



## Post circumcision Fournier's gangrene in an infant: A case report

Udoh E<sup>1</sup>, Ebiekpi I<sup>1</sup>, Ituen M<sup>2</sup>, Olalekan K<sup>1</sup>, Inyangudoh U<sup>1</sup>, Abudu K<sup>3</sup>

<sup>1</sup>Paediatric Department, University of Uyo Teaching Hospital, Uyo, Akwa Ibom State, Nigeria

<sup>2</sup>Paediatric Surgery Division, Department of Surgery, University of Uyo Teaching Hospital, Uyo, Akwa Ibom State, Nigeria

<sup>3</sup>Department of Histopathology, University of Uyo Teaching Hospital, Uyo, Akwa Ibom State, Nigeria

### Abstract

Fournier's gangrene is a rare life-threatening condition that is characterized by rapid necrotizing spread from the scrotum and perineal area along facial planes to the abdominal wall, the flanks and the upper thighs. We present a case report of post-circumcision Fournier's gangrene in an infant that was associated with spontaneous rupture of the lower pole of the left scrotum. This report highlights the need for practitioners of circumcision to be skillful in the procedure, use sterile instruments for it and adhere to standard infection prevention and control measures in health facilities.

### Introduction

Fournier's gangrene is a necrotizing fasciitis of the scrotum and perineal area, usually of poly-microbial infection of perianal origin characterized by rapid necrotizing spread along fascial planes to the abdominal wall, the flanks and the upper thighs.<sup>1</sup> It is more common in adults than in children. The condition is extremely rare in neonates but when it occurs, mortality is as high as 50%.<sup>2</sup> Though initially thought to be of idiopathic origin, the cause of Fournier's gangrene has been identified in about 96% of cases.<sup>3</sup>

### Case summary

An 11 week-old male was referred to the University of Uyo Teaching Hospital (UUTH) with complaints of groin swelling for 11 days and fever of one week. The groin swelling was insidious in onset and involved the left scrotum. The swelling progressively increased in size, it extended to the medial aspect of the left thigh and the lower abdomen. There was redness of the affected areas and crying when the swelling was touched. Fever was noted four days after the onset of the swelling. It was of high grade, continuous and relieved temporarily with syrup paracetamol. The baby was circumcised at birth using the sleeve excision technique at a Primary Health Centre (PHC). The mother was not satisfied with the cosmetic outcome of the procedure which necessitated a revised circumcision performed in the facility of delivery. The symptoms of illness occurred three days post revised circumcision. The sterility of the instruments used for the circumcision could not be ascertained. A warm water compress of the scrotal swelling was done at the onset of illness but as the swelling progressed to involve the thigh, the child was taken to a secondary health facility where appropriate doses of intravenous ceftriaxone, gentamycin and

#### Corresponding Author:

**Dr Ekong Udoh**

Department of Paediatrics, University of Uyo Teaching Hospital,  
Uyo-Akwa Ibom State, Nigeria.

rejoicerejoice2001@yahoo.com

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metronidazole were administered for three days. The swelling continued to increase in size despite treatment and ruptured spontaneously on the fourth day of admission at the referral centre with the release of copious pus and ulceration at the scrotum. This necessitated the patient being referred to the UUTH. The mother was a 32-year-old, unemployed

and unwed university graduate.

On presentation at the Children's Outpatient Clinic of UUTH, he was pale and febrile with a temperature of 38.5°C. There was a left groin swelling extending from the left anterior superior iliac spine to the left hemi-scrotum. The swelling extended to the left lumbar region and the upper medial one-third of the left thigh. It was hyperaemic, tender and fluctuant with differential warmth. There was an ulcer on the lower pole of the left hemi-scrotum measuring 3.0 cm by 2.0 cm in size. The ulcer had sloping edge and the floor was covered with slough without exposure of the left testis. Both testicles were palpable, normal in size and consistency. The patient had a circumcised and erythematous phallus with a properly positioned urethral meatal opening. A diagnosis of post-circumcision Fournier's gangrene in an infant was made (Figure 1).



