

CASE REPORT

Nail psoriasis in 5-year-old girl: A case report from Saudi Arabia

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ABSTRACT

Psoriatic nail dystrophy is a form of psoriasis affecting the nail matrix or nail bed, which causes clinical manifestations in the nail, such as pitting of the nails, onycholysis, subungual hyperkeratosis. However, it is more common in adults, and unusual to present in pediatric population that too in absence of other cutaneous manifestations of psoriasis. In this article we present a 5-year-old child presenting with isolated nail psoriasis. This article's purpose is to highlight the significance of dermoscopy, potassium hydroxide examination (KOH), and culture & sensitivity to diagnose childhood nail psoriasis, as it may clinically resemble other nail disorders.

KEYWORDS: Nail psoriasis, Pediatric, Onychodystrophy

INTRODUCTION

Nail psoriasis results from the psoriatic inflammation of the nail bed or nail matrix.¹ It is a rare condition in children.² Common clinical features seen in nail psoriasis are pitting, onycholysis, pachyonychia, leukonychia, and splinter hemorrhages.³ Dermoscopy is an efficient technique used for the diagnosis of nail psoriasis. Onycholysis, splinter hemorrhages, pitting, and fissures are the commonly seen features with a dermoscope.⁴ Psoriasis is treated by topical or systemic therapy, according to the severity of the condition. Topical treatment is used when fewer than 3 nails are affected while systemic treatment is recommended for any higher number of nail involvement.⁵ This case report presents a case of 5-year-old girl presenting with nail psoriasis without skin involvement.

CASE PRESENTATION

A 5-year-old girl was referred to our dermatology clinic for evaluation of onychodystrophy involving both finger and toenails. The appearance of these lesions started four months earlier without any significant past history of infection or external physical trauma to the nails. Clinical examination revealed presence of fingernail and toenails hyperkeratosis, large irregular pits, longitudinal striations, greenish discoloration, fragility, and nail plate striations. There was no inflammation in the periungual areas (Fig.1 A, b). No other lesions were found on the scalp or the skin. The main differential diagnosis of onychomycosis was considered. However, there were no fungal elements visible when the nail sample was examined directly under the microscope with potassium hydroxide, and there was

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no growth on the fungal culture. Furthermore, patient had tried complete course of systemic antifungal medication prescribed by her family physician for four months with no improvement. The patient was not complaining of any pain or itching. Her parents main concern was to know if the condition was reversible. There was a family history of psoriasis in first degree relative.



Fig.1 A, B Clinical manifestations of psoriasis in fingernails and toenails.

Dermoscopy findings were also consistent with psoriatic nail disease (Fig. 2).



Fig. 2 Dermoscopy view of great toenail distal edge showing subungual hyperkeratosis fragmentation, fragility, and thinning of nail plate.

The diagnosis was not confirmed with a biopsy, but via the process of elimination, psoriasis seemed to be the most likely cause. The Nail PsO

Area Severity Index (NAPSI) was calculated at 5 for each of the affected nails.

DISCUSSION

Nail psoriasis is a rare condition in children. According to Piraccini *et al.*, the incidence of nail psoriasis in children is 0.11%.² The most common cause of nail psoriasis is psoriatic inflammation of the nail matrix or nail bed.¹ There is a broad spectrum of diseases that can affect the nails in pediatric patients including infectious, inflammatory, neoplastic, congenital, and traumatic processes.⁶ In pediatric population the occurrence of nail problems is determined by genetic, immunological, and environmental variables.¹ Nail psoriasis can slowly progress to skin psoriasis and can serve as an early sign of the severe condition. As presented in a case report by Rinck *et al.*, according to which a 5-year-old child developed skin psoriasis two years after initially presenting with nail dystrophy.⁷ There is positive correlation between nail involvement and skin psoriasis. But our patient had no skin lesions and psoriasis was limited solely to the nails. A review of literature shows that only 1-5% of the cases presented with nail psoriasis had no skin involvement.⁸ The most common features were pitting, onycholysis, Beau lines, oil drop paronychia, pachyonychia, leukonychia, and splinter hemorrhages. Pitting was more frequent on fingernails and onycholysis and pachyonychia were more frequent on toenails. According to the study, the trauma of nails increased the chances of psoriasis³ but no such trauma was found in our case. Clinical signs are typically used to make a diagnosis of nail psoriasis, although there are other aspects that could mislead an untrained physician. In those cases,

