SKIN

BRIEF ARTICLE

Carpal Tunnel Corticosteroid Injection Treatment of Nail Lichen Planus

Miranda Lee-Foltz, BA[1], Payal Shah,MD[2], Denise Aaron, MD[2]

[1] Dartmouth College, Geisel School of Medicine, Hanover, New Hampshire, USA
[2] Department of Dermatology, Dartmouth Health, Lebanon, New Hampshire, USA

ABSTRACT

Treatment for nail lichen planus (NLP) typically involves the use of intralesional or systemic corticosteroids. However, both modalities have distinct considerations. Systemic options are typically reserved for severe cases due to potential adverse effects while intralesional injections are limited due to patient discomfort. Here we present a case in which a corticosteroid injection for carpal tunnel syndrome led to incidental bilateral improvement in a patient's nail lichen planus. Carpal tunnel injection may be an alternative to more traditional treatments and is a potential area for further research.

CASE REPORT

Our 72-year-old female patient presented with a ten-year history of nail dystrophy with evidence of nail grooving, ridging, and thinning with partial pterygium formation of all ten fingernails. (**Figure 1 A and B**). Nail matrix biopsy demonstrated lichenoid interface inflammation (**Figure 2**). A diagnosis of moderate-to-severe nail lichen planus (NLP) was made. Treatment with proximal nail fold intralesional triamcinolone injections improved the proximal nail fold with subsequent reduction in onychorrexis and nail splitting. The regimen involved monthly injections of 0.1 mL of intralesional triamcinolone to the nailfold of all digits until improvement, then injections would be spaced to six to eight weeks apart. Our patient received two consecutive treatments starting in December of 2019, with another 8 weeks later. Subsequent therapy was then discontinued due to the COVID-19 pandemic.

She was next seen by dermatology in 2021 with severe NLP involving all ten fingernails; at that time, she opted not to re-initiate nail fold injections. Our patient also had a greater than ten-year history of right-sided carpal tunnel syndrome (CTS) of mechanical etiology that had been unsuccessfully treated with splinting. While she used splints intermittently for management of CTS symptoms prior to 2021, she reported a worsening of symptoms despite splinting. Six months after presenting to dermatology in 2021, her orthopedic surgeon injected her right wrist with a 6 mg/cc (1 cc total) betamethasone injection followed by another two injections 4 months apart. After the first injection for CTS (and without other NLP treatments administered), her nails showed significant improvement with sustained efficacy for 3 months prior to dystrophy recurrence.

NLP is characterized by lichenoid inflammation of the nail matrix or bed.

