

and family history of colon cancer. The cancer risks in CD and UC are probably equivalent for similar extent and duration of disease. In the CESAME study, a prospective observational cohort of IBD patients in France, the standardized incidence ratios of colorectal cancer were 2.2 for all IBD patients (95% confidence interval [CI], 1.5–3.0;  $p < .001$ ) and 7.0 for patients with long-standing extensive colitis (both Crohn's and UC) (95% CI, 4.4–10.5;  $p < .001$ ). Thus, the same endoscopic surveillance strategy used for UC is recommended for patients with chronic Crohn's colitis. A pediatric colonoscope can be used to pass narrow strictures in CD patients, but surgery should be considered in symptomatic patients with impassable strictures.

### MANAGEMENT OF DYSPLASIA AND CANCER

Dysplasia can be flat or polypoid. If flat high-grade dysplasia is encountered on colonoscopic surveillance, the usual treatment is colectomy for UC and either colectomy or segmental resection for CD. If flat low-grade dysplasia is found (Fig. 351-13), most investigators recommend immediate colectomy. Adenomas may occur coincidentally in UC and CD patients with chronic colitis and can be removed endoscopically provided that biopsies of the surrounding mucosa are free of dysplasia. High-definition and high-magnification colonoscopes and dye sprays have increased the rate of dysplasia detection.

IBD patients are also at greater risk for other malignancies. Patients with CD may have an increased risk of non-Hodgkin's lymphoma, leukemia, and myelodysplastic syndromes. Severe, chronic, complicated perianal disease in CD patients may be associated with an increased risk of cancer in the lower rectum and anal canal (squamous cell cancers). Although the absolute risk of small-bowel adenocarcinoma in CD is low (2.2% at 25 years in one study), patients with long-standing, extensive, small-bowel disease should consider screening.

## 352 Irritable Bowel Syndrome

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Irritable bowel syndrome (IBS) is a functional bowel disorder characterized by abdominal pain or discomfort and altered bowel habits in the absence of detectable structural abnormalities. No clear diagnostic markers exist for IBS; thus the diagnosis of the disorder is based on clinical presentation. In 2006, the Rome II criteria for the diagnosis of IBS were revised (Table 352-1). Throughout the world, about 10–20% of adults and adolescents have symptoms consistent with IBS, and most studies show a female predominance. IBS symptoms tend to come and go over time and often overlap with other functional disorders such as fibromyalgia, headache, backache, and genitourinary symptoms. Severity of symptoms varies and can significantly impair quality of life, resulting in high health care costs. Advances in basic, mechanistic, and clinical investigations have improved our understanding of this disorder and its physiologic and psychosocial determinants. Altered

**TABLE 352-1** DIAGNOSTIC CRITERIA FOR IRRITABLE BOWEL SYNDROME<sup>a</sup>

Recurrent abdominal pain or discomfort<sup>b</sup> at least 3 days per month in the last 3 months associated with two or more of the following:

1. Improvement with defecation
2. Onset associated with a change in frequency of stool
3. Onset associated with a change in form (appearance) of stool

<sup>a</sup>Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis. <sup>b</sup>Discomfort means an uncomfortable sensation not described as pain. In pathophysiology research and clinical trials, a pain/discomfort frequency of at least 2 days a week during screening evaluation is required for subject eligibility.

**Source:** Adapted from GF Longstreth et al: *Gastroenterology* 130:1480, 2006.

gastrointestinal (GI) motility, visceral hyperalgesia, disturbance of brain-gut interaction, abnormal central processing, autonomic and hormonal events, genetic and environmental factors, and psychosocial disturbances are variably involved, depending on the individual. This progress may result in improved methods of treatment.

### CLINICAL FEATURES

IBS is a disorder that affects all ages, although most patients have their first symptoms before age 45. Older individuals have a lower reporting frequency. Women are diagnosed with IBS two to three times as often as men and make up 80% of the population with severe IBS. As indicated in Table 352-1, pain or abdominal discomfort is a key symptom for the diagnosis of IBS. These symptoms should be improved with defecation and/or have their onset associated with a change in frequency or form of stool. Painless diarrhea or constipation does not fulfill the diagnostic criteria to be classified as IBS. Supportive symptoms that are not part of the diagnostic criteria include defecation straining, urgency or a feeling of incomplete bowel movement, passing mucus, and bloating.

**Abdominal Pain** According to the current IBS diagnostic criteria, abdominal pain or discomfort is a prerequisite clinical feature of IBS. Abdominal pain in IBS is highly variable in intensity and location. It is frequently episodic and crampy, but it may be superimposed on a background of constant ache. Pain may be mild enough to be ignored or it may interfere with daily activities. Despite this, malnutrition due to inadequate caloric intake is exceedingly rare with IBS. Sleep deprivation is also unusual because abdominal pain is almost uniformly present only during waking hours. However, patients with severe IBS frequently wake repeatedly during the night; thus, nocturnal pain is a poor discriminating factor between organic and functional bowel disease. Pain is often exacerbated by eating or emotional stress and improved by passage of flatus or stools. In addition, female patients with IBS commonly report worsening symptoms during the premenstrual and menstrual phases.

**Altered Bowel Habits** Alteration in bowel habits is the most consistent clinical feature in IBS. The most common pattern is constipation alternating with diarrhea, usually with one of these symptoms predominating. At first, constipation may be episodic, but eventually it becomes continuous and increasingly intractable to treatment with laxatives. Stools are usually hard with narrowed caliber, possibly reflecting excessive dehydration caused by prolonged colonic retention and spasm. Most patients also experience a sense of incomplete evacuation, thus leading to repeated attempts at defecation in a short time span. Patients whose predominant symptom is constipation may have weeks or months of constipation interrupted with brief periods of diarrhea. In other patients, diarrhea may be the predominant symptom. Diarrhea resulting from IBS usually consists of small volumes of loose stools. Most patients have stool volumes of <200 mL. Nocturnal diarrhea does not occur in IBS. Diarrhea may be aggravated by emotional stress or eating. Stool may be accompanied by passage of large amounts of mucus. Bleeding is not a feature of IBS unless hemorrhoids are present, and malabsorption or weight loss does not occur.

Bowel pattern subtypes are highly unstable. In a patient population with ~33% prevalence rates of IBS-diarrhea predominant (IBS-D), IBS-constipation predominant (IBS-C), and IBS-mixed (IBS-M) forms, 75% of patients change subtypes and 29% switch between IBS-C and IBS-D over 1 year. The heterogeneity and variable natural history of bowel habits in IBS increase the difficulty of conducting pathophysiology studies and clinical trials.

**Gas and Flatulence** Patients with IBS frequently complain of abdominal distention and increased belching or flatulence, all of which they attribute to increased gas. Although some patients with these symptoms actually may have a larger amount of gas, quantitative measurements reveal that most patients who complain of increased gas generate no more than a normal amount of intestinal gas. Most IBS patients have impaired transit and tolerance of intestinal gas loads. In addition, patients with IBS tend to reflux gas from the distal to the more proximal intestine, which may explain the belching.