

Frequency of nail changes in patients with psoriasis reporting to PNS, Shifa Naval Hospital, Karachi

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Abstract *Objective* To evaluate the frequency of nail involvement in psoriatic patients in local population and to evaluate major patient characteristics with nail psoriasis.

Patients and methods One hundred consecutive patients with psoriasis in dermatology out/inpatient department participated in the study. Study duration was over one year from July 2007 to July 2008.

Results Nail changes were present in 71 (71%) patients. Out of the 100 psoriatic patients. The most common nail abnormality observed on both fingernails and toenails was pitting followed by onycholysis. Patients with psoriatic nail changes were significantly older than psoriatic patient without nail changes. Duration of psoriasis was significantly higher in patients with psoriatic nail changes. Fungal infection was positive in 9% of patients with nail changes.

Conclusion Dystrophic nails are frequently found in psoriatic individuals. Frequency of nail involvement in our patient is probably similar to those in their European and American counterparts. Among various nail changes pitting and onycholysis are the most common finding. Fungal colonization of psoriatic nails is a quite frequent clinical problem and should be taken into consideration by dermatologists working with psoriatic patient.

Key words

Psoriasis, nail, dystrophic nail, pitting, onycholysis.

Introduction

Psoriasis is a chronic skin disease that causes significant distress and morbidity. It varies greatly in severity, ranging from mild localized distribution to more severe erythrodermic forms. Influenced by both genetic and environmental factors, the prevalence of this multifactorial disease is estimated to be 2% of the world

population.¹ There is no sex predilection.² In most of the patients the disease is mild with scaly plaques on extensor surfaces of body covering variable area but some forms are particularly destructive and incapacitating and may lead to a degree of functional and social handicap.³

Nail involvement on the other hand is often overlooked. Fifty per cent of psoriatics have nail changes during their lives.⁴ Nail changes may be an isolated finding⁵ or it may accompany skin lesion. The clinical picture of psoriasis of nails varies according to the disease site. Pits, ridges

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and grooves are due to the nail matrix involvement, whereas onycholysis, subungual hyperkeratosis and discoloration attributable to the nail bed affection.⁶ Nail changes are seen more commonly with psoriatic arthropathy, especially with distal interphalangeal joint disease. Nail involvement is a very bothersome problem for the patient as nails are difficult to treat and they respond slowly to any therapy. It causes physical and psychological handicap leading to alterations in the quality of life.⁷

Few local data evaluating the frequency of psoriatic nail changes are available. This study was to determine the frequency of psoriatic nail changes in our population.

Patients and methods

A total of 100 consecutive patients of psoriasis were included in this study. Cases were enrolled from out/inpatient department of dermatology PNS Shifa, Naval Hospital, Karachi. Study duration was over one year from July 2007 to July 2008.

All patient of psoriasis irrespective of age, sex and duration of disease were included, however, patients with nail changes secondary to trauma and concomitant systematic/dermatological disease were excluded from the study.

For each patient, data regarding disease history along with various changes in the nails were recorded. The relationship of nail involvement to the type of psoriasis, patient's age sex and disease duration was recorded. Out of 100 psoriasis patients, 62% patients were male and 38% were female with 1.77:1 male to female ratio. Ninety seven per cent patients suffered from plaque psoriasis, the remaining three per cent were affected by palmoplantar and scalp psoriasis.

Results

A total of 100 consecutive patients of psoriasis were included in this study, with mean age 41.2 ± 15.9 years (95%CI; 38.03 to 44.37), median (IQR) = 40(22), minimum age = 4 Year, maximum age = 80 years.

The median duration of psoriasis was 4.5 years. There were 14% patients suffering from psoriasis for less than 1 year, while 45% patients had disease duration between 1 to 5 years and remaining 41% patients were suffering from psoriasis between 6 to 25 years. Minimum duration of psoriasis was 2 months and maximum duration of psoriasis was 25 years. 37% patients presented with arthritis.

Nail changes were present in 71% patients with psoriasis while 29% were without nail changes. Out of 71 psoriasis patients with nail changes, 8 (11%) patients with nail abnormalities had only fingernails involved, 4 (6%) had only toenail involved whereas the remaining 59 (83%) had changes on both fingernails and toenails. The details of the morphologic type of nail abnormalities observed in psoriatic patients are presented in **Table 1**. Pitting was the most common nail abnormality observed in 43 (60.6%) patients followed by onycholysis. Nail thinning was seen in 26 (36.6%) patients, thickening in 24 (33.8%), grooves in 17 (23.9%) and leukonychia in 1 (1.4%) patient. While in nail bed, onycholysis was observed in 37 (52.1%) patients, subungual hyperkeratosis in 21 (29.6%), oil drop sign in 5 (7%) and splinter hemorrhages were in 3 (4.2%) patients.

Average age of the psoriatic patients with nail change was 42.9 ± 16.02 years while average age of the psoriatic patients without nail change was 36.9 ± 15.20 years (**Table 2**). Patients with psoriatic nail change were significantly older

Table 1 Frequency of various nail change in patients with psoriasis (n= 71).

Type of nail change	Fingernails N=8	Toenails N=4	Finger- and toenails N=59	Total N=71
<i>Nail matrix</i>				
Pitting	1	2	40	43 (60.6%)
Ridges	0	2	27	29(40.8%)
Thinning	1	0	25	26(36.6%)
Thickening	2	0	22	24(33.8%)
Grooves	1	0	16	17(23.9%)
Leukonychia	1	0	0	1(1.4%)
<i>Nail bed</i>				
Onycholysis	4	2	31	37(52.1%)
Subungual hyperkeratosis	0	1	20	21(29.6%)
Oil drop sign	1	0	4	5(7%)

Table 2 Comparison of characteristics with and without nail changes.

