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Circumscribed Palmar Hypokeratosis – The First Case from South-East Europe

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SUMMARY Circumscribed palmar or plantar hypokeratosis (CPH) is a rare condition, usually asymptomatic, consisting of a well-demarcated erythema with central depression and hyperkeratotic border which divides it from the normal skin. We report a 77-year-old woman with a characteristic lesion of circumscribed palmar hypokeratosis on the right palm. Clinically, the lesion simulated porokeratosis of Mibelli, but histologically there was no cornoid lamella, while the characteristic depression of epidermis, with sharp stair in stratum corneum between the normal and involved skin was present. This is the first case of CPH reported in south-east Europe. After 9-year follow-up and various treatment modalities, we confirmed resistance of CPH. Since malignant transformation has been documented, careful follow-up was recommended.

KEY WORDS: circumscribed palmar hypokeratosis, circumscribed plantar hypokeratosis, south-east Europe

INTRODUCTION

Circumscribed palmo-plantar hypokeratosis (CPH) is a rare condition, first described in 2002 (1). The lesion is usually asymptomatic, consisting of well-demarcated erythema with central depression and hyperkeratotic border which divides it from the normal skin (1-5). It is most commonly found on palm eminences. Only two patients had plantar lesions (2). Typically, the patients are middle-aged and elderly women. The pathogenesis of this disorder remains unclear. The differential diagnosis includes Bowen's disease and porokeratosis of Mibelli (6). Already described cases originate from Spain, USA, Korea, Japan, Chile, Malta, Australia, New Zealand, France, Germany and Italy.

CASE REPORT

A 77-year-old Serbian woman presented in 2003 with asymptomatic well-demarcated erythema with central depression with a hyperkeratotic border, 15x17 mm in diameter, on the thenar eminence of the right palm (Fig. 1). The right hand was dominant. The lesion appeared in 2001, it slightly increased in size over the next 2 years, and then remained stable. There was no history of previous trauma, burn or exposure to chemical agents. It had been treated topically with antibiotics and emollients with no improvement. A biopsy through the edge of the lesion was taken. Histopathology showed hyperkeratosis of orthokeratotic type with thinned stratum corneum

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corresponding to the depressed area, while other layers were normal. The depression of stratum corneum formed a sharp "stair" in horny layer between the normal and involved skin. There was no inflammation or other pathologic changes in the dermis (Fig. 2a and b). After biopsy, the lesion was treated with fluocinolone acetonide 0.025% ointment for 4 weeks, then with liquid nitrogen once a week for 8 weeks, and then with tazarotene 0.1% gel twice a day for 6 weeks, without improvement. The only effect was slight scaling, but after cessation of the treatments the lesion resumed previous shape and appearance. On the last examination in February 2012, the lesion persisted unchanged.

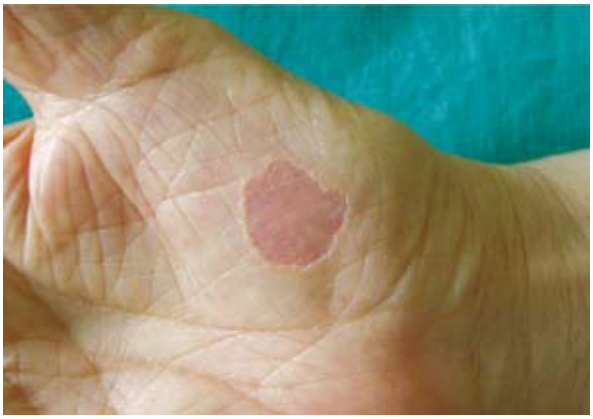

Figure 1. Well-demarcated erythema with central depression and hyperkeratotic border on the right palm thenar.

DISCUSSION

Up to now, 58 cases of CPH have been reported. CPH was most frequently diagnosed in adult women (F:M = 4:1), and all lesions were located on acral skin (2). Of the cases reported in the literature, 27 lesions occurred on hands and 2 on feet, only 2 had isolated plantar lesions and 4 cases had multiple lesions. Fourteen lesions occurred on the thenar eminence, 8 on the hypothenar eminence, one on the palmar aspect of the index finger, one on the palmar aspect of the ring finger, and two on the thumb. The age of patients ranged from 35 to 81 (mean 60) years. The duration of the lesions at the time of diagnosis ranged from 2 to 30 years. The most common clinical diagnosis at presentation was Bowen's disease (13 cases) and porokeratosis of Mibelli (7 cases) (6).

