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Perspective, Opinion, Commentary

Complementary and Alternative Therapies for Scarring Alopecia

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Scarring or cicatricial alopecia is an inflammatory disease of the hair follicle that can result in permanent hair loss. While initial therapy for scarring alopecia consists of topical and intralesional corticosteroids, there are no FDA-approved therapies, and existing treatments are often ineffective. This leads to some patients turning to complementary and alternative medicine. This narrative review aims to summarize complementary and alternative therapies for scarring alopecia.

INTRODUCTION

Scarring alopecia, also known as primary cicatricial alopecia, is an inflammatory condition that can result in permanent hair loss from destruction of hair follicles. It can be categorized into lymphocytic alopecias that include lichen planopilaris (LPP), frontal fibrosing alopecia, and central centrifugal cicatricial alopecia (CCCA); and neutrophilic alopecias that include folliculitis decalvans and dissecting cellulitis. In general, treatments aim to reduce inflammation. Additionally, therapeutics for neutrophilic alopecia target the bacterial load.

Early intervention is key to halting disease progression and improving hair density. However, there is a considerable lack of literature on conventional treatments for scarring alopecia as compared to nonscarring alopecia such as alopecia areata. Without any FDA approved treatments currently, scarring alopecia is challenging to treat as existing medical therapies often have suboptimal efficacy and significant potential of adverse effects. Given the heavy burden on mental health and quality of life, some patients may turn to complementary and alternative therapies (CATs) for relief.[1-3] Hence, it is important for clinicians to be aware of these interventions to be able to advise patients on their safety and efficacy.

METHODS

A literature search was conducted in the Pub-Med and EMBASE databases using the following Medical Subject Heading (MeSH) terms: (alopecia) and (complementary, alternative, integrative, traditional, homeopathic, natural, acupuncture, acupressure, massage, vitamin, cryotherapy, aromatherapy, hypnosis, biofeedback, phytotherapy, herb, herbal, or oil). Upon restricting the search results to full text and performing deduplication, our search yielded 297 articles. The contents of each article were manually reviewed, and the article was subsequently included if it was published in English, conducted on human subjects with scarring alopecia, and featured complementary or alternative therapies as the primary intervention. Upon screening, 287 articles were excluded for failing to mention scarring/cicatricial alopecia and complementary/alternative medicine in the article, for publication type (eg commentary, protocol, conference report, guidelines, review), and for being written in a non-English language. A remaining total of 10 articles were then included in our review, and references of included articles were further screened for pertinent literature.

MEDICAL GRADE HONEY

The medicinal use of honey dates to ancient times. More recently, medical grade honey, specifically Manuka honey, has been used in wound care due to its activity against gram-positive skin flora.[4-6] Manuka honey is produced in New Zealand from the *Leptospermum scoparium* tree and has been shown to prevent *Staphylococcus aureus* growth via an unidentified phytochemical component.[4]

Literature search yielded a case report of a 20-year-old male with a three-year history of biopsy-proven folliculitis decalvans, who achieved disease remission on oral cephalexin along with topically-applied Manuka honey.[7] Prior to this regimen, the patient's disease was suboptimally controlled with repeated intralesional triamcinolone 5 mg/mL, six months of clobetasol 0.05% solution, prednisone 5-10 mg with minocycline or doxycycline 100 mg twice daily, and isotretinoin as dosed for acne. The patient discontinued these treatments either due to lack of efficacy or after developing adverse effects such as visual changes on minocycline, esophagitis on doxycycline, and intermittent nosebleeds on isotretinoin. He was prescribed cephalexin 500 mg twice daily while waiting for approval for adalimumab. One month into cephalexin treatment, he self-initiated nightly Manuka honey application after reading about its antibacterial properties. One month later, he experienced significant reduction in size and tenderness of scalp pustules. After six months on cephalexin and Manuka honey, his scalp lesions completely cleared, and he tapered off cephalexin. A subsequent scalp flare was treated with honey alone and resolved within one week.

This report suggests that medical grade Manuka honey may be a safe and cost-effective adjuvant therapy for fol-

liculitis decalvans, however, larger controlled studies are needed to clarify its true efficacy. See Table 1.

