OPEN ACCESS Freely available online

Hair Therapy & Transplantation

ISSN: 2167-0951

Case Report

Successful Treatment of Refractory Folliculitis Decalvans with Adalimumab

Clare Mahon[1,2*], **Lynda Spelman**[3,4,5]

[1]*Frazer Institute, The University of Queensland, Queensland, Australia;* [2]*Department of Dermatology, Princess Alexandra Hospital, Queensland, Australia;* [3]*Department of Dermatology, Gabba Dermatology, Queensland; Australia;* [4]*Department of Dermatology, Veracity Clinical Research, Queensland, Australia;* [5]*Department of Dermatology, Queensland Institute of Dermatology, Queensland, Australia*

ABSTRACT

Folliculitis decalvans is a rare, chronic cicatricial alopecia. The hair loss and scarring associated with this condition has a significant impact on quality of life, and can cause significant emotional distress. It arises in adults and presents as an expanding patch of scarring alopecia on the scalp, with pustules, crusts, hair tufts and perifollicular hyperkeratosis. Without treatment, this can lead to irreversible progressive hair loss, an increased risk of squamous cell carcinoma development, and has severe psychosocial sequelae for patients. Treatment is difficult for this condition, with many cases where patients are refractory to topical therapies and oral antibiotics or isotretinoin. There is emerging literature on the use of TNF-α inhibitors for this condition due to the role of TNF in the cell-mediated response. Here, we present another case of successful treatment of folliculitis decalavns with adalimumab following failure of both medical and surgical therapy. This offers new insight into the effectiveness of TNF-α inhibitors in the treatment of this neutrophilic alopecia in the post-operative setting and adds to the current literature on TNF- α inhibitors in this condition.

Keywords: Alopecia; Hair disorders; Biologics; Tumour necrosis factor; Folliculitis decalvans

INTRODUCTION

Folliculitis decalvans is a rare, chronic cicatricial alopecia. It arises in adults and presents as an expanding patch of scarring alopecia on the scalp, with pustules, crusts, hair tufts and perifollicular hyperkeratosis [1,2]. Histopathology shows an intra and peri-follicular neutrophilic infiltrate extending to the adventitial dermis. Without treatment, this can lead to irreversible progressive hair loss, an increased risk of squamous cell carcinoma development, and has severe psychosocial sequelae for patients [3].

The aetiology of folliculitis decalvans is not entirely understood, but appears to be related to a heightened immune response to Staphylococcus antigens [1,2]. It occurs more commonly in males than females.

Folliculitis decalvans is a difficult entity to treat. Treatment focuses on *Staphylococcus aureus* eradication with oral antibiotics [1], commonly tetracyclines or cephalosporins according to culture and sensitivity. In antibiotic-resistant cases, the treatment options are limited to systemic corticosteroids and broader-spectrum antibiotics including rifampicin. There are limited reports in the literature of successful treatment of folliculitis decalvans with Tumour Necrosis Factor Alpha (TNF-α) inhibitors [4-6]. Here we present the case of a treatment-refractory folliculitis decalvans being managed with a TNF-α inhibitor, adalimumab, which is approved by the pharmaceutical benefits scheme in Australia for the treatment of severe hidradenitis suppurativa and psoriasis. This may offer a new and possibly improved treatment option for clinicians in this complex condition.

Correspondence to: Clare Mahon, Department of Dermatology, Princess Alexandra Hospital, Queensland, Australia, Tel: (07) 3176 2111, E-mail: clare.mahon@health.qld.gov.au

Received: 25-Mar-2023, Manuscript No. HTT-23-22417; **Editor assigned:** 27-Mar-2023, PreQC No: HTT-23-22417 (PQ); **Reviewed:** 11-Apr-2023, QC No. HTT-23-22417; **Revised:** 18-Apr-2023, Manuscript No: HTT-23-22417 (R); **Published:** 25-Apr-2023; DOI: 10.35248/2167-0951.23.13.210

Citation: Mahon C, Spelman L (2023) Successful Treatment of Refractory Folliculitis Decalvans with Adalimumab. Hair Ther Trasplant. 13:210.

