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Repigmentation and Hair Growth Using ASCE HRLV-E Therapy in a Patient with Alopecia Totalis: a Case Report

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ABSTRACT

Background: Alopecia totalis (AT), a severe form of alopecia areata, leads to complete scalp hair loss in 1-2% of cases. Conventional therapies such as intralesional steroids (<30% efficacy) and JAK inhibitors (35-40% response at 36 weeks) offer limited durable benefits, high relapse, and safety concerns. This leaves refractory patients with significant psychological burden as it impairs their quality of life.

Case Presentation: A 49-year-old female with minoxidil-refractory AT received 5 biweekly intradermal sessions of ASCE HRLV-E exosomes (1 vial/session) with microneedling. After 5 sessions, increased density of fine depigmented terminal hairs was noted. At 1-year follow-up, and without continuation of treatment, we noted substantial long coarse white terminal hair regrowth with central occipital/parietal repigmentation. No adverse effects were noted and the patient reported a 10/10 satisfaction with the end result.

Discussion: ASCE exosomes promote Wnt/β-catenin activation, HFSC proliferation, angiogenesis, and melanogenesis. It currently outperforms topicals in preclinical/clinical alopecia models. To our knowledge, this is the first reported case of durable regrowth and repigmentation of patient with AT following 1-year without treatment.

Conclusion: ASCE HRLV-E exosome therapy with microneedling induced safe, sustained hair regrowth and repigmentation in a refractory AT patient. The results were durable following 1 year without intervention or adjunct therapies.

KEYWORDS

Alopecia totalis, Exosome therapy, ASCE HRLV-E, Repigmentation, Hair growth.

INTRODUCTION

Alopecia totalis (AT), a severe variant of alopecia areata (AA), is characterized by complete scalp hair loss due to autoimmune mediated follicular destruction [1]. AT affects approximately 1-2% of AA [2]. In particular, AT patients have a poor er prognosis for spontaneous hair regrowth. According to Burroway et al. [3], only 8.5% (32/375) of patients with AT achieved complete recovery.

As per Kassira et al. [4], no single therapy is currently FDA approved for the treatment of AT. The literature also notes that the available treatments tend to have a high failure rate [5]. For instance, intralesional steroids provide transient regrowth in less than 30% of severe cases [4]. In parallel, JAK inhibitors, particularly Baricitinib, shows 35-40% response rates at 36 weeks [6]. Nevertheless, the latter requires indefinite use and carries risks of infection and malignancy.

To add insult to injury, patients with AA tend to experience high rates of psychological disorders and decreased quality of life (QoL) [5]. This further showcases the urgency of finding treatment alternatives for this population.

Emerging research has shed the light on the role of adipose stem cell-derived exosomes (ASCE) in this regard. For instance, Nilforoushzadeh et al. [7] demonstrated significant hair regrowth in two patients with refractory AA by using a single intradermal exosome administration. In these patients, SALT (Severity of Alopecia Tool) scores

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improved from 79.6 to 59.6 and 70.2 to 58.6, respectively, without adverse events.

According to the existing body of literature, Adipose-Derived Stem Cells (ADSC-Exos) not only encourage healthy hair growth but also counteract dihydrotestosterone's inhibitory effects [8]. This is achieved as they facilitate the nuclear translocation of β-catenin [9].

This case report evaluates ASCE HRLV-E therapy in an AT patient, as we further look into the long-term efficacy of this therapy after 1 year of no treatment.

CASE PRESENTATION

We present the case of a 49-year-old female patient with a known history of alopecia totalis. She presented to the clinic after attempting topical minoxidil use which yielded no significant hair growth. The patient has no autoimmune or endocrine comorbidities.

On physical examination, the patient had near-complete absence of terminal hair across the entire scalp. Sparse distribution of fine, white vellus hair was noted, mostly prominent along the frontal, temporal and occipital periphery. The surface of the scalp was smooth, with no erythema, scaling or scarring noted. No eyebrow or eyelash involvement was noted. Baseline photographs (Figure 1) were taken. The latter demonstrated extensive alopecia with complete loss of pigment-bearing follicles. After discussing the available treatment options, the patient elected to undergo exosome therapy using ASCE HRLV-E.

The patient had discontinued minoxidil 1 year before initiating the protocol. She reported no previous adverse effects from hair loss therapies. The patient remained motivated and fully compliant with all scheduled sessions.

Figure 1: Baseline photograph which shows our patient with alopecia totalis prior to initiation of ASCE HRLV-E exosome therapy.

The treatment plan consisted of 5 sessions which were administered at a 2-week interval. During each session, 1 vial of HRLV-E was administered intradermally. This was achieved via microinjection across the entire scalp at approximately 1 cm intervals. Uniform microneedling was then performed to enhance transdermal absorption. No concurrent topical or systemic therapies for alopecia were administered during this period. The intervention was well tolerated, with no adverse events. After 5 treatment sessions, increased hair density was noted, especially in the central and parietal regions (Figure 2). This was conjugated to the emergence of mostly fine, depigmented terminal hair.

