

# UC Davis

## Dermatology Online Journal

### Title

Unilateral and pruritic papules: segmental Darier-White disease

### Permalink

<https://escholarship.org/uc/item/7zj9z5jp>

### Journal

Dermatology Online Journal, 20(11)

### Authors

Puente, Nieves  
Nieto, Olga  
Tardino, Juan C  
et al.

### Publication Date

2014

### DOI

10.5070/D32011024687

### Copyright Information

Copyright 2014 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed

## Photo Vignette

### Unilateral and pruritic papules: segmental Darier-White disease

Nieves Puente<sup>1</sup>, Olga Nieto<sup>1</sup>, Juan C Tardío<sup>2</sup>, Jesús Borbujo<sup>1</sup>

Dermatology Online Journal X (Z): Y

Departments of <sup>1</sup>Dermatology and <sup>2</sup>Pathology Fuenlabrada University Hospital, Fuenlabrada, Madrid, Spain

#### Correspondence:

Nieves Puente de Pablo,  
Dermatology Department Hospital Universitario de Fuenlabrada,  
Calle Camino del Molino nº2, 28942, Fuenlabrada, Madrid.  
Telephone: 0034. 618.86.26.28  
nieves.puente@salud.madrid.org,  
npuntedepablo@gmail.com

## Abstract

Darier-White disease is an uncommon disorder, which presents in a localized pattern in about 10% of patients, usually without nail, mucosa, or acral involvement. Type-1 is the most common of the segmental Darier-White disease types: papules have unilateral distribution along Blaschko lines. A 36-year-old woman diagnosed with type-1 segmental Darier-White disease is reported herein.

**Keywords:** Darier disease, linear, segmental.

## Introduction

Darier-White disease (DWD) is an uncommon autosomal-dominant keratinization disorder, which presents in a localized pattern in about 10% of patients, usually along Blaschko lines.

## Case synopsis

A 36-year-old woman with no relevant personal or family history presented with abdominal skin lesions since she was 19. Lesions had remained stable since onset and they were pruritic. She had never been treated.

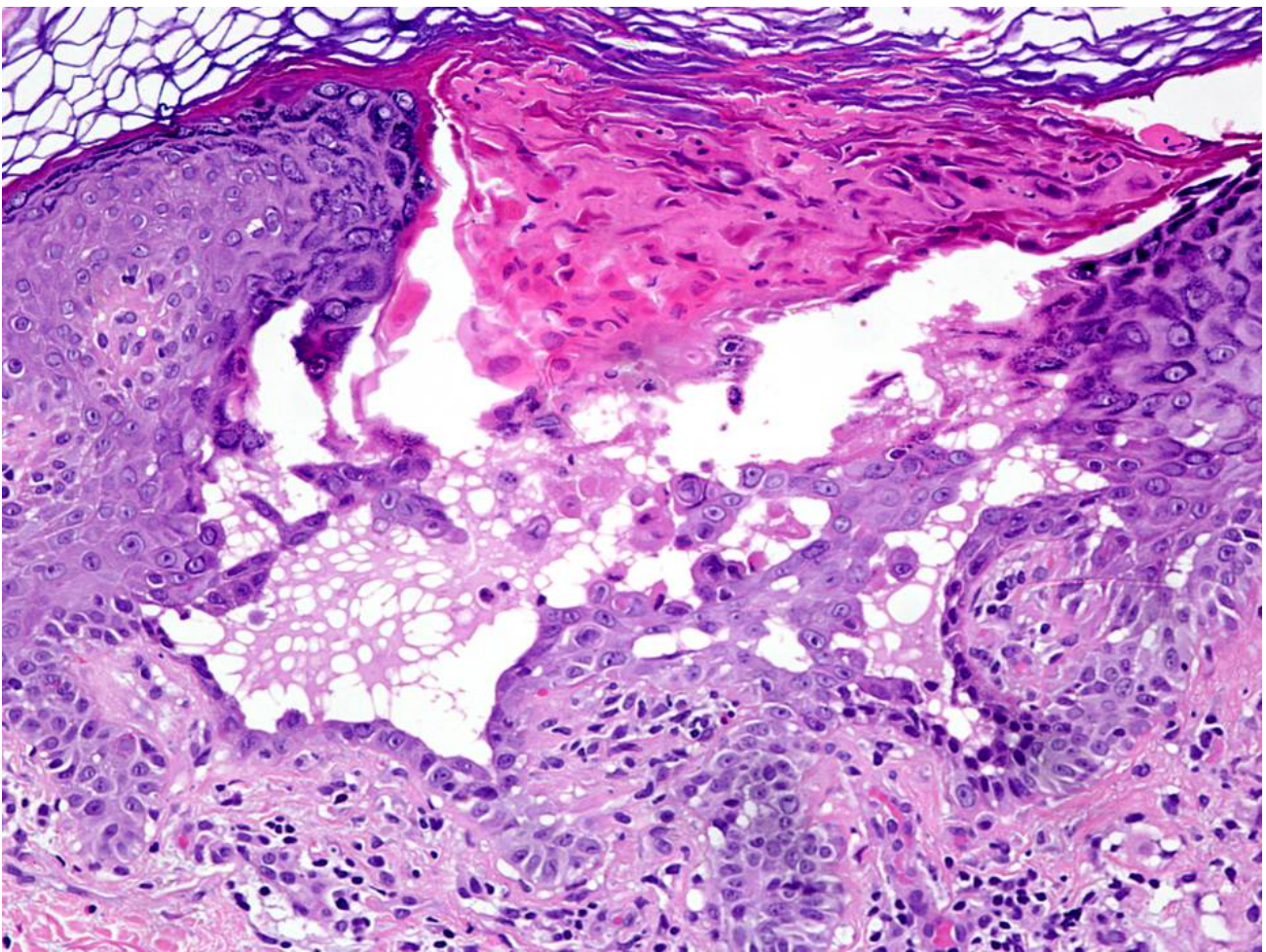
The papules were unilateral, keratotic, brownish, grouped 1 to 2 millimeter papules in the epigastric region and extending toward the left hypochondrium. No palm or sole lesions were detected. No oral or nail abnormalities were observed either. There was no past history of similar skin lesions in any family member, including her children.

