Case Report

Intestinal Schistosomiasis with Colonic Polyps

Nyam Paul David[1], Mary John Duguru[1], Philip Ojile Akpa[2], Pantong Mark Davwar[1], Atta Okwute[1], Jireh Dan Makpu[1], Bamnan Collins Dallang[2], Patience One Omaiye[1], Edith Nonyelum Okeke[1]

Departments of [1]Internal Medicine and [2]Anatomic Pathology and Forensic Medicine, Jos University Teaching Hospital, Jos, Plateau, Nigeria

Abstract

Schistosomiasis is a parasitic infection which commonly affects the intestine. Colonic polyps associated with intestinal schistosomiasis are not commonly reported in young people. Our case report describes a 20-year-old man from North-Central Nigeria who presented with recurrent passage of loose, mucoid, bloody stool, and weight loss. His biochemical profile and stool tests were unremarkable. A colonoscopy showed multiple ulcers and polyps with ulcerated surfaces in the transverse and sigmoid colon. Histopathology revealed islands of colonic-type mucosa containing numerous benign colonic glands in a densely inflamed lamina propria containing lymphocytes, eosinophils, and histiocytes, with numerous ova and calcified parasite bodies of *Schistosoma*. The patient was treated with praziquantel and showed marked clinical improvement.

Keywords: Colonic, intestinal, polyps, schistosomiasis

Introduction

Schistosomiasis, also referred to as bilharziasis (in honour of Theodor Bilharz, who first identified the parasite in 1852), is caused by the *Schistosoma* species of parasites.[1] *Schistosoma haematobium*, *Schistosoma japonicum*, and *Schistosoma mansoni* are the major species that cause disease in humans. Other species include *Schistosoma mekongi*, *Schistosoma intercalatum,* and *Schistosoma guineensis*.[1] Human schistosomiasis is one of the most prevalent human parasitic infections, and ranks second behind malaria on the list of most common parasitic diseases.[2] The annual global incidence of *Schistosoma* infections is 230–250 million cases with almost 280,000 related deaths annually, mostly due to complications of portal hypertension.[2] Humans get infected when the cercariae (usually found in certain freshwater snails) invades the skin and grow to become schistosomula.[3] The schistosomula then moves to the portal circulation where it develops into the adult stage and subsequently migrates to either the pelvic or mesenteric venules where they mate and produce eggs.[3] These eggs may be trapped in the wall of the intestine resulting to immune pathologic changes, which could manifest endoscopically as oedema, granulomas, ulcers, hard fibrotic areas, pseudopolyps, areas of redness, or even frank bleeding.[4] Common clinical features of schistosomiasis include nausea, vomiting, bloody stool, abdominal pain, tenesmus, splenomegaly, and hepatomegaly.[4]

Access this article online

Quick Response Code:

Website: www.njmonline.org

DOI: 10.4103/NJM.NJM_92_22

Although intestinal schistosomiasis is a common form of this disease, colonic polyps associated with schistosomiasis, albeit previously reported, are uncommon.[5,6] We report a case of a 20-year-old Nigerian male patient with colonic polyps associated with chronic schistosomiasis.

Case Report

A 20-year-old male, residing in Lafia, North-Central Nigeria, who was involved in fishing activities with his parents seven years ago, presented to our clinic with a three-month history of the passage of loose mucoid stools, which occasionally contain fresh blood. He had lost significant weight in the past two months. He also had several bouts of nausea and vomiting. There was no history of fever, anorexia, or night sweats. There was no family history of colon cancer or inflammatory bowel disease and no history of alcohol or tobacco use. The result of his stool test was normal and his abdominal ultrasound scan showed no abnormalities. A colonoscopy was performed

Address for correspondence: Dr. Nyam Paul David, Department of Internal Medicine, Jos University Teaching Hospital, P. M. B. 2076, Jos, Plateau, Nigeria.
E-mail: davidnyampaul1@gmail.com

How to cite this article: David NP, Duguru MJ, Akpa PO, Davwar PM, Atta O, Makpu JD, *et al.* Intestinal schistosomiasis with colonic polyps. Niger J Med 2022;31:705-7.

Submitted: 07-Aug-2022 **Revised:** 15-Nov-2022
Accepted: 27-Nov-2022 **Published:** 28-Feb-2023

and showed multiple ulcers and three polyps with ulcerated surface, seen in the transverse and sigmoid colon. Based on endoscopic findings [Figure 1], a diagnosis of inflammatory bowel disease was initially entertained. Biopsies were taken from the ulcers and polyps in the colon. Histologic sections showed islands of colonic-type mucosa containing numerous benign colonic glands in a densely inflamed lamina propria containing lymphocytes, eosinophils, and histiocytes, with numerous ova and calcified parasite bodies of *Schistosoma*. The patient was given praziquantel tablets at a dose of 40 mg/kg stat. He made remarkable improvement, with complete resolution of his symptoms and significant weight gain within a month.