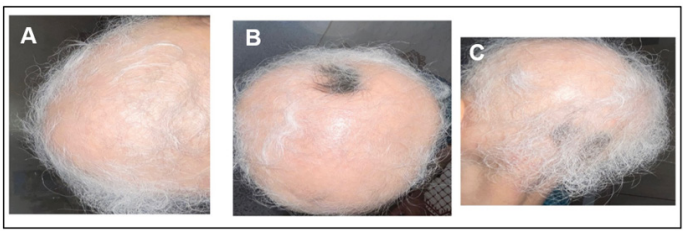

Figure 2: Frontal, vertex, and oblique views of the patient's head after 5 sessions of therapy. Increased hair density is noted along with the emergence of fine, depigmented terminal hairs. Scalp shows no erythema or scaling.

The patient came back to the clinic 1 year following treatment. As revealed in Figure 3, there was a marked increase in the overall hair volume compared to her baseline. The patient's scalp now shows substantial growth of long, coarse and densely distributed white terminal hair. It is also important to note that multiple areas of darker pigmented terminal hair were present. The latter were mainly clustered in the central occipital and parietal region. No areas of erythema, scale, scarring, or inflammation were visible. The patient reported a marked improvement in her psychological well-being and rated her satisfaction as a 10/10.

Figure 3: Photographs one year following completion of ASCE HRLV-E exosome therapy. Results showed substantial regrowth of long terminal hairs with areas of repigmentation and increased hair

density.

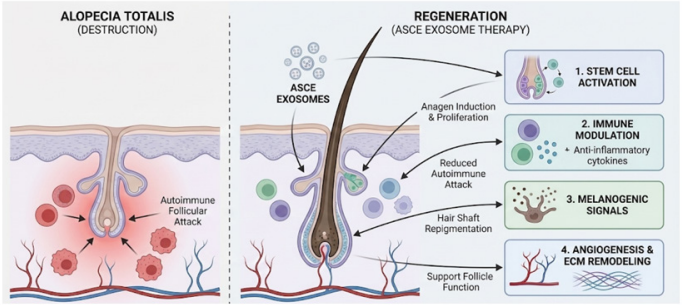

Figure 4: Potential therapeutic mechanisms of ASCE exosomes in Alopecia totalis.

DISCUSSION

ASCE exosomes are nanovesicles harvested from mesenchymal stem cells derived from adipose tissue. They provide an alternative to traditional stem cell transplants [10]. These vesicles promote hair follicle cycling by activating Wnt/β-catenin pathways. In particular, they stimulate dermal papilla cells and therefore enhance vascularization. These results were demonstrated in preclinical models and early clinical trials for androgenetic alopecia [9]. ASCE HRLV-E, a standardized formulation, combines optimized exosome concentrations. It is also used with microneedling for intradermal delivery. Indeed, the current body of knowledge demonstrates that microneedling can increase skin absorption by 5.87 fold compared to traditional topical methods [11].

A systematic review which includes 16 studies found that exosomes from adipose-derived stem cells and dermal papilla cells significantly enhanced hair regrowth in alopecia patients. These results were mainly prevalent in androgenetic alopecia but increasingly reported in alopecia areata forms, with minimal adverse effects [12]. Clinical reports of ASCE exosome therapy combined with microneedling indicated marked improvement in hair density and quality. Indeed, these results were sustained over months with high patient satisfaction. In particular, two severe alopecia areata cases showed substantial improvement in hair restoration using ASC-exosomes [7].

The therapeutic effects of ASCE exosomes in alopecia totalis likely arise from their ability to influence multiple biological pathways (Figure 3). First, they allow the activation and proliferation of hair follicle stem cells which promotes anagen induction. Second, it allows the modulation of local immune environment reducing autoimmune follicular attack. Third, it delivers melanogenic signals which promotes hair shaft repigmentation. Finally, it enhances angiogenesis and extracellular matrix remodeling to support follicle function.

Given that alopecia totalis involves severe immune dysregulation leading to follicular quiescence, ASCE exosomes can help shift the scalp milieu towards regeneration rather than destruction.

To our knowledge, this case report is one of the first to document the instance of substantial hair regrowth and re-pigmentation in alopecia totalis, following a short course of ASCE HRLV-E exosome therapy. The results are also of significance since durable results persisted 1-year post-therapy and without any adjunctive interventions during this period. These results are most likely related to ASCE's action on Wnt/β-catenin signaling, HFSC proliferation, and immune modulation which are absent with the use of minoxidil [13].

