


Ixekizumab Improved Refractory Erythrodermic Psoriasis with Comorbid Diffuse Alopecia: A Case Report with 52-Week Follow-Up

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Abstract: Erythrodermic psoriasis (EP) is a severe and rare variant of psoriasis, accounting for less than 3% of cases. It is characterized by widespread scaling and erythema that affects more than 90% of the body surface area. Alopecia can manifest as a symptom associated with the disease, further exacerbating the impact on the patient's quality of life. We present the case of a patient with severe EP and diffuse alopecia who did not respond to conventional therapies. The patient was subsequently treated with ixekizumab as per labeled usage, resulting in complete resolution of both psoriatic skin lesions (Psoriasis area and severity index/PASI 100) and alopecia (The Severity of Alopecia Tool/SALT 0).

Keywords: erythrodermic psoriasis, alopecia, ixekizumab

Introduction

Erythrodermic psoriasis (EP) is a rare and severe form of psoriasis characterized by widespread redness, scaling, and exfoliation that affects more than 90% of the body surface area (BSA).¹ Alopecia can be a symptom associated with the disease, further impacting the patient's quality of life.² The etiology of psoriatic alopecia is not completely understood at present, and a few studies suggest potential mechanisms including direct involvement of the scalp, leading to localized hair loss within psoriatic plaques, or as a consequence of generalized telogen effluvium³ and drug-induced psoriasiform alopecia.⁴ Traditionally recommended first-line therapies include cyclosporine, retinoic acid, methotrexate, and infliximab.⁵ However, due to the long-term organ toxicity, immunosuppressive effects, and increased risk of infection associated with these drugs, clinical treatment options have been limited in terms of patient suitability, and managing associated alopecia can pose challenges. Ixekizumab is a humanized monoclonal antibody that selectively antagonizes IL-17A, thereby modulating the Th17 immune axis and inflammatory cascade.⁶ Multiple studies have confirmed the effectiveness of ixekizumab in treating EP.^{7,8} This case report highlights the successful use of ixekizumab in the treatment of a patient with EP and diffuse alopecia.

Case Report

A 68-year-old woman presented with diffuse erythema, desquamation, and exfoliation affecting over 90% of BSA, with a Psoriasis area and severity index (PASI) score of 26.1 (Figure 1a). She also reported diffuse alopecia following the onset of scalp psoriasis, with a Severity of Alopecia Tool (SALT) score of 70.3 (Figure 1b). Previous treatments, including systemic acitretin, corticosteroids and Chinese herbal medicine, combined with various topical therapies,



Figure 1 Images before treatment (a) Pretreatment clinical image of body: Widespread redness, scaling, and exfoliation of the trunk and extremities. (b) Pretreatment clinical image of scalp: Diffuse alopecia secondary to severe scalp psoriasis.

yielded poor results. She also has a high Dermatology Life Quality Index (DLQI) score of 16. Considering the severity of her condition and the associated alopecia, treatment with ixekizumab was initiated.

After providing informed consent, the patient received subcutaneous injections of ixekizumab, starting with an initial dose of 160 mg, followed by 80 mg every two weeks. Within four weeks of starting treatment, visible improvements in skin redness, scaling, and exfoliation were observed, with the achievement of PASI 75 (Figure 2a). Although significant improvement in alopecia was not initially noted, the patient self-reported focal hair neogenesis, and alopecia gradually discontinued, resulting in a SALT score was 67.5 (Figure 2b). At the 12-week follow-up, a significant improvement with PASI 90 of psoriatic skin lesions was achieved (Figure 2c), and there was evident hair regrowth with increased density and thickness with her SALT score decreasing to 10 (Figure 2d). The patient continued maintenance treatment with 80 mg injections every four weeks, resulting in no relapse of the psoriatic lesions and substantial improvement of the



Figure 2 Images after treatment. (a) Posttreatment clinical image of body after 4 weeks. (b) Posttreatment clinical image of scalp after 4 weeks. (c) Posttreatment clinical image of body after 12 weeks. (d) Posttreatment clinical image of scalp after 12 weeks. (e) Posttreatment clinical image of body after 52 weeks. (f) Posttreatment clinical image of scalp after 52 weeks.

alopecia. After 52 weeks of follow-up, the patient reported no other adverse events except for local injection pain, indicating good overall tolerance to the treatment. Complete resolution was achieved for both psoriatic lesions (PASI 100) and alopecia (SALT score of 0) and her DLQI score decreased to 2 (Figure 2e and f).

