

Intestinal schistosomiasis associated with intussusception: a case report

HUMPHREY D. MAZIGO^{1*}, ALPHONCE B. CHANDIKA², MARIA ZINGA¹, JORG HEUKELBACH³ and PETER RAMBAU¹

¹Weill-Bugando University College of Health Sciences, P.O. Box 1464, Mwanza, Tanzania

²Department of Surgery, Bugando Medical Centre, Mwanza, Tanzania

³Department of Community Health, School of Medicine, Federal University of Ceará, Fortaleza, Brazil

Abstract: We report a case of intestinal schistosomiasis associated with iliocaecal intussusception resulting from obstructions of the terminal part of the ileum by schistosome egg-induced fibrosis. A 7-year-old boy presented with the history of abdominal pain and difficulties in passing stool for two months. Ultrasound examination revealed doughnut signs characterized with multiple concentric rings at the lateral abdomen, and the bowel loop appeared distended. Exploratory laparotomy confirmed intussusception of the terminal part of the ileum into the caecum, extending to the ascending colon. Hemicolectomy and end-to-end ilioocolostomy was performed. Histological examination of the resected bowel revealed *Schistosoma mansoni* eggs within the mucosa, submucosa of the ileum, caecum and ascending colon, granulomatous inflammation with foreign body giant cells accompanied by fibrosis and eosinophilic infiltrate into the mucosa. Postoperatively, the patient recovered well. There may have been a synergistic effect of schistosomiasis with other underlying conditions, leading to intussusception. In conclusion, it is important to consider *S. mansoni* infection as a differential diagnosis for intestinal obstruction in endemic areas.

Key words: Ileum, caecum, intussusception, *Schistosoma mansoni*, Tanzania

Introduction

In Tanzania, schistosomiasis is one of the most important causes of morbidity and mortality, especially among children. Intestinal schistosomiasis caused by *Schistosoma mansoni* is highly endemic and widely spread along the villages surrounding the Lake Victoria shores of Tanzania, with prevalence exceeding 80% (Kardorff *et al.*, 1997; Malenganisho *et al.*, 2008). The disease tends to manifest frequently by bowel irregularity of little clinical relevance (Cheever *et al.*, 1967). The most common complications of intestinal schistosomiasis are hepatomegaly and peri-portal fibrosis associated with portal hypertension and oesophageal varices, which constitute the principal cause of death in affected individuals (De Cock *et al.*, 1986).

Despite the high prevalence of the disease in Tanzania's lake region, surgical complications of the gastrointestinal tract are rarely reported. In addition, some pathological conditions associated with *S. mansoni* are not usually suspected, until confirmed by histological examination. Here we report a case of intestinal schistosomiasis associated with iliocaecal intussusception.

* Correspondence: Dr. Humphrey D. Mazigo; E-mail: humphreymazigo@gmail.com

Case presentation

A seven year-old boy was referred from Magu District Hospital to Bugando Medical Centre, a referral hospital in Mwanza in north-western Tanzania. The boy had complaints of abdominal pain accompanied with difficulties in passing stool for two months. The pains were intermittent without any radiations. No fever, diarrhoea or vomiting was observed. Initially, the boy proceeded with episodes of constipation and with no blood in stool. At physical examination, the patient was alert, afebrile, pale, not dehydrated, but wasted (moderate malnutrition), and was not jaundiced. Abdominal examination revealed abdominal mass palpated in the left flank, believed to be an accumulation of faecal matter in the sigmoid colon. Bowel sounds were present and other systems were essentially normal.

The biochemical profile was unremarkable, except for anaemia (Hb 7.8g/dl). Leukocyte count was normal, but there was eosinophilia. Stool examination for schistosome ova was positive for *S. mansoni*. Ultrasound examination revealed doughnut signs characterized with multiple concentric rings in between side of the abdomen; and the bowel loop appeared distended. These were considered typical features of intussusception.

A provisional diagnosis of intestinal obstruction was made. Exploratory laparotomy revealed the terminal part of the ileum intussuscepted into the caecum, extending to the ascending colon, and severely inflamed lymphnodes along the ileocaecal junction. A right hemicolectomy and end to end ilioocolostomy was performed.

