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Multiple urethral calculus misdiagnosed as urethral stricture: The role of imaging in unknotting the confusion

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ABSTRACT

Urinary Tract Calculi Impaction/finding in the male urethra is extremely uncommon and can usually be secondary to upper urinary tract calculus formation or primarily arising from the urethra either due to stricture or post-trauma. There is paucity of urethral stricture report in Nigeria, thus this case is reported to highlight the role of imaging in the prompt diagnosis and management of urethral diseases; and to advise urologists to at least always request for imaging modality in their routine evaluation of urethral pathologies. We report a case of a 55 years old male farmer who presented in the Accident and Emergency Unit of our facility with signs and symptoms of acute urinary retention. A working diagnosis of urethral stricture was entertained and prompt diagnosis was made on imaging. Existing literatures outlining the pathologies, clinical presentation, therapeutic consideration and imaging as it relates to urethral calculi were reviewed. We thus concluded that imaging is very vital and fundamental in order to correctly assess any form of urethral pathology.

Key words: Urethra, Calculi, Stricture, Imaging

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INTRODUCTION

Urethral calculi are extremely rare and constitute about 2% of the calculi in the urinary tract.[1] They could either be primary or secondary depending on the site of origin. Urethral calculi most commonly originate from upper urinary tract or from the bladder or can form in situ.[1-3]

Primary calculi are formed within the urethra itself either associated either a stricture or urethral diverticulum.[1] Secondary calculi on the other hand are much common than primary calculi with a proportion of 11 to 1.[1,2] Secondary calculi are formed in the kidney or bladder and are passed down the urethra (migratory calculi). The commonest site of the calculus is naturally proximal commonly impacted either behind external urinary meatus or in the prostate urethra behind the narrow membranous portion.[2,3]

Primary and secondary calculi differ in their composition. A primary calculus is phospatic while a secondary calculus is composed of any or all of the constituents of renal or vesical calculus. The clinical history is also different. A primary calculus dormant for a long time may present signs and symptoms of urethral stricture or cystitis. The secondary calculus produces a sudden obstruction either complete or partial and necessitates immediate intervention.[5,6]

Diagnosis of urethral stone may be challenging as symptoms can be non-specific and not every imaging modality used in the evaluation of nephrolothiasis includes lower genitofemoral tract. Failure to diagnose impacted urethral stone can lead to long term urethral damage, renal insufficiency and incontinence.[1,2,3,4,5,6] The aim of this case report therefore is to highlight and emphasize the role of imaging in the prompt diagnosis and management of urethral calculi.

CASE REPORT

Mr AAY is a 55 years old male farmer who presented in the GOPD with a day history of inability to pass urine.

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Prior to presentation however, the patient admitted to having symptoms of urethral stricture like poor urinary stream, frequency, dysuria and urinary dribbling – which he attributed to normal ageing phenomenon. It was the inability to pass urine for more than 24 hours that made him to seek medical attention.

Examination revealed an ill-looking old middle aged man in obvious distress that was profusely sweating. He was not pale, acyanosed with no peripheral lymphodenopathy or edema. An abdominal examination showed a grossly distended bladder reaching the umbilical region that was tender on examination.

On palpation, PR was not done but urethral palpation demonstrated firm, nodular induration along the penile urethra. An assessment of acute urinary retention most probably secondary to urethral stricture was made.

Immediate abdominopelvic ultrasound was requested in addition to general laboratory investigations which included E/U/CR, FBC, PCR, urinalysis and Urine M/C/S.

Emergency pelvic ultrasound was done but there was no finding in the urinary bladder which appeared normal with clear urine.

Patients abdominopelvic ultrasound was normal. Retrograde UrethroCystoGraphy (RUCG) was then requested to image the urethra and exclude or confirm the diagnosis of urethral stricture.

On plain X-ray (control film) of RUCG revealed a huge well defined rounded opacity of calculi density measuring approximately 1 cm x 1 cm in the anterior urethra (penile urethra). Distal to it and close to the external urethral meatus, tiny multiple opacities numbering about three (3) were demonstrated suggestive of urethral calculi (Figure 1a-c).

The RUCG contrast films revealed the entire urethra up to the bladder base. The demonstrated penile membranous and prostatic urethra appeared within normal limits. No evidence of urethral stricture or urethritis was noted. (Figure 2).

Except for the emergency nature of the presentation and paucity of the required equipments, Computed Tomography (CT) scan, Urography and high frequency penile ultrasound would have been done for further evaluation.

