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Coexistence of Psoriasis and Alopecia Universalis: A Rare Clinical Association

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Abstract:

The coexistence of Alopecia Universalis (AU) and severe plaque psoriasis is rare, presenting a unique challenge in selecting systemic therapy. We report the case of a 32-year-old male with a lifelong history of AU (SALT 100%) who developed sudden-onset, aggressive psoriasis (PASI 25.4, DLQI 18) involving the limbs and trunk. While his baseline labs and imaging were unremarkable, his clinical response to treatment was highly divergent. We initiated adalimumab (40 mg every other week), which successfully cleared his psoriatic plaques but failed to trigger any hair regrowth.

This "split" response underscores the distinct cytokine environments of these two conditions: psoriasis is driven primarily by the Th17/TNF- axis, whereas AU relies on the JAK-STAT pathway. This case suggests that for patients with this specific comorbidity, traditional TNF- inhibitors may be insufficient. Instead, clinicians should consider dual-targeting therapies, such as JAK inhibitors, to address both inflammatory pathways simultaneously.

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Introduction

Alopecia areata (AA) is an autoimmune disease characterized by nonscarring hair loss, ranging from localized (patchy AA) to complete hair loss affecting all body areas (alopecia universalis). The prevalence of AA in Saudi Arabia is estimated to be 2.3% [1]. As an autoimmune condition, AA is often associated with other immune-related diseases [2]. Similarly, psoriasis is an autoimmune disease characterized by skin and possibly other systemic manifestations. The prevalence of psoriasis is variable among different regions in Saudi. However, it was estimated to be approximately 5.33% [3]. Despite the immune-related etiology, only few cases were found reporting an association between AU and psoriasis. Although this association has not been fully understood and investigated, several mechanisms of association were proposed according to which of these diseases manifested earlier, and whether the pharmacological therapy was started before the manifestation of the other disease [4]. We present herein a case of a 32-year-old patient with psoriasis and AU.

Case presentation:

A 32-year-old male, medically and surgically free, presented to our dermatology clinic with an 8-year history of pruritic skin lesions involving the lower limbs and upper limbs. The eruption was sudden in onset. He denied joint pain, morning stiffness, or symptoms suggestive of psoriatic arthritis. No aggravating factors were identified. He reported mild, temporary improvement with the use of Salibet ointment (betamethasone dipropionate with salicylic acid), applied once daily.

There was no preceding respiratory infection, no recent medication use, and no psychosocial stressors. Family history was negative for similar skin or hair disorders. Review of systems was unremarkable.

The patient also reported complete loss of hair over the entire body during childhood. He was previously followed at King Faisal Hospital in Makkah, where he was initiated on adalimumab administered every two weeks, with notable clinical improvement in psoriatic lesions. The patient was only concerned with treating psoriatic lesions and did not seek treatment for alopecia universalis.

Treatment was discontinued two years ago due to work-related scheduling limitations and inability to attend follow-up appointments.

Physical Examination showed multiple well-demarcated erythematous plaques with silvery scales over lower limbs, upper limbs and trunk. Complete hair loss on the scalp, eyebrows, eyelashes, and body hair, with preserved follicular openings, consistent with alopecia universalis. Calculated Disease Severity Scores were the following: 1- PASI: 25.4. 2- DLQI: 18. 3-SALT: 100%

Baseline investigations were performed prior to initiation of biologic therapy. Serologic testing for hepatitis B and C viruses and human immunodeficiency virus was negative. Tuberculin skin testing (PPD) was negative, and chest radiography showed no abnormalities. Additional routine laboratory investigations, including complete blood count, liver function tests, renal function tests, and lipid profile, were within normal limits.

Treatment with adalimumab was initiated using a loading dose of 80 mg administered on day 1, followed by 40 mg on day 10, and continued as maintenance therapy at a dose of 40 mg every other week.

Discussion:

Alopecia areata (AA) and psoriasis are immune-mediated inflammatory diseases that share complex and partially overlapping pathogenic mechanisms. Although each condition is relatively common individually, the coexistence of alopecia universalis (AU) and psoriasis remains relatively uncommon and incompletely understood. Several mechanisms have been proposed to explain this association, including shared genetic susceptibility, common immunological pathways, and the influence of systemic therapies used in psoriasis management.

From an immunological perspective, AA is primarily mediated by cytotoxic CD8⁺ T lymphocytes that target hair follicles, resulting in collapse of the hair follicle immune privilege and subsequent hair loss. Cytokines such as interferon- γ and interleukin-15 activate the Janus kinase–signal transducer and activator of transcription (JAK-

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STAT) pathway, which plays a central role in the pathogenesis of AA [5, 6]. Similarly, psoriasis is characterized by chronic immune activation involving T-helper cells and inflammatory cytokines, particularly within the Th17 pathway, which promotes keratinocyte proliferation and sustained cutaneous inflammation [4].