Figure 1: Fournier's gangrene with left sided scrotal ulcer

The results of investigations revealed a packed cell volume of 25%. Serum electrolytes, urea and creatinine were normal. Screenings for HIV 1 and 2, hepatitis B and C were negative. A wound swab showed gram-negative rods which cultured *Escherichia coli* (*E. coli*) that was sensitive only to Imipenem. Preliminary blood culture result yielded no growth after 72 hours of incubation and remained negative by the seventh day. The patient had left hemi-scrotal debridement done under sedation. Histopathologic assessment of the tissue for confirmatory diagnosis of the lesion was done. The result showed an extensive coagulative necrosis, oedema and intense mixed inflammatory cells that

were predominantly neutrophils with some lymphocytes and macrophages consistent with Fournier's gangrene. (Figure 2)

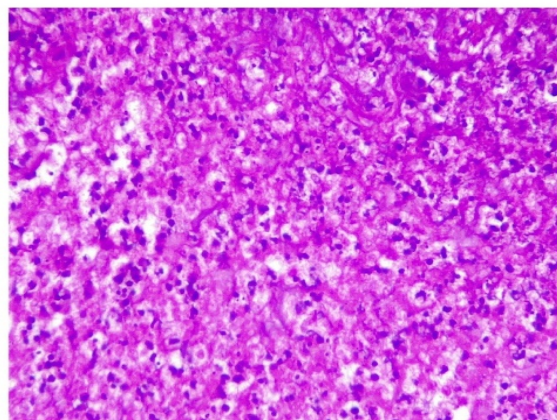


Figure 2: A photomicrograph showing an extensive coagulative necrosis, oedema and intense mixed inflammatory cellular infiltrates rich in neurophils admixed with few lymphocytes and macrophages X40 Magnification.

The empirical intravenous antibiotics used were ceftazidime, gentamycin and metronidazole. This was changed to intravenous Imipenem which was given for 10 days. The wound was dressed daily with normal saline and povidone-iodine. A urinary diversion was achieved with a size 6 Foleys self-retaining urethral catheterization. Recovery was remarkable as the swelling regressed completely with healing of the ulcer. The patient was discharged after 18 days of hospitalization.

### Discussion

Fournier's gangrene is a grave infective necrotizing fasciitis of the genitals, perianal or perineal regions. Our patient had the rapidly progressive form of the illness with subsequent scrotal rupture without exposure of the left testis. The early stage of the illness is usually characterized by swelling, erythema and tenderness of the affected areas. When the infection gets to the deep fascia, pain, high fever and systemic toxicity become prominent as observed in our patient.<sup>4</sup>

Most cases of Fournier's gangrene are polymicrobial involving commensals of the perineal skin, genitals, lower gastrointestinal and urinary tract in a synergistic process.<sup>5</sup> However, a few cases of monobacterial Fournier's have been

reported.<sup>6</sup> Culture of the wound swab in our patient yielded a growth of *Escherichia coli* (*E. coli*) which suggests the role of a monobacterial agent in the aetiopathogenesis. On the other hand, blood culture was negative in the index patient. *E. coli* is the most common isolate from wound swabs in patients with this condition<sup>7</sup>. The negative blood culture reported in our patient is similar to the observation of Azize et al<sup>8</sup> in Turkey. This observation might also be attributed to the antibiotics the patient received at the referral centre before the collection of blood samples.

Histopathologic assessment of the tissue is the gold standard for confirmatory diagnosis of all lesions. Our patient had extensive coagulative necrosis, oedema and intense mixed inflammatory cells that were predominantly neutrophils with some lymphocytes and macrophages consistent with Fournier's gangrene. This description is in tandem with the result of the isolated *E. coli* in the wound swab of the index patient.<sup>9</sup>

Circumcision is an age-long cultural and religious practice. Circumcision practitioners must possess adequate technical skills to attain the intended outcomes. Poor technique resulting in unsatisfactory outlook and cosmesis of the penis contributed to the revised circumcision in our patient. Routinizing the conduct of circumcision in PHCs makes it necessary for the practitioners to undergo training and retraining on the complete package of safe circumcision surgery.<sup>10</sup>

### Conclusion

The functional and life-threatening consequences of Fournier's gangrene makes it necessary for practitioners of circumcision in hospitals and communities to be trained on sterilization of instruments and general infection prevention and control measures.

### Author's contributions

UE conceived the study while EI prepared the preliminary draft of the manuscript. UE, IM and KA revised the draft. OK and IU made critical inputs to the manuscript. All the authors approved the final version of the manuscript.

### Conflict of interest

The authors have no conflict of interest to declare.

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