AYURVEDIC MEDICINE WITH LEECH THERAPY

Ayurveda, an ancient medical system originating in the Indian subcontinent, embraces natural and holistic approaches to physical and mental health, with treatments combining products (mainly derived from plants, but also animals, metals, and minerals), diet, exercise, and lifestyle. Use of medicinal leech therapy or hirudotherapy, known as *Jaloka Avacharana* in the Ayurvedic system, has been documented in the history of many early civilizations to treat various skin disorders.[8] Recent articles provide more evidence for robust biochemical actions of leech therapy, owing to bioactive components in salivary gland secretions which impart antimicrobial, anticoagulation, anti-inflammatory, and analgesic properties.[9]

A case report of a 24-year-old male with a 4-month history of folliculitis decalvans, who achieved complete disease remission after two months of Ayurvedic treatment along with leech therapy, was found.[10] Initial medications included *Triphala churna* and *Vidanga churna* (polyherbal medicines), *Shuddha gandhaka* (pure or detoxified sulfur-based medicine), and *Dhurdhurpatradi taila* (topical botanical oil mixture), and the patient was advised to avoid causative diet and lifestyle factors. Leech therapy using the *Hirudinaria granulosa* species was performed weekly for 5 weeks until leeches were no longer able to attach to the scalp due to hair growth. Post-procedure wounds were treated with a paste of turmeric, honey, and *Yastimadhu* (Licorice). The patient experienced control of pruritus by one week of treatment, significant hair regrowth by 6 weeks, and complete resolution of disease by 9 weeks. Subsequent maintenance therapy with *Avipattikar churna* and *Pittantaka churna* (botanical medicines) was continued for 3 months. No recurrence was reported at 3 years follow up.

While leech therapy may be a potentially effective CAT as suggested, there are several limitations to this evidence. With a report of only a single case and the use of multiple concurrent topical and oral therapies, it is difficult to determine the contribution of leech therapy to disease resolution. This study, however, offers prospective ideas for further research on CATs for scarring alopecia.

PHOTODYNAMIC THERAPY

Photodynamic therapy (PDT), a noninvasive light treatment utilizing a photo-sensitizing agent in the presence of molecular oxygen, is well known for its use in the treatment of actinic damage, skin cancer, and acne.[11] It is thought to have anti-inflammatory effects, immunomodulatory properties, and antimicrobial activity, with a range of targets including keratinocytes, fibroblasts, mast cells, sebaceous glands, and hair follicles.[11-13] In recent years, several studies describing an alternative application of this mainstream therapy in folliculitis decalvans have emerged.

In a series of 10 patients, 5 males and 5 females (age range: 33-58 years) with a histologic diagnosis of folliculitis decalvans, 9 patients demonstrated clinical improvement after undergoing PDT with topical methyl aminolevulinate (3-hour incubation).[14] All patients had previously pursued at least 3 months of doxycycline 100 mg daily. PDT protocol involved 4 sessions at 4-week intervals. Four months after treatment, 6 patients showed persistent remission, although 3 of them required concurrent therapy such oral antibiotics and intralesional corticosteroids to maintain the clinical response. One patient remained disease-free at 36 months without the use of any additional therapies. Reported adverse effects included pain in 4 patients and a local inflammatory reaction following PDT in 2 patients.

Another series of 13 male patients (age range: 14-65 years) with a history of folliculitis decalvans unresponsive to topical and oral treatments, reported disease improvement in all patients treated with 5-aminolevulinic acid photodynamic therapy (3-hour incubation).[15] All other therapies were ceased four weeks prior to starting this regimen. A total of 3 sessions were performed at 10- to 14-day intervals. After the first treatment, 7 patients showed significant improvement in scalp lesions and symptoms. After the second treatment, 10 cases improved significantly. After the final treatment, 4 patients demonstrated complete resolution of disease, and 7 improved significantly. At 12 months follow up, 9 cases were well controlled with no recurrence. The remaining 4 cases relapsed within 1 to 2 months of the final treatment; however, adequate control of their disease was achieved with additional topical and oral therapies. Local discomfort, which self-resolved, was reported by 4 patients during treatment.

Noninvasive PDT using topical photosensitizers may be ideal for patients with intolerance or contraindications to powerful systemic therapies generally used to treat folliculitis decalvans. However, further controlled investigations are warranted to determine the efficacy of PDT in the disease.

BOTULINUM TOXIN

While botulinum toxin is generally not considered an alternative therapy as it is one of the most widely performed procedures in dermatology, we felt it important to include two studies of its novel use with a presumably different mechanism of action.

