



A CLINICAL PROFILE OF NAIL PSORIASIS AND ITS ROLE AS A MARKER OF SEVERE DISEASE.

Dermatology

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ABSTRACT

Introduction: Nail psoriasis is seen in 50% of psoriasis patients and in upto 80% of psoriatic arthritis patients. Severe nail psoriasis leads to significant impairment of quality of life. The objectives of this study were to analyze the patterns of nail involvement and correlate the severity of nail psoriasis with skin disease, duration, and joint involvement. **Method:** Cross-sectional study done over 2 years, at a tertiary care hospital at Chennai, south India. Consecutive patients of psoriasis with psoriatic nail changes were included. Severity was assessed by psoriasis area severity index (PASI) and nail psoriasis severity index (NAPSI) scoring. Relation between NAPSI and PASI, duration of disease, and psoriatic arthritis was assessed. **Results:** There were 103 psoriasis patients with nail involvement. Mean age was 45 years (range 18 -60 years), male:female ratio 1.4:1. PASI scored ranged from 0.2-18.8, median of 1.2 and mean was 3.5±4.3. Nail matrix changes were more frequent than nail bed changes. Subungual hyperkeratosis was overall most common finding (73.8%) followed by pitting (63.1%) onycholysis (60.2%), longitudinal ridges (48.6%), melanonychia (27.2%). Pathognomonic oil drop sign was seen in 10.7% and 20-nail dystrophy in 5.8%. NAPSI score ranged from 2-80, median was 25.5, mean was 24.81 ±19.4. Psoriatic arthritis was present in 41 patients (39.8%). Positive correlation was seen between NAPSI and PASI, and NAPSI and duration of disease. The relation between NAPSI and psoriatic arthritis was not significant. **Conclusion:** Nail psoriasis can be a marker of severe disease. Severity of nail psoriasis increases with time and with severe skin disease.

KEYWORDS

Nail psoriasis, NAPSI, PASI

INTRODUCTION

Psoriasis is a common chronic disease affecting the skin, nails, and joints. It has a prevalence of 0.44 to 2.8% across India.¹ Nail psoriasis is an important and yet an often overlooked aspect of psoriasis. Nail psoriasis occurs in about 50% of patients with plaque psoriasis and 5% to 10% in the absence of cutaneous psoriasis. The lifetime prevalence is said to increase with longer duration of disease.² In patients of psoriatic arthritis the percentage increases to 80%.^{2,3} Nail psoriasis can significantly impair the quality of life of patients. The present study was undertaken to describe the patterns of nail psoriasis, to assess the severity of nail psoriasis and its relation to severity of cutaneous psoriasis and psoriatic arthritis.

METHOD

It was a cross-sectional study done over 2 years from 2015 to 2017. Institutional ethics committee approval was obtained. All patients with clinical diagnosis of psoriasis, between the ages of 18 to 60 years were screened and patients with nail involvement were included in the study. Informed consent was taken from all patients. Scraping of nail for fungal elements was done using 40% KOH. Detailed clinical examination was done and severity of skin and nail disease was scored using Psoriasis Area Severity Index (PASI) and Nail psoriasis severity index (NAPSI) scores respectively. [4,5] Psoriasis severity was classified as mild and severe based on PASI score of <10 and >10 respectively. The presence of psoriatic arthritis (PsA) and its type was noted. PsA was diagnosed based on Caspar's criteria. Mann-Whitney -U test was used to assess association of NAPSI and disease duration and psoriatic arthritis. Correlation between NAPSI and PASI was done by Kendall tau test.

RESULTS

A total of 103 patients of psoriasis with nail involvement were included in the present study. Mean age was 45 years (range, 18-60 years). Male to female ratio was 1.4:1. The most common morphological type of psoriasis was palmoplantar constituting 28 cases (27.2%), followed by chronic plaque psoriasis in 26 cases (25.2%), scalp psoriasis 19 cases (18.4%), guttate psoriasis 11 cases (10.7%), unstable psoriasis 11 cases

(10.7%) and pustular psoriasis 8 cases (7.8%). The PASI score of patients ranged from 0.2 to 18.8 with an average score of 3.5 ± 4.3. Psoriasis was mild (PASI <10) in 87.4% and severe (PASI >10) in 12.6%. Psoriatic arthritis was present in 41 patients (39.8%). Distal interphalangeal joint involvement (53% of PsA) was the most common type.