Clinically, acral circumscribed hypokeratosis resembles porokeratosis of Mibelli, but lacks a fine raised ridge at the lesion periphery. Histologically, columns of parakeratosis (cornoid lamellae) characteristic of porokeratosis have not been identified. However, in some cases of CHP, hypogranulosis is noted, which is a pathologic characteristic of porokeratosis (8). In our case, this change was not present. The main pathologic finding was a marked decrease in the horny layer thickness within the lesion; at the border of the lesion, the horny layer formed the typical "sharp stair", and adjacent horny layer was of normal thickness. The inflammatory infiltrate in the epidermis or the dermis was absent in our case, but in the literature, in a few cases, epidermal spongiosis and mild dermal inflammation have been reported (9,10).

The pathogenesis of CPH is still unclear. Chronic mild trauma with its cumulative effects may be one of the causes (6). Only in 2/25 cases trauma was reported (mechanical injury, burn, irritation). It is characteristic that most lesions were on the dominant hand, which may be connected with more frequent trauma (4,6).

Only in one case, HPV type 4 was identified within a lesion and it was postulated that it might have been a phase in the evolution of a viral wart. However,

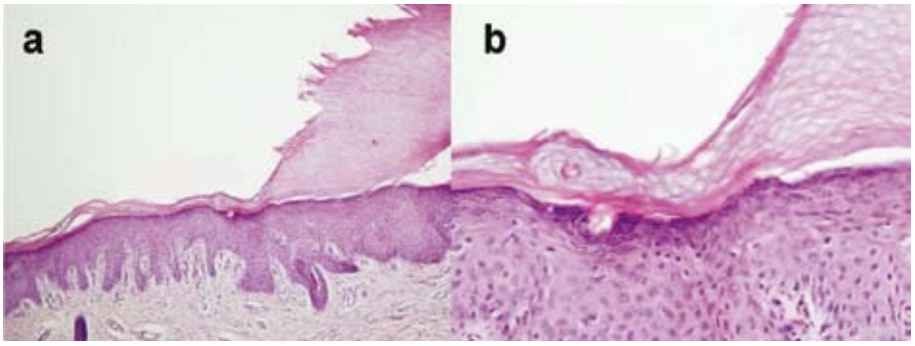

Figure 2. (a) Depression of epidermis, with a sharp "stair" in horny layer between normal and involved skin; (b) hyperkeratosis of orthokeratotic type with thinned stratum corneum; other layers are normal. (hematoxylin-eosin stain; original magnification: a, X100; b, X400)

none of the cases had typical histologic evidence of HPV infection, and in situ hybridization studies in two cases were negative for HPV DNA (7).

An immunohistochemical study was performed on five cases to investigate the expression of several epidermal proliferation and differentiation proteins, with emphasis on those involved in corneocyte desquamation, including corneodesmosin, kallikrein 5 and lympho-epithelial Kazal type inhibitor (LEKTI). In 3/5 cases, a decreased expression of LEKTI, corneodesmosin and filaggrin was found, along with an increased expression of kallikrein 5 and keratin 6. The immunohistochemical features of CPH suggest that an altered corneocyte desquamation process could underlie the development of lesions (8).

Transmission electron microscopy (TEM) showed reduction in keratin bundles and keratohyaline granules, and increased lipid in the horny layer, suggesting a disorder of keratinization (9,10). On TEM, there were no atypical cells or mitoses identified. These findings also suggest that CPH represents a localized defect in the maturation of keratin, which could follow subclinical episodes of trauma (11).

CPH is a benign clonal epidermal malformation. The hypokeratotic epidermis in CPH may develop as a result of clonal expansion of keratinocytes, which lose their capacity to differentiate into hyperkeratotic palmoplantar-type keratinocytes. The exact mechanism of this aberrant differentiation is unknown; however, the existence of patients with CPH who have multiple lesions suggests certain genetic predisposition toward CPH (12).

CPH is a chronic dermatosis with a benign evolution, with lesions that slowly progress or remain stable over years, as in our case. Only in one recently reported case, malignant transformation has been described (13), and that is why we recommended close clinical follow-up.

In the literature, various topical treatments have been proposed, including corticosteroids, salicylic acid and retinoids, but they all have been disappointing. One case resolved after 4 years of topical calcipotriol therapy (10). One case regressed after liquid nitrogen cryotherapy (14). Partial remission was induced by photodynamic therapy (15). There are also a few reports of spontaneous resolution (16).

CONCLUSION

This is the first case of CPH reported in the southeast of Europe. After 9-year follow-up and various treatment modalities, we confirmed resistance of CPH. Since malignant transformation has been documented, careful follow-up was recommended.

Acknowledgment

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