



ORIGINAL ARTICLE

A Case Report of Female Genital Schistosomiasis in a 29-Year-Old Patient From a Teaching Hospital in North-Eastern Nigeria.

Aminu Mohammed Chubado Dahiru^{1,2}, Ibrahim Rabiou^{3,4*}, Nasiru Raheem^{1,2}, Isaac Peter²

¹Pathology Department, Modibbo Adama University, Yola, Adamawa State.

²Pathology Department, Modibbo Adama University Teaching Hospital, Yola, Adamawa State.

Aminu Mohammed Chubado Dahiru: mcdahiru@yahoo.com

Nasiru Raheem: rahemmnasiru@yahoo.com

Isaac Peter: isaackasari63@gmail.com

³Community Medicine Department, Gombe State University, Gombe.

⁴Community Medicine Department, Federal Teaching Hospital, Gombe.

Keywords

Genital;

Hospital;

Female;

Schistosomiasis.

ABSTRACT

Schistosomiasis is a chronic parasitic infection that affects more than 220 million people worldwide, particularly in sub-Saharan Africa (SSA). One of the complications of urogenital Schistosomiasis is female genital Schistosomiasis (FGS) which is associated with the presence of *S. haematobium* eggs and related pathologies in the genitals of women living in or visiting schistosomiasis-endemic areas. FGS is a neglected and misdiagnosed gynaecological disease with un-specific clinical symptoms and signs. It adversely affects the quality of sexual and reproductive health of women and is a risk factor for HIV and HPV infections in affected women. Diagnosis of upper genital tracts FGS is mostly accidental from histological examination of excised tissues. This is a case description of a rare incidence of female genital Schistosomiasis of the upper genital tract in a 29-year-old, single woman from a Schistosomiasis-endemic area of Adamawa State, Nigeria who presented with a history of lower abdominal pain of a month duration and abdominal swelling. Physical examination revealed a pelvic mass of 16 weeks' gestation size and histological examination confirmed the presence of Schistosome ova in the excised ovarian cyst. Clinicians should have a high index of suspicion of female genital Schistosomiasis (FGS) in women and girls in Schistosomiasis-endemic areas. Deliberate programs for healthcare workers and outreach programs for the communities must be designed and implemented to raise awareness about genital Schistosomiasis.

Correspondence to:

Ibrahim Rabiou
Department of Community Medicine
Gombe State University
Gombe Nigeria
Email: ibrahimrabiou69@gsu.edu.ng

Introduction

Schistosomiasis is a chronic parasitic infection that affects more than 220 million people worldwide, particularly in sub-Saharan Africa (SSA).¹The clinical manifestation of the disease in the intestinal tract,

liver, and urinary tract are well documented but pathological effects on the host's reproductive organs is not well documented. One of the complications of urogenital Schistosomiasis is female genital Schistosomiasis (FGS) which is associated with the presence of *S. haematobium* eggs and related

pathologies in the genitals of women living in or visiting Schistosomiasis-endemic areas.² The clinical presentations of FGS include genital lesions such as yellow sandy patches, mucosal bleeding, abnormal blood vessels, ulcer, and menstrual disorders, ectopic pregnancies, miscarriages, painful sexual intercourse and primary or secondary infertility.³

Human schistosomes are normally found in the mesenteric veins for *S. mansoni* and *S. japonicum* or pelvic veins for *S. haematobium*.^{4,5} However, the adult Schistosoma worms in abnormal sites and subsequent deposition of the eggs in adjacent tissues such as the genital tracts have been documented.^{5,6} Blood vessel anastomoses between the pelvic organs are likely responsible for the deposition of the eggs into the genital tract. The cervix has been suggested to be the predilection site for trapped eggs.⁷ In clinical practice, the cervix, the fallopian tubes, and the vagina are the most common gynecological sites found to contain the eggs of *S. haematobium*.⁷ In autopsy specimens of the genital tract, eggs are relatively common both in the ovaries and within the uterus and are consequently possibly under-identified in clinical practice.⁸⁻¹⁰ In Nigeria, Edington et al described genital Schistosomiasis from autopsy specimens as far back as 1975.¹¹

Diagnosis of FGS may not be easily made because of the low sensitivity and specificity of the current diagnostic tools. However, lower genital tract lesions from FGS are identifiable by pelvic examination, colposcopy, and histology, while upper genital tract lesions from FGS are less evident on routine clinical examinations. This may explain the lack of data-specific prevalence rates for upper genital tract FGS. Not surprisingly, the clinical symptoms of FGS in the upper genital tract have not been commonly reported by gynecologists and parasitologists.¹²

This paper describes the collaborative efforts by members of the FGS society of Nigeria in conjunction with medical experts from Modibbo Adama University Teaching Hospital in Adamawa State to arrive at a diagnosis of a rare case of female genital Schistosomiasis.

