

A CASE REPORT OF ACUTE APPENDICITIS DUE TO INTESTINAL SCHISTOSOMIASIS WITH A REVIEW OF THE LITERATURE

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ABSTRACT

Schistosomiasis is prevalent in tropical and subtropical regions of which Nigeria is considered as one. Schistosoma appendicitis is a rare manifestation of Schistosomiasis particularly in developed countries compared to endemic regions. Its diagnosis is usually made after histological examination of appendectomy specimen. In endemic regions, Schistosoma appendicitis should always be considered as a differential diagnosis for acute appendicitis, though seldom reported in developed countries, and with recent changes in global migration, schistosoma appendicitis should also be considered as one of the causes for appendicitis, especially for recent migrants in western countries. We present a case of a 43 year old woman with appendicitis due to intestinal schistosomiasis. She was first managed as a case of pelvic inflammatory diseases but not responsive to medication. A review by the surgical team changed the diagnosis to acute on chronic appendicitis. Its diagnosis was made after surgical pathology of the removed appendix.

KEYWORDS: Schistosoma, Appendicitis, Endemic, Migration.

INTRODUCTION

Schistosomiasis is an acute and chronic parasitic diseases caused by blood flukes. (Trematode worms) of the genus Schistosoma. Estimates shows that at least 220.8 million people required preventative treatment in 2017 and its transmission has been reported from 78 countries.^[1] Intestinal Schistosomiasis is caused by Schistosoma mansoni or Schistosoma japonica. Schistosomiasis is prevalent in tropical and sub-tropical areas, especially in poor countries without access to safe drinking water and adequate sanitations.^[1] Nigeria is considered one of the endemic areas of schistosomiasis.

Schistosoma appendicitis is rare particularly in developed countries compared to endemic areas.^[2,3,4] In a 2008 retrospective study conducted through database search for schistosomiasis in patients who had undergone appendectomy for acute appendicitis from 1995 to 2005 in a New York hospital, of the 1690 appendectomies performed during this period only 3 cases of schistosoma appendicitis were identified.^[3] A 2012 study in a Spanish hospital still characterized Schistosoma appendicitis as

an unusual etiology for acute appendicitis but described it as a rising disease in Western countries.^[5] Recent changes in global migration leading to immigration growth, up surging people coming from endemic areas of schistosomiasis is believed to be responsible for this.^[2,6]

We present a case of a 43year old woman, first managed as a case of pelvic inflammatory diseases but not responsive to medication. A review by the surgical team changed the diagnosis to acute on chronic appendicitis. This is a case of acute appendicitis secondary to schistosomiasis, a rare but possible effect of the parasitic infestation especially in schistosomiasis endemic countries like Nigeria.

CASE PRESENTATION

A 43 year old multiparous woman was first seen in the clinic with colicky right iliac fossa pain that comes and goes associated with poor history of itchy vaginal discharge. Major physical finding was marked lower abdominal tenderness. Blood investigation including packed cell volume, White blood cell, Total and its

differentials, Electrolyte and urea, creatinine and calcium and pelvic ultrasound were normal. She was managed with broad-spectrum antibiotics. She was later referred to the surgical team when she was not responding to treatment.

The surgical team made a diagnosis of acute on chronic appendicitis based on the presence of abdominal pointing sign, marked right illiac fossa tenderness with positive psoas sign. She was prepared for surgery. Main operative finding was hyperemic and turgid appendix, 12.0 cm long and riddled with sandy patches held down by adhesions. Surgical pathology described the macroscopic

appearance of a swollen congested appendix measuring 10.0 x 0.7 x 0.5 cm with shiny serosa with fecal materials filled lumen. Microscopy findings of *Schistosoma* eggs on the wall of transmural sections predominantly around the lamina propria and submucosal. They were seen diffusely infiltrating these sections with aggregates of chronic inflammatory cells around some of these eggs (Fig 1, 2). She was subsequently prescribed with Praziquantel, 20mg/kg, (PO TID at interval of 4-6hr) the drug of choice for treatment of schistosomiasis. Stool for ova of parasites was negative.

