

Acquired Dermal Melanocytosis Occurring on the Hand

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While most dermal melanocytoses are congenital or have an onset in early childhood, there is an acquired group with a late onset. We describe a case of adolescent onset, unilateral, macular dermal melanocytosis on the hand. A 16-year-old girl presented with a 10-month history of gray-bluish pigmentation on the right palm and the volar side of the right fourth finger. The light microscopic studies showed spindle-shaped dermal melanocytes. The S-100 protein staining of these cells was positive and CD68 staining was negative. Dermal melanocytosis of the macular type, as observed in our case, is very rare. (*Ann Dermatol* 12(2) 141~143, 2000).

Key Word : Dermal melanocytosis

Dermal melanocytosis is characterized by the persistence of ectopic melanocytes in the dermis after birth. It is observed in various conditions including nevus of Ota, nevus of Ito, blue nevus and Mongolian spot. However, a few cases of dermal melanocytosis that did not fit into any of the above-mentioned disease entities have been reported. We describe an unusual case of adolescent-onset, dermal melanocytosis developed on the hand.

CASE REPORT

A 16-year-old girl presented with a 10-month history of hyperpigmentation on the right palm and the right fourth finger. The pigmentation appeared on the volar side of the right fourth finger first and extended proximally onto the palm. She did not complain of any subjective symptoms. There

was no history of the primary rash. She was healthy, had been on no systemic medication. There was no family history of similar lesions. Examination revealed relatively ill-defined gray-bluish discoloration on the distal part of the right palm and the volar side of the right fourth finger (Fig. 1). She had no similar pigmentation elsewhere on the body. Biopsy showed the elongated, bipolar, wavy dendritic cells containing melanin granules in the dermis. These pigment-containing cells were either isolated among the connective tissue fibers or were grouped especially around the vessels (Fig. 2). These cells stained positively with S-100 protein, and showed negative reaction with CD68 staining. The pigment granules were stained positively with the Fontana-Masson stain, but negatively with the Perls potassium ferrocyanide stain. There was no significant increase in the basal pigments in the epidermis.

DISCUSSION

The presence of dermal melanocytes in human tissue is not physiologic. It is said that, until birth, melanocytes may be present in the dermal portion of the skin of the scalp, the backs of the hands, and the sacrum, but they disappear shortly after birth¹. Mongolian spot, nevus of Ota, nevus of Ito, blue ne-

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Fig. 1. Ill-defined gray-bluish pigmentation on the right palm and the volar side of the right fourth finger

vus, and acquired bilateral nevus of Ota-like macule are included in the group of dermal melanocytosis. A few cases of dermal melanocytosis that did not fit into any of the above entities have been reported¹⁻¹². Acquired dermal melanocytosis occurring on the hand is very rare, and only eight cases have been reported in the literature¹⁻⁵. The ages at onset were teens in five cases, and twenties in three cases. The pigmented macules or patches had gradually increased in size and darkened in color. The ratio of male to female is 1:1. Among these cases, four cases were associated with acquired bilateral nevus of Ota-like macule on the face², and one case had bluish macule on the hip³. Our case is clinically similar to that of Fukuda *et al.*¹, a 22-year-old Japanese man with a 4-year history of bluish pigmentation on the right hand. In our case, none of similar pigmentation has appeared yet on any other sites, but there is still the possibility of future development of pigmentation.

Differential diagnosis with the other entities showing dermal melanocytosis must be made on the clinical features because, except for blue nevi, they are similar in their histopathologic characteristics. They show wavy, bipolar melanocytes, lying parallel to the surface, scattered among the collagen in the dermis. Mongolian spot may occur in extra-

Fig. 2. Elongated, bipolar, wavy cells were grouped especially around the vessels in the dermis (H&E, $\times 400$).

sacral regions and termed aberrant Mongolian spot. Mongolian spot usually decreases in the intensity of color after birth and disappears during childhood. But the persistent aberrant Mongolian spot on the dorsum of the hand has been noted in 0.5% of 480 Japanese children of the age range 0-7 years⁶. Although they may occur on the dorsa of the hands and feet, they have never been found on the palm and sole, and adolescent-onset, as in our case, has not been described⁶. Both the nevus of Ota and nevus of Ito are differentiated by the locations. The blue nevus can start at any age, but has a high concentration of melanocytes aggregated in the middle and lower third of the dermis with a tumor-like formation¹³. Dermal melanocyte hamartoma is a usually extensive gray-blue pigmented lesion that occurs at birth and persists for life^{7,8}. But, in other instances, the term used to encompass the circumscribed blue macules at childhood-onset¹⁴. Therefore, dermal melanocyte hamartoma and other dermal melanocytosis except typical dermal melanocytic diseases such as, Ito, Ota and blue nevus and Mongolian spot, have overlapping features. One case of dermal melanocytosis occurring on the hand similar to our case was described as dermal melanocyte hamartoma in Korean literature⁹. In the late stage of ashy dermatosis, the only abnormal finding may be dermal pigmentation¹⁴. But it is aggregates of melanophages, in which vacuolar alteration is the cause of the incontinence of pigment¹⁴.

The pathogenesis of the dermal melanocytosis is unknown. Regarding the congenital dermal

melanocytosis, the failure of melanocytes to reach the epidermis in their migration from the neural crest is suggested^{15,16}. The protective extracellular sheath around the dermal melanocytes has a role for the stability of some variants into adult life¹⁷. In Mongolian spot, the sheath appears in a less developed form and then declines markedly with age, while in nevus of Ota, the sheath thickens with age¹⁷. For the adult-onset group of dermal melanocytosis, Hori¹⁶ proposed two possible mechanisms: migration from epidermal or hair bulb melanocytes; and reactivation of a latent dermal melanocytosis. Stanford et al¹⁵ proposed the ultraviolet radiation, cytokines released during inflammatory dermatoses, neural stimulation and hormonal changes as triggering factors for the latent dermal melanocytes.

In summary, our case seems to have a clinical distinct form of dermal melanocytosis. Malignant transformation has never been reported in dermal melanocytosis except nevus of Ota¹⁸ and the case of Carleton and Biggs¹² with generalized dermal melanocytosis. However, follow-up is needed, because the similar pigmented lesion to our case is very rare and the clinical course is unknown.

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