Among the 103 patients, 25.2% had not noticed the presence of nail involvement, 46.6% had nail psoriasis of <5-year duration and 28.2% had >5 year duration. KOH examination for fungal elements was negative in all the 103 cases. Isolated finger nail involvement was seen in 15 cases (14.5%) and isolated toe nail involvement in 5 patients (4.9%) and 83 patients (80.6%) had both finger and toe nails involvement. Manifestations of nail matrix changes were more prevalent than nail bed changes. Characteristics of nail involvement and the frequency of their distribution is presented in table 1.

Table 1: Frequency Distribution Of The Various Manifestations Of Nail Psoriasis In Study Population (n=103)

Characteristic	Frequency of distribution(%) (N= 103)		
	Total (%)	Fingernails	Toenails
Nail changes			
Subungual hyperkeratosis	76 (73.8)	25	51
Pitting	65 (63.1)	65	0
Onycholysis	62 (60.2)	45	17
Longitudinal ridges	50 (48.6)	25	25
Melanonychia	37 (27.2)	14	7
Beau's line	28 (27.2)	21	7
Nail crumbling	26 (25.3)	5	21
Roughening	20 (19.4)	1	19
Paronychia	20 (19.4)	18	2
Onychomadesis	20 (19.4)	17	3
Longitudinal melanonychia	20 (19.5)	15	5
Oil drop sign	11 (10.7)	11	0
Leukonychia	9 (8.7)	9	0
20 nail dystrophy	6 (5.8)	-	-

Splinter hemorrhage	5 (4.9)	5	0
NAPSI score : 24.8 (range 2 – 80)			

Subungual hyperkeratosis was the most common finding when looking at both finger and toe nails (Figure 1), however pitting was the most common finding in fingernails.(Figure 2) The pathognomonic finding of oil drop was seen in 11 cases. (Figure 2) Pattern of 20 nail dystrophy present in 6 cases. Pitting, oil drop sign, splinter hemorrhage and leukonychia were exclusively seen in finger nails. Characteristics of nail involvement is presented in table 1.

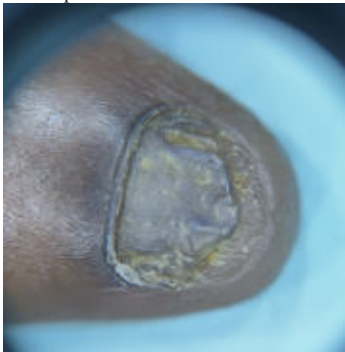


Figure 1: Subungual hyperkeratosis and coarse pits seen in nail in a patient with nail psoriasis.



Figure 2 Regular fine and coarse pits seen on fingernail of a patient with psoriasis.



Figure 3. Subungual hyperkeratosis with pits in multiple nails

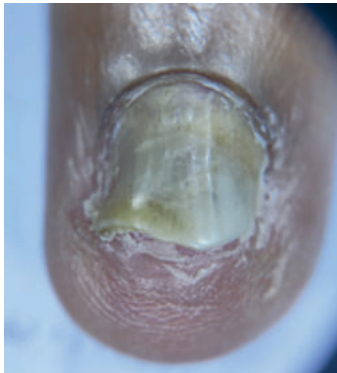


Figure 4: Onycholysis in fingernail in psoriasis

The NAPSI score ranged from 2 to 80 with average score 24.8 ± 19.4 . A significant positive correlation was found between NAPSI and PASI scores, correlation coefficient of 0.32 (p value of 0.003) (Figure 5).

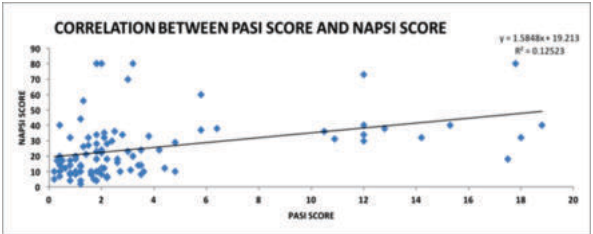


Figure 5: Correlation between PASI and NAPSI score of study population (n=103) (Kendall Tau plot)

The severity of nail involvement worsened with time as seen by the significant positive correlation between NAPSI and duration of disease (p value 0.013) as seen in table 2.

Table No. 2 Association Of Duration Of Nail Changes (in Years) With NAPSI Using Mann Whitney-U test

	Duration of nail changes in years	No. of cases	Mean rank	Sum of ranks
NAPSI score	< 5 years	48	34.07	1635.50
	>5 years	29	47.16	1367.50
	total	77		

p value= 0.013 (PASI = Psoriasis area severity index, NAPSI = Nail psoriasis severity index)

There was no significant association seen between presence of PsA and PASI score, or between PsA and NAPSI score. The relation of individual nail matrix and nail bed changes to PsA was looked for, however there was no significant difference in the pattern of involvement in PsA when compared to skin psoriasis.

