Case study

Appendicular Schistosomiasis in a Nigerian Woman

ABSTRACT

Aim: Schistosomiasis is a water-borne trematode infestation and is one of the most widespread parasitic diseases in the world. Schistosomiasis can affect any organ.This case report highlights the importance of awareness of unusual cause of common surgical presentations of schistosomiasis in endemic areas and the need for appendectomy specimens to be sent for histological review so that patients can benefit from full investigations and specific antiparasitic treatment.

Case Presentation: In this paper, the authors present a case of appendicular schistosomiasis that was incidentally discovered in a 33-year-old female patient from Lagos, Nigeria who underwent appendectomy for acute appendicitis. Appendectomy specimens removed from the patient appeared macroscopically normal but histopathological analysis revealed schistosomal eggs confirming the diagnosis of appendicular schistosomiasis.

Discussion: Confirmation of appendicular schistosomiasis is a purely histological diagnosis, because there are no pathognomonic clinical or operative findings. Physicians practising in the endemic areas must be aware of the possibility of seeing atypical presentations of parasitic diseases.

Conclusion: The authors therefore strongly recommend that all appendectomy specimens should be sent for histological review so that patients can benefit from full investigations and specific anti-parasitic treatment.

Key Words: *Appendicular schistosomiasis, Nigeria, Schistosomiasis, Appendicitis.*

INTRODUCTION

Schistosomiasis is endemic in many parts of the world with highest burden in South Asia and Sub-Sahara Africa (1–3). In Nigeria, *Schistosomiasis* is endemic and causes intestinal Schistosomiasis which affects various internal organs. Schistosomal ova are frequently found in the appendix of patients suffering from schistosomiasis. The prevalence of appendicular Schistosomiasis is high in endemic areas compared to developed countries (2). In a prospective study carried out in Nigeria over a 5 year period, 518 consecutive appendices were removed at Surgery for symptomatic appendicitis examined histologically, of these, 32 (6.2%) appendices showed evidence of chronic Schistosoma Haematobium appendicitis (4). There are two types and pathogenic pathways of appendicular schistosomiasis. First, 'granulomatous acute appendicitis' is caused by an immunological granulomatous reaction to newly deposited ova, with tissue necrosis and tissue eosinophilia; it may occur early in the infection, i.e., within weeks. Second, 'obstructive acute appendicitis' is caused by long-standing inflammation and fibrosis around dead eggs, leading to obstruction of the appendiceal lumen and increasing the risk of infection from faecal contaminants; this may occur in the late phase after several months or years (5,6).

Confirmation of appendicular schistosomiasis is a histological diagnosis, because there are no pathognomonic clinical or operative findings. Schistosomiasis in endemic areas is a major public health problem. Specific drug treatment involves the use of antihelmintics. Praziquantel is the most commonly used for treating both urinary and gastrointestinal forms of the disease and is administered as a single dose (7). Most patients with schistosomiasis experience gradual improvement following treatment depending on the severity of their presenting symptom. If symptoms persist after 2 rounds of Praziquantel treatment, more urine or stool should be taken and tested for viable eggs and re- treatment may be given if persistent infection is detected (7). Physicians practising in endemic areas must be aware of the possibility of seeing atypical presentations of parasitic diseases. The authors present a case of acute appendicitis caused by schistosomiasis, a rare effect of the parasitic infection in a 33 years old Nigerian woman.

CASE REPORT

A 33 year-old female Lagos resident originally from a rural village in Osun State, Nigeria, presented at Subol Hospital Limited, Lagos, Nigeria with complains of intense abdominal pain that had started five days earlier. This pain had started suddenly, initially periumbilical, with radiation to the right iliac fossa. There was a distinct history of anorexia and nausea but no associated vomiting and fever. The patient had no obvious urinary symptoms or any obvious signs of constipation, diarrhea, melena, hematochezia, and hematuria. Her Last menstrual period was 3 weeks prior her presentation. She was not a known patient with Hypertension or Diabetes

On examination she was noted to be afebrile, not pale and hemodynamically stable with a pulse rate of 84b/m and blood pressure of 110/60mmHg. Her abdomen was not distended, with localized tenderness in the right iliac fossa. There was no obvious organomegaly. Other systems were essentially normal. Blood laboratory results revealed a packed cell volume of 35%, a white cell count of 11000/mm^3 (70% neutrophils, 25% lymphocytes, 3% eosinophils), and a negative urinalysis. Pelvic ultrasound revealed a non-gravid uterus, normal ovary, both adnexae are free. A diagnosis of acute appendicitis was made and the patient was prepared for appendectomy. During appendectomy, she was noted to have an acutely inflamed appendix with no perforation, clear peritoneal fluid and essentially normal bowels. The patient made an uneventful post-operative recovery and was discharged after three days.

She was seen in the outpatient clinic 2 weeks post operation with the Histology report. She had recovered without any sequels. Macroscopic examination of the appendix specimen showed an appendix which measured 8.5cm in length and 0.5cm in maximum diameter. The serosa surface was smooth with prominent vascular markings and devoid of exudates. The cut section revealed patent lumen. Histological sections showed an appendix with mucosa exhibiting hyperplastic lymphoid follicles with tingible body macrophages (FIGURE 1). The submucosal revealed numerous ova of schistosoma haematobium most of which were calcified (FIGURE 2). They were surrounded by dense fibrosis. The muscularis propria was devoid of neutrophils transmigration (FIGURE 3). Histological diagnosis of appendicular schistosomiasis was made. After histological report, the patient received a single dose of praziquantel (40 mg/kg), which was well tolerated.

