Case Report

Clinicopathologic Discordance in Atypical Unilateral Dorsolateral Lichen Simplex Chronicus Mimicking Kaposi Sarcoma: A Diagnostic Challenge

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ABSTRACT

Background: Lichen simplex chronicus (LSC) is a chronic inflammatory dermatosis arising from repetitive mechanical trauma that sustains an itch-scratch cycle and leads to epidermal hyperplasia and dermal fibrosis. Although frequently encountered in dermatologic practice, dorsolateral involvement is rare and may assume exaggerated morphologic features that simulate infectious or malignant processes.
Objective: To report an unusual case of unilateral dorsolateral LSC clinically mimicking Kaposi sarcoma and to emphasize the indispensable role of clinicopathologic correlation in atypical acral dermatoses.
Methods: Comprehensive clinical evaluation with histopathologic examination and repeat biopsy confirmation.
Results: Histopathology demonstrated irregular acanthosis, compact orthokeratotic hyperkeratosis, hypergranulosis, pseudoepitheliomatous hyperplasia, papillary dermal fibrosis with vertically oriented collagen bundles, and dense lymphocytic infiltrates. These findings confirmed LSC. Due to persistent clinical concern for neoplasia, repeat biopsy was performed and reconfirmed the diagnosis. Combination corticosteroid-based therapy led to marked clinical improvement.
Conclusion: This case underscores how atypical anatomic presentations of otherwise common inflammatory dermatoses can create substantial diagnostic ambiguity and clinical uncertainty. When lesions arise in unusual locations or exhibit overlapping morphologic features, reliance on clinical impression alone may be misleading. In such scenarios, histopathologic evaluation serves as the definitive diagnostic anchor. Moreover, when clinicopathologic discordance persists, repeat biopsy and careful correlation between clinical findings and microscopic features are essential to establishing an accurate diagnosis.

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Keywords: Lichen simplex chronicus; dorsolateral dermatoses; Kaposi sarcoma mimic; clinicopathologic correlation; pseudoepitheliomatous hyperplasia.

INTRODUCTION

Lichen simplex chronicus (LSC), also termed localized neurodermatitis, represents the morphologic consequence of chronic mechanical injury to the skin mediated through a self-perpetuating itch scratch cycle.[1,2] Persistent rubbing induces epidermal hyperplasia, hyperkeratosis, hypergranulosis, and progressive papillary dermal fibrosis.[3]

LSC most commonly affects readily accessible sites including the posterior neck, scalp, extensor extremities, and anogenital region.[1] Acral involvement, particularly of the dorsolateral surfaces, is uncommon and diagnostically challenging. The unique biomechanical properties of dorsolateral skin predispose to marked hyperkeratosis and pseudoepitheliomatous hyperplasia under chronic frictional stress, potentially mimicking verrucous infection, hypertrophic inflammatory dermatoses, or squamous neoplasia.[3,4]

Chronic unilateral dorsolateral plaques and nodules accompanied by edema further broaden the differential diagnosis to include vascular neoplasms such as Kaposi sarcoma, especially in regions where HIV-associated malignancies remain clinically relevant.[5,6]

Clinicopathologic discordance is well documented in dermatology. Contemporary studies continue to demonstrate that histopathologic examination refines or alters initial clinical impressions in a significant proportion of cases, reinforcing the need for tissue confirmation in ambiguous presentations.[7–9] In sub-Saharan African practice, histologic evaluation has been shown to substantially improve diagnostic precision and patient management.[9]

We report a case of unilateral dorsolateral LSC with excoiration, ulceration and pedal edema clinically suggestive of Kaposi sarcoma, underscoring the diagnostic value of repeated clinicopathologic correlation.

Case Presentation

A 36-year-old man presented with a six-year history of a persistent pruritic rash confined to the right lower limb. The condition began as intensely pruritic hyperpigmented patches on the dorsum of the right foot and gradually progressed to thickened plaques and nodular lesions. Pruritus was severe, persistent, and markedly exacerbated by friction and prolonged standing, resulting in habitual scratching and rubbing.

Over time, the lesions increased in both size and number with proximal extension to involve the ankle and distal leg. The patient reported intermittent episodes of unilateral limb swelling associated with the cutaneous lesions. Four days prior to presentation, he developed acute pain over some of the nodular lesions without antecedent trauma, systemic symptoms, or constitutional complaints.

The distribution and chronicity of the lesions were confined to the right lower limb without involvement of other body sites or mucosal surfaces. There was no history of immunosuppression, significant weight loss, fever, or systemic illness. He denied high-risk sexual behavior and had no prior history of malignancy.

