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Reconstruction of the Perineum after Fournier Gangrene in a Child: A Case Report

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Abstract

Background: Fournier's gangrene (FG) is a necrotizing cellulitis of the perineum and external genitalia. It is most described in adults, although pediatric cases have been described. FG is a life-threatening medical and surgical emergency. After the acute phase, the real challenge lies in reconstructing the perineum. **Aim:** The aim of this was to describe our management of FG and to review the literature. **Case Presentation:** This was a 12-year-old patient seen for FG and treated initially with triantibiotic therapy, excison of the necrosis and colostomy. Then construction of the perineum by skin grafting with a satisfactory aesthetic result. **Conclusion:** Skin grafting is a very good therapeutic option for reconstruction of the perineum in FG.

Keywords

Perineal Gangrene, Skin Graft, Pediatrics

1. Introduction

Fournier's Gangrene (FG) is a necrotizing cellulitis of the perineum and external genitalia [1]. It is rare in paediatric population, but many cases have been reported in the literature [2]. Emergency treatment consists of debridement of the necrotic tissue and broad-spectrum antibiotic therapy [3] [4]. Subsequently, the problem of reconstruction arises in cases of large loss of substance. In this case, we report our experience of a perineal reconstruction after FG in a 12-year-old patient with a satisfactory outcome.

2. Case Presentation

A 12-year-old male patient referred from a health center for a suppurating wound on his perineum. A week before admission, he had developed a boil on his left

buttock, which had subsequently ruptured. The parents had applied traditional topicals to the wound. The evolution was marked by the extension of the lesion, which motivated consultation at our center. On admission, the patient was asthenic and in good general condition. His temperature was 37˚5 Celcius. He weighed 36 kilograms. Pulse rate was 100 beats per minute. Blood pressure was 110 mmhg systolic and 70 mmhg diastolic. Conjunctivae were stained. The patient had severe pain. He presented extensive necrosis of the right anal margin and right buttock, with discharge of highly fetid frank pus (**Figure 1**). Painful swelling of the scrotum with areas of necrosis on the right. Edema infiltrated the entire hypogastric region. The abdomen was soft, depressed and painless. Pleuropulmonary and cardiovascular examinations were normal. Biological workup showed: hyperleukocytosis of 17340 elements/mm^3, predominantly neutrophilic (78%), anemia of 10.8 g/dl, hyponatremia of 126 mmol/L. C-reactive protein was elevated to 364.84 mg/l. Urea was normal at 0.23 g/l, creatinine was normal at 3.6 mg/L and prothrombin was normal at 100%. Blood glucose was normal and human immunodeficiency virus (HIV) serology was normal. The patient had no medical history; no history of medication uses and no family history of immunodeficiency.

Figure 1. Skin necrosis of the bursa and right buttock.

We diagnosed Fournier gangrene and decided to do surgery. An imperative resuscitation was engaged. This involved vascular filling and triple antibiotic therapy: aminoglycoside (for three days), amoxicillin + clavulanic acid (for ten days) and metronidazole (for ten days). Intraoperatively, a pus sample was taken for cytological and bacteriological examination. Examination of the pus sample revealed a single germ: *Enterococcus faecalis*, which was sensitive to amoxicillin and aminoglycosides. Surgical treatment consisted of aggressive debridement to the healthy zone and a protective left colostomy (**Figure 2**). Postoperatively, daily local care and antibiotic therapy adapted to the isolated germ had allowed the perineal wound to bud after 15 days (**Figure 3**). Twenty days after, a thin skin graft was performed (**Figure 4**). After complete healing of the skin graft (**Figure 5**), closure of the colostomy was authorized and performed for 5 months postoperatively.

Figure 2. Debridement and colostomy.

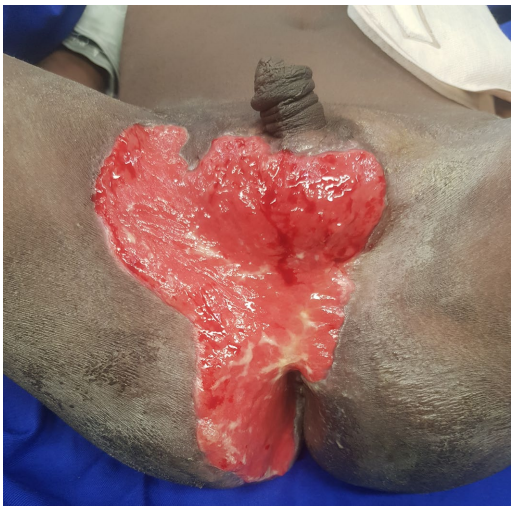

Figure 3. Aspect after daily dressing.

Figure 4. Thin skin grafting on the perineum.

Figure 5. Complete wound healing.

Post-operative management was straightforward, and the patient was discharged 3 days after surgery. No antibiotic treatment had been prescribed at discharge. After 2 years, the patient is doing well and reports no complaints.

3. Discussion

Quickly progressive idiopathic gangrene of the soft tissues of the male external genitalia was first described in 1764 by Baurienne. However, it was Jean-Alfred Fournier, a French dermatologist, who gave the disease its name, reporting five cases in 1883 of rapidly progressive gangrene of the idiopathic scrotum in young men [1].

It is a polymicrobial condition [5]. Germs most often implicated are Escherichia Coli, Bacteroides, Proteus, Staphylococcus and Streptococcus, Pseudomonas and Enterococcus. Streptococcus C and yeasts have also been described as responsible for the pathology [6] [7]. But, in some cases, only one germ can be detected [3]. In our case, it was a single germ: *Enterococcus faecalis*.

The etiology of this condition is identified from 75% to 100% of patients. The necrosis process commonly derives from an infection in the urogenital region and/or skin of the external genitalia or perineum [4]. It is colorectal from 13 to 50% of cases and urogenital from 17% to 87% [6]. Other causes include skin infections and local trauma. In the paediatric population, causes include insect bites, circumcision, trauma, burns, systemic infections and appendicitis, and skin infections [2]. In our case, the starting point was a cutaneous infection (a furuncle).

Treatment is a medical and surgical emergency [1]. The first step is extensive debridement, combined with parenteral antibiotic therapy and fluid and electrolyte rebalancing. It is sometimes useful to divert urine and feces (via a colostomy), especially when the anal margin is affected. Then comes the second phase: reconstruction of the perineum. This is a real challenge, especially when debridement has resulted in extensive loss of substance. There are several devices and techniques available. From the simplest to the most complex. Indications depend on the extent of the loss of substance and the noble structures exposed. They also depend

on the experience and technical skills of the surgical team. These include thin or thick skin grafts and muscle or fascia-cutaneous flaps [8]-[10]. With our patient, the skin graft was sufficient to cover the loss of skin substance. The prognosis is better with children and with lower mortality than in adults [3].

4. Conclusion

Fournier's gangrene is a less frequent urological emergency in children, requiring urgent and aggressive management to avoid jeopardizing the patient's vital prognosis. Skin grafting is an effective therapeutic option for perineal reconstruction.

Consent

Informed consent was obtained from the patient's parents for this case.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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