Case Report

# Acute Colonic Ischaemia due to Schistosomiasis: A Case Report

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## Abstract

Schistosomiasis or bilharziasis is a disease caused by parasitic worms, and is endemic in the tropics, with an estimated 250 million people affected worldwide. The main organs involved are the liver and urinary bladder. We present a rare case whereby the gastrointestinal system was involved in a child.

**Keywords:** Colon, ischaemia, schistosomiasis

## Introduction

Schistosomiasis is a parasitic disease that is endemic in the tropics. Human infection is caused by contact with contaminated water. There are five species of the trematode worms of the genus *Schistosoma*, namely *mansoni*, *japonicum, intercalatum, mekongi*, and *haematobium*. The global burden of this disease is significant, with 250 million people infected and another 700 million at risk of infection.[1,2]

Gastrointestinal schistosomiasis is caused mainly by *Schistosoma mansoni*, *Schistosoma japonicum*, and *Schistosoma mekongi*, which can cause bowel ulceration, pseudopolyp formation, as well as micro-abscesses. Hepatobiliary lesions include liver enlargement and portal hypertension and in severe cases oesophageal varices which can be fatal. *Schistosoma haematobium* usually affects the urinary tract and the classical presentation is haematuria.[2]

Colonic involvement in schistosomiasis is rare. Live ova are deposited in the serosa and submucosa, which provokes an inflammatory reaction. The parasitic venous occlusion can lead to acute intestinal obstruction and infarction of the affected segment of the bowel.[3]

## Case Report

A 9-year-old girl presented to the emergency department with a 3-day history of severe constant abdominal pain mainly at the left lower quadrant. She had a high-grade fever associated with sweating and vomiting 3–4 times daily. Thirteen days earlier, the patient had diarrhoea, vomiting and abdominal pain and was treated as amoebic dysentery.

On examination, she was febrile, pale and dehydrated. The abdomen was rigid and tender. Her haemoglobin was 8 g/dL and a white blood cell count of 20,000 mm$^3$ (predominantly neutrophils). Resuscitation in the form of intravenous fluids was commenced, with the insertion of a nasogastric tube as well as a catheter. She was commenced on broad-spectrum antibiotics. A blood transfusion was also given.

At this point, a decision was made for exploratory laparotomy through a midline incision. On entering the peritoneal cavity, the liver was found to be covered in white patches, and these patches were also present in the small and large intestine in a patchy manner [Figure 1]. There were enlarged mesenteric lymph nodes, and the descending and proximal sigmoid colon were noted to be necrotic [Figure 2]. The mesenteric vessels draining the affected segment were noted to be thrombosed. A left hemicolectomy was performed with primary anastomosis.

The patient made an uneventful recovery and was discharged home on the post-operative day 7, when she was tolerating full enteral feeds and had opened her bowels.

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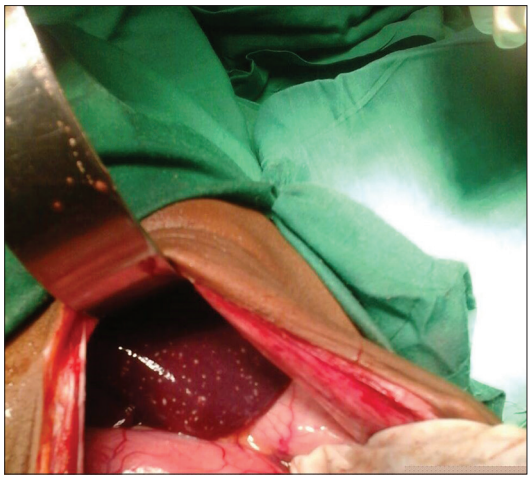


**Figure 1:** Liver covered in white patches

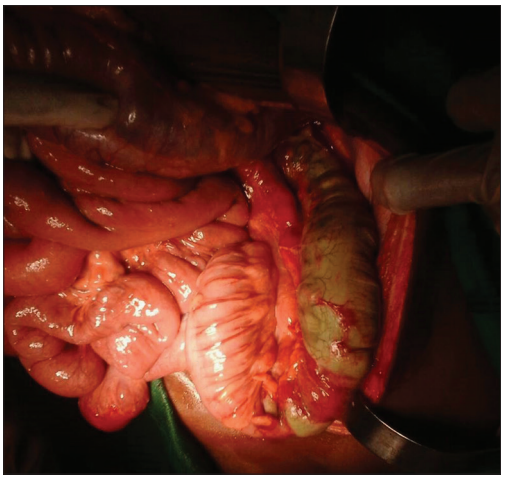


**Figure 2:** Necrotic descending and sigmoid colon

Histology of the resected segment revealed ischaemic blood vessels with numerous granuloma around viable *Schistosoma* ova in the intestinal wall and mesenteric lymph nodes. The patient was given a treatment dose of praziquantel, and she remains well at 18 months of follow-up.

