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Case Report

Double trouble: Strongyloidiasis hyper infection and intestinal tuberculosis co-infection-A rare case report

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ABSTRACT

Strongyloidiasis, a human intestinal parasitic infection is most commonly caused by Strongyloides stercoralis species. Strongyloides Hyperinfection is an accelerated autoinfection occurring in immunocompromised state like tuberculosis, where increased number of infectious filariform larvae are produced. Here, we report a case of 35-year-old male, known case of intestinal tuberculosis, presenting with complaints of pain abdomen, associated with vomiting. Clinical and radiological examination revealed hollow viscous perforation with peritonitis. Surgical ileal resection with anastomosis was performed and histopathological analysis of the specimen revealed eggs and larval and adult forms of Strongyloides stercoralis within crypts and superficial mucosa

1. Introduction

Strongyloides stercoralis is a parasitic nematode that causes strongyloidiasis in human host. This intestinal nematode with a complex life cycle, is capable of a parasitic cycle, a free-living cycle, and auto-infection. It is usually asymptomatic in a healthy host, but causes life threatening over proliferation of larvae, often disseminating to the brain, lungs, and liver involving multiple organs in immunocompromised patients.[1,2] Co-infection of individual hosts by parasite species is a common pattern observed in natural habitats. Understanding the processes that give rise to these patterns poses a challenge. Hereby, in this report, we emphasize the role of histopathological analysis and identification of the parasite in a young immunocompromised male host who eventually succumbed to death due to disease complications.

2. Case Report

A 35-year-old male, known case of intestinal tuberculosis, presented with complaints of pain abdomen which was insidious in onset, gradually progressive, associated with vomiting. Clinical and radiological examination revealed hollow viscous perforation with peritonitis.

Surgical ileal resection with anastomosis was performed and specimen was sent for histopathological examination. Area of perforation with serosal exudate and a stricture were noted which on microscopy revealed epithelioid granulomas composed of epithelioid cells, Langhans giant cells and various forms of Strongyloides stercoralis with transmural inflammatory infiltration.

2.1. Pathological findings

Multiple sections studied from small intestine showed numerous cross sections of adult worms of Strongyloides stercoralis at various levels. Eggs and larval forms within crypts and superficial mucosa, serous exudate, transmural eosinophilic infiltrate along with plasma cells

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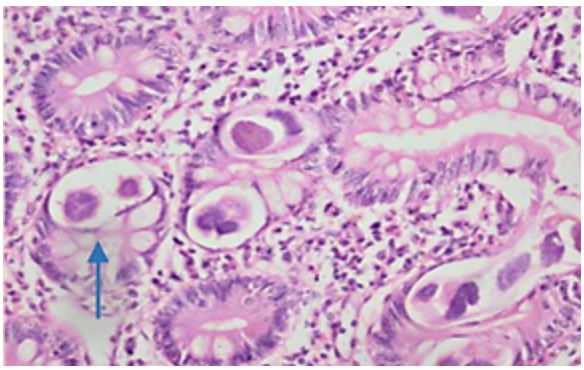

Fig. 1: High-power Cross-sectional view of strongyloides stercoralis eggs, 20x (H and E arrow)

and lymphocytes seen.Figures 1, 2 and 3 Also seen were well formed granulomas with central caseous necrosis with suppurative changes and Langhans giant cells.Figure 4

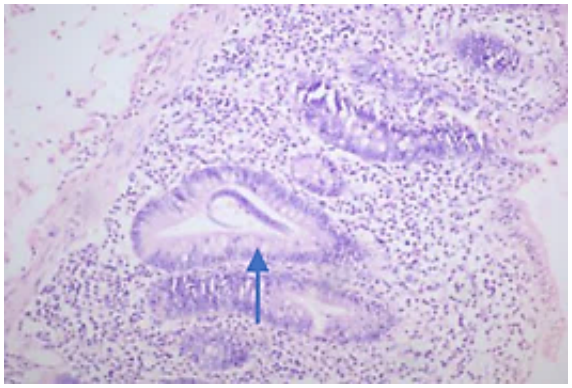

Fig. 2: Low power view showing intramucosal larva stage of strongyloides stercoralis (H and E, 20x, arrow)

