

A Pilot Study on the Role of Intralesional Triamcinolone Acetonide in the Treatment of Pitted Nails in Children

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ABSTRACT

Background: Pitted nails is a non-specific entity seen in children that is often associated with various underlying skin disorders such as atopic dermatitis, psoriasis, alopecia areata and lichen planus; and those without such associations are labelled as idiopathic pitted nails. Spontaneous resolution is common but may take several years. Treatment options so far have not been encouraging. This pilot study sought to determine the safety and efficacy of intralesional steroid in the treatment of pitted nails in children.

Method: Children with pitted nails below the age of 12, seen between January 1994 and December 1997, were invited to participate in this study. Symmetrically affected fingernails were selected, topical anaesthetic cream applied and a single dose of triamcinolone acetonide was introduced intralesionally to the proximal nailfold while the contralateral nail acted as control. The degree of pitting of nail surface was documented at months 0, 2 and 4.

Results: Four children were enrolled, and their ages ranged from 4 to 9 years. The degree of pitting was reduced to a mean of 15% of the nail surface in the second month, and 42% in the fourth month. The procedure was fairly well tolerated and no adverse effects were noted.

Conclusion: Intralesional steroid is a safe and acceptable method of treating pitted nails in children with a maximum effect seen in 2 months. In order to sustain a continuous therapeutic effect, a bimonthly treatment is suggested.

Keywords: pitted nails, trachyonychia, intralesional steroid, bimonthly treatment

INTRODUCTION

Nineteen children were seen at the National Skin Centre for pitted nails for a period of 3 years from 1995 to 1997. Most cases presented as an incidental finding while they were seeking treatment for other skin problems. Some parents expressed concern about the appearance of these pitted nails and requested for treatment.

Pitted nails is a non-specific entity and is seen in various skin disorders such as atopic dermatitis, psoriasis, alopecia areata and lichen planus. Most of our cases have no associations and are labelled as idiopathic pitted nails. These may spontaneously normalise over several years. The etiology remains unknown and treatment has not been encouraging. We therefore decided to use intralesional triamcinolone as an empirical treatment.

MATERIALS AND METHODS

The objective of this pilot study was to describe the epidemiology and to study the safety and efficacy of intralesional steroid in the treatment of pitted nails in children.

Nineteen children below the age of 12, who were seen between January 1994 and December 1997, were invited to participate in this study. Four children responded and written consent was obtained from their parents. The biodata, duration of disease, and known associations such as alopecia areata, atopic eczema or psoriasis were noted. Patients with known allergy to anaesthetic cream or steroid injection were excluded.

Symmetrically involved fingernails were selected for the study. The topical anaesthetic cream (EMLA) was applied for 1 hour under occlusion dressing to the affected left fingernail while the corresponding right nail acted as control. A single dose of 0.05 mL of triamcinolone acetonide solution at 10 mg/mL concentration was injected intralesionally at 2 sites of the proximal nailfold as shown in Fig 1.

The patients were reviewed at months 0, 2 and 4. During each review, the nail surfaces were assessed and the area of pitting was expressed as a percentage of the total nail surface area. Any side effects such as pain from injection, bleeding, haematoma, skin atrophy, infection of the nailfold and adverse drug reaction were noted. Photographs assisted with the clinical assessment in each review.

RESULTS

Four children (3 males and 1 female) took part in this study. The duration of the disease ranged from 1 month to 3.5 years (Table I). Patient #2 subsequently developed a patch of alopecia areata over the scalp which was successfully treated with 1% dithranol ointment. The rest had no history of atopy or associated skin disorders. Patient #1 had involvement of 5 fingernails, patient #3 had involvement of 9 fingernails and 1 toenail, whereas patients #2 and #4 each had involvement of all 20 nails.

All the nails under study were pitted throughout the nail surface. At the end of 2 months, the proportion of pitted nail surface noted were 10%, 10%, 40% and 0% respectively (mean of 15%) (Fig 2). However at the end of 4 months, the proportion of pitted nail surface were 40%, 20%, 90% and 20%

(mean of 42%).

With the exception of patient #1 being slightly fretful during the injection, the rest had no similar problem. None of the patients experienced any bleeding problem, skin atrophy, infection or adverse drug reaction.

DISCUSSION

Some clarification of the various terminology used is essential due to confusion in the literature regarding pitted nails. Pitted nails (onychia punctata) has for a long time been known to be associated with psoriasis and alopecia areata. The nail surface is covered by small punctate depressions which vary in number, size, depth and shape. These pits can either be randomly distributed or uniformly arranged into longitudinal lines. On the other hand, the term trachyonychia (rough nails) was coined by Alkiewicz⁽²⁾ in 1950 to describe roughened nails with grey opacity and is also associated with lichen planus, psoriasis and alopecia areata. The idiopathic form has no such association. Thirdly, the term twenty-nail dystrophy of childhood was first used by Hazelrigg⁽²⁾ in 1977 to describe an idiopathic nail disorder in children. All 20 nails are uniformly and simultaneously affected by fragility, excessive ridging and loss of luster. However some recent authors^(4,5) have used the term twenty-nail dystrophy and trachyonychia interchangeably for both idiopathic as well as non-idiopathic nail roughness seen in children and adults. In some cases of trachyonychia, nail roughness was mild and consisted of closely aggregated, small superficial pits⁽⁵⁾. So clinically it can be difficult to distinguish these nail disorders and therefore in our study, pitted nails is broadly defined as encompassing all these conditions.

