Necrotising fasciitis in a ten month old infant

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ABSTRACT

Necrotising Fasciitis, also known as Fournier’s Gangrene (FG), is a condition that rarely affects children. FG was first described by French venereologist, Jean Alfred Fournier in 1883. It is more common in adults and is strongly linked to immunosuppression. Few paediatric cases of FG have been described and therefore we present a case of a ten month old infant with a FG perineum that only affected the external genitalia (scrotum and penis).

Introduction

Fournier’s Gangrene is an aggressive, dangerous infective condition that can rapidly lead to severe complications and death in vulnerable patient populations. It mostly affects men between 50 and 60 years of age and is uncommon in children. Due to the fact that few reports in children of FG exist, we share our experience with the disease in this case.

Case presentation

After numerous visits to their nearest clinic, the worried mother of her ten month old baby boy from a deep rural town in the Eastern Cape, was referred to the Casualty Department at Livingstone Hospital, Port Elizabeth. The main complaint was a five day history of a progressively swelling scrotum and penis. This was associated with a change in skin colour to black and was foul smelling (Fig. 1). The patient was able to urinate but with slight difficulty on presentation. The mother mentioned a background history of a nappy rash preceding the above complaint. The patient was born from a HIV positive mother, and was on PMTCT protocol (Nevirapine and Bactrim prophylaxis). He had negative HIV PCR results at birth, at six weeks, at ten weeks and at six months.

During the general examination our patient appeared irritable, with a pulse rate of 152 beats per minute, a temperature of 37.2 °Celsius and a respiratory rate of 34 per minute.

The penis, scrotum and perineum were necrotic with pus and foul smelling. The child also presented with multiple hypo-pigmented skin lesions and scabs on the legs, with an inflammatory rash in the genital folds.

Further laboratory tests revealed the following results:

Full Blood Count: WCC = 24.33, Hb = 8.4 g/dL, MCV = 68.0, Plt = 587.

UEC: Na = 129, K = 5.8 Cl = 102, Urea = 3.4, Creatinine = 21 CRP = 48

HIV PCR test = Negative

Day zero management of the patient included the following:

The child was rehydrated with IV fluids, covered empirically with broad spectrum IV antibiotics (Ceftriaxone, Metronidazole and Cloxacillin), adequate analgesia was provided and the child was booked for emergency surgical debridement. The necrotic tissue was aggressively debrided and a transurethral catheter was placed, draining clear urine. Tissue was sampled for MCS (microscopy, culture and sensitivity). The penis was degloved and spared. Both testes appeared intra-scrotal and were spared. The wound was covered with Bactigrass dressings. One unit of packed red cells was transfused intraoperatively.

The dressings were changed on a daily basis combined with daily sitz bath rinses.

By day three necrotic tissue MCS cultured a single organism, Enterococcus Faecalis which was sensitive to Amoxicillin. The antibiotics were subsequently de-escalated to Amoxicillin.

The Bactigrass dressings were replaced with daily Iruxol dressings and sitz bath rinses continued.

During the remainder of the seven week hospital stay, the child recovered exceptionally well, with almost complete contracture of the wound.

Reconstructive surgery was performed six weeks post-debridement.
which included penoplasty, scrotoplasty and bilateral orchidopexy (Fig. 2).

18 Months after the reconstructive surgery the child was reviewed at our unit. It pleased us to see a healthy young boy, with no indication of any discomfort or genito-urinary complaints (Fig. 3).

Discussion

Fournier’s Gangrene was first described by French venereologist, Jean Alfred Fournier in 1883. It is a necrotising fasciitis of the perineum which - at a speed of up to 1–2mm/hr - can rapidly spread to the skin of the scrotum and penis. The process begins with focal skin infection and spreads along the fascial plane where inflammation, ischaemia, and necrosis result.

Fournier’s Gangrene is much more common in adults than in children and is mostly associated with underlying predisposing conditions including immunosuppressive therapy, alcohol-dependence, Diabetes Mellitus, HIV, chronic steroid therapy, leukemia, liver disease, malnutrition, old age and low socio-economic status. In children it has been reported in cases related to insect bites, circumcision, trauma, burns, systemic infection and appendicitis. There are also a few cases reported linking Fournier’s Gangrene to Varicella infection. The organisms causing Fournier’s Gangrene in children are more commonly E Coli, Bacteroides, Staphylococci, Streptococci and anaerobic bacteria (esp Clostridial species).

The adult mortality mortality of FG lies between 3 and 45% and although the exact figures of mortality are not known for children – due to a limited number of cases – it is generally accepted that infants and children have a lower mortality rate than adults.

The management of Fournier’s Gangrene includes early stabilization and fluid resuscitation, intravenous broad spectrum antibiotics and aggressive surgical debridement as soon as possible. Delaying surgical debridement increases the likelihood of multi-organ failure and in the process worsens the patient’s outcome and prognosis.

Conclusions

In our specific case, the cause of Fournier’s Gangrene was unknown. It is hypothesized that diaper rash could have been the portal of entry. Although less common amongst infants than adults, it is thus concluded that Fournier’s Gangrene remains a condition that affects the younger population and is indeed a surgical emergency, as it can rapidly progress to multi-organ failure and death if not managed aggressively.

Informed consent from the patient’s mother was obtained for the publication of this case report.
Fig. 3. External genitalia 18 months post reconstructive surgery.

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