Case Report

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STRONGYLOIDES STERCORALIS: PRESENTING AS INTESTINAL OBSTRUCTION – A MALIGNANCY MASQUERADE

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ABSTRACT Objective: Strongyloides stercoralis is an intestinal nematode parasite, endemic in tropical and subtropical regions. It can occur without any symptoms, or as a potentially fatal infection. But once diagnosed, the disease can be treated effectively with antihelminthic drugs like Ivermectin. Duodenal obstruction is an underreported, poorly recognized complication of Strongyloidiasis stercoralis infection. Though endemic in few developing countries, lack of classical syndrome and features of autoinfection, hyperinfection make the diagnosis of strongyloidiasis very difficult. Case Report: This review article summarizes an unusual case of duodenal obstruction in 80 year-old Indian male caused by S. stercoralis alongwith various aspects of strongyloidiasis, with emphasis on epidemiology, life cycle, clinical manifestations and diagnostic aspects. Conclusion: Since the case clinically masqueraded as intestinal malignancy, the importance of simple stool examination and the role of pathologist in identifying the parasite are hereby highlighted.

KEYWORDS

Strongyloides stercoralis, autoinfection, hyperinfection, malignancy

ARTICLE HISTORY

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Introduction

Infecting more than 370 million people around the world, Strongyloides stercoralis is one of the most neglected helminth infections. (1) It is endemic worldwide, yet more prevelant in hot and humid climates as well as resource poor countries with inadequate sanitary conditions. The difficult diagnosis and irregular excretion of larvae lead to an under reporting of infection rates. Strongyloidiasis has a spectrum of manifestations, ranging from the most common asymptomatic disease to potentially life threatening hyperinfection syndrome and disseminated disease. Most commonly, presentations of infection include nausea, loss of appetite, weight loss and diarrhoea. (2) Intestinal obstruction is a poorly recognised and probably underreported complication of Strongyloidiasis. Since, intestinal obstruction can clinically mimic malignancy, the diagnosis of this helminthic parasite is very important to save patient from extensive surgery and morbidity. (3) Herein, we report a case of elderly male who presented with complete duodenal obstruction caused by S. stercoralis. Additionally, a systemic review of various aspects of strongyloidiasis, with emphasis on epidemiology, life cycle, clinical manifestations, complications and diagnostic aspects are highlighted.

Case Report

An elderly 80 year old male patient came to our gastroenterology OPD with the complaints of nausea, vomiting, fever and abdominal pain since 1 month. He had a history of weight loss. He had no history of haemoptysis or hematemesis. He was a known case of hypertension for last one year and was taking talmisartan and hydrochlorothiazide. On examination, he appeared distressed, though his vitals were stable. On auscultation, he had normal heart sounds and his chest was clear. On per abdomen examination, he had diffuse tenderness in epigastric region. The blood cell counts were largely within normal limits. Total leucocyte counts were 7000/cumm with 67% neutrophils, 20% lymphocytes, 03% monocytes and 10% Eosinophils. Haemoglobin was 10.5gm/dl and platelet count was 1.5lac/cumm. He had normal LFT, KFT, serum lipase and amylase levels, HbA1c was 3.8%. Abdominal X ray showed significant air fluid level. CT scan abdomen revealed large polypoidal growth at peri-ampullary region with dilated CBD. Selective CBD cannulation was done with 10Fr x 10cm straight stent to drain the bile freely. A biopsy was taken from the peri-ampullary mass with a clinical diagnosis of Periampullary carcinoma and was sent to the department of pathology. The patient symptomatically improved after stenting. Biopsy specimen was processed and on microscopy revealed partially denuded mucosa with largely unremarkable mucosal glands. Lamina propria showed mixed inflammatory infiltrate rich in eosinophils alongwith multiple larvae forms of strongyloides. (Figure1&2) Hence, a histopathological diagnosis of Strongyloidis infestation was made and stool examination was adviced. On the subsequent stool examination, strongyloides larvae were seen. Patient was started with albendazole 400 mg twice daily for 3 days and ivermectin 200 mcg/kg daily until the stool test became negative for parasite larvae. The patient improved dramatically with the treatment. He reported no recurrence of symptoms and started gaining weight.

