

Late-onset acquired dermal melanocytosis on the hand of a Chinese woman

Sir,

Dermal melanocytoses are characterized by a sparse population of intradermal dendritic, variably pigmented, spindle-shaped melanocytes.^[1] Dermal melanocytoses result in a brown or a blue pigmentation depending on whether the melanin pigment is predominantly located in the upper or lower dermis, respectively.^[1] Nevus of Ito, nevus of Ota, and Mongolian spot are 3 variants of dermal melanocytoses.^[1] Here, we present a 35 year old Chinese woman with a gray-blue hyperpigmented patch on both palm and back of the right hand. The hyperpigmentation on the back of the right hand appeared about 20 years ago, and was always asymptomatic. The hyperpigmentation on the palm of the right hand appeared about 1 year ago, was also always asymptomatic, but had been progressively enlarged ever since. She denied any preceding trauma, discoloration or inflammation. There was a one year history of occupational exposure to certain chemical to clean steels, which is a kind of low-concentrated hydrochloric acid. She said she always wore rubber gloves during working. She said she was not sure whether the lesion appeared before or after she worked. Physical examination revealed macular gray-blue hyperpigmentation on the palm and back of the right hand [Figure 1]. Histopathologic examination from the gray-blue patch on the palm and back of the right hand showed normal epidermis and a few spindle-shaped melanocytes containing melanin, which were sparsely scattered between the collagen bundles in the mid dermis, whose axis were parallel to the skin surface [Figure 2 and 3]. The pigmented cells were positive for S-100 [Figure 4 and 5] and HMB-45 staining [Figure 6 and 7]. Fontana-Masson silver stain revealed abundant brown pigment within the cytoplasm of the spindle cells [Figure 8].

In the current case, the clinical presentation of hyperpigmentation and the histologic examination result of melanocytes in the dermis suggest the diagnosis of dermal melanocytoses. However, Mongolian spot is almost always located on the lumbosacral skin or on the buttocks, nevus of Ota usually follows the distribution of the first two branches of the trigeminal nerve.^[1] Nevus

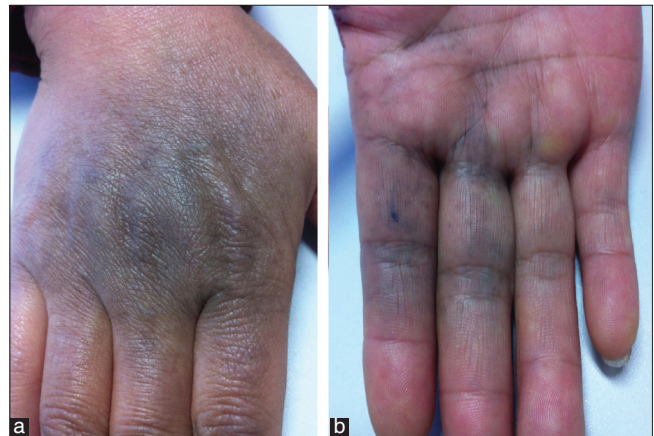


Figure 1: The right hand of a 35 year old Chinese woman (a) Gray-blue hyperpigmented patch on the back of the right hand which first appeared about 20 years ago (b) Gray-blue hyperpigmented patch on the palm of the right hand which first appeared about 1 year ago

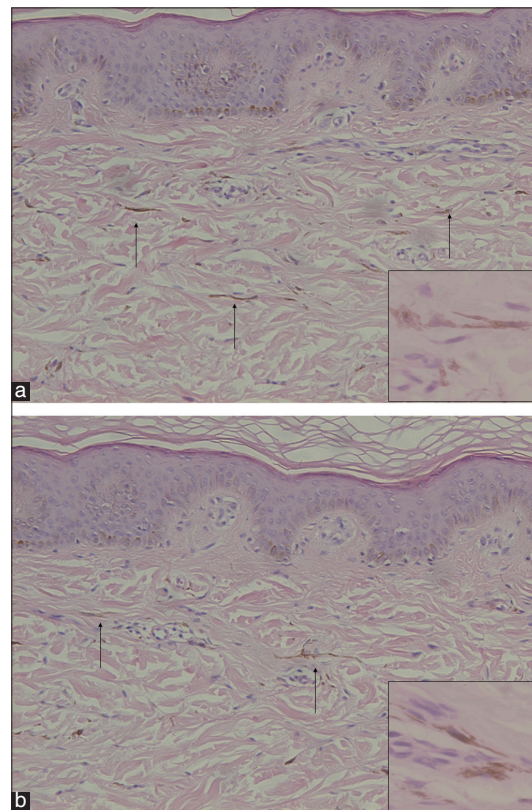


Figure 2: Histopathologic examination from the gray-blue patch on the back (a) and palm (b) of the right hand showed a few spindle-shaped melanocytes containing melanin in the dermis. (H and E staining, 10 × magnification with enlarged images of 40 × magnification)

