

# Huge Colonic Granuloma of Schistosomiasis Mimicked Cancer in a 10-Years-Old Child: A Case Report

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**Introduction:** Schistosomiasis is a trematodes infection more prevalent in tropical and subtropical areas such as Yemen. Giant colonic polyp manifestations of intestinal bilharziasis are uncommon, difficult to differentiate from other colonic polyps, and can mimic cancer.

**Case Report:** A 10-year-old child presented with chronic abdominal pain that started ten months ago. The patient had a family history of lymphoma in his brother. The computed tomography scan showed a sigmoid luminal mass measuring 10×3 cm with significant lumen narrowing and diffuse circumferential wall thickening of the sigmoid colon, hepatomegaly, and multiple perilesional, para-hepatic, and pulmonary lymph nodes enlargements. The mass was morphologically mimicked cancer and proved to be of bilharzial etiology (*Schistosoma mansoni*) after surgical excision.

**Conclusion:** Even though the bilharzial colonic polyps are rare, it is challenging to differentiate them from other malignant colonic polyps. Clinicians should have a high suspicion regarding its manifestations to avoid unnecessary surgical interventions, especially in an endemic area, even in patients with a strong family history of cancer.

**Keywords:** case report, colonic polyp, *Schistosoma*, *Schistosoma mansoni*

## Plain Language Summary

Giant colonic polyp manifestations of intestinal bilharziasis are uncommon, difficult to differentiate from other colonic polyps, and can mimic cancer.

The radiologic findings are highly unpredictable and difficult to distinguish from other pathologic conditions. The most common computed tomography scan findings are intestinal wall thickening and calcifications. The final exact diagnosis is mainly obtained with histopathology from the resected mass. In this case report, we presented a 10-year-old child complaining of chronic abdominal pain in the last ten months with high suspicion of malignant disease due to a family history of cancer. After surgical resection, the histopathology reported a bilharzial etiology of *Schistosoma mansoni*. In conclusion, despite the benign nature of bilharzial colonic polyps, differentiating them from malignant colonic polyps is clinically challenging. Clinicians should have a high level of suspicion regarding its manifestations to avoid unnecessary surgical interventions, especially in an endemic area, even in patients with a strong family history of cancer.

## Introduction

Schistosomiasis is a debilitating tropical infection that causes significant morbidity and mortality in the Middle East, particularly in Yemen.<sup>1</sup> More than 200 million people worldwide have been affected, and millions more are at risk of infection.<sup>2</sup>

The major schistosomes infect humans are *Schistosoma haematobium* which typically infects the urinary tract system, *Schistosoma mansoni*, and *Schistosoma japonicum*, which infect the gastrointestinal tract system, with less epidemiological impact from *Schistosoma intercalatum* and *Schistosoma mekongi*.<sup>3</sup>

Intestinal schistosomiasis in Africa and Middle East countries, including Yemen, is mainly caused by *Schistosoma mansoni*.<sup>1</sup>

Bilharzial colonic pathology is caused by an egg-induced immune response, granuloma formation, and associated fibrotic changes, manifests as bloody diarrhea, abdominal cramping, and inflammatory colonic polyposis.<sup>4</sup>

Gastrointestinal cancers are the most common cancers in Yemen, representing 17.1%, and colorectal cancer is the most common type, representing 28%.<sup>5</sup>

Massive colonic polyps due to schistosomiasis infection are sparsely documented in the literature, and polyps as the only manifestation of intestinal bilharziasis are even less common.<sup>4,6</sup> Because most of these cases present as a painless abdominal mass, they can be confused with malignant tumors causing diagnostic difficulties.<sup>4,7</sup>

Here, we report a 10-years-old child who presented with chronic abdominal pain and was diagnosed with a colonic polyp schistosomiasis infection after surgical excision.

## Case Report

A 10-year-old male child presented to our surgery clinic on October 2021 with a chief complaint of abdominal pain and vomiting for the past ten months. The pain was frequent, colicky, postprandial, and generalized. It was aggravated by eating and associated with vomiting, anorexia, and weight loss. There was no history of hematuria, rectal bleeding, or diarrhea. There is a history of chronic constipation and environmental exposures to unclean water. The patient lived in a village and owned a dog and cheeps, which he kept in the house. In addition, he has a family history of lymphoma in his brother.

On physical examination, the patient looked ill with no pallor or jaundice. There was a nonmobile, non-tender, palpable right iliac fossa mass on abdominal examination.

