

Case Report

Progressive symmetric erythrokeratoderma presenting as hyperkeratotic plaques in a young girl

進行性對稱性紅斑角化病在一名少女身上表現為過度角化性斑塊

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A 15-year-old girl presented with multiple, persistent hyperkeratotic plaques symmetrically distributed over the extensor surfaces of the extremities and the buttock since 4 years old. There was a strong family history. Her condition markedly improved with topical vitamin D analogue and steroid cream. The clinical presentation, pathogenesis and management of erythrokeratoderma are discussed.

一名十五歲少女，自四歲起身上便有多處並持久的過度角化性斑塊，對稱地分佈於四肢伸肌面和臀部位置；而她亦有著強烈的家族病史。在使用維他命D衍生物及類固醇外敷藥物後，她的狀況得到顯著改善。紅斑角化病的臨床表現、病理及治療將一一討論。

Keywords: Erythrokeratoderma, progressive symmetric erythrokeratoderma

關鍵詞：紅斑角化病，進行性對稱性紅斑角化病

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Case report

A 15-year-old young girl presented with multiple hyperkeratotic plaques since 4 years old. The skin lesions were asymptomatic. Otherwise, she enjoyed good past health with normal development. Her father, paternal aunt and grandfather also suffered from a similar problem.

Examination of the skin demonstrated well demarcated, slightly erythematous and pigmented hyperkeratotic plaques with minimal scaling. They were distributed symmetrically over the elbows,

knees, dorsa of hands and feet and the buttocks. There was no palmoplantar keratoderma and the mucosa and nail were not involved (Figures 1 & 2).

Differential diagnoses included genodermatoses like progressive symmetric erythrokeratoderma; keratits, ichthyosis and deafness (KID) syndrome; Vohwinkel syndrome; and inflammatory dermatoses like psoriasis, pityriasis rubra pilaris and lichen simplex chronicus.

Skin biopsy showed papillomatous epidermal hyperplasia, compact orthokeratosis and

hypergranulosis and superficial perivascular lymphocytic infiltration (Figure 3). Histopathology was suggestive of epidermal hyperplasia. The histopathological and clinical findings were consistent with progressive symmetric erythrokeratoderma.

She was treated with a combination cream of a topical vitamin D analogue and a topical steroid (Daivobet®) and showed marked clinical improvement. Most of the hyperkeratotic plaques resolved with minimal residual erythema only (Figure 4).



Figure 1. Erythematous hyperkeratotic plaque over knee.

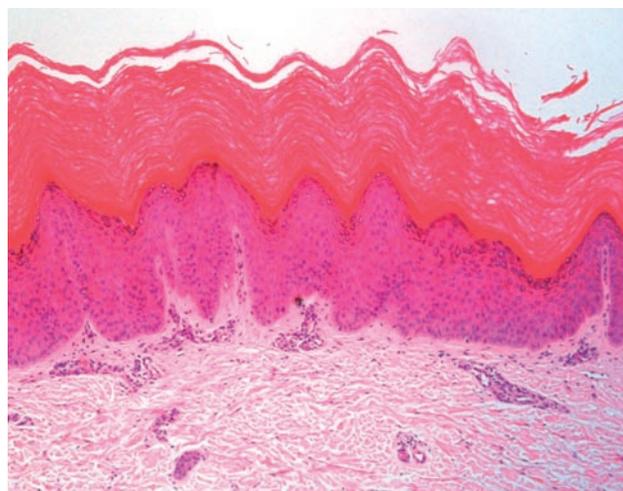


Figure 3. Papillomatous epidermal hyperplasia, compact orthokeratosis and hypergranulosis and superficial perivascular lymphocytic infiltration (H&E, original magnification x 20).

