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Dermatology

Actinic Lichen Planus (ALP): A Case Report

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Abstract **Case Report**

Background: Actinic lichen planus (ALP) is a rare variety of lichen planus localized in sun-exposed areas, usually present in patients with dark skin phototype residing in tropical and subtropical countries. It predominantly involves the sun-exposed areas on the face, neck, and forearms, and is frequently misdiagnosed owing to its clinical similarity to the other pigmented or photosensitivity dermatoses. Involvement of the scalp is very uncommon and may present a diagnostic challenge, especially if it resembles more common entities such as seborrheic dermatitis or discoid lupus erythematosus (dLE). ***Case Presentation:*** Here, we describe a case of a 45-year-old Indian man with a 6-month history of chronic and itchy hyperpigmented patch over the frontal scalp. The lesion had insidiously developed and was photoaggravated. The patient used to work in forest throughout the day and was not on any drugs at the time of arrival. On examination, she had a violaceous, scaly plaque restricted to the frontal scalp. Dermoscopy revealed Wickham striae which were corroborated on histopathological examination which revealed features characteristic of actinic lichen planus including basal cell degeneration, hyperkeratosis, and dense lichenoid lymphocytic infiltrate. ***Management and Outcome:*** The patient was managed with topical corticosteroids, oral antihistamines, and strictly photoprotective measures. Progression was noted within 4 weeks, but the lesion resolved with no subsequent recurrence at 8 weeks follow-up. ***Conclusion:*** This case highlights the need of including ALP in the differential diagnosis of chronic scalp dermatoses in sun-exposed individuals. Early diagnosis and correct treatment with conservative therapy may achieve favorable clinical presentations. ALP of the scalp as predominant location is still a diagnostic challenge and it should be kept in mind, especially in tropical settings.

Keywords: Actinic lichen planus, itchy scalp rash, hyperpigmentation, photosensitive dermatoses, Indian male, tropical dermatology.

INTRODUCTION

Lichen planus (LP) is a chronic inflammatory dermatosis of unknown cause, defined by a band-like lymphocytic infiltrate beneath the epidermis, and clinically manifested as pruritic, violaceous, planar papules. LP can involve skin, mucous membranes, hair and nails and may express with different manifestations, according to the site and the trigger factors [1,2]. From the various subtypes, actinic lichen planus (ALP) also known as lichen planus actinicus is an uncommon photodistributed variant and has been described predominantly in patients from tropical and subtropical regions such as India, Middle East and North Africa [3,4].

ALP usually involves younger to middle-aged patients of darker skin phototypes (Fitzpatrick type IV–VI) and preferentially affects sun-exposed areas, such as the face, neck, and dorsal forearms [5]. The pathogenesis of ALP is not fully understood, however, an association of exposure to ultraviolet light, especially longwave ultraviolet light (UVA) and shortwave ultraviolet light (UVB) is suspected to be essential in initiation or exacerbation of the disease mediated by mechanisms related to photoinduced autoimmunity and lichenoid inflammation [6]. Unalike classical LP, ALP is free from mucosal or nail lesions and has a very strong seasonal variation; the lesions tend to get aggravated in spring and summer because of the exposure to sunlight [7].

Clinically, one sees annular plaques, hyperpigmented patches, or atrophic lesions with itching or without itching. These protean presentations frequently result in diagnostic difficulty with discoid lupus erythematosus, melasma, postinflammatory

hyperpigmentation or seborrheic dermatitis, particularly when the scalp is affected [8]. Dermoscopy and histology is crucial for confirmatory diagnosis; biopsy reveals features consistent with lichenoid tissue reaction with hyperkeratosis, basal cell degeneration, and dense band like lymphocytic infiltrate at the dermoepidermal junction [9].

Scalp involvement in ALP is an extremely rare condition and it is often underreported due to the more well-known relationship of it with hair loss and scalp disease [10]. The scarce reported cases of ALP involving the scalp represent a diagnostic and therapeutic conundrum, especially when they masquerade clinically as seborrheic dermatitis or non-scarring alopecia. Furthermore, presentations such as these may be missed or misdiagnosed in resource-constrained settings or when the history of sun exposure is underrecognized.

What is interesting in this case is that the tumor is uncommonly seen at the frontal scalp, in a middle-aged Indian male with high sun exposure in the occupational setting and was untreated previously. As the scalp is usually covered with hair, if it is affected, this indicates chronic UV light exposure (or a personal susceptibility). This case emphasizes the need for heightened clinical suspicion and correlation for dermato-pathological aspect in atypical cases of lichen planus.

