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Case Report

# A Case of Chronic Pityriasis Lichenoides Treated with Fire Needle Combined with Narrow-Band Ultraviolet B (NB-UVB) Irradiation

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## Abstract

This report presents a case treated with fire needle therapy combined with narrow-band ultraviolet B (NB-UVB) for chronic pityriasis lichenoides. The patient was a 44-year-old female who exhibited recurrent erythema, scaling, and pruritus on the limbs and trunk for a duration of five months. Dermatological examination revealed patchy bright red rashes on the chest with indistinct borders and no significant desquamation; scattered papules ranging from rice to soybean size, pale red to reddish-brown in color, were observed on the limbs, trunk, and buttocks, some of which were covered with fine, thin scales that shed easily. Additionally, patchy erythematous papules were noted on both palms, soles, and the dorsal aspects of the toes, accompanied by scattered vesicles and papules of similar size, some exhibiting minimal exudate and others covered with crusts. Nikolsky's sign was negative, and there was no thickening or deformation of the nails or toenails, nor were there palpable superficial lymph nodes. Dermatopathological findings revealed focal incomplete keratinization, neutrophilic exudate beneath the epidermis, mild epidermal hyperplasia, intercellular edema in the spinous layer, and liquefactive degeneration of the basal cells. A small number of lymphocytes were observed migrating into the epidermis, with lymphocyte-dominated inflammatory cell infiltration surrounding the blood vessels in the superficial to middle dermis, along with visible nuclear dust. The diagnosis was confirmed as chronic pityriasis lichenoides. Following one month of treatment with fire needle therapy in conjunction with NB-UVB irradiation, there was notable improvement in almost all clinical manifestations; the lesions on the chest completely resolved, and those on the dorsal feet became dry and convergent, with ongoing follow-up.

## Keywords

Chronic Pityriasis Lichenoides, Fire Needle, Narrow-Band Ultraviolet B (NB-UVB)

## 1. Clinical Data

The patient, a 44-year-old female, has experienced recurrent erythema and scaling on her limbs and trunk, accompanied by itching, for the past five months. This condition began following an episode of influenza. Initially, scattered erythema appeared on the toes and sides of the fingers, presenting with pinpoint-sized blisters and minimal exudate. The rash subsequently evolved into a reddish-brown infiltrative maculopapular rash, characterized by surface blisters and exudate. Over time, flaky erythema developed on the neck and chest, alongside reddish-brown papules and maculopapular rashes

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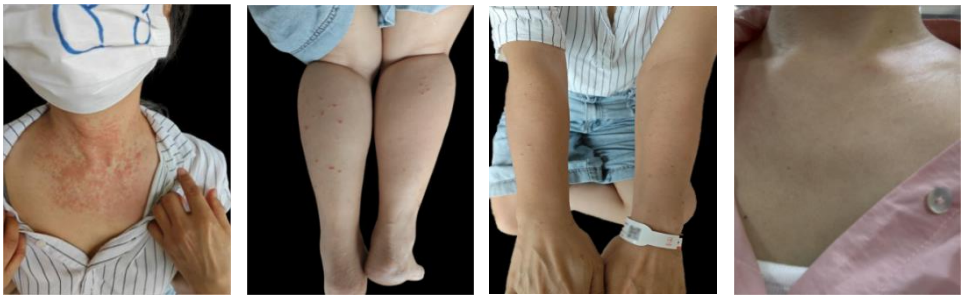
on the limbs. These lesions were distinct from one another and were covered with a thin layer of easily removable scales, with severe itching reported. The patient sought medical attention at multiple hospitals and was diagnosed with "eczema and atopic dermatitis." Treatment regimens included oral administration of emestine fumarate sustained-release capsules, triamcinolone tablets, and abuxitinib tablets, as well as topical applications of fluticasone cream, hydrocortisone acetate cream, and Fuzhiqing ointment; however, no improvement in symptoms was noted. Since the onset of the condition, the patient has not experienced fever, cough, or chest and abdominal pain. She denies any history of infectious diseases such as tuberculosis or hepatitis, as well as any surgical trauma, blood transfusions, or food or drug allergies. There is no family history of similar diseases. A physical examination revealed no abnormalities across all systems.