## Discussion

Human infection by schistosomiasis starts with contact with contaminated water. The cercariae or infective stage of the parasite attaches to the skin via glandular secretions. As the parasites enter the skin, they lose their tails and become young schistosome, called schistosomules. These burrow through the dermis and gain access to blood vessel walls and then the circulatory system. After migrating to the lungs, the parasites travel to the liver and mature and mate within the liver vessels. The female begins to lay eggs within the mesenteric or pelvic plexus.[4]

Some unusual gastrointestinal presentations have been reported. Bazongo *et al*. reported four cases of appendicitis due to schistosomiasis. In all resected appendix specimens, there were *S. mansoni* ova.[5] Mosli *et al*. reported the case of a 50-year-old man who presented with features of acute appendicitis, and a computed tomography scan revealed a clot in the superior mesenteric vein.[6] A review of pathologically diagnosed schistosomiasis over a 15-year period from Iraq revealed six cases of gallbladder disease, of which five presented with cholelithiasis. Ova in the resected specimens were associated with a fibrocalcific reaction. Fibrosis and calcification were present in the cystic duct. The authors postulated that stenosis of the cystic ducts leads to bile stagnation and hence the formation of stones.[7]

Anayi and Al-Nasiri reported the case of a 35-year-old man who presented with signs of intestinal obstruction. Of note, the patient was from an endemic area and had previously undergone a splenectomy for schistosomal splenomegaly. At laparotomy, a gangrenous segment of jejunum 76 cm long was resected. Thrombosis was observed in the veins draining the affected segment.[8]

Cao *et al*. attempted to analyse the endoscopic findings and clinicopathological characteristics of colonic schistosomiasis. Of 46 patients, 1 had acute colitis, 16 chronic colitis and 29 chronic active schistosomal colitis. Diarrhoea was present in 67.3% of patients, bloody stools was present in 17.3%, while abdominal pain was the predominant feature in 76.1%. The most commonly affected regions were the descending colon in 8 (17.4%) patients and sigmoid and rectum in 9 (19.6%) patients.[9]

A review of the literature revealed only one paediatric paper whereby two patients had schistosomal colitis affecting the sigmoid colon. Both boys who were brothers aged 7 and 4 years bathed in natural waters in an area that was endemic. The clinical picture was almost identical. Presentation was with watery diarrhoea with mucous and blood streaks. This progressed to an acute abdomen. At laparotomy, a necrotic segment of the sigmoid colon was resected. Histology of both specimens revealed granulomatous reaction with deposition of *S. mansoni* eggs in the lymph nodes. The mesentry showed damage consistent with occlusive thrombosis in branches of the inferior mesenteric vein. The intestinal segment resected showed ischaemic necrosis with deposition of *S. mansoni* eggs.[10]

## Conclusion

We report on a rare complication of schistosomal infection. Paediatric surgeons and gastroenterologists should be aware of colonic ischaemia in endemic areas.

### Declaration of patient consent

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

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Nil.

## Conflicts of interest

There are no conflicts of interest.

## References


1. Steinmann P, Keiser J, Bos R, Tanner M, Utzinger J. Schistosomiasis and water resources development: Systematic review, meta-analysis, and estimates of people at risk. Lancet Infect Dis 2006;6:411-25.
2. Ross AG, Bartley PB, Sleigh AC, Olds GR, Li Y, Williams GM, *et al.* Schistosomiasis. N Engl J Med 2002;346:1212-20.
3. Iyer HV, Abaci IF, Rehnke EC, Enquist IF. Intestinal obstruction due to schistosomiasis. Am J Surg 1985;149:409-11.
4. Warren KS. The pathology, pathobiology and pathogenesis of schistosomiasis. Nature 1978;273:609-12.
5. Bazongo M, Ouédraogo AS, Zida M, Bonkoungou GP, Ouangré E, Sanou A, *et al.* Acute appendicitis due to schistosomiasis: Four cases at the Yalgado Ouédraogo University Hospital of Ouagadougou. Med Sante Trop 2017;27:333-5.
6. Mosli MH, Chan WW, Morava-Protzner I, Kuhn SM. Schistosomiasis presenting as a case of acute appendicitis with chronic mesenteric thrombosis. Can J Infect Dis Med Microbiol 2016;2016:5863219.
7. al-Saleem T, al-Janabi T. Schistosomal cholecystitis: Report of six cases. Ann R Coll Surg Engl 1989;71:366-7.
8. Anayi S, Al-Nasiri N. Acute mesenteric ischaemia caused by *Schistosoma mansoni* infection. Br Med J (Clin Res Ed) 1987;294:1197.
9. Cao J, Liu WJ, Xu XY, Zou XP. Endoscopic findings and clinicopathologic characteristics of colonic schistosomiasis: A report of 46 cases. World J Gastroenterol 2010;16:723-7.
10. Neves J, Raso P, Pinto Dde M, da Silva SP, Alvarenga RJ. Ischaemic colitis (necrotizing colitis, pseudomembranous colitis) in acute schistosomiasis mansoni: Report of two cases. Trans R Soc Trop Med Hyg 1993;87:449-52.