CASE PRESENTATION

Successful treatment of folliculitis decalvans with adalimumab

A 26-year-old female presented to our clinic with a nine-year history of folliculitis decalvans. The diagnosis was made on the basis of the clinical and histopathological diagnosis when she initially presented at age 17, where she had broad-based scarring with perifollicular pustules and clumping of the hair follicles. A biopsy that was consistent with folliculitis decalvans. At that time, she had a small ovoid area of involvement on her posterior scalp. Over the course of nine years, she had progressive disease that had failed multiple topical and systemic treatments, including mupirocin, topical clindamycin and oral doxycycline. Each option had been trialed for months to years without satisfactory results. Further topical treatments that had been used include griseofulvin, 8% lactic acid, 0.05% clobetasol propionate shampoo, coal tar/salicylic acid shampoo and topical corticosteroids (calcipotriol/betamethasone). Her condition progressed despite all topical and systemic therapies and she was referred for surgical excision of the area of scarring. For five years, her condition was in remission, though areas of folliculitis subsequently appeared (Figure 1).

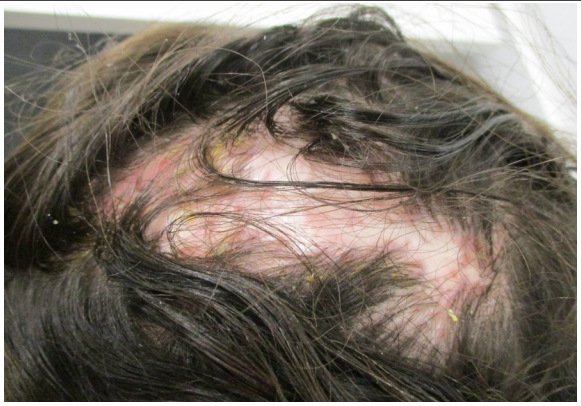

Figure 1: Broad-based scarring with perifollicular pustules and clumping of the hair follicles affecting the frontal scalp, prior to treatment.

This patient had no other medical conditions, including autoimmune conditions. She had no family history of alopecia or other significant medical conditions and had no known allergies. Malignancy screening and vaccination status was up to date. Of note, during her screening investigations, she was noted to have iron deficiency anemia and vitamin D deficiency, for which she was commenced on iron and vitamin D supplementation. Other laboratory tests (full blood count, liver function tests, renal profile, lipid profile, infectious screen) were unremarkable. Culture examination of the scalp pus was positive for *Staphylococcus aureus*.

Given the role of TNF-α in the cell-mediated response, we considered the use of a TNF-α inhibitor. Other case reports of successful treatment of treatment-resistant folliculitis decalvans and other neutrophilic dermatoses with TNF-α inhibitors also supported this decision. Treatment with adalimumab was commenced with an initial loading dose of 80 mg adalimumab followed by weekly dosing of 40 mg as per the schedule for psoriasis. We predict that ongoing therapy will be required, as for other conditions being treated with these TNF-α inhibitors such as psoriasis and hidradenitis.

After six months of treatment with adalimumab, marked remission was seen, the patient's scalp showed minimal oedema and no induration (Figure 2).

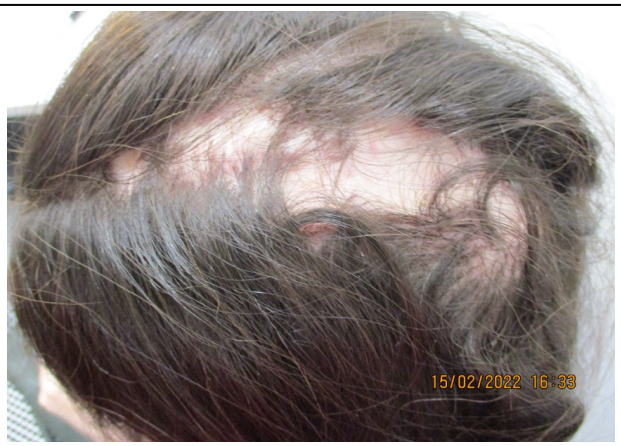

Figure 2: Resolution of scalp perifollicular inflammation following treatment with adalimumab.

There were only occasional inflammatory patches, less than 0.5 mm in diameter, which cleared over 12 months. No adverse side effects from treatment have been reported in this patient.

RESULTS AND DISCUSSION

Folliculitis decalvans is a difficult entity to treat. Here we present the case of a treatment-refractory folliculitis decalvans being managed with a TNF-α inhibitor, adalimumab. TNF-α is synthesised from activated macrophages and T cells, and exerts several effects in the immune system, by stimulating inflammatory cytokines, colony-stimulating factor and coordinating the migration of leukocytes to target organs [6]. Suppression of TNF-alpha has been successful in the treatment of other autoimmune diseases and neutrophilic dermatoses such as pyoderma gangrenosum and Sweet syndrome [7], where it is raised as a part of the cell-mediated immune response. As such, suppression of TNF-α as with adalimumab may offer a new treatment option for this neutrophilic cicatricial alopecia [8].