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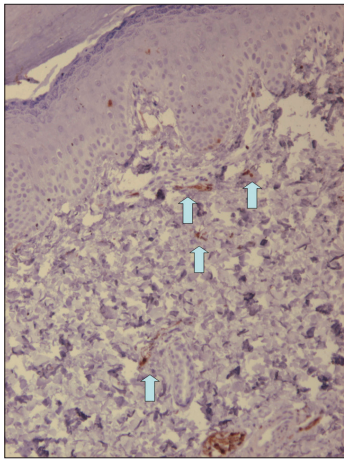


Figure 3: S-100 staining shows positively stained cells in the dermis on the back of the right hand

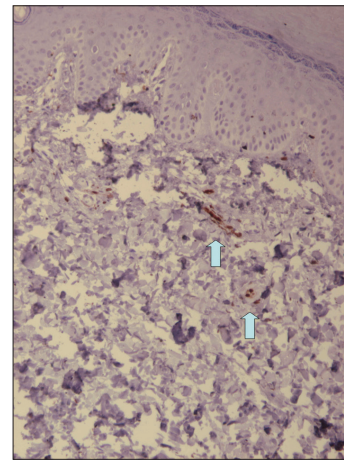


Figure 4: S-100 staining shows positively stained cells in the dermis on the palm of the right hand

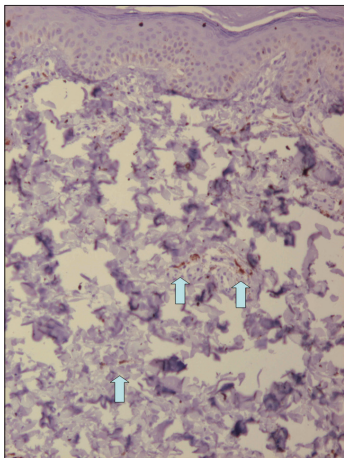


Figure 5: HMB-45 staining shows positively stained cells in the dermis on the back of the right hand

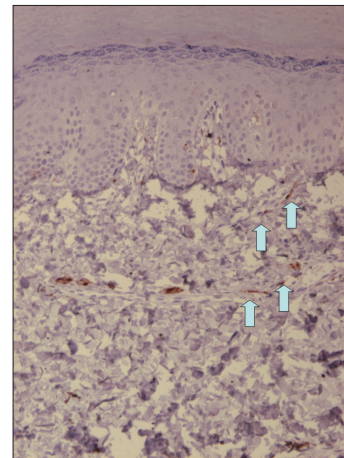


Figure 6: HMB-45 staining shows positively stained cells in the dermis on the palm of the right hand

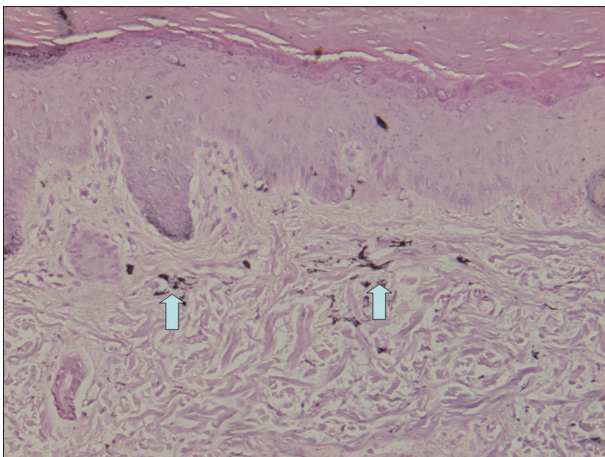


Figure 7: Fontana-Masson silver staining on the back of the right hand showed a few spindle-shaped melanocytes containing melanin in the dermis

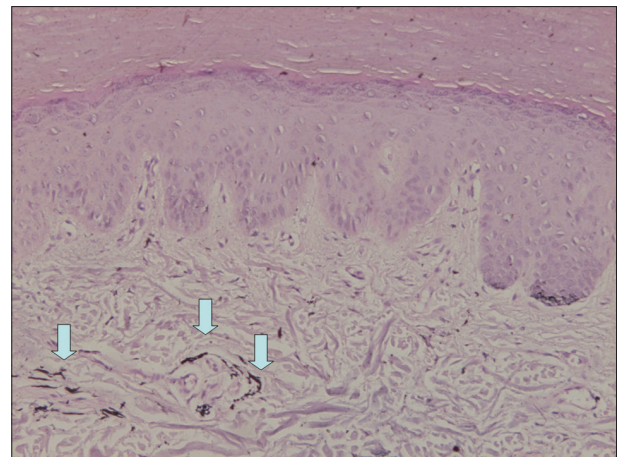


Figure 8: Fontana-Masson silver staining on the palm of the right hand showed a few spindle-shaped melanocytes containing melanin in the dermis

