

Colonic Giardiasis, a Rare Entity: Report of Two Cases

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Abstract

Giardiasis is the leading GI protozoal disease. It spreads by feco-oral route. Asymptomatic infections are common in immunocompetent patients, while it is usually symptomatic in immunocompromised. *Giardia lamblia* colonises the duodenum primarily but has also been reported at other sites. However, only rarely, it has been reported in the colon. Here we report 2 such cases of colonic giardiasis, one of which was immunocompetent (still symptomatic) and the other was a case of renal transplant on immunosuppressants. Both our patients presented with chronic intermittent large bowel type of diarrhoea with no clinical suspicion of Giardiasis, which most commonly presents with small bowel diarrhea. Hence upper GI scopy was not done. However, their colonic mapping biopsies revealed the presence of Giardial trophozoites in ileum, as well as in colon where it is least expected. In our first case, this was overlooked in the initial sections due to the fragmentation, poor orientation and scanty tissue where colonic epithelium showed associated increase of intraepithelial lymphocytes, thus misleading towards the diagnosis of microscopic colitis. In second case, the reactive lymphadenopathy was clinically mistaken for lympho-proliferative disorder. To summarize, colonic involvement in Giardiasis can be misleading both clinically and histologically.

Keywords: Colon; Giardia; Colonic Giardiasis; Pear-Shaped; Trophozoites

Introduction

Giardiasis is the leading GI protozoal disease with world-wide distribution and association with poor hygienic conditions [1,2]. It spreads by feco-oral route, the infective form being quadrinucleate cyst, which can be detected in the stools [3]. Asymptomatic or self-limited infections are common in immunocompetent (IC) patients, while it is usually symptomatic in immunocompromised [4,5]. *Giardia lamblia* colonises the duodenum primarily, but has also been reported in the ileum, stomach and jejunum in the decreasing order of frequency. Rarely, this flagellate has been reported in the colon [1] and here we report 2 such cases of colonic giardiasis.

Clinical History

Case 1: A 56 yrs male, presented with intermittent loose stools since one-and-a-half-year duration, 3 - 4 episodes/day, sometimes mixed with mucus, but not associated with fever/weight loss/abdominal pain/blood in stools with no history of persistent diarrhoea. He had taken multiple courses of antibiotics in last 1 year but with no relief. He also complained of piles with bleeding per rectum 4 years back.

The routine haematological and biochemistry investigations were within normal limits. (Hb-15.3 g/dl; TLC-5400/mm³; DLC-poly-morphs- 60%, lymphocytes- 40%; ESR- 20 mm/hr; BUN- 9.0 mg/dl; creatinine- 1.2 mg/dl; total serum proteins- 7.3 g/dl; SGOT- 45 U/L; SGPT- 43 U/L). Serology for HIV, Hepatitis B and C was negative. Stool examination was advised but the report was not available.

In view of large bowel diarrhoea, a colonoscopy was advised which was unremarkable. Mapping biopsy showed fragmented, scanty ileal and colonic mucosa with normal crypt architecture and focal mild increase in surface intraepithelial lymphocytes (IELs). In addition, colonic biopsies also had increased lymphocytes in the crypts (Figure 1a and 1b) and mild to moderate lympho-plasmacytic infiltrate with many eosinophils and focal lymphoid aggregates in lamina propria. A provisional diagnosis of microscopic colitis was considered, and deeper cuts were asked for the confirmation. These sections later revealed the presence of multiple pear-shaped organisms containing two ovoid nuclei with a central karyosome at the luminal surface resembling trophozoites of *Giardia lamblia* on the surface of colonic mucosa (Figure 1c and 1d). Patient was lost to follow-up later.

