Infantile Acropustulosis Treated Successfully With Topical Maxacalcitol

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Infantile acropustulosis (IA) is a relatively rare disease characterized by recurrent episodes of pruritic vesicles and pustules, which develop in an acral distribution in young children. Recurrent crops of itchy vesicopustules appear on the palms and soles (1). The attacks decrease gradually, usually within a few years of onset, but in the summer months in particular flares can be severe and the symptoms difficult to treat. We present here a case of IA that was treated successfully with topical maxacalcitol, an active form of vitamin D3.

CASE REPORT

A 9-month-old Japanese male infant had had recurrent itching vesicles and pustules on his palms and soles for 3 months. In summer, new crops of papules and vesicles developed at intervals of a few days, and evolved into pustules. The symptoms worsened after bathing, sweating or scratching. Treatment with topical glucocorticoids and oral antihistamines was not effective. On physical examination, vesicles and pustules (1–3 mm in diameter) were seen, with scaly keratotic erythema on the palms and soles (Fig. 1). Laboratory tests were within normal limits, and no blood eosinophilia was found. Bacterial culture of the pustule was sterile. There was no history of scabies in the patient or his family. Histological examination revealed intraepidermal vesicles with neutrophils and eosinophils (Fig. 2). Following a diagnosis of IA, 0.0025% maxacalcitol ointment (Oxarol, Chugai Pharmaceutical Co., Ltd., Tokyo, Japan) was applied twice a day for one week. New eruptions decreased in number, and all eruptions disappeared completely. Application of maxacalcitol every 3–4 days was continued. The interval between occurrences gradually increased and the number of new vesicles and pustules decreased to a few, improving further after each application of topical maxacalcitol ointment for a few days. The approximate applied dose of maxacalcitol was a maximum of 10 g/month. The appearance of eruptions decreased as the patient got older, and the eruptions disappeared completely at 15 months. The risk for hypercalcaemia as a side-effect of topical maxacalcitol is a function of the dosage of the ointment, the severity and area of the eruption and renal function. In the present case, calcium levels were not monitored, but no clinical symptoms of hypercalcaemia were observed.

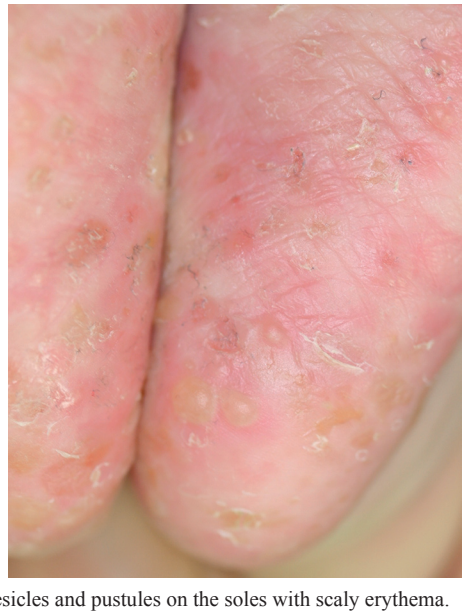

Fig. 1. Vesicles and pustules on the soles with scaly erythema.

DISCUSSION

IA was first described in 1979 as a pruritic vesiculopustular eruption on the palms and soles (2, 3). A relationship with scabies has been reported (4, 5), but the aetiology of IA remains unknown. IA is a self-limiting disease, but the recurrent appearance of pruritic pustules can be distressing for children. Treatment remains controversial. Topical glucocorticoids have often been used with temporary improvement (4), and occlusive dressing therapy with topical glucocorticoids has been reported as effective in one case (6). Systemic administration of dapsone has been reported to be effective (3), but could be difficult to apply for small children. We report here for the first time that treatment with 0.0025% maxacalcitol ointment, resulted in greatly improved IA. In our case, maxacalcitol was effective to improve the symptoms and, furthermore, increased the interval between relapses. This active form of vitamin D3 suppresses the production of cytokines, such as interleukin (IL)-1α, IL-6 and IL-8 (7), from keratinocytes, and suppresses Th1 or Th17 cell activation (8). These anti-inflammatory effects are thought to be the main reason for its efficacy in our case. An active form of vitamin D3

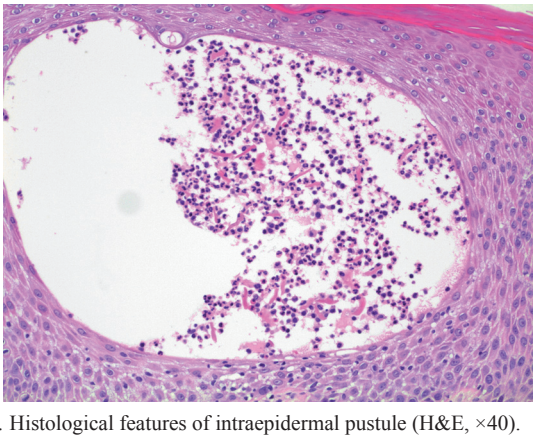

Fig. 2. Histological features of intraepidermal pustule (H&E, ×40).

also upregulates the production of cationic antimicrobial peptides (AMPs), such as defensin and cathelicidin (8). AMPs are reported to induce the necrosis of neutrophils (9), and this mechanism may explain the immediate disappearance of pustules of IA in our case.

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