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Twenty-Nail Dystrophy from Lichen Planus: a late-stage diagnosis with severe damage. Brief report.

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Abstract:

Nail lichen planus represents a rare variant of lichen planus that may result in permanent damage to the nail apparatus if not diagnosed and managed expeditiously. When the pathology is confined solely to the nails, without involvement of the skin or mucous membranes, it remains an uncommon presentation and is frequently underdiagnosed, thereby delaying appropriate intervention and risking irreversible harm. This brief report describes a 73-year-old male with a 12-year history of progressive nail dystrophy affecting all twenty nails. Despite multiple negative mycological studies and an initial biopsy "compatible with psoriasis," his condition progressed to severe, largely irreversible nail damage, including dorsal pterygium and anonychia. Diagnosis was ultimately confirmed by dermoscopy and repeat histopathology showing a bandlike lymphocytic infiltrate with basal layer damage. This case underscores the diagnostic difficulties associated with isolated nail lichen planus and highlights its potential to cause significant, irreversible nail damage. Prompt detection, utilizing dermoscopy and histopathology, is essential for instituting effective therapy and averting disease progression. Enhancing awareness of this condition is crucial to mitigate diagnostic delays and improve patient outcomes.

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Introduction

Lichen planus is a persistent inflammatory condition of indeterminate etiology that may impact the skin, mucous membranes, hair follicles, and nails. It is regarded as an immune-mediated disorder distinguished by a T-cell–mediated cytotoxic response against basal keratinocytes, resulting in interface dermatitis and tissue injury [1]. Nail involvement is observed in 3-15% of patients with lichen planus, with approximately 4% experiencing permanent nail dystrophy. Nonetheless, isolated nail lichen planus—devoid of concurrent skin or mucosal lesions—is infrequent (about 1-10% of cases) and frequently underestimated [1, 3].

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Nail lichen planus may present with a range of signs, including longitudinal ridging, thinning of the nail plate, trachyonychia, fissures, and subungual hyperkeratosis. In advanced stages, permanent damage to the nail matrix may occur, resulting in dorsal pterygium, pronounced atrophy, or complete loss of the nail (anonychia) [2]. These changes signify persistent scarring of the nail matrix and are generally considered irreversible once established. Nail lichen planus is an urgent condition that requires prompt, aggressive treatment to prevent permanent nail loss. The development of a dorsal pterygium indicates scarring in the matrix and reflects end-stage disease, which cannot be treated [1, 2]. The differential diagnoses include onychomycosis, traumatic dystrophy, or nail psoriasis [2, 4]. Consequently, patients often undergo several ineffective treatments, resulting in longer disease courses and a higher chance of lasting damage. Permanent nail loss is devastating for these patients, greatly affecting their daily activities and quality of life.

We present a rare case of isolated nail lichen planus involving all twenty nails in a patient with a 12-year history of the disease. This case underscores the diagnostic challenges, the risk of severe irreversible damage, and the crucial need for early detection and prompt treatment in this uncommon form.

Case presentation

A 73-year-old male patient with a medical history inclusive of hypertension, cardiac arrhythmia managed via a pacemaker, glaucoma, and severe macular disease, presented with a 12-year progression of nail dystrophy affecting both fingernails and toenails. Clinical examination demonstrated significant nail atrophy, longitudinal ridging, distal fissures and splitting, trachyonychia, erythema of the lunula, dorsal pterygium, and anonychia in nine of ten toenails (refer to Figure 1A-1H). Dermoscopic assessment revealed longitudinal fissures and atrophic areas, some of which resembled scarring (see Figure 1I-1L). The patient exhibited no skin or mucosal lesions.

The patient has an extensive history of direct studies and fungal cultures, all of which were negative. He also included a histopathological report indicating a diagnosis “compatible with psoriasis”. After a thorough review of the clinical manifestations, dermatoscopic findings, and the gradual progression of the lesions, we determined to obtain new samples for histopathological examination. The recent biopsy results revealed a band of lymphocytic infiltration in conjunction with basal cell damage (refer to Figure 2).