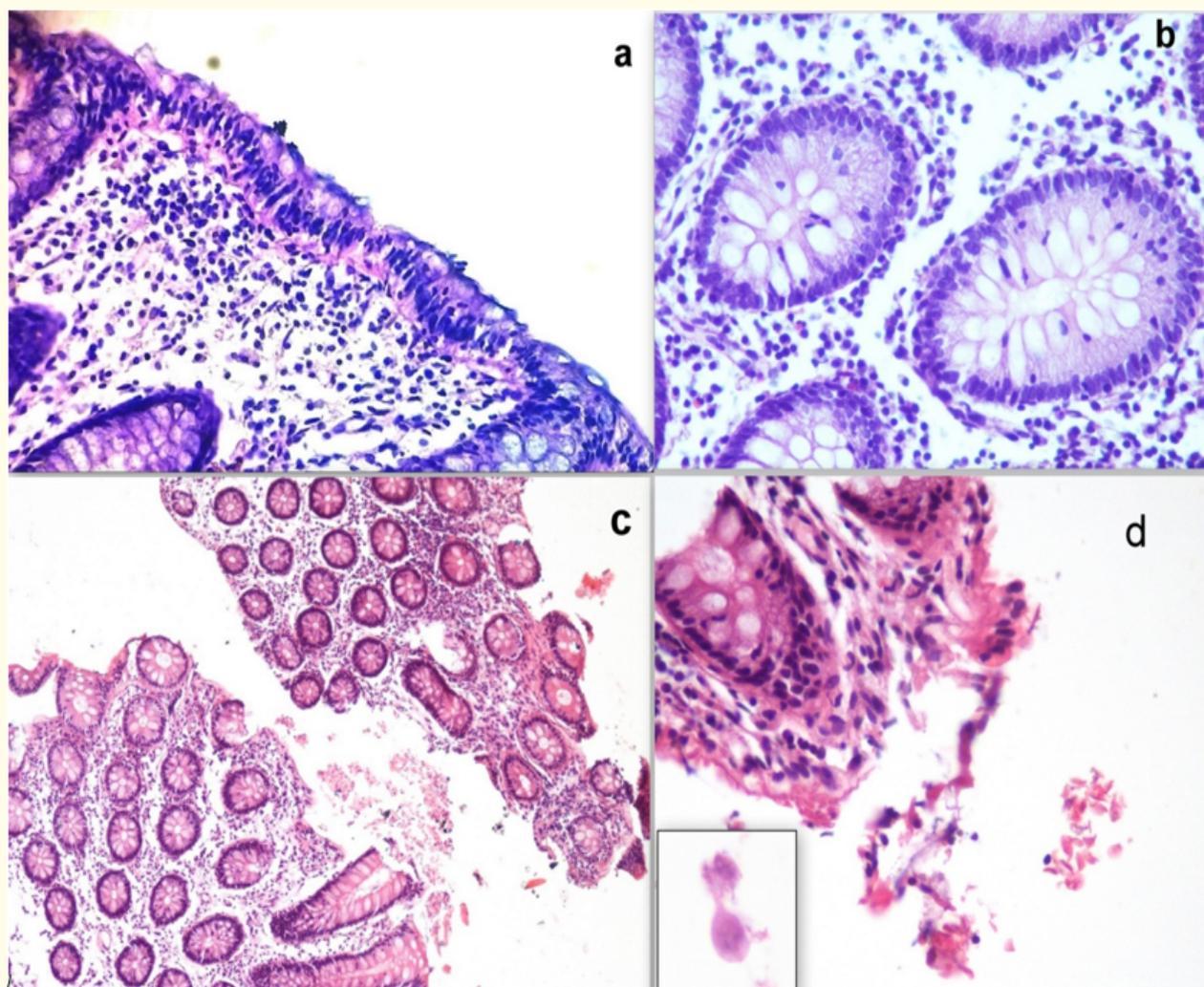


Figure 1 (Case 1): Colonic mucosa showing increased intra-epithelial lymphocytes in surface and cryptic epithelium (a, b: HE X 400) and trophozoites of *Giardia lamblia* (c: HE X 100; d: HE X 400; inset- HE X 1000)- Case 1.

Case 2: 44 yrs male, known case of renal transplant (on immunosuppressants), presented with feeling of abdominal distension with intermittent, mild, generalised, non-radiating abdominal pain followed by 3 - 4 episodes of loose stools each for 9 - 10 months. He also complained of post prandial fullness and bloating; low grade fever- on and off (at any time of the day) and 22 kgs of weight loss in this while. There was no history of persistent diarrhoea, vomiting or constipation.

