Ann Dermatol Vol. 33, No. 3, 2021
pISSN 1013-9087 · eISSN 2005-3894
https://doi.org/10.5021/ad.2021.33.3.293

BRIEF REPORT

Imatinib Mesylate-Induced Acquired Dermal Melanocytosis and Acquired Bilateral Nevus of Ota-Like Macules

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Dear Editor:

Imatinib mesylate, a tyrosine kinase inhibitor, is used for treatment of oncological conditions, such as chronic myeloid leukemia (CML) and gastrointestinal stromal tumor[1]. It inhibits tyrosine kinase encoded by the bcr-abl, c-kit, and platelet-derived growth factor receptor oncogenes[2,3]. The cutaneous adverse effects of imatinib are diverse, and rash and superficial edema are most common[2,4]. Pigmentary abnormalities are not common, although generalized skin hypopigmentation and vitiligo-like lesions are well-recognized[5]. Dermal melanocytosis associated with imatinib has been rarely reported.

A 48-year-old Asian female presented with bluish-to-greyish macules and patches on both temples; the left shoulder, and buttock. She had been treated with the same dose continuously with 400 mg of imatinib daily for 9 years for CML. She reported that facial pigmentation, which became gradually evident, appeared immediately after initiation of imatinib. Two years prior to the current presentation, the patient visited our clinic and underwent punch biopsy for the facial lesions (Fig. 1A). The histologic findings were consistent with acquired, bilateral nevus of Ota-like macules (ABNOM) with superficial dermal dendritic melanocytosis (Fig. 1C, D).

Thereafter, seven years later, the shoulder and buttock lesions occurred (Fig. 1E, F), and she also complained that the facial lesions had become more prominent (Fig. 1B). She didn't report any subjective symptoms. Under the impression of acquired dermal melanocytosis (ADM) associated with imatinib, a skin biopsy was performed on the buttock. Histological examination revealed the presence of a sparse population of dendritic and stellate-shaped dermal melanocytes in the deep dermis based on hematoxylin-eosin staining (Fig. 1G). Immunohistochemically, these cells were positive for melan-A, S-100, and HMB-45 (Fig. 1H). Based on these clinicopathological findings, the patient was diagnosed with ADM. She underwent treatment with 1,064-nm Nd:YAG laser (SPECTRA XT^{TM}; Lutronic Corporation, Goyang, Korea) to her face, with a fluence setting of 30 J/cm^2.

The pathophysiology of ADM remains unclear. It has been suggested that dermal melanocytes might migrate from the basal layer of the epidermis or the hair bulbs to dermis, or immature melanocytes could exist in the dermis due to migration failure from the neural crest to the basal layer during embryological development. ABNOM, a kind of ADM, is characterized by symmetrical blue-brown macules, most frequently involving facial lesions in Asian women with histopathological findings of irregularly-shaped bipolar melanocytes dispersed in the papillary and mid dermis, particularly in the subpapillary dermis. These dormant melanocytes could be later reactivated by various factors like inflammation, local trauma, sunlight, drugs, or hormonal stimulations[1,2].

In our case, the patient complaint of blue-gray macules and patches on her face and trunk that appeared immedi-

Received February 4, 2020, Revised February 21, 2020, Accepted for publication April 2, 2020

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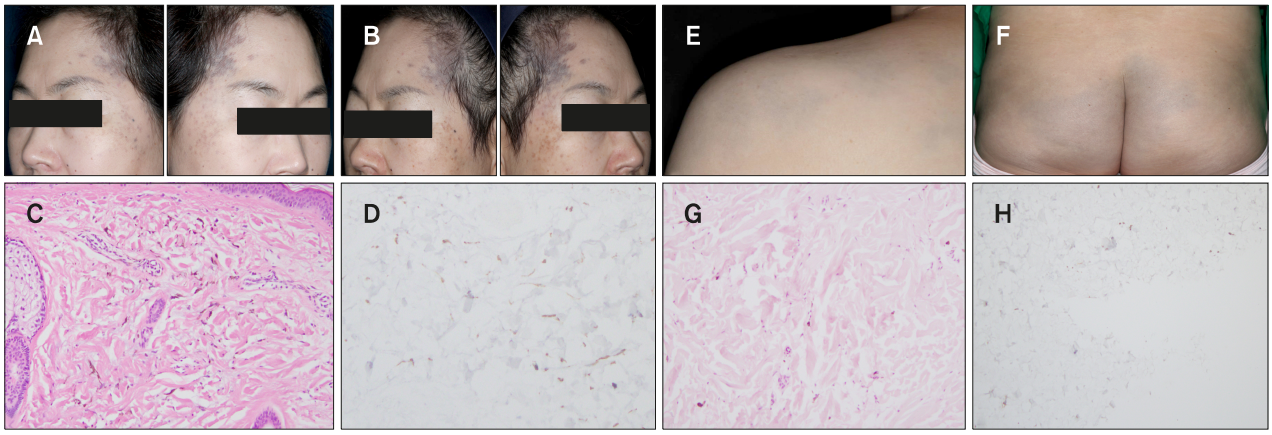

Fig. 1. (A) Ill-defined bluish to greyish colored patches on the bilateral temple. (B) Progressed facial lesions after 2 years. (C ,D) Dendritic dermal melanocytes in the upper dermis (C: H&E, ×100; D: Melan-A, ×200). (E, F) Bluish to greyish macules and patches on her both temples; left shoulder and buttock. (G, H) Sparsely distributed intradermal dendritic melanocytes in the mid to deep dermis (G: H&E, ×100; H: Melan-A, ×200).

ately after starting imatinib for CML treatment. Clinicopathologic findings were consistent with ABNOM induced by imatinib.

The mechanisms of imatinib-induced hyperpigmentation have been hypothesized that imatinib could have different target effects on immature and mature melanocytes, and that KIT and its ligand stem cell factor (SCF) play a critical role in the pathogenesis[1]. Imatinib-induced KIT/SCF blockage may cause epidermal depigmentation in mature melanocytes while influencing immature melanocytes to differentiate to produce melanin pigment causing hyperpigmentation[1].

We received the patient's consent form about publishing all photographic materials.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

FUNDING SOURCE

This research was supported by the Bio & Medical Technology Development Program of the National Research Foundation (NRF) funded by the Korean government (MSIT) (No.2019M3E5D1A01069361).

DATA SHARING STATEMENT

Research data are not shared.

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