Journal of Surgery
Oladimeji AT, et al. J Surg 10: 11235
www.doi.org/10.29011/2575-9760.11235
www.gavinpublishers.com
Case Series

Impacted Urethral Calculus in Children

Abraham T Oladimeji[1*], Olukayode A Oseni[2], Emmanuel A Jeje[2,3], Adewole Z Adebobola[4]

[1]Department of Surgery, Federal Medical Centre, Ebute Metta, Lagos State, Nigeria

[2]Department of Surgery, Lagos University Teaching Hospital, Lagos, Nigeria

[3]College of Medicine, University of Lagos, Lagos, Nigeria

[4]Urology unit, Department of Surgery, Marigold Hospital and Critical Care Centre, Lagos, Nigeria

[*]**Corresponding author:** Abraham T Oladimeji, Department of Surgery, Federal Medical Centre, Ebute Metta, Lagos State, Nigeria

Citation: Oladimeji AT, Oseni OA, Jeje EA, Adebobola AZ (2025) Impacted Urethral Calculus in Children. J Surg 10: 11235 DOI: 10.29011/2575-9760.011235

Received Date: 15 January 2025; **Accepted Date:** 20 January 2025; **Published Date:** 22 January 2025

Abstract

Background: Urolithiasis is a disease affecting all age groups. Albeit the incidence of urinary tract calculi in children is lower than in adults, and urethral calculi, especially, are not common. The location of urethral calculi can bring about different clinical manifestations.

Case Report: An 8-year-old boy who was referred to our facility with 12-hours history urinary retention and failed urethral catheterization. The referring hospital was said to have decompressed the urinary bladder by suprapubic tap. Clinical examination revealed a young male in painful distress and a calculus impacted at the stenosed external urethral meatus. He had emergency meatoplasty and extraction of the meatal calculus. The post-operative period of the patient was uneventful. He was discharged home second post-operative day.

Conclusion: This demonstrates that while rare, urethral calculi do occur in pediatric age group and should be entertained in children presenting with urinary retention and failed urethral catheterization. Also, to highlight treatment options for impacted urethral calculi in children.

Keywords: Children; Impacted urethral calculus; Urinary retention

Introduction

Urolithiasis is a disease that afflicts both genders and different age groups. [1] The prevalence of urolithiasis varies from 5 to 9% in Europe, 7 to 13% in North America and 1 to 5% in Asia. [2] The prevalence of urolithiasis in a study carried out in Abuja (Nigeria) by Isaac et al [3] was 13.4/1000. It occurs 20times less in pediatrics than in adults. [4] Pediatric stone belt has been described to run from Philippines, Myanmar, Thailand, Pakistan, Iran and up to Turkey [2].

Case Report

An 8-year-old African male who was referred to our facility on account of 12-hours history of sudden inability to void. A week prior to the urinary retention, he had complaint of painful micturition with no definite evaluation or intervention. He later presented to a peripheral health facility because of Acute Urinary Retention (AUR) where suprapubic tap was done after failed attempts at urethral catheterization. There were no medical comorbidities. On general examination, aside from being in some form of painful distress, he was clinically stable. There was suprapubic fullness on abdominal examination. External genitalia examination revealed circumcised phallus with a calculus impacted at the stenosed urethral meatus and a subcoronal ventral bulging Figure 1. A diagnosis of AUR secondary impacted urethral meatal calculus was made.

Urinalysis showed protein ++ and blood ++. Abdominopelvic ultrasound revealed a residual urine of 273ml. There was no urinary bladder calculus found. Patient's parents were counselled on his medical condition and mode of intervention. Following an informed consent, patient had emergency meatoplasty, extraction of the impacted urethral calculus and placement of size 10 urethral catheter under spinal anaesthesia Figure 2. The post-operative period was uneventful, and he was discharged home second post-operative day on oral antibiotics and analgesics with indwelling urethral catheter. The urethral catheter was discontinued 14th day after surgery, and he has been voiding well.

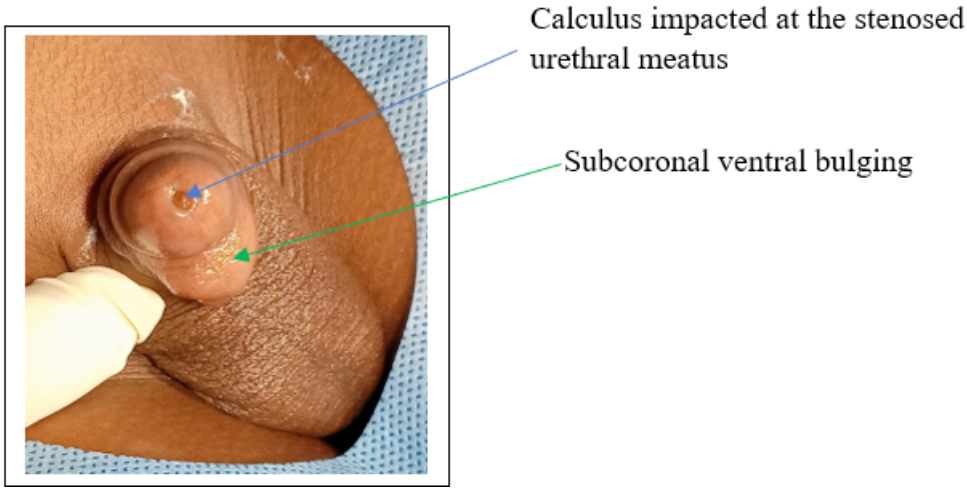

Figure 1: Circumcised phallus with a calculus impacted at the stenosed urethral meatus and a subcoronal ventral bulging.

