Acquired crateriform hyperkeratotic papules of the feet: An unusual variant of focal acral hyperkeratosis

Sir,

Focal acral hyperkeratosis is a rare clinical entity that presents with hyperkeratotic lesions on the margins of the hands and feet. Focal acral hyperkeratosis and acrokeratoelastoidosis (AK) of Costa share similar clinical features and identical histologic epidermal alterations.[1] These disorders are distinguished solely on the basis of the absence of elastorrhexis in the former. Multiple therapies have been attempted for focal acral hyperkeratosis, but they have been found to be unsuccessful. We report a case of crateriform hyperkeratotic papules of the feet, which is an unusual variant of focal acral hyperkeratosis, responding to calcipotriol.

A 25-year-old African black female presented with hyperpigmented lesions over both her feet since four years. She had received treatment earlier, without any improvement. The patient denied any symptoms of hyperhidrosis, itching, excessive sun-exposure or trauma. The lesions were asymptomatic, but were cosmetically unappealing to the patient. The family history was noncontributory. On physical examination, multiple 1-4 mm firm, hyperpigmented, hyperkeratotic and crateriform papules coalescing into plaques [Figure 1] were located on the dorsal and lateral

aspects of both the feet. The palmar and plantar surfaces were spared. Morphologically, the individual papules closely resembled those described in acrokeratoelastoidosis (AK) of Costa and in focal acral hyperkeratosis of Dowd (FAH).

A biopsy taken from a papule showed epidermal hyperkeratosis and hypergranulosis with a normal dermis that is consistent with the diagnosis of focal acral hyperkeratosis. The elastic stain revealed no loss of elastic fibers in the dermis. She was treated with topical calcipotriol twice daily for 8 weeks and showed dramatic improvement. No recurrence of lesion was noted 8 months following the treatment.

Focal acral hyperkeratosis was first described in 1983 by Dowd *et al.* and is considered to be a variant of AK of Costa.[2] It is more frequent among the black people with the onset of symptoms before 20 years of age in over 80% of the instances. It is clinically identical to AK of Costa from which it can only be distinguished by histopathological or ultrastructural features. Focal acral hyperkeratosis unlike AK has histopathological alterations that are limited to the epidermis (hyperkeratosis and acanthosis) and shows no elastic fibre alteration (elastorrhexis) in the reticular dermis and normal collagen fibers. Several conditions share keratotic papules, usually crateriform along the borders of hands and feet as a common clinical finding. The differential diagnosis includes AK of Costa, AK of Mathews and Harman, mosaic acral hyperkeratosis, hereditary papulotranslucent acrokeratoderma, acrokeratoderma hereditarian punctatum, degenerative collagenous plaques of the hands, verruca plana, acrokeratosis verruciformis of Hopf, xanthoma, colloid milium, keratoelastoidosis marginalis and digital papular calcinosis.[3]

The subtypes of focal acral hyperkeratosis include hereditary type, acquired type and FAH with sensorineural deafness. Clinically, it presents as small, firm, yellow, waxy and translucent papules that appear on the margins of the hands and feet during childhood.[4] The papules often coalesce to form plaques and may be present on the dorsal surfaces as well as the knees. The most characteristic site of these papules is the boundary between the dorsal and palmar or plantar skin and in the space between the thumb and forefinger. These lesions are usually asymptomatic; however, they may be associated with hyperhidrosis. Although the condition is benign, it may cause embarrassment.

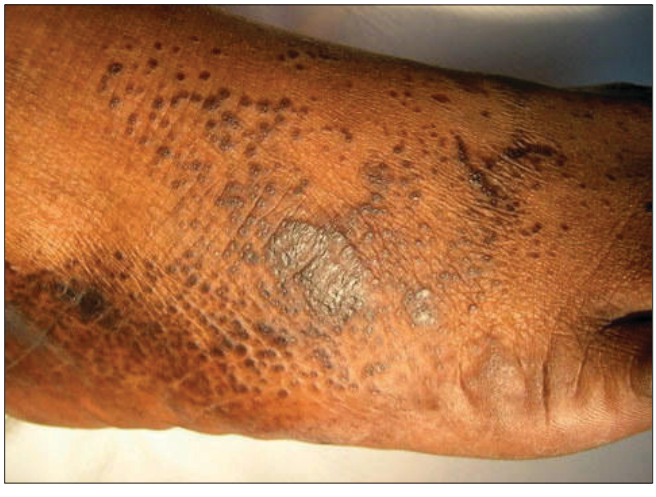

Figure 1: Hyperpigmented, hyperkeratotic, crateriform papules

In acquired crateriform hyperkeratotic papules of lower limbs, which is an unusual variant of AK of Costa, the hands and feet are spared.[5] In our case, the dorsal and lateral aspects of feet were involved, but the palms and soles were spared.

Multiple therapies have been used for focal acral hyperkeratosis, such as liquid nitrogen cryotherapy, salicylic acid, tretinoin, prednisone and etretinate with unsuccessful results. Our patient improved with calcipotriol.

Calcipotriol is a synthetic vitamin D3 analogue used in the treatment of psoriasis since 1991. It is found to be effective in the treatment of acrodermatitis of Hallopeau, acanthosis nigricans, confluent and reticulated papillomatoses, disseminated superficial actinic porokeratosis, Darier's disease, lichen amyloidosis, prurigo nodularis, pityriasis rubra pilaris and vitiligo.[6] The exact mechanism of action is not known; however, it has been speculated to improve disorders that have histological elements such as hyperkeratosis, acanthosis, parakeratosis and epidermal hyperproliferation by modifying the epidermal growth pattern through the stimulation of terminal differentiation and the simultaneous inhibition of proliferation.[6] The clearance of the lesions following the use of calcipotriol in our case could be possibly due to the abovementioned mechanism.

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