Case and Review

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Nail Psoriasis Successfully Treated with Intralesional Methotrexate: Case Report

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Key Words
Nail psoriasis · Intralesional methotrexate

Abstract
Psoriasis is a common, chronic disease which affects nearly 3% of the population. The lifetime incidence of nail involvement increases up to 80–90% for psoriatic patients. Nail psoriasis is considered a significant social problem. Many topical agents have been used for psoriatic nails with various side effects and some benefits; management is currently inconclusive. Methotrexate (MTX) is a folic acid analog, which irreversibly binds to dehydrofolate reductase and blocks deoxyribonucleic acid synthesis. It is considered a potential treatment option for rapidly growing cells and has an anti-inflammatory effect through inhibition of the polyamine pathway in autoimmune diseases. Intralesional MTX has been used successfully for various indications. We present a case successfully treated with low-dose intralesional MTX with no observed side effects in a 26-year-old female psoriatic patient suffering from nail dystrophy. In contrast, conventional topical and systemic therapies have various side effects, which limit their use. We conclude that intralesional MTX injection seems to be a safe and effective treatment option for nail psoriasis; however, large controlled studies are needed.

Introduction

Psoriasis is a common, chronic autoinflammatory skin disease which affects nearly 3% of the population [1]. The lifetime incidence of nail involvement increases up to 80–90% for psoriatic patients. Nail psoriasis affects 10–55% of the adult patients and can increase up to 90% with arthropathic patients. It has been reported that nail psoriasis is also an asymptomatic musculoskeletal appendage inflammation without arthropathy, in the context of nail anchoring [2]. De Berker [3] reported that 93% of patients considered their nail psoriasis a significant social problem, which affected their job, and pain was observed in 52% of the patients. Management options of the nail psoriasis include nail care, topical therapies, intralesional injections, radiation therapy, and systemic and surgical therapies, although laser therapy has been reported with some benefits and various adverse effects.

These insufficient modalities urge the physicians to find new effective and safe treatment options. Methotrexate (MTX) is a folic acid analog, which irreversibly binds to dehydrofolate reductase and blocks deoxyribonucleic acid synthesis. It is considered a potential treatment option for rapidly growing cells, although antiproliferative effects of MTX due to folate antagonism in malignancies have been well known. Currently Chan and Cronstein [4] reported that MTX has an anti-inflammatory effect through inhibition of the polyamine pathway in autoimmune diseases.

Review of the literature shows that intralesional MTX has been used successfully for various indications without any complication [5]. We present here a case successfully treated with low-dose intralesional MTX with no observed side effects. To the best of our knowledge, this is the first case which was successfully treated with low-dose intralesional MTX.

Case Report

A 26-year-old female was admitted to our outpatient clinic complaining of nail dystrophy. She was diagnosed as having psoriasis vulgaris and underwent our follow-up without any medications. Her medical history revealed that her plaques had been controlled with topical therapies, and no systemic agent was used. Physical examination revealed small-scaled plaques localized on the trunk. Nail changes included subungual hyperkeratosis and pitting which was restricted to only one nail on the second digit of the right hand (fig. 1a). Scintigraphic examination revealed no arthropathy when focused on the nails of the hands (fig. 2). Before treat-

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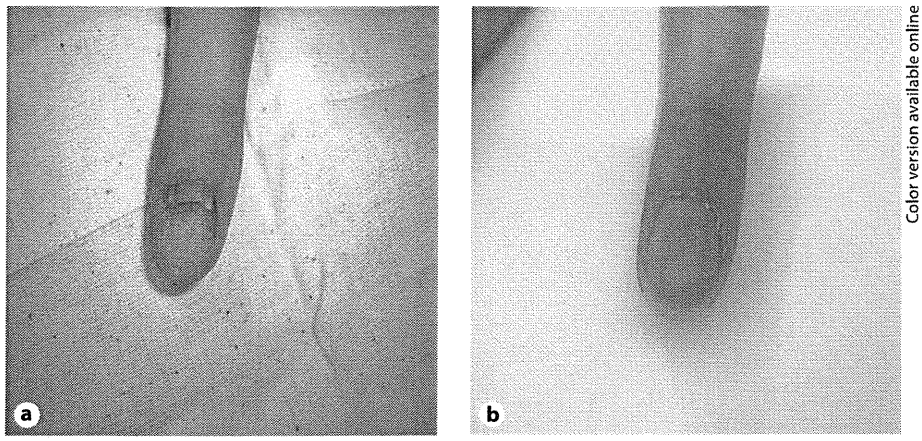

