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CASE STUDY

INCIDENTAL FINDING OF URINARY SCHISTOSOMIASIS IN A YOUNG ADULT: RADIOLOGIC FEATURES AND A CASE REPORT

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Abstract

Urinary schistosomiasis (US) is a burden in sub-Saharan Africa preva-lently in Nigeria, and caused by a fluke called Schistosoma haemato-bium. This has a prevalence for the male gender and predominantly seen in children and adolescent. This is a 45-year-old farmer that was referred for pelvic radiograph and abdominal ultrasonography on account of recurrent right loin pain, dysuria and occasional terminal hematuria.

The pelvic radiograph showed collapsed linear concentric rims of calcific densities in the region of the pelvic cavity centrally most likely a calcified, contracted and empty urinary bladder. The abdominal ultrasonogram demonstrated a urine distended urinary bladder with wall thickening of about 10mm more marked right laterally where a mucosal out-pouch and thickening of about 15.4mm was noted in its cranial aspect. There is associated right hydroureteronephrosis with enlarged right kidney, thinning of the cortical mantle and an echogenic focus in the lower calyceal moiety without acoustic shadow most likely a granuloma.

An excretory pyelogram showed contrast excretion in both kidneys, moderate-severe dilatation of the right pevicalyces, dilated and tortuous contrast filled right ureter that had bulbous termination of part of the distal portion with non-demonstration of the remaining distal aspect most probably from fibrosis/ stricture on account of schistosomiasis. The left collecting system and ureter were not dilated, though the distal left ureter appeared laterally deviated/curved simulating the left-lateral aspect of the so-called cow-horn appearance of schistosomiasis.

A diagnosis of urinary schistosomiasis was made more marked on the right, the patient was placed on oral praziquantel with adequate monitoring and advice. We report a case of urinary schistosomiasis in a 45-year-old farmer, fea-tures of which were demonstrated following multiple imaging modali-ties.

Keywords: Schistosoma, Dysuria, Urinary Bladder, Male gender.

1 | INTRODUCTION

Urinary schistosomiasis (US) causes chronic ill health and caused by the blood fluke Schistosoma haematobium. This disease is endemic in Africa and eastern Mediterranean countries[1,2].

The world Health Organization (WHO), in 1996, estimated that about 200 million individuals were affected by schistosomiasis worldwide, and most are rural dwellers, about 20 million of these were severely affected by the disease and another 120 million were symptomatic with the disease[3,4].

In Nigeria, a sub-Saharan African country, the burden of Schistosomiasis is estimated at about 29 million cases, with varying cases of both urinary and intestinal cases across the country, though the cases of urinary infection appear prevalent[5–8].

Schistosomiasis has predilection for the male gender most likely occupationally inclined, following exposure to infected water from swimming, fishing and other agricultural activities. The prevalence and severity of the disease appears more in children and adolescent[1,9,10].

Urinary schistosomiasis is mainly caused by Schistosoma haematobium especially in endemic areas, the sites of predilection are the bladder, lower ureters, urethra, seminal vesicles, cervix, and vagina[11].

Deposition of the ova from Schistosoma at predilection sites initiates granuloma formation, these coalesce to form pseudotubercles appearing as seed-like bodies with circumferential zone of hyperemia; seen in early and active disease. The late presentation is the sandy patch; these are calcified ova beneath the atrophic mucosa appearing like sand giving the mucosa a ground-glass appearance[11–13].

Imaging is vital in assessment of US, these are ultrasonography, plain radiography, computed tomography, cystoscopy and magnetic resonance imaging[1,11,14]. Ultrasonography has a major role in the diagnosis of US, provides direct information about lesions in target organs; their pattern with possible regression with commencement of management[14,15].

2 | CASE REPORT

This is a 45-year-old farmer; cultivating swampy farm land and fishing, referred for pelvic radiograph and abdominal ultrasonography with an excretory pyelography on account of recurrent right loin pain, dysuria and occasional terminal hematuria.

The patient appeared conscious, not pale, anicteric, acyanosed, not dehydrated and not in any form of painful or respiratory distress.

The pelvic radiograph showed collapsed concentric areas of calcific densities in the region of the pelvic cavity centrally most likely a calcified, contracted and empty urinary bladder (figure 1).

FIGURE 1: Plain radiograph of the pelvis,demonstrating a soft tissue density area with linear rim of radio-opacity ofcalcific density in the peripheral walls of the bladder; calcified bladder wallof schistosomiasis. The demonstrated bones appear normal.

The abdominal ultrasonogram demonstrated a urine distended urinary bladder with wall thickening of about 10mm more marked right laterally where a

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mucosal out-pouch and thickening of about 15.4mm was noted in its cranial aspect (figure 2).

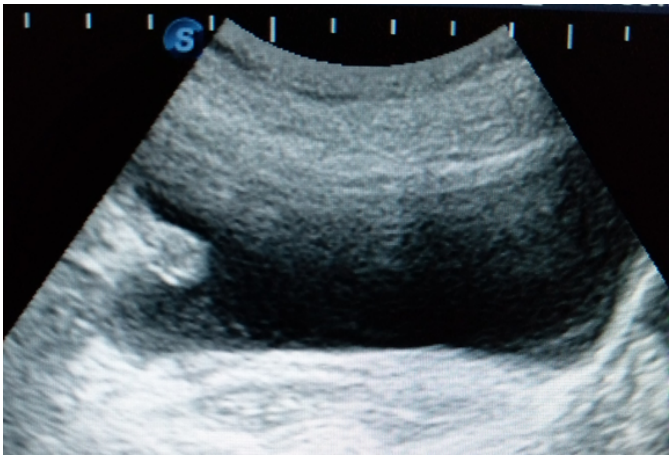

FIGURE 2: Aurinary bladder sonogram, demonstrating wall thickening of about 10mm, withprominent mucosal protrusion from the right lateral wall in to the lumen, thismeasures about 15.4mm most likely a granuloma.

