

Gastrointestinal and Liver Pathology at Rush

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Case of the Month Answer – November 2008

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Giardiasis has a worldwide distribution and is the most commonly reported parasitic disease in the United States and Canada ¹. Infections usually occur via feco-oral transmission with exposure to contaminated water sources such as streams, rivers, and lakes. Individuals with immunodeficiency syndromes, previous gastric surgeries, hypochlorhydria, achlorhydria, cystic fibrosis, or hypogammaglobulinemia, particularly IgA deficiency, are also at increased risk of acquiring the infection ^{1,2}. IgA is presumed to be important for anti-giardial host defense, and a deficiency may lead to prolongation of the infection ².

Giardia infections may be acute or chronic and may last for years. Diarrhea is the most common symptom and varies in severity with an abrupt, explosive onset of frequent, watery foul-smelling stools or a few loose bowel movements ¹. Some patients also experience abdominal cramps, abdominal distension, malabsorption, weight loss, and vomiting. In approximately 60% of cases, the infection remains self-limited and asymptomatic ^{1,2}. Growth retardation may be the sole symptom in children with IgA deficiency ².

Morphologically, the trophozoites of *Giardia* are pear-shaped, about the size of an epithelial cell nucleus, with two nuclei ¹. In H&E sections, the organisms appear gray or faintly basophilic and can be identified on the surface of intestinal villi (Fig. 1). PAS stain can be used to highlight the organisms. *Giardia* trophozoites are rarely found in the mucosa and lamina propria ¹.

Small intestinal biopsies usually show one of three patterns ¹. The first pattern is no alterations despite the presence of organisms. The second pattern is a normal villous architecture, but increased numbers of intraepithelial lymphocytes and eosinophils in the lamina propria as in our case. The last pattern is complete villous atrophy with variable inflammation, large number of intraepithelial lymphocytes, and crypt hyperplasia. Patients may also develop nodular lymphoid hyperplasia ¹. Organisms are rarely seen in the stomach and colon ¹.

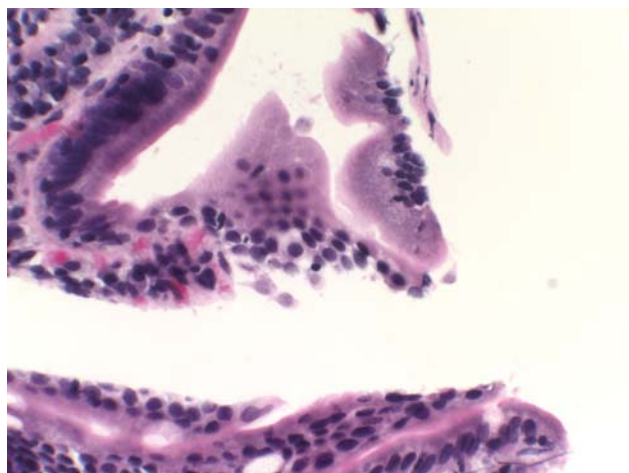


Fig. 1

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References:

1. Fenoglio-Preiser, CM, et al. *Gastrointestinal Pathology: An Atlas and Text*, 3rd ed. Lippincott Williams & Wilkins, c. 2008, pp 389-390.
2. Eren, Makbule, et al. *Duodenal appearance of giardiasis in a child with selective immunoglobulin A deficiency*. *Pediatrics International* (2007) 49, 409-411.