Ulcerative chickenpox in an immunocompetent child

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Varicella is a common, contagious infection caused by herpesvirus 3. It is usually benign but rarely can be associated with potentially serious complications, requiring hospitalisation.

In a study conducted in Spain, 64 (5.4%) of 1 177 children attending the emergency room with varicella required admission for complications. The median age was 3.2 years. The most common complications were skin/soft-tissue infections (33 patients) and the most common organisms were *Streptococcus pyogenes* (*N*=13) and *Staphylococcus aureus* (*N*=10). Other complications were pneumonia and neurological, haematological and osteoarticular disorders. One patient died of multi-organ failure.[1]

A case report on a child with ulcerative chickenpox, a serious cutaneous complication, is presented.

Case report

A 3-year-old girl presented to the Division of Dermatology, Groote Schuur Hospital, with a 4-week history of progressive skin ulceration that had developed 2 weeks after a typical episode of chickenpox. It was noted that she also had chronic ear discharge, but her milestones had been normal and she had previously been in good general health.

On examination she was febrile (temperature 38.5°C) and in extreme pain. She had widespread deep skin ulcers of different sizes with purulent discharge and central necrotic tissue (Fig. 1). There was also a purulent discharge from the left ear.

Investigation showed the patient to have normocytic, normochromic anaemia (haemoglobin concentration 6.4 g/dl), with a raised C-reactive protein level (85 mg/l). She was HIV negative. Culture from the ulcers demonstrated *S. aureus* and *Proteus mirabilis*.

A diagnosis of secondarily infected ulcerative chickenpox was made. Hypochlorite soaks and silver sulphadiazine cream were administered daily to remove crusts and necrotic tissue, with carboxymethyl cellulose gel (Intrasite gel) applied to deep cavities and areas of adherent tissue. The child was given paracetamol and codeine phosphate, ibuprofen and tilidine drops for analgesia, a blood transfusion of 300 ml packed cells, oral amoxicillin/clavulanic acid 250 mg 8-hourly for 2 weeks and then oral clindamycin 85 mg 6-hourly for 10 days, and nutritional supplements of zinc sulphate, folic acid and vitamin A.

The ulcers healed slowly and the patient was discharged from hospital after 7 weeks, with a few small healing ulcers and significant residual scars.

Fig. 1. The patient on admission, showing multiple necrotic ulcers.

Discussion

Although chickenpox is generally a benign disease, deaths have been reported, varicella pneumonia being the main cause of death, with a 30 - 50% mortality rate.[2] Fatal sepsis may be complicated by purpura fulminans or acute respiratory distress syndrome.

Skin and soft-tissue bacterial infections complicating varicella in a multicentre hospital-based study in France were cellulitis (24.8% of the group with complications), abscess (7.2%), necrotising skin lesions (4.6%), staphylococcal scalded skin syndrome (2.8%) and necrotising fasciitis (0.8%).[3] Our patient appears to have the relatively uncommon necrotising form of secondary bacterial skin infection (ecthyma) as a complication of varicella.

Factors associated with complications in varicella infection in 1 575 hospitalised children in France included systemic steroid therapy (3.1%), topical steroid therapy (3.1%), inhaled steroid therapy (3.1%), immunosuppressant therapy (1.3%), non-steroidal anti-inflammatory agents (18%), HIV (0.3%), atopic dermatitis (independent of

steroid use) (10%) and low income.[4] The latter appears to be the only identifiable risk factor in our patient.

An interesting report from France has drawn attention to the possible association between calamine use and the development of ulcerative bacterial skin infection.[5] However, serious skin infections are uncommon and calamine is perhaps the agent most frequently used for chickenpox worldwide.

Severe secondary bacterial infections such as necrotising fasciitis have been reported in immunocompetent patients with chickenpox. Necrotising fasciitis was reported to be more prevalent in chickenpox patients who used ibuprofen than in those who did not.[6] However, the validity of this study was later questioned. Recently, two large cohort studies of patients with primary varicella (*N*=140 111) and zoster (*N*=108 257) reported either severe skin or soft-tissue complications (mostly cellulitis and abscess) to be more prevalent in those who used non-steroidal anti-inflammatory drugs (rate ratio 4.9; 95% CI 2.1, 11.4). However, there was no risk associated with exposure to paracetamol.[7]

In conclusion, we describe a case of ulcerative bacterial infection following chickenpox, a rare complication of a common childhood infection. The possible role of over-the-counter medication (calamine lotion and non-steroidal anti-inflammatory agents) in the pathogenesis of this condition is interesting, but in view of the widespread use of these agents in the treatment of varicella, the relative risk (if any) appears to be low.

References

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