There is associated right hydroureteronephrosis with enlarged right kidney, thinning of the cortical mantle most especially around the upper pole, and an echogenic focus in the lower calyceal moiety without acoustic shadow most likely a granuloma (figure 4).

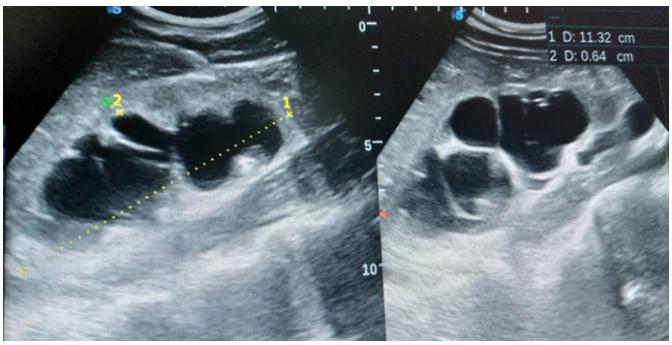

FIGURE 4: Rightrenal sonograms, the image on the left; longitudinal view demonstrates anenlarged right kidney (11.32cm) with moderate-severe dilated calyceal moieties,thinning of the cortical mantle more in the region of the upper pole (0.64cm),and an echogenic focus without acoustic shadow in the lower calyceal moietymost likely a granuloma. The right image is a transverse image demonstratingthe dilated calyceal moieties in better detail.

The contralateral left kidney and remaining abdominal and pelvic organs appeared normal sonographically.

An excretory pyelogram showed contrast excretion in both kidneys, moderate-severe dilatation of the right pevicalyces, dilated and tortuous contrast filled right ureter that had bulbous termination of part of the distal portion with non-demonstration of the remaining distal aspect most probably from fibrosis/stricture on account of schistosomiasis. The left collecting system and ureter were not dilated, though the distal left ureter appeared laterally deviated/curved simulating the left-lateral aspect of the so-called cow-horn appearance of schistosomiasis (figure 3).

FIGURE 3: Anexcretory pyelogram showing the kidneys, ureters and urinary bladder. Thisdemonstrates a moderate-severe dilatation of the right calyceal systems, pelvisand ureter (tortuosity of the ureteric outline also demonstrated)

that showednarrowing and bulbous dilatation of its distal portion; the portion beyond thisbulbous dilatation is not demonstrated most likely from fibrosis/stricturefollowing schistosomiasis. The left calyceal system, pelvis and ureter shownormal appearances. The left ureter shows lateral deviation of its distalaspect simulating the left lateral horn of the cow-horn deformity ofschistosomiasis. The urinary bladder showed reduced volume most probablycontracted from schistosomiasis.

Urine microscopy and analysis revealed ova of Schistosoma haematobium; some of which were detected alive while some dead. Red blood cells were also demonstrated on urine microscopy. Stool analysis detected no ova of Schistosoma.

A diagnosis of urinary schistosomiasis was made, the patient was placed on oral praziquantel at a dose of 40mg/kg body weight, adequate monitoring with good personal health and hygienic advices were also rendered. Repeat urine parasitology done two-weeks after showed absent viable ova of Schistosoma parasite, follow-up visits were continued for additional six-months post-treatment with patients discharge subsequently from the clinic.

3 | DISCUSSION

Urinary schistosomiasis (US) causes chronic ill health and caused by the blood fluke Schistosoma haematobium. This disease is endemic in Africa and eastern Mediterranean countries[1,2]. The index case is a confirmed case of schistosomiasis, resident in an African country where the condition is endemic, thereby conforming to these literatures.

Schistosomiasis has predilection for the male gen-der most likely occupationally inclined, following exposure to infected water from swimming, fishing and other agricultural activities. The prevalence and severity of the disease appears more in children and adolescent[1,9,10]. The index case is a male, aged 45-years-old, and a farmer in swampy land and also fishing, thereby conforming to these literatures.

Some of the presenting features especially among the male gender are loin pain, terminal hematuria, lower abdominal pain to mention but a few[3,5,8,11,17], the index case also had terminal hematuria and most of the related symptoms, thereby conforming to these literatures.

Individuals with schistosomiasis often come down with secondary bacterial infection, in adults, hematuria may disappear, with evolvement of fibrosis, calcification, hydroureteronephrosis, eventual renal failure, with chronicity squamous cell carcinoma may also occur[14,19]. The index case had hematuria, calcification, fibrosis, hydroureteronephrosis, but no evidence of renal failure and malignant transformation as at the time of this report.

In schistosomiasis, parasitological assessment of urine for detection of ova/eggs of the parasite in urine sample is the most used method of detection[1,19], the case under review was not an exception, ova of Schistosoma haematobium were detected in the patient's urine, thereby conforming to these literatures.

Following plain radiographs, four types of calcification have been demonstrated, these are linear rim, amorphous, uniform type and curvilinear type of calcifications[1,20]. The index case had the linear rim form of calcification; detected on an empty bladder, conforming to these literatures.

Medical treatment following oral praziquantel at a dose of about 40mg per kilogram body weight of an individual with health education on sanitary habits play vital roles in management of schistosomiasis[1,11]. The index case also had some management thereby conforming to these literatures.

4 | CONCLUSIONS

Urinary schistosomiasis is an endemic disease in Africa, patients presenting with features of this disease should be diagnosed following urine parasitology and imaging to institute prompt management, thereby preventing chronicity, renal impairment and malignant transformation associated with the disease.

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