

Original Research Article

To determine the prevalence of nail changes in various dermatological conditions

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Abstract:

Background & Method: The aim of this study is to determine the prevalence of nail changes in various dermatological conditions. After applying inclusion and exclusion criteria 269 cases with various nail changes were enrolled in the study. Detailed history including duration of skin & Nail lesion, onset and progression, associated factors were noted in a special proforma. The right and left toe nails were numbered 1 to 5 from left to right with right and left little toes were assigned number 1 and right and left great toe number 5. Similar numbering was given to fingers with the hand placed on the table with dorsum upwards.

Result: Out of 269 cases, psoriasis was reported in 82 (30.4%) patients. Out of 82 patients 29 (35.3%) were Males and 53 (64.6%) were Females. Among the males maximum number of patients were in the age group of 41-50 years and among the females maximum patients were in the age group of 11-20 years. Out of 82 patients of Nail Psoriasis only finger Nails involved in 40 (48.7%) patients, only toe nails involved in 19 (23.1%) patients, Both finger & Toe Nails involved in 23 (28.0%) patients, Total finger Nails involved in 63 (76.8%) patients and total Toe Nails involved in 42 (51.2%) patients.

Conclusion: Nails, in spite of being easily accessible for examination, are often overlooked. A variety of nail changes occur in various dermatological conditions and may be helpful in achieving a diagnosis. A variety of nail changes can occur in various dermatological, systemic and other conditions. The nail unit is capable of only a limited number of reaction patterns; therefore, many diseases share similar changes, but correlation of the nail changes helps dermatologist to reach conclusive diagnosis. Nails remain an under studied and yet quiet accessible structure that lends itself for examination and evaluation. Hence truly said that nails are the windows through which one can look into the health of the patient.

Keywords: prevalence, nail & dermatological.

Study Designed: Cross-sectional Observational.

1. INTRODUCTION

The nail plate acts as a protective covering for the fingertip. Fingernails typically cover approximately one-fifth of the dorsal surface, whereas on the great toe the nail may cover up to 50% of the dorsum of the digit[1]. Fingernails usually present a longitudinal major axis and toe nails a transverse major axis. The intimate anatomic relationship between the nail and the bone is responsible for the common occurrence of bone alterations in nail disorders and vice versa. The shape of the distal phalangeal bone also determines the shape and the transverse curvature of the nail[2].

It is a group of chronic, Inflammatory and proliferative papulosquamous condition characterized by red, sharply demarcated scaly, plaques, demonstrated predominantly over the extensor surfaces of limbs and scalp affecting nearly 2 -3% of the population[3]. Out of these 50% patients have nail involvement, this figure may rise up to 80-90 % proportionally over a lifetime[4]. In a study it was found that the incidence of nail changes in patients with and without Koebner's phenomenon is 56%, and 29.33%

Patients with psoriasis capitis, genital psoriasis, and psoriatic arthritis have a higher frequency of nail involvement as suggested by Klaassen et al[5]. Studies have revealed that psoriatic arthritis is seen in 30% of psoriatics, who show a higher percentage of nail involvement (70-80%). In children with psoriasis the nail involvement can occurs in 7% to 39%. Pitting was seen in a neonate whose mother had severe psoriasis.

Nail psoriasis provokes both physical and psychological handicap, causing considerable cosmetic handicap in 93% of patients, restrains daily activities in 60% patients and 52% patients experience pain[6].

2. MATERIAL & METHOD

This cross-sectional observational study was conducted in outpatient clinic in the department of dermatology, Ruxmaniben Deepchand Gardi Medical College, Ujjain to study the Nail findings in various dermatosis. The study period was from January 2018 to January 2019. prior Ethical committee clearance was obtained. Informed consent was obtained from patients and from parents in case of children <12years.

INCLUSION CRITERIA:

- All male and female patients willing to participate in the study.
- Patients who gave consent to participate in study.

EXCLUSION CRITERIA:

- Nail changes due to trauma.
- Nail changes in systemic diseases.
- Occupational Nail changes.
- Neoplasm of Nail.
- Cosmetic induced Nail changes.

After applying inclusion and exclusion criteria 269 cases with various nail changes were enrolled in the study. Detailed history including duration of skin & Nail lesion, onset and progression, associated factors were noted in a special proforma. The right and left toe nails were numbered 1 to 5 from left to right with right and left little toes were assigned number 1 and right and

left great toe number 5. Similar numbering was given to fingers with the hand placed on the table with dorsum upwards. Thorough and detailed nail examination was carried out regarding the number of nail involvement, initial nail to be involved and the different types of nail changes. Other necessary investigations like CBC, RFT, LFT and nail clipping for fungal hyphae culture and microscopy were taken in relevant cases. Biopsy of relevant skin lesions was done in doubtful cases.

3. RESULTS

Table No. 1: Occupational status of patients (no. = 269)

| Occupation | No. of Patients | Percentage |
|----------------|-----------------|------------|
| Student | 53 | 19.75 |
| Service | 138 | 51.3 |
| Housewife | 61 | 22.6 |
| Ex-service Man | 17 | 6.41 |
| Total | 269 | 100 |

Out of 269 participants recruited for the study, maximum number of cases were in service 138 cases (51.3%) follows by housewives(22.6%) and least were ex-service man 17 cases (6.31%).

