

“Obstruction but no Obstruction” – Case Report of a Giant Anterior Urethral Calculus with a Brief Review of Literature

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ABSTRACT

Penile urolithiasis (urethral stones) is an uncommon entity accounting for 1-2% of all urolithiasis. A 40 year male presented with complaints of dysuria & straining during micturition for 6 days and vague discomfort over the urethral meatus for the last four months, on further investigation the diagnosis of a giant penile urethral calculus was made. The patient underwent meatotomy with retrieval of a 4x2x2 cm calculus. This case is being reported due to the uncommon nature of this entity, the perplexing nature of its presentation and to add to the scarce literature available on this rare disease entity.

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Abbreviations

UTI: Urinary tract infection
KUB: Kidney Ureter Bladder
OPD: Out Patient Department
POD: Post-Operative Day

Abstract

Penile urolithiasis (urethral stones) is an uncommon entity accounting for 1-2% of all urolithiasis. A 40 year male presented with complaints of dysuria & straining during micturition for the last four months, on further investigation the diagnosis of a giant penile urethral calculus was made. The patient underwent meatotomy with retrieval of a 4x2x2 cm calculus. This case is being reported due to the uncommon nature of this entity, the perplexing nature of its presentation and to add to the scarce literature available on this rare disease entity.

Introduction

Urolithiasis accounts for the 3rd most common affliction of the urinary tract after Urinary tract infections & pathological conditions of the prostate [1]. Urethral stones account for less than 1% of urinary calculi [2]. Penile urethral calculus as separate entity has an incidence of less than 0.3% with some aetiologies

include, migration from upper urinary tract, urethral diverticulum and urethral strictures [3]. The article hopes to bring out a review on the aetiology, various modes of presentation, evaluation and management of the rarely encountered giant anterior urethral calculi.

Case Report

A 40 year old male presented to our clinic with complaints of dysuria & straining during micturition for past 6 days and vague discomfort over the urethral meatus for last 4 months with an accompanying ultrasound report showing left sided mild hydronephrosis and a normal sized prostate. Evaluation done for the left hydronephrosis revealed a surprising and unexpected diagnosis of a giant penile urethral calculus of approximately 4x2 cm dimensions with retrospective history probing revealing no retention episodes for a calculus of such dimensions. Uroflowmetry revealed an average flow of 7.5ml/sec, suggestive of outflow tract obstruction (a fair enough measure for such a huge urethral stone). Preoperative patient examination revealed an impacted distal urethral calculi located at about 2-3cm proximal to the external urethral meatus (Figure 1). After due consent/counselling he opted for meatotomy with manual milking of the urethral calculi under regional anaesthesia with extraction of a large 4x2x2cm penile stone (Figure 3a-d). The retrieved calculus was sent for stone analysis (Figure 2) and patient was discharged with Foley's in situ on the 2nd post-operative day.

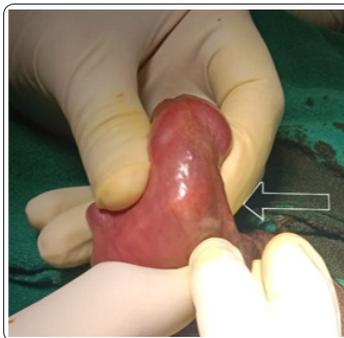


Figure 1: Impression of calculus on dorsal aspect of penis



Figure 2: Dimensions of the retrieved calculi (Fragmented during extraction and hence the full dimensions not displayed in the photograph)

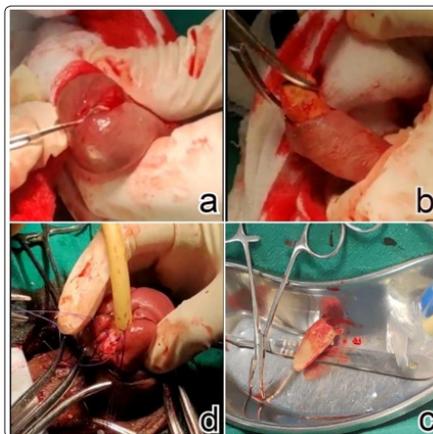


Figure 3(a-d): Operative photographs showing, Meatotomy(3a), Retrieval of calculus(3b), Retrieved Penile urethral calculus(3c) and Meatotomy closure with vicryl 3.0 suture(3d)

Discussion

Giant urethral calculi are an uncommon occurrence. Urethral calculi most commonly occur in the posterior urethra owing to precipitation of urinary constituents with the alkaline prostatic secretions while the rarer anterior stones are caused commonly by local pathologies of the urethra [4, 5]. Etiologically urethral stones may be native (primary) that originate in the urethra per-se owing to urethral strictures, chronic stasis, and lithogenic diathesis and so on. They have an insidious nature being small and uniform without any nucleus composed mostly of struvite and rarely cause acute urinary symptoms due to their insidious onset [6]. More frequently they are migrant (secondary) in origin and are comprised of calcium oxalate, phosphate or citrate, thereby naturally rendering them radiopaque and facilitating their frequent diagnosis by urograms [6]. The present case may have been a migrant stone as he had past history of ureteric calculus and stone analysis revealing calcium phosphate. But on the contrary like most migratory stones which present with either acute urinary retention, overt LUTS or perineal pain, the patient was relatively minimally symptomatic making us wonder about its correct aetiology.

Table 1

Brief review of reported cases of Giant anterior urethral calculi			
Authors	Aetiology	Dimensions	Management
Sun et al (2019), BMC Urol	Primary (Anterior urethral diverticulum)	6.5 x 6 x 5 cm	Combined Pneumatic & ultrasound lithotripsy
Shanmugam et al(2000), Hospital Medicine	Secondary	6 x 4 x 3.5 cm	Meatotomy with Blandy's flap reconstruction
Kotkar et al (2011), JSCR	Primary(Anterior urethral stricture)	3 x 2 x 1.5cm	Combined (Urethrolithotomy +Urethroplasty)
Kaczmarek et al(2016), Open Med.	Primary(Anterior urethral stricture)	7.5 x 6.5 cm	Open UL
De carvalho(1997), The journal of urology	Primary(Traumatic Anterior urethral stricture)	124 x 4 cm	Open UL
Garg et al (2016), International Surgery Journal	Primary(Anterior urethral stricture)	5 x 3cm	Open UL
Putra et al (2020), Pan African Medical Journal	Secondary	6 x 3.5cm	Open UL
Present case	Secondary	4 x 2 x 2 cm	Meatotomy with meatoplasty.
GUC-Giant Urethral Calculus, UL- Urethrolithotomy, PUC – Per Urethral Catheter			

Treatment modalities of anterior urethral calculi depend on the site, size and associated pathology of the urethral calculi varying from urethroscopic lithotripsy, Meatotomy, Retrograde manipulation into the urinary bladder with cystolithotomy/lithotripsy, urethrotomies or urethroplasties. A brief review of similar reported cases and their various different treatment modalities is summarised in (Table 1). Small anterior urethral stones can undergo spontaneous expulsion while larger stones may mandate surgical intervention for removal [7]. In this case, we performed Meatotomy and meatoplasty for stone extraction considering the giant size of the urethral stone, proximity to the external urethral meatus and due to the lack of accompanying urethral anatomical anomalies.

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