Dermatological conditions: Flaky, bright red macules with unclear boundaries and no obvious desquamation are observed on the chest. Light red and reddish-brown papules, ranging in size from rice grains to soybeans, are present on the limbs, trunk, and buttocks; some of these are covered with thin scales that are easily dislodged. On the palms of both hands, a flaky, reddish-brown maculopapular rash is noted on the dorsum of both feet and extended toes, with scattered blisters and papules of similar size, some exhibiting slight exudation and others covered with scabs. The Nissl sign is negative, and there is no thickening or deformation of the fingernails or toenails. Superficial lymph nodes are not palpable. Laboratory tests include routine blood, urine, and stool analyses, liver and kidney function tests, electrolyte levels, coagulation function assessments, and four tumor markers (alpha-fetoprotein, carcinoembryonic antigen, carbohydrate antigen 125, carbohydrate antigen 19-9). Additionally, tests for human immunodeficiency virus antigens and antibodies, syphilis-specific antibodies, and hepatitis B surface antigen quantification were conducted. Five immune parameters were assessed (total IgE, complement C3, complement C4, immunoglobulin IgG, immunoglobulin IgA, immunoglobulin IgM), along with antinuclear antibodies and 11 autoimmune antibodies (SCL-70 antibody, JO-1 antibody, U1RNP antibody, Sm antibody, SSB antibody, SSA/Ro60 antibody, SSA/Ro52 antibody, centromere protein B antibody, dsDNA antibodies, nucleosome antibodies, histone antibodies, ribosomal P protein antibodies). No significant abnormalities were detected in these antibodies or T lymphocyte subpopulations. Cultures of secretions from the dorsal wounds of both feet showed no growth of fungi or bacteria.

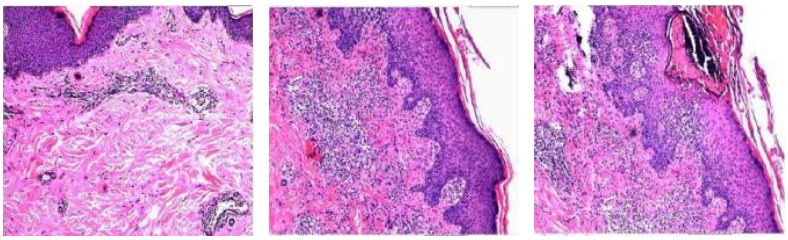
Histopathological examination of the skin lesions on the flexor side of the left calf revealed focal parakeratosis, neutrophilic exudation in the subepithelial region, mild epidermal hyperplasia, edema among the spinous cells, localized liquefactive degeneration of the basal cells, and a small number of lymphocytes migrating into both the epidermis and dermis. Perivascular lymphocytes in the superficial and middle dermal layers were primarily infiltrated by inflammatory cells, with a small amount of karyorrhexis observed. Immunofluorescence results indicated that IgG, IgA, IgM, C3, and C4 were all negative. The final diagnosis was pityriasis lichenoides chronica.



A B C D

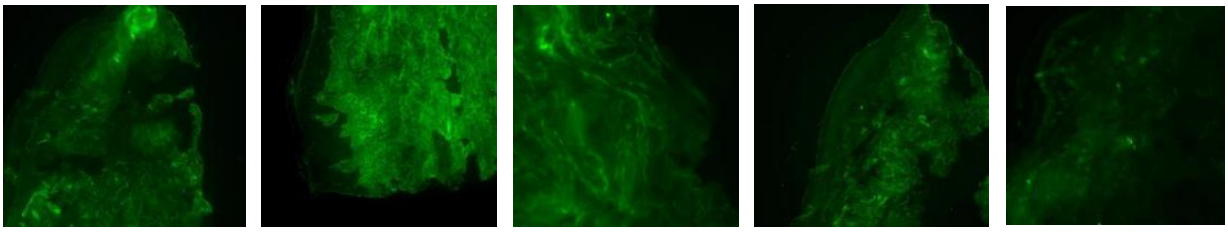
***Figure 1.*** *Clinical photos of the patient before and after treatment. A ~ C: Before treatment, on the chest, there are patchy erythemas with unclear boundaries and no obvious desquamation; there are scattered papules of rice to soybean size, pale red to reddish-brown in color, on both lower legs and the outer sides of the forearms, some covered with fine, thin scales that are easily shed; D: One month after treatment, there are scattered erythemas and papules on the chest, leaving scattered patchy brown pigmentation.*

The treatment regimen included oral administration of methylprednisolone, desloratadine citrate, and ketotifen, along with intravenous infusion of compound glycyrrhizin. Additionally, desonide ointment and urea ointment were applied as wet packs, and a boric acid solution was used for wet compresses on the back of the foot. While most of the rash on the limbs and chest subsided, the rash on both toes and the extended facial area showed no improvement. Consequently, the patient received fire acupuncture and narrow-band ultraviolet (NB-UVB) irradiation once a week. After one month, the patient's symptoms improved significantly, although brown pigmentation persisted in the skin lesions. Follow-up after six months indicated no obvious recurrence of the skin lesions.



