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<https://doi.org/10.5021/ad.2019.31.6.687>

Repigmentation of Eyebrow Leukotrichia in Segmental Vitiligo Treated with Suction Blister Epidermal Grafting Following Hair Plucking

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Dear Editor:

Vitiligo is generally classified into two clinical categories, nonsegmental vitiligo and segmental vitiligo (SV)¹. SV on hairy areas such as the scalp and eyebrows is frequently associated with leukotrichia². SV with overlying leukotrichia is refractory to conventional medical treatments because leukotrichia itself suggests a deficient melanocyte reservoir within the hair follicles¹. Thus surgical management including epidermal grafting should be considered and preferred as an early intervention for the SV with leukotrichia, however only few literature showed improvement following surgical treatment. Herein, we present two cases of SV on the eyebrow successfully treated with suction blister epidermal grafting (SBEG) after hair plucking. An 11-year-old boy showed SV and leukotrichia on his left eyelid and forehead which had developed 8 months ago

(Fig. 1A). A 16-year-old girl had SV with leukotrichia on her right eyebrow and eyelid (Fig. 2A). Both cases did not respond to 6 months of conventional combination treatment including 308-nm excimer laser, topical steroid, and a calcineurin inhibitor. SBEG was performed under the consent of both the patients. Hairs of the eyebrow were pulled with forceps as a whole, including the hair follicle. Thigh skin was used as a donor for epidermal grafting. Vacuum suction was performed to donor sites at a pressure of 200 to 250 mmHg, and blisters formed after 2 hours. Epidermis on the recipient site was removed with defocusing, superpulsed mode CO₂ laser. Subsequently, the roofs of the bullae were carefully excised and grafted. The recipient areas were almost completely pigmented and leukotrichia was significantly improved after 1 ~ 2 years of clinical follow-up (Fig. 1B, 2B).

Received March 13, 2019, Revised May 9, 2019, Accepted for publication June 3, 2019

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Fig. 1. (A) Well-defined depigmented patches on left side of forehead and eyelid with leukotrichia of the eyebrow. (B) After 2 years of treatment showing successful repigmentation of white hairs. We received the patient's consent form about publishing all photographic materials.

Fig. 2. (A) Whitish patches on the right side of the eyelid with leukotrichia of the eyebrow. (B) After 1 year of treatment showing successful repigmentation of white hairs. We received the patient's consent form about publishing all photographic materials.

Surgical approaches are required for SV with leukotrichia because the obliteration of melanocyte reservoir within the hair follicles is persistent³.

In this case, CO₂ laser resurfacing technique was applied to the recipient sites. Rapid, uniform and reproducible de-epithelization can be achieved with a single laser pass yielding minimal thermal damage⁴. Also, suction blister method was used to harvest the donor, which is known to be easy, safe, inexpensive, and effective⁵.

According to the previous study, melanocytes migrate from epidermis to hair follicle retrogradely and this process leads to improvement of leukotrichia¹. If the hair on the recipient site remains and grows, this hair can push out the grafted epidermal sheet and thus disturb the movement of the melanocytes. In our case, we formed empty space through hair plucking and lead to successful migration of melanocytes and also repigmentation of leukotrichia. Among the three common hair removal methods, razor shaving, chemical epilation, and hair plucking can be the best option, which is simple and moreover rarely induces procedure-related complications. Razor shaving is easy to perform but it is difficult to create an empty space because the hair can be incompletely removed. Chemical epilation is painless, but thioglycolic acid, a major component, is a common cause of irritant contact dermatitis and moreover can leave a post-inflammatory hyperpigmentation as well.

In conclusion, we suggest that SBEG following hair plucking can be an effective treatment option for patients with leukotrichia in SV.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

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