

Acantholytic dyskeratotic acanthoma in an immunosuppressed patient: a case report with review of the literature

Elena Pezzolo¹
 Chiara Colato²
 Micol Del Giglio¹
 Gianpaolo Tessari¹
 Giampiero Girolomoni¹

¹ Department of Medicine, Section of Dermatology and Venereology, University of Verona, Italy

² Department of Pathology and Diagnostics, Section of Pathology, University of Verona, Italy

Address for correspondence:

Elena Pezzolo
 Department of Medicine
 Section of Dermatology and Venereology
 University of Verona
 Piazzale A. Stefani, 1
 37126 Verona, Italy
 E-mail: elena.pezzolo@icloud.com

Summary

Acantholytic dyskeratotic acanthoma (ADA) is a recently described benign acanthoma showing both acantholysis and dyskeratosis. Only 31 cases of ADA have been reported since the first description by Omulecki in 2007 in either the skin or the nails. We report an additional case seen in a 49-year-old Caucasian man receiving immunosuppressive therapy for a kidney allograft, who presented with a solitary keratotic lesion on the right calf. The cause of ADA as well as its relationship to other diseases and immunosuppression are unknown. We suggest that a decreased immune surveillance may have a role in its genesis.

KEY WORDS: *acantholytic dyskeratotic acanthoma; benign cutaneous tumors; immunosuppression.*

Introduction

Acanthomas are benign tumors of epidermal keratinocytes which may show a variety of histopathologic patterns, including epidermoid keratinization (seborrheic keratosis), granular degeneration (epidermolytic acanthoma), dyskeratosis (warty dyskeratoma), cornoid lamellation (porokeratosis), lichenoid hyperplasia (lichen planus-like keratosis), absence of keratinization (clear cell acanthoma), and

acantholysis (acantholytic acanthoma) (1). Acantholytic acanthoma, first described by Brownstein in 1985 (2, 3), is defined as a solitary and benign cutaneous tumor usually of less than 1 cm in diameter, in which acantholysis is the most prominent histological feature. Acantholytic dyskeratotic acanthoma (ADA) is a benign, solitary epidermal tumor of the skin first described by Omulecki in 2007 (4), but named as such by Ko et al. in 2008, who revised a series of 28 cases seen at a single institution (5). The clinical presentation is similar to acantholytic acanthoma, differing from it histologically by the presence of dyskeratosis (5). The acantholytic dyskeratosis resembles that of Darier's disease or warty dyskeratoma, but as there is neither a cup-shaped architecture nor follicular involvement.

We describe a case of ADA in an immunosuppressed man and discuss on the histopathological findings and on the differential diagnosis with other isolated acantholytic acanthomas.

Case report

A 49-year-old Caucasian man presented with a 3-year history of a itchy keratotic skin lesion on his right calf (Figure 1). He received a kidney allograft in 2003 and was being treated with 2 mg/kg/day cyclosporine and 0.2 mg/kg/day methylprednisolone. He denied any significant family history of skin diseases, including skin



Figure 1 - Keratotic skin lesion on his right calf 4-mm in diameter.

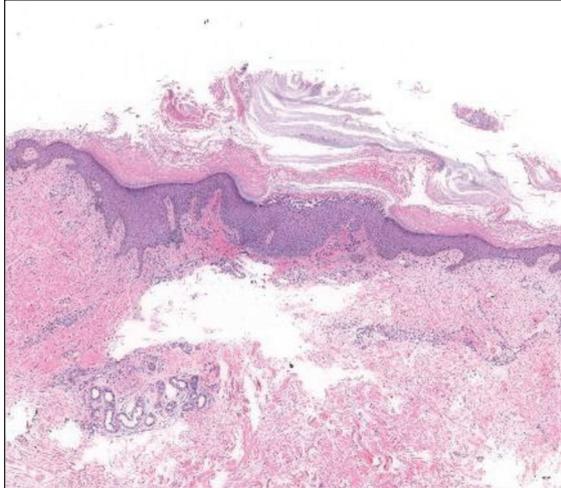


Figure 2 - Acanthotic epidermal proliferation without papillomatosis, associated with prominent hyper-parakeratosis (Haematoxylin and eosin, original magnification x40).

