

CASE REPORT

A Case of Nail Psoriasis Successfully Treated with Intralesional Methotrexate

Sana Mokni · Khaoula Ameur  · Najet Ghariani · Badreddine Sriha · Colandane Belajouza · Mohamed Denguezli · Rafiaa Nouria

Received: July 29, 2018 / Published online: September 25, 2018
© The Author(s) 2018

ABSTRACT

Psoriasis is a chronic inflammatory disease affecting the skin, nails, and joints. About 61% of psoriatic patients have nail involvement that can cause a significant social problem. Treating nail psoriasis is challenging but can improve the health outcomes and quality of life of patients. Treatment options available for nail psoriasis including topical therapy, intralesional injections, and systemic and biologic agents have various side effects and some benefits. Management is currently inconclusive. Intralesional injection of methotrexate in nail psoriasis was previously documented in few cases. We present a case of nail psoriasis successfully treated with low-dose intralesional methotrexate with no significant side effects in a 48-year-old psoriatic patient. Given the various side effects of conventional topical and systemic therapies limiting their use, we conclude that intralesional

methotrexate injection seems to be a safe and effective treatment option for nail psoriasis. However, large controlled studies are needed.

Keywords: Intralesional methotrexate; Nail psoriasis; Treatment

INTRODUCTION

Psoriasis is a chronic inflammatory disease affecting the skin, nails, and joints [1]. Approximately 61% of psoriatic patients have nail involvement. This percentage can increase up to 90% in patients with psoriatic arthritis [2].

Clinically, nail disease has many presentations depending on the location of the inflammatory process in either the matrix, the nail bed, or the periungual tissue, which results in distinct injury patterns [3]. Nail psoriasis can lead to impairment in the quality of life and work function due to pain, discomfort, and poor esthetic aspect [4]. Treating nail involvement is important in improving the health outcomes and quality of life among patients with psoriasis [5].

Treatment options available for nail psoriasis include topical therapy, intralesional injections, and systemic and biologic agents. Poor penetration of topical therapy into the nail and surrounding tissue, pain associated with intralesional injections, adverse effects and

Enhanced digital features To view enhanced digital features for this article go to <https://doi.org/10.6084/m9.figshare.7053581>.

S. Mokni · K. Ameur (✉) · N. Ghariani · C. Belajouza · M. Denguezli · R. Nouria
Department of Dermatology, Farhat Hached University Hospital, Sousse, Tunisia
e-mail: khaoula.ameur@gmail.com

B. Sriha
Department of Anatomopathology, Farhat Hached University Hospital, Sousse, Tunisia

monitoring of systemic therapies, and patient adherence to therapy make the treatment of nail psoriasis a challenge [1].

The use of intralesional methotrexate has been recently reported. We report a case of nail psoriasis successfully treated with intralesional injection of methotrexate.

Informed consent was obtained from the participant for being included in the study. Additional informed consent was obtained from the individual participant whose information is included in this article.

CASE REPORT

A 48-year-old man with a 6-year history of stable localized plaque psoriasis at the extensor surfaces of knees and elbows, presented to our department for nail dystrophy evolving since 1 year. It involved all his fingernails, mainly his right fingernails and the second and fifth left fingernails. The affected nails showed nail dystrophy with different degrees of subungual hyperkeratosis, pachyonychia, longitudinal striations, trachyonychia, filiform hemorrhage, plate crumbling, leukonychia, and onycholysis with brachyonychia (Fig. 1a, b). Culture from an unguis sample showed no mycological growth. The histologic features of a nail bed biopsy were suggestive of nail psoriasis and discarded lichen, alopecia areata, or other unguis disease (Fig. 2). His cutaneous plaques had been controlled with topical therapies and no systemic agent was used. The Nail Psoriasis Severity Index (NAPSI) was determined to be 56. No signs of psoriatic arthropathy were found. He had previously been prescribed high-potency topical corticosteroids under occlusion, without any efficacy. The patient's discomfort was affecting his ability to work and his quality of life because of psychosocial impairments with a Dermatology Life Quality Index (DLQI) of 21.