DISCUSSION

In endemic areas, schistosomiasis is a major public health problem. Schistosomiasis is the second most prevalent parasitic disease worldwide. More than 200 million people are infected, 120 million are symptomatic, and 20 million suffer from severe disease. An estimated 85% of all cases, and virtually all of the most severe, are concentrated in African countries (1,5,8).

Appendicitis is a common cause of acute abdomen in developing countries (9–11). Schistosomiasis as accountable for acute appendicitis are reported between 0.02%–6.3%, representing 28.6% of chronic appendicitis in endemic areas (3,4,6,12,13). Schistosomiasis of the appendix was first described by

Turner in 1909 (1), and has been reported in endemic areas. The most usual organisms are Schistosoma haematobium and *S. mansoni* (5,7,14,15).

The actual role of infestation plays a significant factor to the development of appendicitis is still confusing and has been much controversy. The characteristic pathological tissue response is believed to be a granulomatous inflammatory reaction to the schistosomal ova, with the lesion predominantly in the submucosa and serosa. There is a formation of epitheloid cell granulomas that ultimately undergo fibrosis. Intramuscular oviposition (submucosa) causes an obstructive type of appendicitis with a greater risk of perforation. Serosal involvement causes inflammation and the formation of adhesions (3,5,6,16,17).

Confirmation of appendicular schistosomiasis is a purely histological diagnosis, because there are no pathognomonic clinical or operative findings (5,6,15). Physicians practising in the endemic areas must be aware of the possibility of seeing atypical presentations of parasitic diseases.

Praziquantel is the drug of choice to treat all forms of schistosomiasis. This is active against mature worms. Although resistance to the drug is suspected, drug can still be used reliably at 40 to 60 mg/kg as a single dose in most of the cases. Repeated dosages of praziquantel might be necessary in early stages of the disease and to treat long-standing infections. Abdominal discomfort is the most frequently reported side effect of this well-tolerated drug (7,14,18,19).

CONCLUSION

This case report highlights the importance of awareness of unusual causes of common surgical presentations of schistosomiasis in endemic areas. It also shows that intestinal schistosomiasis can cause appendicitis, therefore appendectomy specimens should be sent for histological review so that patients can benefit from full investigations and specific antiparasitic treatment. Thus, a clear communication between surgeons and pathologists for management of patients with suspected appendicitis is required for proper management.

COMPETING INTEREST

There is no competing interest

ETHICAL APPROVAL

It is not applicable

CONSENT

Patient signed a written informed consent

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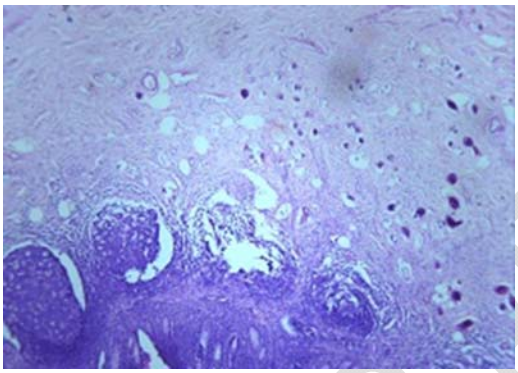

Figure 1: Histopathologic examination of the mucosa with hyperplastic lymphoid follicles and underlying extensive submucosa fibrosis with numerous Schistosoma haemantobium ova (H and E, ×10)

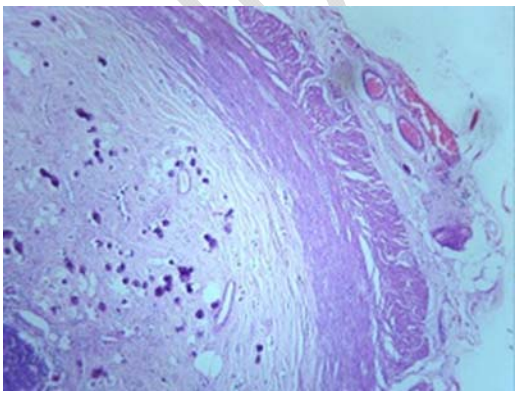

Figure 2: Histopathologic examination of the submucosa, muscularis propria and serosal surfaces of the appendix showing extensive submucosa fibrosis with Showers of Schistosoma haemantobium ova as well as congested serosa (arrows) (H and E, ×10)

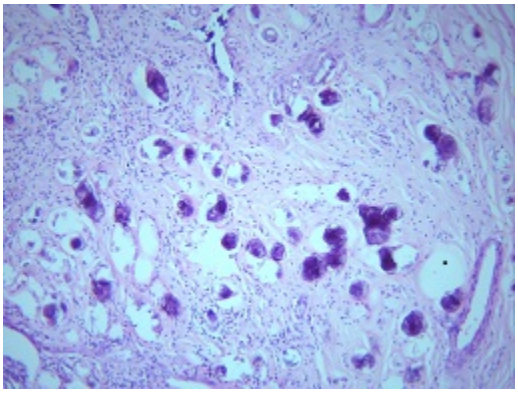

Figure 3: Histopathologic examination of the submucosa of the appendix showing chronic inflammation, fibrosis with embedded Schistosoma ova and vascular channels (H and E, ×20)