

Case Report

Neurodermatitis

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Abstract:

Neurodermatitis, or lichen simplex chronicus (LSC), is a chronic inflammatory skin disorder that significantly impacts quality of life due to intense pruritus, sleep disturbance, and cosmetic concerns. It is characterized by localized lichenified plaques that result from repeated scratching. We report a case of a 33-year-old female presenting with chronic itching on the dorsal aspects of both feet for one year. Symptoms worsened during rest, and the patient was unable to resist scratching until excoriations occurred. She had previously attempted self-medication with gentamicin and hydrocortisone ointments without improvement. Physical examination revealed multiple well-demarcated lesions with hyperpigmented macules, fine scaling, and lichenification. A clinical diagnosis of neurodermatitis was established, with differential diagnoses including lichen planus and psoriasis. Management consisted of topical corticosteroid combined with salicylic acid, oral antihistamine, and patient education to avoid scratching and maintain skin hygiene. Prognosis was favorable in terms of life and function, although healing was variable depending on treatment adherence and psychological factors. This case highlights the importance of breaking the itch–scratch cycle, patient counseling, and family support in the management of neurodermatitis.

Keywords: Neurodermatitis; Lichen Simplex Chronicus; Chronic Pruritus; Topical Corticosteroid.

1. Introduction

Neurodermatitis, also referred to as lichen simplex chronicus (LSC), is a chronic inflammatory dermatosis characterized by localized lichenified plaques that develop secondary to persistent scratching or rubbing of the skin (1,2). The condition is driven by a self-perpetuating itch–scratch cycle, in which pruritus induces scratching that further exacerbates skin thickening, pigmentation changes, and excoriation (3,4). It predominantly affects adults, with the highest prevalence reported between the ages of 30 and 50 years, and shows a female predominance (5). Globally, neurodermatitis affects more than 12% of the population, imposing a significant impact on quality of life due to chronic discomfort, cosmetic concerns, and sleep disturbance (6).

The exact etiology remains multifactorial, involving neurogenic, immunologic, and psychogenic mechanisms (7,8). Emotional stress, atopic predisposition, and environmental triggers have been strongly associated with disease exacerbations (9,10). Pathophysiologically, non-histaminergic pruritogenic pathways mediated through transient receptor potential (TRP) ion channels, along with neuroimmune interactions, are thought to play central roles in sustaining chronic itch (11).

Despite being non–life-threatening, neurodermatitis often requires long-term management and poses therapeutic challenges, as recurrent lesions and poor treatment adherence frequently lead to chronicity (12). Effective management relies not only on pharmacological interventions, such as potent topical corticosteroids and

antihistamines, but also on comprehensive patient education and psychosocial support to disrupt the itch–scratch cycle (1,13,14).

Herein, we present the case of a 33-year-old female with chronic pruritic lesions on the dorsal feet, managed through combined pharmacologic therapy and behavioral counseling. This report aims to highlight the clinical features, diagnostic considerations, and therapeutic strategies in neurodermatitis, emphasizing the role of patient adherence and family support in achieving optimal outcomes.

2. Case Presentation

A 33-year-old female presented to the primary care clinic with a one-year history of persistent pruritus on the dorsal aspects of both feet. The itching was most pronounced at rest, and she was unable to resist scratching until excoriations appeared. Prior self-medication with gentamicin and hydrocortisone ointments had been ineffective.

The patient had no significant past medical or family history of dermatological disease. She was a civil servant, living with her husband and three children in a supportive family environment.

On examination, the patient was in good general condition. Dermatological findings revealed multiple, well-demarcated, irregular plaques on the dorsal feet, with hyperpigmented macules, fine scaling, and marked lichenification. No systemic abnormalities were observed. A clinical diagnosis of neurodermatitis was made, with differential diagnoses including lichen planus and psoriasis.

The demographic and clinical profile of the patient is summarized in Table 1, which includes age, sex, chief complaint, past medical and family history, previous self-medication attempts, physical examination findings, differential diagnoses, therapeutic interventions, and prognosis.

Table 1. Summary of patient demographic and clinical data

Parameter	Findings / Interventions
Age/Sex	33 years / Female
Chief Complaint	Chronic itching on both dorsal feet (1 year)
Past Medical History	None
Family History	Negative for dermatological disease
Self-medication History	Gentamicin ointment, Hydrocortisone ointment
Physical Examination	Multiple plaques, hyperpigmentation, scaling, lichenification (pedal region)
Differential Diagnosis	Lichen planus, Psoriasis
Treatment	Topical corticosteroid + salicylic acid, oral cetirizine, vitamin C
Prognosis	Good for life and function; variable for healing

The dermatological lesions were localized to the dorsal feet, characterized by lichenified, hyperpigmented plaques with fine scaling, as shown in Figure 1.



