biopsy (Fig. 2). At 5 months after treatment by surgical excision, the masses had not recurred.

Foreign body reactions due to HA fillers can occur months or even years after injection. Therefore, a delayed foreign body reaction due to a HA filler is not easy to diagnose. Furthermore, a non-inflammatory, soft, subcutaneous lump distant from the filler injection site would not be considered a HA filler-related problem[3,4]. Our patient had 2 sequential, bean-sized, flesh-colored, soft, subcutaneous masses on her face—one on the forehead and one on the glabella—after injection of a HA filler on the nose. She had not undergone filler injection on her forehead and glabella. This phenomenon can be explained by migration of the filler, which refers to the presence of filler at a location remote from the primary injection site. Filler migration can occur by several mechanisms, including poor injection technique (high-volume, high-pressure injection), massage, muscle activity, gravity, antigravity, pressure-induced displacement, lymphatic spread, and intravascular injection[4]. According to a previous report, low-volume and low-pressure filler injections and more than 1 treatment session are recommended to minimize filler migration[5]. Additionally, some authors suggest that patients with filler injections limit physical activity and keep the face at rest for the immediate time period after filler injection[4].

We report a rare case of 2 sequential facial lumps related to the migration of injected filler. Dermatologists should be aware that dermal fillers, including HA fillers, can migrate to locations distant from the original injection sites.

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http://dx.doi.org/10.5021/ad.2016.28.5.647

Recurrence of Nevus of Ota after Successful Laser Treatment: Possible Role of Dermal Stem Cells

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Dear Editor:

Nevus of Ota is a fairly common hyperpigmentary disorder in Asians and usually appears at birth or in childhood. It is successfully treated by using Q-switched lasers. Several retrospective studies described the recurrence rate after treatment is extremely low as 0.8%～2.1%[1,2]. Recur-

Received July 22, 2015, Revised September 2, 2015, Accepted for publication September 7, 2015

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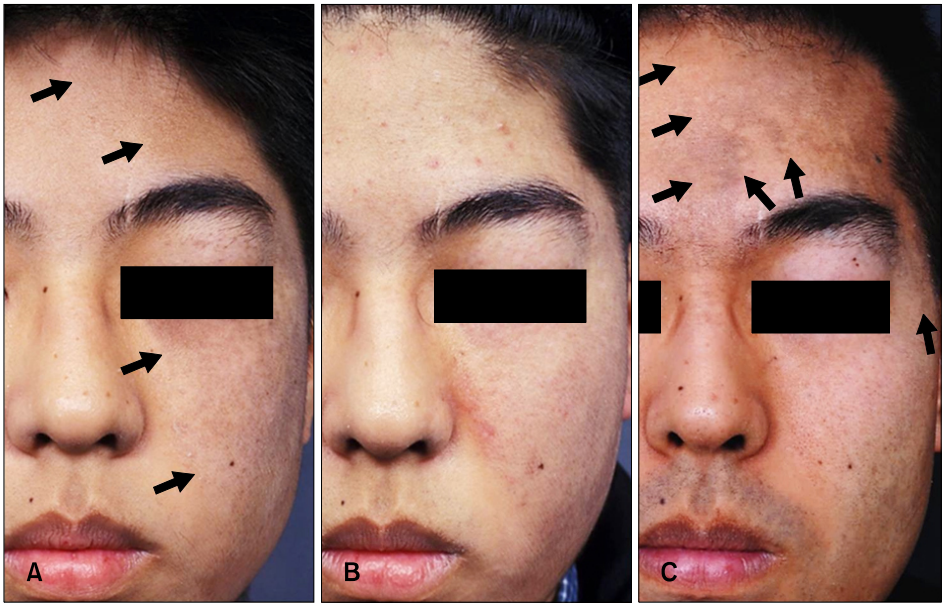

Fig. 1. (A) Diffuse grey-brown pigmentation on the left face at the initial visit (January 2001). (B) Almost complete clearance was achieved after 6 sessions of laser treatment (January 2002). (C) The lesion appeared on the left forehead and temple including the skin beyond the previously treated site (December 2013). Arrows: extent of the pigmentation.