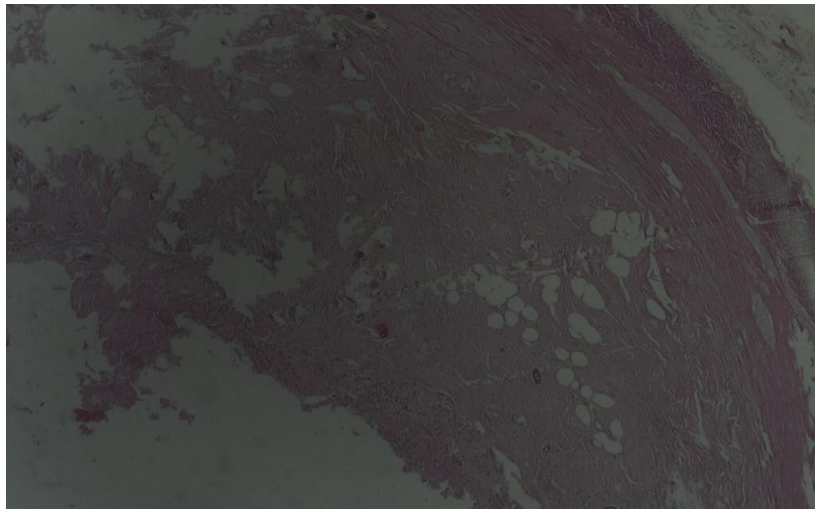


Figure 1: H&E stain showing schistosoma eggs on the wall of transmural section of the appendix (4x).

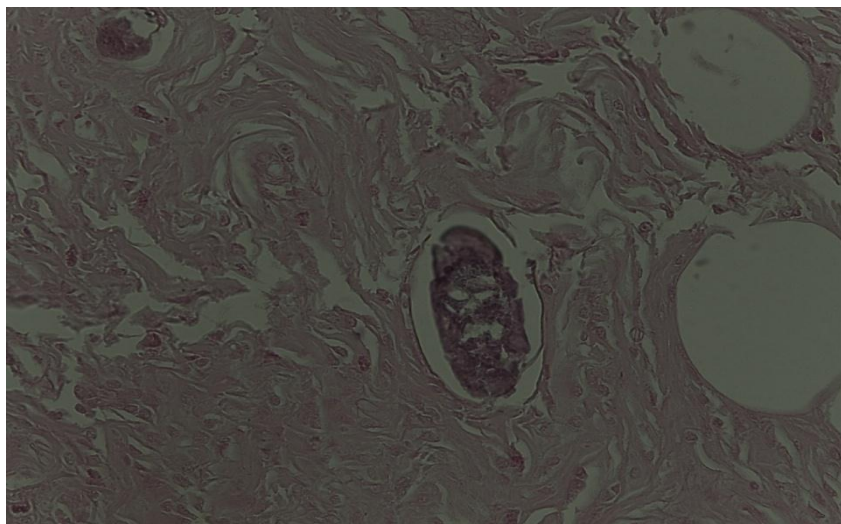


Figure 2: H&E section showing shistosoma eggs in the wall of the appendix. (10x).

DISCUSSION

The incidence of appendicitis is quoted as 86 cases per 100,000 patients worldwide.^[7] Acute appendicitis is the most common abdominal surgical emergency that reports to a general surgeon^[8], and in Northern Nigeria an incidence of 2.6 per annum was reported while a rate of 15% to 40% was quoted for the western part of Nigeria.^[9]

Acute appendicitis is thought to be initiated by progressive increases in intraluminal pressure that compromise venous outflow.^[10]

It is also associated with overt luminal obstruction caused by a small stone-like mass of stool, or fecalith, or less commonly a gallstone, tumor, or a mass of worms.^[10]

Much of the pathology of schistosomiasis is caused by host inflammatory reaction to different stages of the parasite.^[11] Schistosomiasis itself does not frequently cause appendicitis given an incidence of 6.2% in an endemic region like Nigeria and 0.001% in non endemic regions.^[12,13]

There are many hypotheses concerning the pathogenesis of appendicitis secondary to schistosomiasis (4). The most common hypothesis is that eggs in the appendix wall stimulate inflammatory reactions with fibrosis with narrowing of the appendiceal lumen following.^[15] Another hypothesis talked about schistosomal egg emboli resulting in ischemia with granulomatous inflammation of the peri-appendicular intestine causing fibrosis and disruption of the intestinal wall with obstruction of the appendix and acute appendicitis.^[4]

Schistosomiasis infects approximately 230 million persons and kills more than 200, 000 individuals annually with the organs and sites of major diseases varying with the species.^[12] *S. hematobium* is the most commonly associated with appendicitis and is most prevalent in Africa, Eastern Mediterranean and the Middle East.^[4,14]

Schistosomiasis of the appendix was first described in 1909, but remains a rare condition, although it has been reported in endemic areas⁽¹⁵⁾. Increasing globalization has made such diseases important in the west.^[15,16,17] Mohammed Yousef Aldossary et al reported a case of schistosoma appendicitis presenting as acute peritonitis.^[18]

Schistosoma appendicitis diagnosis depends on histological examination of removed appendix with presence of eggs in the appendix. It is essentially impossible to make the diagnosis pre-operatively.

