Ureterocele in an Adult Male Nigerian: a Case Report

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Abstract

Ureterocele is one of the congenital anomalies that affect the genitourinary system. This anomaly is usually present in the early stage of life and can be detected if there is high index of suspicion and proper evaluation. This case presentation is to highlight the unusual presentation of ureterocele in an adult Black male, with frequent micturition and dysuria. There is characteristic radiological sign of 'cobra head' appearance on intravenous urography. This case report highlighted the late presentation of ureterocele, the necessity to make use of available imaging diagnostic modalities inlimited resource settings, and to add to the existing body of knowledge. The patient was investigated using sonogram and intravenous urography. The urologist operated the patient by excision of the ureterocele and placement of a stent for a week after which the stent was removed andthere was no post-surgical complication. He is being follow up in the Urologic clinic of the center and has been doing well with the resolution of the symptoms.

KEYWORD*:* Adult male, micturition, dysuria, ureterocele, sonogram, intravenous urography.

Introduction

Ureterocele is a congenital anomaly, in which there is mal-development of the caudal segments of the ureter. The malformation is observed more frequently in Caucasians than in other races and females are affected four to six times more frequently than males. Ureterocele is a cystic dilatation of the terminal portion of the ureter that is located inside the bladder or protruding into the urethra.Several theories exist as to how ureterocele develops. These include incomplete dissolution of Chwalla membrane during development or an alteration of the ureteral bud development. Inadequate muscularization, *Schistosoma haematobium* infection, and trauma have also been presented as theories on the aetiology of ureterocele.Chwalla suggested that

ureterocele had an obstructive aetiology due to a delayed and incomplete reabsorption of the membrane that separates the ureteral bud from the mesonephric duct in the embryo. Tanagho hypothesized that the distal ureteral segment, which is incorporated later into the developing urogenital sinus may be acted on by the same factors that cause the expansion of the urogenital sinus to form the bladder, together with a delay in establishing the lumen of the ureteral bud.

Incidence of ureterocele is not well documented in Nigeria and some other African countries. This is not to testify that it does not occur in Black-like Caucasian. The incidence is well documented in the developed world where most authors agreed that it occurs in one out of four thousand individuals (1:4000). It is more prevalent in female, which is about 4-7times commoner compare to male.

The ureter first appears in the 3 to 5 mm stage at the end of the 5th gestational week as an out-pouching on the mesonephric duct at the point where duct bends sharply in a ventral direction just before it enters the cloaca. The progressive differentiation of the mesonephric duct gives rise to different components of the genitourinary system. Ureteral development occurs simultaneously with formation of the trigone and proximal urethra. As the ureter grows toward the metanephric blastema,it undergoes a series of dichotomous divisions that ultimately produce a complex pattern of infundibular, calices,and collecting ducts in the mature metanephric kidney.
Ureterocele is divided into two based on their position; intravesical and extravesical. Intravesical (orthotopic) is defined by a ureterocele being completely confined within the urinary bladder and is associated with good renal function.An extravesical(ectopic) ureterocele involves some portion of the ureterocele in the bladder neck or urethra and is associated with poor renal function[10].
Genitourinary symptoms have become one of thefrequent clinicalcomplaints in the general out-patient clinics. Some of these include unbearable pain during micturition, the passage of blood in the urine which prompts most patients to sought medical attention.

Imaging modalities play essential role in diagnostic work up of ureterocele. The roles of imaging modalities cannot be over-emphasized in the diagnosis, ruling out of differentials, interventional procedures and follow up of the patient after urological procedures.

Ultrasound is one of the readily available imaging modalities in the assessment of such patients, apart from the readily availability and its non-ionizing radiation, it account for greater usage in resource limited settings like ours in diagnosis of such condition. The major limitation is in the expertise of the user. Other imaging modalities like cystourethrogram, renal isotope scan and abdominopelvic computerized tomography scan and magnetic resonance imaging also have significant role to play in evaluation of patient with ureterocele.

Case Report
A 59 years old man was referred tothe radiological department for abdominopelvic ultrasound on account of left loin pain and frequency in micturition from the Urology clinic of the Federal Medical Center, Abeokuta.He had dysuria of three months duration, but no haematuria or weight loss. There was no previous surgical procedure or trauma.

