Case Report

Fournier's Gangrene: A Case of Neglected Symptoms with Devastating Physical Loss

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Abstract

Fournier’s gangrene is a severe life threatening infection involving the perianal, perineum and external genitalia. It demands prompt recognition, critical care therapy, surgical therapy and combination of antibiotics. Commonly infection spreads via the fascial planes and causes superficial vascular thrombosis within the Colles’ fascia around the external genitalia. It can extend cephalad to involve the Scarpa’s and Camper’s fascia of the abdominal wall. A patient would need multiple debridement with resultant disfiguring scars of the perineum. This may lead to significant physical and psychological complications. We describe a case of a 58-year-old man, presenting with Fournier’s gangrene resulting from infection of an impacted urethral stone. The patient previously had obstructive voiding symptoms for one month but chose to neglect it. The resultant infection was severe and caused penile and right testicular gangrene. He underwent multiple wound debridements which included a total penectomy and right orchidectomy. Psychological and rehabilitative support was necessary for him to overcome his loss and disfigurement.

Keywords: Fournier’s gangrene, necrotizing fasciitis, orchidectomy

Introduction

Fournier’s gangrene is a severe and life threatening infection of the perineum and perianal region. Despite established protocols of management, mortality and morbidity ranges at 10-20% and up to 60% respectively. Patients who do survive the ordeal are frequently left with a disfiguring wound, a sense of altered body image, psychological trauma and prolonged rehabilitation to normality. Here we describe such a case in which delayed presentation of the disease resulted in devastating disfigurement and morbidity.

Case Report

A 58-year-old man had history of obstructive voiding symptoms over the previous one month. He worked as a security guard and was from a low socio-economic income group. He had not sought proper medical help but instead tried traditional remedies to overcome his symptoms. He then presented to the emergency department with acute urinary retention associated with three days of penile and scrotal swelling. He had no fever, hematuria or previous instrumentation of the urinary tract. On examination he was tachycardic (120 beats/min) and hypotensive (80/60 mmHg). There was discoulouration and swelling of his external genitalia with an associated priapism (Figure 1A). A diagnosis of Fournier’s gangrene was made. He had severe metabolic acidosis and random blood sugar level was 8.4mmol/L. Following resuscitation, commencement of broad spectrum antibiotics and inotropic support, he had an immediate wound debridement performed.
Intra-operatively, the skin overlying the external genital was gangrenous and removed. The corpus carvenosa was engorged with deoxygenated blood while the corpus spongiosum had extensive necrosis (Figure 1B). Superficial and deep dorsal penile veins were thrombosed. An impacted urethral stone was seen and removed from the membranous urethra (Figure 1C). The viability of the corporal bodies of the penis and both testis was doubtful and therefore not removed in order to preserve the genitalia anatomy. A suprapubic catheter was inserted for bladder drainage.

Post operatively he developed pneumonia. He then developed gangrene of digits of both lower and upper limbs, which resulted from nor adrenaline infusion of 20microgram/min. Within 3 days, the right testis and corporal bodies of the penis became gangrenous (Figure 1D). He underwent a total penectomy, right orchidectomy and further wound debridement. Upon discharge the wound had contracted with healthy granulation at its base. However the patient was distraught with loss of the penis and right testis. Patient and his family received psychological counseling and are still under follow up.

**Discussion**

Fournier's gangrene is a deadly dreadful disease with estimated mortality of 10 to 20% depending on severity of presentation (1). It was initially described by Jean Alfred Fournier in 1883. He described 3 features of this disease which include abrupt onset of scrotal pain and swelling in a healthy adult, rapid progression to gangrene and absence of definitive cause (2). It is now no longer considered idiopathic, as its etiology is usually of a pathological process from overlying skin, the urinary tract and colo-rectal area (1). The disease usually involves the scrotum (30%), perineum (50%) or anterior abdominal wall (20%). Predisposing factors such as systemic immune-suppression, diabetes mellitus, chronic alcoholism and steroid therapy favors its rapid progression (3).