While the existing body of literature does discuss exosome therapy for hair loss, it primarily focuses on androgenetic alopecia. For instance, the systematic review Al Amir et al. [14] reports increase in hair density from 9.5 to 35 hairs/cm^2 following exosome therapy. These results are also echoed in the study of Wan et al. [15] which demonstrated an increase of 35 hairs/cm^2 (±6.5 hairs/ cm^2) in patients with androgenetic alopecia after 12 months of exosome therapy.

From this perspective, it is important to mention that our study adds to the existing body of literature. Indeed, baseline hair densities in Wan et al.'s [15] study ranged from 75 hairs/cm^2 to 95 hairs/cm^2, which is a strikingly higher baseline than our patient with alopecia totalis.

All in all, this case report demonstrates substantial regrowth and repigmentation in a refractory alopecia totalis patient. In particular, it showcases the potential of ASCE exosome therapy as a promising intervention. Compared to topical minoxidil which showed no effect in tour patient, intradermal exosome delivery combined with microneedling provides targeted regenerative stimuli that overcome treatment resistance. The results were also maintained 1 year following therapy.

In conclusion, ASCE exosome therapy represents a breakthrough approach for alopecia totalis with dual benefits of stimulating hair regrowth and repigmentation. It offers a safe and tolerable alternative for patients unresponsive to conventional therapies.

REFERENCES

1. Moussa A, Bokhari L, Sinclair RD. Alopecia areata: a review of diagnosis, pathogenesis and the therapeutic landscape. Wound Practice & Research: Journal of the Australian Wound Management Association. 2022; 30: 24-33.
2. Karanovic S, Harries M, Kaur MR. Diphenylcyclopropenone for alopecia areata: a UK survey. British Journal of Dermatology. 2018; 179: 514-515.
3. Burroway B, Griggs J, Tosti A. Alopecia totalis and universalis long-term outcomes: a review. Journal of the European Academy of Dermatology and Venereology. 2020; 34: 709-715.
4. Kassira S, Korta DZ, Chapman LW, Dann F. Review of treatment for alopecia totalis and alopecia universalis. International journal of dermatology. 2017; 56: 801-810.
5. Paggioli I, Moss J. Alopecia Areata: Case report and review of pathophysiology and treatment with Jak inhibitors. Journal of Autoimmunity. 2022; 133: 102926.

6. Sanchez K, Englander H, Salloum L, Gregoire S, Biba U, et al. Evaluating Current and Emergent JAK Inhibitors for Alopecia Areata: A Narrative Review. Dermatology and Therapy. 2025; 15: 2749-2764.
7. Nilforoushzadeh MA, Heidari N, Heidari A, Nobari NN. Adipose Tissue–Derived Exosomes as a Novel Therapeutic Approach for Refractory Alopecia Areata: A Report of Two Cases. Case Reports in Dermatological Medicine. 2025; 2025: 4908438.
8. Tang X, Cao C, Liang Y, Han L, Tu B, et al. Adipose-derived stem cell exosomes antagonize the inhibitory effect of dihydrotestosterone on hair follicle growth by activating Wnt/β-Catenin pathway. Stem cells international. 2023; 2023: 5548112.
9. Li Y, Wang G, Wang Q, Zhang Y, Cui L, et al. Exosomes secreted from adipose-derived stem cells are a potential treatment agent for immune-mediated alopecia. Journal of immunology research. 2022; 2022: 7471246.
10. Park GH, Kwon HH, Seok J, Yang SH, Lee J, et al. Efficacy of combined treatment with human adipose tissue stem cell-derived exosome-containing solution and microneedling for facial skin aging: a 12-week prospective, randomized, split-face study. Journal of Cosmetic Dermatology. 2023; 22: 3418-3426.
11. Zhang K, Yu L, Li FR, Li X, Wang Z, et al. Topical application of exosomes derived from human umbilical cord mesenchymal stem cells in combination with sponge spicules for treatment of photoaging. International journal of nanomedicine. 2020; 23: 2859-2872.
12. Kost Y, Muskat A, Mhaimeed N, Nazarian RS, Kobets K. Exosome therapy in hair regeneration: a literature review of the evidence, challenges, and future opportunities. Journal of cosmetic dermatology. 2022; 21: 3226-3331.
13. Cho BS. 21 Adipose stem cell exosome (ASCE): next generation regenerative aesthetics & therapeutics for scalp & hair. Journal of Investigative Dermatology. 2023; 143: S336.
14. Al Ameer MA, Alnajim AT, Al Ameer A, Alsalman Z, Al Ameer GA, et al. Exosomes and Hair Regeneration: A Systematic Review of Clinical Evidence Across Alopecia Types and Exosome Sources. Clinical, Cosmetic and Investigational Dermatology. 2025; 31: 2215-2227.
15. Wan J, Kim SB, Cartier H, Garson S, Frank K, et al. A prospective study of exosome therapy for androgenetic alopecia. Aesthetic plastic surgery. 2025; 27: 1-6.