*IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*
*e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 24, Issue 8 Ser. 1 (August. 2025), PP 25-27*
*www.iosrjournals.org*

# A Rare Case Of Co-Infection With Intestinal Parasites In A Patient Of Segmental Colitis: A Case Report.

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***Abstract:***
*When two or more intestinal parasite species infect a host at the same time, it is known as intestinal parasitic co-infection. Helminths and protozoa are examples of these parasites. Co-infections can exacerbate immunological response, illness progression, or nutritional state. Segmental colitis is a persistent inflammatory disease that affects a small, restricted area; the rectum and other colonic regions being frequently spared. We report a case of a 45year old man diagnosed with segmental colitis having co-infection of intestinal parasites presenting with large bowel diarrhoea. Patient was co-infected with Giardia intestinalis, Hymenolepis nana and Strongyloides stercoralis.*

***Keyword:*** *Protozoa, Helminths, Co-infection, Segmental colitis, Giardia intestinalis, Hymenolepis nana, Rhabditiform larva, Strongyloides stercoralis.*

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Date of Submission: 25-07-2025 Date of Acceptance: 05-08-2025

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## I. Introduction

Intestinal parasites consist of single cell protozoa and multi-cellular helminths. Protozoa consist of amoeba, flagellate, ciliates, and Apicomplexa. Helminths are classified into cestodes, trematodes and nematodes. We present a case co-infected with flagellate protozoa i.e. *Giardia intestinalis*, Cestode *Hymenolepis nana* and Nematode *Strongyloides stercoralis*. Mode of infection of these parasites follow different routes: *Giardia intestinalis* via faecal-oral route (through food and water contaminated with mature cyst), *Hymenolepis nana* is transmitted through accidental ingestion of cysticercoid infected arthropods (rat flea), *Strongyloides stercoralis* is transmitted through skin penetration by filariform larvae (Soil Transmitted Helminth). Simultaneous presence of three different types of parasites in the stool of a patient suffering from severe diarrhoea is a matter of concern and rarely reported.

## II. Case Presentation

A non-diabetic and non-hypertensive, 45-year-old male working as a rickshaw puller presented with loose stool for the last 2 months with few episodes of blood-mixed stool. Initially the frequency of stool was 5-6 times a day along with a nocturnal frequency of 2-3 times. The quantity of stool was small. The condition deteriorated to passage of loose stool up to 30-40 times a day for the last 2-3 days. This condition was associated with symptoms such as urgency, tenesmus, and fever. It was also associated with weight loss, decreased appetite, and nausea.

**On Examination:**

- Signs of severe dehydration present on admission.
- Blood pressure: 90/60 mm of Hg.
- Pulse was low volume and 96 beats/min.
- Dry lips and tongue were noted.
- Oliguria on admission.
- Per abdominal examination- soft, non-tender abdomen, no organomegaly.
- On abdominal auscultation, increased peristaltic sound was noted.
- Anaemia: Mild.
- Jaundice and Oedema: Not found.

- Lungs: Vesicular breath sounds heard in both lungs.

**Investigation:**
**Complete blood count:** Haemoglobin- 10gm%
Total count- 14,000 /$mm^3$
Neutrophil- 81%, Lymphocyte-8%, Monocyte-3%, Eosinophil- 8%, Basophil-0%
Platelets- 3,90000 /$mm^3$
**Serum Urea:** 65 mg/dL. **Serum Creatinine:** 1.1 mg/dL. **LFT:** WNL
**Serum Sodium**: 130 mEq/L. **Serum Potassium**: 2.1 mEq/L
**Colonoscopy** revealed Segmental Colitis
**Stool microscopy-** Saline wet mount and Iodine mount showed Cysts of *Giardia intestinalis*, Eggs of *Hymenolepis nana* and Rhabditiform larva of *Strongyloides stercoralis.*
**Stool occult blood test:** Positive
**Stool Bacteria Culture:** No growth of any diarrheagenic bacteria like Vibrio cholerae, Salmonella, Shigella and diarrheagenic Escherichia coli.
**Clostridium difficile Toxin A & B:** Negative by immunochromatographic test
**HIV 1 & 2:** Non-Reactive

