CASE REPORT

Schistosomal stricture of the ureter-diagnostic dilemma

CK Oranusi, AME Nwofor, IV Onyiaorah[1], CO Ukah[1]

Departments of Surgery, and [1]Pathology, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria

Abstract

Chronic schistosomiasis of the urinary tract can present with symptoms unrelated to the disease. A 33-year-old man from Edo State Nigeria presented with recurrent left flank pain. Laboratory investigations did not reveal any cause. Radiological investigation revealed a stricture of the left ureter and hydronephrosis of the left kidney. Management included surgical excision and antischistosomiasis chemotherapy. Histopathological examination of specimen of the ureter obtained after surgical exploration revealed *Schistosoma heamatobium* ova in the wall of the ureter.

Key words: diagnostic dilemma, *Schistosoma heamatobium*, schistosomiasis, ureteric stricture

Date of Acceptance: 16-Feb-2011

Introduction

Schistosomiasis of the genitourinary tract is commonly caused by the trematode worm *Schistosoma heamatobium*.[1] The disease presents in one of two forms: either as an acute disease or as a chronic disease. The disease is endemic mainly in Africa and certain areas of the Middle East.[1] In Egypt, a country which previously had the highest endemicity in Africa, the disease is prevalent along the areas bordering the Nile river.[2] A vast knowledge of the aetiology and life cycle of the causative organism exists in the literature.[1]

In Nigeria, the incidence of the disease has been reported to be high in areas close to fresh waters and in areas where irrigation agriculture is long established. These areas include Oguta in Imo state, Southeast, Nigeria,[3] communities in Edo State, Southsouth, Nigeria,[4,5] and Borno State in North east, Nigeria.[6]

Acute urinary infection with the disease commonly presents with painful terminal hematuria. Diagnosis, most of the times, is straightforward. Chronic infection presents with chronic effects of fibrosis in the bladder, urethra, and ureter. This may cause hydronephrosis, renal atrophy, bladder contraction, and calcifications.[1]

We report a peculiar but unsuspected presentation of ureteric stricture due to schistosomiasis in a young man without previous history of acute phase symptoms of the disease. The aim of this report is to highlight this unusual cause of ureteric stricture, as a very high differential in the diagnosis of ureteric stricture even in the absence of clinical or laboratory evidence of schistosomiasis and also the good success rate that follows surgical treatment of this complication.

Case Report

A 33-year-old man, who hails from Auchi, in Esaka East LGA of Edo State, South Nigeria, presented with a complaint of recurrent left loin pain of two days duration. The pain was severe and colicky in nature and was associated with nausea and vomiting, but no fever. Significant lower urinary tract symptoms and hematuria were absent. He had similar

Address for correspondence:
Dr. Oranusi CK,
Department of Surgery, Nnamdi Azikiwe, University Teaching Hospital P.M.B 5025, Nnewi, Anambra State, Nigeria.
E-mail: chidex30@yahoo.co.uk

Access this article online	
Quick Response Code:	Website: www.njcponline.com
	DOI: 10.4103/1119-3077.91765
	PMID: 22248959

episode three months prior to presentation. The symptoms at that time were relieved with analgesics, antibiotics, and infusions at a private hospital.

He was born in Ogun State, South West, Nigeria. He has lived in the Ogun State for the greater part of his life, until 3 years ago when the family relocated to Onitsha, South East, Nigeria, where he now leaves and works with a bottling company. His source of drinking water is from borehole and he has never, as much as he could remember, waded or used water from fresh water streams. He could not remember ever having terminal hematuria or noticed people around having this symptom.

Physical examination showed an acutely ill-looking young man in painful distress. He was afebrile, not pale and acyanosed. He had a pulse rate of 100/min, a respiratory rate of 36 cycles/min and a blood pressure of 120/90 mmHg. Abdominal examination revealed tenderness in the left lumber and left hypochondrial regions. No masses were palpable within the abdomen. Left angle renal punch test was positive. The cardiovascular, chest, and central nervous system examinations were essentially normal. A diagnosis of left nephrolithiasis was made to rule out left pyelonephrities.

