Treatment of Vitiligo on Eyebrow with Single Hair Transplantation

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There are many therapeutic options for vitiligo; such as phototherapy, topical and systemic steroids, transplantation of blister tops or minigrafts from normal pigmented areas, and the application of autologous epidermal sheets established in vitro or collagen-backed cultured melanocytes. The author describes a patient with vitiligo treated with single hair transplantation and epidermal grafting. In conclusion the single hair grafts method appears to be simple and effective for treating vitiligo, especially on a hairy skin as it leaves no scars. (Ann Dermatol 8(2):149-152, 1996).

Key Words: Vitiligo, Single hair grafts

Vitiligo is a common cutaneous disorder characterized by irregular patches of pigment loss. To date, the etiology of vitiligo has not been convincingly elucidated and a number of hypotheses still coexist. Thus the etiology of vitiligo may differ among patients. Therefore, there are many therapeutic modalities; phototherapy, topical and systemic steroids, transplantation of blister tops or minigrafts from normal pigmented areas, and the application of autologous epidermal sheets established in vitro or collagen-backed cultured melanocytes. The author describes a patient with vitiligo treated with single hair transplantation and epidermal grafting.

REPORT OF A CASE

A 22-year-old Korean woman had a 7-year history of segmental vitiligo on her face. She repeatedly epilated hairs of the medial part of her left eyebrow because of leukotrichia. That part finally turned into a glabrous area. Treatment with PUVA and topical steroid ointments produced no improvement (Fig. 1). Epidermal grafting was performed, as previously described. Blister at the recipient site were made by the application of liquid nitrogen. Blisters at the donor site were made by suction on the patient's buttock. After the removal of the roof of the blister at the recipient sites, the roof of the suction blister was grafted to the recipient site. Two weeks after grafting, topical PUVA twice a week was started. Repigmentation appeared at the recipient site, but the epilated eyebrow area remained as a depigmented patch (Fig. 2A). For the hair restoration and repigmentation of the medial left eyebrow, single hair transplantation was performed as described by Choi and Kim. Briefly, an elliptical incision about 1 cm was made in the occipital scalp and the donor scalp was removed. The removed donor scalp was then washed with cold normal saline. Using a No. 20 surgical blade, the elliptical graft was cut into segments and then each segment was divided into many single hairs. Finally, the single hair grafts were placed into recipient area using a Choi hair transplanter. One month later, perifollicular hyperpigmentation was seen (Fig. 2B). After 6 months, the eyebrow area showed a complete recovery of pigmentation and cosmetically acceptable restoration of hair (Fig. 1,2). Moreover, some hairs became black although the rest remained white.
Fig. 1. Patient with segmental vitiligo before (A), and after treatment with epidermal grafting, and single hair transplantation (B).

Fig. 2. Before (A) treatment with single hair transplantation, only leukotrichia and white patches were seen. At 1-month (B) follow-up, perifollicular hyperpigmentation (arrow head) was seen, and at 5-month (C), repigmentation and fine black eyebrow hair growth (arrow) were seen.
DISCUSSION

In spite of the difficulties of repigmentation on vitiliginous lesions, a variety of medical, surgical, and adjunctive/alternative therapies are employed to benefit many patients with vitiligo. These treatments may be used as monotherapies or combination therapies to achieve the optimal results. Generally, the repigmentation of a vitiliginous area, despite the kind of treatment modality, usually begins at the perifollicular area. Although the mechanism of repigmentation is not clearly understood, many researchers suppose that it is closely related to the hair follicles. Ortone et al. and Arroyo et al. postulated that the repigmentation of vitiligo was derived from the melanocyte reservoir in the hair follicles. Cui et al., however, suggested that inactive melanocytes in the outer root sheaths of hair follicles provide the melanocyte sources for repigmentation.

In early 1970s, Orentreich et al. reported that a pigment spread phenomenon was evidenced by 1-mm wide zones of melanosis that developed around each minigraft in the leukodermic skin. Lobuono et al. found that repigmentation and growth of viable hairs were achieved after punch graftings of scalp hair into places scarred and depigmented by discoid lupus erythematosus. Additionally several reports indicated that repigmentation of leukotrichia was obtained by thin split-thickness skin grafting or epidermal grafting and PUVA. In this case, the conversion of depigmented hairs into pigmented ones were also observed. However, it is not clear whether it is resulted from the hair grafting or from the topical PUVA therapy. Further evaluations are required to make a firm conclusion.

This report evaluated the effectiveness of single hair transplantation in treating patients with vitiligo. This method could be considered as a kind of minigraft. A minigraft is performed by implanting 1 or 2 mm punch grafts from normally pigmented skin into the vitiliginous area. The author, however, feels that the single hair transplantation method is more suitable for several reasons. Firstly, a single hair contains more melanocytes than the normal pigmented glabrous, usually gluteal area, skin. Secondly, a discrete cobblestone appearance hypertrophic scar does not appear because a small bored (21G) needle is used. Thirdly, the hair method is expected to be advantageous to the hair restoration of the recipient site. When this method is performed in a glabrous area, the unwanted hair growth should be repeatedly epilated or shaved after a successful transplantation. In conclusion the single hair grafts method appears to be simple and effective for treating vitiligo, especially on a hairy skin as there are no scars.

REFERENCES

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