DISCUSSION

Nails contribute significantly towards aesthetics in humans. Nail psoriasis can be mild and go unnoticed or can be severely deforming leading to impairment in quality of life. Nail psoriasis is often a challenge to treat. Psoriasis vulgaris has no gender predilection, nail psoriasis is reported to have a male preponderance which was also noted in the present study.⁶ Isolated fingernails or toenails involvement is seen in a small percentage of patients, in majority of patients both the finger and toe nails are involved.^{7,8}

Pitting of nails has been frequently reported as the most common morphological pattern of nail psoriasis, followed by onycholysis as seen in literature.^{9,10} In the present study, the most common finding overall was subungual hyperkeratosis, which was also the most frequent finding in toe nails. Whereas, pitting was the most frequent pattern in fingernails and was exclusively seen in fingernails. This relative frequency of pitting and subungual hyperkeratosis in fingernail versus toenails has been established in previous studies. Oil drop sign or salmon patches which have been described as the pathognomonic feature of psoriatic nail involvement has been reported in around 50% of cases in various studies, and was seen in 10% cases in the present study.^{11,12} It is of interest to note that in the present study we report 20-nail dystrophy in 6 patients, a morphological pattern which has not been commonly reported in studies focused on nail psoriasis. It is a well-known association of psoriasis, as reported in histopathological studies of 20 nail dystrophy.¹³

The severity of nail psoriasis was determined by NAPSI score, which is a validated score. It considers 6 morphological features of nail psoriasis which are most representative of nail psoriasis. Severe nail psoriasis is a marker of the long-standing psoriasis as was seen in this study by the positive correlation between NAPSI and duration of disease. Patients with nail psoriasis are recorded to have a lower age of onset of the disease and longer disease duration.⁸

NAPSI scores also correlated positively with PASI score reinforcing the fact that severe skin disease is associated with severe nail changes of psoriasis. Hallaji et al in their study expressed the relation between severity of skin and nail psoriasis as a “1 point increase in the PASI is associated with a 10 point increase in NAPSI”.¹⁴ This relationship could not be demonstrated in the present study.

Psoriatic arthritis (PsA) is reported to occur in upto 30% of patients

with cutaneous psoriasis and nail involvement is seen in upto 80% of psoriatic arthritis patients. A significant correlation between PsA especially of the DIP joints, and nail psoriasis has been established in various studies. This is probably due to the close anatomical relation between nail apparatus and the distal interphalangeal joint and common autoantigens.^{14,15} In this study we included psoriatic patients with nail involvement and found psoriatic arthritis in 40% cases, which is higher than the reported prevalence probably explained by the selection of patients with nail psoriasis. However, we did not find a significant correlation between the presence of psoriatic arthritis and severity of nail involvement, which has been reported in various other studies.^{14,17} A review of the literature on relationship of specific nail findings and arthritis revealed a variable result. Some studies report a significant association between onycholysis, splinter hemorrhage and oil drop with psoriatic arthritis, all of which are nail bed changes.^{15,18} While another study reports splinter hemorrhage to be a significant association of psoriatic patients without arthritis, in contradiction to the previous quoted study.¹⁹ In the present study no significant correlation was found between psoriatic arthritis and any specific pattern of nail psoriasis. It is however irrefutable that there exists a strong association between PsA and nail psoriasis.

Limitations: Psoriasis has a waxing and waning course, and kinetics of nails are different from the skin and hence a cross-sectional study can only provide limited information; a follow up of patient over a considerable period of time may provide better understanding. The severity scores are affected by treatment received by the patient. Patients with psoriatic arthritis and nail psoriasis, sans cutaneous psoriasis were not included in this study; this group of patients may provide further insight into the relation of PsA and nail.

CONCLUSION

In the present study we describe the pattern and severity of nail involvement in psoriasis. Nail matrix changes are more frequent than nail bed changes. Nail psoriasis is a marker for long standing and severe disease, the severity of nail involvement increases with time and with severe skin disease. The association between severity nail psoriasis and psoriatic arthritis was not significant in the present study. Larger cohort of patients and a prospective study may give more insight into the relation of pattern and severity of nail psoriasis with psoriatic arthritis.

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