

An Uncommon Presentation of Darier-White Disease with Hystrix-like Palmoplantar Keratoderma

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ABSTRACT Darier-White disease is a relatively common autosomal dominant genodermatosis caused by mutation in the ATP2A2 gene. It is characterized by multiple warty papules coalescing into plaques in the seborrheic areas and by specific histological skin changes. Palm and sole involvement in Darier-White disease is usually mild, mainly featuring discrete and small keratotic papules. We present a unique case of Darier-White disease presenting with a diffuse, mutilating hystrix-like palmoplantar keratoderma.

KEY WORDS: Darier-White disease, palmoplantar keratoderma, genodermatosis

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INTRODUCTION

Darier-White disease is a relatively common autosomal dominant genodermatosis caused by mutation in the ATP2A2 gene (1,2). It is characterized by multiple warty papules coalescing into plaques in the seborrheic areas and by specific histological skin changes. Palm and sole involvement in Darier-White disease is not uncommon but is usually mild, featuring mainly discrete and small keratotic papules (3). We herein present a unique case of Darier-White disease presenting with a diffuse, mutilating hystrix-like palmoplantar keratoderma.

CASE REPORT

A 31-year-old woman presented to our outpatient clinic with exceedingly painful palmoplantar keratoderma. She first noticed thickening of her palmar skin at age 21. Five years later, similar lesions were seen on

her soles as well. The disease gradually worsened, affecting her ability to stand on her feet. One year prior to admission, she reported that she could not walk on her feet and instead moved by crawling on her knees.

Upon examination, the palms and soles showed a severe diffuse keratoderma with massive and spiny hyperkeratosis and deep and painful fissures (Figure 1, a-b). In addition, reddish-brown papules covered with scales or crusts were symmetrically distributed over the entire surface of the skin, more prominently over seborrheic areas (Figure 2, a). Discrete, flat-topped, skin-colored papules were observed on the dorsal aspects of hands and feet (Figure 2, b).

The fingernails demonstrated longitudinal ridging, subungual hyperkeratosis, and V-shaped distal notches (Figure 2, c). The rest of the physical examination as well as routine laboratory results were normal.



Figure 1. Palmoplantar involvement. (a) Plantar keratoderma extends onto the sides of the feet and consists of thick yellowish plaques covered with horny spiky excrescences. (b) The palmar skin surface is covered with thick yellowish plaques. (c) The Soles and (d) palms after 6 months of treatment with acitretin 25 mg/day.

Figure 2. Clinical features suggestive of Darier-White disease. (a) Brownish papules located on the forehead and sides of the face, covered with fine adherent grayish scales. (b) Skin-colored papules on the dorsal aspects of the hands and feet suggestive of acrokeratosis verruciformis of Hopf. (c) Longitudinal ridging and distal V-notching of the finger nails.

Figure 3. Histopathologic features. (a, b) A skin biopsy obtained from the right plantar foot demonstrates marked hyperkeratosis and villi protruding into the suprabasal lacunae (original magnifications, $\times 40$ and $\times 100$, respectively). (c) A skin biopsy specimen obtained from the dorsal aspect of the right foot shows hyperkeratosis and suprabasal lacunae (original magnification $\times 100$). (d) A skin biopsy derived from the forehead shows villi protruding into the suprabasal lacunae and corps ronds in the upper Malpighian layers (original magnification $\times 100$).

The characteristic skin findings, including the ones suggestive of acrokeratosis verruciformis of Hopf on the dorsal aspects of the hands as well as feet and the nail findings, were highly indicative of Darier-White disease. The severity of the palmoplantar involvement was, however, rather unusual (3). We performed additional ancillary tests to rule out possible non-genetic etiologies for the severe palmoplantar involvement observed in our patient, including mycological cultures, thyroid function tests, total body computed tomography, panendoscopy, and auditory and ophthalmologic examinations, which were unrevealing.

In order to assess the possibility that the palmoplantar keratoderma was indeed one of the manifestations of Darier-White disease in our patient, we obtained skin biopsies from the right palm, right sole, dorsal right hand, and forehead. All biopsies showed similar findings, including suprabasal acantholysis, lacunae formations with villi protruding into them, and typical dyskeratotic cells seen in the granular layer and keratin layer, i.e. corps ronds and grains, respectively (Figure 3). These findings confirmed the diagnosis of Darier-White disease. Treatment with acitretin brought about rapid improvement of both palm and sole hyperkeratosis (Figure 1, c, d).

DISCUSSION

We have presented a case of Darier-White disease manifesting with a severe mutilating form of hystrix-like palmoplantar keratoderma. Palmar lesions are found in 84% of patients with Darier-White disease, and consist mainly of discrete small keratotic papules with or without pit formations. Similar lesions can also be detected over the soles in some patients(3). Several case reports have described atypical variants of palmoplantar involvement in Darier-White disease including palmoplantar orthokeratotic filiform hyperkeratosis(4, 5) and well-circumscribed, localized palmoplantar keratoderma(6, 7). The concomitant occurrence of palmoplantar keratoderma and Darier-White disease in one individual should be considered as evidence for a common etiology, although biopsy specimens taken from the palmoplantar skin in these cases have failed to reveal changes specific for Darier-White disease(4-7).

The present case displayed unique features including severe spiny and mutilating palmoplantar

hyperkeratosis reminiscent of ichthyosis hystrix (8), previously reported in association with Darier-White disease (6, 9). Here, in contrast with this previous case, histopathological evidence for Darier-White disease was obtained from biopsies taken from the palmo-plantar skin, definitely proving that mutilating diffuse palmoplantar keratoderma can be part of the spectrum of clinical manifestations in Darier-White disease.

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