Two Cases of Vitiligo Developed on the Persisting Dermal Melanocytosis: Is There a Difference between Epidermal Melanocytes and Dermal Melanocytes?

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Vitiligo is one of the most common pigmentary skin disorders; it is characterized by circumscribed depigmented macules due to the destruction of melanocytes. Although the etiology of vitiligo has not been fully elucidated, multiple factors including autoimmune and oxidative stress have been implicated in the pathogenesis of vitiligo. In contrast, dermal melanocytosis is histologically characterized by the presence of dermal melanocytes. It has been described that there are ectopic dermal melanocytes, which have failed to reach their proper location. A literature search revealed very few reports of patients with vitiligo developing vitiligo within dermal melanocytosis. Here, we report two cases of patients with vitiligo that occurred at pre-existing sites of dermal pigmented lesions. The histopathology showed the loss of epidermal melanocytes in spite of the existence of melanocytes in the dermis. There was no significant infiltration of inflammatory cells in the dermis. These cases illustrate unknown environmental factors as well as heterogeneity. (Ann Dermatol 25(2) 226~228, 2013)

Keywords
Dermal melanocytosis, Vitiligo

INTRODUCTION

Vitiligo is characterized by the loss of epidermal melanocytes. Autoimmunity and oxidative stress as well as genetic predisposition have been implicated in the pathogenesis of vitiligo. In contrast, dermal melanocytosis is characterized by the presence of dermal dendritic cells that resemble melanocytes that migrate from the neural crest to the epidermis. It includes several benign pigmented lesions like Mongolian spot, nevus of Ota and nevus of Ito which are more common in Asian populations. The association of these two conditions is rarely reported.

Here we report two cases of vitiligo associated with dermal melanocytosis which persisted after the development of vitiligo.

CASE REPORT

Case 1

A 20-year-old woman presented with dermal melanocytic nevus and a one-year history of vitiligo. The patient had a large bluish patch on the right upper back that had been present since birth. There was no significant past medical history and no family history of autoimmune disease. The laboratory studies were unremarkable. Physical examination revealed several white patches on the anterior chest and right scapula. They were partially overlapping the pre-existing bluish patch with a faint bluish hue (Fig. 1A). Histologically, the overlapping lesion revealed an elongated spindle or dendritic cells containing melanin granules scattered within the dermis. No infiltration of inflammatory cell was observed (Fig. 1B). The S-100 protein immunoperoxidase staining was positive in the dermal dendritic cells, and the lesion was devoid of...
epidermal melanocytes (Fig. 1C).

**Case 2**

A 23-year-old man presented with a four-year history of extensive depigmented patches. These lesions overlapped with bluish patches which had been present since the age of three (Fig. 2A, B). There was no significant past medical and familial history. The laboratory tests were within the normal range. A biopsy specimen was obtained from the border of the vitiliginous patch that overlapped the bluish patches. The histopathology showed dermal melanocytes with the loss of epidermal melanocytes (Fig. 2C, D). There was no inflammatory cell infiltrate at the dermoepidermal junction or in the dermis.

**DISCUSSION**

Cases of vitiligo associated with dermal melanocytosis have been rarely reported. Hamada et al. first reported the association of these pigmentary diseases. Luo et al. only recently reported a similar case where the nevus of Ota associated with vitiligo occurred in an 11-year-old Chinese boy.

In the overlapping lesions of these cases, the loss of melanocytes was observed only in the epidermal basal layer. The dermal melanocytes from these lesions revealed a similar histological finding with typical cases of dermal melanocytosis. There was no significant infiltrative lymphocytic response in the upper dermis and at the epidermal-dermal junction. Considering the pathogenesis of this finding, the immune response against nevus cells is less likely to have an effect on the epidermal melanocytes. ‘Vitiligo melanocytes’ are believed to have defects in their ability to scavenge the toxic intermediates of melanin biosynthesis leading to their programmed death. Also, it has been proposed that the epidermal environment could be involved in the pathogenesis of vitiligo. The altered metabolism of epidermal tetrahydrobiopterin may lead to an inhibition of antioxidant enzymes and melanin synthesis and to an increased production of catecho-