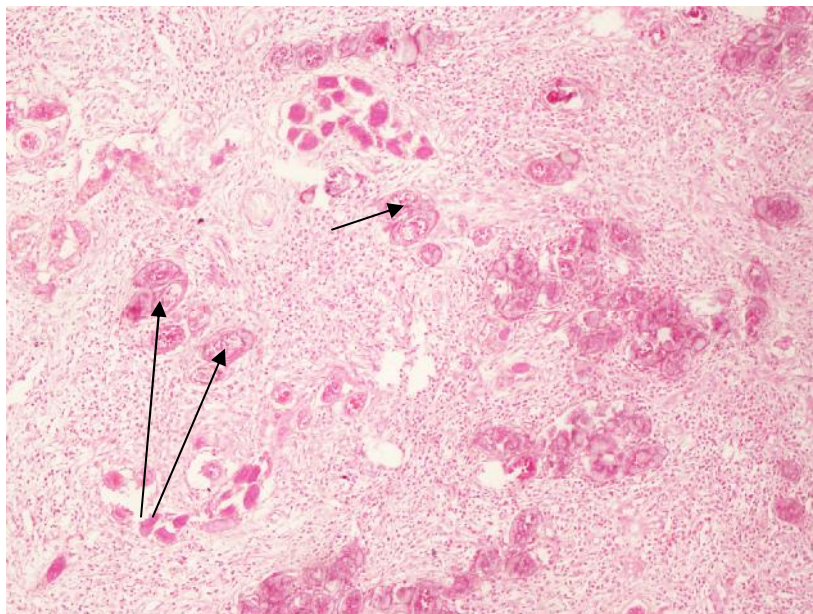


Figure 1: Arrows showing viable eggs of *S. mansoni* (with lateral spine) in the submucosa and mucosa of the ileum and caecum

Surgical specimens (ileum, caecum and colonic mucosa) were oedematous, and multiple areas of haemorrhage were evident. The bowel wall at the ilioocolic junction was markedly thickened. Histological examination of the surgical specimens revealed chronic granulomatous inflammation with innumerable foreign body giant cells and viable eggs of *S. mansoni* in

mucosa and submucosa (Figure 1). The lymph nodes showed no specific reactive changes. The patients received oral folic acids (5mg) and Vitamin A (200,000IU) for day 1, 2 and 14) for treatment of moderate malnutrition, and albendazole (200mg OD for 3 days). For schistosomiasis treatment, the patient received oral praziquantel 40mg/kg in a single dose. The patient recovered successful and was discharged 10 days after admission. Three weeks after discharge, he had recovered well and was in good condition. The consent to publish this case was received from the patient's father.

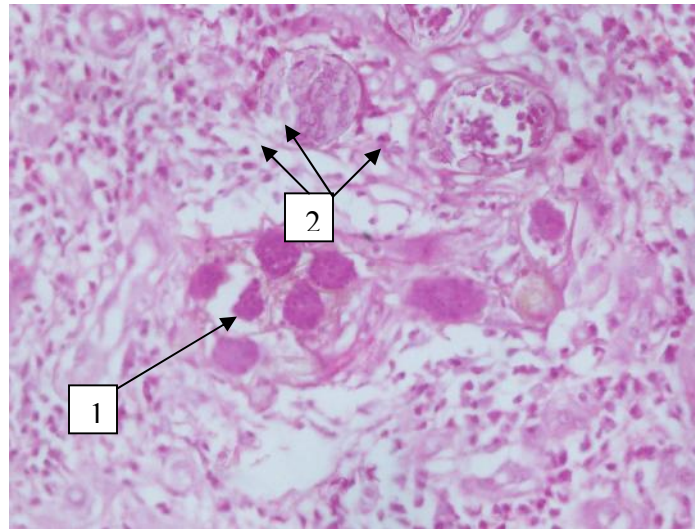


Figure 2: Granulomatous inflammation with foreign body giant cells (1) accompanied by fibrosis (surrounding *mansoni* eggs) (2) and eosinophilic infiltrates in the mucosa

