

Xerotic Eczema

Xerotic eczema, also referred to as asteatotic eczema, is a common form of dermatitis characterized by dry, cracked, and inflamed skin, which often results from a loss of moisture in the skin. It is frequently associated with a combination of intrinsic and extrinsic factors that disrupt the skin's natural barrier function. Xerotic eczema typically manifests during colder months due to reduced humidity and lower temperatures but can also affect individuals year-round. It is especially prevalent among older adults, though it can occur in individuals of any age.

Etiology and Pathophysiology

Xerotic eczema is primarily caused by a disruption in the skin's natural barrier, leading to increased transepidermal water loss (TEWL). Several factors contribute to this process, including environmental factors (e.g., cold weather, low humidity), genetic predisposition, and impaired lipid synthesis in the stratum corneum. The stratum corneum, which is the outermost layer of the epidermis, plays a key role in maintaining skin hydration by preventing excessive water loss. In xerotic eczema, this barrier is compromised, and the skin becomes dry, cracked, and more prone to irritation and inflammation.

The condition is also influenced by inflammatory pathways involving the immune system. The activation of T-helper cells and the release of cytokines such as interleukins and tumor necrosis factor-alpha (TNF- α) contribute to the inflammatory response, leading to erythema, itching, and discomfort. Filaggrin mutations, a protein crucial for maintaining the integrity of the skin barrier, are commonly associated with xerotic eczema, particularly in individuals with a history of atopic dermatitis.

Clinical Features

The hallmark signs of xerotic eczema include:

- **Dry, Scaly Skin:** The skin appears rough and lacks moisture, leading to peeling and scaling. These changes are most prominent in areas of the body that are exposed to environmental factors, such as the arms, legs, and hands.
- **Pruritus (Itching):** Itching is often intense and can lead to scratching, which exacerbates the condition and can lead to secondary infections.
- **Erythema and Inflammation:** The affected skin is often red, inflamed, and may develop fissures or cracks, especially in areas of extreme dryness. This is due to the loss of moisture and the subsequent inflammation of the skin.

- **Lichenification:** Chronic scratching and rubbing may lead to thickened skin, known as lichenification, which can occur in areas such as the forearms, legs, or hands.

Risk Factors

Risk factors for developing xerotic eczema include:

- **Age:** Older adults are more prone due to decreased skin hydration and a natural decline in barrier function.
- **Pre-existing Skin Conditions:** Individuals with a history of atopic dermatitis, psoriasis, or other skin conditions may be more susceptible to xerotic eczema.
- **Environmental Exposure:** Exposure to cold, dry air, and frequent bathing with hot water or harsh soaps can exacerbate the condition.
- **Genetic Factors:** Genetic mutations, particularly those related to filaggrin production, are associated with a predisposition to xerotic eczema.
- **Occupational and Lifestyle Factors:** Individuals who work in professions that involve frequent hand washing or exposure to chemicals (e.g., healthcare workers, cleaners) are at a higher risk.

Diagnosis

Xerotic eczema is typically diagnosed through a clinical evaluation. A detailed history of symptoms, environmental triggers, and skin appearance are crucial for diagnosis. Key diagnostic features include dry, scaly skin with localized erythema and pruritus, usually exacerbated by seasonal or environmental changes. A skin biopsy is generally not required for diagnosis but may be used to rule out other conditions such as psoriasis or fungal infections.

Management and Treatment Options

The treatment of xerotic eczema focuses on restoring the skin's moisture barrier, controlling inflammation, and alleviating symptoms such as pruritus. Management strategies can be categorized into preventive measures, topical treatments, and systemic therapies.

Preventive Measures:

- **Skin Hydration:** Frequent application of emollients and moisturizers is essential for preventing water loss from the skin. Occlusive moisturizers (e.g., petroleum jelly) and humectants (e.g., glycerin, urea) can help retain moisture.
- **Environmental Modifications:** Avoidance of hot water and harsh soaps is crucial to prevent further drying of the skin. Humidifiers can be used in the home, particularly during the winter months, to increase air moisture levels.

- **Sun Protection:** Although not a direct cause of xerotic eczema, sun exposure can worsen the condition. Use of broad-spectrum sunscreens is recommended, particularly if outdoor activities exacerbate symptoms.

Topical Treatments:

- **Topical Steroids:** Mild to moderate topical corticosteroids (e.g., hydrocortisone, betamethasone) are commonly used to control inflammation. These should be applied sparingly and for limited periods to avoid side effects, particularly in sensitive skin areas.
- **Topical Calcineurin Inhibitors:** Non-steroidal options, such as tacrolimus and pimecrolimus, can be effective for reducing inflammation and itching without the side effects associated with corticosteroids.
- **Topical Coal Tar or Other Keratolytics:** For thickened skin (lichenification), products containing coal tar or other keratolytic agents may help to soften and remove scales.

Systemic Treatments:

In cases where topical treatments are insufficient, oral antihistamines (e.g., diphenhydramine) may be used to control itching. For more severe cases, oral corticosteroids may be prescribed for short-term use to reduce inflammation.

In refractory cases, systemic immunosuppressive agents such as methotrexate or cyclosporine may be considered for managing severe or widespread eczema.

Emerging Treatments:

Janus Kinase (JAK) Inhibitors, such as baricitinib and upadacitinib, are emerging as effective treatments for various forms of eczema, including xerotic eczema, by targeting specific immune pathways involved in inflammation.

Prognosis and Complications

The prognosis for xerotic eczema is generally favorable, particularly with proper management. However, in severe cases, persistent dryness, cracking, and inflammation may lead to complications such as secondary infections (bacterial or fungal) or psychosocial distress due to the impact of visible skin changes and persistent itching. Chronic scratching and inflammation can also lead to skin thickening (lichenification), which may persist even after the initial condition improves.

Conclusion

Xerotic eczema is a common dermatologic condition characterized by dry, inflamed skin, often worsened by environmental factors and underlying skin barrier dysfunction. While the condition

is typically self-limited, ongoing management through moisturizing, sun protection, and appropriate topical therapies is essential to prevent flare-ups and complications.

References

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