Case Report

ANNALS OF MEDICINE & SURGERY

OPEN

Schistosomal colitis mimicking inflammatory bowel disease: a case report from Sudan

Mohamed B. Alajab, MA[a], Ahmed Rafei, AR[b,*], Abdelmoneim E. Abdo, AA[c]

Introduction: Schistosomiasis, caused by parasitic Schistosoma species, is a common neglected tropical disease prevalent in sub-Saharan Africa, including Sudan. While urinary tract infections are more frequent, intestinal schistosomiasis is rare. The disease presents with nonspecific symptoms, often leading to misdiagnosis as inflammatory bowel disease (IBD).

Case presentation: A 23-year-old male farmer from Gezira, Sudan, presenting with intermittent bloody diarrhea and mild left lower abdominal pain for 6 months. Despite multiple diagnoses and treatments for dysentery and IBD, his symptoms persisted. Colonoscopy revealed edematous mucosa with scattered whitish spots in the rectum, sigmoid, descending, and transverse colon, with normal findings in the ascending colon and cecum. Biopsies confirmed eosinophilic colitis with schistosomal egg shells. The patient was treated with praziquantel, leading to the resolution of symptoms within 2 weeks.

Clinical discussion: Schistosomiasis, caused by Schistosoma mansoni, commonly manifests with myalgia, fever, and rash, alongside abdominal symptoms. Diarrhea, abdominal pain, constipation, and weight loss are common. Stool examination and serological tests aid in diagnosis, but colonoscopy can reveal characteristic findings, such as edematous mucosa and schistosomal nodules. Early diagnosis and treatment with praziquantel are essential to prevent complications and improve patient outcomes.

Conclusion: This case emphasizes the importance of considering schistosomiasis in endemic areas when evaluating patients with colitis symptoms. Healthcare providers should maintain a high index of suspicion for this condition, especially in patients with nonspecific gastrointestinal symptoms and a history of travel to endemic areas. Early diagnosis and treatment are crucial to prevent complications and improve outcomes.

Keywords: case report, colitis, inflammatory bowel disease, intestinal schistosomiasis, Sudan

Introduction

Schistosomiasis is a chronic parasitic disease endemic in low-income countries and middle-income countries (LMICs) of tropical and subtropical regions, including sub-Saharan Africa, the Middle East, Asia, and Latin America. It is classified as a neglected tropical disease (NTD) due to its high prevalence in impoverished communities[1]. The disease is typically prevalent in rural, low-income areas lacking access to clean water, hygienic conditions, and adequate medical facilities. Despite constituting only 13% of the world's population, Sub-Saharan Africa (SSA) bears the burden of 90% of schistosomiasis cases, and NTD causes an estimated 534 000 annual deaths and about 57 million disability-adjusted life-years are lost annually[2]. Additionally, it is prevalent throughout Sudan, affecting all of its 18 states. Approximately 5.8 million Sudanese individuals, accounting for 15% of the nation's population, require treatment for this illness[3].

Urinary schistosomiasis is frequent, while intestinal infection is rare. Its nonspecific clinical signs range from asymptomatic to diarrhea, stomach pain, malnourishment, intestinal obstruction due to larva deposits, and anemia of chronic illness in addition to apathy[4]. We present a 23-year-old male with colitis due to Schistosoma infection mimicking inflammatory bowel diseases (IBD), representing the first case reported from Sudan. This case

HIGHLIGHTS

- Intestinal schistosomiasis can mimic inflammatory bowel disease, presenting with symptoms such as diarrhea, abdominal pain, and anemia.
- This case report highlights the importance of considering schistosomiasis in the differential diagnosis of colitis in endemic areas.
- Colonoscopy findings, including edematous mucosa and schistosomal nodules, can aid in the diagnosis of intestinal schistosomiasis.
- Early diagnosis and treatment with praziquantel are crucial to prevent complications and improve patient outcomes in intestinal schistosomiasis.

[a]Consultant Physician and Gastroenterologist, University of Gezira, Wadmadani, [b]Department of Research, The National Center for Gastrointestinal and Liver Diseases, Khartoum, and [c]Consultant Physician and Gastroenterologist, Director of The National Center for Gastrointestinal and Liver Diseases, Khartoum, Sudan

Sponsorships or competing interests that may be relevant to content are disclosed at the end of this article.

*Corresponding author. Address: Department of Research, The National Center for Gastrointestinal and Liver Diseases, Khartoum, Sudan. Tel.: +002 499 054 866 27. E-mail: drahmedrafei@gmail.com (A. Rafei).

Annals of Medicine & Surgery (2024) 86:4895–4897

Received 16 April 2024; Accepted 11 June 2024

Published online 21 June 2024

http://dx.doi.org/10.1097/MS9.0000000000002300

has been reported in line with the Surgical CAse Report (SCARE) criteria[5].