Consideration must be given to the potential adverse side effects or consequences of TNF- α inhibition include relative immunosuppression and increased rates of infection, as well as demyelinating disease, heart failure, malignancy and induction of autoimmunity [8-10]. These potentially serious side effects highlight the need for further studies to assess the long-term safety and efficacy of adalimumab and other TNF-α inhibitors in the treatment of folliculitis decalvans and other conditions where they are used off-label.

CONCLUSION

Treatment-resistant folliculitis decalvans is an area largely guided by case reports. Rare reports exist of the use of TNF-α inhibitors in folliculitis decalvans. Here, we add to the literature on the successful use of adalimumab in treating folliculitis decalvans.

No adverse side effects were experienced. Further studies are needed assess the long-term safety and efficacy of adalimumab and other TNF-α inhibitors in the treatment of FD and other conditions where they are used off-label.

STATEMENTS

This work is original and has not previously been published.

STATEMENT OF ETHICS

- Ethical approval was not required for this case report.
- Written informed consent was obtained from the participant for publication of the details of their medical case and any accompanying images.

CONFLICT OF INTEREST STATEMENT

Dr Clare Mahon has no conflicts of interest to declare.

Dr Lynda Spelman has received grant supports from AbbVie, Akesobio, Alphyn Biologics, Amgen, Anacor, Ascend, Aslan, Astellas, AstraZeneca, Azora, Bristol-Myers-Squibb, Boehringer-Ingelheim, Botanix, Celgene, Dermira, Eli Lilly and Company, Evelo Biosciences, Galderma, Genentech, GSK, Hexima, Immunic Therapeutics, Invion, Janssen, Kiniksa Pharmaceuticals, Kobiolab, Leo Pharma, Lipidio, Mayne, Medimmune, Merck (MSD), Merck-Serono, Novartis, Otsuka, Pfizer, Phosphagenics, Regeneron, Samumed, Sanofi, SHR, Sun Pharma ANZ,Trius, UCB, Vyne Therapeutics and Zai lab and consulting/speaker fees from Eli Lilly, AbbVie and UCB.

FUNDING SOURCES

No funding sources were obtained for this publication.

AUTHOR CONTRIBUTIONS

Dr Clare Mahon is first author and was responsible for writing and publishing this work. Dr Lynda Spelman was the specialist dermatologist involved in this case, organizing treatment and investigations for the specified patient.

DATA AVAILABILITY STATEMENT

Further details and data related to this case can be obtained by contacting the corresponding author.

REFERENCES

1. Otberg N, Kang H, Alzolibani AA, Shapiro J. Folliculitis decalvans. Dermatol Ther. 2008;21(4):238-244.
2. Annessi G. Tufted folliculitis of the scalp: a distinctive clinicohistological variant of folliculitis decalvans. Br J Dermatol. 1998;138(5):799-805.
3. Koo JY, Shellow WV, Hallman CP, Edwards JE. Alopecia areata and increased prevalence of psychiatric disorders. Int J Dermatol 1994;33(12):849–850.
4. Shireen F, Sudhakar A. A case of isotretinoin therapy-refractory folliculitis decalvans treated successfully with biosimilar adalimumab (Exemptia). Int J Trichology. 2018;10(5):240–241.
5. Iorizzo M, Starace M, Vano-Galvan S, Piraccini BM, Reygagne P, Rudnicka L, et al. Refractory folliculitis decalvans treated with adalimumab: A case series of 23 patients. J Am Acad Dermatol. 2022;87(3):666-669.
6. Roach DR, Bean AG, Demangel C, France MP, Briscoe H, Britton WJ. (2002). TNF regulates chemokine induction essential for cell recruitment, granuloma formation, and clearance of mycobacterial infection. J Immunol. 2002;168(9):4620-4627.
7. Marzano AV, Ortega-Loayza AG, Heath M, Morse D, Genovese G, Cugno M. Mechanisms of Inflammation in Neutrophil-Mediated Skin Diseases. Frontiers in Immunology. 2019;10.
8. Fiorentino DF. The yin and yang of TNF-alpha inhibition. Arch Dermatol. 2007;143:233–236.
9. Béné J, Moulis G, Auffret M, Lefevre, G, Coquerelle P, Coupe P, et al. Alopecia induced by tumour necrosis factor-alpha antagonists: description of 52 cases and disproportionality analysis in a nationwide pharmacovigilance database. Rheumatology. 2014;53(8):1465–1469.
10. Udkoff J, Cohen PR. Tumor necrosis factor-induced alopecia: alternative pathology and therapy. Dermatology online journal. 2017;23(6).