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CASE REPORT | PATHOLOGY

Giardiasis Presenting as a Brunner Gland Hyperplasia

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ABSTRACT

Giardiasis is the most common intestinal parasitic disease worldwide. Clinical presentation ranges from asymptomatic to abdominal pain, diarrhea, and iron deficiency anemia. Treatment modalities include tinidazole, metronidazole, and paromomycin. We present a case of an adult man with anemia and suspected gastrointestinal bleeding who was found to have a duodenal nodule consistent with Brunner gland hyperplasia, and biopsy also showed *Giardia*. Limited case reports of *Giardia* diagnosed by duodenal biopsy are found in the literature. To the best of our knowledge, this is the first report of giardiasis presenting as Brunner gland hyperplasia.

KEYWORDS: duodenal mass; *Giardia*; Brunner gland hyperplasia

INTRODUCTION

Giardiasis is the most common parasitic infection worldwide, with 200 million people infected annually.[1] Prevalence is considerably higher in developing countries.[1] Its transmission occurs through fecal-oral route, commonly through ingestion of contaminated water and food.[2] Clinical manifestations range from asymptomatic to malaise, diarrhea, fever, constipation, and anemia.[3] Rarely, *Giardia* can be found in the duodenum, usually as an incidental finding.[4] Described duodenum histologic findings are nonspecific. Trophozoites are usually found on the surface of the duodenal mucosa.[5]

Duodenal nodules are relatively uncommon. Most of them they are benign.[6] Some of the most common benign duodenal nodules are lipomas, polyps, and leiomyomas.[6,7] To the best of our knowledge, this is the first-ever reported case of giardiasis presenting as a duodenal nodule, specifically Brunner gland hyperplasia (BGH).

CASE REPORT

A 60-year-old man with history of hypertension, type 2 diabetes, and chronic kidney disease stage 5 was admitted with a hemoglobin of 6.4 g/dL. The patient reported 2 months of occasional dark stools, however, in the setting of iron supplementation. The patient denied hematochezia, hematemesis, shortness of breath, abdominal pain, or dizziness. The patient was not on aspirin, nonsteroidal anti-inflammatory drugs, or antiplatelet medications. Other pertinent laboratory test results included mean corpuscular volume of 74.9 fL, red cell distribution width of 18.1%, platelets of 211,000/μL, iron 47 μg/dL, transferrin 172 mg/dL, ferritin 308 ng/mL, and total iron binding capacity 215 mcg/dL.

During esophagogastroduodenoscopy, a 10-mm nodule was observed in the duodenal bulb (Figure 1). Biopsy of the nodule showed a preserved villous architecture with features of peptic duodenitis to include patchy lamina propria neutrophils, focal foveolar metaplasia, and underlying nodular BGH. Multiple pear-shaped microorganisms were also seen within the intervillous spaces, consistent with *Giardia* (Figures 2 and 3). Colonoscopy was unremarkable.

The patient denied recent travel or exposure to natural bodies of water. HIV testing was negative. Treatment with tinidazole was prescribed.

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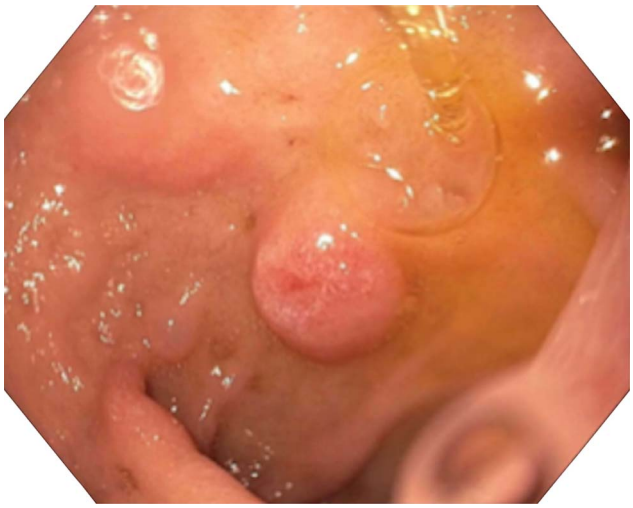

Figure 1. A 10-mm duodenal nodule.