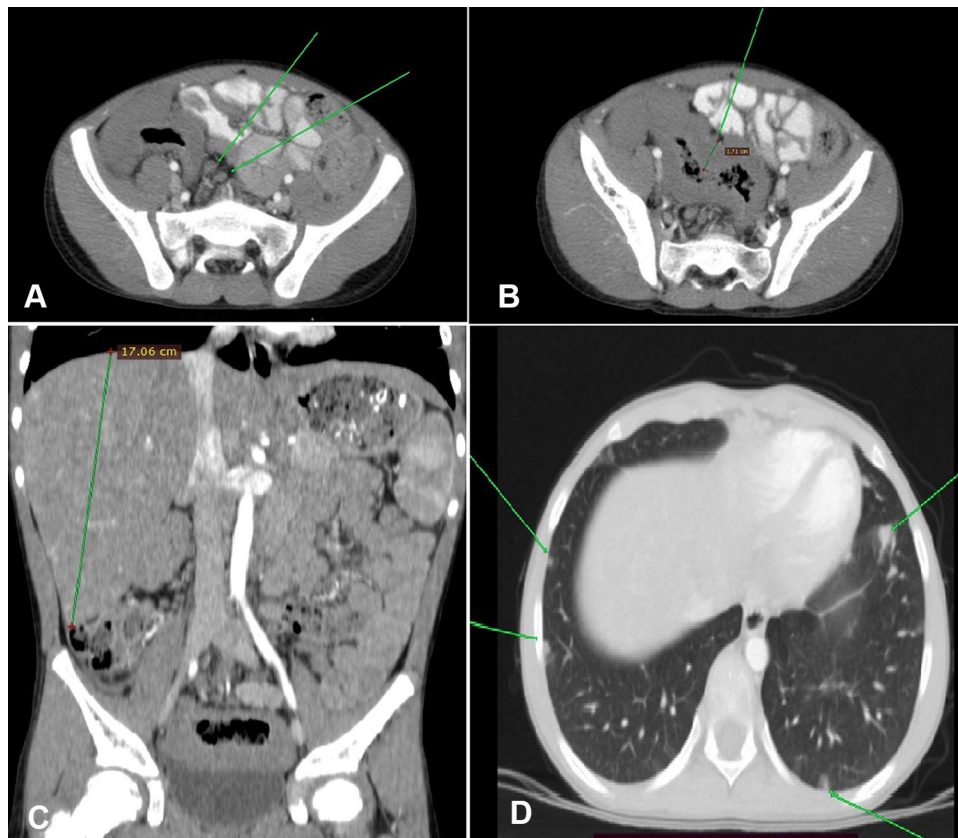
The laboratory data were as follows: total white blood cell count:  $12 \times 10^3/\text{mL}$ , hemoglobin: 14.4 g/dl, blood urea nitrogen: 35 mg/dl, creatinine: 0.9 mg/dl, serum albumin: 4.2 g/dL, serum bilirubin: 1 mg/dL, and negative for viral hepatitis. The urinalysis and stool examination were normal.

Ultrasonography (US) of the abdomen showed a segmental wall thickening of the ascending colon and  $10 \times 3$  cm intraluminal sigmoid mass suggestive of an intestinal tumor or lymphoma. The computed tomography (CT) scan of the chest and abdomen showed that the sigmoid is redundant and seen on the right lower abdominal quadrant before its cross midline and joins the descending colon, diffuse circumferential wall thickening of the sigmoid colon, and  $10 \times 3$  cm intraluminal mass with significant lumen narrowing. There were multiple perilesional lymph nodes; the largest one was measuring  $1.4 \times 1$  cm. There was hepatomegaly with heterogenous contrast enhancement without a definite lesion. In addition, there were multiple para-hepatic, and pulmonary lymph nodes enlargements (Figure 1). Based on the CT findings (extranodal lymph nodes enlargements and multiple general lymphadenopathies) and the family history of malignancy, the possibility of malignancy could not be excluded. After a multidisciplinary discussion, the decision was made for an open surgical exploration.

