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Case Report

Effective Management of Refractory Folliculitis Decalvans Using Secukinumab

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ABSTRACT

This case study reports the successful management of a refractory case of folliculitis decalvans in a 40-year-old female patient using Secukinumab, an interleukin-17A (IL-17A) inhibitor. The patient had a 14-year history of the condition, which had proven resistant to previous treatments, including topical Betamethasone scalp lotion, Ketoconazole shampoo, and Adalimumab. This case highlights the potential efficacy of Secukinumab as a therapeutic option for folliculitis decalvans refractory to conventional treatments.

Keywords
Folliculitis decalvans; Refractory folliculitis decalvans; Secukinumab.

INTRODUCTION

Folliculitis decalvans (FD) poses a complex clinical challenge, being a rare form of primary neutrophilic cicatricial alopecia affecting the scalp. The limited number of documented cases in the literature restricts our comprehension and management of this condition.[1-3] Furthermore, owing to the scarcity of cases, a conclusive pathogenic mechanism for FD remains unidentified.[1] Nevertheless, the commonly held view implies that changes in local immune responses and the presence of *Staphylococcus aureus* colonization play important roles in the development of FD.[1] Initially, FD was initiated with infundibular dilatation accompanied by neutrophilic infiltrates. Subsequently, papillary and peri-adnexal hyperplasia develop, eventually leading to dermal fibrosis. These histopathological abnormalities manifest clinically as erythema, itching, pustules, and cicatricial alopecia.[1] While it is recognized that an earlier appearance of symptoms and the presence of tufted hair are linked to advanced severe forms of the condition, there is no consensus on negative prognostic indicators.[1] Herein, we present a noteworthy case of refractory FD that exhibited successful management and stabilization with Secukinumab 300 mg monthly.

The treatment protocol involved administering 300 mg Secukinumab at weeks 0, 1, 2, 3, and 4, followed by a maintenance dose of 300 mg every 2 weeks thereafter. This case underscores the potential efficacy of Secukinumab in the management of moderate-to-severe FD, providing a promising avenue for preserving and stabilizing the ongoing inflammatory process.

CASE PRESENTATION

A 40-year-old woman who had been previously diagnosed with psoriasis vulgaris visited the dermatology clinic because of a substantial area of hair loss on her scalp. She also reported enduring pain and increased itching over time. Dermatological examination revealed central cicatricial alopecia affecting approximately 40% of the scalp as well as multiple pustules, yellowish to brownish crusts, dyspigmentation, and tufted hair. Additionally, similar crusts and fragile skin were observed in the peri-auricular area (Figure 1).

For further evaluation, a clinical decision was made to proceed with a culture swab and skin punch biopsy.

Bacterial swab culture revealed heavy growth of *Staphylococcus aureus* and group B streptococci. Furthermore, histopathological evaluation revealed acanthosis and hyperkeratosis, focal ulceration accompanied by acute and chronic inflammation, and abscess formation within the epidermis. Inflammation was notably concentrated around the hair shaft, featuring a foreign body giant cell reaction alongside bacterial colonies (Figure 2).

Figure 1. *(A) Redness, patches of Dyspigmentation, tufted hair around the periphery of the scalp over the inferior rim of the alopecic patch. (B) Redness with crusts and scales around left ear. (C) Scarring alopecia of the scalp with ongoing inflammation, pustules, crust formation, and severe redness around the periphery of the scalp. (D) Active FD is indicated by the intense redness, pustules, and crusts around the scalp periphery*

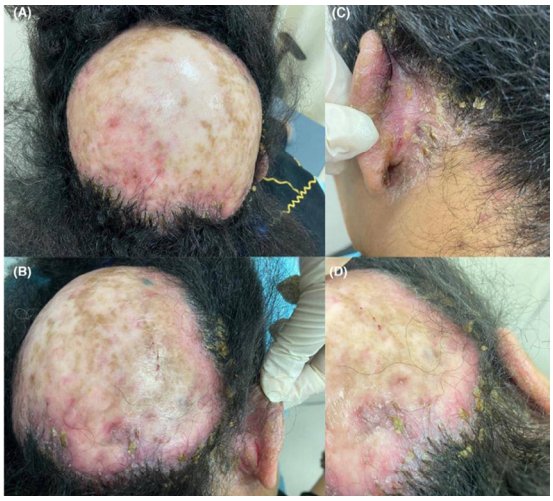
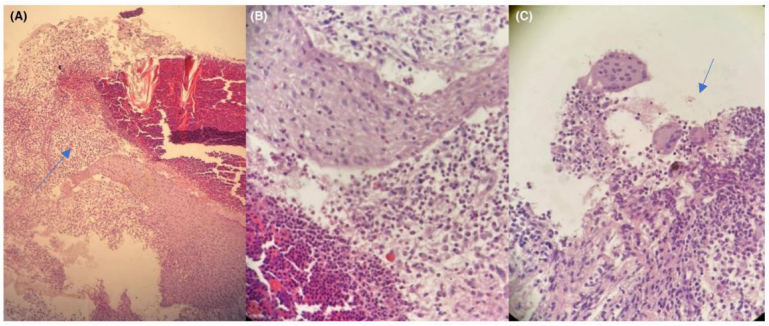
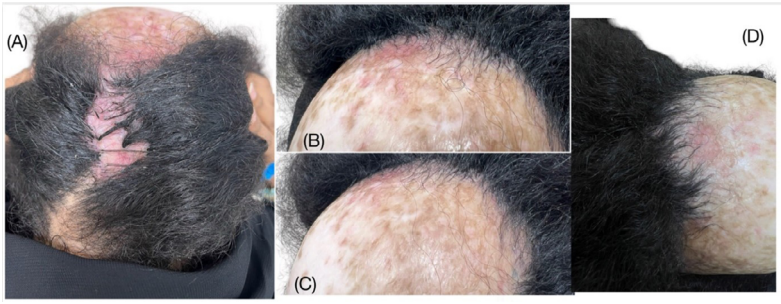


