

# 353 Diverticular Disease and Common Anorectal Disorders

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## DIVERTICULAR DISEASE



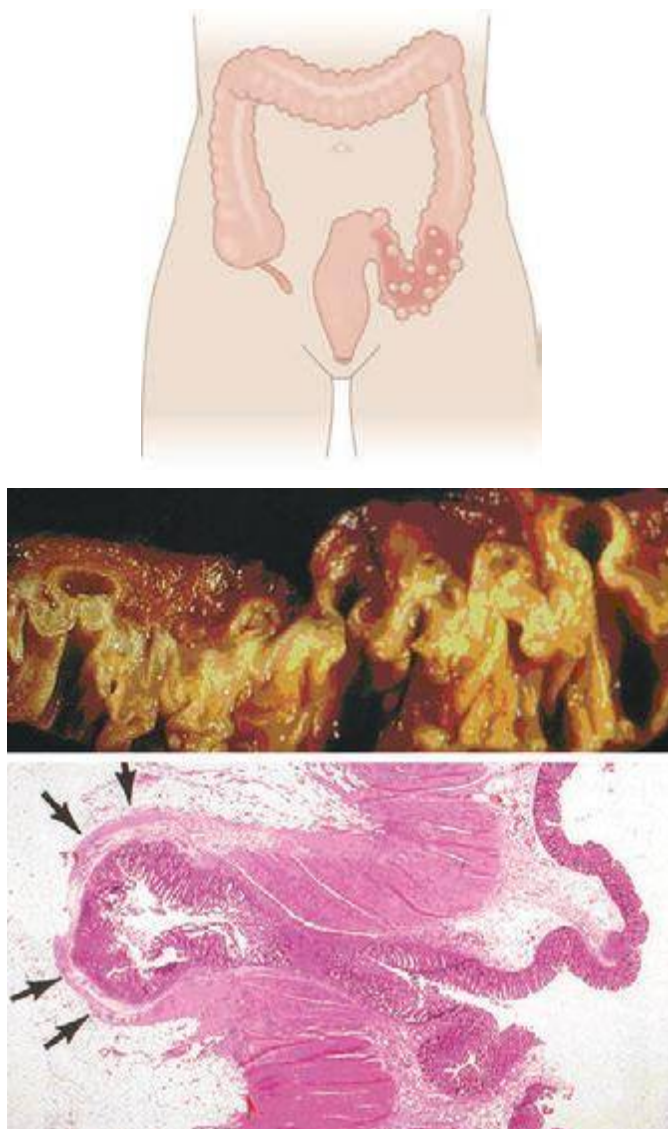
**Incidence and Epidemiology** In the United States, diverticulosis affects 70% of the population above the age of 80. Fortunately, only 20% of patients with diverticulosis develop symptomatic disease, 1–2% require hospitalization, and <1% will require surgery. Diverticular disease has become the fifth most costly gastrointestinal disorder in the United States. Previously overlooked, the majority of patients with diverticular disease report a lower health-related quality of life and more depression as compared to matched controls, thus adding to health care costs. Formerly, diverticular disease was confined to developed countries; however, with the adoption of westernized diets in underdeveloped countries, diverticulosis is on the rise across the globe. Immigrants to the United States develop diverticular disease at the same rate as U.S. natives. Although the prevalence among females and males is similar, males tend to present at a younger age. The mean age at presentation of the disease is 59 years and is now shifting to affect younger populations.

**Anatomy and Pathophysiology** Two types of diverticula occur in the intestine: true and false (or pseudo diverticula). A true diverticulum is a saclike herniation of the entire bowel wall, whereas a pseudo diverticulum involves only a protrusion of the mucosa and submucosa through the muscularis propria of the colon (Fig. 353-1). The type of diverticulum affecting the colon is the pseudodiverticulum. Diverticula commonly affect the left and sigmoid colon; the rectum is always spared. However, in Asian populations, 70% of diverticula are seen in the right colon and cecum as well. *Diverticulitis* is inflammation of a diverticulum. Previous understanding of the pathogenesis of diverticulosis attributed a low-fiber diet as the sole culprit, and onset of diverticulitis would occur acutely when these diverticula become obstructed. However, evidence now suggests that the pathogenesis is more complex and multifactorial. The diverticula occur at the point where the nutrient artery, or *vasa recti*, penetrates through the muscularis propria, resulting in a break in the integrity of the colonic wall. This anatomic restriction may be a result of the relative high-pressure zone within the muscular sigmoid colon. Thus, higher-amplitude contractions combined with constipated, high-fat-content stool within the sigmoid lumen in an area of weakness in the colonic wall results in the creation of these diverticula. Consequently, the *vasa recti* is either compressed or eroded, leading to either perforation or bleeding. Chronic low-grade inflammation is thought to play a key role. Furthermore, better understanding of the gut microbiota suggests that dysbiosis is an important aspect of disease.

## Presentation, Evaluation, and Management of Diverticular Bleeding

Hemorrhage from a colonic diverticulum is the most common cause of hematochezia in patients >60 years, yet only 20% of patients with diverticulosis will have gastrointestinal bleeding. Patients at increased risk for bleeding tend to be hypertensive, have atherosclerosis, and regularly use aspirin and nonsteroidal anti-inflammatory agents. Most bleeds are self-limited and stop spontaneously with bowel rest. The lifetime risk of rebleeding is 25%.

Initial localization of diverticular bleeding may include colonoscopy, multiplanar computed tomography (CT) angiogram, or nuclear medicine tagged red cell scan. If the patient is stable, ongoing bleeding is best managed by angiography. If mesenteric angiography can localize the bleeding site, the vessel can be occluded successfully with a coil in 80% of cases. The patient can then be followed closely with repetitive colonoscopy, if necessary, looking for evidence of colonic ischemia. Alternatively, a segmental resection of the colon can be undertaken to eliminate the risk of further bleeding. This may be advantageous in patients on chronic anticoagulation. However, with highly selective coil embolization, the rate of colonic ischemia is <10% and the risk of



**FIGURE 353-1** Gross and microscopic view of sigmoid diverticular disease. Arrows mark an inflamed diverticulum with the diverticular wall made up only of mucosa.

acute rebleeding is <25%. Long-term results (40 months) indicate that more than 50% of patients with acute diverticular bleeds treated with highly selective angiography have had definitive treatment. As another alternative, a selective infusion of vasopressin can be given to stop the hemorrhage, although this has been associated with significant complications, including myocardial infarction and intestinal ischemia. Furthermore, bleeding recurs in 50% of patients once the infusion is stopped.

If the patient is unstable or has had a 6-unit bleed within 24 h, current recommendations are that surgery should be performed. If the bleeding has been localized, a segmental resection can be performed. If the site of bleeding has not been definitively identified, a subtotal colectomy may be required. In patients without severe comorbidities, surgical resection can be performed with a primary anastomosis. A higher anastomotic leak rate has been reported in patients who received >10 units of blood.

**Presentation, Evaluation, and Staging of Diverticulitis** Acute uncomplicated diverticulitis characteristically presents with fever, anorexia, left lower quadrant abdominal pain, and obstipation (Table 353-1). In <25% of cases, patients may present with generalized peritonitis indicating the presence of a diverticular perforation. If a pericolonic abscess has formed, the patient may have abdominal distention and signs of localized peritonitis. Laboratory investigations will demonstrate a