Case report

Unusual case of *Giardia lamblia* causing eosinophilic ascites along with *Plesiomonas shigelloides* gastroenteritis

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ABSTRACT

A case report of a healthy, immunocompetent male, an international traveller from Germany who had visited India for a short trip, presented at our OPD with a history of loose stools, fever and abdominal pain, for two months. After thorough investigations, he was diagnosed to have an infection with *Giardia lamblia* acute gastroenteritis (AGE) along with eosinophilic ascites with peripheral eosinophilia, with associated *Plesiomonas shigelloides* diarrhoea. He was then treated with metronidazole and cotrimoxazole, which resulted in complete resolution of the symptoms.

Keywords: *Giardia lamblia; Plesiomonas shigelloides;* eosinophilic ascites; gastroenteritis.

INTRODUCTION

Giardia lamblia is an intestinal parasite that causes about 280 million infections per year in Africa, Asia, and America, according to the World Health Organization (1). *Plesiomonas shigelloides* is mostly found in river water, muddy wet river-beds, fresh- water fish, dogs and cats (2). Since many strains cross react antigenically with Shigella particularly *S. sonnei*, the species name "shigelloides" has been termed (3). It has been recognized as the cause of gastroenteritis in travellers to tropical regions and in persons who have ingested contaminated food or water (4).

Eosinophilic ascites is a rare complication of parasitic infections that is rarely seen in clinical practice. It may also clinically implicate to eosinophilic gastroenteritis of subserosal type, peritoneal dialysis, hypereosinophilic syndrome, and lymphomas. Here we present an unusual case of *G. lamblia* causing eosinophilic ascites along with *P. shigelloides* gastroenteritis.

CASE HISTORY

A 25-year-old HIV negative, previously healthy male, an international traveler from Germany who had visited India for a short trip, presented to Kasturba Hospital, Manipal with two months history of recurrent loose stools, fever and abdominal pain. He had 4-5 episodes/day of loose stools, watery in consistency, not associated with blood or mucus. Fever was low grade, intermittent, 3-4 times per day. Abdominal pain was localized to right iliac fossa and was intermittent, spasmodic type. There was no history of chest pain or vomiting. The patient denied taking any drugs or herbal medicine. He had no history of atopy or food allergy. On examination, abdomen was distended and shifting dullness was present. There was tenderness in right iliac fossa. Baseline lab investigations were remarkable for eosinophils (Total leucocyte count=17100, Eosinophil=18.5%).

The patient stool was positive for cyst and trophozoite of *Giardia spp*. Since ascites is not a common finding in giardiasis, contrast-enhanced computed tomography (CECT) abdomen was done which showed Ileocaecal junction circumferential wall thickening. Colonoscopy revealed ulcers in ileum and ileocaecal valve biopsy was positive for *Giardia spp.*, and the crypt to villous ratio was normal (Figure A). Ascitic fluid analysis showed eosinophilic (98%), low serum-ascites albumin gradient (SAAG) ascites without malignant cells. Patient was started on metronidazole and was discharged after one week of hospital stay as he symptomatically improved. However, he returned after one week with persistence of loose stools and fever. There was no ascites, eosinophil count was normal. Ig G, Ig A, Ig E, Ig M assay was done to look for immunodeficiency and was found to be normal. Upper GI endoscopy with D2 and gastric biopsy revealed no evidence of giardiasis. Stool microscopy was normal with respect to ova, cyst or trophozoites but on stool culture, *P. shigelloides* was isolated. Stool sample was cultured onto routine standard media which grew a non-lactose fermenting, oxidase positive, motile organism which was biochemically identified as *P. shigelloides* and further confirmed by MALDI-TOF MS. The strain was subjected to antimicrobial susceptibility testing by the Kirby Bauer disc diffusion method and interpreted as per the current CLSI guidelines (Table 1). Accordingly, the patient was started on cotrimoxazole, after which he recovered completely. In the light of these findings, a diagnosis of eosinophilic ascites due to *Giardia spp.* and acute gastroenteritis with co-infection of *P. shigelloides* was made.

