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(CASE REPORT)

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Neglected urethral stone causing Fournier's gangrene: A case report

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Abstract

Fournier's gangrene is a serious, progressive necrotizing infection of the skin, subcutaneous fat, and superficial fascia of the external genitalia and/or perineum. This case report will discuss a very rare cause of Fournier's gangrene, which is a neglected urethral stone in a 63 year old patient presented to the emergency department with a large painful bursa with anuria that had been progressing for a week. An abdomino-pelvic CT scan showing a stone in the anterior urethra close to the urethral meatus, 1.5 cm in size, responsible for dilatation of the entire urinary tract which is associated with a bilateral scrotal abscess extending to the dorsal surface of the penis. The bases of treatment are: extraction of the calculi ether mini invasively or by urethrotomy, urinary diversion ether by urethral or supra pubic catheter, and debridement necrotomy to control the infection.

Keywords: Fournier's gangrene; Urethral stone; Urinary diversion; Case report.

1. Introduction

Fournier's gangrene is a serious, progressive necrotizing infection of the skin, subcutaneous fat, and superficial fascia of the external genitalia and/or perineum [1].

An underlying etiology can almost always be identified [2]: perirectal and perianal abscesses are both the most common and most moribund causes [3], periurethral infection resulting from stricture disease or instrumentation with urinary extravasation is identified in approximately 20-30% of cases [4], a scrotal disease, epididymitis, or skin lesions can also progress to Fournier's gangrene [3, 4].

We report the case of a patient who presented to the emergency department with Fournier's gangrene secondary to a neglected urethral stone, as a rare cause.

To our knowledge and via a standard PubMed search, we report the third documented case of direct association between Fournier's gangrene and urethral stone: the first case was reported in Trinidad and Tobago in 2014 [5], and the second in Indonesia ten years later [6].

2. Case Presentation

A 63 year old patient, with a history of difficulty accessing healthcare, presented to the emergency department with a large painful bursa with anuria that had been progressing for a week. The history of his illness goes back 3 months, when the patient presented obstructive signs: slow urinary stream to void, hesitancy and straining with feeling of incomplete bladder emptying.

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Faced with these symptoms, the patient did not seek medical advice until a large painful bursa developed, which prompted him to seek medical advice.

Examination revealed a patient in poor general condition, dehydrated, with a large inflamed and painful bursa with partial necrosis of the skin of the penis. Urine and pus were also seen leaking through the necrotic skin. There was also evidence of a chronic bladder globe (Fig. 1).

An attempt to catheterize the bladder is doomed to failure

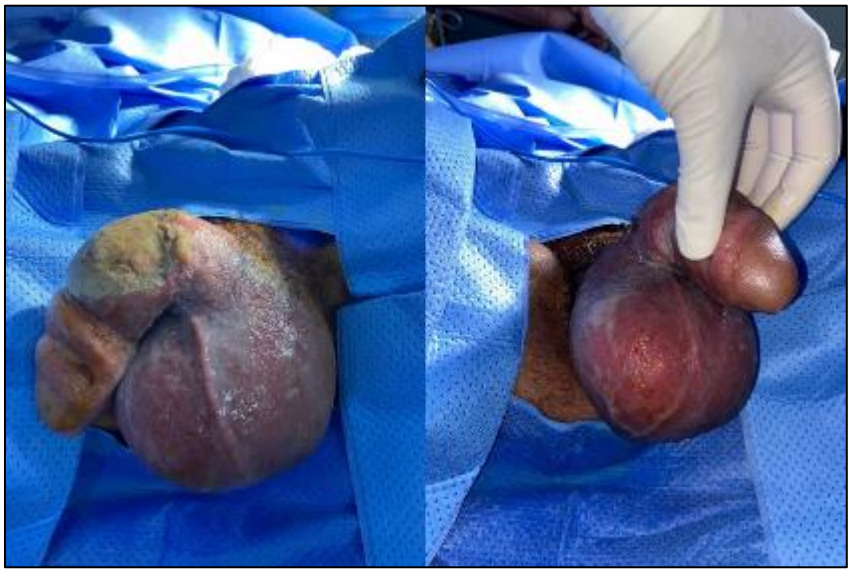

Figure 1 Clinical picture of the patient

The biology showed a significant inflammatory syndrome, with leukocytes at 25,000 and CRP at 300, and renal insufficiency: urea at 2.71 and creatinine at 56.

An abdomino-pelvic CT scan was ordered, showing a stone in the anterior urethra close to the urethral meatus, 1.5 cm in size, responsible for dilatation of the entire urinary tract: bilateral hydronephrosis, significant bladder distention, and dilatation of the upstream urethra (Fig. 2). This is associated with a bilateral scrotal septated abscess extending to the dorsal surface of the penis (Fig. 3).

