



Treatment of Hair Loss in the Trichorhinophalangeal Syndrome

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Dear Editor:

Trichorhinophalangeal syndrome (TRPS) is a rare genetic condition that affects the hair, nose, and phalanges¹. Patients with TRPS visit dermatologic clinics with complaint of alopecia. However, treatment option for alopecia in TRPS remains unclear. Herein, we report our experience of medical treatment and hair transplantation for alopecia of TRPS. A 17-year-old male patient complained of hair loss and slow growth rate of hair since his childhood. He had bulbous pear-shaped nose, long philtrum, thin upper vermilion

boarder (Fig. 1A), and brachymetatarsia involving the 4th metatarsal of both feet. He had diffuse hair thinning and loss with regression of the frontotemporal hairline. The alopecia was M3V1 of basic and specific (BASP) classification (Fig. 1B). He had the typical triad of TRPS, including hair alterations, craniofacial changes, and skeletal abnormalities. We analyzed gene expression levels and identified differential expression of genes between the non-balding and balding scalp samples by RNA sequencing. Compared to non-balding scalp, the TRPS gene was down-regulated and we vali-



Fig. 1. (A) Clinical photo of 17-year-old male with diffuse hair loss, bulbous pear-shaped nose, long philtrum, thin upper vermilion boarder, typical finding of trichorhinophalangeal syndrome. (B) Diffuse hair thinning and regression of frontotemporal hair line shown at the first visit. (C) Hair loss progressed to C3V1 of basic and specific classification and hair growth retardation was found despite of minoxidil treatment.

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Fig. 2. (A) In spite of 2 years of treatment with finasteride (1 mg/d), alopecia has been worsened to U1 type in basic and specific classification and hairs has been thinner and thinner. (B) At 2 years after hair transplantation. Transplanted hair had grown successfully. The frontal hair line had been well maintained.

dated the result by the quantitative real-time polymerase chain reaction. For correcting his hair loss, we tried 5% minoxidil over 6 months. However, the alopecia progressed to C3V1 of BASP classification with more retarded growth (Fig. 1C). Then we tried finasteride 1 mg daily for 2 years, but alopecia was progressed to U1 of BASP classification (Fig. 2A). For cosmetic purpose, we transplanted hairs (1,300 follicular units) from occipital to the frontal and the mid-scalp area. Hair has grown up successfully over the 3 years of follow-up. Patient has been satisfied with the cosmetic result without complications (Fig. 2B).

TRPS patients' diffuse alopecia varies, usually, from normal hair to complete baldness. Usually, frontotemporal hairline is receded and the scalp hairs grow slowly². Marked decrease of hair diameter in scalp has been reported to be the main finding of TRPS³. The reduction of hair follicles is not the main trichologic finding, and individually thinning of hair is the main cause of the impression of sparse scalp hair in TRPS⁴. Therefore, the pathologic change and hair loss pattern in TRPS are very similar to those of male pattern baldness (MPB). TRPS1 protein is known to develop symptoms of TRPS. It has been reported TRPS1 is associated with the androgen pathway in prostatic cancer and breast cancer⁵. Therefore, we assumed conventional treatment for MPB including minoxidil and finasteride might be effective for hypotrichosis of TRPS, although the exact mechanisms and its treatment has not been elucidated clearly. However, topical minoxidil was never effective, and oral finasteride was also ineffective in preventing the progression of alopecia or inducing hair growth in TRPS. In severe TRPS, hair on the entire scalp could be affected, tend to be thinner⁴. However, the occipital scalp hairs of our patient had normal hair density and diameter based on trichoscopic and pathologic examinations. Finally, we tried to transplant hairs onto the alopecic area to improve his cosmesis. These transplanted hairs started to re-grow at 4 months after the operation. The survival rate was similar to

the ordinary hair transplanted in MPB, and transplanted hair has grown up very well over the 3 years of follow-up. Thinning of implanted hair in the frontal and mid scalp did not occur in the present case.

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CONFLICTS OF INTEREST

The authors have nothing to disclose.

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