DISCUSSION

Urinary Tract Calculi impaction in the male urethra is extremely uncommon and usually constitute between 0.3 to

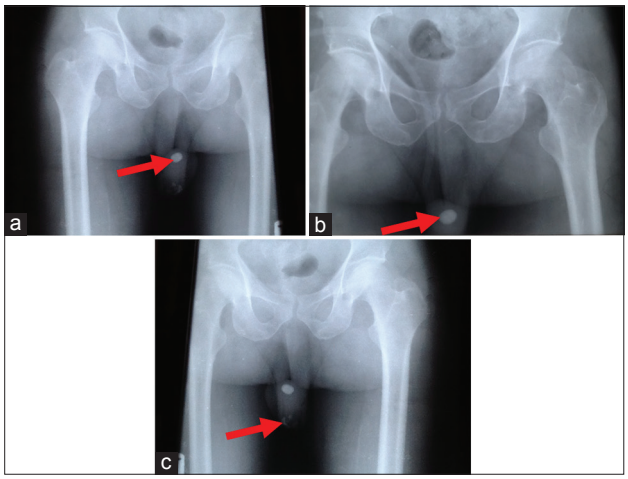

Figure 1 (a-c): Showing Plain X-ray of the Pelvis and Perineum Demonstrating Multiple Penile Calculi (Red Arrows)

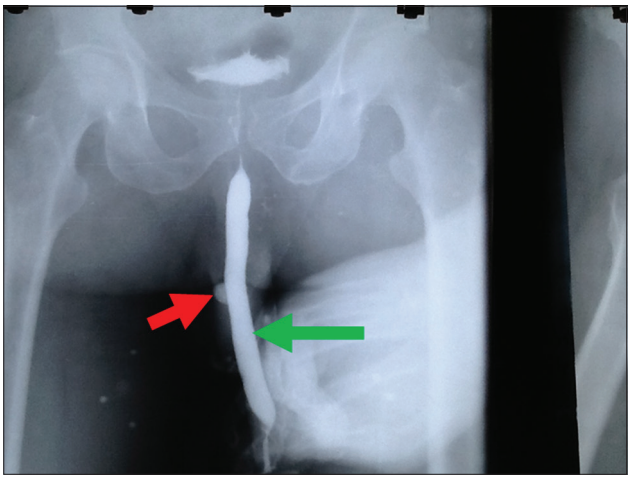

Figure 2: Showing an RUCG with normal Penile Urethra (Green Arrow) Demonstrating Penile Calculus (Red Arrow)

3% of all calculi in the urinary tract.[1] Primary calculi are formed within the urethra itself either associated either a stricture or urethral diverticulum.[1] Secondary calculi on the other hand are much common than primary calculi with a proportion of 11 to 1.[1,2] Secondary calculi are formed in the kidney or bladder and are passed down the urethra (migratory calculi). The commonest site of the calculus is naturally proximal commonly impacted either behind external urinary meatus or in the prostate urethra behind the narrow membranous portion.[2,3]

Primary and secondary calculi differ in their composition. A primary calculus is phosphatic while a secondary calculus is composed of any or all of the constituents of renal or vesical calculus. The clinical history is also different. A primary calculus dormant for a long time may present signs and symptoms of urethral stricture or cystitis. The secondary calculus produces a sudden obstruction either complete or partial and necessitates immediate intervention.[5,6]

In our patient, the cause of the urethral calculi is presumed to be secondary in view of the findings of normal urethra on RUCG and absence of previous history of trauma. It is most likely from the upper urinary tract or urinary bladder. The lack of adequate equipment has hindered the performance of CT Urography which is necessary to demonstrate the origin of the calculi even though abdominopelvic scan proved negative.

CONCLUSION

Existing literatures outlining the pathologies, clinical presentation, therapeutic consideration and imaging as it relates to urethral calculi were reviewed. We thus concluded that imaging is very vital and fundamental in order to correctly assess any form of urethral pathology.

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Authors Contribution:
MD - Concept and design of the case report, reviewed the literature, manuscript preparation and critical revision of the manuscript; **MD and SSA -** Concept and review of literature and helped in preparing first draft of manuscript; **MD -** Conceptualized the rare case report, literature search and interpreted, prepared first draft of manuscript and critical revision of the manuscript; **MD and MMA -** Concept, literature search, prepared first draft of manuscript and critical revision of the manuscript; **MD, SSA and MMA -** Concept and review of case report.

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