On histology of a pitted nail, the nail plate typically shows longitudinal clefts, zones of eosinophilic onychocytes and parakeratosis. The desquamation of the superficial parakeratotic onychocytes gives the clinical appearance of roughness and pits. Inflammatory infiltrate of peripheral T-lymphocytes and Langerhans cells are present in the nail matrix⁽⁶⁾.

With regards to treatment, oral prednisolone has been tried on trachyonychia associated with nail lichen planus, and topical retinoids on psoriatic nails⁽⁵⁾. However, none of these is clearly helpful. The psoriatic trachyonychia and skin lesions of 5 psoriatic patients improved significantly while on low-dose cyclosporin A (3 mg/kg/day)⁽⁷⁾, but this mode of treatment cannot be advocated because of its nephrotoxic effect. An anecdotal case of idiopathic twenty-nail dystrophy experienced excellent improvement after 7 months of 3 times per week sessions of topical photochemotherapy but the patient had to continue with maintenance therapy in order to prevent recurrence.

Intralesional steroid therapy has been used in psoriatic onychodystrophy since 1962⁽⁸⁾. Ninety-one percent showed improvement in Abell's series of 58 patients at the end of follow-up⁽⁹⁾. Sixty-eight percent and 86% of psoriatic nails with pits and ridges experienced improvement in 2 other series^(10,11). A man with severe trachyonychia improved with intralesional steroid given thrice and was subsequently well for over a year⁽¹⁾. The therapeutic response seems good initially but relapses appear inevitable⁽¹²⁾.

Side effects of therapy in these studies were minimal. The ring block anaesthetic techniques administered in some patients proved to be the most painful part of the treatment. Hematoma formation was common but asymptomatic. Only occasionally do patients experience persistent focal pain, reversible nailfold atrophy and periungual hypopigmentation respectively. Collagen atrophy and rupture of extensor tendons were theoretical risks but there was none documented thus far.

Our present study is the first ever study involving paediatric patients. Definite improvement in the nail appearance was achieved, with the peak improvement just before the second month. However this improvement was only temporary as evident by the reappearance of the diseased nail by the fourth month. This implies that the inflammatory process in the nail matrix is ongoing and the anti-inflammatory effect of intralesional steroid is at best only temporary. The injection under EMLA cream cover was fairly well tolerated by our patients, and was preferred to ring block anaesthesia as the latter technique would be painful. No other complications were noted as strict aseptic technique was observed and the single dose of triamcinolone acetonide was too small to cause any harmful steroid side effects.

CONCLUSION

Intralesional triamcinolone acetonide is a safe, efficacious and well-tolerated method of treating pitted nails in children despite its transient effect. For a sustained effect, bimonthly doses can be administered. Since pitted nails in children are harmless and self-limiting, we would not recommend its routine use. However for those who have extensive nail involvements and are afflicted by its morbidity and cosmesis, administration of bimonthly intralesional steroid can be considered until the condition resolves spontaneously.

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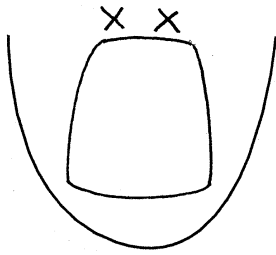


Fig 1 - Diagram showing the 2 sites on the proximal nailfold where intralésional triamcinolone was given.

Table I - Profiles of the 4 patients and their treatment outcome

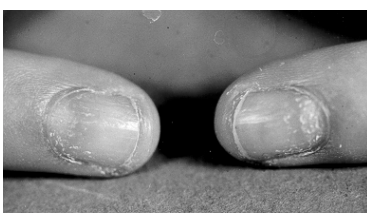
	Patient #1	Patient #2	Patient #3	Patient #4
Age (years)	4	9	9	9
Sex	Male	Male	Male	Female
Ethnic group	Chinese	Malay	Chinese	Chinese
Duration of disease	3.5 years	3 years	1 year	1 month
Associated conditions	Nil	Alopecia areata	Nil	Nil
Number of nails involved:				
Fingernails	5	10	9	10
Toenails	0	10	1	10
Study site of fingernails	Left 5th	Left 3rd	Left 3rd	Left 3rd
Area of pitted nail seen at 0 months (in % of total nail surface)	100	100	100	100
Area of pitted nail seen at 2 months (in % of total nail surface)	10	10	40	0
Area of pitted nail seen at 4 months (in % of total nail surface)	40	20	90	20
Side effects	Nil	Nil	Nil	Nil



(A)



(B)



(C)

Fig 2 - (A) Month 0: Both fifth fingernails in patient #1 were completely pitted. (B) Month 2: the left fingernail showed 10% pitting only. (C) Month 4: The left fingernail was 40% pitted.