

A Case Report on Fournier's Gangrene and its Management

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ABSTRACT

Fournier's gangrene is an eruptive form of necrotizing fasciitis of the perineal & genital regions. General burden in population is 1.6 cases per 1,00,000 men per year. It is a flesh-eating infection where the bacteria kill the soft tissues, often quickly including muscles, nerves and blood vessels. It presents with scrotum pain & redness, tenderness or swollen perineal region along with rapid progression to gangrene and sloughing of tissues. Along with high fever spikes and leukocytosis which deteriorates to sepsis. The Route of infection is identifiable in 95% of cases which arises from anorectal, genito-urinary and cutaneous sources. The other risk factors include diabetes mellitus, morbid obesity, immune compromised, alcohol abuse, unprotected sex, masturbation, genital piercing, abscess and malignant neoplasms. However, in Healthy adults, the exact cause is unknown. Fournier's Gangrene Severity Index (FGSI) is used to predict mortality risk. The basic treatment for Fournier's gangrene includes an emergency surgical debridement with higher antibiotics therapy and ICU care. In this case report, we discussed a case of a young male of 24 years with necrotizing fasciitis of the perineal and genital regions, who was reconstructed and surgically managed in a two staged procedure with good outcome.

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Introduction

Fournier's gangrene is an eruptive form of necrotizing fasciitis of the perineal & genital regions. General burden in population is 1.6 cases per 1,00,000 men per year. It is a flesh-eating infection where the bacteria kill the soft tissues, often quickly including muscles, nerves and blood vessels. It presents with scrotum pain & redness, tenderness or swollen perineal region along with rapid progression to gangrene and sloughing of tissues. Along with high fever spikes and leukocytosis which deteriorates to sepsis.

The route of infection is identifiable in 95% of cases which arises from anorectal, genito- urinary and cutaneous sources. The other risk factors include diabetes mellitus, morbid obesity, immune compromised, alcohol abuse, unprotected sex, masturbation, genital piercing, abscess and malignant neoplasms. However, in healthy adults, the exact cause is unknown.

Fournier's Gangrene Severity Index (FGSI) is used to predict mortality risk. The basic treatment for Fournier's gangrene includes an emergency surgical debridement with higher antibiotics therapy and ICU care. In our hospital, we managed a young male of 24

years with necrotizing fasciitis of the perineal and genital regions, who was reconstructed and surgically managed in a two staged procedure with good outcome.

Case Report

A 24 year old male patient presented to emergency ward of GSL General Hospital, Rajahmundry with a complaint of raw area over the scrotum and perineal region since one day. Complaint of formation of abscess in perianal region 8 days back which was spontaneously ruptured and extended to the scrotum and groin region within one day. He also had a complaint of fever - high grade, intermittent which was relieved with medication and also observed with foul smell discharge from the wound. During general examination, pulse rate was 128bpm, BP 120/60mmHg, respiratory rate 20/min and temperature 99°F and in physical examination, ulcers present over the perianal and right iliac region along with pus discharge and swelling over bilateral groin. Laboratory investigation report were as follows: Hb level decreased (7.5gm/dl%), WBC was elevated (16,100cells/comma). Renal function tests were normal. Arterial blood gas analysis showed metabolic acidosis. Abdominal sonography showed both the testis was exposed with loss of scrotal skin.





Figure 1: Fournier's Gangrene

Based on the above subjective and objective evidence, the diagnosis was made as Fournier's Gangrene (Extensive necrotizing fasciitis of groin, scrotum and perineal region). The pre-operative drugs are as follows, Inj. Piperacillin/Tazobactam-combination 4.5gm IV, Inj. Metronidazole 100ml IV, Inj. Pantoprazole 40mg IV, Inj. Tetanus Toxoid ½ cc IM and Inj. Sodium bicarbonate 400ml IV. The patient was taken up for debridement of scrotum and perianal region and fasciotomy of right inguinal and right abdomen. About 250-300ml dark coloured brown pus was collected and *E. coli* was isolated from the pus culture during culture sensitivity test.

During post operative period, the patient was treated with Inj. Meropenem 1gm IV (BID), Inj. Gentamycin 80mg IV - BID, Inj. Metronidazole 100ml IV - TID, Inj. Paracetamol 100ml IV- TID), Inj. Tramadol 100mg in 100ml Normal saline IV-TID, Inj. Pantoprazole 40 mg IV - OD, IV fluids - NS 100ml/hr. Due to the variation in blood glucose levels, Inj. Human insulin was given subcutaneously based on sliding scale therapy along with monitoring of vital. The patient condition was satisfactory and was under observation for 10 days with local regular dressing and Sitz bath along with appropriate antibiotic therapy.



Figure 2: During the Procedure

In the next stage of treatment, scrotum was repaired with Z/Y Plasty. In Pre-operative period, Inj. Co-Trimoxazole 400mg IV (stat), Inj. Pantoprazole 40mg IV - OD and Tab. Bisacodyl 2tab - H/S was given. During the surgical procedure, a new scrotum was created. Post-operative orders were fluid management 100ml/hr, Inj. Cefoperazone/ Sulbactam - combination 1.5 gm IV (BID), Inj. Pantoprazole 40mg IV (OD), Inj. Tramadol 100mg in 100ml normal saline (SOS), Inj. Paracetamol 1gm IV - SOS. After two days of administration, Inj. Co-Trimoxazole was replaced with its tablet form in the dose of 160/800mg BID and Tab. Chymoral forte TID was added to the orders along with monitoring of vitals. The patient was under observation for 10 days and discharged in a satisfactory condition.



Figure 3: After completion of the Procedure

Discussion

Fournier's gangrene is a skin infectious-necrotising disease. Although originally it is thought to be an idiopathic process, in most of the patients a genitourinary, anorectal or dermal triggering factor can be identified. Necrotic cellulitis and fasciomyositis of anterior abdominal wall are the main manifestations of Fournier's gangrene. Bacteraemia is considered as a starting link in the development of necrosis in the muscle fascia and subcutaneous tissue where it kills the branches of the pudendal artery which carries blood to the sex organs.

The treatment is based upon the severity of the symptoms. In the initial stage, the patient should be treated with strong broad spectrum antibiotics which include third generation cephalosporins plus nitroimidazole group. During severe stages, antibiotics of class carbapenems are included. Surgical debridement should be done at the correct time. Sometimes the patient has to go for multiple surgical debridements.

Reconstructive surgery which includes skin grafting or other plastic surgery is performed to reconstruct the damaged tissues. Fournier's gangrene mainly causes local tissue hypoxia. Thus, hyperbaric oxygen therapy is recommended as one of the best initial therapy to prevent further spread of infection. However unfavourable prognosis leads to severity and timing of medical care.

Conclusion

Fournier's gangrene continues to be a major challenge to the medical community. Regardless of etiology and relative rarity, it remains as a formidable disease with severe complications and has a high level of mortality. So, it should be treated as a surgical emergency. The main cornerstones of the treatment are patient resuscitation, broad spectrum parental antibiotic therapy, management of underlying morbidities and most importantly surgical debridement and reconstructive surgery to improve the patient's quality of life.

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