Epidemiological evidence further supports a possible association between psoriasis and AA. Several studies have demonstrated that patients with psoriasis have a higher likelihood of developing alopecia areata compared with the general population. In fact, individuals with psoriasis may have approximately a 2.5-fold increased risk of developing AA, suggesting a bidirectional association between these autoimmune disorders [7]. This observation supports the hypothesis that both conditions may share underlying autoimmune susceptibility and overlapping inflammatory pathways [4].

Another explanation for the coexistence of these conditions involves treatment-related factors. Alopecia areata has been reported in patients undergoing systemic therapies for psoriasis, including conventional immunosuppressive agents such as cyclosporine as well as biologic therapies, particularly tumor necrosis factor- α (TNF- α) inhibitors [4]. In some cases, alopecia may represent a paradoxical immune-mediated reaction triggered by biologic therapy rather than a direct manifestation of the underlying disease.

Recent therapeutic advances further highlight the shared immunological pathways between AA and psoriasis. JAK inhibitors, such as tofacitinib, have demonstrated promising efficacy in the treatment of both conditions by targeting cytokine signalling pathways involved in autoimmune inflammation [5, 6]. Several case reports have described significant hair regrowth along with improvement in psoriatic disease activity following treatment with JAK inhibitors, suggesting that targeting common inflammatory pathways may represent an effective therapeutic strategy in patients with concomitant disease [8].

In the present case, the patient developed alopecia universalis during childhood, several years prior to the onset of psoriasis. This temporal relationship suggests that the coexistence of these conditions

may reflect an underlying autoimmune predisposition rather than a treatment-induced phenomenon. Furthermore, although the patient previously demonstrated clinical improvement of psoriatic lesions with adalimumab therapy, the alopecia universalis remained unchanged, highlighting the variable therapeutic response between cutaneous psoriatic inflammation and hair follicle autoimmunity.

Overall, this case contributes to the limited body of literature describing the coexistence of psoriasis and alopecia universalis. It underscores the importance of recognizing potential shared immunological mechanisms between these disorders and considering targeted immunomodulatory therapies when managing patients with overlapping autoimmune dermatologic diseases. Further studies are needed to better elucidate the pathogenic relationship between these conditions and to determine optimal therapeutic strategies.

Conclusion

As in the case presented, alopecia and psoriasis may coexist. The psychological impact of having two dermatological diseases should be an important point of care by physicians treating similar cases. Further investigations are needed to understand the association between alopecia universalis and psoriasis, to utilize this understanding in tailoring a therapy that targets both diseases effectively.

Declarations

Ethical approval and Patient consent Ethical approval will be sought from Dammam Complex Hospital. Written consent was obtained from the patient to publish.

Data availability The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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Figure Legends



Figure 1: Picture showing large well defined erythematous plaque with silvery scales over the shins extending to the knee joint.

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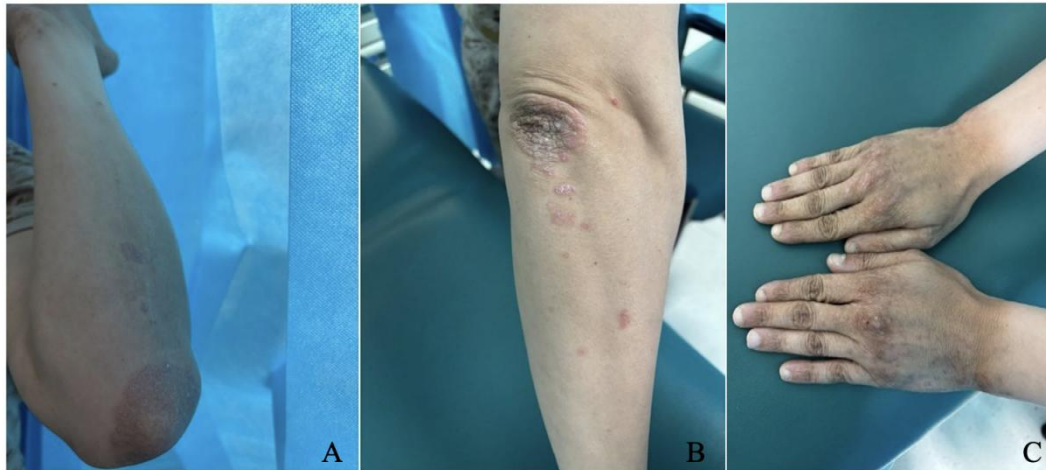


Figure 2: Well-defined erythematous papules & plaque with thick scales over the elbow joint A & B. Well-defined erythematous papules over the knuckles with few erosions- C



Figure 3: Picture showing complete loss of hair on the scalp including eyebrows and eyelashes.