Figure 1. Lichenified, hyperpigmented plaques with fine scaling on the dorsal aspect of the feet

Detailed dermatological examination findings are presented in Table 2. The lesions were localized, multiple, irregular in shape, and well-demarcated. Hyperpigmented macules with fine scaling and lichenification were consistent with the chronic nature of neurodermatitis.

Table 2. Dermatological examination findings

Parameter	Findings / Interventions
Location	Dorsal aspect of both feet (regio pedis)
Distribution	Localized (lokalisata)
Number of lesions	Multiple
Shape	Irregular
Size	Plaque
Borders	Well-demarcated
Efflorescence	Hyperpigmented macules, fine scaling and lichenification

The patient was managed with topical deoximethasone cream combined with salicylic acid and vaseline, applied twice daily. Oral cetirizine 10 mg once daily was prescribed for pruritus relief, along with vitamin C supplementation. Non-pharmacological management emphasized patient education regarding the chronic nature of the disease, avoidance of scratching, proper skin hygiene, and adherence to therapy.

At follow-up, the patient reported symptomatic relief with reduced pruritus and gradual regression of the lesions. Prognosis was favorable for life expectancy and functional outcomes, though recurrence risk remained dependent on treatment compliance and psychosocial stressors.

3. Discussion

Neurodermatitis, or lichen simplex chronicus (LSC), accounts for a significant proportion of chronic pruritic dermatoses. The global prevalence exceeds 12%, with the highest incidence reported in adults aged 30–50 years and a female predominance (15). The patient in this case, a 33-year-old female, represents this typical demographic profile.

The hallmark of LSC is the itch–scratch cycle, where pruritus provokes scratching, which in turn worsens inflammation and induces lichenification and pigmentation changes (16,17). Pruritic signals are sustained through non-histaminergic pathways mediated by transient receptor potential (TRP) ion channels such as TRPV1 and TRPA1 (18). Neuroimmune mediators, including interleukin (IL)-31, have also been implicated in chronic itch (19). Psychological stress and psychiatric comorbidities, such as anxiety and depression, are known to exacerbate disease severity, highlighting the psychosomatic component of neurodermatitis (1).

Neurodermatitis typically presents as localized, well-demarcated, lichenified plaques in easily accessible body areas, including the scalp, neck, extremities, and genitalia (1). In this case, the plaques were localized to the dorsal feet, presenting as hyperpigmented macules with fine scaling and lichenification. The primary differential diagnoses include lichen planus and psoriasis, both of which may present with hyperpigmented or scaly plaques. However, the chronicity of pruritus, repeated scratching, and absence of systemic comorbidities supported the diagnosis of neurodermatitis.

Therapeutic strategies focus on breaking the itch–scratch cycle. Potent topical corticosteroids remain the first-line treatment, often combined with keratolytic agents such as salicylic acid to enhance penetration and reduce hyperkeratosis (20). Oral antihistamines are prescribed primarily for their sedative properties, helping reduce nocturnal pruritus rather than directly controlling itch. Non-pharmacological interventions, including patient education, stress management, and avoidance of scratching, are essential in preventing recurrence.

In this case, the use of deoximethasone cream with salicylic acid, combined with oral cetirizine and vitamin C, resulted in symptomatic relief and gradual regression of lesions. Importantly, the role of family support in promoting adherence to treatment and reducing psychological stress contributed to improved outcomes, consistent with evidence that psychosocial support enhances recovery in chronic dermatological conditions.

The prognosis for neurodermatitis is generally favorable regarding life expectancy and function, although recurrence is common when psychosocial triggers and treatment non-adherence are not adequately addressed.

This case reinforces the need for a holistic approach, integrating pharmacological, behavioral, and psychosocial strategies. Clinicians should maintain a high index of suspicion for neurodermatitis in patients presenting with localized lichenified plaques and ensure long-term follow-up to minimize relapse.

4. Conclusion

Neurodermatitis, or lichen simplex chronicus, remains a common yet challenging dermatologic condition due to its chronic itch–scratch cycle and multifactorial pathophysiology. This case demonstrates that accurate clinical recognition, combined with appropriate pharmacological therapy and patient education, can significantly improve outcomes. The integration of family support and counseling was essential in ensuring adherence and preventing recurrence. Clinicians should adopt a holistic management approach that addresses both dermatological and psychosocial aspects to achieve sustained disease control and enhance patients' quality of life.

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