DISCUSSION

BGH is a benign finding, and there are only rare case reports of duodenal tumors, with less than 200 cases reported in the literature.[8] BGH is sometimes used interchangeably with Brunneroma, Brunner gland adenoma, or hamartoma. Their distinction is arbitrary, although a size description has been described by Patel et al, from the Armed Forces Institute of Pathology:[9] Lesions <5 mm in size either solitary or multiple are considered hyperplasia. Those ≥ 5 are considered hamartoma. However, this classification has not been widely accepted. We only know of 4 case reports of giardiasis associated with nodular changes in the duodenum, including lymphoid hyperplasia,[10–13] but this is the only case of *Giardia* found within BGH.

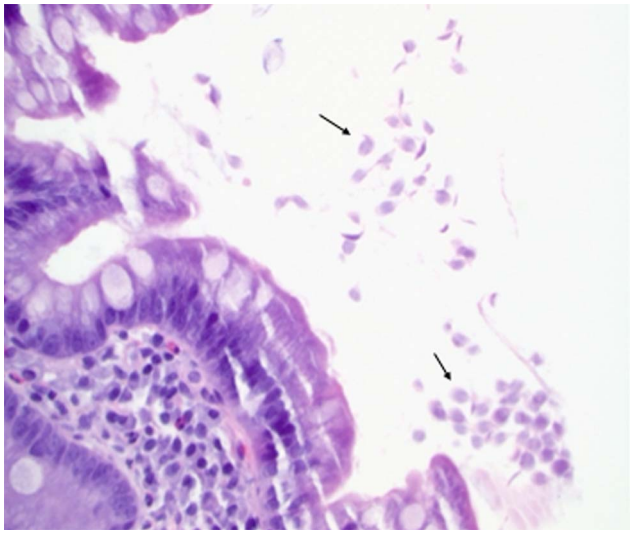

Figure 2. Duodenal biopsy showing preserved villous architecture with features of peptic duodenitis. Underlying Brunner gland hyperplasia. *Giardia* trophozoites visible (arrows; H&E, ×200). H&E, hematoxylin and eosin.

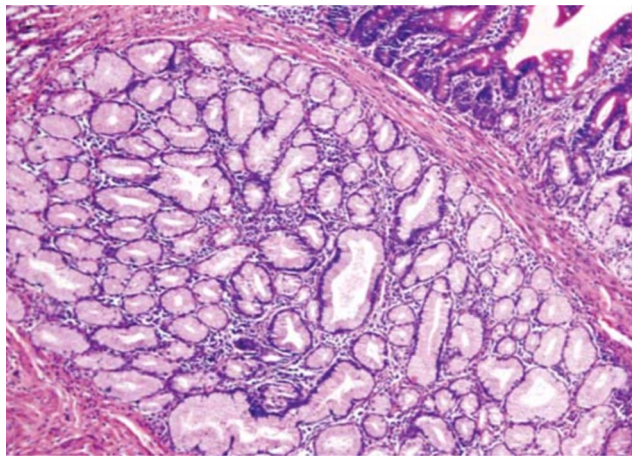

Figure 3. Photomicrograph of Brunner gland hyperplasia (H&E, ×10).[9] H&E, hematoxylin and eosin.

Giardiasis can be asymptomatic.[14] Routine diagnosis is made through stool examination.[2] Incidental findings of this microorganism in duodenal biopsies have been described.[4,5] Current Infectious Diseases Society of America guidelines do not recommend duodenal biopsy as a diagnostic option.[15]

Although there are reports of BGH causing gastrointestinal bleeding,[16,17] the endoscopic findings and the laboratory workup made this unlikely in our patient. No active bleeding or ulcers were found on our evaluation, and the anemia profile was more suggestive of anemia of inflammation, highly likely in the context of advanced kidney failure. Although it was unclear if the *Giardia* was responsible for the patient's anemia, given the possibility of future complications from giardiasis, the decision was made to treat the patient with tinidazole.

In conclusion, we report a rare case of giardiasis presenting as a duodenal nodule, with microscopic findings suggestive of BGH. Clinical reasoning and imaging results play a key role when establishing the significance of infrequent findings.

DISCLOSURES

Author contributions: Both authors have made substantial contributions to the conception of the study, drafting the article, and final approval of the submitted version.

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