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PREPUTIAL SMEGMATIC PENILE CALCULUS IN A 65-YEAR-OLD MALE: A RARE CAUSE OF CHRONIC DYSURIA AND URINARY RETENTION

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Abstract:
Preputial calculi, also known as smegma stones, are exceedingly rare entities in urolithiasis, typically associated with uncircumcised elderly males suffering from phimosis or poor hygiene. A 65-year-old man with no comorbidities presented with an insidious 8-month history of penile pain during micturition, progressing to urinary difficulty, burning micturition, and complete retention for 2 days. Examination revealed a nodular lesion on the glans, induration, palpable bladder, and bilateral inguinal lymphadenopathy. Ultrasonography–guided FNAC of lymph nodes showed only lymphocytes; intraoperative exploration uncovered a 2 × 1 × 1 cm preputial smegmatic calculus. Surgical excision of the calculus with circumcision ensued. Histopathology revealed chronic non-specific inflammation; malignancy was excluded. Surgical management resulted in rapid symptom resolution. Review of literature highlights pathogenesis, diagnosis, management strategies, and complications, underscoring the need for timely recognition and treatment.

INTRODUCTION

Preputial calculi represent the rarest form of urolithiasis, with only a limited number of reported cases worldwide. The first case in an adult is attributed to Clarke in 1794. These lesions develop in uncircumcised individuals—especially elderly populations—with predisposing factors including phimosis, poor local hygiene, or anatomical anomalies leading to urinary retention or debris accumulation.

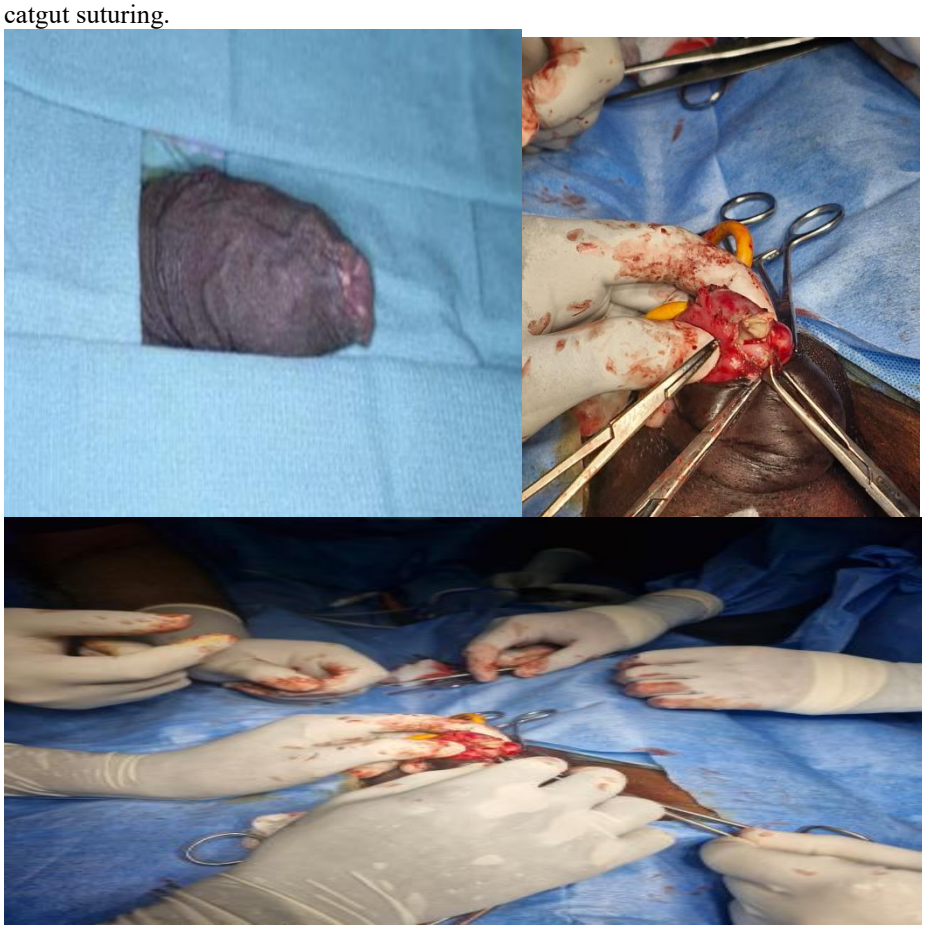
Pathogenetically, Winsbury-White and others described three mechanisms: (1) inspissated smegma, (2) smegma combined with urinary salts, and (3) purely urinary salt concentration. These calculi can present clinically with penile pain, obstructive voiding symptoms, or even acute urinary retention. Imaging—particularly plain pelvic radiographs—may show radiopaque shadowing over the glans. Definitive management requires surgical removal via dorsal slit or circumcision, often yielding prompt resolution.