Abdominoplevic ultrasound scan revealed anintravesical cystic lesion in the left lower base of the urinary bladder giving a 'cyst in cyst' appearance(Figure 1). Both kidneys were normal in position and size, the right kidney measured 9.3cm x4.5cm while the left kidney also measured 9.8cm x 5.1cm in bipolar and antero-posterior dimensions. The calyceal system of the left kidney wasdilated.

The corticomedullary differentiations of both kidneys were preserved. The urinary bladder wall was not thickened measuring 2.9mm in thickness. The prostate was not enlarged and had low to medium echoes. The other abdominal organs, bowel loops and the vessels were normal. An assessment of left-sided ureterocele was made, and the patient was advised for further radiological investigation.

Intravenous urography was recommended for the patient due to financial constraint, as computerized tomography scan was not affordable by the patient. The intravenous urography revealed prompt contrast excretion by both kidneys, moderate dilatation of the left ureter especially the distal third with bulbous dilatation of the intravesical end that is surrounded by an halo giving the characteristic 'cobra head' appearance(Figure 2). The leftcalyceal system was dilated to a grade IIIhydronephrosis. The calyceal system of the right kidney was also minimally dilated to a grade II hydronephrosis, its ureter appeared normal in caliber and outline. The urinary bladder was normal in outline. Left sided orthotopic ureterocele was confirmed. (Fig 2).

Fig 1. Ultrasound image of the urinary bladder showing a cystic lesion in the left base of the bladder giving a 'cyst in cyst appearance '

Fig 2. Intravenous urography image showing dilated distal third of the left ureter with a linear halo within the urinary bladder giving the characteristic "cobra head appearance" of intravesical ureterocele.

Discussion

The term ureterocele was first used by Leshnew in 1912 and defines a cystic dilatation of the distal, intravesical portion of the ureter. The incidence of ureterocele is 1:4000 individuals[6], and occurring 4 times more in females with a slight preponderance on the left side and 10% ofthe cases being bilateral[2].

Ureteroceles have diverse presentations ranging from life-threatening sepsis, renal failure, recurrent urinary tract infections(UTIs), to no symptoms. The clinical symptoms of the patient which include dysuria, loin pain and frequency could also be same symptoms for other urologic pathologies like prostatic enlargement, prostatitis, urinary tract infection and even urologic calculus. Ureterocele should therefore be included in the differential diagnosis of patients presenting with such aforementioned symptoms.

Ureterocele symptoms could be devastating especially when the diagnosis is not made at the early stage. Improper evaluation of the patient with attendant non usage of proper imaging modalities could lead to development of some complications from this pathology. The accumulation of urine in the dilated ureter could lead impairment to renal failure. The role of imaging modalities especially ultrasound imaging in the evaluation of urologic pathology cannot be over emphasized in low income resource setting. The left kidney calyceal dilatation and findings of 'cyst in cyst' appearance in the left side of ureterovesical junction are in keeping with ureterocele; and the classical findings of 'cobra head' appearance in the spot image of intravenous urography (KUB) with halo within the contrast filled urinary bladder are in keeping with ureterocele. The non-usage of imaging modality could have accounted for the delay in diagnosis of the lesion in this patient. Ultrasound play significant roles in early evaluation of this lesion, even before consideration of other imaging modalities. The limitation of the usage of ultrasound imaging is that it is user dependent. Other imaging modalities like computerized tomography and magnetic resonance imaging also play significant role in the diagnosis of ureterocele. The unavailability of this cutting edge technology equipment in limited resource setting is a major problem. It is therefore advisable that the use of imaging modalities should not be delay in evaluation of urologic abnormalities.

Conclusion

The used of ultrasound and intravenous urography had really helpful in management of this patient. Radio nuclide imaging, computerized tomography and magnetic resonance imaging that could have added to diagnostic specificity of the pathology are not readily available.

Declaration

We declare that there is no conflict of interest in this publication.

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Recommendation

It is highly recommended that the usage of imaging modalities should not be delay in evaluation of some urological problems.

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