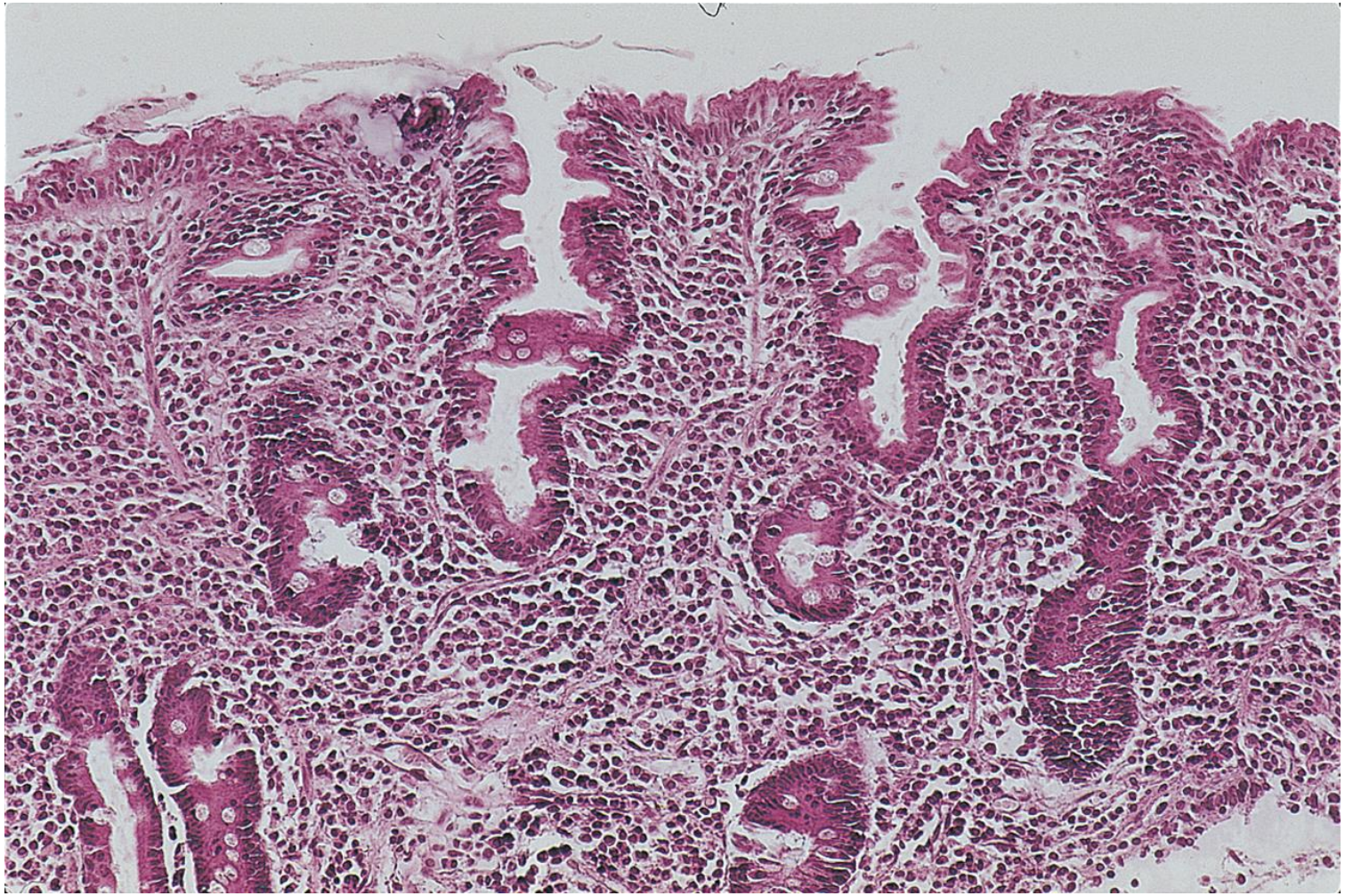
Celiac and tropical sprue

Celiac sprue (non-tropical sprue, celiac disease or gluten-sensitive enteropathy) is an immune-mediated inflammatory disease of the small intestine (particularly the duodenum) seen in genetically predisposed individuals and is caused by sensitivity to prolamins, like wheat (gliadin), barley (hordein), rye (secalin) and oats (avenin). HLA class II genes HLA DQ2 and HLA DQ8 on chromosome 6 are implicated in the genetic susceptibility. Innate and adaptive immune response to prolamins leads to characteristic lymphocytic infiltration in the lamina propria mucosae and among the absorptive columnar epithelium (with increase of intraepithelial lymphocytes). The crypts are hyperplastic, and the villi are atrophic. The chronic inflammatory process leads to malabsorption syndrome with chronic diarrhea, weight loss and asthenia. Iron-deficiency or vitamin B12-deficiency anemia and osteoporosis may be complicated. Dermatitis herpetiformis Dühring may also be associated.

