


**FIGURE 349-4** Small-intestinal mucosal biopsies. **A.** Normal individual. **B.** Untreated celiac sprue. **C.** Treated celiac sprue. **D.** Intestinal lymphangiectasia. **E.** Whipple's disease. **F.** Lymphoma. **G.** Giardiasis. (Courtesy of Marie Robert, MD, Yale University; with permission.)

antibodies—IgA antigliadin, antiendomysial, and anti-tTG antibodies—are present, but it is not known whether such antibodies are primary or secondary to the tissue damage. The presence of antiendomysial antibody is 90–95% sensitive and 90–95% specific; the antigen recognized by antiendomysial antibody is tTG, which deaminates gliadin, which is presented to HLA-DQ2 or HLA-DQ8 (see below). Antibody studies are frequently used to identify patients with celiac disease; patients with these antibodies should undergo duodenal biopsy. This autoantibody has not been linked to a pathogenetic mechanism (or mechanisms) responsible for celiac disease. Nonetheless, this antibody is useful in establishing the

true prevalence of celiac disease in the general population. A 4-week course of treatment with prednisolone induces a remission in a patient with celiac disease who continues to eat gluten and converts the “flat” abnormal duodenal biopsy to a more normal-appearing one. In addition, gliadin peptides interact with gliadin-specific T cells that mediate tissue injury and induce the release of one or more cytokines (e.g., interferon  $\gamma$ ) that cause tissue injury.

 Genetic factor(s) are also involved in celiac disease. The incidence of symptomatic celiac disease varies widely in different population groups (high among whites, low among blacks and

**TABLE 349-7** RESULTS OF DIAGNOSTIC STUDIES IN STEATORRHEA OF VARIOUS ETIOLOGIES

	D-Xylose Test	Schilling Test	Duodenal Mucosal Biopsy
Chronic pancreatitis	Normal	50% abnormal; if abnormal, normal with pancreatic enzyme treatment	Normal
Bacterial overgrowth syndromes	Normal or only modestly abnormal	Often abnormal; if abnormal, normal after antibiotic treatment	Usually normal
Ileal disease	Normal	Abnormal	Normal
Celiac disease	Decreased	Normal	Abnormal: probably “flat”
Intestinal lymphangiectasia	Normal	Normal	Abnormal: “dilated lymphatics”