Discussion

Strongyloides stercoralis was first described in 1876. The full life cycle, pathology and clinical features in humans were fully disclosed in 1930s. (2) The larvae of stercoralis exist in two forms: free living rhabditiform and infective form filariform. The rhabditiform larvae are excreted in the stool of infected individuals. The larvae mold twice and

then develop into infective 3rd stage filariform larvae (L3), which can infect a new host by penetrating intact skin. The larvae thrive in warm, moist/wet soil. After skin penetration, the filariform larvae travel via lymphatics or bloodstream to the lungs and penetrate the alveoli to become air borne, ascend the tracheobronchial tree and are swallowed. In the duodenum and proximal jejunum, the larvae mature into the adult females. The females then shed eggs which become rhabditiform larvae and are passed out in the stools, to continue the cycle. (4)

Autoinfection and hyperinfection are most important and unique characteristic features of the life cycle of Strongyloides. The rhabditiform larvae instead of being shed in the stool, molt twice in the body of the host to become filariform larvae and penetrate (autoinfection) the intestinal wall or perianal skin. It can reach different organs of the body leading to hyperinfection syndrome, if limited to respiratory and gastrointestinal tracts or disseminated infection with involvement of other organ systems. The autoinfection phenomenon allows it to persist and replicate within a host for decades, with the longest reported period being 65 years. (5)

Manifestations of infection can range from asymptomatic eosinophilia in the immunocompetent host to disseminated disease with septic shock in the immunocompromised host, reflecting the complex life cycle of the parasite. When symptomatic, gastrointestinal complaints are common. Symptoms are vague and non specific, include anorexia, nausea, vomiting, weight loss, abdominal pain, flatulence and diarrhoea. Pulmonary symptoms are rare in uncomplicated strongyloidiasis, but cough and wheezing can occur. (6) In disseminated disease, respiratory symptoms become more prominent and include, dyspnoea, tachypnoea, pleuritic pain, pleural effusion and haemoptysis. Disseminated strongyloidiasis has been reported to occur in 1.5%-2.5% of all cases of strongyloidiasis. In the absence of early diagnosis and treatment, the prognosis of disseminated disease is extremely poor. (7)

Duodenal obstruction is an extremely rare complication of strongyloidiasis, with nine cases reported in the medical literature so far. Two mechanisms have been implicated in its pathogenesis. First, the obstruction due to severe mucosal edema and inflammation leading to significant narrowing of the duodenal lumen. Second, an extrinsic compression of duodenum by the superior mesenteric neurovascular bundle. (3) Although rare, intestinal obstruction is a serious and a fatal complication of strongyloides. It can lead to an erroneous diagnosis of other more common causes of obstruction like malignancy, tuberculosis, crohn's disease. Despite extensive preoperative workup, few of the previously reported cases of obstruction due to strongyloides ended up undergoing massive operative procedures and the diagnosis was made on the resected specimens of intestine, highly suspicious for malignancy. Also in the present case a clinical diagnosis of malignant duodenal tumour was made on endoscopy and the diagnosis of strongyloides was established on endoscopic biopsy. Hence a preoperative suspicion and diagnosis is very important in order to avoid unnecessary trauma to the patient as well as family and to avoid any extensive surgical procedure.

The diagnosis of strongyloides can be confirmed by the presence of the larvae in the stools. This is an easy test, broadly available and inexpensive method for the detection of the parasite. However, it is relatively insensitive test with diagnostic yield being 30%. The sensitivity can be increased upto 60%, if five or more samples are examined. It is also important to note that the absolute Eosinophil count is not a reliable indicator of parasitic infection. (8,3) ELISA for diagnosis of Strongyloidiasis is highly sensitive but the test is not always available, cannot differentiate between recent and old infection and also shows cross reactivity with other helminthic infections. (9)

The detection of S. Stercoralis larvae is usually easier in cases of hyperinfection. The parasite can be identified in wet preparations of sputum, bronchoalveolar lavage, cerebrospinal fluid, skin, urine, ascites, etc. by means of Gram, Pap or acid fast staining procedures. (4)

The examination of duodenal aspirate for ova and larvae is the most sensitive diagnostic procedure, with the false negative frequency of less than 10%. However, being invasive, it is less desirable. Duodenal white villi are a common endoscopic feature and should alert the endoscopist for the diagnosis of strongyloidiasis. Small bowel obstruction is secondary to intense infestation. (10) For the accurate diagnosis, the pathologist needs to have a wide knowledge of the types, their stages of development and morphological features of the helminths to avoid misdiagnosis. In our case, the diagnosis was made by histopathological examination of the duodenal biopsy specimen.