Praziquantel therapy was administered to the patient and she is in good condition.

Conflict of Interest: None.

CONCLUSION

Schistosoma appendicitis is a rare form of appendicitis, clinicians and pathologist should be aware of it particularly in endemic areas like Nigeria, and in non endemic regions because of recent changes in global immigration.

REFERENCES

1. Global Health Estimates 2016: Death by Cause, Age, Sex, by Country and by Region, 200-2016. General, World Health Organization, 2018.
2. Salih MA. A case of acute appendicitis due to intestinal schistosomiasis. *Ann Med Surg (Lond)*, 2018; 26(27): 1-3.

3. Nandipati K, Parithivel V, Niazi M. Shistosomiasis: a rare cause of acute appendicitis in the African-American population in the United State. *American Surgeon*, 2008; 74(3): 221-223.
4. Cox ND, Yates PJ. Shistosomiasis: a rare cause of acute appendicitis. *JSCR*, 2010; 4: 4.
5. Lopez de Cenarruzabeitia I, Landolfi S, Armengol Carrasco M. Intestinal schistosomiasis as unusual etiology for acute appendicitis, nowadays a rising diseases in Western Countries. *Case Rep Infect Dis.*, 2012; 2012: 896820. doi:10.1155/2012/896820
6. Imamura H et al. Acute appendicitis associated with the presence of schistosome eggs in a sailor: a case report. *Surg Case Rep.*, 2019; 5(1): 55. doi:10.1186/s40792-019-0615-8.
7. Ahmed SA, Makana JG, Mohammed U, Sanda RB, Shehu SM, Ameh EA. Epidemiology of appendicitis in Northern Nigeria: A 10-year review. *Sub-Sahara Afr J Med*, 2014; 1: 185-90.
8. Makana JG. Is acute appendicitis still the most common abdominal surgical emergency? *Arch Med Surg.*, 2017; 2: 1-2.
9. Alastise OI, Ogunweide T. Acute appendicitis: Incidence and management in Nigeria. *IFEMED J.*, 2008; 14: 66-70.
10. V.Kumar, AK Abbas and Aster JC. Acute appendicitis in Robbins and Cotran pathologic basis of diseases. 9th Edition. Elsevier Saunders, Philadelphia, 2015; 816.
11. V.Kumar, Ak Abbas and Aster JC. Schistosomiasis. In Robbins and Cotran pathologies basis of diseases. 9th Edition Elsevier Saunders, Philadelphia, 2015; 397.
12. Duvie SO, Diffang C, Guirguis MN. The effects of *Schistosoma* hematobium infestation on the vermiform appendix: The Nigerian experience. *J Trop Med Hyg*, 1987; 90(1): 13-8.
13. Karatepe O, Adas S, Tukenmez M, Bathal M, Altiook M, Karahan S. Parasitic infestation as acute appendicitis. *G Chir*, 2009; 30(10): 426-8.
14. Badmos KB, Komolafe AO, Rotimi O. Schistosomiasis presenting as acute appendicitis. *East Afr Med J.*, 2006; 83(10): 528-32.
15. Callisto Madavo and Hisham Hurriez. Schistosomiasis of the appendix. *J R Soc Med*, 2006; 99(9): 473-474.
16. Cox ND and PJ Yates. Schistosomiasis : a rare cause of acute appendicitis. *J surg Case Rep.*, 2010; 4: 4.
17. B.Doudier and J.Delmont. Schistosomiasis as unusual cause of appendicitis. *Clinical microbiology and infection*, 2004; 10(2): 89-91.
18. Mohammed Yousef Aldossary, Fatimah Almabyouq, Miral Mashhour, Khairi Hassan. Schistosomal appendicitis presenting as acute peritonitis: A case report and literature review.