

Fournier's Gangrene in a 9 Yrs. Old Patient; A Rare Presentation in Paediatric Population at Muhimbili National Hospital-Tanzania

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1. Abstract

Necrotizing fasciitis of the perineum and external genitalia is a life-threatening infective gangrene, primarily seen in adults but relatively rare in children. We present a nine-year-old male child with spinal bifida and double incontinence who was admitted at our hospital due to gangrenous right hemi-scrotal ulcer extending to the right thigh. It was proceeded with painful swollen hemi-scrotum 2wks prior to admission. We treated him aggressively with broad spectrum antibiotics and early surgical debridement. Being paraplegic with double incontinence hence spending most of the time dressed with diapers we therefore think of poor hygiene and the diaper rash as the etiological factors. Early surgical debridement with appropriate antibiotics and aggressive supportive care usually gave good results.

2. Introduction

Fournier's gangrene (FG) is an acute, rapidly progressive, and potentially fatal, infective necrotizing fasciitis affecting the external genitalia, perineal or perianal region. It is a life-threatening infective gangrene, primarily seen in adults. It may be seen at any age but it is relatively uncommon in children [1]. Fournier's gangrene is named after Alfred Fournier who described it as a rapidly progressive necrotizing fasciitis of the perineum and external genital organs [2]. The necrotizing infection leads to obliterate endarteritis of dermal and subdermal perforating vessels resulting in gangrene of the subcutaneous tissue and the overlying skin [3]. We report this case as there is a deficiencies in global literatures

3. Case Report

A nine-year-old male child with spinal bifida and double incontinence was admitted to the Paediatric Surgical Unit, with complaints gangrenous slough covered purulent right hemi-scrotal ulcer extending to the right thigh. It was proceeded with painful swollen hemi-scrotum 2wks prior to admission. There was no history of any type of surgical intervention, injury to the perineum or lower abdomen, catheterization, insect bite, or other predisposing conditions.

On examination the child was dehydrated, in poor general condition, febrile and had decreased activities. Right hemi-scrotal suppurating ulcer with blackish slough was found. The surrounding normal skin was found to be erythematous and edematous extending to the medial aspect of the right thigh. Other systemic examinations were essentially normal.

Investigations revealed a leukocyte count of 18.85/mm³ with 78% neutrophils. Hemoglobin was 10.0 mg/dL, blood urea 3.5mg/100 mL, and serum creatinine 39.6mg/100 mL. Serum electrolytes were normal. An ultrasonography of the scrotum and perineum demonstrated thickened fascial planes with oedema. Chest X-ray was normal.

The child was aggressively resuscitated with intravenous fluids and broad-spectrum antibiotics, which covered both aerobic and anaerobic organisms. He also transfused with two units of blood. Surgical debridement was undertaken

under general anesthesia with endotracheal intubation along with

fecal and urinary diversion. All devitalised and necrotic tissues were excised, up to the level of normal skin until active bleeding was encountered, thus exposing the unaffected testes. The wound was copiously irrigated with dilute hydrogen peroxide solution and normal saline; then packed with a povidone iodine-soaked gauze pack. Serial sloughectomy and this dressing protocol was continued in the postoperative period. Wound swab showed growth of *Staphylococcus aureus* and *Klebsiella* species and antibiotics were continued according to the sensitivity report.

Subsequent investigations showed progressive fall in blood urea, serum creatinine and total leukocyte count. The blood culture report was negative. Antibiotics and other supportive treatment along with regular dressing were continued in the postoperative period which led to a fairly rapid contraction of the wound and formation of granulation tissue.

The patient's parents were properly counselled during the postoperative period regarding the maintenance of proper hygiene and its importance. Wound closure with full thickness skin grafting was done on the 40th postoperative day. Gastro-intestinal and urinary system were re-established 6wks later. Subsequently the child was discharged home after removal of sutures on the 10th day.

4. Discussion

The majority of the cases of Fournier's gangrene occur after 20 years of age, with male predominance. The peak incidence is seen after 50 years of age. Although paediatric cases are very rare, some paediatric cases have been reported [4, 5].

The reported etiological factors in the paediatric age group include omphalitis, strangulated hernia, prematurity, diaper rash, varicella infection, circumcision, and perineal skin abscesses. Other causes in children includes trauma, insect bites, surgeries or invasive procedures in the perineal region, urethral instrumentation, burns, poor general hygiene and systemic infections [1, 6]. The index case is paraplegic with double incontinence hence spending most of the time dressed with diapers. Therefore, we thought of poor hygiene and the diaper rash as the etiological factors.

