



Case Report

A report on a case of Giardia duodenalis

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ABSTRACT

Giardia is caused by protozoa, Giardia lamblia. It is one of the most common causes of water born or food born diarrhea and it has a worldwide distribution. The prevalence is approximately 20-30% in developing countries. Giardia duodenalis is the most commonly reported intestinal protozoan in humans mainly affecting children. The infection is usually associated with malabsorption, weight loss and growth retardation. We report a case of four years old boy who presented with diarrhea and malabsorption for last 2 years. Its clinical presentation and histopathological diagnosis on duodenal biopsy is discussed.

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INTRODUCTION

Giardia lamblia is a common intestinal protozoan with a higher prevalence rate in tropical countries as compared to the Western world.¹ The World Health Organization estimates the worldwide prevalence is 280 million cases. This protozoa is frequently found in diarrheal disease throughout the world.² The prevalence of giardiasis is 20 to 30% in developing countries.^{2,3} It is a flagellated pear shaped parasite which has two life forms, the active trophozoite stage and the dormant cyst stage which is the infective stage.³ It is one of the most common causes of waterborne disease outbreaks associated with drinking water.² Giardiasis is a non invasive infection that adheres to the duodenal epithelium and in children it is associated with diarrhea, malabsorption and growth retardation.^{2,4}

CASE REPORT

A four-year-old boy presented with complaints of chronic

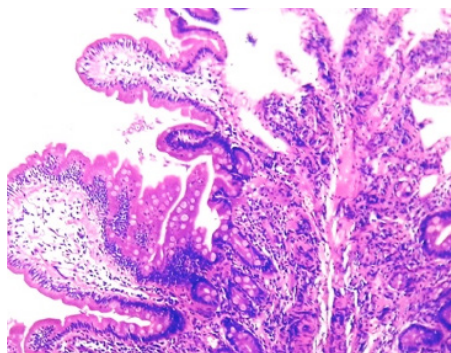


Figure 1: Duodenal mucosa with numerous *Giardia trophozoites* (HE stain, x 100)

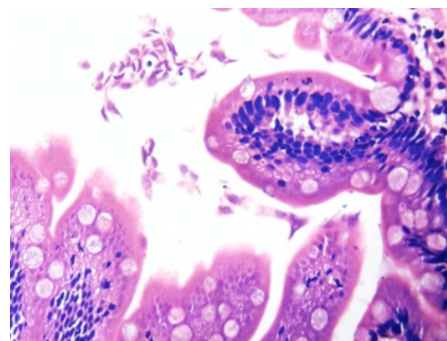


Figure 2: Photomicrograph showing high power view of *Giardia trophozoites* (HE stain, x 400)

diarrhea to an out patient department of Pediatrics. Patient was having diarrhea since 2 years of age. Since then the child was on treatment for chronic diarrhea. Milestone of the child was normal except for the weight which was 15 kilograms with ascites and bilateral pitting edema. The clinical diagnosis of hypoproteinemia with malabsorption syndrome was made and was further investigated.

Hematological profile was normal. Serum albumin was 1.2 (normal range: 3.5- 5.5 g/dl) which confirmed hypoalbuminemia. Tissue Transglutaminase antibody (tTG), Ig A was negative and total IgA was within the normal range. Stool examination showed cyst of *E histolytica* and plenty of RBCs.

Endoscopy was done which showed Grade II hiatus hernia and antral gastritis. The first and second part of the duodenum was normal. Biopsy was taken from antrum and second part of the duodenum. Histopathology revealed mild degree of inflammation in gastric biopsy. Duodenal biopsy showed focal blunting of villi and the surface epithelium showed trophozoites of *Giardia lamblia*. These trophozoites were slightly larger than size of enterocytes nucleus and had paired nuclei with median body and tapered posterior region. (fig. 1&2) Lamina propria is edematous and shows severe degree of inflammation comprising of lymphocytes, plasma cells and neutrophils. Histopathological diagnosis was variable villous abnormality with giardiasis.

Since the child had hypoalbuminemia albumin transfusion was given to correct it. Patient was discharged on Metronidazole and the follow up of the patient was uneventful.

DISCUSSION

In developing countries, *Giardia lamblia* infections are particularly common among children and pose a serious threat to child health and development.⁵ The parasite colonizes the upper part of the small intestine resulting in giardiasis.⁶ Studies had shown that *Giardia* infection in children usually present as chronic diarrhea, weight loss and malabsorption.²⁻⁴

Small intestinal mucosal biopsy examination remains one of the most important steps in evaluating patients with malabsorption. Duodenum is the most accessible site and is commonly used for biopsy. Celiac disease is the leading cause of malabsorption in India and it has been found that 2% cases of giardiasis are associated with malabsorption.⁷ Another study in India has shown that giardiasis (13.4%) is common in duodenal biopsy in spite of normal finding in the endoscopy.¹ *Giardia duodenalis* has been identified in up to 18.2% of a Brazilian.

The diagnosis of giardiasis is frequently difficult. Routine stool examinations failed in detecting *Giardia lamblia* trophozoites or cysts in 30- 50% of cases.⁹ Duodenal biopsy is necessary for the diagnosis of giardiasis.^{7,8,10} *Giardia lamblia* trophozoites are usually detected on the surface of duodenal mucosa. The other findings associated with giardiasis are variable degree of inflammation in the lamina propria and villous atrophy.^{1,3} The histological findings of duodenal giardiasis might change according to trophozoites load or the phase of infection. Partial villus atrophy is mostly observed in the acute phase in which trophozoites proliferate to reach a peak number whereas increased crypt depth is prominent in the clearance phase.¹¹ There was severe inflammation and partial blunting of villi with *Giardia* trophozoites in our case. Association with *H pylori* has been shown with *Giardia* infection which may indicate that they both share the same route of transmission. The co infection with these two agents has been reported among the children.² However in our case there was no *H pylori* in gastric biopsy.

CONCLUSION

Though the patient showed no abnormality of duodenum on endoscopy the diagnosis of Giardiasis was confirmed on histological examination. Hence, intestinal giardiasis should be searched for in children with chronic diarrhea and malnutrition.

Conflict of Interest: None

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