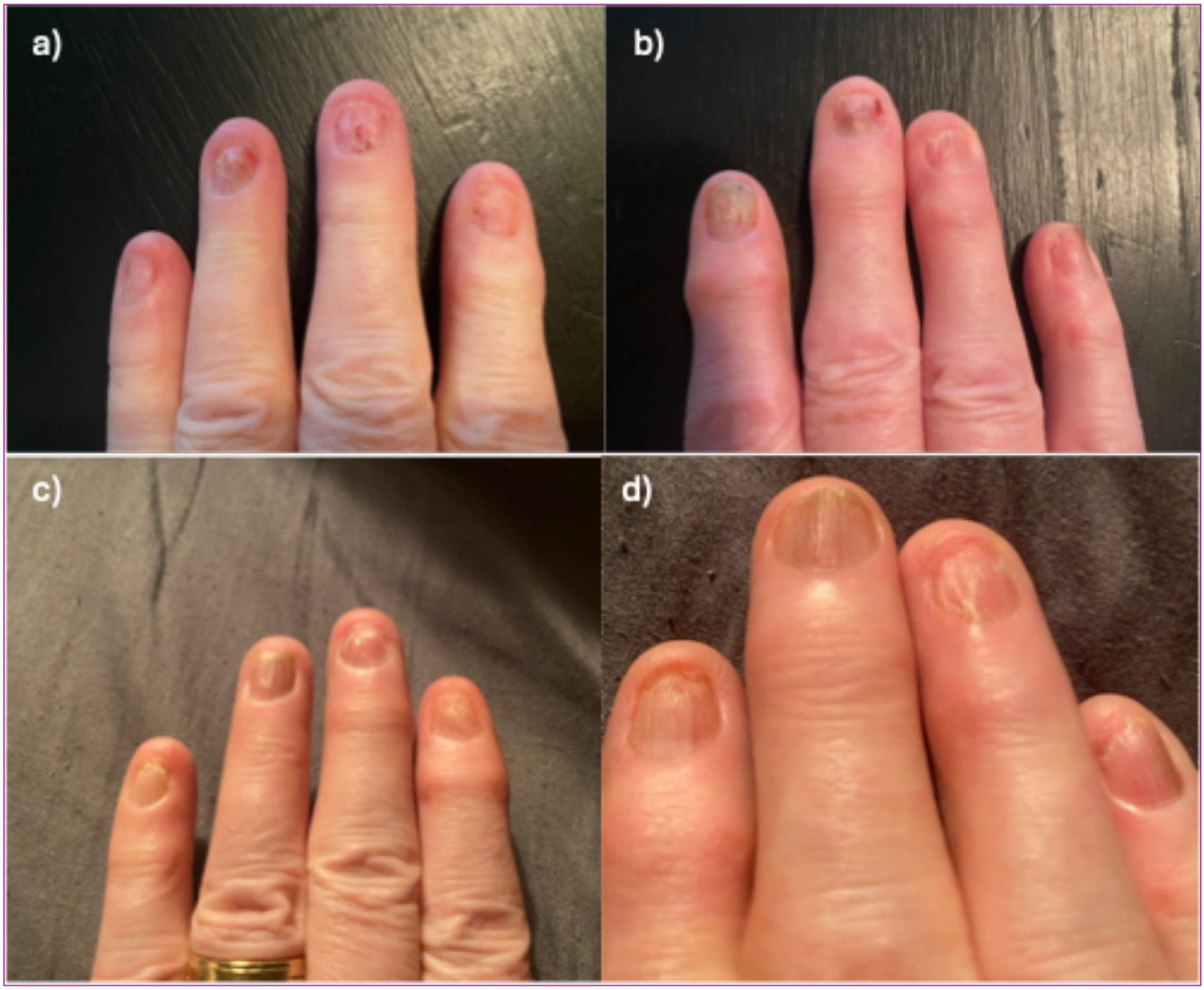

Figure 1. 10 year history of nail dystrophy with evidence of nail grooving, ridging, and thinning with partial pterygium formation demonstrated in the right fingers (A) and left fingers (B). The patient's fingers on the right (C) and left (D) hands after 3 months of carpal tunnel syndrome steroid injections show reduced onychorrexis and nail splitting of the proximal nail plate.

Prompt, effective treatment is important to prevent permanent pterygium scarring and onycholysis and improve patient quality of life.[1] Intralesional injections and systemic corticosteroids are both mainstay treatments while systemic steroids are reserved for severe cases due to well-known systemic adverse effects with long-term use. Additionally, oral acitretin, azathioprine, cyclosporine, or mycophenolate mofetil can be considered for steroid sparing potential in severe cases.

Intramuscular (IM) steroid administration for NLP reduces total systemic cortisol dose requirements as doses of 0.5-1.0 mg/kg at 4-6 weeks apart for 3-6 months has been shown to be effective.[1] This treatment has shown success without causing iatrogenic Cushing syndrome or secondary adrenal insufficiency.[2] However when more than 3 nails are involved, systemic corticosteroids are a more effective treatment option than intralesional. Local intralesional nail matrix