of Ito usually follows the distribution of the lateral supraclavicular and lateral brachial nerves.^[1,2] Therefore, based on the site of involvement, this case is none of the 3 variants of dermal melanocytoses. The age of onset also exceeds the characteristic appearance period. Mongolian spots usually present at birth and generally regress spontaneously during childhood.^[1] Over 50% of nevi of Ota and Ito are present at birth, most of the remainder appears around puberty, and they persist for life.^[1,2] One case reported the presence of dermal melanocytosis on the palm of left hand since birth.^[3] Other than growing proportionately to the patient over the years, there had been no change in its size, colour or shape.^[3] Although most dermal melanocytoses are congenital or appear during the childhood or adolescence, there is a rare group with a clearly acquired onset, known as acquired dermal melanocytosis (ADM).^[2] Therefore, based on the site of hyperpigmentation and the age of onset, it is more suitable for the current case to be diagnosed as ADM on the hand.

There are 14 cases of ADM with atypical/extrafacial involvement with the age of onset above 20 years old have been reported to date, indicating the late onset [Table 1]. Among these, there are only 3 cases of ADM on the hand.^[12,16] From these 3 cases, 2 cases reported possible associated factors, which are tanning bath and inflammation.^[12,16] The inflammation resulted from 12 year history of severe plaque-type psoriasis.^[16] The distribution of the lesion over a patch of recently treated psoriasis on the back of left hand makes inflammation

in the area a possible factor in the pathogenesis.^[16] One case of acquired symmetrical dermal melanocytosis (ASDM) on the back of both hands also reported inflammation caused by atopic dermatitis as the associated factor.^[17] However, the patient denied any history of inflammation on the hand, therefore inflammation is not the associated factor in this case.

It has been postulated that dermal melanocytes in ADM appear when melanocytes migrating from the neural crest during the embryological development fail to reach their proper location in the basal layer of the epidermis.^[18] Alternatively, dermal melanocytes may migrate from the basal layer of the epidermis (dropping off) or from follicular bulbs. In addition, re-activation of preexisting latent dermal melanocytes may be triggered by unknown factors. This theory suggests that dormant dermal melanocytes may be present but unnoticed from birth.^[7] This has been supported by the presence of melanocytes in the dermis of uninvolved skin adjacent to lesions.^[11] The melanin synthesizing pathway is activated later by inflammation, local trauma, sex hormones or some unknown ageing stimuli.^[7] A protective extracellular sheath enclosing dermal melanocytes has also been proposed as the mechanism for the stability of some these cells into adult life.^[19]

The patient presented here may have had a genetic predisposition and may have already had dermal melanocytes present in this area. However, the

Table 1: Summary of the reported cases of late-onset (above 20 years old) acquired dermal melanocytosis with atypical/extrafacial involvement

Author	Year	Sex	Age of onset	Age of presentation	Ethnic group	Associated disease	Location
Pariser <i>et al.</i> ^[4]	1982	F	34	34	African-American	Trauma	Left leg
Ogata <i>et al.</i> ^[5]	1989	M	38	38	Japanese	Benign melanocytoma	Back
Hidano <i>et al.</i> ^[6]	1991	F	25	33	Korean	None	Face and extremities
Ono <i>et al.</i> ^[7]	1991	M	55	65	Japanese	None	Interscapular
Ono <i>et al.</i> ^[8]	1991	M	53	55	Japanese	MSH and GH therapy	Face, upper extremities, and trunk
Shinohara <i>et al.</i> ^[9]	1994	M	62	62	Japanese	None	Hands, forearms
Kuniyuki <i>et al.</i> ^[10]	1997	M	45	50	Japanese	Sunlight, estrogen/progesterone therapy	Dorsum of right wrist
Mizushima <i>et al.</i> ^[11]	1998	M	21	25	Japanese	None	Face, arms, and hands
Murakami <i>et al.</i> ^[12]	2000	F	21	24	Japanese	Tanning bath	Photoexposed areas (except face)
Buka <i>et al.</i> ^[13]	2000	F	57	57	Hispanic	Hormonal Therapy	Sclerae, cheeks, back
Rubin <i>et al.</i> ^[14]	2001	F	23	23	African-American	Pregnancy	Right lower extremity
Roth <i>et al.</i> ^[15]	2002	F	37	52	Caucasian	Leptomeningeal melanosis	Face and neck
Mataix <i>et al.</i> ^[2]	2006	F	70	72	Caucasian	None	Shoulder, chest, and back
Kelley <i>et al.</i> ^[16]	2009	M	42	42	Hispanic	Psoriasis	Dorsum of left hand
Current case	2012	F	34	35	Chinese	Chemical exposure	Palm of right hand

distribution of the lesion over the palm makes exposure to chemicals in the area a possible associated factor in triggering the melanin synthesizing pathway, making the lesion progressively enlarged. We emphasize this case because it is the 1st case of late onset ADM on the hand in Chinese ethnic group has been reported to date, with exposure to chemicals as a possible associated factor.

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