CASE REPORT

A 29-year-old female presented with complaint of lower abdominal pain of a month duration and abdominal swelling. There was an associated history of whitish vaginal discharge and previous history of bloody urine. There was no associated history of fever, weight loss or history of night sweats. The patient neither smokes cigarettes nor drinks alcohol. She had a

previous history of ovarian cystectomy in a private hospital seven months prior to the presentation. The excised cyst was not examined histologically.

Physical examination revealed a young woman, well-nourished and clinically stable. Abdominal examination showed an obvious distended abdomen with healed midline scar. There was a pelvic mass measuring about 16 weeks' gestation size. A preliminary diagnosis of recurrent ovarian cyst was made, and the patient was worked-up for exploratory laparoscopy which was done. The excised cyst was submitted for histological examination.

Macroscopic examination showed a flap of distorted tissue measuring 9x5x4cm attached to two cysts. Incision through the cyst showed unilocular cyst containing clear fluid. The histological section had numerous ova of schistosomes embedded within the ovarian stroma with foci of inflammatory infiltrates noted as shown in Figure 1a below. Figure 1b is a normal ovarian stroma.

DISCUSSION

Schistosomiasis of the female genital tract is a commonly under-reported condition though it has been known to occur in the female reproductive organs. Although numerous papers have been published on the occurrence of female genital schistosomiasis with *S. haematobium* infection, only a few reports exist on FGS of the upper genital tract. It has been reported that a significant portion of *S. haematobium* ova calcifies and accumulates in the affected organs making pathological sequelae more likely.¹³ The first case of genital schistosomiasis in the vagina was reported in Egypt in 1899.¹⁴

It has been postulated that the adult worms of *S. haematobium* are able to gain easy access to the internal and external genitalia via the intricate vascular links between the plexus rectalis and vesicalis on the one side and veins of the female genital organs on the other.¹⁵ A study on autopsy concluded that any woman with urinary Schistosomiasis would have ova in one or several organs of the reproductive tract based on the location of the adult parasites.⁹ This probably explains the involvement of ovaries in the present case. It is a rare phenomenon and should be considered a 'pathological curiosity'.¹⁶ The patient, an indigene of a schistosomiasis-endemic community in Adamawa State, may have acquired this infection early in childhood to manifest the disease at that time. It takes approximately 5-10 years to have a full-blown disease from the time of infection.¹⁵ Healthcare workers should obtain a detailed geographic, residential and

travel history from female patients who reside in endemic communities or immigrants presenting with lower abdominal pain, abdominal swelling, vaginal discharge, and menstrual abnormality in order to identify the source of infection when upper genital tract FGS is strongly suspected.

The genital topographical localization of Schistosome lesions may be related to age. In very young girls or those at puberty, the vulva is often affected but at a later age the vagina, cervix and upper genital organs are affected.¹⁷ This has been attributed to the anatomy, principally due to vascular adaptations starting during puberty, early womanhood and culminating during pregnancy.¹⁷ The case being reported is in conformity with the above statement as this patient in question is in her early adulthood.

Localization of adult worms and deposition of eggs in abnormal sites are of considerable medical importance looking at it from a clinical perspective. Granuloma formation and the subsequent fibrosis and scar formation were induced by the eggs deposited in these sites. A study described two distinct patterns of tissue reactions in the histological specimens of patients with female genital schistosomiasis.¹⁸ The first type was for viable eggs which consist of a strong inflammatory reaction characterized by diffuse infiltration of plasma cells, lymphocytes, eosinophils, and macrophages around sites of egg deposition. The other type was for nonviable eggs or calcified shells, and it consists of a fibrous connective tissue reaction with a minimal cellular infiltrate best described as scar tissue. The case being reported conforms with the second type of histological reaction and interestingly, we found several calcified *Schistosoma* ova disposed within a hyalinized fibrous tissue.

A retrospective study of 176 cases of schistosomiasis of the female genital tract in Malawi found that the ovary was involved in 17 cases.¹⁴ Most of these were from salpingo-oophorectomy specimens removed for various reasons including tubo-ovarian abscess, pelvic adhesions, ovarian cysts, ectopic pregnancy, and tubal ligation; most of these patients presented during the third decade. Among these cases, six were probable incidental findings and the diagnosis was based purely on histological examinations just like the case being reported.

