

persisting infections such as *Giardia*, *Entamoeba*, *C. difficile*, *Aeromonas*, *Plesiomonas*, *Cryptosporidium*, *Tropheryma whipplei* (Whipple's disease), *Blastocystis hominis*, and *Cyclospora* can cause chronic diarrhea. In addition, up to 30% of patients with these infections develop postinfectious IBS as a cause of their chronic diarrhea.

Patients with diarrhea-predominant IBS can have a wide variety of symptoms, but the main complaints are usually chronic abdominal pain and altered bowel movements. These patients complain of small-volume, frequent diarrhea, often with interspersed normal or constipated stools. They may report marked urgency as well as a feeling of incomplete evacuation. Approximately one half of these patients have mucus in the stools. Large-volume diarrhea, bloody diarrhea, nocturnal diarrhea, and greasy stools are not compatible with IBS and raise the probability of organic disease. The Rome III criteria, a consensus statement on functional bowel disorders established for research purposes, may help establish the diagnosis of IBS as well as functional diarrhea. The criteria for IBS are recurrent abdominal pain or discomfort occurring on at least 3 days per month in the last 3 months and associated with two or more of following: (1) improvement of pain with bowel movement; (2) onset associated with a change in frequency of stool; and (3) onset associated with a change in form or consistency of stool.

IBS can be diagnosed based on a typical history and clinical findings and does not usually require an extensive evaluation. If there are potentially serious symptoms that are not consistent with IBS, additional testing is undertaken. Functional diarrhea is defined by the Rome III criteria as continuous or recurrent passage of loose or watery stools without abdominal pain or discomfort, occurring in at least 75% of stools for at least 3 months. This criterion is somewhat ambiguous in guiding the evaluation because it does not help to exclude other causes of chronic diarrhea.

Inflammatory bowel diseases, such as ulcerative colitis and Crohn's disease, are classic causes of chronic diarrhea. Radiation enterocolitis (usually based on the history) and ischemic colitis are more unusual causes. *Crohn's disease* can involve any portion of the GI tract, from the mouth to the anus. Patients with Crohn's disease typically have abdominal pain, diarrhea, weight loss, and fever; gross bleeding is not common with Crohn's disease. There is frequently a delay in presentation and diagnosis of several months from the onset of symptoms to the diagnosis of Crohn's disease. Anemia, leukocytosis, and elevated inflammatory markers are common laboratory findings.

The presentation of *ulcerative colitis* varies a great deal because of variable involvement of the colon. Typically, if the inflammation is limited to the rectum or rectosigmoid region, the symptoms are relatively mild. The onset may be gradual, and there may be episodes of bloody mucus and intermittent diarrhea with fewer than four stools per day. Urgency, mild cramping, and a sensation of incomplete evacuation (tenesmus) are commonly reported, and constipation may also be a complaint. More serious symptoms are often associated with greater involvement of the colon (left-sided colitis or sometimes pancolitis). Patients have frequent loose, bloody stools (up to 10 per day) with mucus. Mild anemia and leukocytosis, mild-to-moderate cramping abdominal pain, and low-grade fever may be present. Weight loss is not

common in mild disease. Severe disease with more than 10 bloody stools per day usually indicates pancolitis. There is severe cramping pain, fever, leukocytosis, and anemia, which often requires transfusion. There can be rapid weight loss leading to malnutrition. Overall, approximately one third of these patients have rectosigmoid disease, one third have left-sided disease, and the remainder have pancolitis. Fulminant disease is present in about 10% of patients at presentation. For information regarding the treatment of IBD, see [Chapter 37](#).

*Microscopic colitis* is most commonly seen in middle-aged women but can be found at all ages and in men as well. It usually manifests with chronic watery diarrhea. There can be mild cramping and weight loss, but dehydration and malnutrition are rare. The name implies that this is a histologic diagnosis, and indeed, the mucosal appearance of the colon at the time of endoscopy is frequently entirely normal, and biopsies are necessary to document its presence. Disease is present throughout the colon but is often more severe on the right side. There are two types of microscopic colitis: lymphocytic and collagenous. Although the underlying cause of the colitis is not known, it is associated with autoimmune disease in up to 50% of cases. Treatment starts with trials of symptomatic pharmacotherapy. Loperamide and cholestyramine may be useful in mild disease; budesonide, a poorly absorbed steroid, may be used, although relapses are frequent after weaning. Mesalamine and sulfasalazine have been used, but there is little information indicating effectiveness.

Malabsorption can result in diarrhea, most commonly from malabsorption of fat and nutrients. The bowel movements are classically described as greasy or oily, foul smelling, and large volume, although not usually watery. There may be associated weight loss. Malabsorption can be congenital, caused by membrane transport defects of small bowel enterocytes, or acquired due to extensive damage or resection of the small bowel resulting in decreased absorptive area. Celiac disease, Crohn's disease, and short bowel syndrome after resection can be causes. The jejunal-ileal bypass procedure, which was performed for patients with morbid obesity in the 1960s and 1970s but is no longer done due to extensive and serious complications, created severe malabsorption resulting in weight loss. Maldigestion resulting from lack of pancreatic enzymes (chronic pancreatitis or, occasionally, pancreatic tumor) and lack of bile salts for fat absorption also can occur.

Laboratory findings depend on the severity of malabsorption and which specific nutrient is deficient. The most common malabsorptive process is lactose intolerance that results in gas, bloating, and diarrhea. Lactose intolerance can be diagnosed by lactose breath testing or the more simple lactose avoidance trial. Celiac disease and tropical sprue can result in a wide spectrum and severity of symptoms, from iron deficiency to calcium and magnesium deficiency, fat-soluble vitamin deficiencies, and weight loss. The rare Whipple's disease can cause not only malabsorption but also systemic findings. Bacterial overgrowth, such as in some gut motility disorders and small bowel diverticula as well as surgically created blind loops, can also result in malabsorption. Breath testing is available for the evaluation of bacterial overgrowth.

Other cases of chronic, but usually self-limited, diarrhea occur in about 10% of patients who have undergone gallbladder