Fournier’s gangrene represents a polymicrobial infection. Both aerob and anaerob organism are usually present. The most common isolated species are *enterobacteria*, *bacteriodes* and *streptococcal* species. The infection begins in an area adjacent to the site of bacterial entry and progresses as a spreading inflammatory reaction that involves superficial and deep tissue planes. Along the way it causes endarteritis, leading to cutaneous and subcutaneous vessel thrombosis and tissue necrosis. This is due to the synergistic actions of the aerob and anaerobic organisms which produces various proteins and enzymes that lead to intravascular clotting. The microorganisms produce various endo- and exotoxins that causes prolonged vasoconstriction and thrombotic occlusion of the blood vessels. These toxins are also released into the systemic circulation and results in Systemic Inflammatory Response Syndrome (SIRS) and septic shock. Certain bacteria, like *Streptococci* and *Staphylococci* produce hyaluronidase, streptokinase and streptodornase which destroys connective tissues directly. Hydrogen and nitrogen gasses are produced by the anaerob which results in crepitus (4). Based on this, potential antibiotic therapy include a combination of metronidazole for anaerob microorganisms, broad spectrum third or fourth generation cephalosporins and an aminoglycoside such as gentamicin for the gram positive and negative microorganisms.

Urogenital causes of Fournier’s gangrene include urethral strictures, indwelling catheters, traumatic catheterization, urethral calculi and prostate biopsies. Stricture and calculi may produced minimal symptoms, and therefore go unrecognized unless appropriate investigations are undertaken such as urinary tract imaging and cystoscopy. Infected urine proximal to the obstruction enters the peri-urethral glands. The invading organisms then spread within the corpus spongiosum before penetrating the tunica albuginea to reach the Buck’s fascia. Infections then travel posteriorly along the dartos fascia to enter the Colles fascia (3,4). Colles’ fascia is attached to the perineal body posteriorly and therefore infections arising from the urogenital structures do not reach the anal margin. In contrast, infection arising from an anorectal foci of infection penetrates the anal sphincter muscles to reach the
Colles’ fascia before involving the scrotum. This helps to identify the likely origin of infection as perianal involvement of Fournier’s gangrene points towards an anorectal source of infection (4).

Rarely the corporal bodies and testis are affected as they have independent blood supplies originating intra-abdominally. However severe infections may penetrate the urogenital diaphragm to peri-vesicle space and into the inguinal canal via the internal and external fascia of the spermatic cord as occurred in this patient’s right side, which caused testicular gangrene (4). An ischaemic priapism was present believed to have resulted from venous thrombosis of the superficial and deep dorsal veins.

Prompt recognition and treatment may limit its spread and metabolic consequences. However our patient, as in previous reported studies show a consistent delay of 1–7 days (mean of 2.5 days) between onset of disease and first debridement.

Rarely is a total penectomy necessary, while orchidectomy is reportedly performed in 21% of cases (1). Most patients post debridement wound have flap or skin graft cover of tissue loses over penis. The scrotal skin heals well and is usually left to regenerate itself (1,2). Our unfortunate patient had both the above procedures performed which gave him a sense of physical loss and altered body image. Psychological counseling was obtained for the patient and family. Further rehabilitation was necessary to hasten his recovery process and allow him back to work.

This case illustrates the severity and fast spreading necrotizing fasciitis of the perineal region resulting from a neglected treatable condition. Probable poor economic status, cultural beliefs and fear of modern medicine kept this patient away from early definitive treatment. Immediate recognition, prompt resuscitation, extensive debridement with broad spectrum antibiotic coverage is necessary to limit its spread and severity. Despite this, sometimes the physical and psychological damage is already present. Major lifestyle adjustment would be needed such as role reversal of the family breadwinner, change in occupation as well as financial uncertainties are to be expected. It is thus important that early psychological counseling, aggressive rehabilitation and social support is obtained. This will allow the patient and family members to come to terms with their loss and keep them focused on their future aspirations and goals.

**Authors’ Contributions**

Conception and design, analysis and interpretation of the data: PS
Provision of patient: AR
Collection and assembly of the data: JL
Drafting of the article: KTW
Critical revision of the article: TGC

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References


Figure 1: (A) Gangrene and swelling of external genitalia. (B) Gangrenous corpus spongiosum and perineal necrosis. (C) Stone removed from membranous urethra. (D) Penile and right testicular gangrene.