In endemic areas, it is envisaged that many women of childbearing age could be having FGS involving the upper genital tract, which is undiagnosed, as it is asymptomatic unless complicated. It is interesting to note that the initial diagnosis of this case based on the available clinical findings was an ovarian cyst. The diagnosis of female genital Schistosomiasis in this patient would never have been arrived at, had it not been for histopathology. From this case report, community-based studies need to be conducted to describe the true magnitude of the FGS in northeastern Nigeria where Schistosomiasis is endemic. Deliberate programs for healthcare workers and outreach programs for the communities must be designed and implemented to raise awareness about genital Schistosomiasis.

Conclusion

The scenario of the case report from initial to final diagnosis shows that FGS of the upper genital tract can mimic several disease conditions. This calls for female genital schistosomiasis training among healthcare workers who usually consult patients that live or have visited Schistosomiasis-endemic areas in their hospital settings.

Conflict of interest: We declared that there is no conflict of interest.

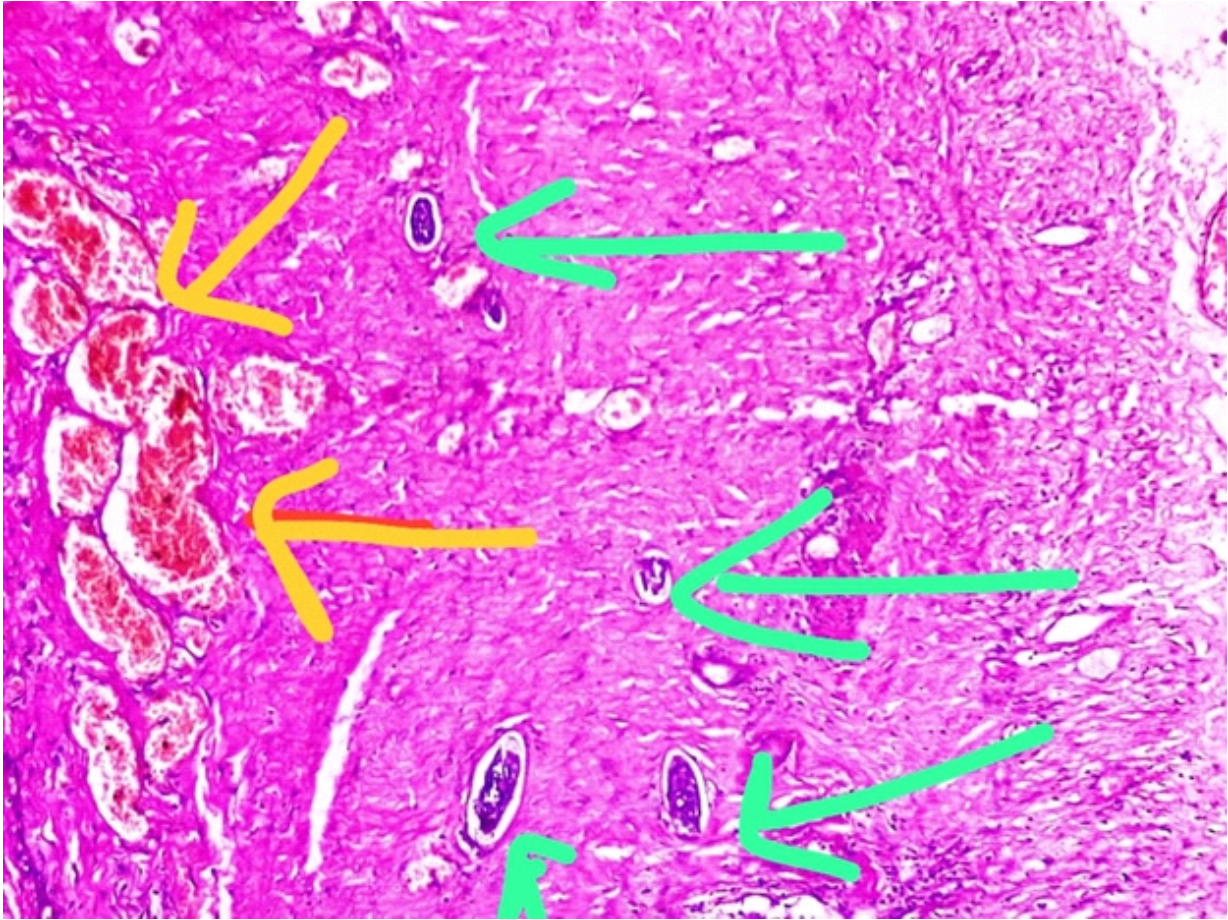


Figure 1a: H&Ex10 showing numerous ova of schistosomes embedded within ovarian stroma with foci of inflammatory infiltrates. Green arrows showing calcified ova while the yellow arrows showing blood vessels.