The gold standard treatment of uncomplicated strongyloidiasis is ivermectin as two single 200mg/kg doses administered on two consecutive days. Albendazole, 400 mg PO twice daily for three to seven days, is an alternative but has an efficacy of 78% compared to ivermectin with 100%. Patients with hyperinfection syndrome should get a typical dose of 200mg/kg daily for atleast five to seven days or a combined ivermectin and albendazole dose until the symptoms have resolved. (11)

Conclusion

In summary, duodenal obstruction is a rare but fatal complication of Strongyloidiasis. The large spectrum of clinical manifestations and lack of classical clinical syndrome make the diagnosis extremely difficult. Also, clinically and endoscopically such cases can mimic malignancy and can lead to extensive operative procedure. Therefore, a high index of suspicion, mainly in patients of endemic areas is needed for correct diagnosis of this uncommon complication of S. Stercoralis.

Figure 1&2: H&E stained sections show multiple strongyloides larvae in the mucosal glands and lamina propria alongwith dense mixed inflammatory infiltrate (x400).

References

1. Elzein FE, Alsaeed M, Ballool S, Attia A. A StrongyloidesHyperinfection Syndrome Combined with Cytomegalovirus Infection. Case reports in transplantation. 2016;2016:5. DOI:10.1155/2016/1786265.
2. Schar F, Trostdorf U, Giardina F, Khieu V, Muth S, Marti H, et al. Strongyloidesstercoralis: Global Distribution and Risk Factors. PLoSNegl Trop Dis. 2013;7:e2288. DOI: 10.1371/journal.pntd.0002288.
3. Cruz RJ Jr, Vincenzi R, Ketzer BM. Duodenal obstruction - an unusual presentation of Strongyloidesstercoralis enteritis: a case report. World J Emerg Surg. 2010;5:23. DOI: 10.1186/1749-7922-5-23.
4. Ericsson CD, Steffen R, Siddiqui AA, Berk SL. Diagnosis of Strongyloidesstercoralis infection. Clin Infect Dis 2001;33:1040–7.
5. Vadlamudi RS, Chi DS, Krishnaswamy G. Intestinal strongyloidiasis and hyperinfection syndrome. ClinMol Allergy 2006;4:8.
6. Shields AM, Goderya R, Atta M, Sinha P. Strongyloidesstercoralishyperinfection presenting as subacute small bowel obstruction following immunosuppressive chemotherapy for multiple myeloma. BMJ Case Rep 2014. DOI:10.1136/bcr-2013-202234.
7. Mahmoud AA. Strongyloidiasis. Clin Infect Dis 1996;23: 949-52
8. Yassin MA, El Omri H, Al-Hijji I, Taha R, Hassan R, Aboudi KA, et al. Fatal Strongyloidesstercoralis hyper-infection in a patient with multiple myeloma. Braz J Infect Dis. 2010;14:536–9.
9. Lindo JF, Conway DJ, Atkins NS, Bianco AE, Robertson RD, Donald AP. Prospective evaluation of enzyme – linked immunosorbent assay and immunoblot methods for the diagnosis of endemic Strongyloidesstercoralis infection. Am J Trop Med Hyg 1994; 51:175-9.
10. Thompson BF, Fry LC, Wells CD, Olmos M, Lee DH, Audrey J, et al. The spectrum of GI strongyloidiasis: an endoscopic-pathologic study. GastrointestEndosc 2004;59: 906–10.
11. Grewal T, Azizi H, Kahn A, Shakir Z, Takkouche S, Aung KN, et al. A case of Strongyloidiasis: An Immigrant Healthcare Worker Presenting with Fatigue and Weight loss. Case Report in Infectious Disese.2017;2017:4. DOI:10.1155/2017/6718284.