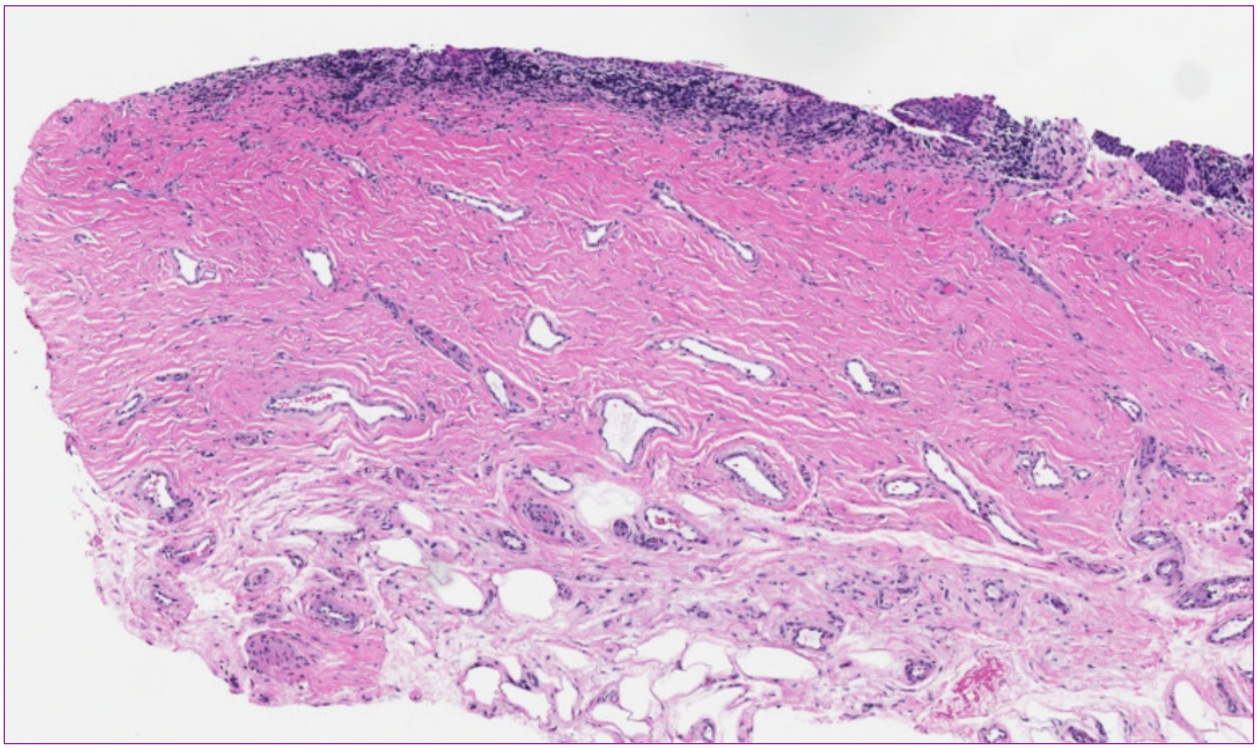

Figure 2. The patient's nail matrix biopsy with a H&E stain (10x) showing lichenoid surface inflammation.

injections are typically a 0.1mL per digit of 5-10mg/mL corticosteroids[3] and, although effective, are limited by patient discomfort.[2] Digital nerve blocks are often necessary to reduce pain during administration. Achieving clinical response requires monthly administration for 4-6 months, however the systemic load of steroid is significantly less than with oral corticosteroid use.[1] Systemic corticosteroids have been found to have a relapse rates for NLP around 10% while intralesional and intramuscular injections have had relapse rates ranging 40-60%.[4] Safe and effective treatment options for patients with isolated, severe NLP remains limited.

Serial local corticosteroid injections have been proven to provide acute relief of symptoms of carpal tunnel syndrome.[5] This case's clinical outcome suggests that regular injections into the carpal tunnel region may offer an effective, more comfortable treatment for NLP than matrix injection, while lowering the total cortisone exposure compared to oral or intramuscular modalities. Interestingly, even with local distal injection into the carpal tunnel area, enough of the steroid circulates systemically to offer therapeutic benefit to the contralateral nails (**Figure 1C and D**). This alternative treatment option is especially pertinent for patients with relative contraindication to oral steroids including the diabetic, glaucoma, and osteoporosis patient populations. Carpal tunnel steroid administration could be considered for patients with inflammatory dermatoses affecting the nail matrix (including psoriasis), even those without carpal tunnel syndrome. Further investigation of this treatment option is warranted, as it may offer a more comfortable, safer treatment option.

Conflict of Interest Disclosures: None

Funding: None

Corresponding Author:
Denise Aaron, MD
1 Medical Center Drive
Lebanon, NH 03756
Email: denise.m.aaron@hitchcock.org

References:

1. Iorizzo M, Tosti A, Starace M, et al. Isolated nail lichen planus: An expert consensus on treatment of the classical form. J Am Acad Dermatol. 2020;83(6). doi:10.1016/j.jaad.2020.02.056
2. Reddy S, Ananthakrishnan S, Garg A. A prospective observational study evaluating hypothalamic-pituitary-adrenal axis alteration and efficacy of intramuscular triamcinolone acetonide for steroid-responsive dermatologic disease. J Am Acad Dermatol. 2013;69(2). doi:10.1016/j.jaad.2013.02.005
3. Clark A, Jellinek NJ. Intralesional injection for inflammatory nail diseases. Dermatologic Surgery. 2016;42(2). doi:10.1097/DSS.0000000000000621
4. Piraccini BM, Saccani E, Starace M, Balestri R, Tosti A. Nail lichen planus: Response to treatment and long term follow-up. European Journal of Dermatology. 2010;20(4). doi:10.1684/ejd.2010.0952
5. Jiménez del Barrio S, Bueno Gracia E, Hidalgo García C, et al. Conservative treatment in patients with mild to moderate carpal tunnel syndrome: A systematic review. Neurologia. 2018;33(9). doi:10.1016/j.nrl.2016.05.018