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Neonatal scrotal wall necrotizing fasciitis (Fournier's gangrene): A rare clinical entity

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Abstract

Fournier's gangrene is mainly seen in adults but here we report a case of 12 days neonate with Fournier's gangrene. The newborn presented to paediatric OPD for evaluation of scrotal swelling. On examination gangrene was found on the scrotum. Patient was treated with broad spectrum antibiotics and local debridement of gangrenous scrotal tissue. Wound got healed by secondary intention and patient was discharged alive and healthy. The outcome of treatment of Fournier's gangrene in neonate is good.

Keywords: Fournier's gangrene, scrotal swelling, wound debridement

Introduction

Fournier's gangrene or idiopathic gangrene of the scrotum was initially described as a disease in young adult of unknown cause by Persian venerologist Jean Alfred Fournier in 1983. It was initially described as an idiopathic entity, but later source of infection was attributed to perineal and genital skin infection, anorectal or urogenital trauma including perineal or pelvic injury. It may be associated with immunocompromised conditions, diabetes mellitus, acute renal failure, abscess, omphalitis, diaper rash, insect bite and circumcision. [12, 13]. This disease is now recognized as necrotizing fasciitis of scrotum of infective origin.

Necrotizing fasciitis in the neonate is rare and is associated with almost 50% mortality. Although more than 80 cases of neonates with necrotizing fasciitis have been reported in the literature, only six of them are identified as originating in the scrotum.

This is a case report of our experience with management of this uncommon neonatal Fournier's gangrene.

Case report

A 20 days old male neonate presented with complaints of swelling and blackening of scrotum and right perianal region for 4 days. Patient was unimmunized and uncircumcised. Patient was full term, with average birth weight 2.6 kg and on exclusive breast feeding.

Baby was toxic, febrile and had tachycardia. On perineal examination, there was swelling and blackening over bilateral scrotal and perianal region with superficial necrosis and discharge of pus (Fig 1). Patient also had a left inguinal abscess of 2x2 cm.

Investigation showed positive septic screen. Blood culture showed no growth. Ultrasound of scrotum revealed bilateral epididymitis with funiculitis and collection in the right scrotal sac. Broad spectrum intravenous antibiotics were started. Surgical debridement of all necrotic tissue was done. Daily dressings were done. Pus culture and sensitivity was suggestive of methicillin resistant staphylococcus aureus sensitive to vancomycin, linezolid and cotrimoxazole. After healthy granulation tissue appeared, tacking sutures were taken to cover exposed testicles. Histopathology of tissue was suggestive of Keratinised Stratified Squamous epithelium with underlying fibrocollagenous tissue with mixed inflammation, congested vessels, necrosis and presence of bacterial colonies S/O Fournier's gangrene. The wound healed well (Fig 2) and patient is on regular follow up.



Fig 1: Bilateral scrotal and perianal necrotising fasciitis



Fig 2: Postoperative follow up at 1 month

Discussion

Fournier's gangrene is uncommon in the neonatal period and little is known about the disease in this age group [1]. Fournier's gangrene is a serious pathologic entity and comprises of infective necrotizing fasciitis of the perineal, genital or perianal regions. The infective process leads to thrombosis of the subcutaneous blood vessels resulting in gangrene of the overlying skin. The entity may have a rapidly fulminating or a slowly progressive course [2].

In children, phimosis, strangulated inguinal hernia, omphalitis, insect bites, trauma, urethral instrumentation, perianal abscess, systemic infections and burns are the predisposing condition for the development of the disease [3]. The underlying cause of Fournier's gangrene may lie in the urinary tract, colorectum or local skin and the usual offending organisms are *E coli*, *Bacteroides*, *staphylococci*, *clostridia* etc [4].

Fournier's gangrene is primarily a disease of the adults. The male to female ratio is 10:1 but more than 55 cases of Fournier's gangrene have also been reported in the paediatric age group, most of them being under three months of age [5-7]. Fournier's gangrene can affect any part of the body in children, but the trunk and perineum are commonly affected in newborns. Like adults, preterm and low birth weight babies with impaired immune status and those with poor local hygiene appear to have increased risk of this rare disease. An initial injury to the skin was documented in the majority of children but was not reported in 40% cases in some studies [8]. When the skin barrier is breached, the organisms appear to spread into the subcutaneous tissue and produce fascial necrosis with an obliterative endarteritis leading to further necrosis of tissue. The disease process is usually outside the tunica and hence the blood supply via the testicular artery is preserved. Although the initial literature advocates early surgical debridement of Fournier's gangrene wounds, a recent report shows a successful outcome with a more conservative and selective surgical debridement [9]. When small babies with

acute onset of scrotal swelling are assessed, it is important to exclude testicular pathology. If an experienced paediatric surgeon is not readily available, an ultrasound scan may be useful to exclude common pathologies such as obstructed hernia, tense hydroceles or hydroceles of the cord. When the testis is clearly palpable with no obvious pathology and scrotal wall oedema or erythema is the main finding, Fournier gangrene should be considered in the differential diagnosis. The need for aggressive wide debridement appears to be unnecessary in localized disease, as long as adequate antibiotic coverage is provided. Both *enterococcus* and *Staph. aureus* have been implicated as the causative organisms of Fournier's gangrene. [10, 11].

Conclusion

Fournier's gangrene in neonates and infants is rare and largely preventable, it should be considered in cases of necrotizing fasciitis of the perineal, genital or perianal regions. Early debridement and appropriate antibiotics offer good results.

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