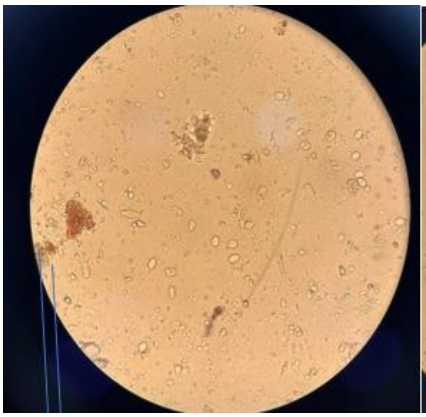

Fig 1: Cysts of *Giardia intestinalis*- ellipsoid shaped cyst with nuclei and axoneme in middle.

Fig 2: Rhabditiform larva of *Strongyloides stercoralis* with short mouth and bulbed oesophagus.

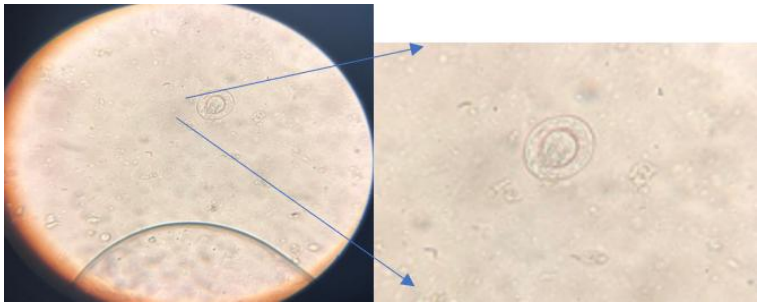

Fig 3 & 4: Egg of *Hymenolepis nana*- oval, non bile stained with polar thickening and polar filaments; Hooklets can be seen in the hexacanth embryo.

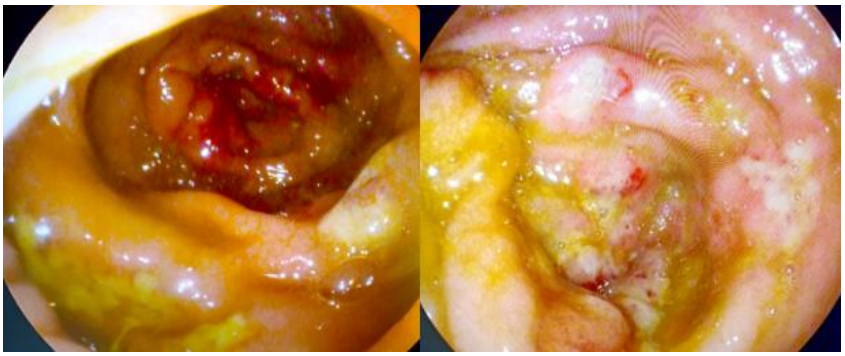

Fig 5 & 6: Colonoscopy showing segmental colitis.

## III. Treatment

This patient was treated with intra-venous fluids, electrolytes and antiprotozoal drug like metronidazole. Once dehydration and dyselectrolytaemia was corrected, anthelmintics like Albendazole and Ivermectin was administered. Steroids that were to be given for the treatment of segmental colitis, was witheld to avoid dissemination of Strongyloides infection. Patient improved clinically and was discharged after 5days and was adviced to attend gastro-enterology OPD for follow-up.

## IV. Discussion

This patient is a rickshaw puller and belongs to low socio-economic strata, resides in a slum area in unhygienic condition where proper waste disposal facilities are not available. Supplied drinking water may not be up to the standard. The patient has poor concept of hand hygiene and personal hygiene and often roams around bare feet. Thus, he was infected with various types of protozoa and helminths which he may have acquired through different routes over the time.

## V. Conclusion

Stool microscopy should be done in all case of diarrhoea, which may reveal a lot of clues about the pathogenesis of the disease. Proper awareness about selfcare, hand hygiene, food, and water hygiene may improve the quality of life by averting these types of infection. Here WASH (Water, Sanitation and Hygiene) is very much significant: This program focuses on improving access to clean water, sanitation facilities and hygiene education.

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## Acknowledgment

We express our gratitude to the Department of Gastroenterology and Department of Microbiology, IPGME&R and SSKM Hospital, Kolkata.