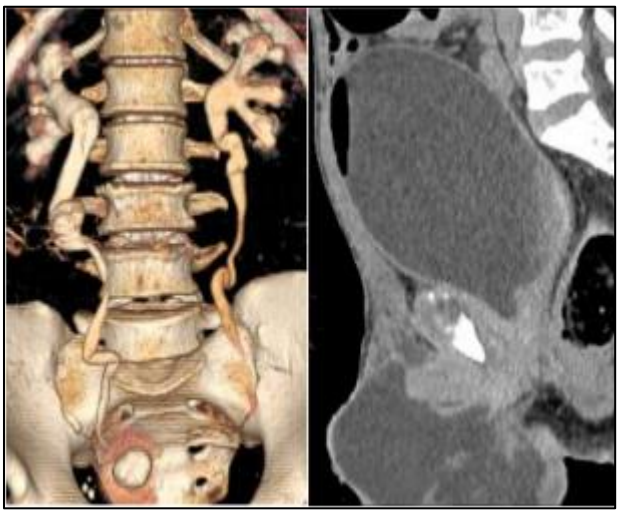

Figure 2 CT images that show the distended bladder with the bilateral hydronephrosis

Figure 3 CT images that show the scrotal abscess and the urethral stone

The patient was immediately admitted to the operating theatre, after parenteral antibiotics, and the procedure was carried out in 2 stages: firstly, the stone was extracted using forceps through the urethral meatus, taking care not to push it into the urethra, followed by the insertion of a bladder catheter via the natural route (fig. 4).

Figure 4 Extraction of the stone using a forceps, with insertion of the Foley catheter

Secondly, a scrotal approach was performed, with drainage of the abscess and necrotomy debridement of the necrotic tissue, and pus specimens was take.

The scrotum is left open for sequential debridement (Fig. 5).

Figure 5 Necrotic area of scrotum opened and debrided

The post-op course was marked by a good clinical and biological evolution with resumption after 2 weeks for scrotal recovery (Fig. 6).

Figure 6 Evolution two weeks later, with recovery

- The spectrophotometric study revealed a mixed morphology with 80% of whewellite and 20% of uric acid.
- The bacteriological study of the pus found an Escherichia Coli germ sensitive to Third-Generation Cephalosporin
- The examinations carried out in the search for an underlying risk terrain were normal.

3. Discussion

We have just presented the case of a 63-year-old patient admitted for Fournier's gangrene, following an obstructive urethral stone, treated by bladder catheterisation - after extraction of the stone from the natural route - followed by debridement of the necrotic tissues, with a very good post-operative outcome.

Urethral stone are a very rare pathological entity, accounting for less than 0.3% of all urinary tract calculi [7].

They are most often secondary to urethral pathology (urethral stricture, urethral diverticulum, hypospadias, urethral tumor or meatus stricture in young adults) and exceptionally developed on a normal urethra [8].

They are located preferentially in the posterior urethra and very rarely in the anterior urethra, and may be solitary or multiple [8].

The association between urethral calculi and Fournier's gangrene is very poorly documented in the literature: A case of association of multiple penile urethral calculi causing Fournier's gangrene published by Ramdass MJ et Al. in 2014 [5]. A second case associating a calculus of the urethra and Fournier's gangrene was published by Angeli AP. et al. in 2024 [6].

Treatment of the stone depends on its characteristics (the size, the number, the localization of the calculus), and the state of the urethra (the presence or not of an underlying urethral pathology) [8] [9]: Minimally invasive endoscopic approach by urethroscopy is to be preferred when it is possible [10]. For large, multiple, distal stones,or encrusted stone, as in our case, conventional open surgery with meatotomy or sometimes urethrotomy with or without urethroplasty is an excellent treatment option [9]. In the 2 cases published in the literature: an urethrotomy was performed to remove the stones.

Emergency urine drainage is usually carried out using a suprapubic cystostomy [11]. The use of the urethral catheter in our case was due to the rapidity of management in the operating room and the rapidity of extraction of the stone through the meatus.

After the stone has been treated and the bladder drained, gangrene is managed using the standard approach: IV antibiotics with sequential debridement and necrotomy. Later, the skin defect must be repaired using a fasciocutaneous flap [12].

4. Conclusion

Urethral calculi are a rare form of urinary lithiasis, and even rarer as a direct cause of Fournier's gangrene.

The mainstays of management are treatment of the stone, drainage of the bladder and treatment of the gangrene as a source of infection.

This article shows the ultimate complications of urethral calculi (gangrene and urine retention), through which we hope to help clinicians and urologists in the future to manage this type of patient.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflicts of interest regarding the publication of this paper.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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