Case presentation

A 23-year-old male farmer from Gezira, central Sudan, presented with intermittent bloody diarrhea for the past 6 months, occurring 3 to 5 times per day, with small amounts of stool associated with mild left lower abdominal pain. He had no nausea, vomiting, weight loss, loss of appetite, jaundice, fever, joint pain, or skin rash. He had sought medical advice multiple times and was diagnosed with dysentery and IBD, but his symptoms did not improve with treatment. He denied any history of anemia, blood transfusions, or endoscopy. Additionally, there was no family history of a similar condition. He was a nonsmoker and did not consume alcohol.

Upon examination, the patient was in good general health, not pale, and without lymphadenopathy. His abdomen was soft with mild left iliac fossa tenderness. No masses were palpable, and the liver and spleen were not enlarged. There were no ascites. Other systems were unremarkable. A complete blood count revealed mild microcytic hypochromic anemia with normal white blood cell and platelet counts. Renal profile, liver function tests, and abdominal ultrasound were all normal.

A colonoscopy was performed by an endoscopist, revealing edematous mucosa with loss of vascular pattern. Scattered whitish spots were seen throughout the rectum, sigmoid, descending, and transverse colon. The ascending colon and cecum appeared normal [Fig. 1].

Random biopsies from the affected parts showed fragments of superficial colonic mucosa with regularly spaced glands. The lamina propria exhibited increased inflammatory cell infiltrates, rich in eosinophils. No cryptitis, crypt abscesses, or granulomas were observed. Schistosomal egg shells were seen, consistent with eosinophilic colitis associated with schistosomiasis [Fig. 2].

The patient received praziquantel 15 mg/kg and showed a dramatic response, and all symptoms resolved within 2 weeks.

Discussion

Bilharzia, another name for schistosomiasis, is a parasitic infection caused by Schistosoma mansoni, S. haematobium, and S. japonicum. These blood flukes are responsible for the chronic and potentially lethal tropical disease schistosomiasis. Intestinal infection is generally associated with S. mansoni[6].

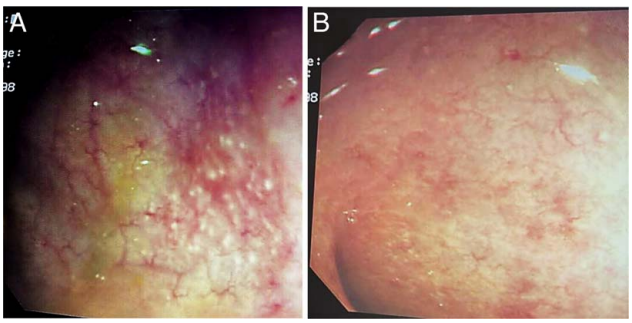

Figure 1. A. Edematous hyperemic mucosa with multiple pustules, B. Edematous mucosa with prominent vasculture and multiple aphthous ulcertations.

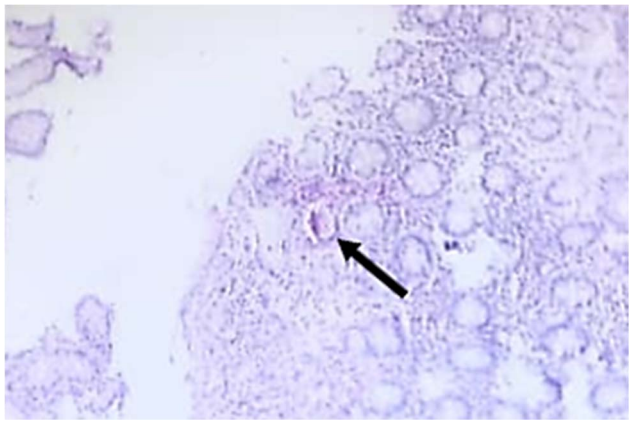

Figure 2. The lamina propria exhibited increased inflammatory cells infiltrates, rich in eosinophils. No cryptitis, crypt abscesses, or granulomas were observed. Schistosomal egg shells were seen (black arrow).

Patients usually present with generalized myalgia, fever, and a maculopapular skin rash along with abdominal pain and diarrhea. The hallmark of chronic schistosomiasis is granulomatous inflammation generated by eggs interacting with host immunity, which can lead to fibrosis, bowel occlusion, and potentially even precancerous disease[2].

Diarrhea was the most prevalent symptom in a study by Rocha *et al.*[7], occurring in 56% of patients, while obstructive symptoms, such as intestinal stenosis, are uncommon. Abdominal pain, constipation, weight loss, and fatigability are frequently reported, respectively[8].

In diagnosing schistosomiasis, stool examination is a common method for detecting parasite eggs. However, as the infection progresses, the likelihood of finding eggs in stool samples diminishes. To improve the sensitivity of egg detection, quantitative sampling techniques like the Kato-Katz method or concentration techniques can be employed. Serological tests, which detect antibodies against the parasite, are also available. However, they cannot differentiate between active and chronic infections. For early diagnosis, PCR can be used to detect parasite DNA in urine samples. Serological tests for gut-associated parasite proteins can also provide complementary diagnostic information[9].