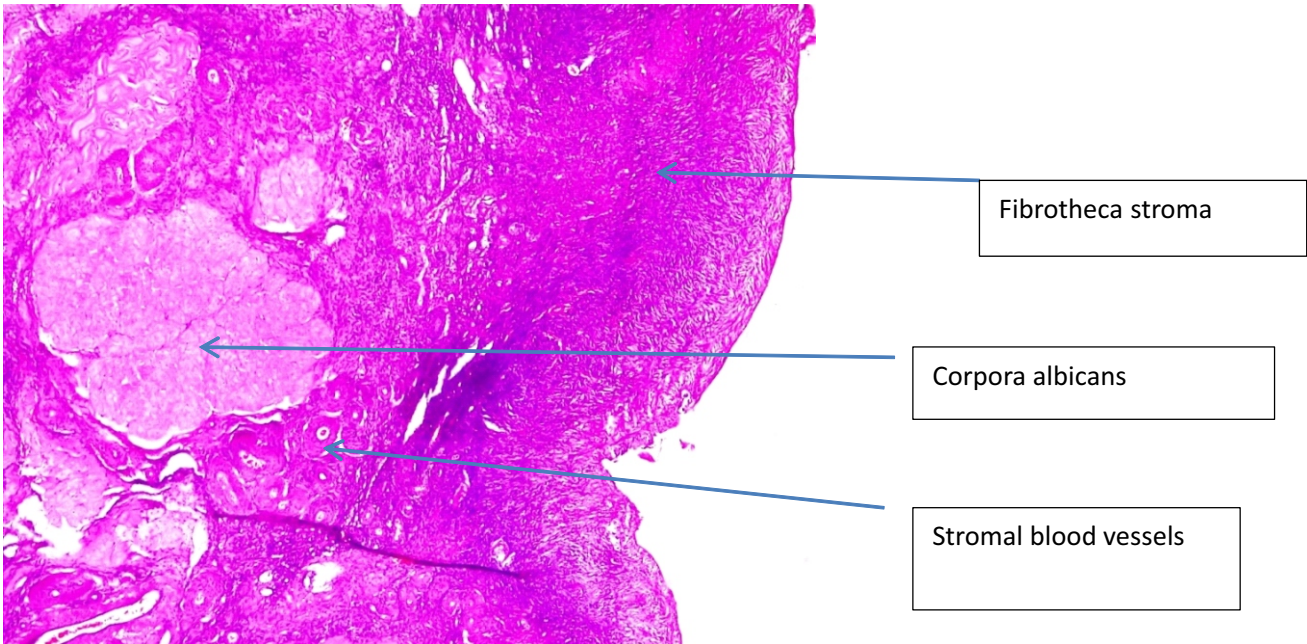


Figure 1b: Photomicrograph showing normal ovarian tissue (x10 magnification)