Histopathological examination of the skin biopsy showed an acanthotic epidermis with suprabasal acantholysis, corps ronds, and thick hyperkeratosis containing numerous grains. The dermis exhibited a slight superficial perivascular inflammatory infiltrate consisting of lymphocytes and eosinophils.

Type-1 linear DWD diagnosis was made. Her lesions improved after 3-months treatment with tazarotene 0.05% gel combined the first ten days with methylprednisolone aceponate 0.1% ointment.



**Figures 1-2.** Keratotic, brownish papules in epigastric region extending toward hypochondrium



**Figure 3.** (Hematoxylin and eosin x 200): acantholytic lacuna with dyskeratotic cells; The roof is formed by a thick cornified layer.

## Discussion

Darier-White disease is an autosomal-dominant keratinization disorder with an estimated prevalence around 1/50,000-100,000 inhabitants [1]. Darier-White disease typically presents between 6 and 20 years of age, with a peak onset during puberty. The expressivity is variable but the penetrance is complete in adults. Darier-White disease is caused by a mutation in the ATP2A2 gene, localized at region 12q2324 [1,2], which encodes the sarcoendoplasmic reticulum calcium ATPase type 2 (SERCA2). Mal-functioning of this ATP-ase leads to premature keratinization and loss of adhesion among keratinocytes [2].

Darier-White disease lesions are typically keratotic, non-follicular, sometimes crusted, red to brown papules with a “seborrheic” distribution. Most patients complain of moderate itching. Lesions often worsen during summer, as sweating, heat, and occlusion appear to be exacerbating factors.

About 10% of DWD presents in a localized pattern [1]. In the localized variants nail, mucosa, or acral involvement is uncommon [1]. Two types of segmental DWD have been described. Type-1 is the most common: papules have unilateral distribution along Blaschko lines, owing to a post-zygotic somatic mutation early in embryogenesis. Age of onset and pathologic findings are similar to those of generalized DWD. A patient with segmental DWD and gonadal mosaicism may have generalized DWD-variant offspring [1]. Type-2 DWD patients have generalized disease with a linear streak of increased severity, owing to a heterozygous germline mutation combined with postzygotic inactivating mutation in the wild allele in a segmental area [1].

Pathologic findings of Darier disease consist of a mixture of acantholysis and dyskeratosis. Typically, an acantholytic suprabasal cleft containing dermal papillae covered by a single layer of basal cells is formed. Two characteristic types of dyskeratotic cells are present: “corps ronds” and “grains”. “Corps ronds” are large cells with an eccentric pyknotic nucleus surrounded by a clear halo in a brightly eosinophilic or basophilic cytoplasm. They are predominantly found in the granular layer. “Grains” are cells with an elongated pyknotic nucleus located in the stratum corneum.

Differential diagnosis of type-1 DWD includes acantholytic dyskeratotic epidermic nevus (ADEN), which may be clinically and histologically indistinguishable [1]. There is still controversy about whether ADEN is a linear variant of DWD [2]. Localized distribution, lack of family history, or other signs of DWD favor a nevus origin [1]. However, this type of epidermal nevus is usually present at birth [2] and only 1.2% of epidermal nevi show a dyskeratotic acantholytic pattern [3]. Besides, ATP2A2 mutations have been reported in linear lesions suggestive of DWD in 3 patients, confirming type 1

mosaicism [3]. Definitive diagnosis of segmental DWD demands SERCA mutation tests [1]. Another entity in the differential diagnosis is linear Grover disease, which presents in a sudden form following a febrile illness in elderly patients [2].

Topical retinoids as monotherapy are more effective than topical corticosteroids. Systemic retinoids are very effective in approximately 90% of patients, but relapses are frequent after cessation. These are recommended in severe DWD unresponsive to topical treatment.

## Conclusions

Only about 10% of DWD presents in a localized variant, usually without nail, mucosa, or acral involvement. Type-1 segmental DWD is the most common, as unilateral lesions following Blaschko lines. Age of onset and pathologic findings are similar to those of generalized DWD. Type-2 segmental DWD patients show generalized disease with a linear streak of increased severity.

Our patient was diagnosed with type-1 segmental DWD despite no familiar history, because she had characteristic lesions following Blaschko lines; her disease was stable since she was 19.

## References

1. Gupta LK, Garg A, Khare AK, Mittal A. A case of zosteriform Darier's disease with seasonal recurrence. *Indian Dermatol Online J.* 2013 Jul; 4 (3): 219-21. [PMID: 23984240].
2. Lavorato FG, Azulay-Abulafia L, Ramos V, Obadia DL, Rocha DS, Souza VF. Case for diagnosis: Linear Darier. *An Bras Dermatol.* 2013 Jul-Aug; 88 (4): 656-8. [PMID: 24068148].
3. Martínez S, Vera A, Eloy-García C, Sanz A, Crespo V. Linear Darier disease. *Actas Dermosifiliogr.* 2006 Mar; 97 (2): 139-41. [PMID: 16595119].