



CLINICAL OUTCOMES OF Fourniers GANGRENE FROM A TERTIARY CARE HOSPITAL AT CHENNAI

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ABSTRACT Fournier's gangrene is a progressive necrotizing soft tissue infection (NSTI) of the external genitalia and/or perineum. Conditions predisposing to Fournier's gangrene include diabetes mellitus, obesity, chronic alcoholism, smoking, renal failure, liver failure, malignancy, and HIV infection. The aetiology of Fournier's gangrene is most commonly polymicrobial. The mainstay of treatment for Fournier's gangrene is extensive surgical debridement of the affected tissue, but this approach can leave patients with disfiguring wounds that require reconstructive surgery once the patient has recovered from the infection. In this Study, we address current concepts of Fournier's gangrene, describing the characteristics of high-risk groups, and introducing the Fournier's gangrene severity index (FGSI) as a prognostic tool. Several reconstructive surgical techniques have been described that share the goal of minimizing morbidity as well as restoring functionality and cosmesis.

KEYWORDS :

INTRODUCTION

Fournier's Gangrene is an emergency surgical disorder involving widespread necrosis of the tissues in scrotal, Genitourinary and Anorectal regions. It is of polymicrobial origin caused by synergistically acting aerobes and anaerobes.

Thorough research should be carried out to ascertain the etiology and origin of the infection, which may be tracked particularly from the urogenital tract, the digestive tract or the skin infections.

Organisms that typically colonize the urogenital and anorectal regions are aerobic gram-negative and spore-forming gram-positive bacilli. Organisms encountered mostly are *E.coli*, Anaerobes like Clostridium and Bacteroides, *S.aureus* and *Paeruginosa*. Eventhough it is polymicrobial in majority of the cases.

The clinical features include an area of pain, swelling and hyperemia that may depict cellulitis in the Scrotal, Genitourinary and Anorectal regions.

Tissue crepitus is elicited as a critical sign in differentiating Fourniers gangrene from other soft tissue infections. Necrotic areas develop in the contaminated tissue after 48 to 72 hours, producing local gangrene visible after 4 to 5 days.

The main stay of treatment is considered to be initial stabilization, broad-spectrum intravenous antibiotics and surgical debridement, as extensive as necessary.

METHODS

In this study the age, gender, duration of the complaints, etiology and the organism isolated, signs and symptoms, comorbidities, duration of hospital stay, number of surgical procedures and mortality rate of patients admitted with Fourniers gangrene at Department of General surgery, Sree Balaji Medical College and Hospital, Chennai, India were analyzed retrospectively.

RESULTS

Our study included 26 patients with Fourniers gangrene admitted during the studied period, All 26 were males, most of the cases presented between 40 to 60 years of age with a mean age of 51.8 years thus involving the 5th decade of life predominantly.

Most cases were recognised and admitted late after disease onset, between 5 to 15 days, mean period of 7.6 days. 22 patients had comorbidities like Diabetes mellitus and Systemic hypertension were present in 12 patients, Diabetes mellitus with Morbid obesity in 8 patients, neurological sequelae and neoplasm in 2 patients.

The Fourniers gangrene was found in 14 cases of perianal abscess, 8 cases of scrotal abscess and in 4 cases of cutaneous perineal infections.

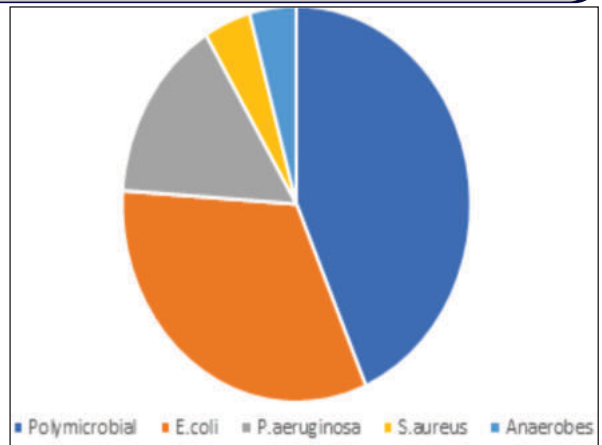


Chart 1 : Distribution of Microbes Isolated in Fourniers Gangrene

E.coli was isolated in 15 cases followed by *Paeruginosa* in 7 cases, *S.aureus* in 2 cases and Anaerobes in 2 cases respectively. Mixed aerobic and anaerobic organisms (polymicrobial) was present in 20 cases.

