out. If tube cannot be moved, report this to the physician as the retention disk may have become embedded in the tissue.
- Change the dressing once a day, applying a dry sterile dressing.

FOR JEJUNOSTOMY TUBE

- Be certain that the suture holding the tube is in place and that the mark on the tube is at the skin surface before starting or adding to a feeding. If it is not, stop the feeding and notify the physician.
- Do not attempt to aspirate a jejunostomy tube because it will collapse because of a small interior diameter.
- Inspect the insertion site and change the dressing once a day.

TOTAL PARENTERAL NUTRITION

Total parenteral nutrition (TPN) is indicated when the patient cannot ingest or digest foods normally or has a problem with malabsorption. If a patient has continued weight loss and a negative nitrogen balance, TPN is indicated. Conditions that could warrant TPN include severe trauma to the intestinal tract, as with a gunshot wound, and chronic inflammatory conditions. Regional ileitis that prevents absorption of nutrients is an example of an inflammatory condition. Other conditions not related to the intestinal tract but nevertheless capable of seriously interfering with normal nutrition over time include prolonged sepsis, fever, extensive burns, and cancer.

TPN is essentially a form of IV feeding. The amounts and kinds of nutrients needed for long-term nutritional maintenance usually cannot be handled as well by peripheral veins; therefore the nutrient mix is given into a larger central vein such as the superior vena cava. To accomplish this, the physician may choose a direct central line into the vena cava or jugular vein. A peripherally inserted central catheter (PICC) line may be inserted and threaded into the vena cava instead. Lipids may be given via a peripheral vein. Further information about TPN and the principles for administration are found in Chapter 3.

Clinical Cues

Do **NOT** confuse enteral feedings and TPN feedings. The solutions and routes are not interchangeable. **Infusing an enteral feeding into an IV site can result in death.** First, verify the solution and route. Trace the tube down to the patient's body to ensure that you are using the correct tube.

Care of the patient must be a team effort on the part of physicians, pharmacists, dietitians, and nurses. Nursing care includes assisting with the insertion of the IV central line or PICC line, changing the tubing with each new bag or bottle, changing the dressing, observing the insertion site, and removing the tubing when TPN therapy is discontinued. Day-to-day care includes monitoring vital signs, glucose levels, and fluid and electrolyte balance. The patient is weighed daily and provided frequent mouth care. The rate of TPN is slowly decreased to gradually lower the dextrose load before TPN is discontinued.

Get Ready for the NCLEX® Examination!

Key Points

- A calorie reduction diet combined with exercise and behavior modification are the initial treatments for obesity. Bariatric surgery may be considered for the obese person with a BMI over 40.
- Dysphagia may cause respiratory problems from aspiration.
- Oral cancer and esophageal cancer are associated with alcohol and tobacco use.
- Common symptoms of GERD include dyspepsia and reflux. Diet therapy, lifestyle changes, drug therapy, weight reduction, and education are the mainstays of treatment.
- A peptic ulcer (gastric or duodenal) is ulceration of the upper GI tract. Symptoms include epigastric pain before meals and during the night. Complications include hemorrhage, perforation, and obstruction.
- Monitor vital signs every 15 to 30 minutes when there is evidence of extensive GI hemorrhage. Replacement of blood and fluids may be required.
- Surgical procedures for peptic ulcer include pyloroplasty with vagotomy, subtotal gastrectomy, antrectomy, or total gastrectomy (see Figure 29-4).
- *Helicobacter pylori,* pernicious anemia, and achlorhydria are all implicated in the development of gastric cancer.
- Symptoms of dumping syndrome are nausea, weakness, abdominal pain, diarrhea, faintness, palpitations, and diaphoresis.
- A nasogastric tube (NG) is used for gastric decompression; a nasoduodenal tube is used for enteral feeding. After NG tube removal, the patient is monitored for abdominal distention, nausea, and vomiting.
- When a patient cannot digest foods and liquids normally, total parenteral nutrition (TPN) may be required. The TPN solution must be sterile and administered at the ordered rate into a blood vessel with high-volume blood flow.

Additional Learning Resources

SG Go to your Study Guide for additional learning activities to help you master this chapter content.

evolve Go to your Evolve website (http://evolve.elsevier.com/deWit/medsurg) for the following FREE learning resources:

- Animations, audio, and video
- Answers and rationales for questions and activities
- Concept Map Creator
- Glossary with pronunciations in English and Spanish
- Interactive Review Questions and Exercises and more!