Discussion

Schistosomiasis typically affects the intestinal tract and the urinary tract, but *Schistosoma* ova have been observed in a variety of host tissues including the liver, lungs, appendix, brain, spinal cord, adrenal glands and skeletal muscles, triggering an inflammatory response which may cause complications of the affected organ (Cheever *et al.*, 1967; Moura *et al.*, 2006). In the intestinal tract, ova have been known to induce chronic granulomatous inflammation accompanied by hyperplasia, fibrosis, ulceration, abscesses and formation of polyposis which can mimic cancer (Cheever *et al.*, 1967). All areas of the small and large intestine can be involved but the large intestine shows the most severe lesions due to depositions of higher density of eggs, especially in the rectum, sigmoid and descending colon, than in the small intestine (Atik *et al.*, 1998; Moura *et al.*, 2006). The extensive intestinal polyps, pseudotumors and massive thickening of the intestinal wall due to inflammatory response against schistosome egg antigens may cause intestinal obstruction and intussusception (Mostafa, 1997).

Previously, cases involving intestinal obstructions caused by *S. mansoni* have been reported and most of them were related to granulomatous formation and extensive pericolonic infiltrations of inflammatory cells (Iyer *et al.*, 1985; Elmasalme *et al.*, 1997; Atik *et al.*, 1998;

Moura *et al.*, 2006). Elmasalme *et al.* (1997) reported a case of sigmoid obstruction caused by a huge schistosomotic granuloma that was confused with neoplasm. The aetiology was finally established by histopathological examination. It appears that cases reported as intestinal polyposis, pseudotumors and intestinal obstruction are usually misdiagnosed as colorectal or iliocaecal neoplasia. This puts forward the limited role of surgical treatment on identifying the cause of intestinal obstruction. Thus, the entire surgical specimens must be histologically examined for the patient's benefit from treatment.

In this paper, chronic schistosomiasis associated with iliocaecal intussusceptions in a child is reported. It is feasible that schistosomiasis infection may have caused this clinical picture. Alternatively, a synergistic effect of schistosomiasis with other underlying conditions may have finally led to intussusception. Systematic studies are needed to confirm this relation. Interestingly, initially, schistosomiasis was not suspected as the underlying cause of intestinal obstruction. It is recommended therefore that in endemic areas, clinicians, surgeons and pathologists need to consider intestinal schistosomiasis as a differential diagnosis of intestinal obstruction by other causes.

Conflicts of interest

None declared

References

- Atik, F.A., Lopes Filho, G.J., Linhares, M.M., Seda Neto, J. & Mansur, N.S. (1998) Large intestine obstruction complicated with perforation: A rare manifestation of *Schistosoma mansoni* infection. *Revista Sao Paulo Medica* 116, 1781-1783.
- Cheever, A.M. & Andrade, Z.A. (1967) Pathological lesions associated with *Schistosoma mansoni* infection in man. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 61, 629-639.
- De Cock, K.M. (1986) Hepatosplenic schistosomiasis: a clinical review. *Gut* 27, 734-745.
- Elmasalme, F.N., Raheem, M.A., Badawy, A., Zuberi, S.R. & Matbouli, S.A. (1997) Rectosigmoid bilharzioma causing intestinal obstruction. *Journal of Pediatric Surgery* 32, 631-633.
- Iyer, H.V., Abaci, I.F. & Rehnke, E.C. (1985) Intestinal obstruction due to schistosomiasis. *American Journal of Surgery* 149, 409-411.
- Kardorff, R., Gabone, R.M., Mugashe, C., Obiga, D., Ramarokoto, C.E., Mahlert, C., Spannbrucker, N., Lang, A., Gunzler, V., Gryseels, B., Ehrich, J.H.H. & Doehring, E. (1997) *Schistosoma mansoni*-related morbidity on Ukerewe Island, Tanzania: Clinical, ultrasonographical and biochemical parameters. *Tropical Medicine and International Health* 2, 230-239.
- Malenganisho, W.L., Magnussen, P., Friis, H., Siza, J., Kaatano, G., Temu, M. & Vennervald, B.J. (2008) *Schistosoma mansoni* morbidity among adults in two villages along Lake Victoria shores in Mwanza district, Tanzania. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 102, 532-541.
- Mostafa, I. (1997) Schistosomal colonic polyposis. *Gastrointestinal Endoscope* 46, 584-585.

Mourra, N., Lesurtel, M. & Flejou, J.F. (2006) Chronic schistosomiasis: an incidental finding in sigmoid volvulus. *Journal of Clinical Pathology* 59, 111.