

# Fournier's gangrene of the penis in a 12-year-old patient secondary to phimosis

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## ABSTRACT

We report a case of Fournier's gangrene in a 12-year-old boy from St. Boniface Hospital in Fond-des-Blancs, Haiti. Fournier's gangrene, a fulminant necrotizing fasciitis of the penis and scrotum, is a rare and life-threatening infection that requires hospitalization, broad-spectrum antibiotics, and surgical debridement.<sup>1-3</sup> It is usually associated with impaired cellular immunity due to systemic disorders such as diabetes and liver disease.<sup>4,5</sup> This patient had none of those risk factors, but had severe, longstanding phimosis, for which circumcision had been recommended many years before. This case illustrates how lack of access to basic surgical care for an easily treatable condition leads to advanced presentation of a severe disease process.

**KEYWORDS:** Fournier's gangrene in pediatric patient, necrotizing fasciitis of the penis, phimosis, global surgery, lack of access to surgery

## CASE REPORT

A 12-year-old boy presented to St. Boniface Hospital with pain and swelling of the penis and scrotum and an inability to urinate for two days. On examination, the patient was noted to have severe phimosis with patchy necrosis and a grossly edematous penis and scrotum. The patient's bladder was drained of 1100cc of urine with a suprapubic catheter. Laboratory analysis revealed a creatinine of 3.6. The patient was taken to the operating room for an emergency debridement. The foreskin and more proximal shaft skin were necrotic through Buck's and into Dartos Fascia, and were debrided. The corpora cavernosa and spongiosum were intact. The area of debridement was irrigated with normal saline and Dakin's solution, and packed with dressings soaked in Dakin's. No damage to the urethra was observed, and a Foley catheter was placed to facilitate wet-to-dry dressing changes for two weeks.

The patient returned to the operating room two weeks later for a meshed 1:1 split-thickness skin graft to cover the remaining defect on the shaft of the penis.

## DISCUSSION

Fournier's gangrene (FG) is a life threatening disease of the perineum and genitalia in which a bacterial infection results in small vessel occlusion, gangrene of the overlying skin, and expansion of the necrotizing infection along fascial planes through bacterial enzymatic degradation.<sup>3,5</sup> The portal of entry may be genitourinary, anorectal, or cutaneous, and causal organisms are usually normal flora that interact synergistically in a polymicrobial infection.<sup>5-7</sup> Accordingly, FG is typically associated with conditions that impair host cellular immunity, such as diabetes mellitus, alcoholism, liver disease, HIV, chronic illnesses, and malignancy.<sup>4,5,8,7</sup> It is rarely seen in children, and most reported pediatric cases have involved children younger than 3 months.<sup>6</sup> The patient presented in this case did not have any of the commonly associated risk factors, but developed Fournier's gangrene secondary to phimosis.

Phimosis is a condition in which inflammation and scarring of the foreskin leads to a permanently un-retractable prepuce that cannot be drawn back to reveal the glans penis.<sup>9,10</sup> Narrowing of the foreskin orifice may compress the meatus, causing high-pressure flow that leads to inflammation of the peri-urethral tissues; in some cases, phimosis may lead to complete urethral obstruction.

Obstruction, inflammation, and penile edema may create an ischemic process prone to infection.<sup>12</sup> The etiology of infection in this case cannot be confirmed due to the diagnostic limitations of the facility, but the authors suspect that phimosis and balanoposthitis led to obstruction and a subsequent urinary tract infection; leaking of infected urine into un-retractable foreskin led to cellulitis which soon progressed to Fournier's gangrene.

**Figure 1.** Patient at time of presentation, before surgical debridement



**Figure 2.** Patient after surgical debridement**Figure 3.** Patient two weeks after surgical debridement**Figure 4.** Patient after split-thickness skin graft

Few cases of Fournier's gangrene secondary to phimosis have been described in the literature. While rare, these are usually seen associated with other more common risk factors for Fournier's gangrene. In this case, the patient's mother explained that he had been diagnosed with phimosis when he was two years old, and the parents were told that he needed circumcision and would be placed on a list for a visiting surgical team. However, the patient's family was never contacted and never returned to the hospital; the patient's increasingly stenotic foreskin led to complete urethral obstruction and gangrenous infection, ten years after his initial diagnosis of phimosis.

The Lancet Commission on Global Surgery estimates that 5 billion people worldwide lack access to surgical care when needed, including nine out of ten people in low middle income countries (LMICs) like Haiti.<sup>13</sup> This case is a striking example of how lack of access to basic surgical care transformed a relatively benign process (phimosis), into a devastating and life-threatening emergency (necrotizing fasciitis of the penis with complete urethral outflow obstruction) requiring multiple surgical procedures and producing permanent genital disfigurement.

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