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Case Report

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# MANAGEMENT OF FOURNIER'S GANGRENE – A SINGLE CASE STUDY

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## ABSTRACT

Fournier's gangrene is a serious surgical condition and should be treat as an surgical emergency. With the advancement of many surgical techniques and emergency care medicine, the mortality and morbidity of this disease has decreased significantly. It is usually associated with many other co-morbidities. An early diagnosis including evaluation of etiological factors and physiological parameters with immediate resuscitation, aggressive selective debridement, coverage of broad-spectrum antibiotics, and continuous monitoring of all the parameters is the key to successful outcome, therefore reducing the high mortality and morbidity of this condition. In this study, we report a different case of Fournier gangrene. This is a case was a 52 years old male patient, nondiabetic, without any multiorgan failure, who was managed successfully with multidisciplinary approach, multiple rubber drainage system and Jatyadi Tail application with good outcome.

**KEYWORDS:** Fournier's gangrene, Perianal abscess, Multiple rubber drains, Jatyadi Tail.

## INTRODUCTION

Fournier's gangrene is a serious surgical emergency. This clinical condition was first described by Jean Alfred Fournier(1832–1914), a dermatologist and venereologist. He had first described this condition in 5 young male patients, who had presented with a rapidly progressing Hazardous infection of the superficial tissues of scrotum and penis sometimes includes perineum also without any definite etiological factor.[1,2] It is interesting to note that Bauriene in 1764 had described such a case of scrotal gangrene due to traumatic injury from the horn of an ox, which was treated by multiple sittings of surgical debridement.[3]

At present, Fournier's gangrene is recognized as a subclassification of necrotizing fasciitis. Hence, Fournier's gangrene is described as necrotizing soft tissue infections originating from or limited to the genitalia or perineum irrespective of sex. Here we report a case of Fournier's gangrene with left loin and right ischiorectal extension.

## CASE PRESENTATION

52-year-old male patient reported to the hospital with complaints of painful swelling of the scrotum since 5 days high grade fever $103^0$ C with watery discharge from the scrotum since 2 days. There was history of minor injury over left side of the scrotum 6 days back, for which he had not taken any treatment. There was no history of diabetes mellitus, hypertension, tuberculosis, any other chronic illness. No history of achohal, smoking,. He was not from a filarial endemic zone.

On examination, conscious with toxic look. There was no pallor, icterus, and lymphadenopathy with mildly dehydrated. His pulse 144/min, regular, and good volume and blood pressure is 140/86 mm Hg. Systemic examination revealed no abnormality. Local examination of the scrotum revealed that scrotum was enlarged, oedematous, and tenderness present on palpation in left inguinal region upto the renal angle, and discharge sinus in right ischiorectal fossa, pedal oedema present.

There was patchy gangrene all over the scrotum more over left side with foul-smelling purulent discharge (Figure 1). A provisional diagnosis of Fournier's gangrene was made. Broad-spectrum antibiotics were started. He was prepared for emergency surgical debridement.

Blood haemogram revealed hemoglobin (Hb%)—10.6 gm/dl, white cell count—22600/cmm with polymorph nuclear leucocytosis (N-80%, L-15%), platelets count 52000/cmm. Biochemical parameters were essentially normal (blood urea: 40 mg%, serum creatinine: 1.0 mg%, random blood sugar: 109mg%, and LFT: within normal

range). All the viral markers are nonreactive, RTPCR for covid-19 is also nonreactive.

**Management** - He was admitted for emergency selective debridement.

1- An incision is made over scrotum; Pus was sent for culture and sensitivity test. All the devitalized tissue was excised over bilateral scrotal area. (Figure 2). wet dressing done. Culture revealed Staphylococcus aureus. Appropriate antibiotics were started. He responded to the treatment very well. Regular dressing done with *Jatyadi tail*.
2- Patient platelets count was 52000/cmm After correcting the platelets level patient advised USG WHOLE abdomen and find there are some collections in left inguinal region.
3- AFTER 5 DAYS when platelet count became normal. Complete debridement of scrotum, right ischiorectal fossa, subcutaneous exploration of left inguinal canal up to the anterior superior iliac spine and communicating the cavity (figure3), posteromedially except scrotal area other extensions are managed by multiple Rubber drains (Figure 3) and patient explained to may he request orchidectomy in future, daily dressing of wound for 7 days *Jatyadi tail.*

All connection which made for drainage were systematically removed from most lateral part to the, most medial part (Figure 4).