Variable	Patients without nail change N=29	Patients with nail changes N=71
<i>Age (years)</i>		
Mean± SD	36.9 ± 15.20	42.9 ± 16.02
Median (IQR)	35 (25)	41(20)
<i>Duration of psoriasis (years)</i>		
Median (IQR)	3 (6)	6 (12)

P=0.0005.

Table 3 Comparison of characteristics with and without nail changes.

Duration of psoriasis (years)	Patients without nail change n=29	Patients with nail changes n=71
<1	9 (31%)	5 (7%)
1-5	18 (62.1%)	27 (38%)
6-10	1 (3.4%)	15 (21.1%)
11-15	1 (3.4%)	12 (16.9%)
16-20	0 (0%)	10 (14.1%)
21-25	0(0%)	2 (2.8%)

Chi Square Test = 22.9 DF =5 p-value= 0.0005
Linear by linear association p=0.005

than psoriatic patients without nail abnormalities (p=0.0005) as shown in **Table 3**.

Duration of psoriasis was significantly higher in patients with psoriatic nail change than psoriatic patients without nail change (chi-square = 22.9; DF=5, p=0.0005) as shown in **Table 3**. Scraping for fungal hyphae was positive in 9% of patients with nail changes.

Discussion

There are few published studies on epidemiology and clinical patterns of nail psoriasis in local population. The aim of this study was to determine the frequency of nail involvement in patients with psoriasis. According to literature, nail involvement is present in 20% to 50% of psoriatic patients.^{8,9,10} Among various nail changes described in the literature 71% of our psoriasis patients had nail abnormalities. This is in accordance with some studies.^{11,12} However, this frequency is higher than reported in some other studies. This observed difference may be because most of our study patients had disease duration for more than 5 years and there were very few patients who were first diagnosed at the time of the study. Another reason for increased frequency of the nail psoriasis may be that average age of the patients in this study was 41 years. Moreover, patients with arthropathic psoriasis were also included in the study.

Among various nail changes either on the same nail plate or on different nail plates, pitting and onycholysis were the most common combination observation followed by thinning, thickening, subungual hyperkeratosis, oil drop and splinter hemorrhages.

This is similar to study conducted by Tham *et al.*¹² in Singapore where 410 psoriatic patients were taken for clinical observation on nail changes. The prevalence of nail changes was 78%. Common changes were pitting and onycholysis.

A single local study by Saleem and Azim¹³ and study conducted by De Berker¹⁴ evaluated the efficacy of modified regime of intralesional steroid injection for the treatment of psoriasis. They along with another study also have similar observation that pitting and onycholysis were the common clinical combination.¹⁵ However, in some studies subungual hyperkeratosis and pitting appeared to be the most common nail abnormality.^{11,16}

In some studies nail changes vary according to the anatomical sites. The most common fingernail change observed was pitting followed by onycholysis. On the contrary, most common toenail changes observed were onycholysis and subungual hyperkeratosis.^{16,17}

There are very few available data evaluating the frequency of nail psoriasis depending on clinical parameters. A prospective study in 2003 was done on psoriatic nails in Poland where one hundred six admitted psoriatic patients were evaluated for nail changes.¹¹ In this study, the researchers found positive correlation between age of the patient and the presence of nail abnormalities. Similarly some other studies found positive correlation between the prevalence of nail changes in psoriatic patients and severity and duration of the disease.¹² They reported that nail abnormalities were more often observed in patients older than 50 years. However, another study conducted by de Jong *et al.*¹⁸ on psoriasis of the nails associated with disability in a large number of patients showed a positive association between the duration of

psoriasis and nail changes, but no relationship was found between patients' age and the presence of nail abnormalities. Our results confirmed significant positive correlation between the age of patients and the nail involvement as shown in **Table 2**, and psoriatic nail changes were more common in patients who had disease duration more than five years. The increasing incidence of nail abnormalities with age of psoriatic patients is not surprising, as almost all onychopathies are more likely to develop in elderly patients, mainly due to coexistence of other predisposing factors, such as: impaired peripheral circulations, metabolic and neurological disturbances (diabetes or polyneuropathy), repeated nail traumatization, and others.¹⁹

In the present survey we found nail fungal infections in 9% of psoriatic individuals with psoriatic nail dystrophy (in this study only clinically lesional nails were sampled for mycology). This is slightly lower than previous reports. That showed the frequency of onychomycosis in all psoriatic patients was as high as 10-13%.^{20,21,22} The observed differences might be because mycological culture was not conducted in our study patients. The different ages of the subjects may influence the results, as it is well known that prevalence of onychomycosis increases with age. Moreover, type of psoriasis could also be important, for example, in arthropathic psoriasis nail involvement is usually more common.

Conclusion

The frequency of nail involvement in our patients is probably similar to those in their European and American counterparts. The most common abnormality noted was pitting and onycholysis. Patients with psoriatic nail changes were significantly older than psoriatic patients

without nail changes. Duration of psoriasis was significantly higher in patients with psoriatic nail changes.

Fungal colonization of psoriatic nails is quite frequent clinical problem and should be taken into consideration by dermatologists working with psoriatic patients.

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