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HIV-Associated Dermatoses: Diagnostic Clues Through the Skin

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Abstract **Review Article**

Human immunodeficiency virus (HIV) infection presents a broad spectrum of dermatological manifestations, many of which serve as early indicators of underlying immunosuppression. The skin often reflects internal disease activity and immune status, offering clinicians a window into the systemic progression of HIV. Recognizing these cutaneous signs is crucial for timely diagnosis, staging, and management. This article reviews the most common HIV-associated dermatoses and highlights their diagnostic significance, emphasizing the importance of skin as a clinical tool in HIV care.

Keywords: HIV, Dermatological manifestations, Immunosuppression, Skin, Opportunistic infections.

INTRODUCTION

Dermatological disorders are among the earliest and most frequent clinical manifestations in individuals with HIV. As immune function declines, the skin often becomes a mirror of systemic dysfunction, displaying a variety of infections, neoplasms, inflammatory conditions, and drug reactions (Cedeno-Laurent *et al.,* 2011). These dermatoses not only impact quality of life but also serve as valuable diagnostic and prognostic markers.

Cutaneous Clues in HIV Infection

1. INFECTIOUS DERMATOSES

Opportunistic skin infections are common in people living with HIV (PLWH), particularly when CD4+ counts fall below 200 cells/mm³. Fungal infections like oral candidiasis, dermatophytosis, and deep mycoses (e.g., histoplasmosis) are often seen in advanced stages (Rangel *et al.,* 2018). Viral dermatoses such as herpes simplex, varicella-zoster, and human papillomavirus (HPV)-induced warts are also prevalent and tend to be more severe or recalcitrant (Singh *et al.,* 2009).

Bacterial infections, including folliculitis, impetigo, and ecthyma, may present atypically or become chronic in immunosuppressed patients (Maurer *et al.,* 2017).

2. INFLAMMATORY DERMATOSES

Seborrheic dermatitis is significantly more common in HIV-positive individuals and often serves as a sentinel sign of infection (Coates *et al.,* 2001). Psoriasis and atopic dermatitis may present more severely in PLWH, while conditions like eosinophilic folliculitis are nearly pathognomonic in advanced HIV (Friedman-Kien *et al.,* 1986).

3. NEOPLASTIC MANIFESTATIONS

Kaposi sarcoma (KS), a vascular tumor linked to human herpesvirus-8 (HHV-8), remains one of the most recognized AIDS-defining malignancies (Isiadinso *et al.,* 2012). It commonly affects the skin but can also involve mucosa and viscera. Other neoplastic dermatoses include cutaneous lymphomas and HPV-related squamous cell carcinomas (Tschachler *et al.,* 2006).

4. DRUG REACTIONS

Adverse cutaneous drug reactions (ACDRs) are more frequent and severe in PLWH due to polypharmacy and altered immune responses. Stevens-Johnson syndrome and toxic epidermal necrolysis are notable severe reactions to medications like nevirapine or cotrimoxazole (Kumarasamy *et al.,* 2004).

DIAGNOSTIC AND PROGNOSTIC VALUE

The morphology, distribution, and recurrence of HIV-associated dermatoses often correlate with immunological status and disease stage (Bolognia *et al.,*

2018). Skin findings can precede serological diagnosis and guide clinicians toward timely HIV testing. Moreover, certain conditions such as extensive molluscum contagiosum or widespread tinea infections may indicate severe immunosuppression and predict disease progression (Dinh *et al.,* 2013).

Figure 1. Violaceous macules and nodules on the lower extremities in a patient with advanced HIV infection, consistent with Kaposi sarcoma. Lesions were non-tender and increased in number over several weeks. (Image generated using AI for illustrative purposes)

Figure 2. Numerous umbilicated papules of molluscum contagiosum on the face and neck of a patient with advanced immunosuppression (CD4 count < 100 cells/mm³). This pattern suggests severe HIV-related immunodeficiency. (Image generated using AI for illustrative purposes)

Figure 3. Grouped, pruritic papules on the upper chest consistent with eosinophilic folliculitis. This condition is nearly pathognomonic for advanced HIV infection and often misdiagnosed as acne or folliculitis. (Image generated using AI for illustrative purposes)

Management and Therapeutic Considerations

Effective management of HIV-associated dermatoses requires a multidisciplinary approach, integrating antiretroviral therapy (ART), targeted dermatologic treatments, and supportive care. Many skin conditions improve with immune reconstitution; however, immune reconstitution inflammatory syndrome (IRIS) may paradoxically worsen certain dermatoses during early ART initiation (Macedo *et al.,* 2019).

CONCLUSION

Cutaneous manifestations offer a unique, accessible, and non-invasive window into the pathophysiology of HIV infection. Clinicians should remain vigilant for dermatologic signs that may prompt earlier diagnosis, guide staging, or signal complications. A comprehensive understanding of HIV-associated dermatoses enhances clinical care and contributes meaningfully to the holistic management of people living with HIV.

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