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Fig. 1. a Before treatment, subungual hyperkeratosis and pitting were seen. **b** Improvement of the nail dystrophy was observed after 4 months of follow-up.

ment, written informed consent was taken. Laboratory investigations including complete blood counts, liver and renal function tests were performed before and after treatment. After a preliminary digital block, we injected 2.5 mg MTX into the proximal nail fold on each side of the nail. Injection was repeated once a week for 6 weeks. During the 4 months of follow-up, subungual hyperkeratosis and pitting improved (fig. 1b), and no clinical and laboratory complication developed. Up to date, i.e. for 2 years, no clinical relapse has been observed.

Discussion

Nail psoriasis is a difficult situation which may cause social problems and affect quality of life [6]. However, many topical agents have been used for the management of psoriatic nails with various side effects and some benefits; the management of nail psoriasis is currently inconclusive. This urges the physicians to find safer and more effective new therapeutic options. Mainly management includes nail care, topical and intralesional treatment, radiation and systemic therapies.

Topical calcipotriol, steroids, 5-fluorouracil, anthralin, tazarotene and cyclosporine oily solution have been used for topical therapy. Application of these agents is recommended for 6 months, the period during which the nail plate grows completely from matrix to hyponychium [7].

Different clinical responses were noted after 3–6 months of application.

