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Case Report

A case of nail psoriasis improved with treatment by risankizumab

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Abstract

Nail psoriasis causes significant aesthetic and functional disabilities. The treatment of nail psoriasis is essential to improve the health outcomes and quality of life among patients. Pain associated with intralesional injections, inadequate penetration into the nail and underlying tissue, poor adherence to therapy, limited efficacy and recurrent relapses are among the many challenging issues with topical therapy. While conventional systemic therapies are still useful and often appropriate for some patients, current evidence indicates that highly selective agents including anti-tumor necrosis factor-alpha, anti-interleukin (IL)-17 and anti-IL-12/23 antibodies that are primarily available for plaque psoriasis and psoriatic arthritis have also demonstrated long-term efficacy in the treatment of nail psoriasis. We report a case of nail psoriasis improved with treatment by risankizumab.

INTRODUCTION

Psoriasis is a widespread chronic skin condition mediated by the immune system. It affects the skin, nails and joints with systemic involvement and has a major negative impact on the quality of life of affected patients [1]. Psoriasis has a global prevalence of 2% with observed regional variations [2].

Psoriasis has various clinical manifestations and subtypes, with psoriasis vulgaris being the most common. It classically presents as well-demarcated, erythematous, itchy plaques covered with silvery scales [2].

Approximately 50% of patients with cutaneous psoriasis demonstrate nail involvement [2]. This percentage can reach up to 90% in patients with psoriatic arthritis [2]. Nail psoriasis can impair the quality of life as it may trigger a major social issue, and if left untreated, progress to weaken the nails that can lead to impairment of function [3]. Nail psoriasis is challenging to treat and is often resistant to treatment. On the other hand, treating it improves patients' health outcomes and standard of living [3].

Nails are known to be epidermal appendages, and are as such, usually affected by psoriasis. Nail disease clinically can involve either the matrix, the nail bed or the periungual tissue, depending on the origin of the inflammatory phase, resulting in distinct injury patterns [4]. Features such as leukonychia, pitting (punctures or cupuliform depressions), red spots in the lunula and crumbling can result in patients with nail matrix involvement. Onycholysis, salmon or oil-drop patches, subungual hyperkeratosis and splinter hemorrhages may be caused by nail bed involvement [4].

Psoriasis therapy has advanced tremendously. While conventional systemic therapies as well as intralesional corticosteroids are still useful and often appropriate for some patients, other treatment options are required for a large proportion of patients, with anticipated improvement in effectiveness [1, 5].

There are many challenging issues that we face when treating patients with nail psoriasis which can include: pain associated with intralesional injections, side effects and monitoring of systemic medications, inadequate penetration of topical medications into the nail and underlying tissue and patient adherence to therapy [3].

CASE REPORT

We report a case of a 20-year-old male who is not known to have any medical illnesses. He presented with a 2-year history of nail dystrophy and tenderness. It initially involved the left thumb nail then progressed to involve almost all fingernails. Patient denied any history of skin lesions or joint pain. Moreover, no similar history was noted in the family. He visited the primary care clinic where he was diagnosed with onychomycosis based on positive nail culture for candida albicans and treated accordingly with oral terbinafine for 2 weeks then he was given oral fluconazole 300 mg once weekly for 6 weeks. However, no improvement was noted upon follow-up and the patient was referred to dermatology. On examination, bilateral fingernails were found to have trachonychia and longitudinal ridging except the right index and little fingernails (Figs 1A and 2A). The toenails were clear and no skin or scalp lesions were noted.

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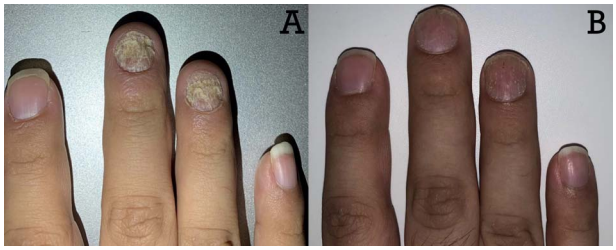

Figure 1. Right hand fingernails prior to treatment showing trachonychia and longitudinal ridging (A), and right hand fingernails 12 weeks after risankizumab treatment (B).

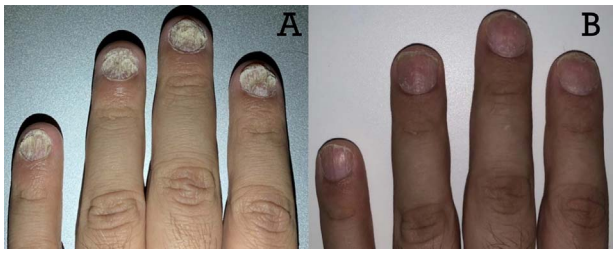

Figure 2. Left hand fingernails prior to treatment showing trachonychia and longitudinal ridging (A), and left hand fingernails 12 weeks after risankizumab treatment (B).