Laboratory investigations revealed the following findings: packed cell volume (PCV) of 0.33, white blood cell (WBC) count of 4.2×10^9 cells/L, with differentials of neutophils 40%, lymphocytes 60%, monocytes 0%, and eosinophils 0%. Serum electrolyte showed sodium 144 mmol/l, potassium 4.3 mmol/l, bicarbonate 28 mmol/l, chloride 100 mmol/l, urea 21 mmol/l, and creatinine of 76 μmol/l. Urinalysis revealed a clear amber colored urine, with a specific gravity of 1.005. There was no glucosuria or proteinuria. Urine microscopy revealed a WBC count of 3–5/hpf and no hematuria. Urine culture did not yield any organism. Abdominal ultrasonography revealed a normal right kidney, and a moderately enlarged left kidney with dilated calyces. The proximal ureter was dilated up to the third lumbar vertebra from where it peters out to normal caliber ureter. No stone was seen. Intravenous urography, revealed prompt excretion of contrast from the right kidney and a faint nephrogram on the left. The left ureter was only demonstrated in delayed films with a stenosis at the mid ureter. The diagnosis was changed to ureteric stenosis query cause.

He was stabilized with analgesics, antibiotics (intravenous third generation cephalosporin and gentamycin), and intravenous infusions. Symptoms subsided after 3 days. He was counseled on surgical exploration. The exploration was done via a left subcostal flank incision and the findings were an apparently normal looking left kidney, but with dilatation of the proximal ureter. An area of stricture was observed from this point measuring 2 cm in length. The strictured area was excised and an ureteroureterostomy was successfully carried out. Histopathological examination of the tissue excised showed calcified ova of *S. heamatobium* [Figure 1] within the wall of the ureter that is almost replaced by hyalinized, inflamed fibrocollagenous tissue [Figures 2 and 3]. The ova had terminal spines [Figure 3]. Overall features were those of ureteric stricture due to schistosomiasis. He was subsequently treated with praziquantel (tablets) 40 mg/kg as a single dose. After 6 months of follow-up, a repeat intravenous urography revealed a normal-sized left kidney with prompt excretion of contrast. The left ureter was well demonstrated and normal.

Discussion

Ureteric stricture is the most common urological complication of urinary schistosomiasis.[7,8] The lower and mid ureter are the most commonly affected sites. [1,9] Other complications include bladder calcification, urinary tract stones and squamous cell carcinoma of the urinary tract especially of the bladder.[1,7,8]

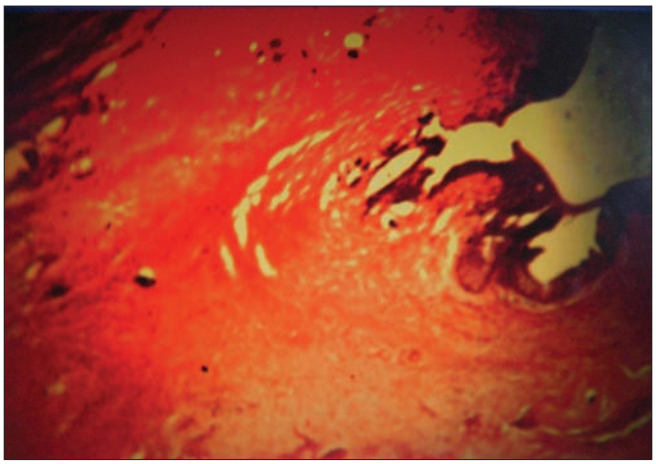

Figure 1: Photomicrograph showing two ova of parasite (arrow) – toward the left of a lumen lined by transitional epithelium – against a fibrotic background (H and E, stain, ×4)