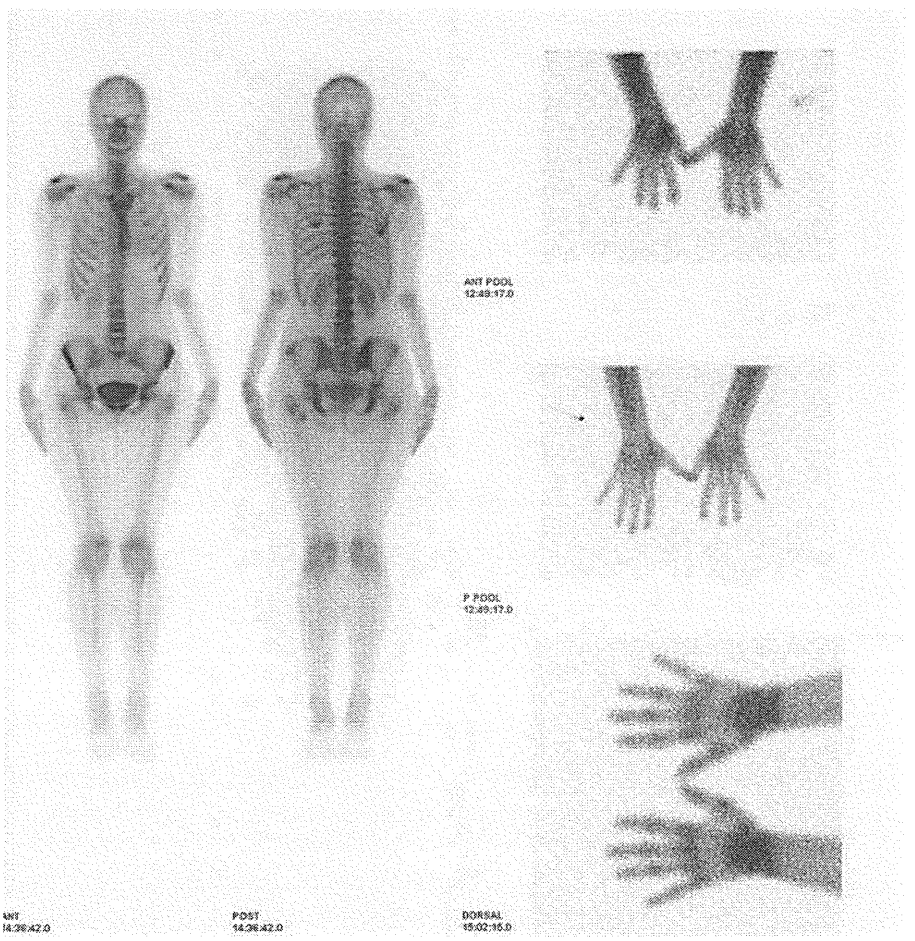

Fig. 2. Scintigraphic examination revealed no arthropathy, focused on the nails of the hands.

Many topical agents have been used with various local side effects; also atrophy of the underlying phalanx known as disappearing digit was reported due to chronic use of topical steroids [8]. These reported side effects limited their usage.

Currently systemic therapy is not the first choice for psoriatic nails because of known adverse effects, such as hepatotoxicity with MTX and renal toxicity with cyclosporine. It is however preferable if lesions are resistant to intralesional, topical and radiation therapy, yet this modality is not recommended for solely nail involvement. Lee [9] reported a patient who had a complete resolution of all 20 nails affected by psoriasis within 9–13 months with 5 mg/week systemic MTX; he had had no skin involvement and did not respond to topical therapies. Also cyclosporine and etretinate have been used successfully for nail psoriasis [10]. McGonagle et al. [11] reported that T-cell-mediated immunity is predominant in skin lesions and innate immune responses may have a key role, especially in nail and joint involvement of the psoriatic patients. In this respect, the anti-inflammatory MTX seems to be more effective than the T-cell-inhibiting cyclosporine in nail psoriasis [11].

Radiation therapies for nail psoriasis consist of phototherapy, superficial radiotherapy, grenz ray and electron beam. A few studies showed that topical treatment and oral psoralen plus ultraviolet A phototherapy were effective on onycholysis and pitting [12]. Superficial radiotherapy was tested on 10 patients and was shown to be effective for a short time [13]. Grenz ray and electron beam therapy has also provided temporary relief. Recently biological agents have been used on nail psoriasis with various benefits but these agents are very expensive.

Intralesional steroid injection is a traditional modality that appears to be a relatively safe and effective treatment for psoriatic nails especially in nail matrix involvement. Injection doses, concentrations and injection frequencies have not been standardized. In different studies triamcinolone was used at concentrations of 5 and 10 mg/ml, and injected weekly or monthly with various side effects such as injection side atrophy, disappearance of the phalanx under injection or tendon rupture [12].

According to the current literature, intralesional therapy appears to be a relatively long-term and effective treatment for psoriatic nails; in nail bed dystrophy intralesional steroid is still a concern. So new agents should be used as intralesional therapy such as MTX or biological agents.

Intralesional MTX injection has been used successfully for ectopic pregnancy, early gastric cancer, B-cell chronic lymphocytic leukemia, cutaneous anaplastic large cell lymphoma and keratoacanthoma in dermatological practice [14]. Annest et al. [15] reported 38 cases of keratoacanthoma treated with 12.5–25 mg/ml of intralesional MTX with no prominent side effects.

In our case, improvement of subungual hyperkeratosis and pitting has been observed with 5 mg intralesional MTX per digit with tolerable pain. The patient is still lesion free after 2 years of follow-up.

In conclusion, conventional topical and systemic therapies have various side effects and limit their usage, but also lack controlled clinic trials.

In our case we thought that intralesional MTX injection seems to be safe and effective for nail psoriasis; however, further studies are needed.

Disclosure Statement

There is no conflict of interest to declare.

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