

## Case Report

# Trachyonychia in a child with concomitant alopecia areata and lichen planus

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### ABSTRACT

Trachyonychia of nails has been found to be associated with dermatoses such as lichen planus, psoriasis, alopecia areata etc. When involving all the finger and toe nails bilaterally, it is referred to as ‘twenty nail dystrophies’. We, hereby, report a case of trachyonychia in an 8-year-old boy, with concomitant lichen planus and alopecia areata. He was successfully treated with biweekly pulse systemic corticosteroid therapy for duration of 6 months. Significant response was noted at the end of 6 months in terms of hair re-growth; improvement of nail texture, thickness and subungual hyperkeratosis; and resolution of skin lesions.

**Keywords:** Twenty nail dystrophy, Trachyonychia, Lichen planus, Alopecia areata

### INTRODUCTION

Trachyonychia refers to sandpaper like nails characterised by roughness in texture and diffuse ridging due to pathology involving nail matrix. When affecting all the twenty nails, the term ‘twenty nail dystrophies’ is used.<sup>1</sup> Trachyonychia affects children more than adults, with incidence peaking between 3 to 12 years of age and exhibits male preponderance. Common associations include lichen planus, alopecia areata and psoriasis.<sup>2</sup> Co-existing alopecia areata, lichen planus and twenty nail dystrophies have been reported very few numbers of times in past.<sup>3</sup> We report a case of 8-year-old male with alopecia areata, lichen planus and trachyonychia; showing significant response to oral corticosteroid pulse therapy at the end of 6 months.

### CASE REPORT

An 8 years old boy, presented to dermatology OPD, Christian medical college and hospital with patchy loss of scalp hair for 1 year, discoloration and altered texture of all finger and toe nails for 10 months and multiple raised, dark coloured itchy lesions on back for 1 month. Patient

gave history of patchy loss of scalp hair which initially started as a single patch on the vertex of scalp and gradually progressed in size and number to involve entire frontal and vertex area with few patches on temporal and occipital regions. Nail changes including blackish discoloration of all finger and toe nails, along with deposition of debris under the nail plate of all finger nails were present for the past 10 months. This was associated with severely itchy bluish black raised lesions on upper back for past 1 month, progressively increasing in number over the given time duration. There was no family history of similar lesions, concomitant underlying systemic co-morbidities in the child, or subnormal academic performance at school. He took multiple unknown oral and topical medications from local practitioners for the above complaints, with lack of availability of records for the same.

On dermatological examination, multiple violaceous scaly plaques were observed on upper back, shoulder and neck. On scalp, non-scarring patchy alopecia was noted predominantly involving frontal and vertex region, with few similar patches over bilateral temporal area. Circumferential pattern of alopecia over occiput,

temporal and frontal scalp margins, suggestive of typical ophiatic pattern, was also noted. Nails revealed blackish discoloration, lack of lustre and ridging of all twenty nails, with subungual hyperkeratosis of all finger nails.

The provisional diagnosis of Alopecia areata and concomitant lichen planus with trachyonychia was made.

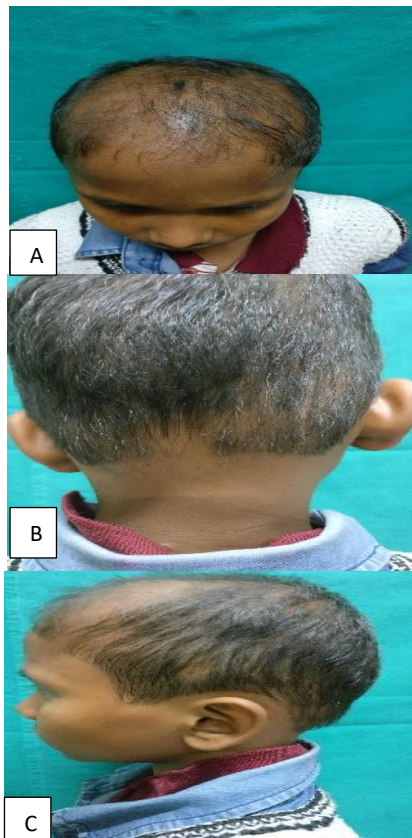
Pre steroid work up was done including complete blood count, random blood sugar levels, electrolytes, blood urea, creatinine and chest x-ray, reports of which were within normal limits. KOH nail clipping was negative for fungal elements.

Patient was started on tab prednisolone (Wysolone) pulse therapy 25 mg biweekly as per body weight, along with topical clobetasol propionate (0.25%) cream mixed with a moisturizer cream (1:1) for skin lesions over the back.

Regular monthly follow up was done for next 6 months with monitoring of electrolytes every visit. Marked improvement was seen, with skin lesions resolving within one month. By the end of 6 months, remarkable hair regrowth was noted on the scalp lesions, along with significant improvement in nail discoloration and subungual hyperkeratosis.



