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Case Report

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Infantile Fournier's Gangrene: A Rare But Severe Complication Following Home Circumcision

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ABSTRACT

Necrotizing fasciitis is a rapidly progressing inflammatory infection of the fascia with secondary necrosis of subcutaneous tissues. The disease mostly affects men between the ages of 50 and 60 and is rare in the pediatric age group. Fournier's gangrene management involves maintaining fluid-electrolyte balance and intravenous broad-spectrum antibiotics treatment in an aggressive manner. In the presence of necrotic tissues, surgical debridement will prevent the spread of the infection and prevent the development of sepsis. One-year-old male patient was admitted to the emergency service with the complaint of discomfort and scrotal swelling. There was a history of circumcision at home about 1 week ago in his anamnesis. The intravenous broad-spectrum antibiotics, including both aerobic and anaerobic organisms, and fluid support that suitable for the child's weight was started as initial treatment. There was no need for debridement since there was no progression in scrotal infection and necrosis during follow-up. Circumcision, which is a simple surgical procedure; We wanted to emphasize that if it is done out of the hospital standards like home conditions,without considering hygiene rules, it may lead to life-threatening consequences such as fournier's gangrene.

Keywords:

Necrotizing fasciitis, Infant, Fournier gangrene, Circumsion, Antibiotic therapy.

Introduction

Fournier's gangrene is a severe and aggressive form of infective necrotizing fasciitis involving the perineal and genital area due to polymicrobial infection [1].The causative bacteria produce enzymes such as collagenase and hyaluronidase under the fascia, causing vascular thrombosis and gangrene in the skin [2]. Infection from the superficial perineal fascia can spread to the penis and scrotum or anterior abdominal wall or vice versa [1]. The disease mostly affects men between the ages of 50 and 60 and is rare in the pediatric age group [3,4]. Sepsis develops in >40% of patients [5].

Predisposing factors for fournier gangrene are abscesses, omphalitis and diaper rash (diaper dermatid), surgical procedures such as circumcision and herniorhaphy, burns, insect bites, anorectal trauma, urinary tract, colorectal and local skin infections [6,7]. There are also systemic disorders such as immunocompromised conditions or hematological malignancies [7]. The causative agent for Fournier's gangrene is often polymicrobial, gram-negative organisms, gram-positive organisms, and even anaerobes [8].

Fournier's gangrene management involves maintaining fluid-electrolyte balance and intravenous broad-spectrum antibiotics treatment in an aggressive manner. In the presence of necrotic tissues, surgical debridement will prevent the spread of the infection and prevent the development of sepsis. In cases that the fouriner's gangrene originates from the anorectal region or causes urinary extravasation, performing urinary or fecal diversion will reduce contamination and positively affect wound healing [9]. Diagnosis and treatment of Fournier's gangrenepatients may not always result in death in infants, and even many of these reported cases of Fournier's gangrene have been successfully treated with surgical debridement and parenteral antibiotics [8].

In this study, we aimed to present a case of Fournier's gangrene in a 1-year-old boy who was diagnosed early and treated aggressive medical therapy with broad-spectrum antibiotics and hemodynamic stabilization.

Case Report

One-year-old male patient was admitted to the emergency service with the complaint of discomfort and scrotal swelling. There was a history of circumcision at home about 1 week ago in his anamnesis. It was stated by the parents that an injection, which we expected to be anesthetic, was applied to the root of the penis during circumcision. The patient had no fever and no feeding problem. On physical examination, the scrotal skin was swollen and red, skin piles were wiped off and there was a granulomatous appearance in patches (Figure 1).

It was observed that the normal skin around the scrotum was erythematous and edematous. The demarcation line was not clear yet. There was no evidence of crepitation in the surrounding tissues. His WBC level was 12000, CRP: 8 mg/L, hemoglobin was 12, serum kreatinin level was 0.6 mg/ dL on his lab counts. There was no electrolyte imbalance. The doppler ultrasonography showed that bilateral testicles blood supply was normal. Scrotum and perineum ultrasonography

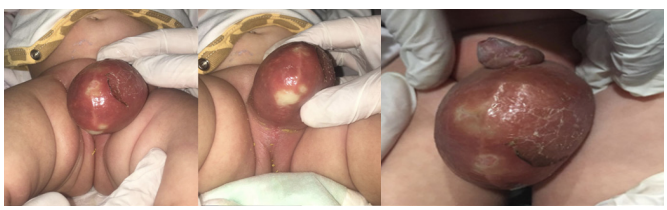

Figure 1: Scrotum image before antibiotic therapy.

showed edema and thickness on the facial planes. The pediatric infectious diseases department was consulted without delay. The intravenous broad-spectrum antibiotics, including both aerobic and anaerobic organisms, and fluid support that suitable for the child's weight was started as initial treatment. During follow-up, the response to treatment was evaluated with hemogram and CRP values. The blood culture was negative. It was observed that WBC and CRP values started to decrease from the 5th day of treatment. There was no need for debridement since there was no progression in scrotal infection and necrosis during follow-up. On the 14th day of the treatment, the scrotum skin was observed as completely recovered and the scrotum skin piles became prominent (Figure 2). The patient was discharged on the 15th day of hospitalization without the need for surgical debridement.

