

An Indian Scenario for Polymorphous Light Eruption

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Abstract

A common photodermatitis known as polymorphous light eruption (PLE) is characterized by a delayed hypersensitivity reaction to sunlight. This study focuses on the epidemiology, clinical characteristics, pathophysiology, diagnosis, and therapy of PLE in the Indian population. India has a higher prevalence of PLE than other regions due to its geographic position and high levels of ambient ultraviolet (UV) light. Papular and erythematous lesions, face involvement, and persistent/recurrent nature are prevalent characteristics of the clinical presentation of PLE in Indians, which frequently varies from other populations. Genetic susceptibility, ultraviolet exposure, and immunological dysregulation are all factors in the pathophysiology of PLE, with particular implications for the Indian population. The mainstay of diagnosis is clinical evaluation, which is backed up by phototesting and histological analysis. The use of topical and systemic medicines, phototherapy, and sun protection measures are all examples of management techniques. Complementary therapies are also promising in the therapy of PLE. In order to improve patient care and quality of life, this review aims to increase understanding and promote customized approaches to PLE in the Indian setting. To further understand the precise genetic and environmental factors that affect PLE in Indians and to create focused treatments, more investigation is required.

1. Introduction

A common photodermatitis known as polymorphous light eruption (PLE) is characterized by a delayed hypersensitive reaction to sunlight [1]. It is a common disorder that varies in epidemiology and clinical appearance depending on the community [2]. Due to the country's geographic position and climate, which result in higher incidence rates than other regions [3], PLE is particularly important in the context of India. Due to India's proximity to the equator and considerable exposure to UV radiation, PLE primarily affects people who have been exposed to extreme ultraviolet (UV) radiation [4].

When compared to other ethnic groups, the clinical characteristics of PLE in the Indian population frequently show distinctive traits. Indian patients frequently have face involvement, papular and

erythematous lesions, and a prolonged or recurring disease course [5]. In the Indian setting, these distinct clinical symptoms demand a customized approach to diagnosis and care.

Genetic susceptibility, UV ray exposure, and immunological dysregulation interact in a complicated way to cause PLE [6]. PLE has been linked to genetic variants that affect immunological response and how the body reacts to UV radiation [7]. Additionally, research into how the genetic variety of the Indian population affects PLE etiology is also ongoing.

For proper management of PLE, an accurate diagnosis is essential. Clinical evaluation is a key component of the diagnostic procedure, and it is backed up by histological analysis and phototesting [8]. Accurate diagnosis and efficient management techniques

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depend on being able to identify the distinctive clinical traits seen in Indian patients.

An extensive assessment of PLE in the Indian context, including epidemiology, clinical characteristics, pathophysiology, diagnosis, and therapy, is the goal of this review paper. Healthcare providers can enhance patient outcomes and create specialized techniques to maximize disease control by recognizing the distinctive features of PLE in India.

2. Epidemiology of Polymorphous Light Eruption in India

A common photodermatosis known as polymorphous light eruption (PLE) is characterized by a delayed hypersensitive reaction to sunlight [1]. It is a common disorder that varies in epidemiology and clinical appearance depending on the community [2]. Due to the country's geographic position and climate, which result in higher incidence rates than other regions [3], PLE is particularly important in the context of India. Due to India's proximity to the equator and considerable exposure to UV radiation, PLE primarily affects people who have been exposed to extreme ultraviolet (UV) radiation [4].

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3. Clinical Features of Polymorphous Light Eruption in Indians

When compared to other ethnic groups, polymorphous light eruption (PLE) in the Indian population shows specific clinical characteristics. On sun-exposed body parts such the face, neck, arms, and upper chest, papular and erythematous lesions are frequently observed in Indian patients [14]. When compared to other groups, Indian PLE patients had a higher prevalence of facial lesions, which highlights the prominence of face involvement [15].

Indian PLE patients frequently experience recurring episodes and lesions that persist for a prolonged period of time [16]. Patient quality of life is negatively impacted by the recurrent nature of PLE, which necessitates individualized management approaches.

Indian PLE patients frequently express pruritus in addition to the typical papular and erythematous lesions. The severe itching brought on by PLE can have a major negative influence on everyday activities and add to the overall burden of the illness [17].

Additionally, post-inflammatory hyperpigmentation may be experienced by Indian PLE patients, which can add to the condition's cosmetic issues. Even after the acute flare-up has subsided, the hyperpigmented regions frequently remain [18].

The particular clinical characteristics of PLE in Indians underscore how critical it is to identify these distinctive traits for an accurate diagnosis and suitable therapy approaches in this community.

4. Pathogenesis of Polymorphous Light Eruption in the Indian Context

The complicated combination of genetic, environmental, and immunological variables that leads to polymorphous light eruption (PLE) pathogenesis may be different in the Indian population. The development of PLE is significantly

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influenced by genetic predisposition, and the condition has been linked to specific polymorphisms related to immunological function and the body's reaction to ultraviolet (UV) radiation [19]. However, research into the precise genetic variables causing PLE in the Indian setting is still ongoing.