The routine haematological and biochemistry investigations were within normal limits (Hb- 13.9 gm/dl; TLC- 11300/mm³; platelets- 2.3 lakh/mm³; Serum creatinine- 1.93 mg/dl; Total serum iron saturation-26%; SGOT- 21 U/L; SGPT- 18 U/L). Serology for HIV, HBsAg, and HCV was negative. CT scan of abdomen showed discrete mesenteric lymph nodes and incidentally detected non-obstructive jejunal intussusception. Hence, a differential diagnosis of 'post-transplant lympho-proliferative disorder' was considered.

A colonoscopy was done which was unremarkable and mapping biopsies showed ileum and colon with normal villi and crypt architecture (Figure 2a-2c) and presence of trophozoites of *Giardia lamblia* in each of the biopsies (Figure 2d). A single focus of crypt abscess was also noted in the transverse and left colon.

He was treated with metronidazole which relieved his diarrhoea and within 2 weeks he gained 2 kg weight. The abdominal lymph nodes turned out to be reactive on repeat CT.

Discussion

Giardia lamblia is an enteropathogen affecting mainly adults (mean age 49.5 +/- 17 yrs) with a slight predilection towards males (male: female = 3:2) as were our cases [1,2]. Infection is mostly asymptomatic but can sometimes present with features of small bowel diarrhoea with explosive, foul smelling, watery stools and cramping abdominal pain, distension, nausea, vomiting and weight loss in some [1-4]. Chronic persistent diarrhoea is rare [1,2]. Both our patients were also adult males and symptomatic in spite of one being immunocompetent. They had chronic intermittent large bowel type diarrhoea with with the first patient showing presence of mucus in stools. Immunosuppression, most commonly common variable immunodeficiency (CVID), is a risk factor for *G.lambia*. However in our first case, there were no signs or history suggesting immunosuppression, including histology where plasma cells were intact in lamina propria which can be absent in cases of CVID. However, and then he was lost for follow-up. However, our second case was post-renal transplant.

In Giardiasis, routine haematological and biochemistry investigations are generally within normal limits except if there is chronic diarrhoea which can cause anaemia, malabsorption and weight loss [3], and stool examination can show presence of Giardial quadrinucleate cysts [8]. In our cases too, all routine investigations were normal while weight loss was seen in second case, however stool reports were not available. Classically *Giardia* being a small bowel inhabitant, an upper gastrointestinal scopy is advised which is generally unremarkable. But, our patients primarily presented with large bowel diarrhea, hence only colonoscopy was performed which was normal. However, Yu Zhen, *et al* have also reported a case of chronic giardiasis which was misdiagnosed as Ulcerative colitis due to large bowel involvement associated with extensive hyperaemia, erosion, and superficial ulcerations on colonoscopy [8].

On histology, in profile, the trophozoite of *G. ambliia* is sickle shaped; and en-face has a characteristic pear shape [9]. Most of the small bowel biopsies show normal mucosa and a small proportion may show mild to moderate villous blunting and increased inflammatory cells in lamina propria and crypt epithelium. [1-3]. However, no specific histological changes for colon have been described in literature. In our patients, crypt architecture was normal both in ileum and colon. However, in first case, increased IELs in surface and cryptic epithelium were seen along with mild to moderate mixed inflammatory infiltrate including lymphocytes, neutrophils, eosinophils and plasma cells in lamina propria with few lymphoid aggregates. Hence, a provisional diagnosis of microscopic colitis was rendered initially, as the organisms were missed due to poor orientation, tiny size and fragmentation of the biopsies. In second case, single focus of crypt abscess was also noted in the transverse and left colon.

Colonic colonization by giardia is very uncommon. Oberhuber, *et al.* who studied 567 cases of Giardiasis, of which they found only 2 cases with both ileal and colonic involvement [1,2]. A case of colonic colonization was also reported by X Dray, *et al.* in a patient receiving fibrates [10]. They suggest that fibrate treatment increases biliary cholesterol excretion and decreases the excretion of bile acids, thus hampering giardia encystation and facilitating colonic colonization. Howard LH, *et al.* also published a similar case [11]. In our cases there was no history of fibrates intake but, these organisms were surprisingly detected, not only in the ileum but also in all the colonic biopsies, where it is least expected.

