

Effective treatment of severe nail psoriasis using topical calcipotriol with betamethasone dipropionate gel

Sir,

Nail psoriasis poses a therapeutic challenge. We report a 48-year-old Chinese man, with chronic plaque psoriasis and psoriatic arthropathy, who was seen at the National Skin Centre in Singapore. He was troubled by significant nail involvement despite methotrexate therapy and had a high baseline nail psoriasis severity index score of 62 [Figure 1a and b].^[1] His past medical history included diabetes mellitus, hypertension, hyperlipidemia and gout. His cutaneous psoriasis had remained stable with a body surface area of 5%. He was receiving oral methotrexate 10 mg weekly for psoriatic arthropathy from his rheumatologist.

Topical calcipotriol 50 mcg/g with betamethasone dipropionate 0.5 mg/g combination gel once daily was applied to the proximal nail fold and distal nail bed. Shortly thereafter, his methotrexate was abruptly discontinued for 6 weeks due to a shortage of the medication. Consequently, he experienced a flare of his cutaneous psoriasis.

Despite being off methotrexate for 6 weeks, his nail psoriasis improved on treatment with calcipotriol with betamethasone dipropionate gel. There

was reduction of pitting, yellowish discoloration, onycholysis and subungual hyperkeratosis. The nail psoriasis severity index decreased to 37 score after 6 weeks of application of the gel [Figure 2a and b]. Both nail matrix and nail bed disease showed marked improvement with scores decreasing from 38 to 18 and 24 to 19, respectively. The results were sustained when methotrexate was resumed for 11 weeks and calcipotriol with betamethasone dipropionate gel was used for a total of 22 weeks. At week 22, his final nail psoriasis severity index score was 31.

In patients, who have uncomplicated nail psoriasis with absent or mild cutaneous psoriasis, the first line of treatment is topical therapy. However, the topical treatment of nail psoriasis remains challenging for some reasons.^[2] First, the nail plate presents a formidable barrier that limits the penetration of topical drugs to target sites in the nail bed and matrix. Second, poor adherence to topical treatment is a common as early nail disease is frequently asymptomatic and clinical improvement is slow. Third, there is a relative dearth of quality clinical evidence on the efficacy of various topical therapies for nail psoriasis.

Currently, the most widely used topical agents for the treatment of nail psoriasis are corticosteroids and vitamin D₃ analogs while intralesional injection of corticosteroids may be considered for patients with limited nail psoriasis. In an open-label study, a nightly regimen of calcipotriol cream on weekdays and clobetasol propionate cream on weekends for 6 months reduced subungual hyperkeratosis by



Figure 1: (a) Severe changes of nail psoriasis pretreatment, manifested by distal onycholysis, subungual hyperkeratosis, pitting and yellowish discoloration with a baseline nail psoriasis severity index score of 62. (b) Close-up view of patient's thumbnails

70%.^[3] A double-blind, randomized controlled trial demonstrated that calcipotriol ointment was as effective as betamethasone dipropionate with salicylic acid in improving nail bed hyperkeratosis by 50% after 5 months of twice daily application.^[4] Rigopoulos *et al.* conducted an open-label study on 22 patients with 114 psoriatic nails treated with the two-compound formulation of calcipotriol plus betamethasone dipropionate ointment once daily for 12 weeks, and showed a mean improvement of 72% in nail psoriasis severity index.^[5] Other topical therapies with reported efficacy include 5-fluorouracil, dithranol, tacrolimus and tazarotene.^[2] Aside from topical therapy, other therapeutic modalities for nail psoriasis include radiation therapy and systemic agents such as methotrexate, ciclosporin, acitretin and biologic therapy.^[2] The choice of treatment should be individualized based on the severity of nail psoriasis, extent of cutaneous and/or joint disease, co-morbidities and individual preferences of the patient.

The gel formulation of calcipotriol with betamethasone dipropionate is licensed for use in scalp psoriasis but



Figure 2: (a) Significant improvement in nail disease after 6 weeks of treatment with calcipotriol and betamethasone dipropionate gel with nail psoriasis severity index reducing to 37. (b) Close-up view of patient's thumbnails

has been used anecdotally for treating nail psoriasis. In our patient, nail psoriasis responded well to calcipotriol with betamethasone dipropionate gel applied once daily with nail psoriasis severity index score reducing by 50% from 62 to 31 in 6 months. The treatment was well tolerated, and there was no evidence of any adverse effects such as steroid atrophy at the time of his last review. This two-compound formulation integrates the anti-inflammatory properties of a potent corticosteroid with the immunomodulatory effects of a vitamin D₃ analog. As a gel, it is more cosmetically elegant than an ointment and allows superior access to the nail bed when applied to the nail folds and hyponychium in onycholytic nails. The once-daily regimen confers the advantage of better treatment adherence which is important as topical treatment needs to be prolonged for several months to achieve optimal clinical response.

We were unable to find any previous reports showing therapeutic efficacy of calcipotriol with betamethasone dipropionate gel in the treatment of nail psoriasis. Our case suggests that this treatment may be considered a

useful addition to the armamentarium of topical drugs for treating nail psoriasis.

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Conflicts of interest

Dr. Eugene Sern-Ting Tan has received sponsorship for overseas meetings by AbbVie, Janssen Pharmaceuticals and LEO Pharma. Dr. Hazel Hwee-Boon Oon has received honoraria, grants and acted as a speaker and/or investigator for AbbVie, Galderma, Janssen Pharmaceuticals, LEO Pharma, Novartis and Pfizer.

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