Discussion

Severe forms of psoriasis, such as erythrodermic and generalized pustular psoriasis, can lead to alopecia that extends beyond the boundaries of lesional skin.^{2,9} The causes of psoriatic alopecia are not fully understood but may involve psoriasis itself, autoimmune conditions, and treatments used for psoriasis. Psoriasis patients can develop alopecia either due to direct scalp involvement, resulting in localized alopecia within psoriatic plaques, or as a consequence of generalized telogen effluvium.³ In addition, psoriatic alopecia is also considered as a paradoxical reaction in treatment with anti-TNF-alpha agents.¹⁰

In this case, treatment with ixekizumab, a selective IL-17A antagonist, resulted in rapid and significant improvements in both the cutaneous manifestations of EP and associated alopecia. The inhibitory effect of ixekizumab on IL-17A, a pro-inflammatory cytokine implicated in the pathogenesis of psoriasis and alopecia, likely played a role in the observed improvements.¹¹

Within four weeks of initiating ixekizumab treatment, visible improvements were observed in skin redness, scaling, and exfoliation. Although significant hair regrowth was not immediately evident, focal hair neogenesis indicated a positive response to the treatment. By the 12-week follow-up, nearly complete clearance of psoriatic skin lesions was achieved, accompanied by substantial hair regrowth, increased hair density, and improved thickness. These outcomes indicate the potential efficacy of ixekizumab in managing EP and associated alopecia.

Managing psoriatic alopecia, particularly in cases of erythrodermic psoriasis, poses challenges. Currently, no consensus on treatments of psoriatic alopecia has been established. It is noteworthy that individual responses to treatment can vary, and close monitoring is crucial to assess progress and make necessary adjustments to the treatment plan. This study proposed the potential effectiveness of using the IL-17A antagonist ixekizumab to treat erythrodermic psoriasis and associated alopecia, but it also has some limitations. Firstly, being a case report, the sample size is small and lacks large-scale clinical cohort studies to support the evaluation of long-term efficacy and safety. Secondly, during the treatment process, the focus was solely on improvements in external manifestations, neglecting scalp histopathology to clarify the type of alopecia. Further exploration is required for potential mechanism studies. Finally, given the absence of a consensus on treatment strategies for psoriatic alopecia, disease management still faces challenges and requires further research support. Therefore, while this study offers some insights for exploring new methods to treat erythrodermic psoriasis and alopecia, additional research is imperative to refine and validate its effectiveness and safety.

Conclusion

In conclusion, the presented case highlights the potential efficacy of ixekizumab, a selective IL-17A antagonist, in the management of erythrodermic psoriasis and associated alopecia. The rapid and significant improvements observed in both the cutaneous manifestations of EP and alopecia suggest that targeting IL-17A may play a crucial role in treating these conditions. While individual responses to treatment may vary, close monitoring and further research involving larger clinical cohorts are necessary to better understand the underlying mechanisms and assess the long-term efficacy and safety of ixekizumab in managing psoriatic alopecia, particularly in cases of severe psoriasis. This case underscores the importance of exploring novel therapeutic approaches for the treatment of psoriatic alopecia and emphasizes the need for continued research in this area.

Ethics Statement

Ethical approval is not required for this study in accordance with local or national guidelines. The patient consent was obtained to publication of the case details included the images in this manuscript.

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Disclosure

The authors report no potential conflicts of interest in this work.

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