Figure 2. *(A) At 100x magnification, seen in the Hematoxylin and Eosin (H&E) stain, perifollicular neutrophilic infiltrates, along with a dermal infiltrate comprising of dense neutrophils and some lymphocytes, plasma cells (B) At 400x*



Accordingly, doxycycline 100 mg administered twice daily for two weeks was initiated, and topical Betamethasone valerate 0.1%, Clindamycin topical solution, and Ketoconazole shampoo were given. After successfully treating the infection and reviewing the patient's laboratory workup, the patient was transitioned to adalimumab, a monoclonal antibody that targets tumour necrosis factor-alpha (TNF-α), in October 2022. The treatment began with an initial subcutaneous loading dose of 80 mg, followed by a weekly maintenance dose of 40 mg for the first month. While there was moderate improvement during the initial three months, the treatment's effectiveness gradually declined thereafter (Figure 3).

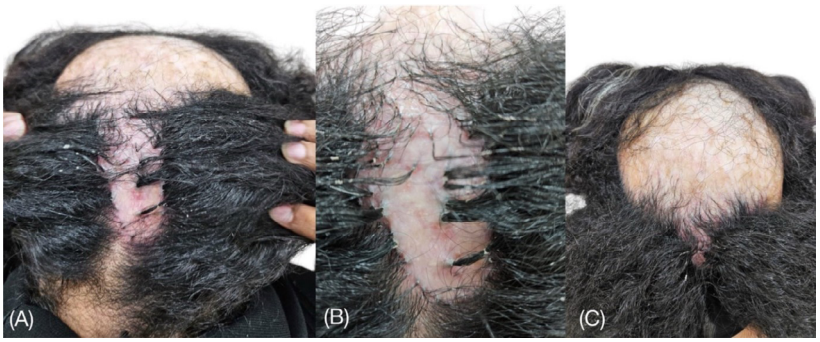
Figure 3. *On Adalimumab*



(A) Erythema with scales and crust over the occipital scalp, (B), (C), and (D) Erythema with scales over the periphery

Therefore, a decision was made with informed patient consent for Secukinumab, an interleukin 17 (IL-17) inhibitor, trial. The patient received a subcutaneous injection of 300 mg Secukinumab at weeks 0, 1, 2, and 3, followed by a maintenance dose of 300 mg every 2 weeks thereafter. Remarkably, the patient demonstrated substantial improvement with Secukinumab, surpassing the response observed with Adalimumab at the initial dose (Figure 4).

Figure 4. *After Two Doses of Secukinumab*



(A) and (B) Show slight erythema with few scales over the occipital scalp, and, (C) show reduced erythema and scales over the periphery

DISCUSSION

Folliculitis decalvans is a rare condition consequently, there are no established treatment guidelines for its management.[1] Although multiple treatment modalities, including topical clindamycin, topical erythromycin, topical mupirocin, oral tetracyclines, oral azithromycin, oral isotretinoin, and systemic photodynamic therapy (PDT) have been proposed based on case series, their effectiveness and relapse rates exhibit significant variability.[1,5-8]

In our case, the patient presented with severe and delayed FD manifestation, along with the presence of multiple hair tufts. Existing evidence shows a higher relapse rate and limited improvement with antibiotics, and the lowered efficacy of Adalimumab for the treatment of Secukinumab.[1] This case showed some improvement with Adalimumab, she noticed much improvement and control of her condition after using Secukinumab.

Secukinumab is a monoclonal antibody designed to selectively target and inhibit the activity of IL-17A.[9] IL-17A is recognized a crucial role in the pathophysiology of various inflammatory dermatoses.[9]

Owing to similarities in pathological features with Hidradenitis Supuritiva (HS) we selected Secukinumab, (recently approved FDA for the treatment of HS).

In parallel to our case, a study conducted by Ismail et al utilized Secukinumab as a therapeutic approach for refractory FD. The treatment dosing regimen followed the recommended protocol for plaque psoriasis.[10] Notably, significant improvement was observed after four months of treatment, and the therapy was continued without any reports of relapse or adverse effects.[10] To our knowledge, this is the 2nd case of FD that was successfully managed with Secukinumab.

CONCLUSION

In the present case, the patient came to our hospital at an advanced stage with severe active FD ceasing to respond to Adalimumab. We decided to shift the patient to Secukinumab to cease the continuous inflammatory process, stabilize scarring alopecia, and preserve the remaining hair follicles.

We advocate for further studies experimenting with new treatments for stubborn SD. We also recommend initiating secukinumab therapy for unresponsive active moderate-to-severe FD cases, and not administering systemic antibiotics for a long time which in some cases will not show good control and can lead to antibiotic resistance.

INSTITUTIONAL BOARD PERMISSION

This study has been approved by the Institutional Review Board (IRB).

CONSENT

The authors have received written informed consent from the patient.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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