Figure shows dense eosinophilic infiltration of the gut on ileo-caecal valve biopsy; A: Intestinal mucosa with surface trophozoites of *Giardia spp*. (H&E, 20X); B: trophozoites of *Giardia spp*. (H&E, 100X).

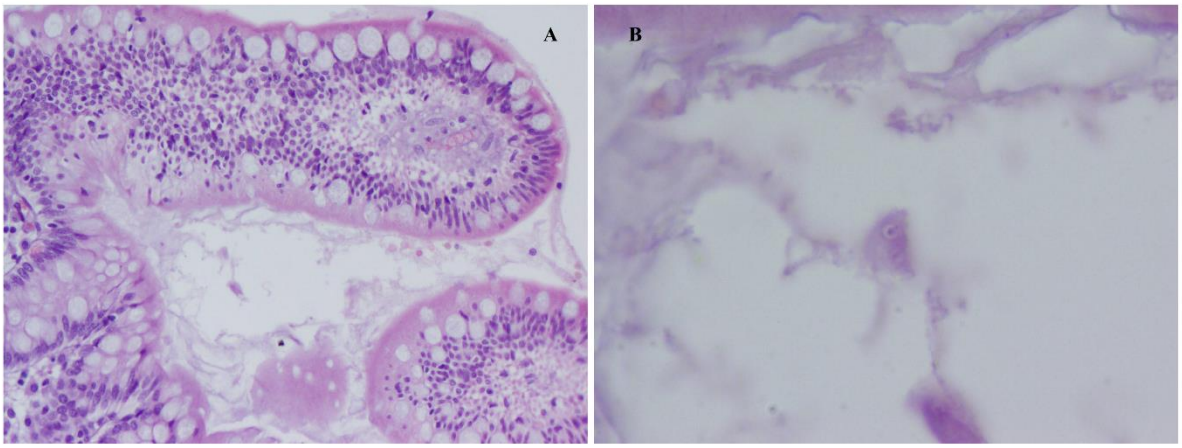

Figure. A: Intestinal mucosa with surface trophozoites of *Giardia spp.* (H&E, 20X); **B:** trophozoites of *Giardia spp.* (H&E, 100X)

Table 1: Antimicrobial susceptibility results of *Plesiomonas shigelloides*

Antimicrobial	Susceptibility
Ampicillin	R
Ampicillin/Clavulanic acid	R
Azithromycin	R
Cefoxitin	R
Cefuroxime	R
Ceftazidime	S
Ceftriaxone	S
Chloramphenicol	R
Ciprofloxacin	R
Nalidixic Acid	R
Gentamicin	S
Amikacin	S
Tetracycline	S
Trimethoprim-sulfamethoxazole	S
Meropenem	S

DISCUSSION

Eosinophilic infiltration is commonly associated with gastrointestinal ailments such as allergic disorders, inflammatory bowel disease, eosinophilic gastroenteritis, and helminthic or protozoan infections. However, the association amongst *G. lamblia* infection and this phenomenon have not been clarified. It can be linked with dense eosinophilic infiltration of the jejunum but then lacking peripheral eosinophilia (5). Oral administration of *G. lamblia* excretory and secretory antigens has recently been shown to enhance the numbers of eosinophilic cells in the colon of mice (6). Eosinophilic ascites due to parasitic infestations such as *Toxocara canis* (7), and *Strongyloides stercoralis* (8) have been reported. He is an international traveller and we are not aware about previous travel history, where and how the transmission of infection occurred. Many cases of *P. shigelloides* causing gastroenteritis have been reported but to the best of our knowledge, this is the first case of co-infection of *P. shigelloides* and *G. lamblia*, with Giardiasis as a cause of eosinophilic ascites with peripheral eosinophilia.

Previous reports have established that the pathogenicity o*f P. shigelloides* increases in presence of another pathogen in the gut (9). Since the normal gut microbiota and gut physiology have been disrupted, the bacteria may be able to take advantage of concurrent presence of other pathogen and thus establishing a disease. Persistence of loose stools and fever on treatment with metronidazole, which was given for giardiasis, and subsequent isolation of *P. shigelloides* from stool sample suggests dual pathogens, *G. lamblia* and *P. shigelloides* with giardiasis as a cause of eosinophilic ascites.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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