Psoriasis: Targets and Therapy

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CASE REPORT

# Dual Biologic Therapy for Psoriasis in a Patient with Atopic Dermatitis

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**Abstract:** Psoriasis and atopic dermatitis (AD), once viewed as mutually exclusive diseases, are increasingly recognized to co-occur in complex inflammatory phenotypes. We present a 17-year-old male with multimorbid atopic conditions, including persistent atopic dermatitis, allergic rhinitis, and asthma, who developed new-onset psoriasis in the absence of previous biologic therapy. Initially misdiagnosed as exacerbated AD, he received ineffective treatment for one year. Treatment with secukinumab yielded limited improvement in psoriatic symptoms and eczematous lesions. AD and psoriasis significantly improved after adding dupilumab for 12 weeks; there were no documented side effects and a durable remission lasting 78 weeks. This case report underscores the importance of vigilance in patients with long-standing AD for newly emerging psoriasis and cautions against attributing all new rashes solely to chronic AD history. This case highlights the potential benefit of dual biologic therapy in managing concurrent type 2 inflammatory diseases and psoriasis, suggesting that a comprehensive immune-modulatory approach may be advantageous for patients with these coexisting conditions.

**Keywords:** dupilumab, secukinumab, psoriasis, atopic dermatitis, dual biologic therapy

## Introduction

Psoriasis and atopic dermatitis (AD) are prevalent inflammatory skin diseases, each affecting about 3% of adults. Traditionally, psoriasis and AD are considered distinct conditions, but a few recent studies suggest that the two conditions may co-exist in 0.01% to 1.5% of patients.[1,2] Psoriasis presents with distinct red plaques with silvery scales influenced by Th17 cells, while AD manifests as red patches, papules, and vesicles in flexural regions, predominantly driven by Th2 cells, leading to increased IL-4 and IL-13 levels.[3] Prior reports on AD and psoriasis mainly address biological therapy reactions. Our study presents a rare case of chronic AD with allergic rhinitis and asthma developing psoriasis absent prior biologic treatment. The patient exhibited a favorable reaction to combined secukinumab and dupilumab therapy, suggesting a viable therapeutic approach for intricate clinical scenarios.

## Case Synopsis

A 17-year-old male with a history of erythema, exudation, and pruritus since childhood was diagnosed with AD. Previous treatments included oral antihistamines and topical corticosteroids, which provided only temporary symptom relief. His symptoms worsened recently, and he was misdiagnosed, resulting in ineffective treatment with antihistamines and corticosteroids for one year before referral to our clinic. Examination revealed xerosis and eczema-like lesions with papulovesicles on flexural surfaces (Figure 1a). The patient also had allergic rhinitis and asthma. Lab findings showed elevated eosinophils (12.2%) and high IgE levels (1140 IU/mL), supporting a moderate AD diagnosis (SCORAD 43). Psoriasis-like lesions were also found on the trunk and extremities (Figure 1a and b), confirmed by biopsy (Figure 2a and b), with a PASI score of 22.5. Secukinumab (300 mg weekly) was started for psoriasis, transitioning to monthly doses, while moderate AD was managed with antihistamines, Glycyrrhizin, and topical corticosteroids.