On examination, there were multiple clustered violaceous-to-hyperpigmented nodules and plaques over the dorsum and lateral aspect of the right foot, some dome-shaped and smooth surfaced, others with surface excoriation and post-inflammatory hyperpigmentation. The background skin showed marked lichenification with accentuated skin markings. The lesions were confined to the right lower limb.

The clinical impression at presentation favored Kaposi sarcoma due to the violaceous nodularity and unilateral distribution in the setting of limb swelling; however, histopathologic evaluation subsequently demonstrated features consistent with lichen simplex chronicus.

Investigations

Serologic screening for HIV, hepatitis B, and hepatitis C were negative.

Punch biopsy was obtained from a representative hyperkeratotic plaque.

Histopathology:

Microscopic evaluation revealed: Irregular acanthosis with elongation of rete ridges

Compact orthokeratotic hyperkeratosis with focal parakeratosis

Prominent hypergranulosis

Pseudoepitheliomatous hyperplasia

Papillary dermal fibrosis with vertically oriented collagen bundles

Dense superficial and deep perivascular lymphocytic infiltrates

Periodic acid-Schiff staining was negative for fungal organisms.

These findings were diagnostic of LSC.[2,3]

Because of ongoing clinical concern for verrucous or vascular neoplasia, repeat biopsy was performed from a separate lesion. Histologic findings were identical, definitively excluding Kaposi sarcoma and confirming LSC.

Differential Diagnosis

Kaposi sarcoma

Chronic hyperkeratotic tinea pedis

Verruca vulgaris

Hypertrophic lichen planus

Lichen simplex chronicus

Management

Systemic antibiotics were instituted for secondary infection.

Definitive therapy included systemic corticosteroid taper, intramuscular triamcinolone, high-potency topical corticosteroids, keratolytic agents, Antioxidants and oral antihistamines.

Footwear modification and friction avoidance were strongly emphasized.

Outcome

Progressive reduction of nodules. Thickness and scaling was observed. Excorition and ulceration resolved and pedal edema subsided. Residual hyperkeratosis improved with maintenance therapy.

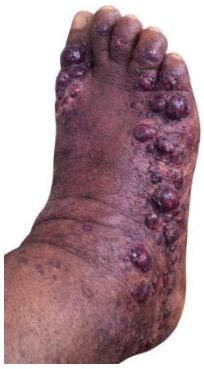

Figure 1: There is diffuse, non-pitting lymphedematous enlargement with overlying hyperpigmented, violaceous to brown plaques and nodular lesions distributed predominantly over the dorsolateral surface and extending to the toes. The lesions are variably sized, ill-defined to well-circumscribed, with areas of lichenification, surface hyperkeratosis, and focal excoriation. The background skin appears thickened with accentuated skin markings.

The violaceous hue and nodular morphology in the setting of chronic unilateral lymphedema initially raised clinical suspicion for Kaposi sarcoma; however, subsequent clinicopathologic correlation established a diagnosis of atypical lichen simplex chronicus.

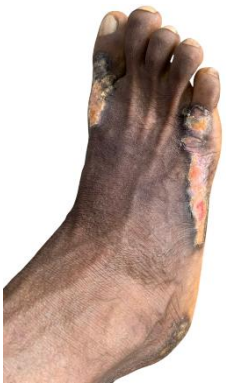

Figure 2: There are irregular, well-demarcated hyperpigmented plaques along the dorsolateral aspect of the foot, with areas of superficial erosion and ulceration covered by yellowish serocrust and fibrinous exudate. The surrounding skin demonstrates marked lichenification with accentuated skin markings and post-inflammatory hyperpigmentation, consistent with chronic mechanical trauma. Linear areas of denuded epidermis with underlying pink granulation tissue are evident along the lateral dorsum.

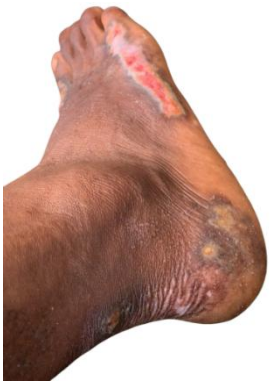

Figure 3: A solitary, elongated ulcerative lesion located over the dorsolateral foot extending toward the lateral malleolus. The ulcer is linear to ovoid in configuration, with well-defined but irregular margins and a predominantly erythematous to pink granulating base. The surface appears moist, with areas of superficial sloughing. Surrounding skin shows hyperpigmentation and mild induration.

Inferior and posterior to the primary lesion, over the lateral malleolar region, there is an additional smaller, round to oval ulcer with a yellowish fibrinous slough covered base and hyperpigmented margins. The adjacent skin appears dry with accentuated skin markings and minimal scaling.

