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Circumscribed plantar hypokeratosis responding to topical calcipotriol

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Abstract

Background: Circumscribed palmar or plantar hypokeratosis defines a benign condition clinically presented as a well-defined depressed area on the skin. It is characterized by a peculiar histopathological picture with the abrupt thinning of the horny layer of the epidermis.

Main observations: We present a case of a 17-year-old man, who presented with a one-year history of an occasionally painful lesion on his right sole. The diagnosis of circumscribed plantar hypokeratosis was confirmed by histopathology. The lesion was successfully treated with calcipotriol ointment.

Conclusions: Circumscribed palmar or plantar hypokeratosis is a benign condition that typically affects the hands. Different therapeutic approaches have been unsuccessful. In our patient the lesion was at a less frequent plantar location and the lesion responded to topical calcipotriol. (*J Dermatol Case Rep*. 2013; 7(4): 129-131)

Introduction

Circumscribed palmar or plantar hypokeratosis is a recently described entity.[1] Its origin is not completely clarified. The condition presents a highly characteristic clinical and histological picture. We report a case of a circumscribed plantar hypokeratosis and we briefly review this condition.

Case Report

An otherwise healthy 17-year-old man presented with a one-year history of an occasionally painful lesion on his right sole. The patient denied previous administration of topical products, traumatisms or other skin alterations. Physical examination revealed a well-circumscribed, slightly depressed,

Figure 1

***(A)** Well-defined, depressed and erythematous lesion on the sole. (The small black ring in the upper part of the lesion was caused by coagulation with silver nitrate due to bleeding of the curetted area.) **(B)** Resolution after treatment with calcipotriol ointment.*

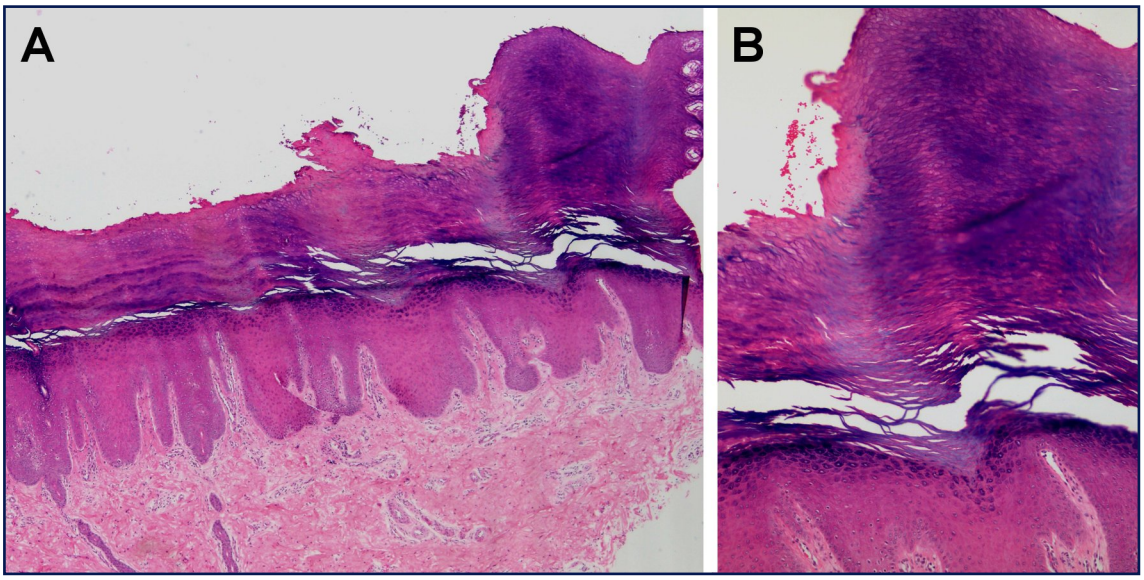

Figure 2
(A) Sharp transition between normal and involved skin, which shows marked decrease of horny cell layer thickness. (Hematoxylin and eosin x40.)
(B) Preserved granular cell layer thickness and absence of parakeratosis in the depressed area. (Hematoxylin and eosin x100.)

