

## Nail Changes in Chilblains Mimicking Lichen Planus

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### ABSTRACT

Chilblain LE consists of red or dusky purple papules and plaques on the toes; fingers; and sometimes the nose, elbows, knees, and lower legs. Chilblain LE patients must be distinguished from idiopathic chilblains, and the presence of cryoglobulins or cold agglutinins should be ruled out. Chilblain LE patients frequently have evidence of LE. Most of the cases resolve on rewarming and cold protection without any adverse events. We describe two patients with chilblains who developed severe nail changes mimicking lichen planus due to their paronychia skin condition.

Lichen planus is a condition that can cause swelling and irritation in the skin, hair, nails and mucous membranes. Lichen planus usually appears as purplish, itchy, flat bumps on the skin that develop over several weeks. In the mouth, vagina and other areas covered by a mucous membrane, lichen planus forms lacy white patches, sometimes with painful sores. Most of the people can manage typical, mild cases of lichen planus at home, without medical care. If the condition causes pain or significant itching, you may need prescription drugs. Lichen planus isn't contagious.

The signs and symptoms of lichen planus vary depending on the areas affected. Typical signs and symptoms are: Purplish, flat bumps, most often on the inner forearm, wrist or ankle, and sometimes the genitals, Itching, Blisters that break to form scabs or crusts, Lacy white patches in the mouth or on the lips or tongue, Painful sores in the mouth or vagina, Hair loss, Change in scalp color, Nail damage or loss

A 29-year-old woman presented with a 15-year history of bluish discoloration of toes and fingers followed by development of flaccid blisters over proximal nail folds during winters, which ruptured painlessly with trivial trauma. This progressed to

painless avulsion of the hand nails associated with itching followed by growth of flaky nails which would fall off spontaneously leaving behind pin-point bleeding spots from the nail bed. On examination, she had complete onychia involving almost all of the digits of both hands and feet and (a) onychia and (b) severely dystrophic nails with depigmentation and loss of digital pulp space. The leftover nails showed longitudinal fibrotic bands and striations.

A 22-year-old Indian man presented with gradual thinning of toe-nails and finger-nails for 13 years. This was followed by shedding off of the nail plate during winters with trivial trauma to the digits and regrowth of thin, brittle nails during summers. He also had history of developing erythema and vesicles on the lateral borders of both hands and feet, associated with pruritis and pain, on cold exposure since the past 8 years. At the time of presentation, he also had longitudinal striations and pterygium. Nail matrix biopsy from the great toe showed unremarkable epidermis along with perivascular and interstitial chronic inflammation in the deeper dermis. Vascular thrombi and evidence of vasculitis were not seen. The skin biopsy showed hyperkeratosis, irregular acanthosis and mild upper dermal perivascular chronic inflammation in the dermis. Rest of the dermis and adnexa were unremarkable.

Both the patients had low body mass indices which is common in patients with chilblains. There was no history of smoking or drug exposure. Both the patients had no history of Raynaud's phenomenon or any other features suggestive of connective tissue disease or systemic illness. There was no co-existing cutaneous disease. Anti-nuclear antibodies, cryoglobulins and thyroid functions were within normal limits. Initial clinical diagnosis of nail lichen planus was considered in both cases,

however, the histopathology findings were not consistent and detailed history and temporal correlation indicated that these nail changes were related to severe chilblains. Both the patients were advised cold protection and oral nifedipine 10 mg twice daily with symptomatic improvement in chilblains, however the nail condition persisted and was apparently permanent after 2 years of follow-up.

The pathophysiology of chilblains is said to be an abnormal vascular response to cold temperatures. It is aggravated with humid and damp conditions and commonly affects young women. Genetic predisposition, inappropriate nutritional habits, anorexia, hormonal changes, systemic diseases, focal sepsis, dysproteinaemia and myelodysplastic diseases may also play a role in its etiopathogenesis. Chronic vasoconstriction leading to nail matrix ischemia can be postulated as a cause of the nail changes in our patients. A single case report describes post-inflammatory melanonychia due to chilblains and another labels nail dystrophy in the form of longitudinal ridging and discoloration of nail plate in a patient with perniosis. Most of the cases resolve with rewarming, cold protection and use of calcium channel blockers without any adverse or disfiguring events but our patients developed severe cosmetically bothering permanent nail changes mimicking lichen planus and even anonychia which have not been described previously.

correlation was not found with estradiol level. Estradiol and estradiol level had 24.4% impact on MASI score; the rest of 75.6% was the result of other variables not included in this study, such as genetic factor or sun exposure.

**Keywords:** pathophysiology, Lichen planus, Nail Changes