Fournier's gangrene is believed to be a polymicrobial in nature necessary to create the synergy of enzymes production that promote rapid multiplication and spread of infection. These organisms are the usual commensals of perineal skin and genital organs, including *Clostridia*, *Klebsiella*, *Streptococcus*, *Staphylococcus* and *Bacteroides* [7]. Bacteremia is considered a starting link in the mechanism of the development of necrosis of the fascia that initiates the cytokine cascade leading to the damage of the endothelium, which in turn activates by means of thromboplastin, a coagulation cascade

with inhibition of fibrinolysis and the formation of disseminated microthrombosis of vessels feeding the fascia. In addition, damage to the endothelium leads to extravasations of the liquid part

of the blood, swelling of tissues, leukocyte infiltration, all leading to the ischemic necrosis of the skin and the underlying fascia [8].

Usually, the diagnosis is clinical and the presentation is variable depending on the infection stage, comorbidities and general health status of the patients. Tenderness, erythema, swelling and pain are the main symptoms. The patients can present with fever, malaise, local discomfort, purulent collection, ulceration and sepsis [5]. The patient also may have pronounced systemic signs; usually out of proportion to the local extent of the disease. Crepitus of the inflamed tissues is a common feature because of the presence of gas forming organisms. Radiologic examinations such as ultrasonography, plain radiographs or computed tomography may assist as a diagnostic tool [3]. Our case presented with gangrenous slough covered purulent right hemiscrotal ulcer extending to the right thigh. It was proceeded with painful swollen lesion (Figure 1).

An ultrasonography of the scrotum and perineum demonstrated thickened fascial planes with oedema. Chest X-ray was normal.

Treatment usually warrants an aggressive multimodal approach, which includes haemodynamic stabilisation, broad spectrum antibiotics, and surgical debridement. It must be highlighted however, that early surgical debridement is the primary component of treatment and if delayed will have a negative impact on the prognosis [9]. The index case also responded to empirical antibiotics and undergone serial wound debridements. In addition, he underwent fecal and urinary diversion to avoid wound contamination. By forty days post initiation of therapy the wound bed was ready for closure (Figure 2). Following adequate granulation, cutaneous defect was closed by skin grafting



Figure 1:



Figure 2:

5. Conclusion

Although FG is not common in children and it may be fatal but early diagnosis is very important. Antibiotic therapy, early wide surgical debridement

With/without early urinary and fecal diversion and supportive therapy are the most parts of treatment to preserve life

References

1. Bains SPS, Singh V. Fournier's gangrene in a two-year-old child: A case report. *J Clin Diagnostic Res.* 2014; 8(8): 1-2.
2. Rouzrokh M, Tavassoli A. Fournier's Gangrene in Children: Report on 7 Cases and Review of Literature. *Iran J Pediatr.* 2014; 24(5): 660-1.
3. Eskitaşcıoğlu T, Özyazgan I, Al E. Fournier gangreninde 80 hastalı{dotless}k tecrübemiz ve bir etiyopatogenez nedeni olarak "travma." *Ulus Travma ve Acil Cerrahi Derg.* 2014; 20(4): 265-74.
4. Kerem Taken MR. Fournier's gangrene: Causes, presentation and survival of sixty-five patients. *pjms.* 2016; 32(3): 746-50.
5. Çalışkan S, Özsoy E. Fournier's gangrene: Review of 36 cases. *Ulus Travma Acil Cerrahi Derg.* 2019; 25(5): 479-83.
6. Zgraj, Oskar SP. Neonatal scrotal wall necrotizing fasciitis (Fournier gangrene): a case report. *J Med Case Rep.* 2011; 5(576): 2-4.
7. Mallikarjuna MN, Vijayakumar A. Fournier's Gangrene: Current Practices. *Int Sch Res Netw ISRN.* 2012; 2012: 8.
8. Bochkarev YM, Ushakov AA, Al E. Fournier's Gangrene: Literature Review and Clinical Cases. *Urol Int.* 2018; 91-7.
9. Thwaini A, Khan A, Al E. Fournier's gangrene and its emergency management. *Postgr Med J.* 2006; 516-9.