dermoscopy may be very useful for diagnosis.⁹ In a dermoscopic study of psoriasis, evaluation tools used were the Nail Psoriasis Severity Index score (NAPSI) score, Body surface area (BSA), the Psoriasis Area and Severity Index (PASI) score, and a thorough medical history of the patients. The results of the study revealed typical dermoscopic features, including onycholysis, splinter hemorrhages, pitting, longitudinal fissures, dilated streaky capillaries, and the oil-dropping sign.⁴ Oba et al presented a case report of a child with isolated nail psoriasis where the diagnosis was made by using histological nail clipping examination. The histology showed neutrophilic infiltrate and serous lakes. Neutrophilic infiltrate can also be present in the case of a fungal infection so the presence of hyphae and other fungal elements must be ruled out.¹⁰ Treatment should be according to the number of nails involved, the part of the nail or nails affected, and the presence of joint involvement. Options include topical therapy, intralesional injections, and systemic and biologic agents.⁵ Topical therapy is recommended for the treatment of a nail disease that affects three or fewer nails, does not involve the joints, and is not accompanied by severe skin psoriasis. The most suitable forms of topical treatment are ointment, solution, or foam. However, if the patient also has moderate to severe skin psoriasis or psoriatic arthritis, systemic treatment is recommended. Systemic treatment should also be considered when more than three nails are affected.¹¹ In our case the patient presented with hyperkeratosis, irregular depressions, striations, and greenish discoloration of nails. These symptoms match the clinical manifestation of nail psoriasis that includes pitting of the nails, onycholysis, subungual hyperkera-

tosis, and oil drop discoloration, Leukonychia, nail plate crumbling, red patches in the lunula and splinter hemorrhages.¹ Our patient lacked the usual predisposing factors for the development of nail psoriasis like trauma of nails³ and the presence of skin psoriasis. Since the differential diagnosis includes Onychomycosis, KOH culture was done to rule it out. To confirm the diagnosis of the nail psoriasis dermoscopy was performed as it is supported by the literature.^{4,9}

CONCLUSIONS

In conclusion, the prevalence and clinical manifestations of nail involvement in psoriasis among children has limited known information. Therefore, it might be tricky to diagnose correctly. Using a dermoscopy is one important step to help reaching an accurate diagnosis. Also, it is crucial to rule out onychomycosis due to the similarity of presentation between these two conditions. A simple KOH culture & sensitivity of the nail clipping can demonstrate or exclude the presence of fungal infection.

REFERENCES

1. H. Muneer and S. Masood. "Psoriasis of the Nails," in StatPearls, Treasure Island (FL): StatPearls Publishing, 2023. Accessed: Apr. 11, 2023. [Online]. Available: <http://www.ncbi.nlm.nih.gov/books/NBK559260/>
2. B. M. Piraccini et al. Nail Psoriasis in Children: Common or Uncommon? Results from a 10-Year Double-Center Study, *Skin Appendage Disord*, 2015; (1): 43-48.
3. D. Pourchot et al. Nail Psoriasis: A Systematic Evaluation in 313 Children with Psoriasis. *Pediatr Dermatol*, 2017; 34(1):58-63.
4. F. Long et al. Dermoscopic features of nail psoriasis: Positive correlation with the severity of psoriasis. *J. Dermatol*, 2021; 48(6):894-90.
5. M. M. Jiaravuthisan, D. Sasseville, R. B. Vender, F. Murphy, and C. Y. Muhn. Psoriasis of the nail: anatomy, pathology, clinical presentation, and a

- review of the literature on therapy,” *J. Am. Acad. Dermatol*, 2007;57(1):1-27.
6. R. J. Smith and A. I. Rubin. Pediatric nail disorders: a review, *Curr. Opin. Pediatr*, 2020; 32(4):506-15.
 7. R Danielle, S Elaine. Severe Psoriasis Presenting in 3-Year-Old Child With Nail Dystrophy: Response to Biologic Treatment. *J Drugs Dermatol*, 2022; 21(8)897.
 8. S. Van Laborde and R. K. Scher. Developments in the treatment of nail psoriasis, melanonychia striata, and onychomycosis. A review of the literature. *Dermatol. Clin.* 2000; 8(1):37-46.
 9. F. Bardazzi, M. Starace, F. Bruni, M. Magnano, B. M. Piraccini, and A. Alessandrini. Nail Psoriasis: An Updated Review and Expert Opinion on Available Treatments, Including Biologics. *Acta Derm. Venereol*, 2019; 99(6):516-23.
 10. M. Ç. Oba, Ç. D. Arıcan, and F. Göktay. Histopathological nail-clipping examination for the diagnosis of isolated childhood nail psoriasis: A case report. *TURKDERM - Turk. Arch. Dermatol. Venereol*, 2023; 57(1):34-35.
 11. D. Rigopoulos, N. Rompoti, and S. Gregoriou. Management of Nail Psoriasis. *Dermatol. Clin*, 2021; 39(2):211-20.