DOI: 10.7860/JCDR/2022/51720.16078

Case Report

Microbiology Section

Strongyloides stercoralis Hyperinfection in an Immunocompetent Patient: An Unusual Case

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ABSTRACT

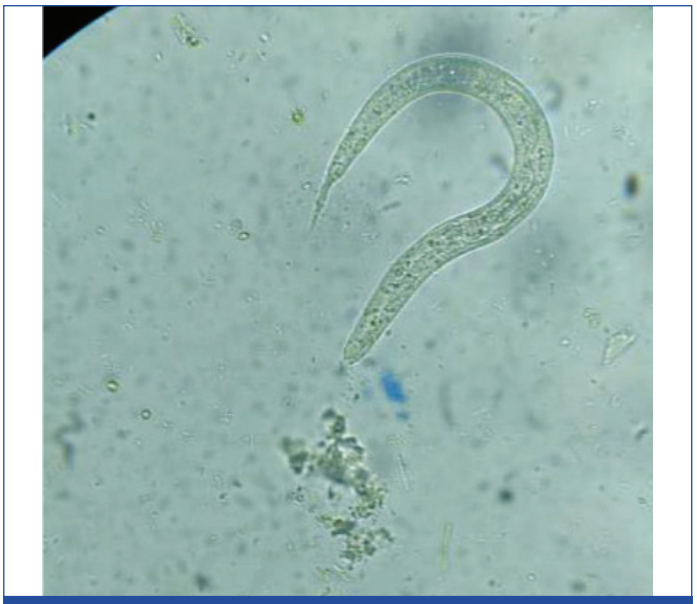
Strongyloides stercoralis is a soil-dwelling nematode causing endemic infection, mostly in immunocompromised individuals, in tropical and subtropical regions. However, strongyloidiasis has been reported in immunocompetent individuals in several case reports. Here, a case of an immunocompetent individual is reported. A 25-year-old male patient presented with chief complaints of abdominal discomfort with vomiting and weight loss since last three months. The pain was dull aching in nature and had no relation with food intake but vomiting worsened after taking food. Clinical diagnosis of inflammatory bowel disease was made and patient was started on steroid therapy. Later stool was sent for microbiological examination and *Strongyloides stercoralis* larvae was demonstrated. Patient responded to albendazole therapy which was given for seven days. Hence, strongyloidiasis should be suspected not only in immunocompromised individual but also in immunocompetent individuals as well.

Keywords: Immunosuppressed, Nematode, Parasitic infection

CASE REPORT

A 25-year-old male farmer was referred from a sub-divisional hospital to a tertiary care hospital of Tripura with the chief complaints of upper abdominal pain and discomfort accompanied with vomiting since last three months. The pain was dull aching in nature and had no relation with food intake but vomiting worsened after intake of food. Frequency of vomiting also increased gradually from 2-3 episodes per day to 7-8 episodes during the course of illness hampering his daily life. His bowel habit was irregular with history of passage of mucoid stool on and off. He also complained of loss of appetite, severe weakness and weight loss for last one month. There was history of repeated admission in sub-divisional hospital with the same complaints. Despite receiving symptomatic treatment with injectable pantoprazole, ceftriaxone and intravenous (i.v.) fluids, there was no clinical improvement. On general examination, he was conscious, well oriented to time, place and person, built was cachectic and afebrile. There was mild pallor along with bilateral pedal oedema, but no clubbing, icterus, lymphadenopathy was found. His pulse rate was 92 beats/minute, regular and blood pressure was 90/60 mmHg. Systemic examinations were within normal limits.