erythematous lesion on the metatarsal region of his right sole (Fig. 1A). Motor and sensory neurological examination was normal. There were no other lesions on skin or mucous membranes. In order to rule out verruca vulgaris, curettage was made, resulting in slight bleeding, needing coagulation with silver nitrate. Skin biopsy was taken from the transition of normal and involved skin from an area not previously curetted. Microscopic examination revealed a marked decrease of horny layer thickness, or hypokeratosis, above the depression. There was a sharp stair between the hypokeratosis and the hyperkeratosis from the adjacent normal horny layer. Parakeratosis was not observed. Granular cell layer thickness, other epidermal layers, and the underlying dermis showed no alterations (Fig. 2A-B). Circumscribed plantar hypokeratosis diagnosis was made. After two-month treatment with calcipotriol ointment, the lesion was practically resolved (Fig. 1B).

Discussion

Circumscribed palmar or plantar hypokeratosis is a benign entity of unknown origin, though several pathogenetic hypotheses have been suggested, such as epidermal malformations of the skin, recurrent traumatisms, papilloma virus infection, alterations in keratinization, abnormalities in corneocytes attachments or in corneocytes fragility, and an accelerated corneocyte desquamation.[1-7]

It mainly appears in middle-aged or elderly women.[1] The usual location is on the hand, commonly on the thenar eminence, without preference for the right or the left hand. Plantar involvement is less frequent.[2,6,8] It generally presents as solitary, rounded, and well-defined lesions, with a depressed and erythematous surface. Associated symptoms are not common.[1,4,6]

Histopathological examination provides the accurate diagnosis. The biopsy must be taken at the edge of the lesion, in order to show the abrupt transition between normal and involved skin.[6] Histological common features have been previously described in the case herein reported. Occasionally, in the transition edge, the keratin may be more eosinophilic and with a frayed aspect. Granular cell layer may be slightly thinner in the epidermis covering the depression.[1] Other possible features, reported in isolated cases, include focal parakeratosis, epidermal hyperplasia, mild dermal inflammation, and elastosis.[5]

Circumscribed palmar or plantar hypokeratosis should be mostly differentiated from porokeratosis of Mibelli, Bowen's disease, and from the base of a frictional blister.[1,2,6] Porokeratosis of Mibelli consists on annular plaques surrounded by a keratotic ring with centrifugal spread. A palmoplantar variant, which mainly presents in childhood, affects palms and soles exclusively.[1,6] In contrast with porokeratosis of Mibelli, circumscribed palmar or plantar hypokeratosis does not show cornoid lamella, and the granular cell layer is present in the whole epidermal depression. Other characteristic histopathological findings of porokeratosis are pycnotic or dyskeratotic keratinocytes, and a moderate inflammatory infiltrate in the papillary dermis, below the cornoid lamella.[1] Bowen's disease presents with an erythematous, desquamatory, slow-growing plaque. Microscopically, there was full thickness epidermal atypia.[6] The base of a frictional blister would be temporary, and microscopically, the cleavage would be within or just below the granular cell layer.[2]

Circumscribed palmar or plantar hypokeratosis usually lengths for years, but malignant degeneration have never been reported. Several treatments such as topical salicylic acid, retinoids, calcipotriol and corticosteroids, criotherapy or surgery, have been proved with poor satisfactory results, although the case herein reported experimented considerable improvement after calcipotriol ointment. Nevertheless, due to the frequent lack of efficacy of these treatments and the benignancy of this entity, the observational attitude is an adequate option.[9]

Conclusions

Circumscribed palmar or plantar hypokeratosis is a benign condition with clinical and histopathological distinctive characteristics. Remarkable aspects in the case reported are the less frequent plantar location and the successful response to topical calcipotriol.

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