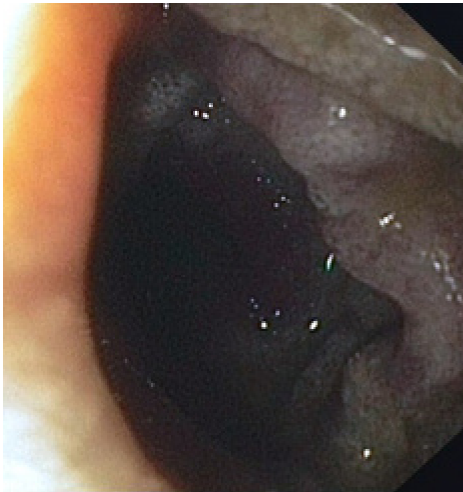
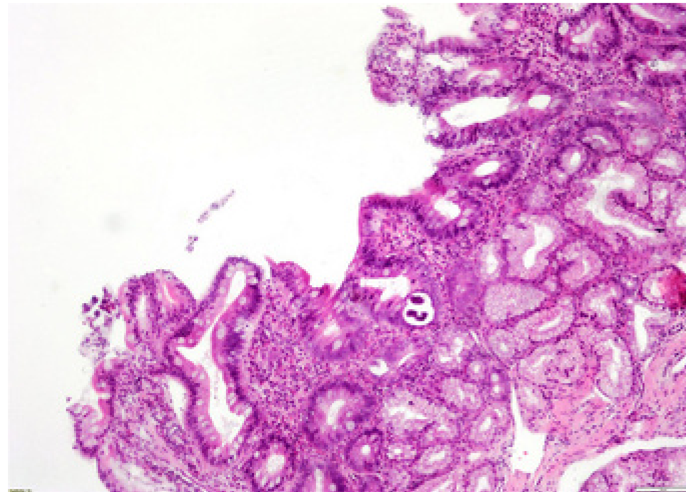
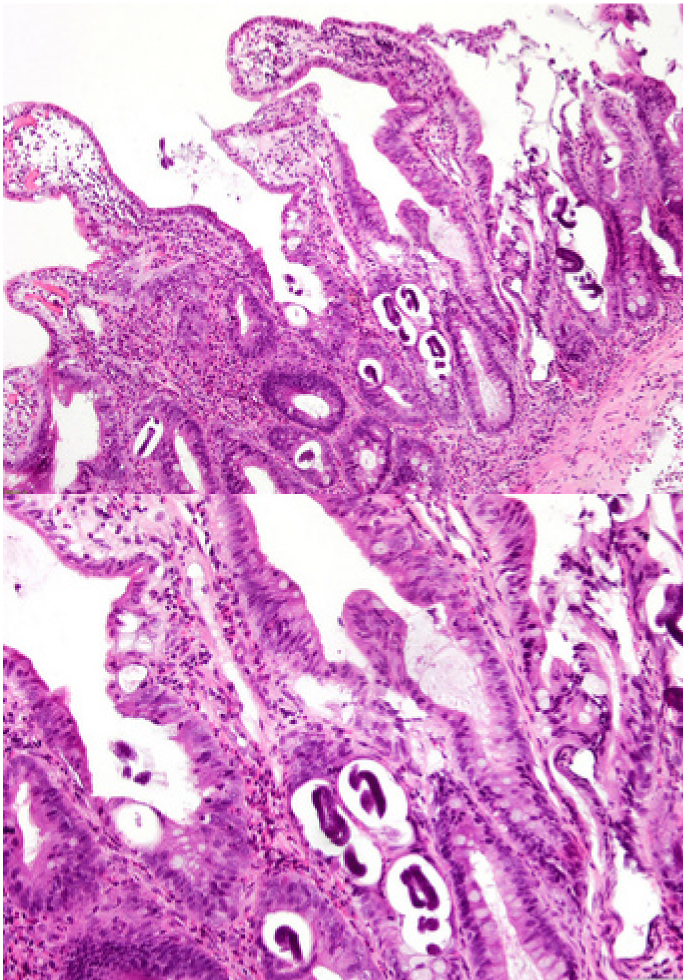
February 2017

Duodenal biopsy in a 64-year-old man with abdominal discomfort.

What is your diagnosis?







Diagnosis:

Duodenal strongyloidiasis (with active inflammation and villous atrophy).

Comment:

A 64-year old male patient presented with abdominal discomfort, 2 years after an autologous bone marrow transplant for mantle cell lymphoma. On endoscopy, there was discrete whitish mucosal discoloration in the distal duodenum (Panel 1). The patient's eosinophil count was 3.00 x 10^9/L (normal <0.43 x 10^9/L), and eosinophil fraction was 30% (normal <7%).

Histological analysis of biopsy material obtained from the duodenum shows intestinal mucosa with moderately disturbed mucosal architecture, as documented by villous blunting and slight to moderate crypt hyperplasia (Panel 2). The lamina propria is hypercellular and harbors a dense inflammatory infiltrate of lymphocytes, neutrophils and eosinophils. Crypt and surface epithelium is infiltrated by polymorphonuclear leukocytes (active duodenitis with cryptitis).

Strongyloides stercoralis can be found within the crypts (Panels 3, 4). Ivermectin treatment lead to full recovery of symptoms. The eosinophil count returned to values near normal within 5 months (0.54 x 10^9/L, eosinophil fraction 6.4%). Strongyloides stercoralis is a 2 mm long nematode with a worldwide distribution. In addition to the parasitic life cycle, it has a separate free-living cycle where it lives and reproduces without a host in the soil. The life cycle is complex – larva from the soil penetrates the skin of the host, enters the venous system, travels to the lungs, and then migrates up the respiratory tree and down the esophagus to reach the small intestine. The female lives in the small intestine and lays eggs there that hatch into rhabditiform larvae, which can either mature in the host, or be excreted to mature in the soil. The ability of maturation within the host confers an autoinfective capability, allowing the organism to reside in the patient for a long time (up to 30 years) if not treated. Strongyloidiasis occurs primarily in adults and it is frequently asymptomatic. When present, symptoms can include diarrhea, abdominal pain and tenderness, nausea, vomiting, weight loss, and GI bleeding. Many of the patients suffer from chronic illnesses or are immunocompromised. Widespread dissemination may occur in immunocompromised patients, causing severe and even fatal illness.

For further reading:

- Kishimoto K, Hokama A, Hirata T, et al. Endoscopic and histopathological study on the duodenum of Strongyloides stercoralis hyperinfection. World J Gastroenterol. 2008; 14: 1768–73.
- Puthiyakunnon S, Boddu S, Li Y, et al. Strongyloidiasis - An insight into its global prevalence and management. Simon GL, ed. PLoS Neglected Tropical Diseases. 2014; 8: e3018.
- Concha R, Harrington W Jr., Rogers AI. Intestinal strongyloidiasis: recognition, management, and determinants of outcome. J Clin Gastroenterol. 2005; 39: 203–11.
- Gutierrez Y, Bhatia P, Garbadawala ST, et al. Strongyloides stercoralis eosinophilic granulomatous enterocolitis. Am J Surg Pathol. 1996; 20: 603–12.

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