

# Zosteriform Darier's Disease versus Acantholytic Dyskeratotic Epidermal Nevus

ELIZABETH I. GOLDBERG, M.D.<sup>1</sup>, ALBERT M. LEFKOVITS, M.D.<sup>2</sup>, AND ALLEN N. SAPADIN, M.D.<sup>2</sup>

## Abstract

Patients with keratotic lesions distributed in a unilateral, linear, zosteriform or localized pattern and revealing histologic features of dyskeratotic acantholysis have been reported. There is still some controversy regarding the appropriate nosologic placement of this entity. Some believe it represents a localized form of Darier's disease, while others argue it is a variant of epidermal nevus. We report a case of a 42-year-old physician who presented with a 15-year history of an asymptomatic eruption that had been diagnosed as "chronic zoster." Physical exam revealed hyperkeratotic papules and plaques in a dermatomal distribution. The controversy regarding the correct nosologic placement of such a patient is discussed.

**Key Words:** Zosteriform, Darier's disease, dyskeratotic acantholysis.

## Case Report

THE PATIENT, A 42-YEAR-OLD PHYSICIAN, was referred to the faculty practice for an evaluation of chronic pruritus. He was also concerned about an asymptomatic "chronic zoster rash" on the left side of his chest; it had been present for approximately 15 years. Past medical history was significant for multiple hospitalizations related to cystic fibrosis and its complications. In addition, he had been hospitalized recently for hepatic encephalopathy, renal failure and hepatic coma, and was currently awaiting both a renal and hepatic transplant.

Topical and oral acyclovir had been prescribed for the "chronic zoster rash," without improvement. There was no known relationship between the rash and sunlight exposure or hot weather. Family history was noncontributory.

Physical examination revealed multiple excoriations on the trunk and extremities. On the left side of the chest there was an obliquely oriented, band-like clustering of verrucous papules that extended from the midline to the posterior axillary line in a zosteriform distribution (Fig. 1). The papules coalesced into a linearly dis-

tributed plaque measuring approximately 28 cm x 5 cm. The remainder of the cutaneous examination, including hair, nails, and mucous membranes, was unremarkable. A biopsy specimen of a keratotic papule demonstrated thick layers of parakeratosis, broad areas of suprabasilar acantholysis, and dyskeratosis (Fig. 2). Corps ronds and corps grains were also seen (Fig. 3).

## Discussion

Darier's disease is an autosomal dominant genodermatosis of abnormal keratinization recently localized to the 12q23-24.1 region on chromosome 12 (1). Onset usually occurs before 30 years of age, but may occur later. Classically, it is characterized by the presence of keratotic papules, palmar pits and a nail dystrophy. Frequently the mucosal membranes are involved. The papules are predominantly localized on the trunk and scalp, and occur symmetrically in a seborrheic distribution. The nails may be fragile and have V-shaped nicks, longitudinal red and white lines and/or ridging, and subungual hyperkeratosis. Sunlight, heat and moisture, and stress are exacerbating factors (2).

