

HISTOLOGICAL FINDINGS IN PARAKERATOSIS PUSTULOSA

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Abstract. Report of a typical case of parakeratosis pustulosa on the fingertips and toes. The condition presents some difficulties in the defining of its exact nosological situation. A large surgical biopsy showed pustules and crusts in the horny layer, acanthosis, intercellular edema, mild exocytosis, and papillomatosis with heavy cellular infiltrates around the dilated vessels. Topical therapy with corticoids and 1% salicylic acid in propylene glycol gave good results.

Parakeratosis pustulosa was described by Sabouraud in 1931 as "parakératose microbienne du bout des doigts" (6), and was mentioned by Lomholt in his Textbook of Dermatology (1939) (4). Nevertheless, in Brocq's Précis-Atlas de Dermatologie (1921) similar subungual changes were described concerning the "parakeratosis psoriasiformes" (2).

Recently, Hjorth & Thomsen (3), Finsen Institute, Copenhagen, Denmark, made an interesting review of 91 cases, 16 of them from their own private practice. In Spain, Mascaro (5) has reported one case.

CASE REPORT

A 6-year-old white male suffered from cutaneous lesions of the nails for 18 months. On examination, in October 1972, the colour of the skin of the fingertips and toes was pink and studded with fine scales and few crusts. Only transitory vesicles and pustules had been observed in the initial phase. The edges of the lesions were blurred, with a peripheral collarette of scales. The cutaneous changes extended around the nails. Subungual hyperkeratosis extended 1 mm into the nailbed. The nails were thickened, raised and deformed, and most separated from the nailbed at the corners (Fig. 1). No pitting had occurred. A sister of the patient, aged 18 months, had similar lesions. Previous treatments with topical fungicides were ineffective. Bacteriological and fungal investigations were always negative. A clinical diagnosis was deferred.

We took a large surgical biopsy of the left great toe. The specimen was fixed in neutral-buffered formalin and embedded in paraffin. Sections were cut at 6 μ m using standard procedures, and were stained with hematoxylin-eosin and PAS. The histological findings were as follow: Hyperkeratosis with

partial parakeratosis. Pustules and crusts with degenerated inflammatory and epithelial cells in the horny layer. Acanthosis with wide, elongated rete ridges (Figs. 2, 3 left). Intercellular edema in stratum malpighii with sparse neutrophilic and lymphocytic cells that had migrated there from capillaries. The dermis showed papillomatosis and dilated capillary loops with prominent endothelial cells. In the upper dermis and around the vessels, heavy cellular infiltrates were found, composed of some neutrophils and many lymphocytes and fibroblasts (Fig. 3 right). Specimens stained with PAS showed no fungal structures.

A diagnosis of parakeratosis pustulosa was made. The patient improved after a month of topical therapy, twice day, with corticoids and 1% salicylic acid in propylene glycol. No recurrences were observed during a follow-up period of 16 months.

DISCUSSION

Hjorth & Thomsen (3) asserted that parakeratosis pustulosa of the tips of the fingers or toes should be considered as a clinical entity. They stated: "... it is an eczematoid affection of peculiar localization, with subungual hyperkeratosis resulting in deformity of the nail, usually at the corner". The condition is more



Fig. 1. Parakeratosis pustulosa. The tips of the fingers and toes are studded with fine scales and occasional crusts. Subungual hyperkeratosis extends into the nailbed. The nails are most separated from the nailbed at the corners.



Fig. 2. Hyperkeratosis and parakeratosis. Pustules and crusts in the horny layer. Acanthosis, papillomatosis and heavy cellular infiltrates in the upper dermis (H.E., $\times 40$).

common on the hands, where the thumb and index finger are most often affected, while on the feet the great toes suffer most. Parakeratosis pustulosa is a disorder almost entirely confined to young children and especially girls. The course is often protracted

and recurrences are the rule, even after apparent and long periods of cure (1, 7).

In the 91 cases studied in Denmark no biopsies were carried out, and we have not found any references dealing with pathological studies. Therefore,

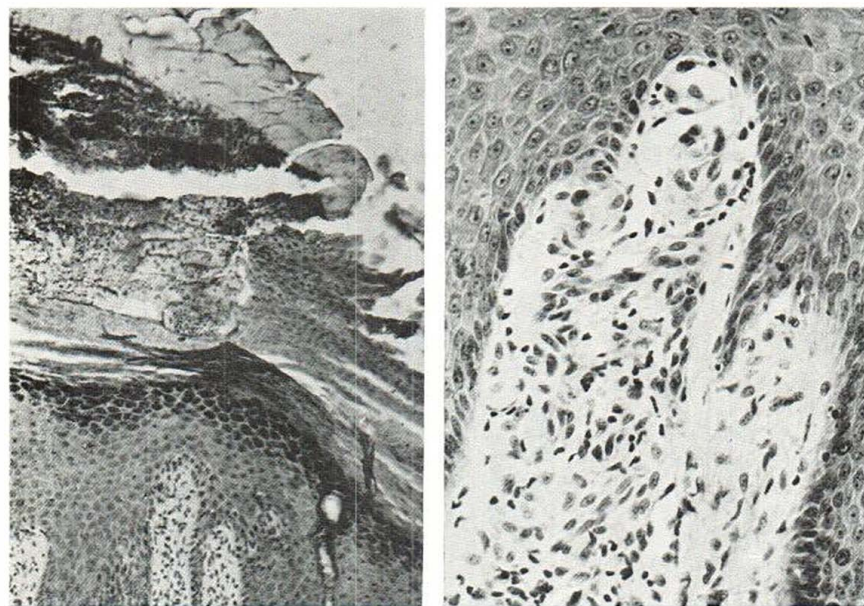


Fig. 3. (Left). Border of the pustule, with degenerate inflammatory and epithelial cells, extending into the horny layer. Beside the pustule, parakeratosis which paradoxically coexist with granulosis (H.E., $\times 100$). (Right). Intercellular edema in stratum malpighii with mild exocytosis. In the upper

dermis, dilated capillary loops with prominent endothelial cells. Around them, heavy cellular infiltrates composed of a few neutrophils and many lymphocytes and fibroblasts (H.E., $\times 250$).

we believe that our histological findings have some value. They are, as indicated: Hyperkeratosis and parakeratosis; pustules and crusts; acanthosis and mild exocytosis; papillomatosis and heavy cellular infiltrates composed mainly of lymphocytes and fibroblasts around dilated capillary loops.

The question arises as to whether or not parakeratosis pustulosa of the fingertips and/or toes is in fact a clinical entity or is a common manifestation of several and well defined dermatoses such as psoriasis, pustular psoriasis, contact dermatitis, atopic dermatitis, tinca pedis, etc. Because the histological findings are sparse, and not very specific, we believe that only the close observation of new cases over long periods of time, plus complementary studies, can answer this question.

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