Table No. 2: Number of Nails involved (no. = 269)

| No. of Nails | No. of Cases | Percentage (%) |
|--------------|--------------|----------------|
| 1-5 | 133 | 49.4 |
| 6-10 | 114 | 42.4 |
| 11-15 | 19 | 7.2 |
| 16-20 | 3 | 1.1 |
| Total | 269 | 100 |

Out of 269 cases, 1 to 5 nails were involved in 133 cases(49.4%), 6 to 10 nails in 114 cases(42.4%), 11 to 15 nails in 19 cases(7.2%) and 16 to 20 nails in 3 cases(1.1%).

Table No. 3: Age & Sex wise Distribution of Psoriasis (no. = 82)

| Age in years | Male | Female | Total | Percentage |
|--------------|-----------|-----------|-----------|------------|
| 11-20 | 5 | 13 | 18 | 21.9 |
| 21-30 | 1 | 10 | 11 | 13.4 |
| 31-40 | 6 | 2 | 8 | 9.7 |
| 41-50 | 10 | 8 | 18 | 21.9 |
| 51-60 | 3 | 10 | 13 | 15.2 |
| > 60 | 4 | 10 | 14 | 17.1 |
| Total | 29 | 53 | 82 | 100 |

Out of 269 cases, psoriasis was reported in 82 (30.4%) patients. Out of 82 patients 29 (35.3%) were Males and 53 (64.6%) were Females. Among the males maximum number of patients were in the age group of 41-50 years and among the females maximum patients were in the age group of 11-20 years.

Table No. 4: Frequency of Nail Involvement in Psoriasis (n = 82)

| Sr. No. | Nails affected | No. of cases | Percentage |
|---------|---------------------------|--------------|------------|
| 1. | Finger Nails only | 40 | 48.7 |
| 2. | Toe Nails only | 19 | 23.1 |
| 3. | Both Finger and Toe Nails | 23 | 28.0 |
| 4. | Total Finger Nails (1+3) | 63 | 76.8 |
| 5. | Total Toe Nails (2+3) | 42 | 51.2 |

Out of 82 patients of Nail Psoriasis only finger Nails involved in 40 (48.7%) patients, only toe nails involved in 19 (23.1%) patients, Both finger & Toe Nails involved in 23 (28.0%) patients, Total finger Nails involved in 63 (76.8%) patients and total Toe Nails involved in 42 (51.2%) patients.

4. DISCUSSION

COMPARISON OF NAIL CHANGES IN VARIOUS DERMATOSIS WITH OTHER STUDY

| Sr. No. | Nail diseases | Present study % | Puri N et al ^[7] |
|---------|--------------------------|-----------------|-----------------------------|
| 1 | Onychomycosis | 34.2% | 25% |
| 2 | Psoriasis | 30.4% | 20% |
| 3 | Lichen Planus | 18.5% | 5% |
| 4 | Eczema | 4.0% | 10% |
| 5 | Trachonychia | 3.3% | 4% |
| 6 | Paronychia | 2.9% | 8% |
| 7 | Lichen Striatus | 2.2% | 0% |
| 8 | Vesicobullous | 1.4% | 1% |
| 9 | Leprosy | 1.4% | 2% |
| 10 | Pityriasis rubra pilaris | 0.75% | 1.4% |
| 11 | Darier's Disease | 0.375 | 4% |

A total of 269 cases were included in the study, Onychomycosis was the most common finding in 92 cases (34.2%) followed by Psoriasis 82 cases (30.4%), Lichen Planus 50 cases (18.5%), Eczema 11 cases (4%), Trachonychia 9 Cases (3.3%), Paronychia 8 cases (2.9%), Lichen Striatus 6 cases (2.2%), Vesicobullous disorders (pemphigus) 4 cases (1.4%), Leprosy 4 cases (1.4%), PRP 2 cases (.75%), Darier's Disease 1 case (0.3%) were also noted. In similar study conducted by Puri N et al[7]. Onychomycosis was the most common finding in (25%) followed by Psoriasis (20%), Lichen Planus (5%), Eczema (10%), Trachonychia (4%), Paronychia (8%), Vesicobullous disorders (pemphigus) (1%), Leprosy (2%), PRP 2 (1.4%), Darier's Disease (4%) which is comparable to our study.

Out of 269 cases, Nail psoriasis was reported in 82 cases. Females outnumbered the males (53 and 29 respectively). Male to female ratio was 1:1.8, but Sun Jae et al[8] observed no significant difference in distribution of nail disorders between sexes.

Majority of the patients with psoriasis were in the age group 41-50 years and it is comparable to the study done by Sharma et al[9] (1964), who concluded that psoriasis in india is seen more during 20-50 years of life, when the patients are more liable to the stress and strain of life. According to Ghosal A et al[10], the involvement of fingernail was reported in 88.88% of cases and pitting (90%) was the most common fingernail change observed. In the present study,

involvement of fingernail was observed in 76.8% of cases and pitting (30.4%) was the most common change observed.

5. CONCLUSION

Nails, in spite of being easily accessible for examination, are often overlooked. A variety of nail changes occur in various dermatological conditions and may be helpful in achieving a diagnosis. A variety of nail changes can occur in various dermatological, systemic and other conditions. The nail unit is capable of only a limited number of reaction patterns; therefore, many diseases share similar changes, but correlation of the nail changes helps dermatologist to reach conclusive diagnosis. Nails remain an under studied and yet quiet accessible structure that lends itself for examination and evaluation. Hence truly said that nails are the windows through which one can look into the health of the patient.

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