

Successful Hair Transplant of Eyebrow Alopecia Areata

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Abstract

Background: Alopecia areata of the eyebrows can be difficult to treat. Intralesional triamcinolone or potent topical steroids are considered the mainstay of medical therapy. This case illustrates the results of an experimental hair transplant to the eyebrows following years of modest response to intralesional triamcinolone.

Objective: The aim of this study was to ascertain the benefits of a hair transplant for chronic eyebrow alopecia areata not responding to appropriate medical therapy.

Methods: A hair transplant was performed with tumescent anesthesia and a total of 85 mini and micrografts placed in the right eyebrow. Followup after the hair transplant occurs every 8 weeks.

Results: The patient was free of eyebrow alopecia areata for 8 months following the initial hair transplant. Although the disease relapsed, hair growth is now manageable with intralesional cortisone injection performed six times per year.

Conclusions: For the first time in years, this patient was given 8 months of reprieve from his eyebrow alopecia areata and is currently well-maintained on monthly intralesional cortisone which originally was of only modest benefit. The patient is pleased with the outcome.

Sommaire

Antécédents: Alopecia areata des sourcils peut être difficile à traiter. L'administration intralésionnelle de triamcinolone ou de stéroïdes topiques puissants est considérée le principal traitement. Ce cas illustre les résultats d'une greffe de cheveux expérimentale sur les sourcils à la suite d'une année de faible réaction au traitement intralésionnel au triamcinolone.

Objectif: Établir les avantages d'une greffe de cheveux en cas d'une alopecie chronique des sourcils qui ne répond pas aux traitements médicaux.

Méthodes: Une greffe de cheveux a été effectuée sous anesthésie locale par tumescent. Quatre-vingt cinq mini et micro greffons ont été greffés au sourcil droit. Le suivi pour la greffe de cheveux est effectué chaque huit semaines.

Résultats: L'alopecia areata n'a pas affecté le sourcil du patient pendant une durée de huit mois après la greffe initiale. Bien que la maladie ait repris son cours, l'alopecie est sous contrôle au moyen d'injections intralésionnelles de cortisone six fois par année.

Conclusion: Pour la première fois depuis des années, ce patient a eu huit mois de répit et profite à présent d'un traitement à la cortisone intralésionnelle, un traitement qui avait peu d'effets auparavant. Le patient est satisfait des résultats.

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A 30-year-old Caucasian male came to the clinic in November 1998 with a one-year history of alopecia areata that affected several areas of the scalp and arms and was isolated to the right eyebrow. He was otherwise healthy, on no medications, and had no drug allergies.

As part of the complete workup, blood work was performed which revealed a normal TSH. For three years, he was treated with monthly intralesional triamcinolone 4 mg/ml, and then treated for two years at 10 mg/ml with only modest benefit.

In April 2003, after five years of modest gains from intralesional triamcinolone, this frustrated patient was interested in other treatment options. After much discussion, he was eager to try a hair transplant despite the paucity of data on its efficacy in alopecia areata. All the potential risks of the procedure were explained, in particular that his alopecia areata could return to the transplanted site. He was also told that the hair would have to be trimmed to match the remaining eyebrow hair growth.

The hair transplant was performed with tumescent anesthesia and a total of 85 mini- and micrografts were placed in the right eyebrow. The patient was free of right eyebrow alopecia areata for 8 months following the initial hair transplant, and no intralesional triamcinolone was required during this time. Unfortunately, after 8 months the alopecia areata recurred in the right eyebrow area. This time though the alopecia areata is quite responsive to triamcinolone acetonide 4 mg/ml injected on a monthly basis.

On an informal survey we asked him whether he was pleased with the results and whether he would go through with the same procedure again. He reported great pleasure in his hair transplant and commented that he would certainly go through it again and in fact recommend it to others. (Fig 1–3)

Discussion

Alopecia areata (AA) represents a nonscarring type of hair loss that occurs in an estimated 2% of the U.S. population.¹ The underlying cause is not perfectly understood but a leading theory implicates an autoimmune-based T-cell attack against the hair bulbs. This correlates with a “swarm of bees” appearance around hair follicles affected by this peribulbar lymphocytic inflammation. Studies have shown that AA can be transferred by T lymphocytes from affected scalps to explants of human scalp on mice with severe combined immunodeficiency.² For a given individual with AA, the course of the disease cannot be predicted and includes a spectrum from spontaneous resolution to progressive worsening of hair loss.

The literature that discusses treatment approaches is dominated by medical treatment options such as topical minoxidil, topical and intralesional steroids, short-contact anthralin, and topical immunotherapies such as diphenylcyclopropenone (DPCP). Topical therapies must often be used for as long as three months before evidence of regrowth is noted.³ Other nonsurgical options that have been mentioned and much less commonly used include PUVA photochemotherapy, systemic corticosteroids, and cyclosporine. Comprehensive reviews

FIGURE 1 View immediately prior to hair transplant.



FIGURE 2 View at time of hair transplant.



that outline treatment options and algorithms are available in the existing body of literature.^{4–6} In contrast, there is very little literature on the use of surgical modalities to treat AA. Specifically, the successful use of follicular unit transplanting has not previously been reported.

Our case of transplanting follicular hair units from the scalp to a persistent plaque of alopecia of the eyebrow in a previously intralesional steroid-resistant patient resulted in maintained hair growth at the eyebrow area for 8 months, thereafter requiring intermittent maintenance with intralesional steroid injections. Since it is just a single case, it is difficult to formulate a generalized statement about the utility of this process. Further studies are necessary to clarify the role of local hair transplants to localized areas of stable AA. Possible hypotheses to explain why hair transplantation in AA works would include the concept of “donor dominance” whereby the newly transplanted hairs are at least initially not affected by the

FIGURE 3 View one year following hair transplant.

local autoimmune-mediated inflammation at pre-existing areas of AA. Furthermore, the once steroid-resistant areas, upon transplantation of distant hair bulbs, became responsive to local intralesional steroid injections. We can hypothesize that compared with the pre-existing nonresponsive hair follicles, newly transplanted follicles had properties at the molecular level, such as quantitative or qualitative differences in glucocorticoid receptors, which allowed them to respond to subsequent steroid injections. Another possibility is that the local irritation and subsequent inflammatory response from the actual transplant procedure, which includes repetitive insertion of needles to the field of pre-existing alopecia,

may have contributed to the initial survival of the newly transplanted hair follicles. This is similar to the hypotheses of why immunotherapies work such as the concept of antigenic competition whereby the inflammation caused by immunotherapy creates a competing group of T lymphocytes that overcome the autoimmune destructive effects of lymphocytes that were specifically attacking hair-associated antigens.⁴ Further studies at the molecular and cellular levels are required to test these hypotheses. One may argue that given the unpredictable course of AA, the positive result observed following hair transplantation in our case may be simply a coincidental event in an area of alopecia that was about to regrow hair anyway. For now, we appreciate that follicular unit transplantation, in combination with intermittent intralesional steroid injections, was associated with successfully repopulating hair in a previously steroid-resistant plaque of alopecia of the eyebrow.

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