Initial investigations revealed that haemoglobin was 8.5 gm%, platelet count was 3.42×10^5/cu.mm. There was leukocytosis with total count of 19800/cu.mm with differential count of neutrophil 88%, lymphocyte 9%, monocyte 1% and eosinophil 2%. Kidney Function Test (KFT) and Liver Function Test (LFT) were within normal limits. Viral markers {Human Immunodeficiency Virus (HIV), Hepatitis B surface Antigen (HBsAg), Anti-Hepatitis C Virus (HCV)} were negative and Cluster of Differentiation 4 (CD4) count was 947/µL. Ultrasound of whole abdomen showed grade-I fatty liver. Upper gastrointestinal endoscopy revealed inflamed and eroded mucosa more extensively in antrum, suggestive of antral gastritis and chronic duodenitis. Tissue from both antrum and duodenum were taken and sent for biopsy. Stool was sent for microbiological examination. On both saline and iodine mount, larvae of *Strongyloides stercoralis* were demonstrated. Later duodenal biopsy report showed presence of eggs and larval form of *Strongyloides stercoralis* within the duodenal crypts. The [Table/Fig-1] shows saline mount of stool and [Table/Fig-2] shows iodine mount revealing *Strongyloides stercoralis* larva, respectively.



[Table/Fig-1]: Saline mount (40X).

[Table/Fig-2]: Iodine mount (40X).

Patient was started with tablet ivermectin 12 mg twice daily for five days and tablet albendazole 400 mg twice daily for seven days along with i.v. albumin. Follow-up was done after seven days. His condition improved on receiving treatment, second stool sample was collected after 10 days of treatment. Saline and iodine mount did not reveal any significant findings. Formol-ether concentration technique was done for confirmation on consecutive three samples which also did not reveal any significant findings.

DISCUSSION

Strongyloidiasis is considered to be one of the neglected tropical diseases which are often underdiagnosed due to its uncertain clinical symptoms [1]. *Strongyloides stercoralis*, the causative agent of strongyloidiasis, is a soil transmitted helminth which is usually found in tropical and subtropical areas [2]. Here, authors report a case of *Strongyloides stercoralis* hyperinfection in an immunocompetent individual which is an unusual case. Indeed this was the first reported case of *Strongyloides stercoralis* infection from Tripura, India. Similar finding was also reported by Sridhara S et al., where strongyloidiasis was found to be reported from a case of pancolitis in an immunocompetent individual [3]. Tiwari S et al., and Qu TT et al., have reported cases where strongyloidiasis was found to be associated with chronic diarrhoea [4,5]. Humans acquire strongyloidiasis when filariform larvae in faecally contaminated soil penetrate the skin or mucus membranes [3]. The patient in index case probably had acquired the infection while working bare footed in the paddy field as he was farmer by occupation.

In index case, patient was immunocompetent and had normal eosinophil count which was contrary to a case reported by Marathe A and Date V where strongyloidiasis was found to be associated with extreme eosinophilia [6]. Individuals with peripheral eosinophilia during hyperinfection seem to have a better prognosis. High eosinophil count plays an important role in restricting the hyperinfection from wide dissemination [7]. But here in index case, although patient had normal eosinophil count, responded well with anti-helminthic treatment.

Initially, it was thought to be a case of inflammatory bowel disease and treatment with steroid was started. Later when stool was sent for examination, *Strongyloides* larva was seen and further the endoscopic biopsy also revealed the same. In patients with hyperinfection syndrome, ulcerative lesions are seen in gastrointestinal tract and hence is misdiagnosed as inflammatory bowel disease. Initiation of treatment with steroids in turn worsens the outcome of patient.

CONCLUSION(S)

Clinician must have high index of suspicion in patient presenting with abdominal pain and vomiting, as diagnosis is often challenging, particularly in immunocompetent individual who usually lacks risk factors that would otherwise prompt targeted investigations.

Acknowledgement

The authors acknowledge the patient and the staffs of Department of Microbiology, AGMC for their co-operation.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Aug 04, 2021
- Manual Googling: Jan 04, 2022
- iThenticate Software: Feb 28, 2022 (4%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? NA
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Aug 03, 2021**
Date of Peer Review: **Nov 24, 2021**
Date of Acceptance: **Jan 05, 2022**
Date of Publishing: **Mar 01, 2022**