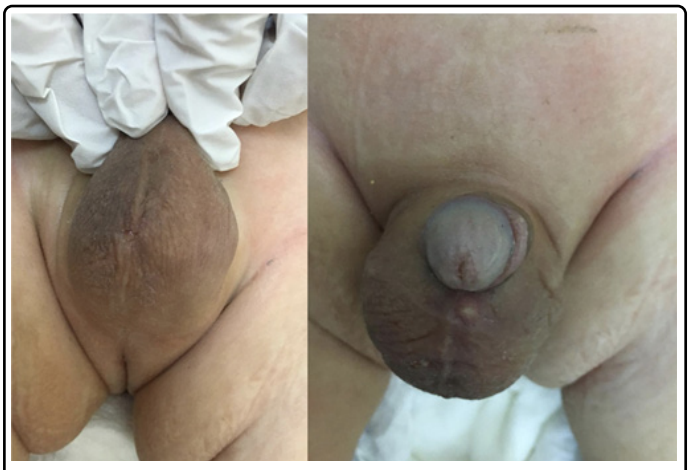

Figure 2: Scrotum image after antibiotic therapy.

Discussion

Necrotizing fasciitis is a rapidly progressing inflammatory infection of the fascia with secondary necrosis of subcutaneous tissues [10]. It has been shown in various studies that Fournier's Gangrene can be seen in any period from early infancy to adulthood [11]. Some authors have suggested that the prognosis for FG is better in children than in adults [4]. About 60 pediatric cases have been reported and most of which were less than 3 months old [12]. In addition, there are studies reporting that a 1-month-old baby develops scrotal gangrene after circumcision [13]. In the review in 1997, 56 pediatric cases were found and 66% of them were seen in babies younger than three months [14]. This aggressive and life-threatening disease is rare in children and very rare in newborns and the mortality rate in this age group is approximately 50% [15].

Fournier's gangrene starts with infection at the entrance site and then spreads along the fascial planes and producing a characteristic obliterative endarteritis resulting in vessel thrombosis [9]. The migration of organisms from the source of genitourinary sepsis follows a route that spreads with the anterior abdominal wall through the urethra, corpus spongiosum, tunica albuginea, Buck's penis fascia, dartos fascia of the penis and scrotum, Colles fascia and Scarpa's fascia [9]. Three findings that characterize FG are sudden onset, rapid progression, and the absence of a specific etiological agent. Especially in the early period, the area is swollen, erythematous and sensitive.

Cutaneous symptoms are one of the later manifestations of Fournier's gangrene [16].Therefore these infections can be difficult to diagnose in the early stages [10].

The cause of FG can be anorectal or urogenital. The causative organisms in children are usually Streptococci, Staphylococci and anerobes. When microorganisms cross the skin barrier, the organisms spread into the subcutaneous tissue and cause an obliterative endarteritis, causing facial tissue necrosis [15].

The process of necrotizing is usually caused by an infection in the anorectum, urogenital tract, or genital area skin. Hygiene plays a role in Fournier's gangrene as almost all the other skin infections [17]. In our case, the history of circumcision under home conditions about a week ago may explain the scrotal infection that occurred.

The diagnosis of FG is mostly made clinically. When evaluating young babies with the onset of acute scrotal swelling, it is important to exclude testicular pathology. The common pathologies such as tense hydrocele ,strangulated hernia or hydrocele of the cord should be excluded by ultrasonograpy. If the testis can be palpated and there is no obvious pathology related to the testicle and the presence of scrotal wall edema or erythema, Fournier gangrene should be considered in the differential diagnosis [15]. We also used sonograpyh in our case,and fluid collection was observed in the subcutaneous tissues.

Some Parameters such as high white blood cell count, low hematocrit, low serum albumin, high blood urea nitrogen and serum creatinine and high alkaline phosphatase have been shown as indicators of mortality in various studies [18]. In our case, WBC and CRP values were high and the other prognostic indicator parameters were normal. Wound Cultures from FG patients often show polymicrobial flora - mainly aerobes and anaerobes. It is a characteristic feature of this disease. Blood cultures are usually negative in FG patients [10] as in our case.

Although early studies defense early aggressive surgical debridement in Fournier's gangrene, recent studies suggest successful results with a more conservative and selective surgical debridement [3]. Since he presented at an early stage and did not have sepsis and necrotic appearance, there was no need for debridement for our case. He was treated medically. Our response time to treatment was short because the patient did not have any comorbidity.

The management of the treatment of FG basically depends on a multidisciplinary approach. The multidisciplinary approach will ensure good results and low or no mortality. This includes IV fluids, early and aggressive broad-spectrum IV antibiotics and surgical debridement of necrotic tissue [1]. The primary goal is to prevent uroseptic shock by treating localized infection. It is recommended to use more than one antibiotic, including specifically targeting S. Aureus [15]. We hospitalized our patient and used multiple broad-spectrum antibiotics to prevent sepsis and tissue necrosis. We closely followed the hemodynamic and vital signs.

Conclusion

In conclusion, FG is not common in children, it may be fetal, but early diagnosis is very important to prevent tissue loss. Broadspectrum antibiotic therapy is the most important part of the treatment. Circumcision, which is a simple surgical procedure;

We wanted to emphasize that if it is done out of the hospital standards like home conditions,without considering hygiene rules, it may lead to life-threatening consequences such as fournier's gangrene.

Conflict of interest

None.

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