A B C

***Figure 2.*** *Histopathology: Focal parakeratosis, neutrophil exudate below, mild epidermal hyperplasia, intercellular edema in the spinous layer, liquefactive degeneration of basal cells in the basal layer, a small number of lymphocytes migrating into the epidermis, lymphocyte-dominated inflammatory cell infiltration around the blood vessels in the superficial to middle dermis, and visible nuclear dust.*



A B C D E

***Figure 3.*** *Immunofluorescence results(A-E): IgG, IgA, IgM, C3 and C4 are all negative.*

## 2. Discussion

In 1894, Neisser and Jadassohn first reported acute pityriasis lichenoides (pityriasis lichenoides et varioliformis acuta, PLEVA), and in 1899, Juliusberg reported chronic pityriasis lichenoides (pityriasis lichenoides chronica) [1]. PLEVA and pityriasis lichenoides chronica (PLC) are generally considered to represent opposite ends of the disease spectrum of pityriasis lichenoides (PL). The terms "acute" and "chronic" typically reflect the characteristics of the rash rather than the overall course of the disease. A single patient may exhibit acute, chronic, or intermediate rashes concurrently or sequentially. The pathogenesis of pityriasis licheniformis remains unclear; however, it is currently believed to be primarily associated with hypersensitivity reactions, immune abnormalities, and abnormal lymphocyte proliferation [2-4].

In this case, the patient developed skin lesions following influenza. The skin lesions presented a variety of forms, including typical scaly papules, macules, blisters, exudate, and scabs. The itching was severe, and early eosinophil and IgE levels were elevated, leading to a clinical misdiagnosis of conditions such as eczema, atopic dermatitis, or erythematous pemphigoid. The pathological characteristics of pityriasis lichenoides partially overlap with those of mycosis fungoides and lymphomatoid papulosis, necessitating careful differentiation from these [5-7]. In recent years, Obeng-Nyarko [8] reported two cases of patients with prurigo nodularis (PLC) who were treated with dupilumab, noting no recurrence of rash for at least ten months. However, additional clinical research data are necessary to further assess the efficacy and safety of this treatment. This patient has received treatment with traditional antihistamines, JAK inhibitors, glucocorticoids, and other therapies; however, some symptoms have not improved significantly. Following additional treatment involving fire acupuncture combined with narrow-wave ultraviolet light, the skin lesions on the dorsum of the foot, where the initial lesion occurred, have shown control, and the lesions in other areas have also stabilized, resulting in residual pigmentation. In recent years, fire acupuncture has gained popularity as a treatment for various skin diseases, including herpes zoster, acne, neurodermatitis, eczema, and psoriasis [9,10]. Several studies have indicated that fire acupuncture, when combined with narrow-wave ultraviolet light, is effective in the treatment of vitiligo. This method is believed to be involved in immune regulation, reduce the concentration of inflammatory factors such as TNF-α, IL-6, IL-4, and have antioxidant effects [11, 12]. In the case of a patient who was resistant to multiple treatments, we incorporated fire acupuncture alongside narrow-wave ultraviolet therapy, resulting in favorable outcomes. This case may serve as a valuable reference for clinical practice.

## 3. Conclusion

At present, there are currently no established treatment standards for chronic pityriasis licheniformis. Oral hormones, antihistamines, JAK inhibitors, and other medications have proven ineffective in patients. However, the combination of fire acupuncture and narrow-band ultraviolet light therapy offers an alternative approach that can mitigate the long-term side effects associated with oral and topical medications.

This method may enhance patient compliance, reduce complications, and provide a more cost-effective treatment option.

## Abbreviations

| | |
|---|---|
| NB-UVB | Narrow-band Ultraviolet b |
| IgE | Immunoglobulin E |
| PLC | Pityriasis Lichenoides Chronica |
| PLEVA | Pityriasis Lichenoides et Varioliformis Acuta |
| JAK | Janus Kinase |
| TNF-α | Tumor Necrosis Factor-α |
| IL-6 | Interleukin-6 |
| IL-4 | Interleukin-4 |

## Conflicts of Interest

The authors declare no conflicts of interest.

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