After 3 weeks of surgery all drains were removed healing well stablished. Only scrotal area heals with some discontinuity with healthy granulation tissue, **patient refused for resuturing, apply *Jatyadi Tail***.A review after six weeks revealed the patient to be symptoms free (figure 5).

**Figure 1:**

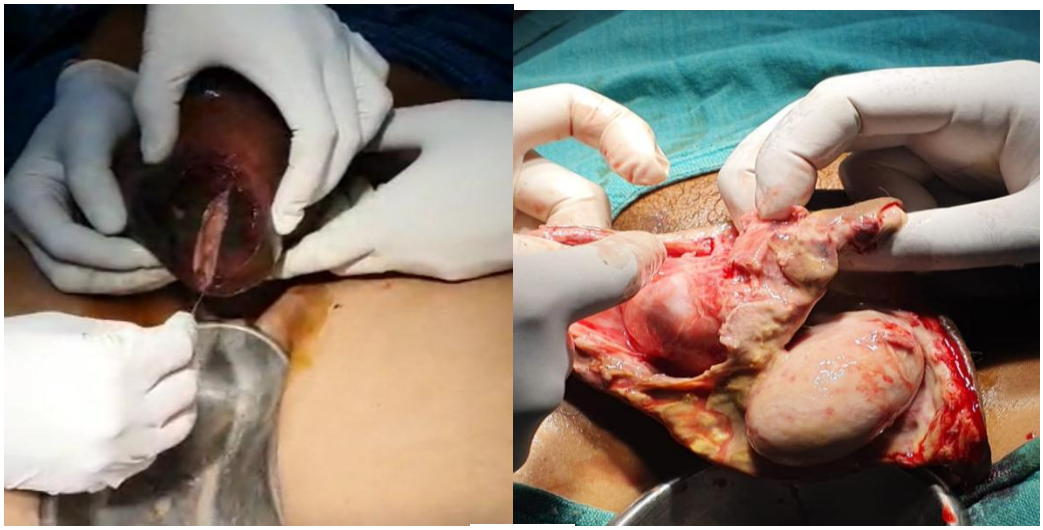

**Figure 2:**

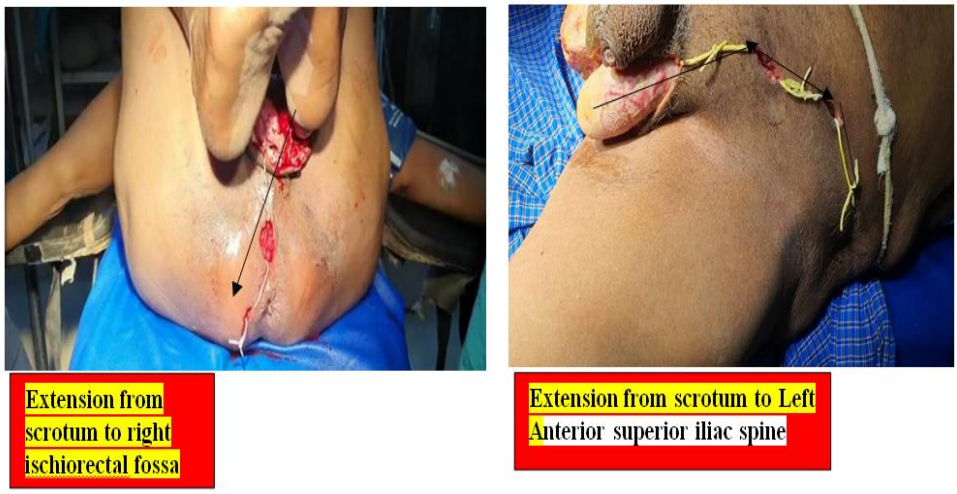


**Figure 3:**

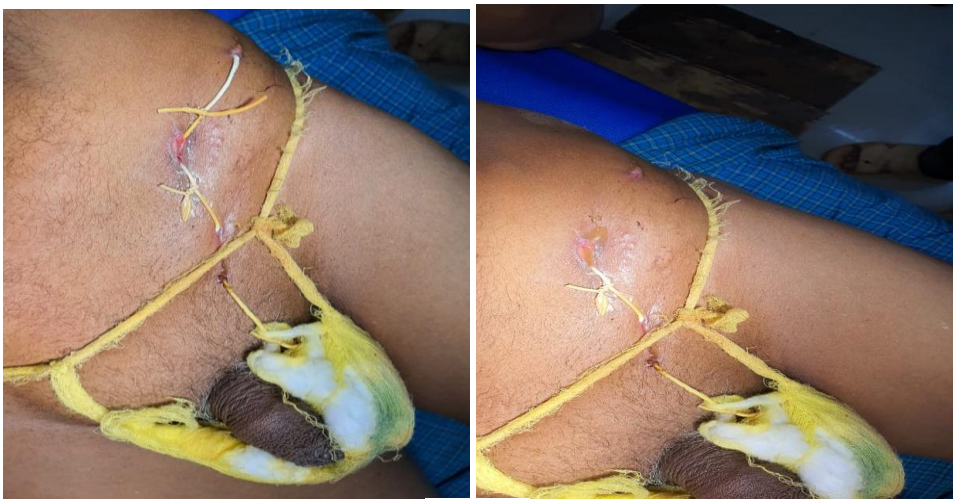

**Figure 4:**

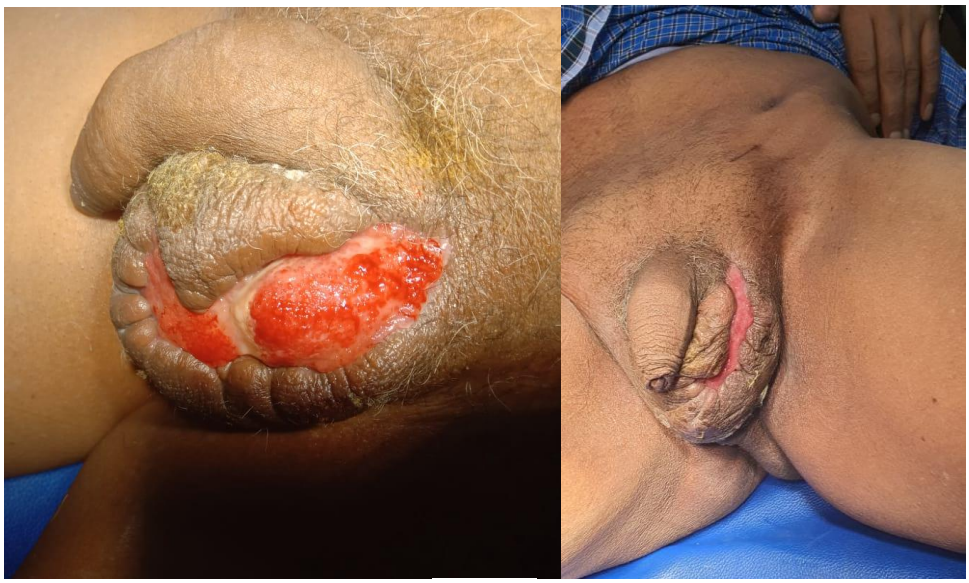

**Figure 5:**

## 3. DISCUSSION

Fournier's gangrene is a serious surgical problem with high mortality as well as morbidity. Though there is a male predominance,[4] Though fournier's gangrene is rare in females, but a recent publication shows a high incidence of 31.6% in female patients due to vulvar and

Bartholin gland abscesses and sometimes seen in postoperative period following episiotomy and hysterectomy.[5]

There are so many predisposing factors described by various authors as seen in literatures. Out of them, diabetes, old age, alcoholism, obesity, paraplegia, and renal insufficiency are commonly seen. However, it is interesting to note that in almost 30% to 50% cases no definite predisposing factor is found.[6] The most commonly seen foci of infection are those arising from gastrointestinal tract (30% to 50%), genitourinary tract (20% to 40%), and cutaneous injuries and soft tissue (20%).[6] In our experience mostly, we have come across cases of Fournier's gangrene arising from minor injuries or soft tissue infection of scrotal skin.

