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General Surgery Case Report

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Fournier Gangrene: Secondary to Perianal Abscess in a Fistula-in-Ano

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ABSTRACT
Background*: Fournier gangrene, is a rare and rapidly progressing disease that affects the deep and superficial tissues in the perineal, anal, scrotal and genital regions. This condition involves the swift spread of severe inflammation and infection along fascial planes, often without noticeable skin manifestations in its early stages. In severe cases involving extensive loss of scrotal or perineal skin, reconstructive options typically include split-thickness grafts, local fasciocutaneous or musculocutaneous flaps, free flaps, use of tissue expanders, or any combination of these.We present a case involving a 47-year-old man who suffered from Peri-anal Abscess which got complicated into Fournier Gangrene and underwent surgical debridement followed by Secondary suturing and thigh pouching of the testis and further developing Fistula-in-ano.Perianal abscess and Fournier gangrene are two distinct yet interrelated medical conditions that involve the perianal region and can lead to serious complications if left untreated.While perianal abscess and Fournier gangrene are distinct entities, they are linked by their involvement of the perianal region and the potential for serious complications if not promptly diagnosed and treated. In some cases, a perianal abscess can progress to Fournier gangrene if the infection spreads to adjacent tissues and causes widespread tissue necrosis.*

Key Words: Fournier Gangrene,Peri-Anal Abscess,Fistula-in-Ano

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I. INTRODUCTION:

Fournier's gangrene, which was first described by Jean Alfred Fournier in 1883, is an infective necrotizing fasciitis of the perineal, genital or perianal regions as a result of subcutaneous vascular thrombosis and resulting in gangrene of the overlying scrotal skin[1] . Fournier Gangrene is a relatively rare surgical emergency, which was initially considered as an idiopathic disease of male. The latest epidemiological investigation found that this disease can occur at any age and gender. The overall incidence is about 1.6/100,000 males, and male incidence increased with age reaching the peak of 3.3/100,000 between the age of 50 and 79.[2]. It is commonly associated with signs of sepsis, rapid tissue destruction, and a high fatality rate of 40%. In severe cases involving extensive loss of scrotal or perineal skin, reconstructive options typically include split-thickness grafts, local fasciocutaneous or musculocutaneous flaps, free flaps, use of tissue expanders, or any combination of these. The bacterial organisms that cause this necrotic infection release collagenases, which cause rapid tissue destruction at a rate of one inch per hour [3] Placing the testicles in thigh pouches is a previously described

approach that can be performed after the acute debridement to help with wound closure. Although split-thickness skin grafting has become more popular in recent years, this approach is particularly useful when the majority or entirety of the scrotum has been resected. In this context , we present a case of Fournier gangrene due to untreated Peri-anal abscess further developing Fistula-in-and as a complication .

II. CASE REPORT

A 47-year old man presented to the emergency department with swelling of the scrotum and penile shaft, which extended into the right peri-anal region associated with foul-smelling and purulent discharge, along with fever, chills, and rigor and severe pain which was out of proportion. There was Erythema on the right lower abdominal wall and scrotum, along with the presence of gangrenous skin patches, spanning from the perineum up to the right inguinal region. Patient underwent surgical debridement of the Fournier gangrene followed by, the testis was pouched in the thigh, and split - thickness skin grafting (SSG) was performed on the shaft of the penis .Intraoperatively , Fournier Gangrene was seen involving right inhumanly region spanning upto the right perianal region involving the scrotum and penile shaft . Foul smelling discharge of 500ML was drained which on Culture Senstivity was Methicillin sensitive Staphylococcus Aureus . [4] Subsequently 4 months later patient also developed Fistula-in-ano (Trans-sphincter) which is a known complication of Perianal abscess for which patient underwent lay-open fistulectomy . Intraoperatively Fistulous tract was excised which had its internal opening at 6 o'clock and external opening 5 cm from the anal verge at 11 o' clock measuring 8 cm .

III. DISCUSSION

Perianal abscesses, originating from infection within the anal glands, often result from the obstruction of these glands due to various factors such as fecal stasis, cryptoglandular infection, or trauma to the perianal region. The microbial flora involved commonly includes a mix of aerobic and anaerobic organisms, with pathogens like Escherichia coli, Bacteroides species, and Staphylococcus aureus frequently implicated. This microbial milieu fosters the formation of a localized collection of purulent material within the perianal tissues, leading to the characteristic clinical presentation of a tender, fluctuant mass adjacent to the anus[5]. Clinical examination typically reveals erythema, edema, and warmth surrounding the abscess site, with associated symptoms like fever and discomfort during defecation.