Received: 11 January 2025
Accepted: 28 March 2025
Published: 23 April 2025

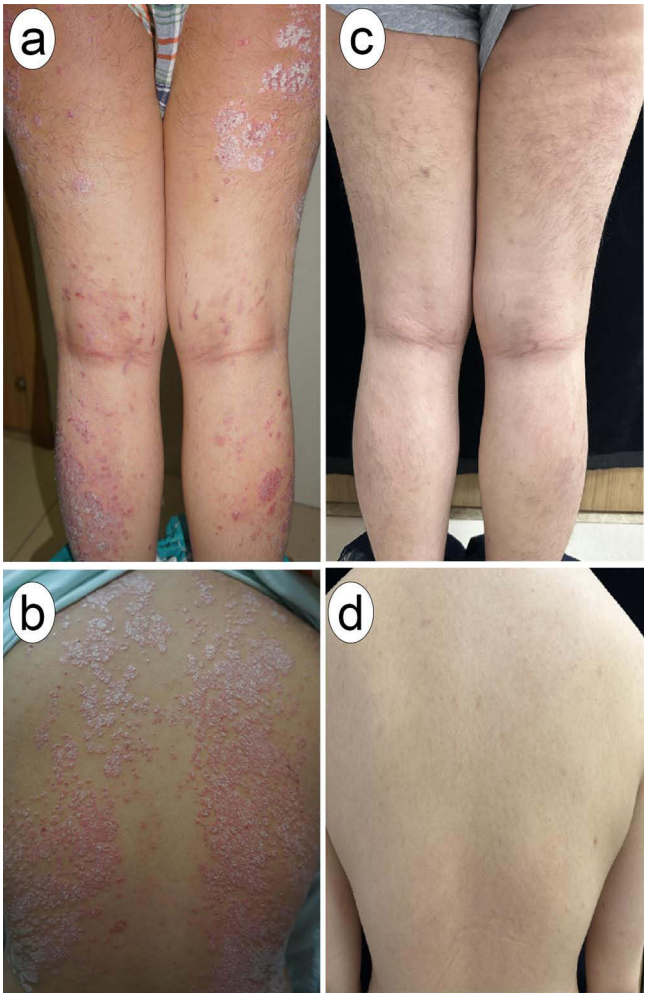


**Figure 1** Clinical progression under biologic therapy. (**a**) Pretreatment: Psoriasis-like lesions on the lower extremity accompanied by eczematous manifestations, including papules. (**b**) Pretreatment: Extensive Psoriasis-like lesions eruptions with erythema and scaling on the dorsum. (**c** and **d**) Week 78 of dupilumab and secukinumab therapy: Near-complete remission of skin symptoms.

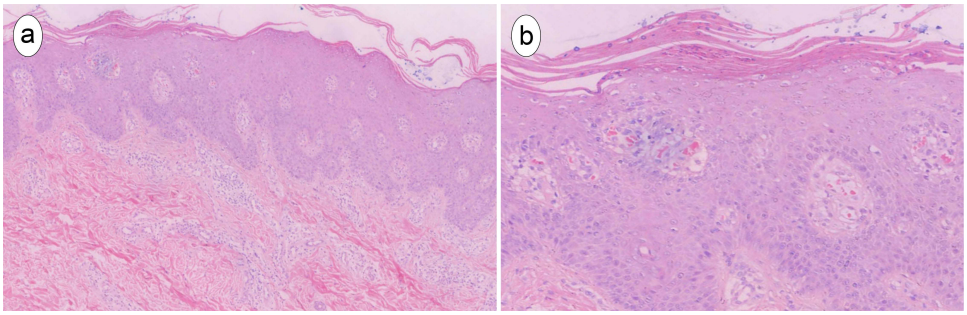


**Figure 2** Histopathology of the dorsal plaque biopsy. (**a** and **b**) Psoriasiform epidermal hyperplasia is characterized by elongated epidermal papillae and the presence of Munro microabscesses.

After four weeks, psoriatic lesions improved (PASI 14.2). Erythema and papulovesicular lesions developed following improvement of the previous eczema (SCORAD: 38.9). Dupilumab was added (600 mg initial, then 300 mg biweekly). After 12 weeks of combined therapy, both AD and psoriatic lesions improved significantly (SCORAD 8.1, PASI 4.2). Dupilumab was switched to maintenance every 3–4 weeks, later modified to 8–12 weeks. Secukinumab was administered monthly. After 78 weeks of treatment, the patient achieved near-complete remission of skin symptoms, allergic rhinitis, and asthma, with no significant adverse effects (Figure 1c and d).

## Discussion

Treatment options for psoriasis in chronic AD patients present huge challenges, particularly when a 4-week course of secukinumab showed limited improvement in eczematous lesions. A Few studies have examined effective treatments like baricitinib, methotrexate, and cyclosporine for concurrent AD and psoriasis.[4] These agents may elevate infection risk, necessitate regular supervision, and potentially exhibit inferior efficacy for severe psoriasis compared to biologics.[5] Furthermore, a few cases of dual biologic therapies, such as dupilumab with guselkumab for AD with psoriasis[6] and dupilumab with secukinumab for psoriatic arthritis and AD,[7] have shown potential in addressing concurrent inflammatory disorders. After thorough evaluation and discussion of different treatment options with the family, secukinumab was continued due to the patient's favorable response and safety; Meanwhile, dupilumab was added for AD control and the management of allergic comorbidities. After 78 weeks, both the patient and family expressed significant satisfaction with the therapeutic results.

This case suggests that clinicians should remain vigilant for the possibility of psoriasis development in chronic AD patients, irrespective of prior biologic treatments, and consider dual biologic therapy as a potential strategy for such complex cases.

## Ethics and Consent

Institutional approval was not required to publish the case details. Written informed consent for publication of the case details included the images was obtained from the patient.

## Acknowledgments

Honorariums, grants, or other forms of payment were not given to any of the authors to produce the manuscript.

## Funding

There is no funding to report.

## Disclosure

The authors report there are no conflicts of interest in this work.

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