Discussion

Nail lichen planus is a relatively uncommon manifestation of lichen planus, reported in about 10% of affected patients, although isolated nail involvement is much rarer [1, 3]. The absence of concomitant cutaneous or mucosal lesions often leads to delayed recognition and misdiagnosis, as in our patient, who was initially treated for onychomycosis and nail psoriasis without clinical improvement [2, 4]. The pathogenesis involves a T-cell–mediated autoimmune response targeting basal keratinocytes of the nail matrix, leading to inflammation, destruction, and ultimately fibrosis [1]. Over time, this process causes irreversible nail damage, especially if diagnosis and treatment are delayed.

Dorsal pterygium is a hallmark of advanced disease and indicates permanent scarring of the nail matrix. Once this stage is reached, therapeutic options are limited, and restoration of the nail unit is generally not possible [2, 6]. Similarly, anonychia represents complete loss of the nail plate due to matrix destruction, as observed in several of our patients' nails. Some authors consider nail lichen planus a dermatologic emergency because of its aggressive, potentially irreversible progression, necessitating prompt diagnosis and early treatment [2]. Primary treatment involves intralesional or systemic corticosteroids to reduce inflammation and prevent fibrosis. Nonetheless, managing this condition remains challenging. Recent advances have focused on targeted therapies, such as Janus kinase (JAK) inhibitors and other immunomodulators, which have shown promising outcomes in difficult-to-treat cases [3, 5]. Given the long-standing nature of the disease and the patient's comorbidities, we opted for an alternative treatment strategy using a topical phosphodiesterase-4 inhibitor combined with intralesional platelet-rich plasma. A month after treatment, a partial response in the lunular erythema was observed. No improvement was observed in advanced lesions such as dorsal pterygium and anonychia.

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Conclusion

Isolated nail lichen planus involving all twenty nails is exceptionally rare and should be considered in the differential diagnosis of chronic nail dystrophy, even when cutaneous or mucosal lesions are absent.

Delayed recognition can lead to irreversible nail unit damage, including dorsal pterygium, anonychia, and permanent nail loss, underscoring the importance of early diagnosis.

Dermoscopy and nail matrix biopsy are complementary diagnostic tools that facilitate accurate diagnosis when clinical findings are inconclusive and help differentiate nail lichen planus from other causes of nail dystrophy.

Early diagnosis and prompt initiation of appropriate therapy are essential to prevent disease progression and to preserve nail function and morphology.

This case highlights the need for greater clinician awareness of isolated nail lichen planus, particularly in patients with progressive dystrophy involving multiple nails and repeatedly negative mycological studies.

Declarations

Author Contributions: SLF and LRL wrote the main manuscript; IDPF, ARL, YMOG, and ACMS edited and improved it. LRL performed all the figures. All authors contributed to the discussions and gave comments on the manuscript.

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Patient Consent: Written informed consent for publication of the clinical details and clinical images was obtained from the patient.

Conflict of Interest: The authors declare that they have no competing interests.

Data Availability: All data generated or analyzed in this study are included in the published article. No additional datasets were generated or analyzed.