A case series of four male patients (mean age: 26 years), with treatment-refractory, biopsy-confirmed folliculitis decalvans, demonstrated improvement of follicular disease after at least one treatment with botulinum toxin (reconstituted in saline).[16] Three patients did not pursue any concurrent treatments. All patients experienced reduction of secretions, however only two experienced significant hair regrowth. Improvements were sustained through 6- to 8-month follow ups. Of note, the botulinum toxin used in this study was provided by Allergan, Inc.

More recently, a case of a 34-year-old male with a 2-year history of treatment-resistant, biopsy-proven folliculitis decalvans, who achieved complete disease remission after treatment with botulinum toxin A, was reported.[17] Previous treatments with oral tetracyclines and intradermal tri-

amcinolone scalp injections were minimally effective, with discontinuation resulting in immediate disease relapse. After a 6-month hiatus from any therapies, during which hair loss and scalp wounds significantly worsened, the patient received 4 intradermal sessions of 100 IU of botulinum toxin A (reconstituted in sterile saline) at 30-day intervals. Each injection site area (2 cm^2) received 2.5 IU of toxin/100 uL. No other treatments were pursued during this time. The patient reported improvement in inflammatory lesions and elimination of itch within a few days of treatment. Full disease remission was observed 4 months after initial treatment. No recurrence of disease was observed in 5 years of follow up. No conflicts of interest were disclosed by the authors of this report.

Several studies have hypothesized that botulinum toxin may normalize an overactive immune system by inhibiting the activation of receptors involved in aberrant immune responses and the induction of hair growth-inhibiting mediators.[18-21] However, the mechanism behind its healing effects on folliculitis decalvans remains unknown. Larger controlled studies are needed to increase understanding of the mechanism of action and efficacy of botulinum toxin for this disease.

BOTANICAL EXTRACT

A novel proprietary botanical extract ("Gashee", Dr. UGro Gashee®, FineTouch Laboratories, Manhattan Beach, CA) consists of 12 phytoactive ingredients: gotu kola, green tea extract with 95% epigallocatechin gallate, fenugreek oil, *Aloe barbadensis* extract, red (Asian) ginseng extract, Polygonum Fo-ti extract, cysteine/N-acetyl-cysteine, turmeric, horsetail extract, tall oil fatty acids, saw palmetto, *Eclipta alba* oil, and vitamin D3.[22] Topical (cosmeceutical) and oral (nutraceutical) formulations share the ingredients turmeric, fenugreek oil, and Fo-ti extract.

Three case series describing successful treatment of scarring alopecia with this preparation were found.[22-24] Two case series reported a total of five African-American women (age range: 50-58 years) with treatment-refractory, biopsy-proven CCCA, who demonstrated improvement in scalp symptoms as well as hair density after discontinuing all other treatments and using the topical formulation, with or without the oral supplementation.[22,23] Two patients applied the topical lotion twice daily and experienced significant improvement in hair density after 3 months of treatment. Interestingly, one of these patients had previously used the topical lotion only once a day along with 4 oral capsules daily, which had resolved the scalp pruritus but did not improve hair density after 5 months on this regimen. Histopathological analysis of this patient's scalp biopsy before, and at four months after, applying the lotion twice daily as sole treatment demonstrated interval changes of marked reduction in inflammatory cells, increased number of vellus hairs coinciding with a significant increase in adipocytes. The three patients who used both the topical formulation twice a day and 4 oral capsules daily noticed a significant reduction in scalp pruritus and irritation two weeks into treatment, and new hair growth and improved coverage as early as 8 weeks after treatment. Sustained benefit was observed up to 1 year of treatment. No adverse effects were reported. Of note, neither study received any funding, however one author in both studies disclosed a patent application for the product and equity in the parent company.

Turmeric, fenugreek oil, and Fo-ti extract found in both the topical and oral formulations may be useful in combating the hair loss, fibrosis, and inflammation which characterize CCCA via the inhibition of TGF-β, upregulation of fibrosis-mitigating AMPK and PPAR-γ, and other anti-inflammatory properties.[25-32]

Another case series of four patients, 3 females and 1 male (age range: 29-56 years), with LPP demonstrated marked reduction in symptoms and inflammation as well as significant new hair growth with exclusive use of the topical formulation alone or in combination with the oral supplements.[24] Two patients used the topical formulation only, applying twice daily or once every other day, which led to complete resolution of symptoms and improved hair density as early as within 6 weeks of treatment. A regimen of twice daily use of the topical lotion along with four daily capsules of the oral supplements was implemented for the other two patients. Improvement in symptoms and hair density was noted as early as 6 weeks into treatment and was sustained up to 7 months of treatment. All patients reported high satisfaction levels and no adverse effects. Of note, funding for this case series was provided by the authors and like the previous studies, one of the authors disclosed a patent application for the product and equity in the parent company.

