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Images in Medical Practice

Neonatal necrotizing fasciitis

Ashish Marwah, Poonam Marwah, Sunil Kumar*

Department of Pediatrics, Kalpana Chawla Government Medical College, Karnal, Haryana, India

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***Correspondence:**
Dr. Sunil Kumar,
E-mail: drsunilx@yahoo.com

ABSTRACT

Necrotizing fasciitis (NF) is an uncommon rapidly spreading infection of skin and subcutaneous tissue with systemic toxicity and fulminant course. The disease though relatively uncommon in pediatric and neonatal age group carries a high mortality unless diagnosed early and treated aggressively. Mono-microbial pseudomonas infection causing neonatal NF is a rarity and we, therefore, present one such neonate with fatal NF due to pseudomonas sepsis.

Keywords: Necrotizing fasciitis, Newborn infant

INTRODUCTION

A 16-day old term (3.0 kg) male baby delivered at home referred to us from local hospital. The neonate had received intravenous (I.V.) antibiotics and fluids before being referred with diagnosis of sepsis and cellulites right leg. On systemic examination at admission, the general condition was very poor with severe respiratory distress and features of shock. Local examination revealed that the right foot and leg had extensive edema, purple black discoloration, oozing, foul odor and signs of early epidermal necrosis extending to right thigh (Figure 1).

Investigations revealed evidence of sepsis: C-reactive protein 145 mg/l, leucocytosis (19,800/mm^3, neutrophills-78%), toxic granules and thrombocytopenia (40,000/mm^3), pus from the wound and blood culture both grew pseudomonas aeruginosa. Treatment received included fluid resuscitation, ionotropes and mechanical ventilation, prompt fasciotomy with debridement, I.V. antibiotics (cefotaxime, amikacin, cloxacillin and metronidazole) changed to injection meropenem as per blood culture sensitivity report, fresh frozen plasma and platelet transfusions. However, the child continued its downhill course and expired after 96 hours of admission with pulmonary hemorrhage and cardiac arrest.

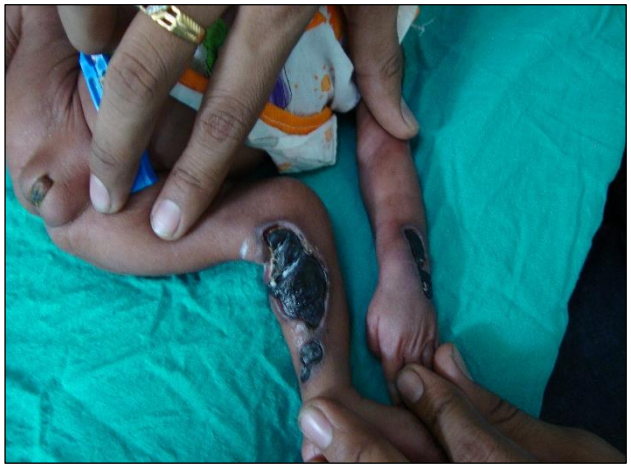

Figure 1: A neonate with necrotizing fasciitis of right foot and leg.

A limitation of the case study was that diagnosis could not be confirmed by frozen section biopsy (due to non-availability at odd hours for reporting). However, clinical

picture and laboratory results strongly supported our diagnosis. Necrotizing fasciitis (NF) is defined as a rapidly progressive inflammation and necrosis of subcutaneous tissue, superficial fascia, and superficial part of the deep fascia with variable presence of cutaneous gangrene.[1]

It is characterized by marked tissue edema, rapid spread, and systemic toxicity. NF is primarily an adult disease, rare in children and even rarer in neonates with an incidence of 0.08 per 100,000 children per year.[2] In neonates, common predisposing conditions are omphalitis (most common), balanitis, mammitis, necrotizing enterocolitis, post-operative complications and fetal scalp monitoring.[3] Although, no such factors were present in our case, trauma to skin barrier while establishing intravenous access in leg and underlying systemic sepsis in neonate infecting epidermis of skin could be underlying factors. In index patient, the initial lesion involved the right leg, which is very uncommon with only few cases reported in literature.[3] Clinical manifestations in NF start around a week after the initiating event, followed 24 to 48 hours later by erythema or purple discoloration. After 48 to 72 hours, the skin turns smooth, bright, and the serous or hemorrhagic blisters develop. Without treatment, necrosis develops and by the fifth or sixth day, the lesion turns black with necrotic crusts. The predominant causative bacteria include Staphylococcus aureus (most common), Gp A *streptococcus*, *E. coli*, *Enterococcus* and anaerobes.[3] To the best of authors knowledge, the index case is only the third case of mono-microbial *Pseudomonas* sepsis (could be hospital acquired in view of earlier nursery admission) causing neonatal necrotizing fasciitis.[4,5] High index of suspicion, prompt aggressive surgery (debridement, excisions, skin grafting), appropriate antibiotics and supportive care are the mainstay of management. Mortality is high, reaching over 70%, even with prompt diagnosis and treatment.[6] Authors bring forward this case to share the characteristic clinical picture, to highlight the atypical site of lesion and its rare causative organism in neonatal age group.

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