Meyerson Phenomenon as a Component of Melanoma *in situ*

Meyerson phenomenon (MP) is characterized by a symmetrical area of erythema and scales encircling a central lesion, which is most commonly a banal melanocytic nevus. Herein, we describe an unusual case with MP representing an eczematized response to a melanoma *in situ* and review the literature covering this entity.

A 56-year-old man presented with a 6-month history of a pruritic, pigmented lesion on the trunk. The patient had no other significant medical history and no notable family history of similar lesions. Physical examination revealed an irregular, hyperpigmented plaque, 1 cm in diameter, with a surrounding halo of erythematous, scaly areas on the right abdominal region (Figure 1, a). On dermatoscopical examination, an irregular, broadened pigment network, radial streaming, and a focal blue-white veil, encircled by a homogenous, erythematous zone was observed (Figure 1, b). Based on clinical and dermatoscopical findings, a presumptive diagnosis of MP occurring on an early melanoma was made and the lesion was excised with a 5 mm safety margin.

Histopathological examination of the excised material revealed a central intraepidermal atypical, confluent melanocytic proliferation with angular, hyperkeratotic, and irregular nuclei and a prominent fixation artifact around the cells (Figure 1, c). Human melanoma black (HMB-45) immunostaining highlighted the confluence of the neoplastic melanocytic proliferation. Lymphohistiocytic infiltration with melanophages was also identified in the upper dermis. An interesting feature was the presence of subacute spongiotic dermatitis around the melanocytic lesions (i.e. parakeratosis, serum/crusting, spongiosis, lymphocyte exocytosis, and acanthosis). Immunohistochemical staining with the Langerhans cell marker, CD1a, revealed an increased cell population in the perilesional, erythematous halo (Figure 1, d). A diagnosis of MP existing on melanoma in situ was established with clinical and histopathological findings. No recurrence of the eczematized components or melanocytic lesions was identified despite 1-year follow-up.

Also called halo dermatitis and halo eczema, MP presents as an eczematized, perilesional plaque around various lesions, mainly of banal melanocytic nevi (1). Occurrence of halo dermatitis around a melanocytic nevus was first described by Meyerson in 1971. Other cutaneous disorders with MP include those of dysplastic nevus, melanoma, seborrheic keratosis, stucco keratosis, nevus sebaceous, dermatofibroma, vascular malformations, nevus flammeus, molluscum contagiosum, basal cell carcinoma, squamous cell carcinoma, and keloid formation (2-7). History of atopy and atopic dermatitis is observed in a subset of patients, which was absent in our case. Rarely, patients with Behçet's disease, severe sunburn, and cessation of interferon therapy have also been associated with this entity. MP is described to be more frequent in young males and has a tendency to occur in summer. As far as we are aware, there are only

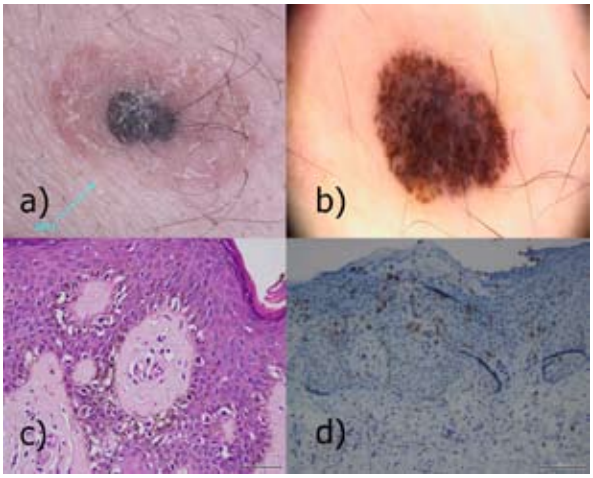

Figure 1. a) Hyperpigmented, irregular plaque with surrounding erythematous halo. b) Dermatoscopical examination revealing broadened pigment network, radial streaming, and focal blue-white veil, encircled by a homogenous, erythematous zone. c) Intraepidermal atypical, confluent melanocytic proliferation with angular, hyperkeratotic, and irregular nuclei and a prominent fixation artifact around the cells (hematoxylin and eosin ×100). d) Immunostaining for Langerhans cells revealed an increased cell population in the perilesional, erythematous halo (CD1a stain, ×40).

two cases of melanoma with features of MP in the literature. Rodin *et al*. presented a case report showing features of MP around a melanoma in situ arising on a dysplastic nevus (8). By way of comparison, a pre-existing precursor dysplastic nevus was not identified in our case. Dermatoscopic features including scar-like depigmentation and negative pigment network also differed from our case which featured a broadened pigment network, radial streaming, and blue-white veil. The other case report was of a 50-year-old man, presenting with an atypical melanocytic lesion several years in duration showing an erythematous halo (9). Histopathological examination was consistent with a Clark level 2 superficial spreading melanoma, which was cured with excision with no recurrence despite long-term follow-up. As far as we are aware, our case report is the first to describe *de novo* melanoma *in situ* without dermal invasion or a precursor dysplastic nevus.

The etiopathology of MP is unclear; however it is considered to be immune-mediated. Up-regulation of intercellular adhesion molecule-1 on keratinocytes and dermal endothelial cell surfaces has been shown, suggesting the involvement of adhesion molecules in pathogenesis (10). We hypothesize that increased Langerhans cell population, as observed in our case, results in a delayed immune response reminiscent of an eczematous process in MP.

Excision of the central lesion has been reported to precipitate the resolution of dermatitis, as in our case, in which recurrence of the erythematous, scaly eruption was not observed after removal of the central lesion despite a 1-year follow-up period. Some authors recommend pre-treatment of the lesion with topical corticosteroids to suppress the eczematous process in the adjacent skin. Coexistence of MP around a melanocytic nevus (Meyerson nevus) with halo nevus and progression of Meyerson nevus to halo nevus has also been reported.

We suggest that melanoma may occur as a component of MP, and careful dermatoscopic examination is essential to differentiate between pigmented lesions with a perilesional erythematous halo.

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Received: January 5, 2015
Accepted: December 16, 2015