Discussion

Sub-Saharan Africa harbors about 93% of the global 207 million people with schistosomiasis.[7] The countries with the leading prevalence are Nigeria, Tanzania, Ghana, Mozambique, and the Democratic Republic of Congo.[7] Three species of *Schistosoma* are currently recorded in Nigeria, *S. mansoni*, *S. haematobium,* and *S. intercalatum*.[8] *S. haematobium* is more common in Southern Nigeria, whereas *S. mansoni* is more commonly seen in Northern Nigeria.[8,9] Intestinal schistosomiasis is largely caused by *S. mansoni* infection.[1] The prevalence and intensity of schistosomiasis in endemic areas increase with age and peak at around 11–20 years.[9] In infected persons, egg-laying *S. mansoni* parasites mostly reside in the microvasculature of the inferior mesenteric venous plexus.[4] Polyp formation begins with eggs deposition in the submucosa where the connective tissue is loose.[4] These eggs usually trigger a cell-mediated immune response that results in granuloma formation with areas of necrosis.[3] Necrotic foci attempt at healing lead to fibrous connective tissue deposition and the adjacent muscularis mucosa becomes hypertrophied.[4] As fibrous tissue deposition and muscularis mucosa hypertrophy progresses, a barrier to the usual route of ova exit from the mesenteric veins to the gut lumen is created, resulting in the accumulation of ova with associated worsening inflammation and fibrosis.[4] This process results in the formation of a nodule which elevates the hypertrophied muscularis mucosa and gives rise to the earliest visible polyp.[4] Polyps may be pedunculated, sessile, or cauliflower in appearance, mostly seen in the distal colon, counting from few in number to numerous.[5,10,11]

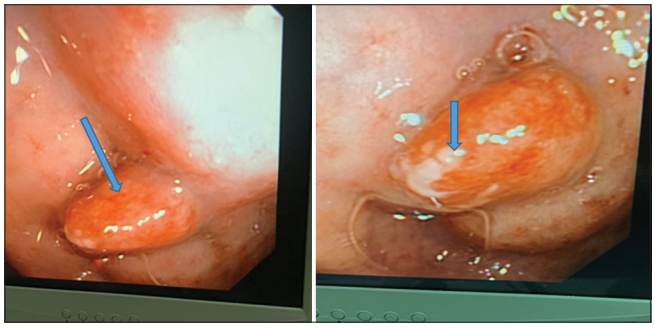

Figure 1: Polyps in the sigmoid colon seen during colonoscopy

Clinically, schistosomiasis presents in three stages.[12] The first stage usually starts 24 h after the penetration of the skin by the cercariae, known as cercarial dermatitis or swimmer's itch.[12] The second stage or acute schistosomiasis occurs three–eight weeks after infection, whereas the third or the chronic stage usually occurs months or years after infection.[12] Chronic complications may be intestinal, hepatosplenic, urinary, pulmonary, or neurological, their severity depends on the number of eggs, location, duration of infection, and degree of immune response by the host.[13] They occur in those who live in endemic areas and have repeated exposure to the parasite.[14] The clinical features of colonic schistosomiasis are nonspecific, and patients usually present with symptoms which are also seen in other gastrointestinal disorders, for example, abdominal pain, constipation, diarrhea, or bloody stools.[11] Colonic polyposis represents an endoscopic intestinal manifestation of the chronic stages of infestation, and the presence of polyps could also manifest as a protein-losing enteropathy and the lesions may mimic the presence of colonic cancer.[6]

The mainstay of diagnosis is by demonstration of *Schistosoma* eggs in the blood or urine samples of suspected individuals.[12] Other modalities including serologies and polymerase chain reaction assay-based testing are also helpful in confirming a diagnosis.[13] Endoscopic findings although generally nonspecific, can also contribute to making a diagnosis.[11] In cases, where the infestation is still suspected but the stool examination was negative, tissues may be taken from the rectal mucosa (via a proctoscope) and subjected to microscopy to aid diagnosis.[13,14]

In our case, *Schistosoma* parasites and their eggs were detected in the biopsies of the mucosal lesions [Figure 2]. The presence of a colon polyp and the calcified eggs of *S. mansoni* and the parasite inside the polyp in the absence of any other explanation for the patient's symptoms were considered diagnostic of chronic intestinal schistosomiasis.