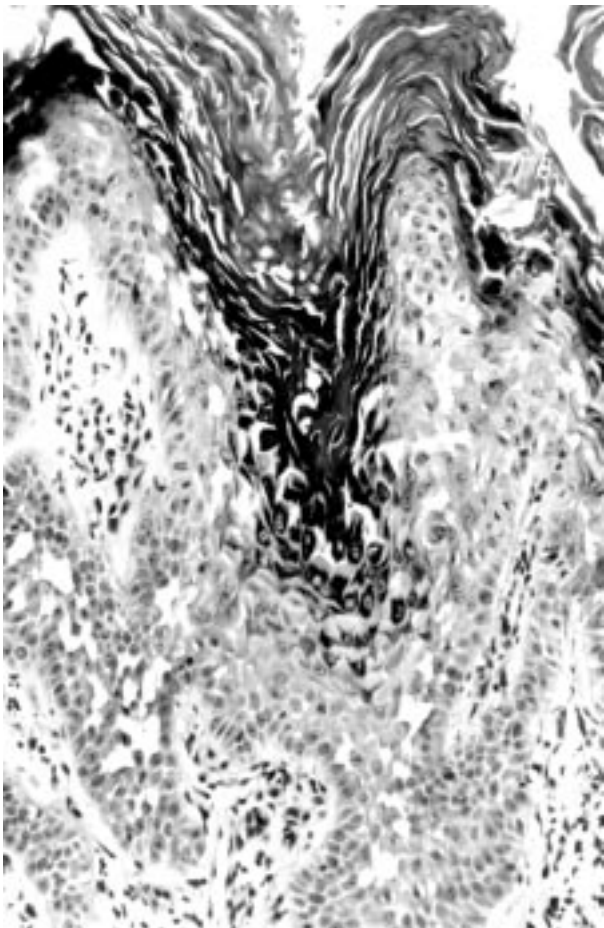
Histologic examination shows dyskeratosis with typical "corps ronds and grains," suprabasilar acanthosis, and hyperkeratosis, often with formation of papillae. The dermis may have a chronic inflammatory infiltrate in addition to some proliferation of epidermal cells (3). Further ultrastructural studies reveal

<sup>1</sup>Resident, Department of Dermatology, State University at Stony Brook, Stony Brook, NY and <sup>2</sup>Clinical Assistant Professor of Dermatology, Department of Dermatology, Mount Sinai School of Medicine, New York, NY.

Address correspondence to Allen N. Sapadin, M.D., Mount Sinai School of Medicine, Department of Dermatology, One East 100th Street, Box 1047, New York, NY 10029.



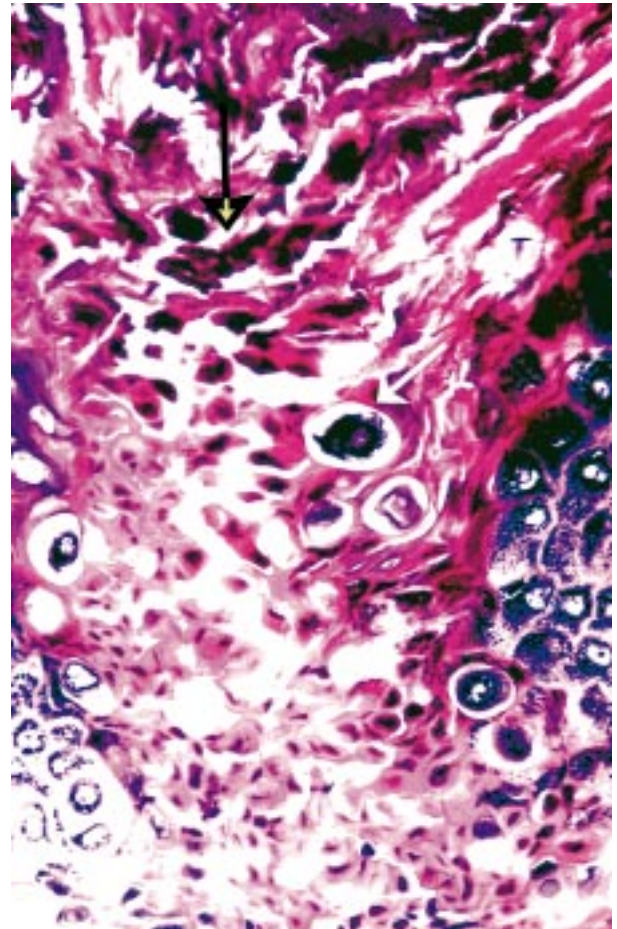
**Fig. 1.** On the left lower chest, there is an obliquely oriented, band-like clustering of verrucous papules that extends from the midline to the posterior axillary line in a zosteriform distribution.



**Fig. 2.** Intermediate power shows suprabasilar acantholysis with dyskeratosis (hematoxylin and eosin, original magnification x 100).

breakdown of the desmosome-keratin filament complexes between keratinocytes (4).

