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Case Report

Role of furfuryl palmitate based new generation emollient as an adjutant in management and maintenance of atopic dermatitis and psoriasis: a case report

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ABSTRACT

Atopic dermatitis (AD) and psoriasis vulgaris are chronic inflammatory skin diseases that impose a significant clinical and psychosocial burden. Sustaining long-term remission and preventing relapse remain persistent challenges. Conventional therapies, while effective, are often limited by side effects and issues with patient adherence. Recent evidence highlights the role of oxidative stress in skin barrier disruption and inflammation, suggesting the potential of antioxidant-based adjunctive therapies. This report describes two clinical cases—one of atopic dermatitis and the other of psoriasis vulgaris—in which a furfuryl palmitate-based, antioxidant-rich emollient was integrated into the treatment plan. In both patients, the emollient was used alongside standard systemic or topical therapies. Both cases showed marked clinical improvement, including reduced lesion severity, rapid itch relief, and extended remission periods without relapse. These findings suggest that oxidative stress modulation through antioxidant emollients like furfuryl palmitate may serve as a valuable adjunct in the long-term management of AD and psoriasis. Adjunctive use may support skin barrier repair, enhance therapeutic outcomes, and reduce the frequency of disease flares. Further clinical studies are warranted to substantiate these observations.

Keywords: Atopic dermatitis, Psoriasis vulgaris, Oxidative stress, Furfuryl palmitate, Emollient therapy, Skin barrier, Adjunctive treatment, Remission maintenance

INTRODUCTION

Atopic dermatitis (AD) and psoriasis vulgaris are chronic inflammatory skin conditions that significantly impact patients' quality of life. The long-term management remains challenging due to frequent relapses, incomplete treatment responses, and difficulties in maintaining remission.[1] Psoriasis vulgaris affects approximately 2-3% of global population presents with scaly, erythematous plaques and often relapses despite treatment. Similarly, many AD patients experience recurrent flares despite available treatment.[2]

Although multiple treatment options exist, managing AD and psoriasis vulgaris remains challenging due to incomplete responses, frequent relapses, and adverse effects of long-term immunosuppressive therapy.[3–5] Additionally, inconsistent patient adherence further complicates disease management.[6] These challenges highlight the need for novel therapies targeting underlying disease mechanism to improve long-term patient outcomes. Oxidative stress, a key factor in skin inflammation, exacerbates both AD and psoriasis vulgaris.[7]

It disrupts skin homeostasis by damaging cells, impairing the barrier, and altering DNA, enzymes and membranes.[8] Targeting oxidative stress may improve disease management by reducing inflammation and supporting remission. Furfuryl palmitate-based new generation

emollients have gained attention as potential adjuncts in dermatological care due to their potent antioxidant properties. By neutralizing oxidative damage, they help restore skin barrier and enhance its defense mechanism. By reducing oxidative stress, these emollients help control inflammation and support long-term.[9]

This report presents two cases, one of AD and one of psoriasis where the integration of a furfuryl palmitate-based new generation emollient led to symptom improvement and prolonged remission. These outcomes highlight the role of antioxidant therapy in reducing disease recurrence and maintaining skin health. Oxidative stress management offers a complementary approach to conventional immune-targeted therapies, supporting skin health, reducing relapses, and promoting long-term remission in chronic inflammatory skin conditions.

CASE REPORT

Case 1

A 42-year-old woman with a chronic history of atopic dermatitis, affecting over 10% body surface area and a SCORAD >20, presented with worsening symptoms over the past eight years.

Figure 1: Effect of topical furfuryl palmitate treatment on AD patient (a b) Before and (c, d) After analysis.

The disease had progressed to involve the entire body, with a SCORAD of 66.7% and a DLQI of 22. Examination revealed reddish, lichenified plaques covering approximately 25% of the body surface area. She was treated with topical corticosteroids, tacrolimus, moisturizers, and systemic agents like prednisone, methotrexate, azathioprine, cyclosporine, antihistamines, antidepressants, and phototherapy, with minimal or no response.

The patient started 5 mg tofacitinib citrate twice daily and Furfuryl palmitate-based new generation emollient twice daily. Topical corticosteroids were used for one month, followed by continued use of antioxidant-rich (furfuryl palmitate) emollient. After one month, the lesions were completely cleared on the face, trunk, upper, and lower extremities, with an improvement in SCORAD to 10.1% and a DLQI of 3. The patient remained flare-free on the emollient over 8 weeks. She reported satisfaction with the emollient, noting no stinging, supporting its role in maintenance and comfort (Figure 1).