Colonoscopy can be a valuable tool in diagnosing colonic schistosomiasis, despite limitations in specificity. Findings vary based on the disease stage. Acute schistosomal colitis may reveal edematous and congestive mucosa, with petechial bleeding; in patients with chronic schistosomal colitis, the colonoscopy may reveal a confused vascular net with closely spaced flat or raised yellow nodules, polyps, and intestinal stricture. Colonoscopic examination of patients with chronic schistosomal colitis revealed concurrent acute and chronic inflammatory changes within their colonic segments. The most distinctive finding is the presence of schistosomal nodules, resembling those seen in pseudomembranous enterocolitis, and exhibiting a gray-yellow or yellowish-white coloration[10].

Misdiagnosis of schistosomal colitis as IBD is common in young patients, particularly because the sigmoid and rectum are the most frequently affected sites, Ye *et al.* reported a 24 misdiagnosed cases of ulcerative colitis in their evaluation of 96

patients with colonic schistosomiasis. Endoscopic findings revealed atypical features of the intestinal mucosa in the 24 misdiagnosed cases. Ulcerative-like changes were observed in eight patients, characterized by variable size, depth, and a scattered or concentrated distribution. These ulcers were predominantly congestive and edematous, with adherent secretions on the surrounding mucosa. Notably, the characteristic yellow schistosomal nodules were rarely identified in the intestinal tract, contributing to the misdiagnosis of ulcerative colitis[11].

In endemic areas like Sudan, a comprehensive medical history coupled with appropriate diagnostic testing is crucial for accurate diagnosis of schistosomal colitis. Healthcare professionals need to maintain a high index of suspicion for this illness, considering its potential presentation with nonspecific gastrointestinal symptoms and endoscopic findings.

Conclusion

This case highlights the importance of considering schistosomiasis as a cause of infectious colitis in patients who reside in an endemic area and patients who have a history of traveling to an endemic area. Early diagnosis and treatment can prevent serious complications, such as bowel obstruction and perforation.

Ethical approval

Approval was obtained by Ibn Sina Specialized Hospital's ethical committee.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Source of funding

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Author contribution

M.B.A. and A.R.: writing the paper; M.B.A. and A.R.: data collection; A.E.A.: final approval of the report.

Conflicts of interest disclosure

The authors declare no conflict of interest.

Research registration unique identifying number (UIN)

Cannot be registered because they are not clinical studies.

Guarantor

Ahmed Rafei.

Data availability statement

No additional data are available.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Acknowledgements

Assistance with the study: none.

References

[1] World Health Organization. WHO Schistosomiasis. Accessed March 21, 2019. 2018. https://www.who.int/news-room/fact-sheets/detail/schistosomiasis
[2] Adenowo AF, Oyinloye BE, Ogunyinka BI, *et al*. Impact of human schistosomiasis in sub-Saharan Africa. Braz J Infect Dis 2015;19:196–205.
[3] World Health Organization. Sudan. Working together to eliminate schistosomiasis [Internet]. World Health Organization - Regional Office for the Eastern Mediterranean. 2013. Accessed December 4, 2023. https://www.emro.who.int/sdn/sudan-events/launch2013-schistosomiasis.html
[4] Akere A, Oluwasola AO, Fakoya TO, *et al*. Schistosomiasis presenting as colonic polypoid masses in a Nigerian patient. Ann Ib Postgrad Med 2017;15:61–4.
[5] Sohrabi C, Mathew G, Maria N, *et al*. The SCARE 2023 guideline: updating consensus Surgical CAse REport (SCARE) guidelines. Int J Surg Lond Engl 2023;109:1136.
[6] Shuja A, Guan J, Harris C, *et al*. Intestinal schistosomiasis: a rare cause of abdominal pain and weight loss. Cureus 2018;10:e2086.
[7] Rocha MO, Pedroso ER, Lambertucci JR, *et al*. Gastro-intestinal manifestations of the initial phase of schistosomiasis mansoni. Ann Trop Med Parasitol 1995;89:271–8.
[8] Pham K, Mtalitinya GS, Aristide C, *et al*. Effects of Schistosoma mansoni and praziquantel treatment on the lower gastrointestinal mucosa: a cohort study in Tanzania. Acta Trop 2023;238:106752.
[9] Koulali H, Zazour A, Khannoussi W, *et al*. Colonic schistosomiasis: a case report. World J Gastrointest Endosc 2022;14:789–94.
[10] Emara MH, Mahros AM, Rasheda AMA, *et al*. Schistosomal (bilharzial) polyps: travel through the colon and beyond. World J Gastroenterol 2023;29:4156–65.
[11] Ye C, Tan S, Jiang L, *et al*. Endoscopic characteristics and causes of misdiagnosis of intestinal schistosomiasis. Mol Med Rep 2013;8:1089–93.