Tropical sprue is a malabsorption syndrome characterized by acute or chronic diarrhea. It is seen in people of the tropical region in the absence of any specific cause of malabsorption. The exact cause remains unknown, and it is thought to be infectious in etiology with a contribution of environmental factors. The disease affects the small intestinal mucosa, and is characterized by malabsorption and multiple nutritional deficiencies, especially vitamin B12 and folic acid. Microscopically, the small intestinal mucosa reveals shortening of the villi, elongation of the crypts with regenerative change, increase of the intraepithelial lymphocytes, chronic inflammatory infiltration in the lamina propria mucosae, and accumulation of lipid underneath the basement membrane.

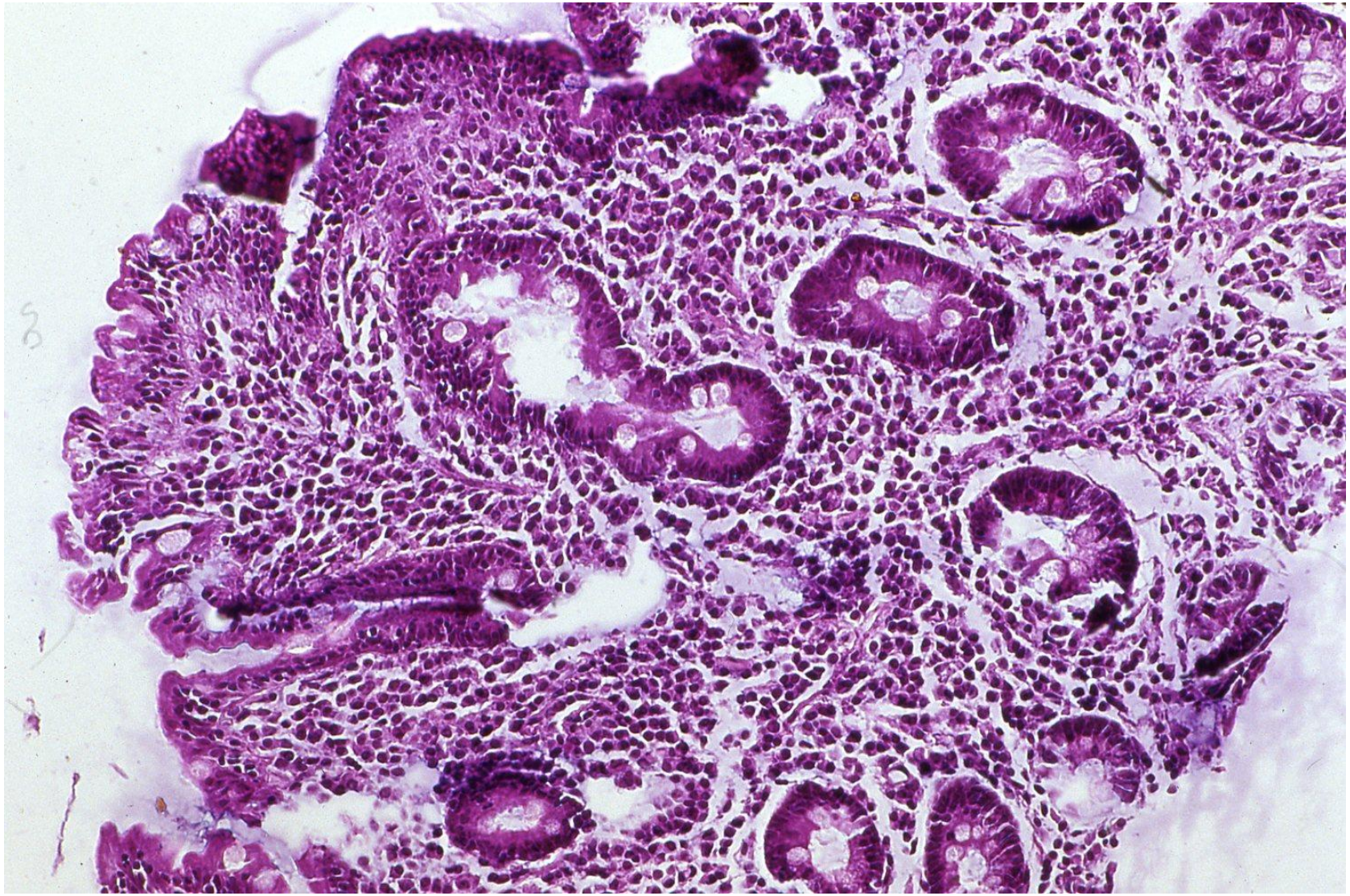
Ref.-1: Rashtak S, et al. Celiac sprue: a unique autoimmune disorder. Expert Rev Clin Immunol 2009; 5(5): 593-604. doi: 10.1586/eci.09.30

Ref.-2: Shah VH, et al. All that scallops is not celiac disease. Gastrointest Endosc 2000; 51(6): 717-720. doi: 10.1067/mge.2000.104977