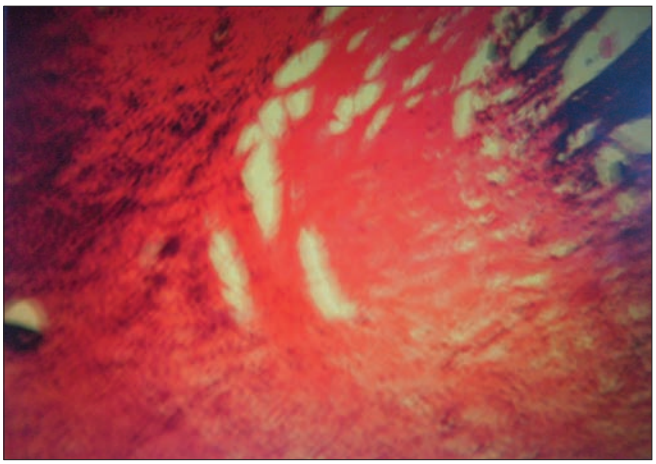

Figure 2: Photomicrograph showing an ovum of parasite (arrow) – toward the left of a lumen lined by transitional epithelium – against an inflamed, fibrotic background (H and E, stain, ×10)

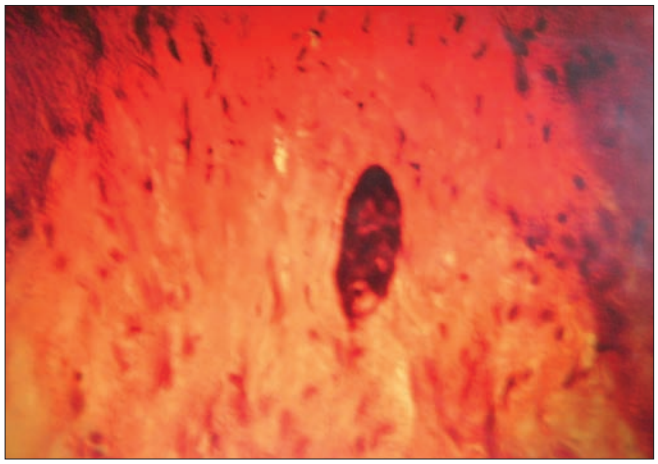

Figure 3: Photomicrograph showing an ovum of parasite (arrow) against a fibrotic background (H and E, stain, ×40)

The diagnosis of genitourinary schistosomiasis can be tasking, especially when it presents in the chronic stages as seen in this patient, when excretion of terminally spined ova in urine or feaces is almost always absent. This problem is even made worse by the fact that most clinicians do not remember this entity as a differential in the diagnosis of cases presenting with ureteric stricture. Apart from having origin from a schistosomiasis endemic area of Edo State, South, Nigeria,[4,5] nothing in the medical history suggested the possibility of schistosomiasis in this patient.

In the inactive or chronic stages of the disease, investigations that may be more specific include bladder biopsy, and serological tests.[10,11] These tests are largely unavailable in our environment. Radiological investigations such as abdominal ultrasonography are easily accessible and cheap, but others such as intravenous urography and retrograde pyelography that are important in assessing the complications of schistosomiasis in the urinary tract are not readily available. Even when available, lack of qualified radiologists makes the interpretation of the results difficult and unhelpful to the clinician. Computerized tomography scans can detect both obstructive uropathy and calcified lesions in the urinary tract and thus can compliment intravenous urography.[12] This test is still not readily available. Cystoscopy and ureteroscopy can also detect pathological lesions in the bladder and ureter respectively.[1] These investigative procedures are usually out of the reach of most hospitals and trained endoscopists are also very few.

In the active or acute phase of the disease, drug treatment is often curative.[1] In the chronic stages, additional forms of treatment are often necessary for complete treatment. Surgical treatment complimented by drug therapy remains to be the treatment of choice for complications arising from chronic schistosomiasis. Surgical modalities include resection and reanastomosis (ureterouretostomy) of the ureter, resection with ileal interposition, ureteroneocystostomy, or creation of bladder flaps such as the Boari flap to replace long strictures of the ureter.[1,9,13] High pressure dilatation catheter with double-J stent has been proposed as alternative to open surgery in the treatment of ureteric strictures, because of its low morbidity and short hospital stay.[14] These surgical treatments require highly skilled urologists, a situation which is barely possible in most hospitals in this environment. Besides, stents such as the double-J stent or ureteric catheters are often not available necessitating the improvisation of materials during such procedures. This really tasks the skill of the surgeon.