The treatment of choice for all species of schistosome is praziquantel and the presence of polyps does not alter this line of therapy. The recommended dose is 40 mg/kg stat.[15] If treatment failure occurs, praziquantel can be repeated, at the

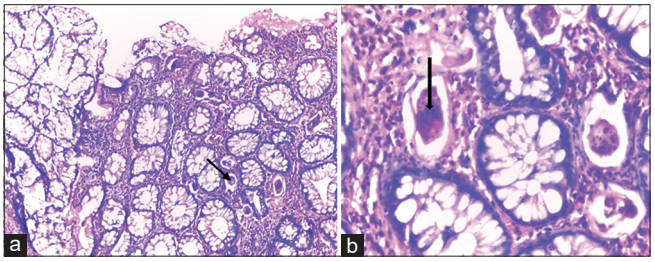

Figure 2: Photomicrograph (hematoxylin and eosin, A is ×100 magnification and B ×400 magnification). (a and b) A colonic type mucosa with mucinous columnar epithelium having goblet cells within an inflamed lamina propria. Many *Schistosoma* eggs are seen in A (thin arrow) and B shows a clearly defined *Schistosoma* egg (thick arrow) surrounded by eosinophils, lymphocytes, and histiocytes

same dose, usually with success in more than 80% of cases; however, if failure still occurs, oxamniquine may be added to the praziquantel or use in combination with trioxolane as second-line therapy.[15] Our patient had treatment with praziquantel at a dose of 40 mg/kg stat. He showed remarkable clinical improvement and most of his complaints resolved within two weeks. Three months later, another review revealed a normal-looking young man with no clinical symptoms or signs.

Conclusions

Schistosomiasis is a parasitic infection that commonly involves the intestine. Colon polyps associated with *Schistosoma* are not commonly reported in our locality. Clinical symptoms, laboratory tests, and endoscopic features could be nonspecific, but when these are taken in combination with the histopathological findings, the right diagnosis can be made.

Consent

Written informed consent was obtained from the patient for the publication of this case report and the images.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Available from: https://www.cdc.gov/parasites/schistosomiasis/biology.html/. [Last accessed on 2022 May 23].
2. Nelwan ML. Schistosomiasis: Life cycle, diagnosis, and control. Curr Ther Res Clin Exp 2019;91:5-9.
3. McManus DP, Dunne DW, Sacko M, Utzinger J, Vennervald BJ, Zhou XN. Schistosomiasis. Nat Rev Dis Primers 2018;4:13.
4. Elbaz T, Esmat G. Hepatic and intestinal schistosomiasis: Review. J Adv Res 2013;4:445-52.
5. Zhu XL, Song JZ, Yu WY, Hua LQ, Zhang ML. Intestinal schistosomiasis masquerading as intestinal polyps. BMC Infect Dis 2021;21:434.
6. Akere A, Oluwasola AO, Fakoya TO, Lawan A. Schistosomiasis presenting as colonic polypoid masses in a Nigerian patient. Ann Ib Postgrad Med 2017;15:61-4.
7. Onasanya A, Bengtson M, Oladepo O, Van Engelen J, Diehl JC. Rethinking the top-down approach to schistosomiasis control and elimination in Sub-Saharan Africa. Front Public Health 2021;9:622809.
8. Oyeyemi OT. Schistosomiasis control in Nigeria: Moving round the circle? Ann Glob Health 2020;86:74.
9. Dawaki S, Al-Mekhlafi HM, Ithoi I, Ibrahim J, Abdulsalam AM, Ahmed A, *et al.* Prevalence and risk factors of schistosomiasis among Hausa communities in Kano State, Nigeria. Rev Inst Med Trop Sao Paulo 2016;58:54.
10. Issa I, Osman M, Aftimos G. Schistosomiasis manifesting as a colon polyp: A case report. J Med Case Rep 2014;8:331.
11. Qin X, Liu CY, Xiong YL, Bai T, Zhang L, Hou XH, *et al.* The clinical features of chronic intestinal schistosomiasis-related intestinal lesions. BMC Gastroenterol 2021;21:12.
12. Carbonell C, Rodríguez-Alonso B, López-Bernús A, Almeida H, Galindo-Pérez I, Velasco-Tirado V, *et al.* Clinical spectrum of schistosomiasis: An update. J Clin Med 2021;10:e5521. [Doi: 10.3390/jcm10235521].
13. Gray DJ, Ross AG, Li YS, McManus DP. Diagnosis and management of schistosomiasis. BMJ 2011;342:d2651.
14. Onuigbo WI, Anyaeze CM. Schistosomiasis manifesting as a rectum polyp in Nigeria. Int J Res Stud Med Health Sci 2017;2:11-2.
15. Zwang J, Olliaro PL. Clinical efficacy and tolerability of praziquantel for intestinal and urinary schistosomiasis – A meta-analysis of comparative and non-comparative clinical trials. PLoS Negl Trop Dis 2014;8:e3286.