Discussion

Lichen simplex chronicus (LSC) is more appropriately conceptualized as a localized cutaneous remodeling process rather than a primary disease entity. Sustained mechanical trauma promotes keratinocyte hyperproliferation and progressive dermal fibrosis, reinforcing pruritus and perpetuating the self-sustaining itch-scratch cycle.[1,2] Chronic epidermal stimulation induces acanthosis, hyperkeratosis, hypergranulosis, and papillary dermal fibrosis, culminating in the characteristic lichenified plaque. Although frequently encountered in routine dermatologic practice, its clinical morphology is highly site dependent and may deviate substantially from classical descriptions when arising in acral or mechanically stressed regions.

The dorsolateral aspect of the foot possesses distinctive structural and biomechanical characteristics. Although not uniformly a primary weight bearing surface, this region is subjected to repetitive friction, shear forces, and footwear related pressure. Chronic mechanical stimulation in this area may amplify hyperkeratotic responses and provoke pseudoepitheliomatous

hyperplasia, thereby simulating verrucous carcinoma, deep fungal infection, or hypertrophic inflammatory dermatoses.[3,4] In the present case, the nodular morphology, violaceous to brown pigmentation, and unilateral lymphedematous enlargement broadened the differential diagnosis to include Kaposi sarcoma.

Kaposi sarcoma is characterized histologically by spindle cell proliferation forming slit-like vascular channels accompanied by extravasated erythrocytes.[5,6] The absence of these defining features on repeated histopathologic examination was diagnostically decisive. Instead, the presence of marked acanthosis, compact hyperkeratosis, hypergranulosis, and vertically oriented collagen bundles within the papillary dermis supported chronic mechanical injury consistent with.[2,3]

Clinicopathologic discordance remains a recognized phenomenon in dermatology. Contemporary analyses report that histopathology refines or modifies clinical diagnoses in approximately 20–35% of inflammatory dermatoses.[7,8] This finding reinforces the limitations of morphology alone, particularly in acral sites where reactive changes may be exaggerated and misleading.

In sub-Saharan African practice, Obahiagbon and Omatighene demonstrated that histopathologic evaluation significantly altered provisional dermatologic diagnoses in a tertiary setting, emphasizing the value of biopsy in regions where overlapping clinical entities are prevalent.[9] The present case further substantiates this principle. The initial clinical suspicion of Kaposi sarcoma was reasonable given the unilateral swelling and nodular plaques; however, tissue diagnosis appropriately redirected management toward anti-inflammatory therapy rather than oncologic intervention.

The decision to perform a repeat biopsy reflects diagnostic vigilance rather than uncertainty. Iterative reassessment is a hallmark of high-quality dermatologic care, particularly when clinical morphology appears disproportionate to the initial histologic findings.

Mechanical triggers are central to LSC pathogenesis. Tight or occlusive footwear likely contributed to sustained frictional trauma at the dorsolateral aspect of the foot in this patient, perpetuating epidermal hyperplasia and dermal remodeling. Recent reviews underscore that successful management of LSC requires both pharmacologic suppression of inflammation and interruption of mechanical perpetuating factors.[1,10]

This case highlights three critical clinical lessons:

- Acral inflammatory dermatoses may assume exaggerated morphology that mimics malignancy.
- Histopathologic confirmation is indispensable in unilateral chronic plaques involving the dorsolateral aspect of the foot with atypical features.
- Repeat biopsy is justified when clinicopathologic discordance persists.

Ultimately, this report reinforces the foundational dermatologic principle that accurate diagnosis rests upon the integration of morphology, histology, and clinical evolution.

Conclusion

This case underscores the protean clinical spectrum of Lichen simplex chronicus and its capacity to masquerade as malignant or infectious pathology when occurring in anatomically and biomechanically distinctive sites such as the dorsolateral aspect of the foot. The striking unilateral involvement, violaceous nodularity, excoriation and lymphedematous enlargement reasonably raised suspicion for Kaposi sarcoma, illustrating how morphology alone may be misleading in acral dermatoses.

Definitive diagnosis was achieved through rigorous clinicopathologic correlation and repeat histologic confirmation when clinical concern persisted. This iterative diagnostic approach exemplifies sound dermatologic stewardship and reinforces the principle that tissue examination remains indispensable when clinical and morphologic features diverge.

Beyond its individual presentation, this report highlights a broader clinical lesson: common inflammatory dermatoses may assume exaggerated or atypical forms under chronic mechanical stress. Early biopsy, thoughtful reassessment, and disciplined integration of histopathology with clinical evolution are essential to avoid misdiagnosis, prevent unnecessary oncologic intervention, and ensure targeted therapy.
Ultimately, this case reaffirms that diagnostic precision in dermatology arises not from morphology alone, but from disciplined correlation between the clinic and the microscope.

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