DOI: http://doi.org/10.4038/jmj.v33i2.142

Case Report

A case of chronic diarrhea due to *Strongyloides stercoralis* in an immunocompromised patient

Karunatilaka KMAG[1], Hewageegana HTN[1], Perera WNY[1]

[1]TH Anuradhapura

Abstract

Strongyloides stercoralis is a soil-transmitted nematode endemic throughout tropical and subtropical regions. Although most of the healthy infected individuals are asymptomatic, it can be life-threatening for immunocompromised patients and is responsible for a wide range of symptoms including chronic diarrhea. Hence, it is vital to have high suspicion and routine screening for immunosuppressed patients in these endemic regions. We report a case of chronic diarrhea due to *Strongyloides stercoralis* infection in a 55-year-old man who was on dialysis for end-stage Chronic Kidney Disease (CKD). The patient was initially managed as culture-negative continuous ambulatory peritoneal dialysis (CAPD) peritonitis. Later a thorough examination of his stools revealed *Strongyloides stercoralis* rhabditiform larvae, after which he was treated with albendazole. However, he eventually died of CKD. Therefore, we emphasize the need for a thorough examination of stools with a high degree of suspicion in chronic diarrheas, particularly in immunocompromised patients.

Keywords

Chronic diarrhea, Immunocompromised, *Strongyloides stercoralis*, examination of stool

Introduction

Strongyloides stercoralis (*S. stercoralis*) is a soil-transmitted helminth that is endemic in tropical and subtropical regions worldwide. However, sporadic cases have also been reported in temperate areas. It is considered to have a complicated life-cycle on its ability to reproduce through asexual autoinfection and the capability of remaining dormant inside the host for decades after the initial infection. [1] The commonly known hosts are humans, dogs, and cats. The adult worms live in the small intestines while the larvae penetrate other vital organs such as the liver, brain, lung, and kidney to result in strongyloidiasis. Therefore, the spectrum of presentations with strongyloidiasis varies largely, from asymptomatic stage to fatal disseminated infection. [1] Chronic kidney disease (CKD) is well recognized as a risk factor for severe *S. stercoralis* presentation, owing primarily to immune system dysfunction associated with it. [2] This is a case report of a patient diagnosed with end-stage kidney disease, who developed lethal *Strongyloides stercoralis* infection, while on peritoneal dialysis. We aim to highlight the importance of high clinical suspicion and timely diagnosis of *S. stercoralis* in the high-risk population in the endemic regions.

Case Presentation

A 55-year-old known man with End-Stage Kidney Disease presented with two months history of diarrhea while on peritoneal dialysis. He also gave a history of diabetes mellitus, hypertension, treatment complete tuberculosis, and chronic eczema. He was initially investigated two months back for loose stools, vomiting, and abdominal pain. Eventually, the patient was managed as culture-negative continuous ambulatory peritoneal

Corresponding Author: Karunatilaka KMAG Email: anjanakaru1990@gmail.com, https://orcid.org/0000-0003-4881-1534,
Submitted June 2021 Accepted December 2021

dialysis (CAPD) associated peritonitis and was treated with intravenous meropenem and gentamycin. However, the symptoms worsened with an increased frequency of loose motions with mucoid and watery stools, more than 10 times per day. No fresh blood or malaena was noted. The patient complained of generalized body aches, loss of appetite, and several episodes of new-onset generalized tonic-clonic seizures for the last two months. He was started on peritoneal dialysis one year ago.

On admission, the patient was found to be hypotensive with a blood pressure reading of 80/50 mmHg, showed dry scaly skin, anal excoriation, mild leg edema, and few fine lung crepitations. His abdomen was distended with generalized tenderness. The sigmoidoscopy disclosed hemorrhoids and a Covid19 polymerase chain reaction test was done three times to exclude Covid19 infection since the patient suffered from throat discomfort as well. The results of blood tests on day 2 of the last admission are presented in Table 1.

Repeated stool specimens were examined, all of which displayed only occasional pus cells, until the second date of current admission. The presence of *Strongyloides stercolaris* was established as larvae were identified together with 5-7 pus cells and 15-20 red blood cells. However, no amoebae, ova, or cyst (AOC) was discovered. based on these findings along with the clinical background, the patient was diagnosed with severe *Strongyloides stercolaris* infection resulting in deterioration of his kidney function.