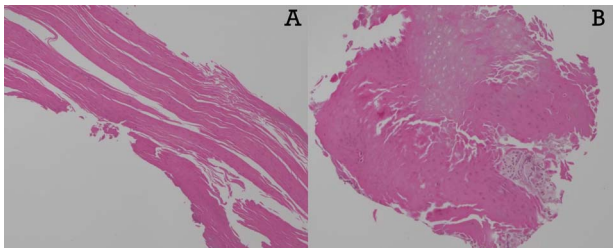

Figure 3. Nail biopsy histopathology showing hyperkeratosis, parakeratosis and neutrophils in the nail plate (A and B).

A nail biopsy was taken, which showed hyperkeratosis, parakeratosis and neutrophils in the nail plate, and came negative for grocott methenamine silver stain (Fig. 3). The diagnosis of psoriasis was then made.

The patient was started on subcutaneous adalimumab 40 mg every 2 weeks with minimal improvement of nail psoriasis after 9 months of treatment. In addition, during adalimumab therapy, the patient developed cutaneous psoriatic lesions over the extremities following the third dose of adalimumab (Fig. 4). He was switched to subcutaneous risankizumab 150 mg (at week 0, week 4 and every 12 weeks thereafter). Significant improvement was noted at 12 weeks of rizankizumab therapy, where the patient reported 70% subjective improvement of the affected fingernails, with no new involvement of previously unaffected nails, and clearance of skin psoriasis (Figs 1B and 2B).

DISCUSSION

It is essential to treat nail psoriasis because of its association with a decreased quality of life and dysfunction in daily life activities [4].

Disease control involves patient's education, avoidance of nail trauma and different therapeutic approaches with physical and pharmaceutical agents [3, 4].

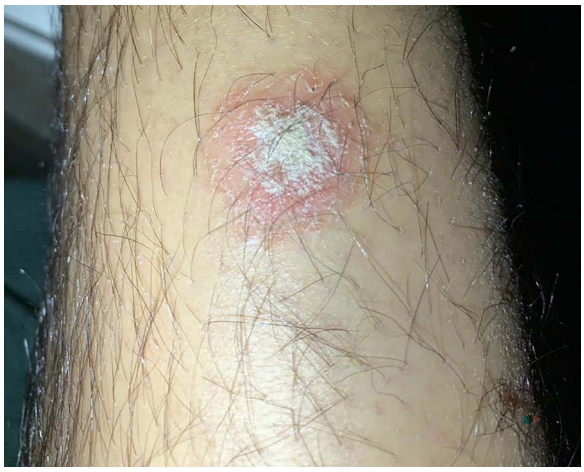

Figure 4. Round erythematous plaques with overlying white scales developed during adalimumab therapy.

The first line therapy in the management of nail psoriasis is topical medications such as corticosteroids, calcipotriol, retinoids and calcineurin inhibitors [3, 5]. However, the efficacy of these medications in nail disease is limited, primarily due to the difficulty of penetrating the nail bed and nail matrix and the lack of patient compliance [3, 5].

Current evidence indicates that highly selective agents including anti-tumor necrosis factor-alpha (TNF-alpha), anti-interleukin (IL)-17 and anti-IL-12/23 antibodies that are primarily available for plaque psoriasis and psoriatic arthritis have also demonstrated long-term efficacy in the treatment of nail psoriasis [3].

Risankizumab is a humanized monoclonal IgG1 antibody that selectively targets the special human IL-23 p19 subunit without binding to IL-12. Thus, it inhibits pro-inflammatory activities [1]. In February 2019, Risankizumab was approved for the treatment of moderate to severe psoriasis as well as psoriatic arthritis [6]. Risankizumab is indicated in adults who are candidates for systemic therapy or phototherapy for the treatment of psoriasis [6].

Our patient suffered from nail psoriasis with no skin or joint involvement. However, it involved almost all of the fingernails, significantly impairing his quality of life and resulting in significant distress. Therefore, biologic agents were the desirable option by the patient given their efficacy and quick results. Edward *et al.* proposed a practical treatment algorithm for nail psoriasis depending on the number of nails involved and the significance of skin and joint involvement and quality of life impairment [7].

Similar to our patient's response to adalimumab, TNF-alpha inhibitors are known to cause paradoxical psoriasis or worsening of pre-existing psoriasis when used for chronic immune-mediated diseases, primarly inflammatory bowel diseases and psoriasis [8].

In one study comparing a placebo, ustekinumab and risankizumab, risankizumab demonstrated excellent efficacy with higher Psoriasis Area Severity Index (PASI) 75, PASI 90 and PASI 100 rates, along with a convenient maintenance dosing regimen every 12 weeks. Risankizumab was well tolerated, with upper respiratory tract infection being the most frequent adverse event [1].

This case represents the efficacy and safety of risankizumab in the treatment of nail psoriasis unresponsive to adalimumab. Risankizumab is well-tolerated with a dosing regimen of every 12 weeks. This allows for improved patient compliance and patient satisfaction.

ACKNOWLEDGEMENTS

None.

CONFLICTS OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

FUNDING

None.

ETHICAL APPROVAL

A case report does not require ethical approval in accordance with local guidelines.

CONSENT

Informed consent was obtained from the patient for the photographs and medical information to be published.

GUARANTOR

Abdulmajeed AlAjlan, Raghda Qasim, Fatimah AlTassan, Tala Qadoumi and Tuqa AlKaff.

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