**Figure 2: Significant hair re-growth noted after 6 months of pulse systemic corticosteroids: (A) on frontal and vertex region of scalp, (B) on occiput, (C) on frontal, parietal and temporal scalp on lateral view.**



**Figure 1: Multifocal alopecia areata in an 8 years old male child at the time of presentation: (A) on frontal and vertex region of scalp, (B) in ophiatic pattern on occiput, (C) on frontal, parietal and temporal scalp on lateral view.**



**Figure 3: Nails showing blackish discoloration, dystrophy, ridging and subungual hyperkeratosis before treatment: (A) finger nails (B) Involvement of all twenty nails in the form of ‘twenty nail dystrophies’.**



**Figure 4: Significant reduction in nail discoloration, dystrophy, ridging and subungual hyperkeratosis after 6 months of biweekly oral prednisolone: (A) finger nails, (B) bilateral toe nails.**



**Figure 5: Multiple itchy violaceous scaly plaques on the back of neck, shoulders and upper back: (A) before treatment, (B) after treatment with oral pulse steroid therapy.**

## DISCUSSION

Alopecia areata patients demonstrate nail changes to varied extent ranging from 7 to 66%, with an average of 30%, and out of these patients' children form the majority. Nail involvement bears a poorer prognosis and indicates treatment recalcitrance.<sup>4</sup> Trachyonychia is seen in 3.65% patients of alopecia areata, mostly in severe forms such as alopecia areata totalis, alopecia areata universalis.<sup>1</sup> Earlier studies indicate that trachyonychia in alopecia areata is an uncommon occurrence and does not exclude co-existing dermatosis such as lichen planus.<sup>5</sup>

Occasionally, there can be secondary onychomycosis in trachyonychia with alopecia areata, further complicating the picture.<sup>6</sup> Lichen planus is another common entity associated with rough nails. Childhood lichen planus incidence varies from 2.1 to 11.2%.<sup>7,8</sup> About 10% of lichen planus patients show nail changes. Nail LP is mostly isolated; if not, concurrent oral LP is more often associated with it.<sup>1</sup> In typical nail LP, pathology of nail matrix results in thinning, ridging, grooving, fluting, pitting & atrophy, pterygium in severe cases. Twenty nail dystrophy which is less often seen than typical nail LP differs from the latter in a way that it never causes permanent destruction of nail and is self-limiting.<sup>5,9</sup> Diagnosis of trachyonychia/twenty nail dystrophy is mostly clinical, onychoscopy is another non-invasive imaging tool for paediatric population. Longitudinal nail biopsy is not recommended considering the amount of trauma, inconvenience and scarring it will result in the above subset of population. Treatment is often sought for aesthetic concerns only, keeping in mind the self-resolving nature of the entity.<sup>10</sup> Mean duration of trachyonychia was  $32.5 \pm 9.7$  months in children, while it was  $77 \pm 10$  months in adults.<sup>2</sup> As per another study by Starace et al 51% patients experienced marked improvement after 7 years regardless of treatment. Out of those who did not show improvement, most of the cases were children/those with concomitant alopecia areata/trachyonychia involving greater number of digits. Patients with concomitant alopecia areata bear a more stable and benign course. Preferred treatment options in trachyonychia are topical and intralesional corticosteroids, urea containing ointments, topical retinoic acids (tazarotene/bexarotene), topical calcipotriol, cosmetic nail lacquers. Systemic corticosteroids are only indicated in cases with concomitant systemic dermatoses such as alopecia areata and lichen planus.<sup>10</sup> Pulse systemic corticosteroid therapy (iv methylprednisolone 8 mg/kg/day for 3 days at 28 days interval or oral dexamethasone/betamethasone/prednisolone biweekly) is preferable to regular systemic steroid therapy in view of lesser side effect profile and greater response rate in comparison to placebo i.e., 40 vs 0%. Complete response rate was observed in 43% of paediatric only studies, with side effects such as weight gain, retarded growth, mood changes, fatigue, acne, seborrhea in 21% cases. Prognosis was better in patients with shorter disease duration, multifocal alopecia areata, first episode of concomitant disease process. Pulse steroid therapy bears comparable response rates with daily systemic corticosteroid therapy in patients with good prognostic factors with low relapse rates during follow up period.<sup>11</sup>

## CONCLUSION

Trachyonychia can be found in pediatric patients in concomitance with diseases like alopecia areata, lichen planus etc. It is either self-limiting by nature, or resolves with therapeutic resolution of the co-existing dermatosis. However, if found in association with alopecia areata, it

requires systemic corticosteroids. Systemic corticosteroids are preferable in pulse regimen in pediatric subset of population owing to lesser side effects and greater tolerability, inciting responses similar to regular corticosteroid therapy in patients with favorable prognostic factors.

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