The patient was immediately started on albendazole (400 mg/day) on day 2 of admission while continuing rifaxamine, ornidazole, vitamin C and zinc preparations, symbiotic, mebendazole, loperamide, metronidazole, ceftriaxone, and his routine medications. Multi-disciplinary team management was established. Parasitology referral, as well as gastroenterology referral were arranged, after which addition of ivermectin was suggested to prevent hyper infection syndrome. Unfortunately, it was not available in the country. A referral was also made for sexually transmitted diseases to exclude any immunosuppressive infective status, and to perform human immunodeficiency virus (HIV) screening. Nutrition unit recommendation and psychiatry assessment were also done.

Table 1. Investigation Results on Day 2 of Admission

TEST		RESULT	
FBC			
	WBC (10^9 cells/L)	7.91	
	Neutrophil	5.57	70%
	Lymphocyte	1.03	13%
	Eosinophil	0.51	6.4%
	Basophil	0.08	1%
	Monocyte	0.72	9%
	Hb (g/L)	9.8	
	Platelet (10^9 cells/L)	302	
Serum			
	Total Protein (g/L)	55.4	
	Albumin (g/L)	20.5	
	Globulin (g/L)	34.9	
	Creatinine (µmol/L)	2494	
	Total Calcium (mmol/L)	1.8	
	Inorganic phosphate (mmol/L)	3.3	
	Na+ (mmol/L)	134	
	K+ (mmol/L)	2.3	
	CRP (mg/L)	104.7	
SFR			
	Pus cells	5 - 7 cells/HPF	
	RBC	15 - 20 cells/HPF	
	AOC	none	

Nevertheless, the patient remained to be in a life-threatening condition without significant improvement. After one week of extensive treatment and support, he eventually expired of

CKD complicated with *Strongyloides Stercolaris* infection.

Discussion

The global burden of *Strongyloides Stercolaris* infection, originated by the limited data available, estimates a prevalence of 30 to 100 million people affected worldwide. [3] Although this soil-transmitted helminth infection is considered to be endemic to tropical regions, it demonstrates an overlap of geographical distribution, primarily due to risk factors such as low socioeconomic status, alcoholism, institutionalization, and occupations as farming and coal mining. Moreover, the prevalence increases among the immunocompromised patients; HIV or human T-cell lymphotropic virus (HTLV) infected, hematological malignancies, kidney or bone marrow transplanted, malnourished, and patients on immunosuppressive drugs. [1,3] Nevertheless, *S. stercolaris* infection manifests as a spectrum of clinical syndromes, the majority being asymptomatic with chronic Strongyloidiasis. The larvae may remain in the host for decades before showing any symptoms and may accelerate to hyper infection or disseminated infection.

Strongyloidiasis among patients with isolated chronic kidney disease is rarely published. On review of literature, many articles were reported on strongyloidiasis either among kidney transplanted patients or among patients on immunosuppressive or steroid therapy for kidney disease. In most cases, the primary complaint was evaluated in view of various differential diagnoses than strongyloidiasis, and therefore, laboratory analysis of parasites in stool was delayed. [4,5] In our case, the patient was not on any immunosuppressive treatment. He was initially treated as CAPD peritonitis, pertaining to his primary abdominal symptoms. The delay in diagnosis, which might have reduced the efficacy of treatment leading to treatment failure, and the possible deterring of enteral absorption of antihelminthics due to bowel obstruction can be considered as the main reasons for the fatal outcome in this patient.

In conclusion, strongyloidiasis should be routinely investigated in patients with CKD who have concomitant risk factors including the high geographical prevalence. A high level of clinical suspicion is required to make the diagnosis of strongyloidiasis in at-risk patients so that lethal consequences can be prevented by early diagnosis and treatment.

References

1. Keiser PB, Nutman TB. Strongyloides stercoralis in the Immunocompromised Population. Clinical Microbiology Reviews. 2004;17: 208–217. doi:10.1128/CMR.17.1.208-217.2004
2. Hyperinfection syndrome with hypereosinophilia and chronic kidney disease: case report and review. [cited 19 Feb 2021]. Available: http://www.scielo.mec.pt/scielo.php?script=sci_arttext&pid=S0872-01692017000400001
3. CDC - Strongyloides. [cited 19 Feb 2021]. Available: https://www.cdc.gov/parasites/strongyloides/
4. Majid Z, Ahmad S, Iqbal MM, Mubarak M. Lethal Strongyloides Stercoralis hyperinfection in a young female with lupus nephritis ; a rare case report. 2017;2: 2–4.
5. Mazhar M, Ali IA, Agudelo Higuita NI. Strongyloides Hyperinfection in a Renal Transplant Patient: Always Be on the Lookout. Case Reports in Infectious Diseases. 2017;2017: 1–4. doi:10.1155/2017/2953805