Diagnosis often relies on clinical evaluation, but imaging modalities such as ultrasound or magnetic resonance imaging (MRI) may be employed to assess the extent of involvement and aid in surgical planning. Treatment typically necessitates incision and drainage of the abscess under local or general anesthesia, with subsequent exploration to ensure adequate evacuation of purulent material and debridement of necrotic tissue. Antibiotic therapy, while adjunctive, plays a crucial role in eradicating the infecting microorganisms and preventing systemic spread[6].

Fournier gangrene, conversely, represents a rapidly progressing, life-threatening form of necrotizing fasciitis affecting the perineal and genital regions. It typically arises from polymicrobial infection, frequently involving organisms such as Streptococcus, Staphylococcus, Enterococcus, and various anaerobes [7]. Predisposing factors, including diabetes mellitus, immunosuppression, peripheral vascular disease, and local trauma or instrumentation, contribute to the development of this fulminant infection[8]. The condition manifests with severe pain out of proportion to physical findings, rapidly progressing to tissue necrosis, crepitus, and systemic toxicity. Laboratory studies often reveal leukocytosis, elevated inflammatory markers, and metabolic derangements indicative of sepsis. More commonly Fournier Gangrene of the groin has its origin from scrotum and Peri-urethral region . Our case represents that the infection starts from Perianal abscess and spread to the groin region.

Early diagnosis of Fournier gangrene relies on a high index of suspicion based on clinical findings, with imaging studies such as computed tomography (CT) or magnetic resonance imaging (MRI) aiding in the assessment of disease extent[9]. Prompt surgical intervention is imperative and entails aggressive debridement of necrotic tissue to halt disease progression and prevent systemic sepsis. This may necessitate multiple surgical debridements and, in severe cases, may involve the use of adjunctive therapies such as hyperbaric oxygen therapy to promote tissue oxygenation and mitigate infection. Antibiotic therapy is administered empirically and subsequently tailored based on culture and sensitivity results, with broad-spectrum coverage targeting both aerobic and anaerobic organisms. Following Surgical debridement thigh pouching of the testis can be done

IV. CONCLUSIONS

Effectively Addressing Peri-anal Abscess and Fistula-in-Ano is necessary which if left untreated can cause number of complications among which a grave complication is Fournier Gangrene .Proactive management of the diabetic and immunosuppressed patients with perineal infections is of extreme importance to prevent the development of the condition .Rapid surgical treatment is the single most important treatment . Equal importance should be given to regular Follow-up to the patient to look out for further complications that might occur

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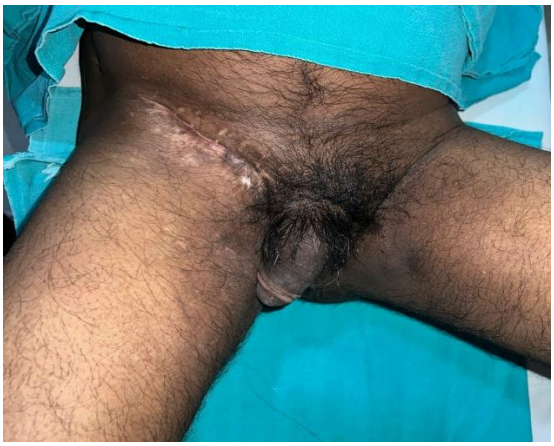
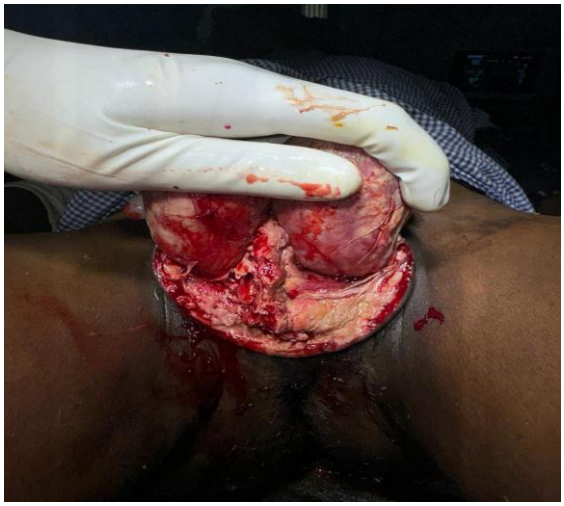
Pic 1 : Pre Operative Image



Pic : 4Post operative Image

Pic : 3 Post operativ image 3



Pic: 2 . Intra Opeartive image