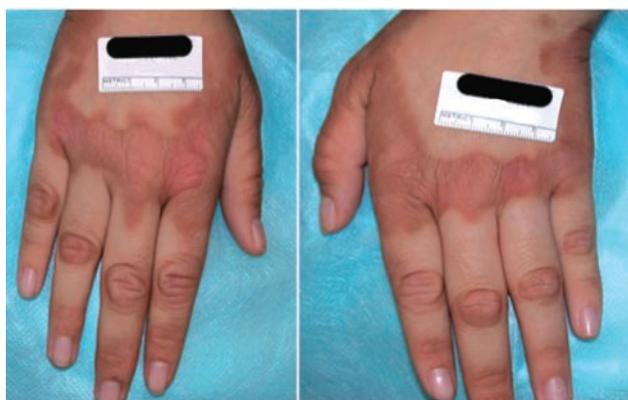


Figure 2. Symmetrical erythematous hyperkeratotic plaques over the dorsa of the hands, especially over the knuckles.



Figure 4. Minimal residual erythema after topical vitamin D analogue and steroid.

Discussion

Erythrokeratoderma is a rare genodermatosis comprising a group of genetically and phenotypically heterogeneous conditions. It is usually inherited in an autosomal dominant manner, but rarely autosomal recessive or sporadic cases have been reported.

It is broadly classified into two major subtypes, namely erythrokeratoderma variabilis (EKV) and progressive symmetric erythrokeratoderma (PSEK). But there are other variants including EKV with erythema gyratum repens-like lesions; erythrokeratoderma *en cocardes*; congenital ichthyosis with erythema annulare centrifugum; erythrokeratoderma with ataxia; reticular erythrokeratoderma; atypical erythrokeratoderma with deafness, physical retardation and peripheral neuropathy and erythrokeratoderma-like lesions in KID syndrome (Keratosis, Ichthyosis and Deafness).

EKV usually presents at birth or first year of life. Typically, patients present with migratory erythematous patches or plaques that change in shape and site over hours or days. There are also hyperkeratotic plaques over the extensor surfaces of extremities, while sparing the face, scalp and flexures. This condition is usually exacerbated with emotional stress, hot or cold weather, friction and rarely sun exposure.

Genetic studies revealed that most of these cases were caused by mutations in GJB3 and GJB4 genes on chromosome 1p33.1. GJB3 and GJB4 encode Connexin 31 and 30.3 respectively.¹ Connexin is a gap junction protein, which maintains intracellular communication.

PSEK also presents in the first year of life and early childhood. But in contrast to EKV, there are persistent hyperkeratotic plaques without migratory erythema. The lesions usually appear

over the extensor surfaces of extremities, buttock and face, sparing the trunk. Palmoplantar keratoderma occurs more often than in EKV.

The pathogenesis of PSEK is still not yet established. Mutation in the loricrin gene on chromosome 1q21 was identified in one Japanese family.² Loricrin is a major structural component of crosslinked cell envelope of the epidermis. Recently a novel locus was identified in 21q11.2-21q21.2 in one Chinese family affecting 12 out of 27 members.³ However, there are still a number of patients without an identified mutation.

Treatment includes topical emollients, keratolytics like urea, salicylic acid, retinoid and vitamin D analogues and systemic retinoids. Systemic retinoids, particularly acitretin, was found to be effective in controlling EKV with quick response.⁴ However, relapse after cessation is common. Long-term retinoid use may be associated with hepatotoxicity, deranged lipid profile and premature closure of epiphyseal plate. Some authors suggest intermittent treatment with systemic retinoid during summer times when there is exacerbation.⁴

In view of the localised nature of the lesions in our patient, topical treatment was used. Vitamin D analogues have been found to inhibit basal cell proliferation, normalise keratinocyte differentiation and exert an immunomodulatory effect on keratinocytes.⁵ It has been tried in this condition with promising results.⁶ However, in view of the heterogeneity of this condition, results may be highly individualised.

In conclusion, erythrokeratoderma is a rare genodermatosis. It should be considered as a differential diagnosis in patients presenting with symmetric hyperkeratotic plaques over extensor surfaces of the limbs, which appear early in life, together with a strong family history. Treatment includes topical keratolytics and systemic retinoid.

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