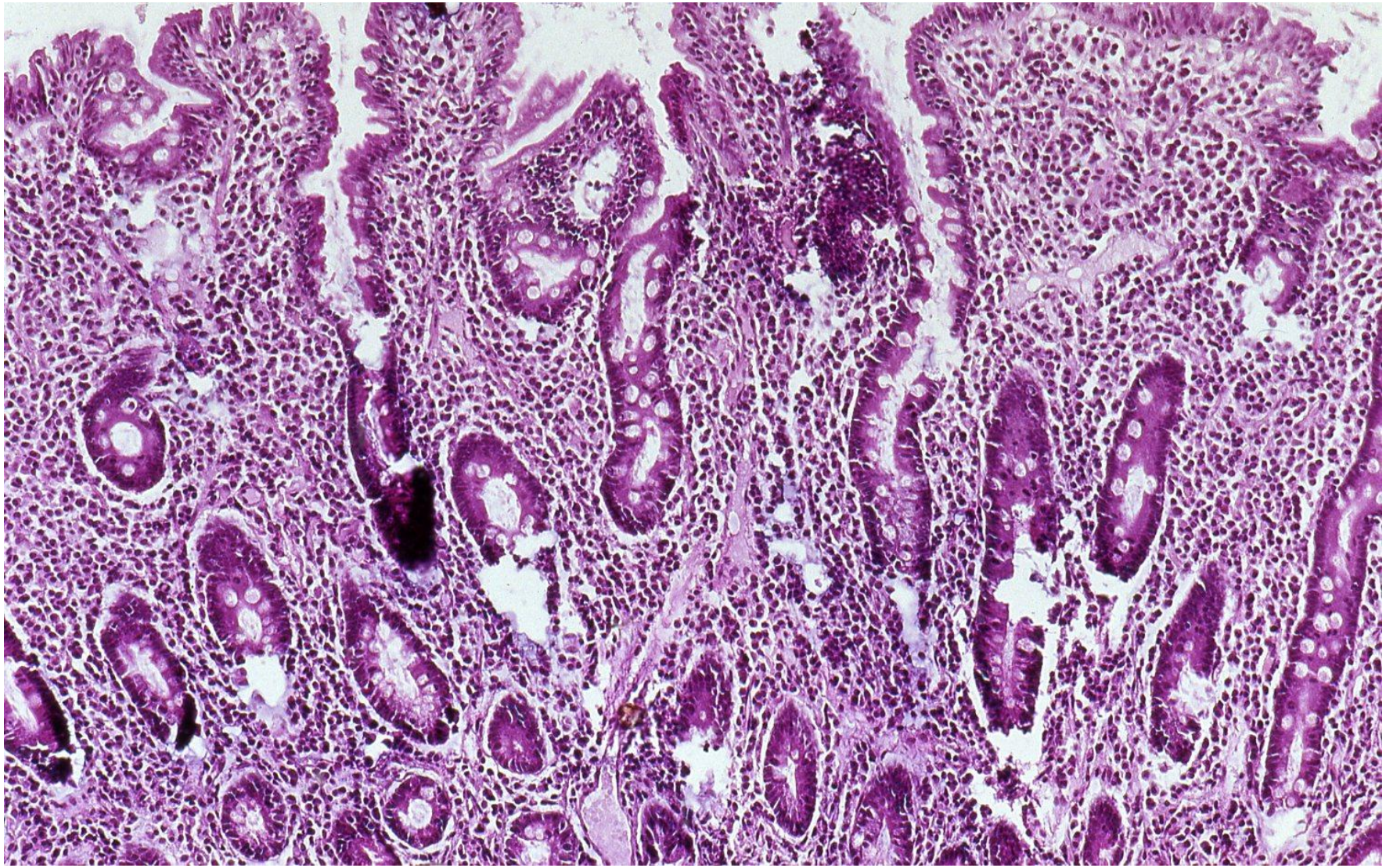


Celiac sprue (prolamin allergy). A 23-year-old male Celtic American complained of diarrhea in childhood. Diarrhea and abdominal distention became severe in the last 2 months, and weight loss was associated. He was anemic (RBC count: 3,100,000/μL. Itchy vesicles were clustered on the skin of the knee, and the dermatological diagnosis of dermatitis herpetiformis Dühring was made. Duodenal biopsy reveals marked infiltration of lymphocytes and plasma cells in the lamina propria, with villous atrophy and increase of intraepithelial lymphocytes. H&E-1

Another case of celiac sprue (prolamin allergy) in a 56-year-old woman. Dense infiltration of lymphoplasmacytic cells is associated with villous atrophy and increase of intraepithelial lymphocytes. H&E-2



Tropical sprue in a Kenyan male patient aged 20's. Duodenal biopsy reveals shortening of the villi, regenerative change of the crypt epithelial cells, increase of the intraepithelial lymphocytes, and chronic inflammatory infiltration in the lamina propria mucosae. H&E-a



Tropical sprue in a Kenyan male patient aged 20's. Duodenal biopsy reveals shortening of the villi, regenerative change of the crypt epithelial cells, increase of the intraepithelial lymphocytes, and chronic inflammatory infiltration in the lamina propria mucosae. H&E-b