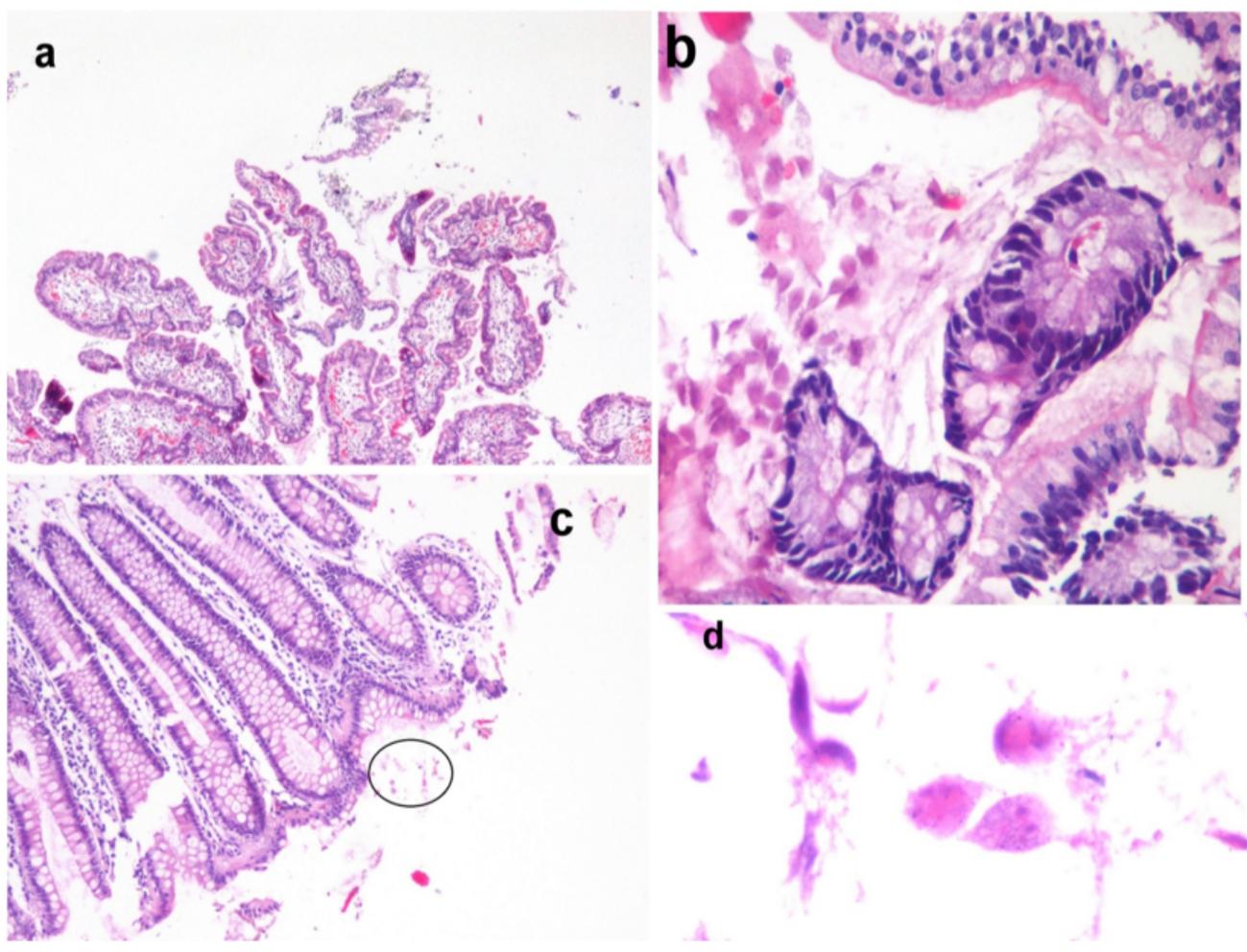


Figure 2 (Case 2): Giardial trophozoites in ileum, having normal villous architecture (a: HE X 40; b: HE X 100), and in colon(encircled)(c: HE X 100) showing sickle and pear-shapes (d: HE X 1000)

Conclusion

Colonic involvement by giardia is rare. Symptomatic infections can be seen even in immunocompetent patients and the presentation can be misleading. Also, organisms can be missed on histology in normal looking biopsies, if inadequate and not satisfactory, more so in the colon where it is least expected. "Thus, a high index of suspicion for colonic giardiasis is necessary in cases of unexplained diarrhoea, especially where other investigations fail to provide any conclusive results."

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Conflict of Interest

Nil.

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