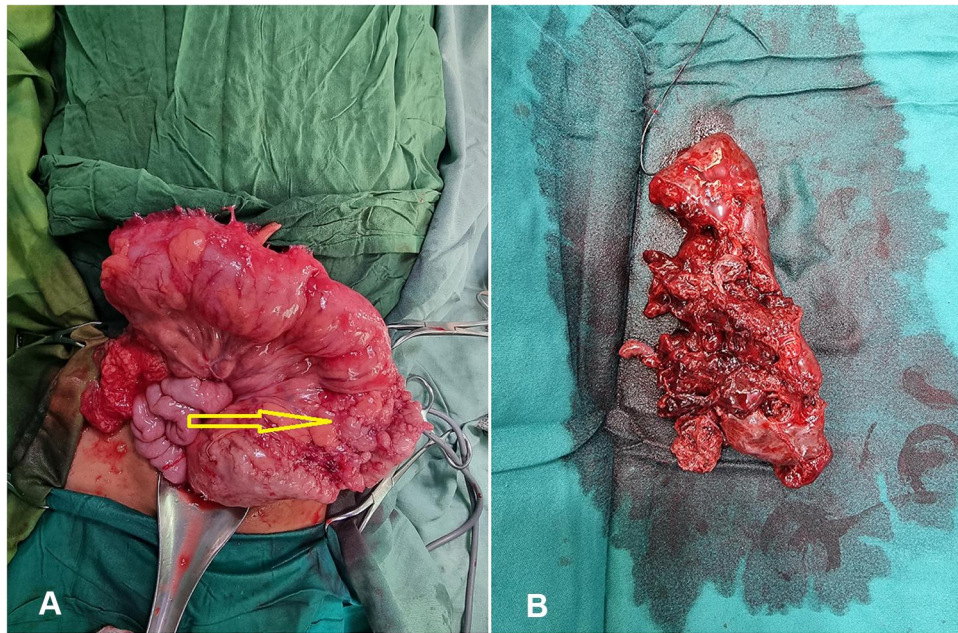
After general anesthesia and lower midline incision, the abdominal cavity was opened, revealing a sigmoid colon attached to the abdominal wall at the right lower quadrant, a large sigmoid mass measuring about 15 cm, and multiple mesenteric and paraaortic lymph nodes enlargements (Figure 2). Sigmoidectomy with a safety margins and primary anastomosis were performed, and the specimen was sent for pathologic assessment.

## Follow-Up and Outcome

The postoperative period was uneventful, and he was tolerating a regular diet. The patient was discharged home on the fifth postoperative day. The histopathology reported that numerous non-caseating granulomas formed of bilharzial ova (*Schistosoma mansoni*) and multinucleated giant cells (Figure 3). The patient was referred to the pediatric infectious disease clinic and was treated with three doses of praziquantel (60 mg/kg). Within five months of follow-up, the patient remained symptom-free.

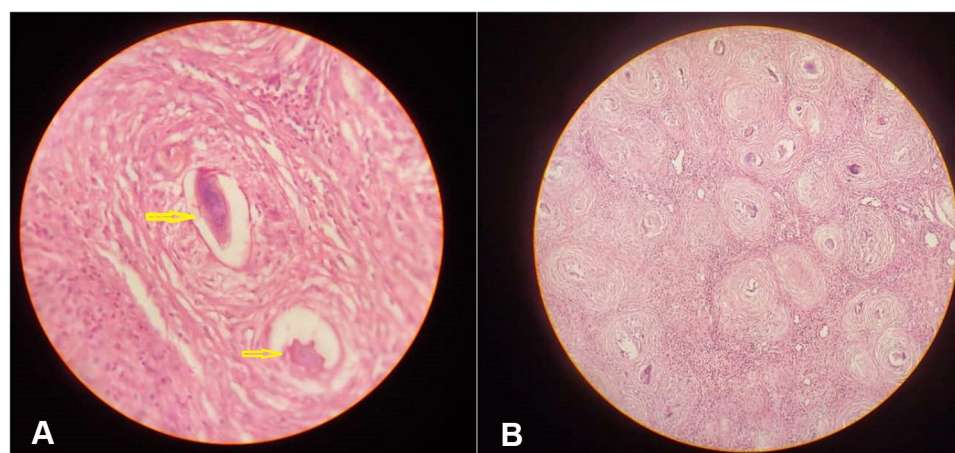


**Figure 1** Computed tomography scan of the chest and Abdominopelvic illustrating. **(A)** Diffuse circumferential wall thickening of the sigmoid colon (arrows). **(B)** Perilesional lymph nodes (arrow). **(C)** Hepatomegaly (arrow). **(D)** Multiple basal lung sub-pleural nodules (arrows).



**Figure 2** **(A)** Intraoperative photo of mass (arrows). **(B)** Resected sigmoid segment with a polyp.





**Figure 3** Histopathology photo show. (A) Calcified eggs of *Schistosoma mansoni* (arrows). (B) Showed a mild, predominately lymphocytic, inflammatory infiltrate.

## Discussion

Schistosomiasis infections are usually acquired in areas of high prevalence, particularly in the Middle East and Yemen. Schistosomiasis infections increase with age, peaking between the ages of 15 and 20 years, and severe infections occur in 5% to 10% of cases.<sup>8</sup>

The progression of a colonic bilharzial polyp begins as a small submucosal granuloma with an increase in the surrounding mucous membrane proliferation. Then, it acquires a projection and protrudes within the bowel lumen due to its size, adjacent mucous membrane proliferation, and stool pressure. Microscopically, the polyp's body is rich with goblet cells that secrete a large amount of mucous, and due to its delicate, and very vascular nature, it bleeds easily with the passage of stools.<sup>4,9</sup>

Most patients with colonic schistosomiasis have nonspecific symptoms such as abdominal pain, diarrhea, constipation, and rectal bleeding, which may occur in several gastrointestinal pathologies. Additionally, severe pathologic conditions associated with schistosomiasis have been reported including; obstruction due to an inflammatory mass, acute appendicitis, intestinal intussusception, ischemic colitis, and colon cancer.<sup>9</sup> Our patient was a child from an endemic area (Yemen) with chronic abdominal pain, constipation, and postprandial vomiting.