Fournier's gangrene is commonly a polymicrobial infection of genitourinary or perianal source. However, the portal of entry is difficult to establish more often. Microbial invasion usually occurs either through direct injury or through a direct spread from urogenital organs or perforated viscus like colon, rectum, and anal orifice. In a meta-analysis, the portal of entry was found to be colorectal in 21%, dermatological in 19%, urogenital in 19%, where as in 36% of cases no definite portal of entry was established.[4] There are 3 types of necrotizing soft tissue infections seen in practice. Type I is polymicrobial in origin, where a combination of gram-positive and gram-negative bacteria along with anaerobes are seen in culture. Type-II infection is monomicrobial in nature, being usually caused by Group A streptococcus but may be associated with *Staphylococcus aureus*. Type II is less common as compared to Type I and usually seen in healthy, immunocompetent patients.[7] There is also a Type III infection caused by Vibrio vulnificus. We have never come across this variety.

Fournier's gangrene is a clinical diagnosis. In difficult situation, where a doubtful diagnosis exists, radiological evaluation becomes useful in its diagnosis. Plain radiography may show gas in the soft tissue.[8] Ultrasonography is very useful in detecting gas in the scrotal wall.[9] However, out of all the investigation modalities for diagnosis, CT scan has a greater value for evaluation of extent of the disease.[10] Out of all these investigations, ultrasound is a commonly available investigation modality, which can be done in every case to confirm the diagnosis and the extent of the disease process.

Laboratory studies like white blood count presents a prognostic indicator at the time of presentation. Parameters, like low haematocrit, low-serum albumin, high blood urea nitrogen and serum creatinine, and high alkaline phosphatase have been shown as indicators for the mortality in various studies. Even hypercalcemia and increased serum lactate at the time of presentation have been found to be associated with mortality.[11]

Management of Fournier's gangrene basically depends on **multidisciplinary approach**. Initial resuscitation with fluid therapy and restoration of cardiopulmonary function to normal in patients presenting with septic shock is very important at the time of presentation. Prompt and selective debridement of devitalized tissue along with **broad-spectrum antibiotics** is the main stay of the treatment of Fournier's gangrene. Antibiotics may be modified after obtaining the culture report. The removal of all the devitalized tissue is important to stop the progress of the infection and simultaneous elimination of systemic effects of toxins and bacteria.[12] **Multiple sittings of selective debridement** may be required to achieve adequate local control of infection. Local wound care after selective debridement is very important, and application of topical agents *Jatyadi tail* have been advocated. Proper dressings have shown enhanced granulation tissue and reduction in wound surface area.[13] With proper selective debridement, local wound care, and antibiotic therapy, healthy granulation tissue appears, and most of the time primary wound closure can be done, but **in this case patient refuse** to the closure so apply ***Jatyadi Tail* to heal the wound.** In traditional Indian medicinal treatise, there are several Ayurvedic formulations mentioned which have been claimed as potential wound healing agents like *Madhu Ghrita* and *Jatyadi Taila*. *Jatyadi Tail* (*JT*) is a medicated oil formulation (*Tail*) popularly used in the treatment of various topical wounds.[15]

## 4. CONCLUSION

Fournier's gangrene is a serious surgical emergency with a high mortality rate. However, with the advancement in diagnostic modalities, surgical technique, potent antibiotics, and critical care, the morbidity and mortality of this dreaded clinical entity has decreased over a period of time. As a result of the improved approach of multimodality therapy, the mortality of Fournier's gangrene in the hospital settings has decreased to 10 to 20%. Our case was a 52 years old adult presented with Fournier's gangrene without any associated comorbidity. He recovered well without any significant postoperative morbidity. It is recommended to adopt a multidisciplinary approach like in this case we use **multiple rubber drains**, proper antibiotics medication, application of ***Jatyadi Tail***, approach in treating a case of Fournier's gangrene with extension left inguinal canal up to the anterior superior iliac spine. Achieved good healing with some discontinuity and healthy granulation tissue.

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