

Fournier's GangreneTejas AP¹, Revanasiddappa², Hariprasad TR³, Rohit K⁴

¹Dr Tejas AP
Junior Resident
drtejasastakarrao247472@gmail.com

²Dr Revanasiddappa
Professor
drrevasiddappanadgir@gmail.com

³Dr Hariprasad TR
Associate Professor
drhariprasad123@gmail.com

⁴Dr Rohit K
Assistant Professor
rohitkrishnappa@yahoo.co.in
^{1,2,3,4}Dept of General Surgery
RRMC&H, Bangalore, Karnataka, India

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Correspondence to:

Dr Tejas A P
drtejasastakarrao247472@gmail.com
9739254974

ABSTRACT

Fournier's gangrene is a rare, idiopathic, life threatening, necrotising fasciitis of the genitals and perineum caused by both aerobic and anaerobic bacterial flora. The synergistic effect of the bacteriae results in fulminating gangrene, multiple organ failure and death. Most commonly it has predilection for diabetic and alcohol abused individuals. Timely recognition of the disease process and initiation of treatment with aggressive debridement and antibiotic administration is called for. In this case report, we recall an account of our tryst with Fournier's gangrene management.

Keywords: Fournier's gangrene, necrotising fasciitis, scrotal reconstruction

Introduction

Named after venerologist, Jean Alfred Fournier, Fournier's gangrene is an uncommon, rapidly progressive infection of the genital, perineal and perianal regions with occasional cranial extension to the abdominal wall. Many terms like idiopathic gangrene of the scrotum, periurethral phlegmon, synergistic necrotising cellulitis, phagedena have been used to describe it. Commonly affects males but also is seen in women and children. ^[1] Genitourinary tract (20-40%), gastrointestinal tract (30-50%) and/or skin (20%) form the nidus for aerobic and anaerobic bacteriae. It is characterised by a synergistic, necrotising fasciitis leading to the thrombotic occlusion of small subcutaneous vessels and development of gangrene. There are two types. Type I is due to a mixture of aerobic and anaerobic organisms usually following an abdominal operation or associated with diabetes mellitus. Type II is due to Group A Streptococcus synergistic with

a second organism (Staphylococcus aureus, Coliforms, Bacteroids spp.). Diabetes mellitus (20-70%), alcoholism (25-50%), malignant disease, obesity, peripheral vascular disease, local trauma, urethral stricture and perianal disease have been cited as predisposing factors. Clinical feature has vast heterogeneity from insidious onset and slow progression to rapid onset and fulminant course. Early presentation and diagnosis, supportive measures and the use of broad-spectrum antibiotics with prompt and aggressive surgical debridement remain the cornerstone of management. If not treated aggressively, patient may rapidly progress to sepsis and subsequent organ failure leading to death. In spite of belligerent management mortality is still high, accounting 20-30 percent.

Case report

A 51year old male presented to the emergency department with complaint of scrotal pain and swelling. His symptoms had started five days

prior to presentation, but had progressed rapidly in the preceding 24 hours. The patient also complained of fever, nausea and diaphoresis. Patient was a hypertensive since 11 yrs and was also on treatment for diabetes mellitus for 5 yrs. On examination, patient had erythema with diffuse edema of the scrotum and penis with areas of skin discoloration. (Fig. 1) Significant inguinal lymphadenopathy was noted. Laboratory analysis revealed a blood glucose level of 447 mg/dL, serum creatinine of 3.3 mg/dL, lactic acid of 3.8 mmol/L, and white blood cell count of 27.8 K/ μ L. A bedside scrotal ultrasound of the scrotum showed evidently normal testes with hypoechoic scrotum. (Fig. 2)



Fig. 1 Per Operative view of the penile-scrotal area showing significant soft tissue swelling and area of necrosis with surrounding erythema



Fig. 2 Ultrasound of the scrotum showing normal testicles in the transverse plane with edematous scrotal skin is evident by hypoechoic tissue overlying the testicle

Based on history and clinical examination a diagnosis of Fournier's gangrene was made. Patient was taken to the operating room for liberal debridement of the scrotal and penile

region. (Fig.3) Wound culture and histopathology of specimen revealed acute inflammation and liquefactive necrosis associated with mixed bacterial flora, consistent with the diagnosis of Fournier's gangrene. Broad spectrum antibiotics with aerobic and anaerobic coverage were concomitantly started. Patient underwent debridement once more in a span of 3 more days prior to resurfacing with split thickness graft 10 days later. He was discharged approximately 25 days of hospitalization in satisfactory condition.



Fig. 3 Per Operative photos showing scrotum reconstructed with split thickness skin graft procured from patient's right thigh

Discussion

Fournier's gangrene is a condition marked by fulminant polymicrobial necrotizing fasciitis of the urogenital and perineal areas. Infection commonly starts as cellulitis presenting with local dramatic clinical features. The systemic signs are out of proportion to the local extent of the disease. Spread of infection is in facial planes. In due course, extensive necrosis occurs. The testes are usually spared as they procure blood supply intra-abdominally. To quantify the severity of the disease, Laor et al developed a scoring system, using clinical signs and laboratory data.

Ultrasonography can differentiate intrascrotal abnormality from cellulitis. [2] Ultrasound has demonstrated a sensitivity of 88.2% and a specificity of 93.3% for diagnosing clinically suspected necrotizing fasciitis and 100% sensitivity in the detection of soft tissue air in cadaveric studies. [3, 4] With gas-forming

organisms, there may be a loss of tissue planes from subcutaneous air. [5] CT and MRI are useful in diagnosing retroperitoneal and intra-abdominal disease process.

Fournier's gangrene necessitates aggressive multimodal approach, including, haemodynamic stabilisation, early administration of broad spectrum antibiotics and emergency operative treatment. Multiple surgical debridement is a rule than an exception. Orchidectomy may be necessary in quite a few even though testes is classically spared. Split thickness skin graft to cover perineal and scrotal defects is the treatment of choice. Meshed slits of the graft have to be oriented transversely. Vacuum assisted closure or negative pressure dressing has a dramatic effect in treatment of Fournier's gangrene. Hyperbaric oxygen therapy, though with no conclusive evidence, is widely believed to be an effective adjuvant therapy.

However, despite advancements in diagnostic modalities and intensive care management, mortality can still approach 67%. Prompt diagnosis with early surgical debridement, antibiotic administration, good supportive care, and primary disease management of co-morbidities is of utmost importance.

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