CASE REPORT

Gastrointestinal Strongyloidiasis in Immunocompromised Patients: a Case Report

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ABSTRACT

Strongyloides stercoralis is an intestinal nematode, endemic in tropical countries. The parasite has a complex life cycle, causing a long-lived auto infection in hosts. It may remain asymptomatic or with minor symptoms; the dormant carrier state of the illness may persist for a long period of time.

Inflammatory bowel disease (IBD) including Crohn’s disease (CD) and ulcerative colitis (UC), commonly treated with immunosuppressive drugs is a well-known condition predisposing individuals to various infections. The condition is more prevalent among immunocompromised patients; the diagnosis of which, however, is troublesome in such individuals. The present article reports a 45-year-old female with gastric strongyloides stercoralis infection while receiving the treatment for her underlying UC.

Strongyloides stercoralis can easily be missed especially in IBD patients in the absence of accompanying diarrhea or any symptom of lower GI discomfort because it presents with various manifestations including multiple GI symptoms, multiple stool exams and special attention to peripheral eosinophilia are specially important but not so sensitive or specific.

Key words: strongyloidiasis, nematode, immunocompromise, corticosteroid, ulcerative colitis.

INTRODUCTION

Strongyloides stercoralis is an intestinal nematode, endemic in tropical countries including sub-Saharan Africa, Southeast Asia, Latin America, south-eastern United States and certain European countries.¹ ²

The parasite has a complex life cycle, causing a long-lived auto infection in hosts.² It may remain asymptomatic or with minor symptoms; the dormant carrier state of the illness may persist for a long period of time.³ ⁴ Certain immunodeficiency states such as hypogammaglobulinemia, acquired immunodeficiency syndrome and Cushing’s syndrome as well as individuals receiving anti-cancer chemotherapy and corticosteroid, however, may lead to fatal hyper-infection causing life-threatening disseminated infections.⁴ ⁷ In other words, many authors believe any decrease in the host resistance caused by malnutrition or immunosuppressive drugs can cause a debilitating manifestation of the disease.¹ ⁸ ¹⁰

Inflammatory bowel disease (IBD) including Crohn’s Disease (CD) and Ulcerative colitis (UC), commonly treated with immunosuppressive drugs is a well-known condition predisposing individuals to various infections.¹¹ A few cases of strongyloidiasis are reported in such patients.¹² ¹⁷ The diagnosis of the very condition seems to be troublesome; the early diagnosis, however, leads to an effective treatment. The present article reports a 45-year-old female with gastric strongyloides stercoralis infection while receiving the treatment for her underlying UC.

CASE ILLUSTRATION

A 45-year-old woman presented to our center with hematemesis and melena as the sole complaint; no accompanying hematochezia, crumpy abdominal pain
or bloody mucus discharge was seen. She had a 4-year history of ulcerative colitis diagnosed by colonoscopy and biopsy. During the last 2 years, she had been treated by oral prednisolone (10 mg/day) and her symptoms were fairly controlled. There was no similar disease reported in the family of the patient.

The initial investigation revealed a minor pallor with no other positive findings. The abdominal examination did not reveal distension, tenderness, guarding, organomegaly or ascites. She had no respiratory or cutaneous symptoms or signs. The neurologic examination showed no abnormality. The laboratory findings showed normochromic normocytic RBC, Hemoglobin = 10.4 g/dL, WBC = 8700 mm3 (EOS= 6%) and ESR=20 mm/h. Other laboratory results including serum albumin and protein levels and coagulation tests were normal. The chest X-ray was within normal limits. The stool Exam was negative for any ova or parasite.

The upper gastro-intestinal (GI) endoscopy reported a normal esophagus but a 3 cm ulcer associated with a few small mucosal erosions was seen in the gastric pre-pyloric zone. The biopsy taken from the lesion showed an active chronic inflammation and larvae of strongyloides stercolaris in the gastric mucosa.

The colonoscopy up to the ileocecal valve showed no ulceration or tumor; the mucosal biopsy of the colon was compatible with the silent IBD without dysplasia.

The patient was treated with albendazole (800 mg/day for 10 days). A repeated gastric biopsy taken in two weeks following the termination of the treatment revealed a marked improvement of the inflammation with no further remaining parasites.

Over a follow-up period of 6 months, the patient’s symptoms disappeared and the IBD was fairly controlled although she was not using prednisolone any more.

DISCUSSION

Strongyloides stercoralis is a common enteric helminthic parasite particularly in tropical and subtropical regions. The infection is usually asymptomatic or manifests mild gastrointestinal symptoms; in immunocompromised individuals, however, it may lead to a devastating disease leading to a 60-85% mortality rate. In other words, the infectious symptoms vary from none to life-threatening sepsis; a severe hyperinfection syndrome is usually limited to immune-compromised individuals. Our patient had no accompanying systemic or life threatening symptoms; her complaints were limited to upper GI upset.