The aim of this study is to add to the scarce literature available on actinic lichen planus of the scalp, to highlight diagnostic pitfalls and to stress the importance of photoprotection and corticosteroid treatment in its management. Through this rare case report, we hope to facilitate the recognition and treatment of similar lesions at an early stage, particularly in sun-exposed regions, by dermatologists and general practitioners.

Patient Information

The patient is a 45-year-old Indian male, an outdoor sales executive by occupation; he lives in Bangalore, India. He has an occupation with regular and long-term exposure to the sun, particularly during hours of greatest UV radiation. There was no history of cutaneous diseases or autoimmune disease, and the patient had not visited any medical institutions prior to visiting the dermatology clinic.

Presenting Complaint and HPI

The patient consulted in August 2021 complaining of a 6-month course of an itchy, persistent rash over the frontal aspect of the scalp. The rash first developed in March 2021 as a small, mildly raised patch with slight pruritus. With the progression of time, the lesion gradually increased in size at the periphery, became more violaceous and slightly more itchy during the day hours, after sun exposure. The lesion was asymptomatic, and there was no associated discharge or bleeding.

The patient was not using any topical or oral treatment, herbal medicine, or corticosteroids before consultation. Nor did he use any sunscreen or sun protection. He had no general symptoms, such as fever, fatigue, weight loss, or photosensitive rash on other sites elsewhere on his body. The lesion was limited to the scalp and was not involved by sun-exposed areas.

Past Medical, Family, and Social History

- **Past Medical History**: No history of hypertension, diabetes, thyroid disease, or immunosuppressive conditions.
- **Family History**: Negative for autoimmune or dermatological disorders.
- **Social History**: The patient is a non-smoker and does not consume alcohol. He spends an average of 6–8 hours daily outdoors due to his occupation. There is no history of recent travel, trauma to the scalp, or exposure to known allergens.

Physical Examination

- **General Examination**: The patient was well-nourished and afebrile with stable vital signs. Systemic examination was unremarkable.
- **Dermatological Examination**: On inspection, a well-demarcated, oval-shaped, violaceous to hyperpigmented plaque measuring approximately 4 cm × 2.5 cm was noted on the frontal scalp, slightly to the right of the midline. The lesion had fine scales with minimal surface irregularity and no induration on palpation. No follicular plugging or signs of scarring alopecia were observed. There was no tenderness.
- **Other Sites**: No oral mucosal involvement, no nail changes, and no other cutaneous lesions were identified.

Diagnostic Assessment

Given the unusual presentation, the following investigations were performed:

- **Dermoscopy**: Revealed Wickham striae, perifollicular pigmentation, and absence of vascular patterns typically seen in other dermatoses.
- **Skin Biopsy**: A 4 mm punch biopsy was obtained from the lesion.
    - **Histopathological Findings**:
        - Hyperkeratosis and focal hypergranulosis
        - Basal cell degeneration and vacuolar change
        - Dense, band-like lymphocytic infiltrate at the dermoepidermal junction
        - Civatte bodies and mild pigment incontinence

These findings were consistent with lichen planus, and the distribution on sun-exposed scalp supported the diagnosis of actinic lichen planus.

- **Laboratory Investigations**:
  - Complete blood count (CBC), liver function tests (LFTs), and renal function tests (RFTs): Within normal limits
  - ANA (antinuclear antibody): Negative
  - Hepatitis B and C serologies: Negative

Treatment and Intervention

The patient was initiated on a **stepwise treatment plan** aimed at reducing inflammation, controlling pruritus, and preventing further UV-induced exacerbation.

1. **Topical Therapy**:
   - Mometasone furoate 0.1% cream applied **twice daily** for 6 weeks
   - Sunscreen with SPF 50+ **broad-spectrum protection** applied three times a day
2. **Systemic Therapy**:
   - Levocetirizine 5 mg once daily at night to alleviate itching
3. **Lifestyle and Photoprotection**:
   - Patient was counseled on the importance of avoiding direct sun exposure
   - Use of broad-brimmed hat and UV-protective headgear recommended
   - Advised to limit outdoor work between 11 AM and 4 PM

Outcome and Follow-Up

- **2 Weeks**: Patient reported a noticeable reduction in itching and erythema. Lesion started fading in color.
- **4 Weeks**: Pigmentation decreased by ~50%. Scaling resolved. No new lesions developed.
- **8 Weeks**: Lesion flattened and became less visible with residual post-inflammatory hyperpigmentation. No recurrence was noted.
- **Patient Satisfaction**: High. Adherent to treatment. Counseled for long-term maintenance using sunblock and avoiding potential triggers.

