NECROTIZING FASCIITIS: AN UNUSUAL SEQUELA OF INJECTIONS IN CHILDREN

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ABSTRACT

BACKGROUND: Necrotising fasciitis (NF) of the head and the trunk in children is a serious infection that carries high morbidity and mortality. We recently managed two infants with NF from injection mishap of the head and the trunk, respectively. The aim of this report is to highlight ways of effectively treating and/preventing cases of NF in children.

PATIENTS AND METHODS: Two children who presented with NF as sequela to injections to the head and the gluteus area were managed at the Jos University Teaching Hospital between July and November, 2002.
Radical ulcer debridement, adequate antibiotic cover and skin cover were the mainstay of the treatment.

RESULT: The infants were aged fourteen and eleven months, respectively, with ulcers measuring 18-21cm wide; average hospital stay was 10.9 weeks. Swab from the head lesion yielded a mixture of Streptococcus and Klebsiella spp, but none from the second ulcer. Polymicrobial therapy (cefuroxime and metronidazole) was effective. Split skin grafting yielded satisfactory outcome. Both patients survive.

CONCLUSION: NF is a dangerous infection of the skin and the subcutaneous tissue and very often runs a fatal course in children. Early recognition of NF may help to avert some of the mortal effects of this condition. Successful treatment of NF involves adequate resuscitation, administration of broad-spectrum antimicrobials, adequate debridement and skin cover. Prevention in the form of cautious use of injections to treat childhood illnesses cannot be over emphasised.

KEY WORDS: Necrotising fasciitis, injection, children.

RUNNING TITLE: Necrotising fasciitis in children.

INTRODUCTION

Necrotizing fasciitis (NF) is a dangerous infection of the skin and the subcutaneous tissue. It is an important clinical entity as it very often runs a fatal course in children [1,2]. Though the condition can affect any part of the body, the involvement of the scalp and the back of the trunk is unsual[2]. This paper reports NF in two children, one involving the scalp and the other the gluteal region and the lower back, following injections.

PRESENTATION

CASE 1

A fourteen-month old child presented with a ten-day history of ulcerated scalp. The infant had had colostomy at the age of 4 days and pull through for Hirschprung's disease. She had severe repeated diarrhoea and subsequently developed malnutrition (marasmic-kwashiorkor) and was hospitalised and treated at the Jos University Teaching Hospital. While on admission, vascular access for the administration of drugs/fluids was via one of the scalp vessels. Three days later gangrene of the side of the scalp containing the intravascular canular was noticed, which rapidly increased in size with rapid increase in size the of the resultant ulcer.

Examination revealed an ill-looking, pale, female child with a temperature of 38.5°C. There was an ulcer on the right hemisphere of the head, extending from the occiput, through the parieto-temporal area, towards the frontal region. The surface was covered with necrotic skin and some islands ofexposed bone (fig 1), and measured 18cm at the widest point.

The haemoglobin level was 7g/dl and the total white blood cell count was $6.6X10^9/l$. Culture of a swab from the ulcer yielded a mixture

of Klebsiella spp and Streptococcus pyogenase. Anaerobic culture was not done. Patient's condition was optimized with blood transfusion and rehydration. Parenteral metronidazole (7.5mg/kg/24h) and cefuroxime (50mg/kg/24h) were administered. Three days later, the ulcer was debrided until it bled freely. Daily dressing with hypertonic saline and hypochlorite solution (Eusol) was commenced. She later had trephining of the skull bone. Over the next two weeks, healthy granulation tissues formed and split thickness skin grafting of the scalp defect was effected. The defect has healed satisfactorily and the patient has remained well four weeks into the follow-up. The total hospital stay was ten weeks and four days.

CASE 2

An eleven year old male infant presented with a two-week history of ulcer in the right buttock, and the back of the trunk. The child had received an intramuscular injection on the affected buttock about ten days earlier, for a febrile illness in a peripheral clinic. The mother (informant) could not disclose the drug used for the injection since she did not know. The ulcer was preceded by a swelling at the site of the injection, which later broke down, discharging copious amount of pus, followed by an ulcer that rapidly increased in size. The mother denied application of any herbs to the ulcer, even though the ulcer was being managed at home before presentation. The child was brought to the hospital when the mother realized that the ulcer was increasing in size.

Examination revealed an ill-looking, irritable child that was pale and had a temperature of 37^{0}C. The vital signs were stable. The chest and the abdomen were normal. There was an ulcer with an irregular edge, extending from the right gluteal region to the lower half of the back of the patient (fig 2). The surrounding of the ulcer was oedematous. The floor was covered with a thick adherent scab. The ulcer had a diameter of 21cm at the widest point and measured 38cm in length.

The haemoglobin level was 8g/dl and the total white blood cell count was 8.2X10^{9}/l. The swab from the ulcer did not yield any growth. Patient was placed on parenteral cefuroxime 50mg/kg/24h and metronidazole 75.5mg/kg/24h. The amaemia was corrected with blood transfusion. Patient had debridement 48hours after the anti-microbials were commenced. The ulcer was dressed daily using hypertonic saline, hydrogen peroxide and Eusol until healthy granulation tissues filled the depth of the ulcer about 4 weeks later. Patient later had split thickness skin grafting and is presently doing well. The total hospital stay was eleven weeks and five days.

DISCUSSION

NF in children commonly affects the anterior abdominal wall, usually from omphilitis[3,4] .Necrotizing fasciitis (NF) involving the back and the head is uncommon[2,5], more so in children. The relative rarity of NF in these parts of the body has been attributed to the rich blood supply these areas enjoy[6]. The mishap in case 1 probably resulted from the canulation of an artery, because of the antecedent gangrene. Moreover, the severe malnutrition was a good ground to encourage the development and spread of the infections.

Conditions that predisposed to NF in previous reports included cervical adenitis, scalp trauma and septic skin rash[1,5]. In the present report, the infection resulted from injection mishap. On many occasions, even when the oral route would have been a preferred alternative, the parenteral route is chosen to satisfy the desire of the patients or relatives who believe that without receiving injections the treatment is inadequate. Unfortunately, serious complications attending to injections are now becoming very frequent (from an unpublished data).

Early recognition of NF may help to avert some of the mortal effects of this condition. Features that could aid early detection of NF include oedema, peau d'orange, bullae and petechiae[1]. Successful treatment of NF involves adequate resuscitation, administration of broad-spectum antimicrobials, adequate debridement and skin cover. Anaemia is not uncommon and may require blood transfusion, was the case in this report. Broad-spectrum antimicrobials should be used routinely and early because the infective isolates are often polymicrobial[6]. The debridement should be adequate, exercising the dead and the dying tissues until the ulcer bleeds freely. More than one sessions of operation may be required to achieve a satisfactory debridement. This form of radical debridement is more popular than the fasciotomy, drainage and antibiotics suggested elsewhere[7], because of the aggressive nature of the infection. Dressing of the ulcer should be aggressive[1] and religious to prevent re-colonization by micro-organisms. The resultant large defect in the integument is usually made good by fascio-cutatneous flap. Some logistics e.g. non-availability of tissue expanders, however, necessitated the use of split skin grafting in this report.

Morality from NF can be high[1,2] and satisfactory outcome largely depends on early diagnosis and adequate treatment[6]. Prevention in the form of cautious use of injections to treat childhood illnesses cannot be over emphasised. Though complications following injections are commoner in private/ primary health centres (personal communication), it is pertinent to note that one of the children had the mishap in a tertiary centre. One of the lessons to learn here is that the use of injections in children should be guarded, especially in malnourished children; parents need to appreciate that early presentation is vital in curtailing complications in their wards.

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