Corticosteroid administration is a major risk factor for the conversion of chronic, low-grade strongyloidiasis into a fatal septicemia through their immunosuppressive effects along with a direct impact on the parasite. In view of the fact that our patient had no travel history, she has been on corticosteroid therapy in the recent 2 years.

Ghoshal et al had also reported the presence of esophageal ulceration and duodenal nodularity without evidence of invasion by Strongyloides stercoralis in an UC case, suggesting the possibility of Crohn’s disease rather than strongyloidiasis.

Similarly, Fardet et al have reported three cases of strongyloidiasis in immunocompromised patients. The first two cases were an 80-year-old woman and an 85-year-old male receiving high doses of corticosteroid because of giant cell arteritis, they were admitted with abdominal pain, vomiting and diarrhea without any cutaneous manifestation. Numerous Strongyloides larvae were found in their stool exams and biopsies taken during upper GI endoscopy. They both showed a considerable improvement after receiving thiabendazole. The third case was a 46-year-old woman receiving chemotherapy for HTLV-1-associated non-Hodgkin’s lymphoma. She developed acute abdominal pain and diarrhea along with acute respiratory failure requiring mechanical ventilation; while the examination of bronchoalveolar lavage (BAL) revealed numerous Strongyloides filariform larvae and adult females, the stool examination failed to isolate the very organisms. She received thiabendazole (3 g/day) for 5 days but died 10 days after intubation despite ventilatory and hemodynamic support.

Wong et al reported an 83-year-old farmer presenting with diarrhea in the absence of any abdominal pain and fever. He didn’t have a positive history for any disease or recent travel except that he was using topical clobetasol cream during the past year for eczema. All the physical examinations and laboratory tests were normal. He was diagnosed to be suffering from ulcerative colitis as the colonoscopy revealed pancolitis with multiple superficial ulcerations suggestive of the condition; but the required treatment
was not associated with any improvement. Further stool examination and review of colonic biopsy specimens showed Strongyloides larvae. The patient was treated with oral ivermectin for 8 days.18

As a result, screening for strongyloidiasis infection in patients requiring intensive corticosteroids treatment such as inflammatory bowel disease (IBD) is recommended particularly in endemic areas.19 Many physicians only perform microscopic examination of stool to exclude strongyloidiasis before starting high dose corticosteroids in IBD patients. However, sensitivity of a single stool microscopy to diagnose intestinal strongyloidiasis is only 30% in cases with low parasite burden; repeating the test over consecutive days can improve the sensitivity, leading to a 90% sensitivity if 7 or greater samples are examined.20,21 As a result, additional tests are required to approve the infection. Duodenal biopsy is another effective tool in detecting Strongyloides infection; however, it is not capable to detect cases in which the parasite has not invaded the mucosa.14 Microscopic examination of the duodenal aspirate using Baermann technique and agar-plate method are other tools with a sensitivity of more than 85% in diagnosing the condition.4 Eosinophilia particularly in individuals with a positive history of travel to tropical or subtropical regions is suggestive of strongyloidiasis and is found in more than 70% of affected patients.22 Absolute eosinophilia defined as more than 500 eosinophils per microliter of blood was also present in our case. It should be noted that while eosinophilia is suggestive for strongilidiasis; it may not, however, develop in immunocompromised hosts suffering from the condition.23 As a result, lack of eosinophilia does not exclude the disease. On the other hand, eosinophilia can also be contributed to IBD.

Enzyme-linked immunosorbent assay (Elisa) and serological tests for strongiloids antibodies are other sensitive and specific diagnostic tools for detecting suspicious cases; however, false positive results are commonly reported.24

Similarly in our patient, the stool microscopy failed to detect Strongyloides stercoralis; therefore, the diagnosis was based on biopsy rather than stool exam, confirming the fact that a single stool examination is not sensitive enough to detect the infection. On the other hand, the larvae were mainly located in the stomach of our patient while previous studies had considered duodenum as the preferred site for strongyloidosis, indicating that the involvement of gastric mucosa in the absence of the duodenal strongyloidiasis is quite rare.

CONCLUSION

It could be concluded that Strongyloides stercoralis can easily be missed especially in IBD patients in the absence of accompanying diarrhea or any symptom of lower GI discomfort because it presents with various manifestations including multiple GI symptoms, multiple stool exams and special attention to peripheral eosinophilia are specially important but not so sensitive or specific. As a result, more sensitive diagnostic tools are needed to early detect the worm and its larvae in such patients. Application of sensitive screening methods prior to the initiation of immunosuppressive therapy can prevent life-threatening complications in these individuals.

REFERENCES