India's population is exposed to a lot of ambient UV radiation because of its proximity to the equator. In those who are sensitive, the region's strong sunshine exposure triggers the development of PLE symptoms [20]. Additionally, the pathogenesis of PLE in this group may be further modified by the varied climatic and environmental conditions in India.

A major factor in the development of PLE is immunological dysregulation. The development of PLE lesions is aided by the production of cytokines and chemokines from inflammatory skin reactions brought on by UV radiation [21]. Patients with PLE have been found to have immune cell dysregulation, including T cells and dendritic cells, which may indicate an abnormal immunological response to UV radiation exposure [22].

Furthermore, the immunological dysregulation and consequent pathogenesis of PLE may be influenced by the specific environmental conditions and distinctive genetic diversity of the Indian population. For the development of specialized treatments and preventive measures, it is crucial to comprehend the distinct genetic and immunological pathways underlying PLE development in the Indian environment.

5. Diagnosis of Polymorphous Light Eruption in the Indian Population

For the Indian population, effective care of polymorphous light eruption (PLE) depends on accurate diagnosis. The mainstay of diagnosis is clinical evaluation, which is backed up by phototesting and histological analysis [22]. For a precise diagnosis, it is crucial to understand the distinctive clinical characteristics seen in Indian patients.

The distinctive papular and erythematous lesions dispersed on sun-exposed areas, such as the face, neck, and upper chest, aid in differentiating PLE from other photodermatoses during the clinical evaluation [23]. Indian PLE patients have particularly

pronounced facial involvement, which supports the diagnosis [24].

The diagnosis of PLE is significantly strengthened by phototesting. To replicate the distinctive lesions seen in PLE, it entails administering regulated doses of UV light to the patient's skin [25]. Phototesting can measure a person's sensitivity to UV radiation and assist distinguish PLE from other photosensitive conditions.

A histopathological investigation may be carried out when the diagnosis is unsure or to rule out other illnesses that are comparable. In most cases, findings from skin biopsy samples of the afflicted area are consistent with interface dermatitis and a lymphocytic infiltration [26].

Given its distinct clinical appearance and potential overlap with other photodermatoses in the Indian population, PLE can be difficult to diagnose. Therefore, correct diagnosis and effective management of PLE in Indian patients depend on a thorough evaluation that integrates clinical assessment, phototesting, and histological examination.

6. Management Strategies for Polymorphous Light Eruption in the Indian Context

A mix of preventive treatments, symptomatic relief, and long-term strategies to reduce illness recurrence are necessary for the effective management of polymorphous light eruption (PLE) in the Indian population [22]. The management strategy emphasizes limiting exposure to triggering factors, shielding the skin from UV rays, and symptom relief.

In PLE management, sun protection measures are essential. Patients are recommended to use broad-spectrum sunscreen with a high sun protection factor (SPF), wear protective clothes, and limit their time in the sun during peak hours [23]. Apply sunscreen liberally and reapply frequently, especially after swimming or perspiring.

During acute PLE flare-ups, topical corticosteroids are frequently administered to relieve symptoms and reduce inflammation [24]. These drugs reduce the erythema, papules, and itching that are brought on by the disorder. To avoid any potential negative effects,

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corticosteroids should not be used for an extended period of time or in excess.

Oral antihistamines may be suggested in some circumstances to alleviate itching and enhance patient comfort [25]. Patients who have trouble sleeping owing to itching may benefit from taking antihistamines with sedative qualities.

As a long-term management method for people with severe or recurrent PLE, phototherapy may be taken into consideration. The frequency and severity of PLE episodes have been found to decrease with the use of narrowband ultraviolet B (NB-UVB) phototherapy [26]. Phototherapy should be applied under a dermatologist's guidance, with close attention paid to the patient's response to the therapy.

In the management of PLE, patient education and counselling are essential. Patients need to be informed about the symptoms of PLE, triggers to stay away from, and self-care techniques to use. To achieve the best results, it is essential to stress the need of adhering to preventive measures and routine follow-up consultations.

7. Conclusion

In conclusion, due to its high prevalence and distinctive clinical characteristics, polymorphous light eruption (PLE) poses a considerable problem in the Indian population. Effective patient care requires a thorough understanding of the epidemiology, clinical symptoms, pathophysiology, diagnosis, and therapeutic techniques unique to the Indian environment. The cornerstones of PLE management in Indian patients are sun protection measures, phototherapy, topical and systemic medicines, and alternative therapies. Healthcare providers can improve patient outcomes and raise their quality of life by using a multidisciplinary approach and taking into account the unique features of PLE in Indians. It is necessary to conduct further study to better understand the genetic and environmental causes of PLE in the Indian population and to create tailored treatments for the condition.

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