We opted for an injection of methotrexate into the proximal nail fold. Laboratory investigations including complete blood counts, liver and renal function tests performed before and after treatment showed no abnormalities.

The patient was treated with an injection of methotrexate (0.1 ml of a 5 mg/2 ml solution)

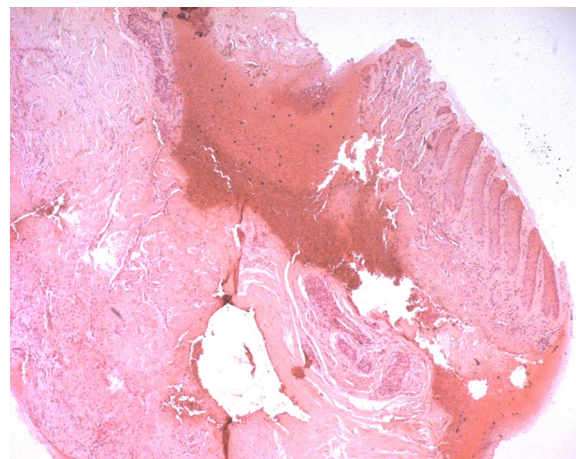


Fig. 1 a, b Nail dystrophy in a psoriatic patient with different degrees of subungual hyperkeratosis, pachyonychia, longitudinal striations, trachyonychia, filiform hemorrhage, plate crumbling, leukonychia, and onycholysis with brachyonychia. **c, d** Total healing 3 months after the last session of intralesional methotrexate

into the proximal nail fold of the most affected nails (the right hand fingernails and the second and fifth left hand fingernails) in the first session. After a metacarpal block, the needle is introduced obliquely in the center of the proximal nail fold and then passes through the matrix. A smaller volume of methotrexate is injected very slowly under the matrix: the bleaching of the region delimits the infiltrated territory and the infiltration is then completed with two dermal papules at the junction of the lateral folds and the proximal fold and one at the nail bed. This procedure was repeated once a month for 3 months with injection in all nails in the second and third session. A progressive improvement of the nail dystrophy was noted after the first session and became significant after the third session. His nail lesions resolved completely 3 months after, apart from filiform hemorrhage (Fig. 1c, d). No side effects were noted. No clinical relapse has been observed 1 year later.

DISCUSSION

Nail psoriasis is a clinical diagnosis generally made in the context of existing psoriatic skin lesions [6]. Treatment of nail psoriasis is



Fig. 2 Histological features of the nail bed biopsy (H & E, $\times 40$): acanthosis, papillomatosis, and lymphocytic inflammatory infiltration

important given its association with decreased quality of life [7].

Treatment of nail psoriasis is challenging because of the anatomical properties of the nail unit that act as a barrier to active drug delivery and the naturally slow growth rate of the nail plate, which often delays noticeable clinical responses by months [6]. Although there have been many recent advances in the treatment of skin psoriasis, nail management is difficult, as no standardized therapeutic regimen currently exists [8]. Topical therapies such as corticosteroids, calcipotriol, retinoids, and calcineurin inhibitors are the first-line therapy in the management of skin psoriasis. The efficacy of these drugs in nail disease, however, is limited,

mainly because of the difficulty in penetrating the nail bed and nail matrix and the lack of compliance [8–10]. Topical treatments are generally used for mild nail psoriasis, when disease is limited to one or two digits, or if nail involvement is the only manifestation of the disease [7]. Rigopoulos et al. found improvement in NAPSII symptoms from baseline with clobetasol cream [11].

Various local side effects have been described such as atrophy of the underlying phalanx known as disappearing digit due to chronic use of topical steroids [12, 13]. These reported side effects limited the usage of topical steroids [14].