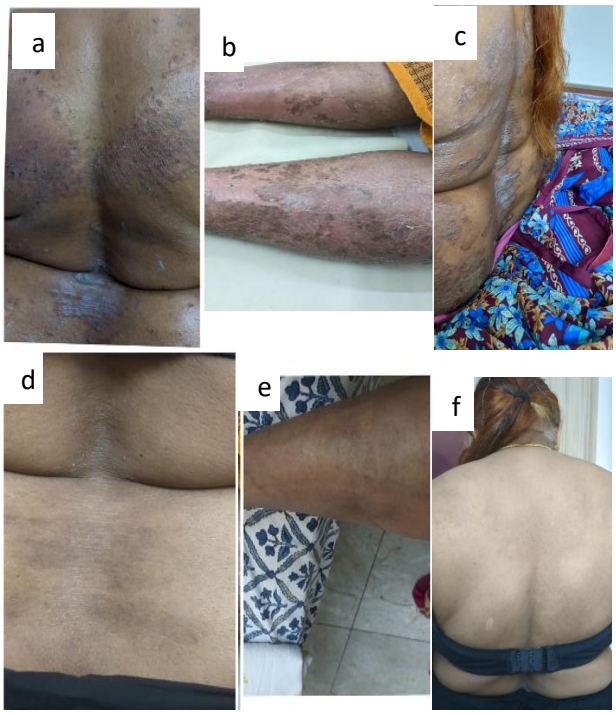

Figure 2: Effect of topical furfuryl palmitate-based new-generation emollient treatment on psoriasis vulgaris patient. (a, b, c) Before and (d, e, f) After analysis.

Case 2

A 67-year-old woman with psoriasis vulgaris for four years had been previously treated with oral corticosteroids and topical therapies for six months. Though she initially improved, her condition worsened during winter. She started on Apremilast 30 mg twice daily for four months, but developed gastrointestinal disturbances and could not

tolerate the medication. After four months, she relapsed with generalized psoriatic lesions without a known trigger.

The tofacitinib dosage was increased from 5 mg daily for one month to 5 mg twice daily for six months, and then reduced to 5 mg once daily. The patient was advised to continue the Furfuryl palmitate-based new generation emollient twice daily. Follow-up showed significant changes (Figure 2).

DISCUSSION

These cases emphasize the importance of remission maintenance in atopic dermatitis and psoriasis. The first case showed marked improvement in a patient with recurrent flares despite multiple systemic therapies. The first case showed marked improvement in a patient with recurrent flares despite multiple systemic therapies. Tofacitinib and topical antioxidant-rich (furfuryl palmitate) emollient marked reduced SCORAD and DLQI scores, indicating substantial clinical benefit. The second case of psoriasis vulgaris highlighted the limitations of systemic therapies, with initial Apremilast response followed by relapse due to intolerance and unknown triggers. This patient received off-label treatment with the topical antioxidant-rich (furfuryl palmitate) emollient, which positively impacted psoriasis symptoms. Compared to existing literature, furfuryl palmitate-based new-generation emollient show promise against oxidative stress, though further studies are required to establish their role.[9]

Oxidative stress plays a significant role in psoriasis pathogenesis. It results from imbalance between the production of reactive oxygen/nitrogen species (ROS/RNS) and the skin's antioxidant defenses. Decreased antioxidative ability may be due to reduced activity of antioxidative enzymes, such as superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GPx), or decreased levels of scavenging antioxidants like glutathione (GSH), vitamin C, and vitamin E.

While at physiological levels, ROS/RNS aid signaling, but excessive accumulation damages lipids, proteins, and DNA, leading to keratinocyte damage and cell death. The skin, particularly keratinocytes, face oxidative stressors, like ultraviolet (UV) radiation, pollutants, and toxins. Over 50% of UV-induced skin damage is mediated by ROS/RNS, contributing to inflammatory responses. Oxidative stress activates pro-inflammatory pathways, including NF-κB, mitogen-activated protein kinases (MAPKs), and STAT3, worsening psoriatic lesions. Increased ROS-driven neutrophil recruitment sustains inflammation and weakens antioxidant defenses, perpetuating chronic psoriasis.[10]

Topical antioxidants like furfuryl palmitate-based new generation emollient may reduce oxidative damage by neutralizing ROS, aiding barrier repair, and lowering inflammation.[9] Furfuryl palmitate counters oxidative stress and supports skin recovery, enhancing treatment outcomes.[11]

These cases underscore the importance of integrating antioxidant-rich furfuryl palmitate-based new-generation emollient. While these approaches show promise, clinicians must weigh individual responses, side effects, and long-term safety. Future research should explore their use across diverse patient populations with chronic dermatological conditions.

Despite the positive results observed, larger studies are needed to confirm these findings and guide treatment protocols.

CONCLUSION

These cases suggest that furfuryl palmitate-based new-generation emollient in maintaining remission in AD and psoriasis vulgaris. As frequently relapses challenge in long-term management, addressing oxidative stress may help sustain symptom-free periods. Further studies are needed to confirm efficacy, safety, and broader use in preventing recurrences.

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