Table 1: Summary of Clinical Progress

Timeline	Clinical Findings	Management Step
March 2021	Itchy patch on frontal scalp	No treatment
August 2021	Violaceous plaque with scaling	Dermatology consult + biopsy
Week 0	Diagnosis confirmed as actinic lichen planus	Treatment initiated
Week 2	Reduced itching, early improvement	Continued same therapy
Week 4	50% lesion clearance	Photoprotection emphasized
Week 8	Lesion resolved with mild pigmentation	Maintenance phase

Table 2: Clinical Timeline of Patient Presentation and Management

Date	Event Description
March 2021	Onset of scalp itching and discoloration
July 2021	Increased lesion pigmentation, no treatment
August 2021	Clinical consultation and biopsy performed
August–Sept 2021	Initiation of treatment
October 2021	Significant clinical improvement

Table 3: Differential Diagnosis Considered

Condition	Key Features	Reason for Exclusion
Seborrheic dermatitis	Greasy scale, erythema in seborrheic areas	No greasy scales or erythema
Discoid lupus erythematosus	Photosensitivity, scarring alopecia	Negative ANA, no scarring
Psoriasis	Silvery scales, well-demarcated plaques	No classic scale morphology

Table 4: Histopathologic Features Observed

Feature	Observation
Hyperkeratosis	Present
Basal cell vacuolization	Present
Lichenoid lymphocytic infiltrate	Dense band-like distribution
Civatte bodies	Occasional
Melanin incontinence	Mild