Intralesional therapy was successfully used especially in isolated nail psoriasis. The most

common therapy is the injection of triamcinolone acetonide into the nail matrix [15]. It appears to be an effective treatment [14]. However, various severe side effects such as injection site atrophy, disappearance of the phalanx under injection, or tendon rupture were described [16]. Phototherapy, photochemotherapy, and other forms of radiation therapy have shown some beneficial outcomes [17]. However, the problem of availability limits their use.

Systemic therapy, such as retinoids, cyclosporine, and methotrexate, is not the first choice for psoriatic nails because of known adverse effects [10, 14]. Biological agents have been recently used on nail psoriasis but their cost-effectiveness is questionable [8, 14]. As a result of a high baseline risk of infection, caution is required when administering these medications, especially in geriatric patients [10]. Besides, the long-term repercussions, mainly the risk of developing malignant tumors, is still controversial; some studies have suggested that these treatments do not seem to increase this risk [18]. Moreover, they are not available in many countries.

Few publications have been recently concerned intralesional injection of methotrexate in nail psoriasis. This therapy was documented for the first time in 2011. Saricaoglu et al. reported its use in a single nail of a patient. The injection was given into the proximal nail fold (2.5 mg into each side of the nail weekly for 6 weeks). Improvement of subungual hyperkeratosis and pitting were observed [14]. Similarly, Daulatabad et al. reported, in an open-label prospective study of four patients, that injections with methotrexate (five sessions of 2.5 mg of methotrexate in each affected nail at 3-weekly intervals) significantly reduced the mean NPSI from baseline with only mild adverse events, such as pain with injection, subungual hemorrhage, pinpoint hemorrhage at the injection site, and hyperpigmentation, all of which resolved within 6 weeks [15]. Furthermore, Mittal and Mahajan concluded, through a very recent open-label study comparing intramatrix injections of triamcinolone acetonide (10 mg/ml), methotrexate (25 mg/ml), and cyclosporine (50 mg/ml) in psoriatic fingernails, that intramatrix methotrexate yielded the most improvement with minimum side effects [19].

In our case, the nail involvement was present for several months without any spontaneous improvement. Almost total healing of affected nails was achieved with 2.5 mg intralesional methotrexate for all affected nails once a month for 3 months, with tolerable pain and no clinical complications. The improvement was progressive given the slow growth of the nail.

Intramatrix injection of methotrexate is an interesting intralesional therapy as it provides a higher concentration of the drug at the site of action, while avoiding the complications seen with triamcinolone acetonide as cited above (injection site atrophy, disappearance of the phalanx under injection, or tendon rupture) [16] and the severe persisting pain noted with cyclosporine [19]. Moreover, it averts known adverse effects of systemic therapies that have disappointing results but expose the patient to multiple risks such as hypertension and renal dysfunction with cyclosporine, neutropenia and elevated liver function tests with methotrexate, hyperlipidemia with acitretin, and infections and malignancies with biologic therapies [7, 10]. Furthermore, this modality is a way of overcoming the problem of poor drug penetration encountered with topical treatment, essentially topical vitamin D₃ [6], and of availability, high cost, and the significant number of visits required with phototherapy and excimer light/laser treatment.

CONCLUSIONS

Intralesional injection of methotrexate seems to be an effective and safe method for treating nail psoriasis, thereby avoiding the various side effects and limits of conventional topical and systemic therapies.

ACKNOWLEDGEMENTS

We thank the participant of the study.

Funding. No funding or sponsorship was received for this study or publication of this article.

Authorship. All named authors meet the International Committee of Medical Journal Editors (ICMJE) criteria for authorship for this article, take responsibility for the integrity of the work as a whole, and have given their approval for this version to be published.

Disclosures. Mokni Sana, Ameer Khaoula, Ghariani Najet, Sriha Badreddine, Belajouza Colandane, Denguezli Mohamed, and Noura Rafiaa have nothing to disclose.