Prior reports have noted Darier's disease occurring with other diseases. These include neuropsychiatric disorders (5), salivary gland



**Fig. 3.** Corps ronds (white arrow) and corps grains (small yellow arrow superimposed onto the black arrow) are seen (hematoxylin and eosin, original magnification x 200).

obstruction (6), skin cancers (7), psoriasis (8), renal and testicular agenesis (9) and bone cysts (10). This is the first patient, to our knowledge, presenting with a localized form of Darier's disease in association with cystic fibrosis.

There are many reports of patients who have keratotic lesions distributed in a localized, linear, or "zosteriform" pattern that demonstrates the histopathologic features of dyskeratotic acantholysis. A nosologic controversy exists as to whether this entity is simply an unusual form of nevus or represents a variant of Darier's disease. The absence of a family history and of other associated cutaneous features of Darier's disease persuades some authors to term this entity "acantholytic dyskeratotic epidermal nevus" (11). However, there are cases of Darier's disease with typical unilateral lesions that are accompanied by other characteristic features of this disorder (12). Also reported are patients with lesions following the lines of Blaschko, with accompanying manifes-

tations of Darier's on the ipsilateral hand (13). Some cases published as "linear" or "zosteriform" may follow these same lines, although they were not reported as such. The authors of these studies postulate a mosaic form of Darier's disease determined by somatic mutation during embryogenesis. O'Malley et al. (14) have reported four cases of localized Darier's disease and also speculate that there is a genetic basis for them. The resolution of this issue may have to await confirmation from detailed genetic analysis of additional cases.

### References

1. Craddock N, Dawson E, Burge S, et al. The gene for Darier's disease maps to chromosome 12q23-q24.1. *Hum Mol Genet* 1993; 2:1941–1943.
2. Burge SM, Wilkinson JD. Darier-White disease: A review of the clinical features in 163 patients. *J Am Acad Dermatol* 1992; 27:40–50.
3. Lever WF, Schaumberg-Lever G. Congenital diseases. In: Lever WF, editor. *Histopathology of skin*. 7th ed. Philadelphia (PA): Lippincott; 1990. pp. 79–82.
4. Gottlieb SK, Lutzner MA. Darier's disease: An electron microscopic study. *Arch Dermatol* 1973; 107:225–230.
5. Getzler NA, Flint A. Keratosis follicularis: A study of one family. *Arch Dermatol* 1966; 93:545–549.
6. Graham-Brown RAC, Mann BS, Downton D, et al. Darier's disease with salivary gland obstruction. *J R Soc Med* 1983; 76:609–611.
7. Latour DL, Amonette RA, Bale GF. Darier's disease associated with cutaneous malignancies. *J Dermatol Surg Oncol* 1981; 7:408–412.
8. O'Grady WB, Beidler JG, Permowicz SE. Darier's disease and psoriasis. *Cutis* 1972; 9:635–638.
9. Matsuoka LY, Wortsman J, McConnachie P. Renal and testicular agenesis in a patient with Darier's disease. *Am J Med* 1985; 78:873–877.
10. Thambiah AS, Sridhar U, Annamalai R, et al. Darier's disease with cystic changes in the bones. *Br J Dermatol* 1966; 78:87–90.
11. Starink TM, Woerdeman MJ. Unilateral systematized keratosis follicularis: A variant of Darier's disease or an epidermal naevus (acantholytic dyskeratosis epidermal naevus)? *Br J Dermatol* 1981; 105:207–214.
12. Munro CS, Cox NH. An acantholytic dyskeratotic epidermal naevus with other features of Darier's disease on the same side of the body. *Br J Dermatol* 1992; 127:168–171.
13. Cambiaghi S, Brusasco A, Grimalt R, Caputo R. Acantholytic dyskeratosis epidermal naevus as a mosaic form of Darier's disease. *J Am Acad Dermatol* 1995; 32:284–286.
14. O'Malley MP, Haake A, Goldsmith L, Berg D. Localized Darier's disease: Implications for genetic studies. *Arch Dermatol* 1997; 133:1134–1138.