The presence of another infected family member, a low socioeconomic status, environmental exposure to unsafe sources of water, living near a stream/spring or pond are significantly associated with schistosomiasis infections, as seen in our patient.<sup>1</sup>

Laboratory investigations are of limited utility with a high level of variability based on the chronicity and endemicity of the illness. For instance, peripheral eosinophilia may be minimal or absent in the chronic phase. Other diagnostic tests include polymerase chain reaction (PCR) assays on patients' urine samples and serologic tests such as circulating anodic antigen (CAA) and circulating cathodic antigen (CCA) can be used.<sup>10,11</sup> However, those tests are costly and readily available in limited-resources countries. Another testing involves demonstrating of parasite eggs in the stool by microscopic examination (Kato-Katz smear), as recommended by World Health Organization.<sup>12</sup> However, we did not perform this test as we thought of malignant etiology.

Colonoscopy may provide a direct visualization of the polyps; however, it may be ineffective in determining the casualty of the symptoms with the visualized findings, as reported by Alzahrani et al.<sup>13</sup> The authors reported a case of megacolon in which colonoscopy revealed no visible cause, and the diagnosis was established with histopathological examination after surgical hemicolectomy.<sup>13</sup>

Abdominal x-rays and barium enemas can identify polyps or strictures radiologically. Despite their ease to use and low cost, these modalities have low sensitivity and specificity.<sup>14</sup> CT scan is more sensitive and accurate in diagnosing colonic polyps. The most common CT scan findings in colonic schistosomiasis are intestinal wall thickening and calcifications (due to calcification of deposited eggs in the submucosa and subserosa).<sup>12</sup> However, the CT scan

manifestations of colonic schistosomiasis are highly unpredictable and harder to identify because they frequently mimic many other pathologic conditions.<sup>9</sup> For example, D'Souza et al presented a patient with a significant bowel obstruction, and a CT scan revealed cecal nodular wall thickening that morphologically mimicked cancer and proved to be of bilharzial etiology after surgical excision.<sup>14</sup>

Similarly, in our patient, the CT scan findings were concerning for malignancy such as multiple and general lymphadenopathies. Additionally, the patient had a strong family history of malignancy in his brother. For those reasons, missing a diagnosis such as colonic schistosomiasis was not avoidable.

When were confronted with an abdominal manifestation of an unknown etiology, it is best to emphasize and correlate nationality, geography, certain exposures such as swimming in dams and rainwater streams, symptoms and age of patients. An accurate and detailed history may offer less invasive testing and treatment modalities.<sup>15</sup>

Due to the rarity of this condition, there are no specific recommendations for the treatment of partial colonic obstruction caused by fibrotic inflammation in colonic schistosomiasis. However, intestinal schistosomiasis is typically treated with a single oral dose of 40–60 mg/kg of praziquantel; this protocol is associated with 70–90% cure rates.

The presence of schistosomes in colonic polyps or fibrotic strictures does not rule out the possibility of underlying neoplasm.<sup>14</sup> Expert opinions and published case reports have mentioned that resection of the affected segment is the definitive treatment of partial obstruction of colonic schistosomiasis and confirms the diagnosis with the pathological analysis.<sup>14,16,17</sup> Furthermore, the literature suggests that once a schistosomiasis polyp has fully developed, it is not amenable to reduction through medical management. In most cases, postoperative praziquantel is used to treat the underlying infection and prevent future disease-related complications.<sup>14,16</sup> Given the inability to distinguish between schistosomiasis and malignancy and the inherent risk of future malignancy, surgical resection remains the treatment of choice as used in our patient.<sup>14</sup>

## Conclusion

Schistosomiasis represents a significant public health issue, especially in poverty-stricken areas. Even though the bilharzial colonic polyps are rare, it is challenging to differentiate them from other malignant colonic polyps. The physician should have a high level of suspicion regarding its manifestations to avoid unnecessary surgical interventions, especially in an endemic area, even in patients with a strong family history of cancer. Praziquantel is the treatment of choice for all *Schistosoma* species, with high therapeutic efficacy.

## Consent

Written informed consent was obtained from the patient's family to publish this case report and any accompanying images. No institutional approval was required to publish the case report.

## Acknowledgment

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## Disclosure

The authors declare that they have no conflicts of interest in this work.

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