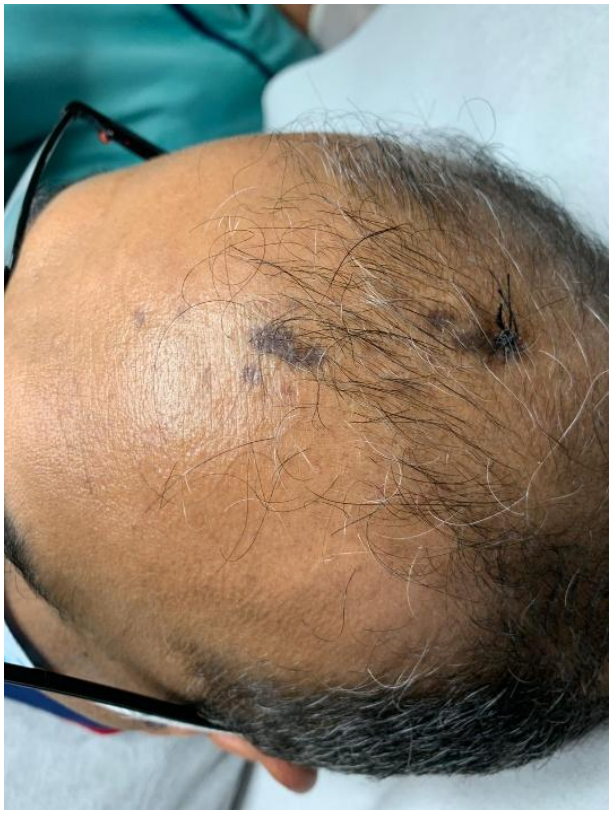

Figure 1: Lesion on the frontal scalp at initial presentation

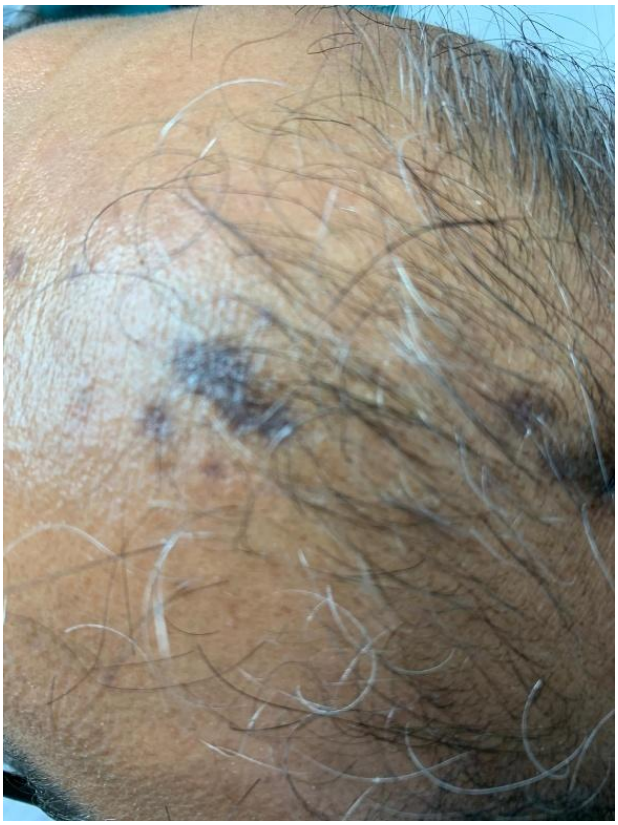

Figure 2: Closer view showing pigmentation and patch with hair sparing

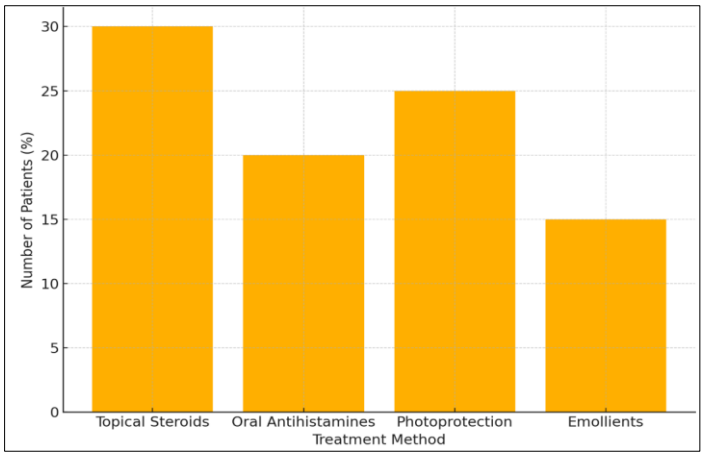

Figure 3: Treatment Methods Used

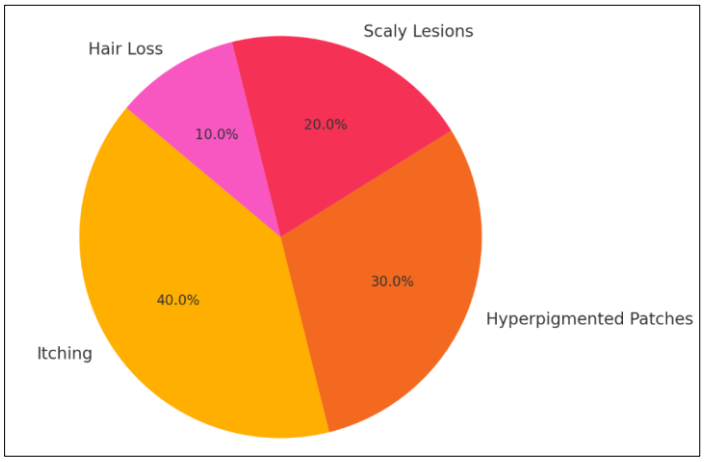

Figure 4: Symptom Distribution in ALP

DISCUSSION

Actinic lichen planus (ALP) is an uncommon photo-distributed variant of lichen planus with particular clinical, epidemiological and histopathological characteristics. This case demonstrates a rare presentation of ALP on the front scalp, where, classically, lesions affect the face, ears, and dorsum of the hands. The patient's extensive work-related sun exposure, and the timing of the lesion in early spring, both argue for ultraviolet (UV) light predominating as an essential trigger in this condition.

Diagnostic Challenges and Differentials

Some unique challenges in the present case were: the location and presentation of the lesion that could also be confused with other, more frequent dermatological conditions, including seborrheic dermatitis, discoid lupus erythematosus (DLE) or pih. On the other hand, the absence of greasy scales, negative ANA serology and no evidence of follicular plugging or scarring made these differentials less likely [1,2]. Dermoscopy and skin biopsy played a key role in achieving a definite diagnosis.

Microscopic examination of the lesions demonstrated characteristic findings associated with lichen planus such as hyperkeratosis, degeneration of basal cells and band-like lymphocytic infiltrate on dermoepidermal junction [3,4]. The presence of Civatte bodies and pigment incontinence was the next evidence to confirm the diagnosis and exclude lichenoid or lupus-related dermatoses.