REFERENCES

1. McManus DP, Dunne DW, Sacko M, Utzinger J, Vennervald BJ, Zhou XN. Schistosomiasis. *Nat Rev Dis Primers*. 2018 Aug 9;4(1):13. doi: 10.1038/s41572-018-0013-8. PMID: 30093684.
2. Kjetland EF, Leutscher PD, Ndhlovu PD. A review of female genital schistosomiasis. *Trends Parasitol*. 2012 Feb;28(2):58-65. Doi: 10.1016/j.pt.2011.10.008. Epub 2012 Jan 12. PMID: 22245065.
3. Holmen S, Galappaththi-Arachchige HN, Kleppa E, Pillay P, Naicker T, Taylor M, Onsrud M, Kjetland EF, Albrechtsen F. Characteristics of Blood Vessels in Female Genital Schistosomiasis: Paving the Way for Objective Diagnostics at the Point of Care. *PLoS Negl Trop Dis*. 2016 Apr 13;10(4):e0004628. Doi: 10.1371/journal.pntd.0004628. PMID: 27073857; PMCID: PMC4830560
4. Gryseels, B., Polman, K., Clerinx, J., Kestens, L. Human Schistosomiasis. *Lancet*, 2006; 368, 1106-1118. [http://dx.doi.org/10.1016/S0140-6736\(06\)69440-3](http://dx.doi.org/10.1016/S0140-6736(06)69440-3)
5. Poggensee G, Sahebali S, Van Marck E, Swai B, Krantz I, Feldmeier H. Diagnosis of genital cervical schistosomiasis: comparison of cytological, histopathological and parasitological examination. *Am J Trop Med Hyg*. 2001 Sep;65(3):233-6. Doi: 10.4269/ajtmh.2001.65.233. PMID: 11561710
6. Feldmeier H, Leutscher P, Poggensee G, Harms G. Male genital schistosomiasis and haemospermia. *Trop Med Int Health*. 1999 Dec;4(12):791-3. Doi: 10.1046/j.1365-3156.1999.00511.x. PMID: 10632985.
7. Kjetland EF, Leutscher PD, Ndhlovu PD. A review of female genital schistosomiasis. *Trends Parasitol*. 2012 Feb;28(2):58-65. Doi: 10.1016/j.pt.2011.10.008. Epub 2012 Jan 12. PMID: 22245065.
8. Badawy AH. Schistosomiasis of the cervix. *Br Med J*. 1962 Feb 10;1(5275):369-72. doi: 10.1136/bmj.1.5275.369. PMID: 13863811; PMCID: PMC1957589.
9. Gelfand M, Ross MD, Blair DM, Weber MC. Distribution and extent of schistosomiasis in female pelvic organs, with special reference to the genital tract, as determined at autopsy. *Am J Trop Med Hyg*. 1971 Nov;20(6):846-9. doi: 10.4269/ajtmh.1971.20.846. PMID: 5131693.
10. Gelfand M, Ross WF. II. The distribution of schistosome ova in the genito-urinary tract in subjects of bilharziasis. *Trans R Soc Trop Med Hyg*. 1953 May;47(3):218-20. doi: 10.1016/0035-9203(53)90006-6. PMID: 13077721.
11. Edington GM, Nwabuebo I, Junaid TA. The pathology of schistosomiasis in Ibadan, Nigeria with special reference to the appendix, brain, pancreas, and genital organs. *Trans R Soc Trop Med Hyg*. 1975;69(1):153-6. Doi: 10.1016/0035-9203(75)90027-9. PMID: 1145708.
12. Orish VN, Morhe EKS, Azanu W, Alhassan RK, Gyapong M. The parasitology of female genital schistosomiasis. *Curr Res Parasitol Vector Borne Dis*. 2022 May 27; 2:100093. Doi: 10.1016/j.crpvbd.2022.100093. PMID: 35719849; PMCID: PMC9198370.
13. Christie JD, Crouse D, Kelada AS, Anis-Ishak E, Smith JH, Kamel IA. Patterns of *Schistosoma haematobium* egg distribution in the human lower urinary tract. III. Cancerous lower urinary tracts. *Am J Trop Med Hyg*. 1986 Jul;35(4):759-64. Doi: 10.4269/ajtmh.1986.35.759. PMID: 3089035.
14. Wright ED, Chiphangwi J, Hutt MS. Schistosomiasis of the female genital tract. A histopathological study of 176 cases from Malawi. *Trans R Soc Trop Med Hyg*. 1982;76(6):822-9. Doi: 10.1016/0035-9203(82)90118-3. PMID: 7164149.
15. Nation CS, Da'dara AA, Marchant JK, Skelly PJ. Schistosome migration in the definitive host. *PLoS Negl Trop Dis*. 2020 Apr 2;14(4):e0007951. doi: 10.1371/journal.pntd.0007951. PMID: 32240157; PMCID: PMC7117656
16. Oosterwijk S. Choosing the negative: A behavioral demonstration of morbid curiosity. *PLOS One*. 2017 Jul 6;12(7):e0178399. Doi: 10.1371/journal.pone.0178399. PMID: 28683147; PMCID: PMC5500011.
17. Attili VR, Hira SK, Dube MK. Schistosomal genital granulomas: a report of 10 cases. *Br J Vener Dis*. 1983 Aug;59(4):269-72. Doi: 10.1136/sti.59.4.269. PMID: 6688195; PMCID: PMC1046198.

18. Helling-Giese G, Sjaastad A, Poggensee G, Kjetland EF, Richter J, Chitsulo L, Kumwenda N, Racz P, Roald B, Gundersen SG, Krantz I, Feldmeier H. Female genital schistosomiasis (FGS): relationship between gynecological and histopathological findings. *Acta Trop.* 1996 Dec 30;62(4):257-67. Doi: 10.1016/s0001-706x(96)00027-7. PMID: 9028410.