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Hailey-Hailey Disease Treated with Topical Tacalcitol

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Dear Editor:

Hailey-Hailey disease (HHD) is a hereditary blistering skin disease, transmitted in an autosomal dominant way with variable genetic penetrance[1]. It affects the intertriginous skin, and has a chronic, relapsing-remitting course. Although various medical treatments, including topical and systemic corticosteroids, antifungals, and antibiotics have been reported, there is no radically curative therapy for HHD. Recently, 1α,25-dihydroxyvitamin D3 have demonstrated considerable efficacy for treating HHD[2]. In addition, another vitamin D3 derivate, 1α,24-dihydroxyvitamin D3 (tacalcitol), was also topically effective on HHD lesions *in vivo* and *in vitro*[3]. We report an interesting case of HHD which was successfully treated with topical tacalcitol.

A 54-year-old Korean man was presented with a 10-year history of recurrent skin lesions on both axillae. The patient had been previously diagnosed as having chronic

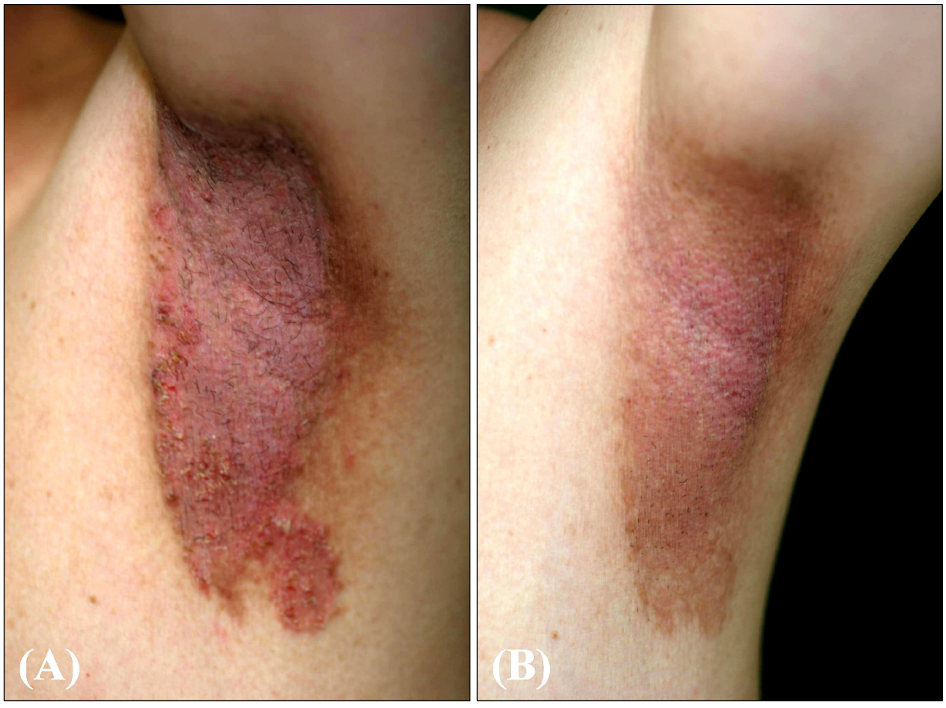

Fig. 1. (A) Clinical photograph of the present case at first visit. (B) Clinical photograph of the present case at one month after topical tacalcitol treatment.

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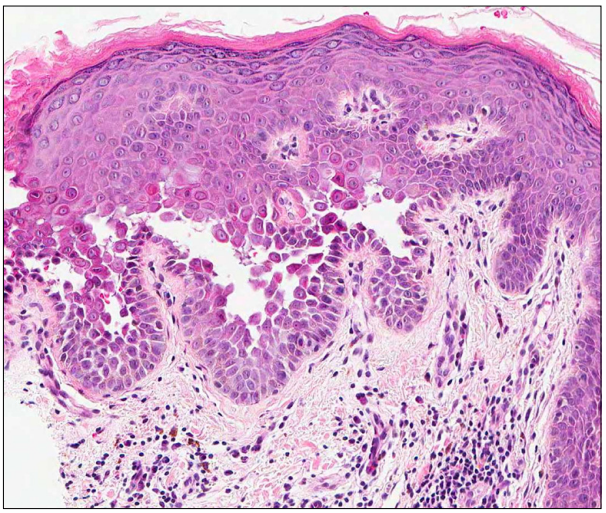

Fig. 2. Histopathologic findings of the lesional skin showing intraepidermal clefts with irregular acantholysis giving a 'dilapidated brick wall appearance' (H&E, ×100).

eczema and treated with various types of treatment, such as topical and oral corticosteroids, topical and oral antibiotics, and oral antihistamines for several years in other clinics. However, his lesions were resistant to the treatments. His mother and brother also had similar skin lesions. The results of routine laboratory tests were essentially normal. On physical examination, large erythematous, superficial, crusted erosions were noted on both axillae (Fig. 1A). A histological examination revealed typical features of HHD, including intraepidermal clefts of various sizes in the epidermis, as well as characteristics of incomplete acantholysis in large parts of the epidermis, giving the appearance of a 'dilapidated brick wall' (Fig. 2). Clinicopathological findings established the diagnosis of HHD. For treatments, 0.002% tacalcitol ointment was topically applied to the lesions twice daily. After a month, the lesions treated with topical tacalcitol resolved, and only a few papules and erythema remained (Fig. 1B).

To date, there are very few recent reports on the use of topical vitamin D3 derivatives, such as topical tacalcitol or calcitriol in HHD[2,3]. The exact mechanism of action of topical vitamin D3 derivatives in HHD is not clear. It is hypothesized that the main reason for the pathologic changes of HHD is an altered protein composition of desmosomes leading to acantholysis which derives from ATP2C1 gene mutations localized on chromosome 3q21-q24[4,5]. The ATP2C1 gene codes a Ca^{2+}-pump that regulates the transportation of calcium from the cytosol into the Golgi apparatus[4,5]. This Ca^{2+}-pump may play an important role in the intracellular Ca^{2+} signaling and homeostasis, and a malfunction of this pump may disturb cell-cell adhesion and the differentiation of the epidermal keratinocytes[4,5]. Our experience seems to indicate that tacalcitol, mostly affecting the calcium gradient in differentiating keratinocytes, could regulate and preserve the desmosome assembly and integrity in HHD. In conclusion, our case demonstrated that topical tacalcitol could be considered a therapeutic option for treating and maintaining the inherited disorder. But, the results on a single patient are often difficult to interpret. Therefore, further studies are needed to confirm the efficacy of topical vitamin D3 analogs for the treatment of HHD.

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