neoplasms. Cutaneous examination revealed a 4x4 mm solitary, white-brownish hyperkeratotic papule. Clinically, a basal cell carcinoma or actinic keratosis was suspected. The lesion was completely excised and submitted to histopathological examination, which revealed a regular acanthotic epidermal proliferation without papillomatosis, associated with prominent hyper-parakeratosis and a single confluent area of acantholysis involving the granular layer with dyskeratotic keratinocytes which resembled grains and corp ronds (Figures 2, 3 A, B). There were neither a cup-shaped endophytic growth nor follicular association. We interpreted all these features as ADA rather than acantholytic acanthoma, because of the coexistence of acantholysis and dyskeratosis, as also illustrated by Ko et al. in their original description (5). No recurrence of the lesions was detected at 6-month follow up.

Discussion

When acantholytic acanthoma was originally described by Brownstein in 1985, the term was chosen because of the two most prominent histologic features, i.e. the apparent overgrowth of epidermal keratinocytes and the presence of acantholysis (1, 2). It presents as a solitary asymptomatic keratotic papule or nodule, with occasional crusting, ranging from 0.5 to 1.5 cm in size. A truncal predilection is observed, with palms, soles, face and mucous membranes usually spared. Older patients are generally affected (age from 32 to 87 years; median age of 60 years), and with men more frequently than women (ratio M:F of 2:1). The most frequent clinical diagnosis is seborrheic or actinic keratosis; more rarely, it is basal cell carcinoma or soft fibroma (2). Histologically, acantholytic acanthoma shows hyperkeratosis, papillomatosis and acantholysis. Acantholysis is prominent in all lesions, most often involving multiple levels of the epidermis,

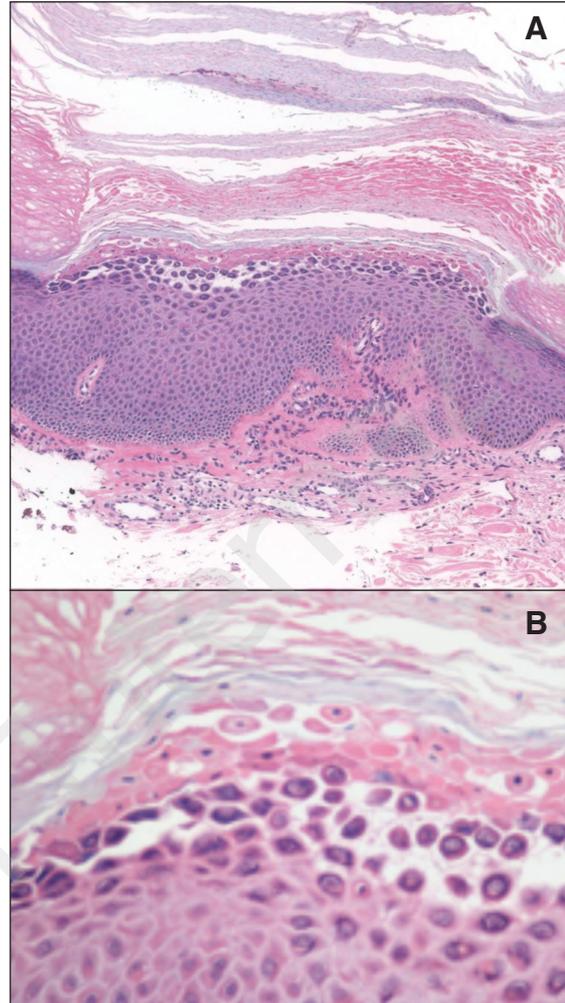


Figure 3 - A) Prominent confluent area of acantholysis limited to granular layer with sparse dyskeratotic cells, resembling corp ronds and grains. Cup-shaped endophytic growth and follicular association are absent (Haematoxylin and eosin, original magnification x100). B) Higher magnification of individual dyskeratotic cells in form of grains or corp ronds within the upper layer of epidermis (Haematoxylin and eosin, original magnification x200).