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Figure Legends

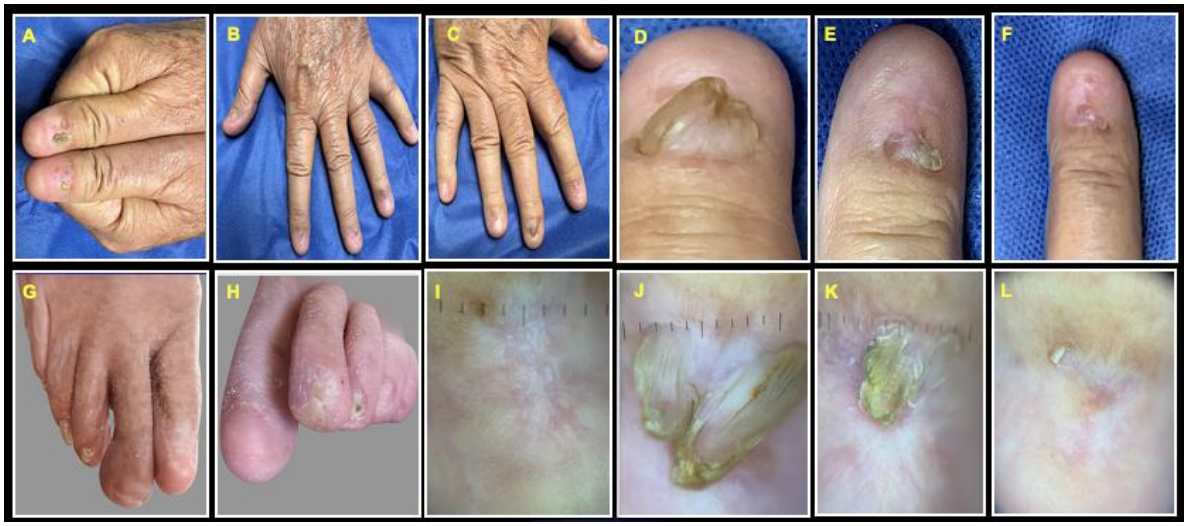

Figure 1: The clinical and dermoscopic features of nail lichen planus are illustrated. A-H) The clinical images depict nail dystrophy affecting multiple fingernails and toenails, characterized by significant nail plate atrophy, longitudinal ridging, distal fissuring, and scarring regions. Advanced alterations, such as dorsal pterygium and anonychia, are observed, indicating severe nail lichen planus. I-L) Dermoscopy images displaying dorsal pterygium, localized hyperkeratosis, lunular erythema, and whitish scar-like regions indicative of matrix damage.

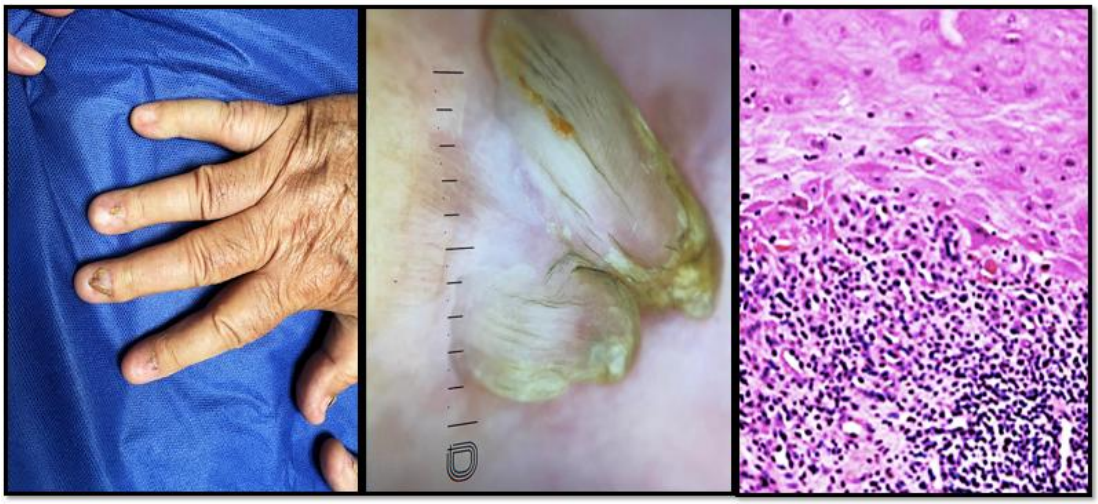

Figure 2: The final diagnosis was established through the integration of clinical findings, dermatoscopic images, and histopathological results. The histopathological examination of the proximal nail matrix (Hematoxylin–eosin stain) revealed a band-like lymphocytic infiltrate, basal layer degeneration, and focal lymphocytic exocytosis, consistent with a diagnosis of nail lichen planus.