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Norwegian Scabies Developing during Treatment with Fluorinated Steroid Therapy

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Abstract. A fit, normally intelligent young man developed Norwegian scabies after prolonged treatment with large quantities of clobetasol propionate ointment. The development of this overwhelming infestation from the normal eruption of scabies may be related to the local immunosuppressive effect of this potent topical steroid.

Key words: Norwegian scabies; Fluorinated steroid ointment therapy; Immunosuppression

Many factors have been implicated in the development of overwhelming infestation with the scabies

mite, so-called Norwegian scabies. Of these factors, mental defect, gross debility and loss of cutaneous sensibility are well documented (6).

More recently, cases have been described in patients who have demonstrable immune suppression or deficiency, due either to disease states (4) or as a result of immunosuppressive therapy (7). This report describes a case of Norwegian scabies precipitated by the prolonged use of excessive quantities of the powerful topical fluorinated steroid clobetasol propionate (Dermovate, Glaxo).

CASE REPORT

A 35-year-old bricklayer presented to his general practitioner with an itchy rash between the fingers and around the wrists. There was no previous history of skin disease, nor was there a family history of either eczema or psoriasis. This eruption was diagnosed as a cement dermatitis and treated with clobetasol propionate ointment. In the succeeding weeks the rash spread to involve the feet, legs and trunk. It was still very itchy and prevented him from sleeping. Within 3 months he had a widespread maculopapular erythema with some scaling and vesicopustules on the fingers and toes. He was using 100 g of ointment per week. The patient's wife and children also began to itch. The patient was referred 6 months after the eruption originally appeared, as the character of the rash had then changed.

Examination showed a fit man of average intelligence. There were widespread areas of excoriated erythema on the trunk and limbs. A remarkable feature was the symmetrical, well-demarcated, hyperkeratotic erythematous areas, seen particularly on the backs of the hands, fingers, over the elbows (Figs. 1 and 2) and on the feet.

Live acari were isolated from the many burrows on the hands and feet. There were no lesions on the face.

Treatment with benzyl benzoate for 3 days cleared the scaly lesions and, within 2 weeks, the erythema had subsided and he was no longer itching.

COMMENT

When he was seen at the clinic this man had typical hyperkeratotic Norwegian scabies. Originally, however, the eruption was consistent with more classical scabies. It was not until 4 months after the itching started that the hyperkeratosis and crusting became evident. The itching persisted throughout the whole of the illness and was not suppressed by medication. By this time the patient had applied over 7500 g of clobetasol propionate ointment, reaching a maximum of 100 g per week. Clobetasol propionate is a very potent topical steroid and has a considerable local immunosuppressive effect (8).



Fig. 1. Hyperkeratosis and scaling on back of hands and fingers.

Immunosuppressed patients may develop Norwegian scabies but this has usually occurred in those taking immunosuppressive drugs (7, 3). However, Macmillan (5) reported that topical fluorinated steroid therapy had produced a remarkable proliferation in the number of burrows in a baby with scabies. More recently, Clayton & Farrow (2) described a patient with constitutional eczema who developed an erythroderma with large areas of hyperkeratosis and fissures when large quantities of clobetasol propionate were used to treat an occult scabies infection. The rash was cleared with benzyl benzoate application.

The present case showed no systemic immunosuppression, although, at this dose, sufficient steroid is absorbed to cause Cushing's syndrome and pituitary-adrenal suppression (9). It is likely, however, that the normal cutaneous reactions to the acarus, which are both delayed (cell-mediated) and immediate in type, were suppressed by the topical steroid. In this situation Burgess (1) has postulated that, instead of the normal pattern where few eggs and nymphs survive to develop, many more survive and produce the clinical picture of Norwegian scabies.

The use of large quantities of powerful topical



Fig. 2. Hyperkeratosis and scaling on elbows.

steroids has played a large part in the development of Norwegian scabies in this case. There was no evidence of any other known contributory factor. In this context it is particularly notable that this patient always suffered intractable itching in the presence of the disease. In the other cases mentioned above, itching was absent or minimal, and the failure to remove acari by scratching is thought to be a major factor in the development of Norwegian scabies (6).

Thus, this case represents yet another side effect of topical fluorinated steroids and demonstrates how the abuse of one of these preparations has changed the character, extent and natural history of an eruption. It has also helped to show that, in the absence of any other known contributory factor, Norwegian scabies will develop when the interaction between skin and *Sarcoptes scabiei* is altered by topical steroids.

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Lines of Beau: Possible Markers of Zinc Deficiency

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Key words: Acrodermatitis enteropathica; Beau's lines; Leukocyte endogenous mediator; Zinc depletion Syndrome; Zinc deficiency

In 1846 Beau described transverse lines and depressions on nails following severe acute diseases (1). In the following communication, evidence is presented that alterations in zinc metabolism might be an etiological factor involved in this anomaly.

Case 1. A 10½-year-old boy is the subject of an earlier report on acrodermatitis enteropathica (AE) (8). Treatment with 8-hydroxyquinoline was discontinued when an ophthalmological examination revealed damage of the visual function. Before zinc therapy was started, the serum zinc level had fallen from 9.9 to 5.4 $\mu\text{mol/l}$ (normal range in men: 11.4–18.9), and he developed a bullous dermatitis on his hands, feet and knees. Oral zinc therapy normalized the serum zinc level in 2 weeks, cleared the skin lesions and activated the growth of hair and nails. About 4 weeks after zinc therapy was started, marked lines of Beau appeared on the finger nails (Fig. 1).

Case 2. A 16-year-old female had suffered from AE, which had been completely controlled with 8-hydroxyquinolines. When this treatment was discon-

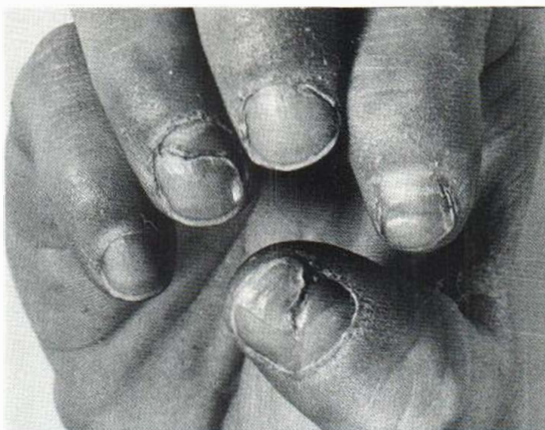


Fig. 1. Acrodermatitis enteropathica with marked lines of Beau on fingernails, photographed 10 weeks after initiation of oral zinc therapy.