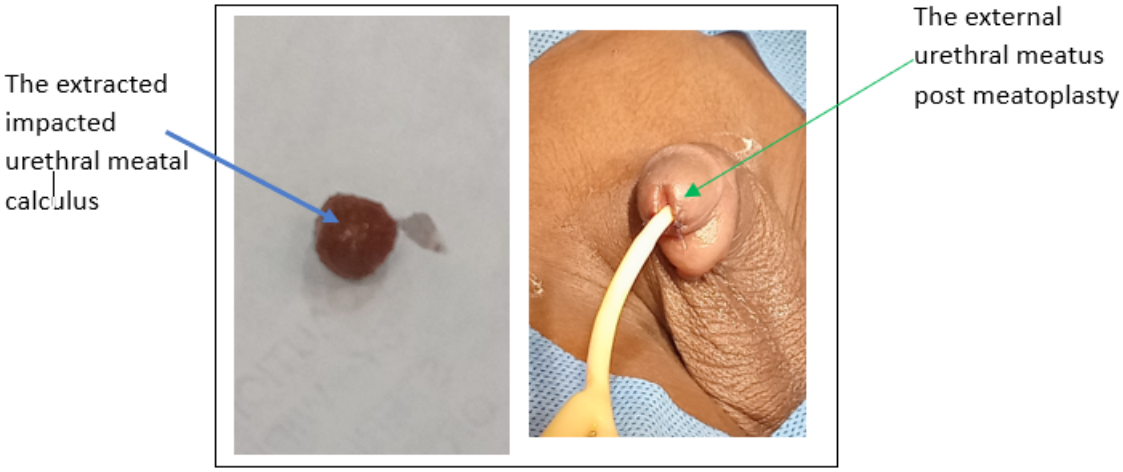

Figure 2: The extracted impacted urethral meatal calculus and the external urethral meatus bearing urethral catheter immediately post meatoplasty.

Discussion

Urolithiasis is an infrequent disease in the pediatric age group. [4] Urolithiasis in children accounts for 5 to 15% of urinary calculi in developing countries. [5] Urethral calculi accounts for 0.3% of all urolithiasis and most impacted urethral calculi are of bladder origin. [6] In other words, pediatric urethral calculi can be primary or secondary. Primary calculus is mostly because of an underlying anatomical abnormality like urethral stricture or diverticulum resulting in stasis of urine, precipitation and stone formation. [7] A secondary calculus is formed in the upper urinary tract or bladder and migrates downstream. The anatomical abnormality that might have predisposed our patient to calculus formation was urethral meatal stenosis. Pediatrics with urethral calculi can present with AUR without a clear preceding lower urinary tract symptom (LUTS) or in AUR following LUTS. [8] The latter applies to our patient who had preceding painful micturition before the AUR. Some may also present with perineal or scrotal pain. [8] Our case underscores the need to carry out a detailed examination of the external genitalia in patients with AUR especially with failed urethral catheterization. In cases of suspected urethral calculus, plain pelvic x-rays may be helpful to confirm the diagnosis and calculus location. This was not done in our patient because the urethral calculus was sighted at the meatus on examination.

There are various options of treatment of urethral calculi depending on the location, size and available resources. Many centers now favor endoscopic lithotripsy in the management of bladder and urethral calculi. The latter is achieved after pushing back the calculus into the bladder with success rates close to 80%. [6] After a push-back, the calculus can also be removed via cystotomy (vesicolithotomy). Endoscopic intervention was not entertained in our patient because of the meatal stenosis. Hence, the need for meatoplasty and extraction of the impacted calculus. Initial suprapubic decompression followed by urethrolithotomy is another option in some cases [9].

Conclusion

This case demonstrates that urethral calculi, though rare, do occur in pediatric age group. A diagnosis of impacted urethral calculus should be entertained in children with acute urinary retention and failed urethral catheterization. Also, this article highlights options of treatment of impacted urethral calculi in children to help improve medical practice by general practitioners.

Reference

1. Zhang L, Zhang X, Pu Y, Zhang Y, Fan J (2002) Global, regional, and national burden of urolithiasis from 1990 to 2019: A systematic analysis for global burden of disease study 2019. Clin Epidemiol 14: 971-983.
2. Mbouche LO, Ondobo Andze G, Nwaha Makon AS, Nyanit Bob D, Njuma Tamufor E, et al. (2019) Acute urinary retention in the male child from urethral calculi: A report of three cases. Case Reports in Urology 4: 1-7.
3. Isaac UI, Idigo FU, Chinda JY (2018) Sonographic assessment of urolithiasis in University of Abuja Teaching Hospital, Nigeria. Ann. Afr. Med17: 106-109.
4. Collard L. Lithiase urinaire de l'enfant et l'adolescent (2004) Revue Medicale de Liege 59: 221-226.
5. Rizvi S, Naqvi S, Hussain Z, Hashmi A, Hussain M, et al. (2002) The management of stone disease. BJUI 89: 62-68.
6. Safwat AS, Hameed DA, Elgammal MA, Abdelsalam YM, Abolyosor A (2013) Percutaneous suprapubic stone extraction for posterior urethral stones in children: Efficacy and safety. Urology 82: 448-450.
7. Sonmez MG, Kara C (2015) An urethral stone mimicking urinary tract infection in a twenty-six month old boy. Jus 2: 188-190.
8. Hoffmann KS, Godse A (2021) Impacted urethral stone presenting as urinary retention in a child. BMJ Case Rep 14: e235022.
9. Akhtar J, Ahmed S, Zamir N (2012) Management of impacted urethral stones in children. J Coll Physicians Surg Pak 22: 510-513.