

Case Report

A case of twenty nail dystrophy affecting a 12 year old boy

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ABSTRACT

Nail diseases in children may be congenital or acquired and occurs in 3 to 11% of pediatric population. Twenty nail dystrophy is a nail disorder with a classical presentation, often affecting all twenty nails. It is an idiopathic disorder in childhood but can be associated with other diseases such as lichen planus, alopecia areata, psoriasis, eczema, IgA deficiency, atopic dermatitis, ichthyosis vulgaris and vitiligo. Twenty nail dystrophy is otherwise called trachyonychia. Typically, the condition is bilateral and symmetrical affecting all the nails of hands and feet. It is cosmetically disfiguring and can be source of anxiety for children and parents, which can impact further the quality of life. Twenty nail dystrophy is of two types, based on the clinical presentation namely opaque or shiny trachyonychia. Since this nail disorder is associated with a number of dermatologic diseases, children require long term follow up. We report a case of a 12-year-old boy with a three-year history of twenty nail dystrophy with no relevant family history of skin or nail diseases. The child had isolated nail manifestation without any other dermatologic condition. Twenty nail dystrophy is a self-limiting disease, which is treated conservatively. The aim of this report is to highlight importance of a thorough physical examination to diagnose nail disorders in early stages, which will be helpful to clinicians to distinguish the different nail conditions and associated illness and decide on the correct management. It is important to counsel the family about the benign nature of the disease and good prognosis.

Keywords: Benign, Brittle nails, Children, Self-limiting, Trachyonychia, Twenty nail dystrophy

INTRODUCTION

The exact prevalence of nail conditions in the pediatric population is unknown, but literature estimates a variable incidence of 3 to 11%.¹ Nail disorders maybe a sign of genetic disorders and dystrophies such as yellow nail syndrome, nail patella syndrome, epidermolysis bullosa or pachyonychia congenita. Children also suffer from nutritional disorders affecting the nails in iron deficiency anemia with koilonychia, platynychia or brittle nails. Several autoimmune disorders such as psoriasis, lichen planus and lichen striatus also affect the nails.

Twenty nail dystrophy is otherwise called as trachyonychia from the Greek word trakos for rough. The

term twenty nail dystrophy (TND) is used to describe trachyonychia involving all 20 nails. Trachyonychia was first described by Alkiewicz in 1950 and was termed twenty nail dystrophy of childhood in 1977 by Hazelrigg et al. because it was initially described as uniformly affecting all twenty fingernails and toenails.²

It is commoner in children compared to adults and has an insidious onset. Twenty nail dystrophy can present at birth and evolves slowly or it may manifest in infancy or childhood and progress into adulthood.³⁻⁵

The common age of presentation is from 3 to 12 years.⁶ Male and females are equally affected. Males are commonly affected when associated with alopecia areata.

CASE REPORT

A 12-year-old boy presented with complaints of loss of normal lustre and texture of nails involving fingers and toes since past 3 years. Initially his index finger was affected which was rough and discolored and then progressed to all nails of both hands and feet. There was no history suggestive of skin rashes, itching, loss of hair or redness of skin. He had no history of allergy or recent travel. There was no relevant family history of skin or nail disease. Physical examination revealed thickened, discolored, dystrophic nails with pitting, longitudinal ridging involving all the twenty nails. Diagnosis of idiopathic twenty nail dystrophy was made after consultation with the dermatologist since all twenty nails were involved without any other skin or systemic manifestations. The child was treated with 20mg biotin daily. He was reassured and child is on regular follow up.



Figure 3: Dystrophic nails in the hands and feet.



Figure 1: Dry, brittle and dystrophic nails in the feet.



Figure 2: Discolouration and ridging in the nails of the hands.

DISCUSSION

The term “twenty nail dystrophy” is used to describe trachyonychia involving all 20 nails. The nails show diffuse ridging with lack of lustre, and in some severe cases sandpaper - like surface.^{7,8} Abnormality of the nail plate may be less severe and can have numerous, small superficial pits, which impart a shiny appearance to the nail surface.

In twenty nail dystrophy, the dystrophic nail findings are characterized by brittle, thin nails, with excessive longitudinal ridging. This gives the nail plate a rough and opaque appearance. The cuticle is usually hyperkeratotic and ragged.⁹ It may present as idiopathic condition without cutaneous or systemic findings or it can be caused by variety of other disorders. Twenty nail dystrophy has been reported to be transmitted in autosomal dominant fashion in some families and there are reports of monozygotic twins affected by twenty nail dystrophy.⁵⁻⁷ Twenty nail dystrophy can also occur in multigenerational families.⁵⁻⁷ It can be a manifestation of lichen planus (4-18.5%), psoriasis (13-26%), alopecia areata (45-83%), immunoglobulin A deficiency, atopic dermatitis and ichthyosis vulgaris.⁹⁻¹³ In twenty nail dystrophy, the most common disease associated is alopecia areata. Nail matrix biopsy and physical examination findings help in establishing the cause of this condition.

Due to the ability to diagnose twenty nail dystrophy clinically, our child did not undergo nail biopsy as it can cause permanent cosmetic damage. However, a biopsy can be done to help reassure highly concerned patients.

Brittle nails, alopecia areata, psoriasis and lichen planus are the other differential diagnosis. Geometric pitting is present in alopecia areata which resembles shiny trachyonychia. Lichen planus causes longitudinal fissures and pterygium that are not present in trachyonychia. Twenty nail dystrophy is a self-limiting disease largely affecting children.

Parents are often quite apprehensive and are prepared to seek medical consultation. It is worthwhile to explain to the parents the nature and natural history of the disease through counselling. Reassurance, therefore, forms the basis for the management.¹⁴

Medical treatment for twenty nail dystrophy include intra-lesional injections of triamcinolone 2.5 to 3 mg/ml into the proximal nail folds. Injections are painful and thus difficult to administer in children. Hence our child was treated with conservative medical management. The medical treatment for systemic involvement includes prednisolone, anti-malarial, etretinate and biotin. Seven-month therapy with topical psoralen and UVA light is reported effective. Clear nail hardeners can be applied to nails to improve their appearances. Intensive treatment in form of cyclosporine A in a dose of 3 mg/kg/day can be given.¹⁵ Biotin 20mg per day has also been one of the widely used treatment. One article reported that biotin was used successfully to treat TND in two patients with primary biliary cirrhosis. In about 50% of patients, nail changes will reveal significant improvement or resolve within five to six years without scarring.¹⁶

CONCLUSION

The child presented with idiopathic twenty nail dystrophy and was treated conservatively. Twenty nail dystrophy is a chronic clinical condition that may present as isolated finding. The diagnosis of twenty nail dystrophy is usually based on distinguishing clinical symptoms. It is a self-limiting disease and, as a result, treatment should only be given if absolutely essential, such as when the patient's quality of life is detrimentally affected. Reassurance of the child and parents is essential to avoid unnecessary, ineffective and potentially harmful medical treatment. Follow up is necessary as twenty nail dystrophy can precede alopecia areata, psoriasis and lichen planus.

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