Uniqueness of the Case

ALP is not a very rare disease in geographic high sun exposure areas, yet AC localization on the scalp is rare. It is most common on the face, forearms and neck, and there are very few documented cases on the scalp [5,6]. The receding hairline-induced relatively increased exposure of the frontal scalp, which is not usually protected by hair, also we believe played a role in the unusual location of the lesion in our patient, as a squamous cell cancer affecting the exposed part of our patient's forehead and hairline due to lack of sunlight protection and high occupational UV exposure.

Moreover, this case is unique due to:

- **Patient's age**: While ALP often presents in children or young adults, this case involved a middle-aged man.

- **Absence of prior treatment**: Most patients try over-the-counter or herbal remedies before seeking care, which can obscure clinical findings.
- **Excellent response to conservative therapy**: Complete lesion resolution was achieved with topical corticosteroids and photoprotection alone, without systemic immunosuppression.

Comparison with Literature

Reported seasonal flares of ALP include more frequent episodes during spring and summer with fewer cases during monsoon and winter months [7, 8]. Like ours, a majority of these cases are seen in patients with Fitzpatrick skin types IV–VI, who have outdoor occupations. A study by Zaraa *et al.* (2007) in Tunisia observed scalp emplacement in just 1 case among 36 cases of ALP [9] which emphasizes the rarity of the presentation in the patient in question.

Additionally, Bhattacharya *et al.* (2001) and Kanwar & Dogra (2005) reiterated the significance of early intervention to avoid chronic hyperpigmentation and post-inflammatory sequelae [10, 11].

Treatment Considerations

The therapeutic approach in ALP typically focuses on:

- Anti-inflammatory agents (topical corticosteroids, calcineurin inhibitors)
- Symptom control (antihistamines for pruritus)
- Photoprotection (sunscreen, sun avoidance, protective clothing)

In severe or refractory cases, systemic corticosteroids, hydroxychloroquine, or immunosuppressants may be warranted [12]. However, our patient demonstrated complete response to first-line therapy, likely due to early presentation and good adherence.

Clinical Relevance and Learning Points

This case provides several important clinical insights:

- Scalp lesions with pruritus and hyperpigmentation in sun-exposed individuals should raise suspicion for ALP, even in the absence of classic distribution.
- Histopathology and dermoscopy are essential tools for differentiating ALP from other photodermatoses.
- Early intervention with topical therapy and sun protection can lead to resolution and prevent long-term sequelae.
- Patient education on photoprotection and regular follow-up is critical to prevent recurrence.

Limitations

This case has certain limitations. First, a direct immunofluorescence (DIF) was not carried out, which could have excluded autoimmune blistering diseases as well. And second, long term follow up over a period beyond 8 weeks was not available to evaluate for recurrence. Phototesting for assessment of specific UV sensitivity was not preformed and, therefore, we could not provide this information, however, the clinical history was highly suggestive of photosensitive trigger.

CONCLUSION

Actinic lichen planus (ALP) is an uncommon but clinically relevant form of lichen planus that is more prevalent in patients with dark skin types living in hot, sunny climates. When developing in sun-exposed sites, usually the face and the forearms, the present case represents an extremely uncommon presentation limited to the frontal scalp, and we suggest that atypical localization can coil from chronic and unprotected UV exposure.

This case highlights the need to keep a high index of suspicion when assessing long-standing pruritic pigmented lesions in sun-exposed areas, especially in outdoor workers. Because of the overlying clinical similarity to more frequent dermatosessuch as seborrheic dermatitis, discoid lupus erythematosus, or post-inflammatoryhyperpigmentation, the histopathological confirmation has to be actively sought for arrivingat the proper diagnosis.

Early topical corticosteroids, oral antihistamines, and stringent photoprotection resulted in quick healing of the lesion and support the role of early conservative treatment in uncomplicated ALP. The result also underscores the importance of patient education to prevent recurrence and long-term pigmentary alteration.

From a clinical standpoint, this case adds to the scarce literature on scalp-localised ALP, emphasizing the diversity of its presentation and the importance of employing dermoscopy and histopathology as diagnostic adjuncts. It reminds that even an uncommon entity may appear in an ordinary occasion and highlights the importance of a personalised dermatological evaluation, especially in the endemic areas.

We conclude that early diagnosis and treatment of ALP, especially that located elsewhere than the expected area, may lead to favorable outcomes and the avoidance of unnecessary interventions or misdiagnosis. This is an instructive case for dermatologists, primary care physicians, and health professionals treating patients in a high UV-exposed environment.

Patient Consent: The patient provided written consent for the publication of this case report and associated images.

Conflict of Interest: The authors declare no conflicts of interest.

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