Mean number of surgical debridement was 2 per patient. The average duration of hospital stay was 14.4 days (ranging from 5 to 40 days). 2 cases were reported terminally ill accounting to mortality rate ranging between 8-11%

DISCUSSION

The necrotizing soft tissue infection (NSTI) of the genital, perineal, and/or perianal regions that represent Fournier's gangrene starts in the subcutaneous tissue and initially the superficial layers are not affected. The bacteria within the tissue release toxins that cause tissue breakdown and lead to bacterial spread and tissue necrosis, within hours the infection can spread along fascial planes to cause tissue hypoxia, and later necrosis and gangrene, not only by tissue breakdown, but also by arterial and venous thrombosis, leading to soft tissue ischaemia that will eventually be visible at the superficial skin layers.

Most NSTIs have an anaerobic component that can be gas-forming and can, therefore, present with crepitus and pockets of gas. The most common presenting clinical features in patients with Fournier's gangrene are swelling of the external genitalia, fever and pain. Any delay in presentation after symptom onset can result in skin necrosis. Erythema can rapidly progress along the anatomical fascial planes of dartos, Colles, and Scarpa, often sparing the deeper layers, and, therefore, has the potential of expanding anywhere between the perineum to the clavicles. Infection of the deeper layers and involvement of the testicles are rare, but can be a sign of a

retroperitoneal or intra-abdominal source of infection.

A study from Germany reported that 51.5% of patients with Fournier's gangrene were overweight with a BMI >25 and 39.4% had a BMI of ≥30 and higher. Alcoholism is present in 25–50% of patients.

The Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) score used to distinguish necrotizing fasciitis from other soft-tissue infections was not used here as the data were collected retrospectively.

Laor et al. have developed a Fournier's gangrene severity index (FGSI) based on nine parameters including body temperature, heart rate, respiratory rate, serum level of Na⁺, K⁺, creatinine, bicarbonate, haematocrit, and leukocyte count, which acts as a prognostic indicator for outcome of Fournier's gangrene. These parameters are graded on a scale of 0–4 and are summed to produce the FGSI score. In Laor and colleagues' study, a score >9 was associated with a 75% probability of death, whereas a score ≤9 indicated a 78% probability of survival.

Radiological studies, including radiography, ultrasonography, and CT, can be of value to assess the extent of disease. CT provides the highest specificity for the diagnosis of Fournier's gangrene.

Patients with Fournier's gangrene can be critically ill and require immediate resuscitation, much like trauma or burn victims. Fluid resuscitation and broad-spectrum intravenous antibiotics must be administered as soon as the clinical diagnosis is suspected. Wound or tissue samples should be sent for culture and sensitivity. The antibiotics are continued till the patient turns clinically stable.



Figure 1 and 2: Post debridement for a case of Fournier's Gangrene. (Note the viability of both the testis)

Early surgical intervention is the mainstay of treatment for Fournier's gangrene. However, the visible skin necrosis only represents the 'tip of the iceberg' and a much broader subcutaneous area can be affected and will likely require surgical debridement. The exposed subcutaneous tissue should be covered with saline-soaked gauze, which should be changed frequently throughout the day. The use of a vacuum-assisted closure (VAC) system dressing with negative pressure has been proposed by some to help with wound care and closure. Unfortunately, the location of the wound in the perineal and genital area does not help to maintain a good seal and vacuum, thereby limiting the use of VAC for Fournier's gangrene.

The quality of the wound bed must be assessed to ensure that healthy granulation tissue has formed without any remaining areas of necrosis. The reconstruction should be delayed for a minimum of 5–7 days after the last debridement until the wound bed is optimal, at which point any reconstructive technique, including primary closure, skin grafting, or flap placement, can be undertaken.

CONCLUSION

Fournier's gangrene is a serious illness with prolonged duration of hospital stay leading to social and economic disruption of the patients and high rates of mortality is another alarming number requiring early recognition, prompt diagnosis and an aggressive treatment approach for this condition.

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