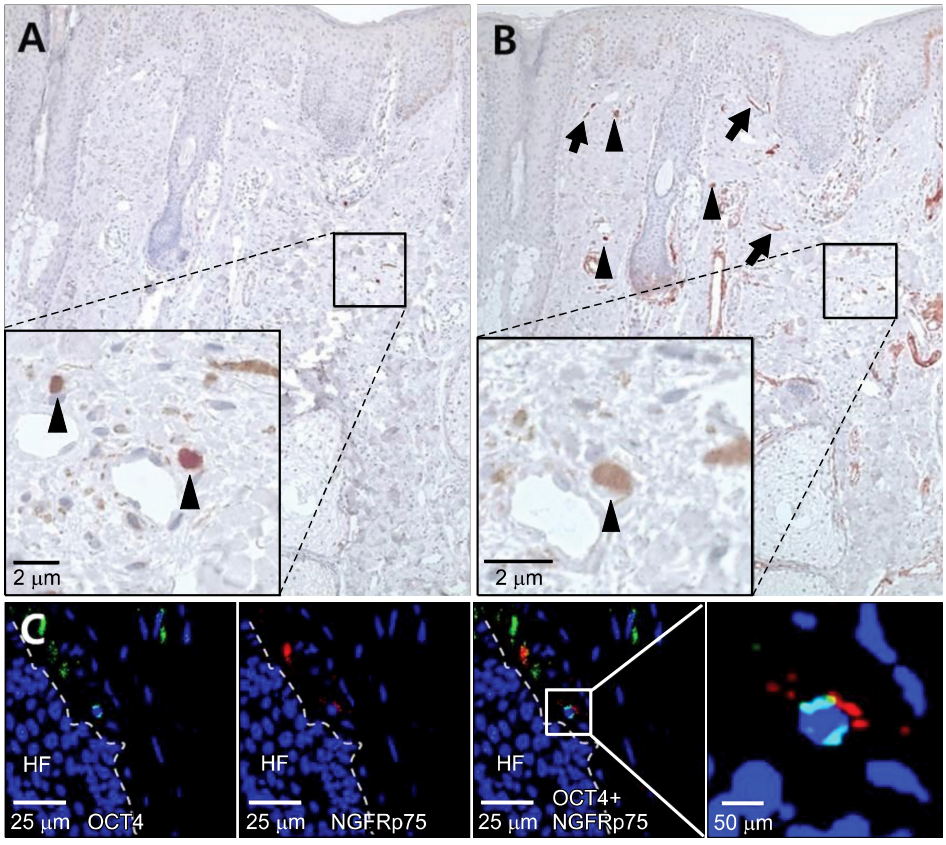

Fig. 2. Stem cell markers-positive small, round cells are found in the lesional dermis. (A) Several OCT4-positive round cells (arrowheads) are detected (OCT4, ×100). (B) Some small, round NGFRp75-positive cells (arrowheads) are observed. The spindle shaped cells (arrows) might be nerve fibers (NGFRp75, ×100). (C) Immunofluorescent study demonstrate the presence of a few cells coexpressing both OCT4 (green) and NGFRp75 (red). Nuclei are stained with 4',6-diamidino-2-phenylindole (DAPI) (blue). Dotted lines indicate the border between hair follicular epithelium and dermis. HF: hair follicle.

rences generally develop at the previous site, however, they might appear beyond the previously treated site.

A 26-year-old man presented with diffuse grey-brown pigmentation on the left side of the forehead and temple for 3 years. When he was a 13-year-old child, he had been treated with Q-switched alexandrite laser for nevus of Ota on the left side of his face, including forehead, temple, and cheek. The 6 sessions of treatment had achieved almost complete clearance (Fig. 1A, B). The new pigmentation developed in 9 years after last treatment and it included the skin beyond the previously treated site (Fig. 1C). He had no history of sunburn or significant trauma. Skin biopsy re-

vealed dendritic melanocytes on the upper dermis, compatible with nevus of Ota. Therefore, it was thought that he had nevus of Ota reappeared after successful laser treatment.

The exact reason for recurrence of nevus of Ota remains unclear. It was previously reported that multipotent dermal stem cells (DSCs) might differentiate into functional melanocytes, which might be etiologic factors of pigmentary disorder[3,4]. These DSCs expressed nerve growth factor receptor (NGFRp75), octamer-binding transcription factor 4 (OCT4), and nestin, but not melanocyte markers, indicative of their neural crest origin[3]. We therefore performed immunohistochemical staining with anti-OCT4 and NGFRp75-antibodies to investigate the possible role of DSCs in this reappeared pigmentation. Several OCT4+ or NGFRp75+ small, round cells were found in the lesional dermis of the recent and previous biopsy, but not in the normal skin (Fig. 2A, B). Immunofluorescent study confimed the presence of the cells with double staining of OCT4 and NGFRp75-antibodies, suggesting they are DSCs (Fig. 2C).

In this study, it is speculated that DSCs remained after the laser treatment and unknown factors may trigger differentiation of the DSCs into functional melanocytes, which might play a role in the reappearance of nevus of Ota. The factors may include ultraviolet light, trauma, or female hormones etc. It is also possible that the unrecognized dermal melanocytes in uninvolved skin near the pigmentation are reactivated after unknown stimulating factors[5]. Also, we can not rule out that incomplete laser removal of dermal melanocytes situated in the deep dermis lead to repigmentation when they migrate to more superficial dermis.

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