

CASE REPORT



Fournier's gangrene post iatrogenic urethral trauma discovered and treated early in a rural hospital: A case report

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ABSTRACT

Fournier's gangrene (FG) is a rare and serious condition with very high mortality. This report presents a case of FG following iatrogenic urethral trauma in a hypertensive patient with left hemiplegia. Prompt detection and aggressive surgical intervention resulted in a favorable outcome. A 50-year-old male presented with scrotal swelling and pain post-failed Foley catheter replacement. Treatment involved broad-spectrum antibiotics, tetanus prophylaxis, and surgical debridement. Improvement was observed with daily dressing changes, with healthy tissue visible by postoperative day 12. FG mortality rates remain high, emphasizing the urgency of early diagnosis and intervention. This case highlights the critical role of timely management in mitigating FG severity.

KEYWORDS

Fournier's gangrene;
Iatrogenic; Supra public
catheter; Hemiplegia;
Debridement

ARTICLE HISTORY

Received 30 January 2025;
Revised 27 February 2025;
Accepted 5 March 2025

Introduction

Fournier's gangrene (FG) is an uncommon, potentially life-debilitating soft tissue infection that can quickly progress to systemic toxicity if left untreated. The perineal and genital tissues are mostly affected [1]. This condition is a serious surgical emergency, described for the first time by the French dermatologist and venereologist Jean Alfred Fournier in 1883 when he described 5 cases of penile and scrotal gangrene [2]. In those cases, Jean Alfred noted that the etiology could not be established, and the condition progressed very fast.

FG is a highly infectious illness that results in fulminant necrotizing fasciitis in the perineal regions [3]. With a 40% mortality rate, this is one of the most serious surgical situations. Early identification of FG is crucial for treatment [4]. The cornerstones of therapy are broad-spectrum antibiotics and prompt surgical debridement [5]. Iatrogenic urethral trauma may result in extravasation of urine, which can sometimes end up in FG. The present case report is of particular importance as it describes a case of FG in a patient with hypertension and left hemiplegia with a background of hemorrhagic stroke in whom early detection combined with aggressive surgical debridement resulted in a good outcome.

Case Presentation

A 50-year-old male, fully conscious, was admitted to the internal medical ward for hypertension and left hemiplegia with a background of hemorrhagic stroke. There was no history of diabetes mellitus or alcohol consumption. He was not from a filarial endemic zone. He had been with an indwelling urethral catheter, frequently changed for the past 6 months. Twenty hours prior to the surgical consult, a medical student attempted to change the Foley catheter, which failed, and then the scrotum started swelling associated with pain and reddening (Figure 1).

A physical examination revealed that he was awake. Pallor, icterus, and lymphadenopathy were absent. His dehydration was moderate. His heartbeat was steady at 110 beats per minute. His blood pressure was 145/85 mmHg, and the patient was

taking captopril tablets. Systemic examination revealed a left hemiplegia.

Local examination of the scrotum revealed that the scrotum was enlarged, edematous, and tender with crepitus. There was patchy gangrene with a foul-smelling, purulent discharge (Figure 2).

On palpation of the urethra, there was a disruption on the base of the penis at the membranous urethra, which gave the provisional diagnosis of interruption caused by the extravasation of urine post iatrogenic urethral trauma. On catheterization, the urinary catheter was inflated and palpable in the scrotum. After being resuscitated, investigations were done and examined. The administration of tetanus toxoid and broad-spectrum antibiotics in the form of ceftriaxone and metronidazole was initiated. The patient was ready for a suprapubic catheter in an emergency.

Hemoglobin (Hb) was 13 gm/dL, white cell count was 16,500.109/L, and polymorph nuclear leucocytosis (N-85%) was found on the blood haemogram. Blood urea was 40 mg/dL, serum creatinine was 1.0 mg/dL, random blood sugar was 110 mg/dL, and liver function test was within normal range. These biochemical values were basically normal.