Herein, we present an uncommon case of preputial smegmatic calculus in a 65-year-old man, emphasizing clinical presentation, diagnostic pathway, management, histopathological findings, and a review of relevant literature.

Case Presentation:

A 65-year-old man with no significant past medical or surgical history presented to the surgical outpatient department with an 8-month history of penile pain aggravated during micturition. Over the last 3 months, the patient experienced burning micturition and progressive difficulty in voiding. For the preceding 2 days, he was unable to pass urine. He denied trauma, hematuria, or pyuria. On examination, vitals were stable. Abdominal findings included tenderness without rigidity, and a distended bladder was palpable. Genital examination revealed a 1 × 1 cm, mobile, nodular lesion on the dorsal glans with surrounding

induration. Both testes were normal; per rectal and prostatic examinations were unremarkable. Bilateral inguinal lymphadenopathy was present. Routine laboratory investigations were within normal limits. Ultrasonography–guided fine-needle aspiration cytology of the lymph nodes showed occasional mature lymphocytes and areas of hemorrhage—no malignancy. Given the lesion's characteristics, an incisional biopsy under planned circumcision was planned. Intraoperatively, induration distal to the coronal sulcus was probed, yielding dense smegma and a 2 × 1 × 1 cm calculus located within the preputial sac. The calculus was excised, excess smegma debrided, and a circumcision was completed with 3-0 Chromic catgut suturing.



The specimen's histopathological examination demonstrated stratified squamous epithelium with underlying stroma showing chronic non-specific inflammatory infiltrates, congested blood vessels; malignant features were absent.

Postoperatively, the patient regained normal voiding and resolution of penile pain and discomfort. No complications were noted on follow-up.

DISCUSSION

Epidemiology and Pathogenesis

Preputial calculi are uncommon, with fewer than 15 cases documented in literature. They predominantly affect elderly uncircumcised men with phimosis or poor hygiene, occasionally seen in neurologically impaired children with phimosis. Mechanisms include accumulation of smegma with lime salts, infected stagnant urine, or migratory stones from the urinary tract.

Clinical Presentation

Patients often present with non-specific symptoms—penile pain, dysuria, urinary flow delay, foul discharge, or acute urinary retention. In our case, chronic dysuria and urinary retention were the main complaints, with a palpable nodular lesion under the foreskin suggesting underlying calculus.

Diagnostic Evaluation

Palpation may still detect the calculus, but imaging supports diagnosis. Plain X-ray of the pelvis may reveal radiopaque shadows at the glans region. Ultrasonography or non-contrast CT helps rule out stones in the upper urinary tract and hydroureteronephrosis. In our case, lymph node FNAC helped rule out

malignancy, though imaging was not reported; intraoperative palpation and exploration confirmed the calculus.

Histopathology and Differential

The histopathology in our case confirmed chronic inflammation without neoplastic changes. The differential includes smegma pearls, penile cysts, neoplastic lesions, or calcified deposits; histopathology remains the gold standard for ruling out malignancy.

Treatment and Outcomes

Surgical removal—either via dorsal slit or circumcision—and complete excision of the stone and preputial tissue is curative with excellent prognosis. Our management aligns with standard practice: calculus removal plus circumcision, resulting in symptom relief. Postoperative recovery was uneventful.

Complications and Follow-up

Delayed diagnosis may result in obstructive hydronephrosis, renal failure, fistula formation, or even penile carcinoma. Cases reporting preputial fistula, hydronephrosis, and malignancy emphasize the importance of timely surgical intervention and rigorous follow-up for early detection of complications.

Comparison to Published Cases

Murugan et al. (2021) reported a 4.5 × 3 cm preputial stone in a 55-year-old with phimosis, diagnosed via pelvic X-ray, managed by dorsal slit and catheterization, and histology excluding malignancy. Another report by Bhat et al. noted patients presenting with azotemia due to obstructive uropathy in elderly men, treated with circumcision or dorsal slit. Surya et al. (2024) described a case in rural Central India of an elderly uncircumcised man with multiple stones, managed via circumcision and extraction. Our case is similar in terms of age and presentation, albeit with a single calculus and no upper tract involvement, strengthening the pattern of disease and favorable surgical outcome.

Prevention and Patient Education

Good genital hygiene and early management of phimosis are critical preventive measures. Counseling on avoiding smegma accumulation and seeking prompt urological evaluation in elderly uncircumcised men can avert calcification. Long-term follow-up is advised in elderly patients to monitor for potential malignant changes.

CONCLUSION

Preputial smegmatic calculi, although rare, warrant clinical consideration in elderly uncircumcised males presenting with obstructive urinary symptoms or penile swelling. Prompt surgical excision along with circumcision provides definitive management and rapid symptom resolution. Histopathological evaluation is essential to exclude malignancy. Awareness, early detection, and patient education on hygiene and foreskin care are central to preventing recurrence and serious complications.

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