In our index patient, the diagnosis was only made from histopathological examination of the specimen. This therefore emphasizes the need for multidisciplinary approach to the diagnosis of urinary tract schistosomiasis.

In conclusion, the diagnosis of ureteric stricture from schistosomiasis requires a high index of suspicion for definitive treatment. The management is based on appropriate laboratory, radiological and endoscopic evaluation of the patient. These investigative modalities are barely available in this environment. The treatment requires a multidisciplinary approach involving the physician, surgeon, and the histopathologist. The disease is effectively treated with different surgical modalities, in addition to the drug treatment with praziquantel.

References

1. Johnson WD, Johnson CW, Lowe FC. Tuberculosis and parasitic diseases of the genitourinary system. In: Walsh PC, Retik AB, Vaughan ED, Wein AJ. editors. 8th ed. Campbell's Urology. Philadelphia: WB Saunders; 1998. p. 196-214.
2. Cline BL, Richards FO, el Alamy MA, el Hak S, Ruiz-Tiben E, Hughes JM, *et al*. 1983 Nile Delta schistosomiasis survey: 48years after Scott. Am J Trop Med Hyg 1989;47:56-62.
3. Okoli CG, Iwuala MO. The prevalence, intensity and clinical signs of urinary schistosomiasis in Imo State, Nigeria. J Helminthol 2004;78:337-42.
4. Ogbeide O, Okojie O, Wagbatsoma V, Isah E. Schistosoma heamatobium in rural school children in Nigeria. West Afr J Med 1994;13:31-3.
5. Nmorsi OP, Kwandu UN, Ebiaguanye LM. Schistosoma hematobium and urinary tract pathogens co-infection in a rural community of Edo State, Nigeria. J Commun Dis 2007;39:85-90.
6. Chugh KS, Harries AD, Dahniya MH, Nwosu AC, Gashau A, Thomas J, *et al*. Urinary Schistosomiasis in Maiduguri, North East Nigeria. Ann Trop Med Parasitol 1986;80:593-9.
7. Sharfi AR, Rayis AB. The continuing challenge of bilharzial ureteric stricture. Scand J Urol Nephrol 1989;23:123-6.
8. Locsey L, Mozes P. Late urinary tract complications of schistosomiasis. Orv Hetil 1991;132:2537-40.
9. Al-Shukri S, Alwan MH, Nayef M. Ureteral strictures caused by bilharziasis. Z Urol Nephrol 1987;80:615-24.
10. Tsang VC, Wilkins PP. Immunodiagnosis of schistosomiasis. Screen with FAST-ELISA and confirm with immunoblot. Clin Lab Med 1991;11:1029-39.
11. Al-Sherbiny MM, Osman AM, Hancock K, Deelder AM, Tsang VC. Application of immunodiagnostic assay: Detection of antibodies and circulating antigens in human schistosomiasis and correlation with clinical findings. Am J Trop Med Hyg 1999;60:960-6.
12. Jorulf H, Linstedt E. Urological schistosomiasis: CT evaluation. Radiology 1985;157;745-9.

13. Ravi G, Motalib MA. Surgical correction of bilharzial ureteric stricture by Boari flap technique. Br J Urol 1993;71:535-8.
14. de la Taille A, Ravery V, Hoffmann P, Hermieu JF, Moulinier F, Delmas V, *et al*. Treatment of ureteral stenosis using high pressure dilatation catheters. Prog Urol 1997;7:408-14.

How to cite this article: Oranusi CK, Nwofor A, Onyiaorah IV, Ukah CO. Schistosomal stricture of the ureter-diagnostic dilemma. Niger J Clin Pract 2011;14:495-8.
Source of Support: Nil, **Conflict of Interest:** None declared.