At least three ingredients in the product, namely turmeric, fenugreek oil, and green tea extract (found in topical formulation only), can modulate multiple mechanistic pathways of LPP, such as upregulation of JAK/STAT pathway, downregulation of antifibrotic PPAR-γ pathway, increased profibrotic and catagen-inducing TGF-β/SMAD, and increased levels of proinflammatory cytokines.[28,33-43]

These results suggest that the proprietary botanical combination may hold promise for treating scarring alopecias, although it is important to consider the limitations of these studies, including very small sample size and lack of control groups. The role of botanicals in the treatment of scarring alopecia, including optimal dosing, warrants further investigation in larger controlled trials.

HYPNOTHERAPY

A wide body of evidence supports hypnotherapy as a CAT in various dermatological diseases.[44]

The earliest investigation found in our search on hypnotherapy for alopecia was conducted in 1991 and included two female patients (age range: 33-64 years) with refractory scarring alopecia (type unknown).[45] They underwent 10-12 forty-five-minute sessions over the course of 3 months, which included techniques of direct and indirect suggestions and ego strengthening. At baseline, all had some level of anxiety, but at the end of treatment, all reported a feel-

ing of well-being. Additionally, both patients experienced partial hair regrowth.

This suggests that hypnotherapy may have the potential to improve psychological wellbeing as well as hair loss in patients with scarring alopecia, but larger controlled studies are necessary to corroborate these findings.

CONCLUSION

Scarring alopecia can have a significant impact on quality of life of patients, often affecting mental health. When conventional medical treatments fail, some patients may turn to CATs. Through a variety of mechanisms such as mitigating profibrotic pathways, exerting anti-inflammatory effects, or creating conditions favorable for hair regrowth, these therapies may hold promise for patients who may not respond to, tolerate, or desire traditional treatments. However, as revealed in this narrative review, there is an extremely limited body of evidence on CATs for scarring alopecia, and most of the reports are muddied by small numbers, multiple simultaneous treatments, and lack of placebo controls. Additional rigorous research is required to understand the true efficacy and potential adverse reactions of these treatments. This review serves as a call to encourage more active research on CATs for scarring alopecia.

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Table 1. Reports on Complementary and Alternative Therapies for Scarring Alopecia

Studies	Complementary/ alternative therapy	Administration	Proposed mechanism of action	Indication
Yeh, 2019[7]	Medical grade Manuka honey	Topical	Antimicrobial activity against gram-negative skin flora via unidentified phytochemical component	Folliculitis decalvans
Gautam, 2022[10]	Ayurvedic medicine	Topical and oral	Antimicrobial, anti-inflammatory, antioxidant, analgesic, and immune-boosting properties conferred by natural and holistic approaches	Folliculitis decalvans
	Leech therapy	Technique	Antimicrobial, anticoagulation, anti-inflammatory, and analgesic properties imparted by bioactive components in salivary gland secretions	
Miguel-Gomez, 2015[14] Yang, 2021[15]	Photodynamic therapy	Technique	Anti-inflammatory effects, immunomodulatory properties, and antimicrobial activity targeting keratinocytes, fibroblasts, mast cells, sebaceous glands, and hair follicles	Folliculitis decalvans
Tamura, 2007[16] Neri, 2023[17]	Botulinum toxin	Technique	Inhibition of the activation of receptors involved in aberrant immune responses and the induction of hair growth-inhibiting mediators	Folliculitis decalvans
Umar, 2021[22] Umar, 2022[23] Umar, 2022[24]	Gashee proprietary botanical extract	Topical and oral	Inhibition of TGF-β, upregulation of fibrosis-mitigating AMPK and PPAR-γ, and other anti-inflammatory properties	LPP and CCCA
Harrison, 1991[45]	Hypnotherapy	Technique	Modulation of the autonomic nervous system affecting immunologic processes which lead to lymphocytic actions, as well as alteration of blood flow and therefore activity in particular brain regions[46]	Scarring alopecia

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