Online Resources

- Gastric bypass surgery, www.mayoclinic.com/health/gastric-bypass/MY00825
- Verification of feeding tube placement, www.aacn.org/WD/Practice/Docs/PracticeAlerts/Verification_of_Feeding_Tube_Placement_05-2005.pdf

Review Questions for the NCLEX® Examination

1. A family member tells the nurse, "Dad seems to be having some trouble swallowing lately." What is the nurse's priority action?
   1. Notify the physician.
   2. Consult the speech therapist for advice.
   3. Initiate aspiration precautions.
   4. Observe during "practice swallows."

2. The nurse is supervising a nursing student during the care of a patient with a gastrostomy tube. The nurse should intervene if the student:
   1. aspirates for residual contents before feeding.
   2. flushes the tube after each feeding.
   3. changes the tube and feeding every 4 hours.
   4. cleans and dries the skin around the tube.

3. When screening for the presence of risk factors for oral and pharyngeal cancers, which questions would the nurse ask? *(Select all that apply.)*
   1. How much alcohol do you consume?
   2. Have you had any oral lesions?
   3. Do you have family members who have cancer?
   4. Do you smoke?
   5. Have you been exposed to hepatitis virus?

4. The nurse is reviewing signs and symptoms of esophageal cancer with persons who are at risk. Which statement indicates that the participants have understood the information?
   1. "A feeling of fullness in the throat is an early sign."
   2. "Belching and indigestion are caused by cancerous lesions."
   3. "Common symptoms are halitosis and dryness of the mouth."
   4. "Choking or coughing while swallowing liquids is an early sign."

5. The nurse is taking care of a patient who had a modified radical neck dissection surgery. The patient's spouse asks, "Why do you have to apply cold packs and elevate my husband's head?" Which response is the most appropriate?
   1. "These interventions decrease the need for opiates."
   2. "These interventions reduce neck swelling."
   3. "These interventions promote faster healing."
   4. "These interventions reduce the incidence of postoperative fever."

6. The patient reports a history of gastric ulcer. Which symptom would the nurse most be concerned about?
   1. Epigastric pain that is described as a burning sensation.
   2. Pain is most severe at bedtime.
   3. Reports vomit that "looks like coffee grounds."
   4. Discomfort comes for several days and then subsides.

7. The nurse reinforces diet recommendations to a patient with gastroesophageal reflux disease (GERD). Which patient statement indicates a need for further teaching?
   1. "I should avoid spicy Italian sauces."
   2. "Clothes should be loose around the waist and abdomen."
   3. "I need to wait 30 minutes after eating before lying down."
   4. "I need to consider removing caffeine from my diet."

8. The patient is receiving continuous enteral feedings. Which intervention will address the most common problem associated with the feeding therapy?
   1. Assist the patient to ambulate several times a day.
   2. Assess the skin in the rectal area and apply a barrier cream.
   3. Place an emesis basin and tissues within close proximity.
   4. Frequently offer water, other fluids, or ice chips.

9. While obtaining a clinical history, the patient with a *known history* of peptic ulcers suddenly complains of a severe upper abdominal pain of increasing intensity that spread to the shoulders. The abdomen has boardlike rigidity. Which sign(s) and/or symptom(s) signal worsening related to the peptic ulcer? *(Select all that apply.)*
   1. Slow, deep respirations
   2. Decreased oxygen saturation
   3. Increased pulse
   4. Hot dry skin
   5. Belching and flatulence
   6. Confusion and restlessness

10. The nurse is caring for a patient who is vomiting blood. The physician orders a normal saline fluid bolus of 500mL to infuse over 30 minutes. What is the correct pump setting in mL/hour?

Critical Thinking Activities

Scenario A

Ms. Sutton, age 52, is experiencing a lot of abdominal discomfort and reflux. She visits her physician, who believes she has GERD. She is 5 feet 3½ inches tall and weighs 158 lb.

1. What measures would be recommended to decrease the symptoms of GERD?
2. What specific instruction would you give Ms. Sutton regarding her diet?
3. Why would losing some weight help her problem?

Scenario B

Mr. Post, age 47, is admitted to the hospital because he has epigastric pain, is vomiting blood, and has a suspected gastric ulcer.

1. What tests might be done to establish a diagnosis for Mr. Post?
2. What kind of information will help Mr. Post avoid difficulty with his diet after he is discharged?
3. What would Mr. Post need to know to keep his ulcer under control and eventually cure it?

Scenario C

The nursing assistant tells you that Mr. Yamamoto had an episode of coughing while he was eating breakfast. You check on the patient and he is not having any respiratory distress, but you notice that there are some food stains on his shirt. He says, "Sometimes water makes me cough." You decide to feed the patient his lunch so that you can observe him eating and inform the physician about your observations.

1. What position will you place him in before feeding?
2. Explain how to observe for problems with swallowing.
3. What dietary modifications can be made for patients that have difficulties with swallowing?