and closely resembles that seen in acantholytic dermatoses such as pemphigus, Hailey-Hailey disease, Grover's disease and Darier's disease. Acantholysis distinguishes acantholytic acanthoma from other types of acanthomas. Also, acantholytic acanthoma lacks the cellular dysplasia of acantholytic solar keratosis; and the general configuration of a seborrheic keratosis with keratin tunnels and horn cysts is seen in acantholytic seborrheic keratosis. Because acantholytic acanthoma is a benign disorder, simple excision is the treatment of choice.

We report here the case of a variant of acantholytic acanthoma, known as ADA. This term is reserved for clinically apparent solitary, non-genital lesions with histologically prominent acantholysis and dyskeratosis. This benign, solitary epidermal tumor was first

described by Omulecki et al. in 2007 (4). In 2008, Ko et al. published a series of 28 cases of ADA, all occurring in the skin, mainly on the trunk (82%), and typically less than 1 cm in size (5). Age ranged from 39 to 84 years. The clinical presentation was similar to acantholytic acanthoma. The conditions were most often clinically confused with basal cell carcinoma (54%) or actinic keratosis, squamous cell carcinoma, Bowen's disease, wart, nevus, lichen planus-like keratosis, seborrheic keratosis and irritated papilloma. None of the patients had a history of Darier's or Grover's disease. Histologically, the acantholytic dyskeratosis resembles that of Darier's disease or warty dyskeratoma, but as there is neither a cup-shaped architecture nor follicular involvement. In 2009, Sass et al. described other three cases of this tumor localized on the thumb nail, two of which in young patients (6). Previously, another case of ADA of the nail has been reported in a Japanese patient (7). All cases were located on the thumb and presented as median longitudinal hemorrhagic lesions, originating from the matrix and extending up to the distal part of the nail apparatus. They were accompanied by onycholysis and onychopapilloma. Also none of these patients with nail ADA had evidence of these acantholytic dermatoses and the clinical changes of their nails were different from those reported in such diseases. Interestingly, acantholytic acanthoma has never been described in nails.

Our patient with ADA was a 49-year-old Caucasian man who received a kidney allograft in 2003, and ever since was treated with cyclosporine and methylprednisolone. He presented with a small hyperkeratotic solitary papule on the calf. For this lesion it was suggested clinical diagnosis of actinic keratosis or basal cell carcinoma. This is the first report of an ADA in a transplanted patient. Recently, however, the case of acantholytic acanthoma in a 37-year-old immunosuppressed man who had kidney transplantation was reported (8). The cause of ADA as well as its relationship to immunity are unknown. An impaired immune surveillance is very relevant in predisposing to cancer but it may also have a role for benign neoplasms. Solid organ transplantation recipients are well known to be at very increased risk for the development of actinic keratosis and nonmelanoma skin cancer (NM-SC), including squamous cell carcinoma and Kaposi sarcoma (9-11). Drug-induced immunosuppression is the strongest risk factor for NMSC in transplanted patients. Apart from ultraviolet radiation and beta-papilloma viruses, other factors involved in favoring NMSC in immunosuppressed patients include dietary components (alcohol) and cigarette smoking (12, 13). Dermatological complications in the immune-compromised population are being increasingly recognized. Also some skin benign neoplasms have been associated to diminished immunological surveillance. An association between multiple eruptive dermatofibromas and conditions affecting the immune system, such as neoplastic or autoimmune diseases or HIV infection, has been repeatedly observed (14). Eruptive melanocytic nevi following renal allograft transplanta-

tion represent other benign skin neoplasms that develop as result of the impairment immunity (15), with a strong correlation between nevi counts and duration of immunosuppression (16). The role of the immune system in the development of different benign and malignant skin neoplasms has been shown particularly in organ transplanted patients. Our case represents the second report in the literature of ADA in association with immunosuppression.

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