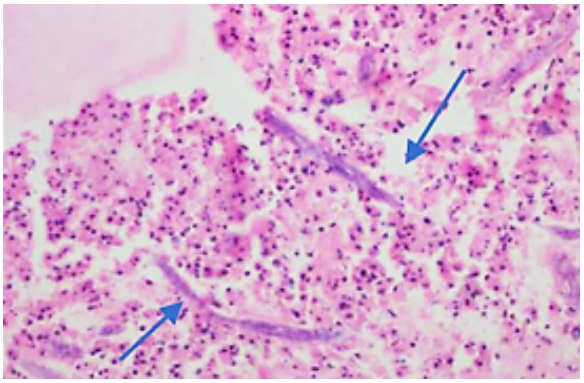

Fig. 3: High power view showing intramucosal larva stage of strongyloides stercoralis (H and E, 20x, arrow)

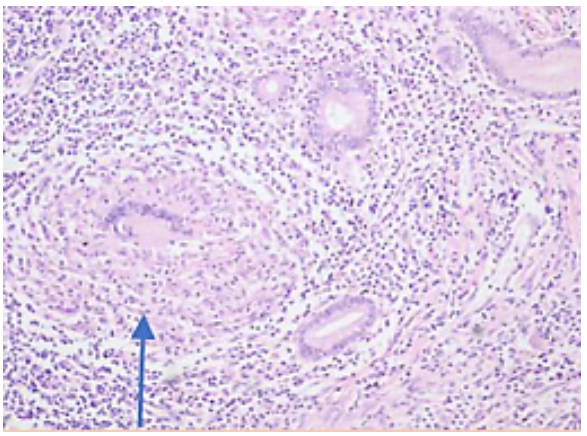

Fig. 4: High power view of well-formed granulomas with central caseous necrosis and langhans giant cells (H and E, 20x, arrow)

3. Discussion

Disseminated tuberculosis is a recognized cause of the hyper infection syndrome in strongyloidiasis. Both tuberculosis and strongyloidiasis are known to be associated with impaired cellular immunity. Male gender, low socio-economic status, alcoholism and occupations requiring contact with soil contaminated by human waste such as farming, coal mining etc. increase the risk of infection. Strongyloidiasis occurs after skin penetration by filariform larvae from the soil or by larvae on food, waste, feces or fomites. The rhabditiform larval forms are transformed into infectious filariform larvae before being excreted in stools and a host is re-infected through the intestinal mucosa or perianal skin.[2–5]

In a healthy individual, Strongyloides minor infection and chronic infection can be clinically inapparent. The usual gastrointestinal symptoms are stomach ache, nausea, vomiting, constipation etc. Secondary bacterial infection can occur in disseminated cases, probably occurring because of the leakage of gut flora from ulcerated damaged gut wall leading to septicemia and death, similar to our case.

The gold standard for the diagnosis of Strongyloides is based on organism identification on repeated stool examination. However, routine stool examination is usually limited, as the parasite output is low because of the intermittent occurrence of larval form in stool. A number of immunoassays, such as enzyme-linked immunosorbent assays (ELISAs), have been increasingly used alongside stool examination studies to increase diagnostic sensitivity. Their limitations include: (1) cross-reactivity in patients with active filarial infections; (2) lower sensitivity in patients with hematologic malignancies (3) the inability to distinguish between previous and current infection. Molecular diagnostics – using loop mediated isothermal amplification assays or standard PCR, qPCR have also been increasingly gaining traction for their use.[6–8]

Coexistence of tuberculosis and strongyloidiasis alters the immunological response to either of them leading to greater disease severity, burden and advanced clinical presentation of both the diseases.

4. Conclusion

Co-existence of strongyloidiasis and tuberculosis is a rare association and known to worsen the clinical profile of both the infections. Earlier cases reported in literature document strongyloidiasis association with pulmonary tuberculosis. This case describes strongyloidiasis with intestinal tuberculosis which is a rare entity and to the best of our knowledge, has not been documented earlier.

5. Conflict of Interest

The authors declare no relevant conflicts of interest.

6. Source of Funding

None.

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