Three days later, the scrotum was grossly swollen, and areas of skin excoriation on the right side, except the left side found necrotic scrotal skin, drained around 60 ml of foul-smelling pus, then scrotal irrigation using normal saline was done, and iodine, followed by dressing with scrotal elevation. A sample was sent for culture and sensitivity. The patient underwent daily dressing, and healthy granulation tissue was visible by the 12th postoperative day (Figure 3). On the 15th postop day, the edges were brought closer to approximate each other (Figure 4). He was discharged from the surgical ward on the 25th postoperative day, and after the correction of the infection, the patient was referred to a urologist for urethral repair.



Figure 1. Scrotum on the first day post urine extravasation from urethra trauma (Furthermore, injury to the endothelium causes swelling of tissues, leukocyte infiltration, extravasation of the urine and fluid portion of the blood, and all leading to ischemic necrosis of the scrotal fascia).



Figure 2. Left side of the scrotum discharging pus.



Figure 3. Visibly, healthy tissue on this scrotal image.



Figure 4. Edges of the scrotal wound approximate each other spontaneously and the infection passed.

Discussion

In most contemporary series, the mortality rate for FG is still substantial, ranging from 20 to 50 percent [6]. Fortunately, it is an uncommon ailment, with a documented frequency of 1.6/100,000 males, peaking in the fifth and sixth decades [6,7]. The disease process commonly originates from a nidus of infection in the anorectum (30-50%), the urogenital tract (20-40%), or the skin of the genitalia (20%) [8].

Urogenital factors include an indwelling catheter, infection in the bulbourethral glands, urethral injury, iatrogenic injury secondary to urinary catheterization, traumatic in case of longstanding urethral stricture, urethral calculi, prostatic biopsy, bladder carcinoma, epididymitis, urinary extravasation, circumcision, vasectomy, insertion of penile prosthesis, penile erosion, hydrocele aspiration, and genital piercing, as well as perineal trauma and human bites or scratches [8,9]. It is important to recognize FG in the early stages when cutaneous manifestations are minimal [10]. The most commonly predisposing factor (comorbidity) observed is diabetes mellitus in 40-60%. Other common comorbidities include hypertension, immunodeficiencies, hepatic cirrhosis, heart failure, old age,

alcoholism, paraplegia, obesity, alcoholism, and peripheral vascular disease [11]. It's interesting to note that no clear predisposing factor is found in about 30% to 50% of cases [12]. FG is a surgical emergency that requires prompt clinical identification in order to start early treatment due to its severity and rapid evolution. The local typical triad is pain, edema, and erythema; fever and tachycardia are the most prevalent vital signs [11]. Patients may present laboratory abnormalities such as leukocytosis ($>20,000$ WBC/mm³), urea >18 mg/dL, serum creatinine >1.2 mg/dL, CRP >16 mg/dL, and CPK >600 u/L [13]. The mainstay of the management is radical surgical debridement along with repeated dressings, broad-spectrum antibiotics, and urinary diversion [14].

To halt the infection's progression and eliminate the systemic effects of toxins and germs simultaneously, all devitalized tissue must be removed [12]. Several surgical debridement sessions are necessary to attain sufficient local control of infection. Following surgical debridement, local wound care is crucial [8]. We used everyday dressing in our case.

Although randomized controlled trials are still needed to demonstrate the effectiveness of using immunoglobulins as a neutralizer of *Streptococcus* toxins, tetanus prophylaxis should be carried out [15].

Conclusions

Urethral trauma due to urethral manipulation may lead to FG. FG is a rare, potentially severe disease. With a high mortality rate, it affects the perianal, genital, or perineal areas. Clinical diagnosis is the norm. Treatment for FG frequently necessitates interdisciplinary involvement if it is discovered early. Fast resuscitation (aggressive care), a broad-spectrum antibiotic, and total surgical debridement of which early surgical debridement is crucial should be the cornerstones of care. Rest the urethra for 21 days to facilitate healing.

Disclosure statement

No potential conflict of interest was reported by the authors.

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