



and *B. fragilis* are recommended by the guidelines from the Surgical Infection Society and Infectious Diseases Society of America (see Tables 95-1 and 95-3). The recommendations also apply to other intraabdominal infections, such as diverticulitis. Antibiotics should be stopped after surgery in simple cases. If rupture has occurred, it is usually safe to stop antibiotics after 5 to 7 days.

Some studies over the past decade have advocated antibiotics alone for the treatment of acute appendicitis. Although provocative and potentially a future direction for care, the lack of a sufficient number of controlled trials, the difficulty of confirming the diagnosis in trials, and the high recurrence and complication rates make this approach unsuitable for general application.

Prognosis

The mortality rate in the United States is extremely low for uncomplicated cases. Rupture, however, results in an overall 1% mortality rate and a 5% rate in elderly patients. Wound infection occurs in 1% to 20%. The rate of fetal loss in pregnant women with appendicitis is 1.5%, but the rate is 20% to 35% in cases of rupture.

● DIVERTICULITIS

Definition and Epidemiology

Diverticulitis is inflammation and infection resulting from perforation of diverticula of the bowel wall, usually in the sigmoid colon. Diverticulitis is diagnosed in more than 2 million patients each year and accounted for 219,000 hospital discharges in 2009 in the United States. It is also the most common cause of sigmoid colon resection.

Diverticula occur in less than 10% of people younger than 40 years and in 50% to 80% of those older than 80 years. Between 10% and 25% of individuals with diverticulosis develop diverticulitis. Rates of diverticulosis in rural Africa and Asia are less than 1%. Diet is thought to be a critical risk factor. Supporting this hypothesis was a study measuring diverticulosis in Japanese populations in Japan (1% prevalence) and individuals of Japanese heritage living in the United States (52% prevalence).

Pathology

Diverticula are herniations of the mucosa and muscularis through the colonic wall between the taeniae coli where the main blood vessels penetrate the wall. Diverticulitis results from macroscopic or microscopic perforations, resulting in inflammation, local infection, and in severe cases, free air and diffuse peritonitis (Fig. 95-3).

Clinical Presentation and Diagnosis

Noninflamed diverticula cause no symptoms. Patients with uncomplicated diverticulitis have left lower quadrant pain often accompanied by nausea and fever. CT, which is the diagnostic test of choice, may show pericolic soft tissue stranding, colonic wall thickening, and a phlegmon. Between 10% and 20% of patients have severe pain, tenderness, fever, and leukocytosis, and they require hospital admission for intravenous antibiotics. The differential diagnosis for diverticulitis includes urinary tract infection, gastroenteritis, inflammatory bowel disease, perforated colonic cancer, appendicitis, and bowel obstruction.

Complicated diverticulitis occurs when the perforation is not contained. Patients may have severe abdominal pain, free air, guarding, rigidity, and multisystem failure. Complications include abscess seen in pericolic, retroperitoneal, or pelvic areas on CT; purulent or feculent peritonitis; and colovesical, colovaginal, or coloenteric fistulas (5% occurrence). Percutaneous drainage of abscesses or surgery, including sigmoid resection, is usually indicated in these situations.

Treatment and Prognosis

Uncomplicated diverticulitis can be treated on an outpatient basis with oral antibiotics, and more severe cases are treated with intravenous antibiotics for 7 to 10 days on an inpatient basis (see Tables 95-1 and 95-3). Although data from a Cochrane review and a controlled trial conducted in Sweden suggest that not all patients need to be treated with antibiotics, the standard of care in the United States is to treat with antibiotics. The most important organisms to cover in this polymicrobial infection are *E. coli* and *B. fragilis*. Complicated diverticulitis requires point source control (i.e., drainage or bowel resection), intravenous antibiotics to cover bowel flora, and systemic resuscitation. Fistulas require surgical resection and repair.

Colonoscopy should be done 6 to 8 weeks after an episode of diverticulitis to rule out colonic cancer. The recurrence rate of diverticulitis is approximately 20%. A high-fiber diet, weight loss, and exercise are recommended to prevent recurrence. Sigmoid resection may be considered after the second recurrence, depending on age, medical condition, and the frequency and severity of episodes. If the sigmoid colon is removed, more than 95% of patients have no further episodes.

● CHOLECYSTITIS AND CHOLANGITIS

Definition and Epidemiology

Gallstones occur in 11% to 36% of the population. Approximately 20% of patients with gallstones develop temporary obstruction of the cystic duct at some time. This results in biliary colic (i.e., episodes of right upper quadrant pain) lasting 1 to 5 hours. Cholecystitis occurs when the cystic duct is obstructed for longer periods. Intraluminal pressure increases, compromising blood and lymphatic flow, and it may result in acute inflammation and infection.

Among patients with gallstones, 6% to 12% have stones in the common duct or choledocholithiasis. Cholangitis results from obstruction of the common duct, usually by common duct stones, leading to inflammation and often to severe infection.

Clinical Presentation

Patients with biliary pain have various sites of maximal pain and radiation of pain (Fig. 95-4). Classic signs of acute cholecystitis include unremitting right upper quadrant pain that is more severe than biliary colic, fever, anorexia, nausea, and vomiting. Murphy's sign (i.e., inspiratory arrest with deep palpation of the right upper quadrant) is positive. Accuracy is increased by assessing the gallbladder with ultrasound and eliciting pain with the probe (i.e., sonographic Murphy's sign).

Elderly patients and patients with diabetes may have more subtle clinical presentations. A mild leukocytosis may be