Compliance with Ethics Guidelines. Informed consent was obtained from the participant for being included in the study. Additional informed consent was obtained from the individual participant whose information is included in this article.

Open Access. This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any non-commercial use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

REFERENCES

- Crowley JJ, Weinberg JM, Wu JJ, Robertson AD, Van Voorhees AS. Treatment of nail psoriasis: best practice recommendations from the Medical Board of the National Psoriasis Foundation. *JAMA Dermatol*. 2015;151(1):87–94.
- Baran R. How to diagnose and treat psoriasis of the nails. *Presse Med (Paris, France)*. 1983;112(11):1251–9.
- Schons KR, Beber AA, Beck Mde O, Monticciolo OA. Nail involvement in adult patients with plaque-type psoriasis: prevalence and clinical features. *An Bras Dermatol*. 2015;90(3):314–9.
- Dogra A, Arora AK. Nail psoriasis: the journey so far. *Indian J Dermatol*. 2014;59(4):319–33.
- Armstrong AW, Tuong W, Love TJ, et al. Treatments for nail psoriasis: a systematic review by the GRAPPA Nail Psoriasis Work Group. *J Rheumatol*. 2014;41(11):2306–14.
- Kivelevitch D, Frieder J, Watson I, Paek SY, Menter MA. Pharmacotherapeutic approaches for treating psoriasis in difficult-to-treat areas. *Expert Opin Pharmacother*. 2018;19(6):561–75.
- McClanahan DR, English JC 3rd. Therapeutics for adult nail psoriasis and nail lichen planus: a guide for clinicians. *Am J Clin Dermatol*. 2018;19(4):559–84.
- Ricceri F, Pescitelli L, Tripo L, Bassi A, Prignano F. Treatment of severe nail psoriasis with acitretin: an impressive therapeutic result. *Dermatol Ther*. 2013;26(1):77–8.
- Tan ES, Chong WS, Tey HL. Nail psoriasis: a review. *Am J Clin Dermatol*. 2012;13(6):375–88.
- Balato N, Patruno C, Napolitano M, Patri A, Ayala F, Scarpa R. Managing moderate-to-severe psoriasis in the elderly. *Drugs Aging*. 2014;31(4):233–8.
- Rigopoulos D, Gregoriou S, Katsambas A. Treatment of psoriatic nails with tazarotene cream 0.1% vs. clobetasol propionate 0.05% cream: a double-blind study. *Acta Derm Venereol*. 2007;87(2):167–8.
- Tanenbaum MH. Topical steroid atrophy: “a disappearing digit”. *JAMA*. 1972;220(1):125.
- Wolf R, Tur E, Brenner S. Corticosteroid-induced ‘disappearing digit’. *J Am Acad Dermatol*. 1990;23(4 Pt 1):755–6.
- Saricaoglu H, Oz A, Turan H. Nail psoriasis successfully treated with intralesional methotrexate: case report. *Dermatology*. 2011;222(1):5–7.
- Daulatabad D, Grover C, Singal A. Role of nail bed methotrexate injections in isolated nail psoriasis: conventional drug via an unconventional route. *Clin Exp Dermatol*. 2017;42:420–3.
- Jiaravuthisan MM, Sasseville D, Vender RB, Murphy F, Muhn CY. Psoriasis of the nail: anatomy, pathology, clinical presentation, and a review of the literature on therapy. *J Am Acad Dermatol*. 2007;57(1):1–27.
- Marx JL, Scher RK. Response of psoriatic nails to oral photochemotherapy. *Arch Dermatol*. 1980;116(9):1023–4.
- Napolitano M, Megna M, Patri A, et al. Systemic treatment for psoriasis and malignancies: a real risk? *Dermatol Ther*. 2017;30(4):e12508.
- Mittal J, Mahajan BB. Intramatricial injections for nail psoriasis: an open-label comparative study of triamcinolone, methotrexate, and cyclosporine. *Indian J Dermatol Venereol Leprol*. 2018;84(4):419–23.