

PREVALENCE OF NAIL CHANGES IN PATIENTS ATTENDING DERMATOLOGY OUTPATIENTS AT MAHATMA GANDHI HOSPITAL, JAIPUR: A CROSS SECTIONAL OBSERVATIONAL STUDYManisha Nijhawan¹, Shifa Yadav², Puneet Aggarwal³, Dinesh Mathur⁴**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: Evolutionarily, as man developed and manual dexterity increased, nail became an important appendage of the human anatomy. As civilization progressed and social interactions grew, nails, like hair, have also become objects of attention and adornment. However, nail cosmetology as it is evolving today is a fairly recent development. We observed nails of all outpatient attendees at one clinic in Dermatology department, Mahatma Gandhi Hospital, Jaipur over a period of one week in October 2013.

KEYWORDS: Nail changes, cross sectional study.

INTRODUCTION: Nails constitute an important ectodermal structure. As they are quite amenable to observation, inspecting nails can be quite helpful in diagnosing various conditions. Some changes are however seen in normal population and should be differentiated from pathological changes. The latter can be helpful in reaching diagnoses in few cases.

The long and shapely nails depicted in early Chinese art speak of the relative importance people gave to nail care in ancient times.¹

Nail care cosmetology has become a billion rupee industry, and nail care medicine and surgery a physician's pursuit. Billions of dollars are spent on nail 'services' globally every year.²The extent of sales of nail care products in 2002 was 6.7 billion dollar in U.S.A alone.³

The chief function of nail in man is that of protection.⁴ It protects the terminal phalanx and the fingertip and gives deftness and precision in picking up small objects. the nail also serves to augment the sensation of touch. Nails are of course most useful for what perhaps they were intended for scratching, that is!

METHOD AND MATERIAL: During the period of one week in October 2013, patients of all age group attending our clinic were recruited from outpatient clinics at Mahatma Gandhi Medical college and hospital, Department of Dermatology, Jaipur Rajasthan. It was a cross sectional observational study.

CLINICAL EXAMINATIONS: Experienced dermatologist performed the clinical observations. The following parameters were registered: Age, sex, occupation, medications, allergies and associated illness were noted while nails were examined for any changes. Total 200 patients were examined.

RESULTS: 200 patients were questioned and examined. The ages ranged from 4-72 years. The age and sex distribution was as follows:

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Age range	Number of patients	No. of males	No. of females
<10 years	13	10	3
10-25 years	114	68	46
25-50 years	56	44	12
>50 years	17	12	5

Table 1: Showing age and sex distribution of the patients (n=200)

The nails of all children aged less than 10 years did not show any changes. The children attended OPD due to various skin conditions including bullous impetigo, scabies, tinea capitis, urticarial and papular urticaria.

Results for rest of the age ranges are tabulated below:

68 males					46 females		
41 students	10 office workers	13 farmers	3 laborers	1 milkman	30 students	9 housewives	7 farmers

Table 2: Age range 10-25 years

41 students	10 office workers	13 farmers	3 laborers	1 milkman
10 – vertical ridges 3 – rough nails	5 – vertical ridges 1- longitudinal melanonychia	7 – rough toe nails 5 – longitudinal melanonychia	2 – rough toe nails 2 – post traumatic toe nail dystrophy	No abnormality

Table 2a: Nail changes found in the males in above age range were as follows

30 students	9 house wives	7 farmers
7 – vertical ridges 1 – longitudinal melanonychia 1 – subungual hyperkeratosis and pitting 1 – onychomycosis	3 – paronychia 2 – dystrophic toe nails 1 – onychomycosis 1 - onychoschizia	5 – dystrophic toe nails 2 – rough toe nails

Table 2b: Nail changes found in females in the age range 10-25 years were as follows

44 males			12 females	
31 farmers	11 office workers	2 laborers	11 housewives	1 office worker

Table 3: Age range 25-50 years

31 farmers	11 office workers	2 laborers
19 – vertical ridges 4 – longitudinal melanonychia 1 – onychomycosis 1 – pitting	1 – vertical ridges	1 – rough toe nails 1 – post traumatic dystrophy one toe nail

Table 3a: Nail changes found in the males in above age range were as follows

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11 housewives	1 office worker
3 - onychomycosis 2 - paronychia 1 - rough toe nails 2 - vertical ridges	No abnormality found

Table 3b: Nail changes found in females in the age range 25-50 years were as follows

12 males		5 females
2 retired professionals	10 farmers	5 housewives (4 vertical ridges)

Table 4: Age range >50 years

2 retired professionals	10 farmers
2 - vertical ridges 1 - longitudinal melanonychia	7 - dystrophic toe nails 2 - longitudinal melanonychia 6 - vertical ridges

Table 4a: Nail changes found in the males in above age range were as follows

DISCUSSION: Nail changes are quite common in general population and many can be considered normal age related variants. Cribier B et al showed in their study; 35.6% of the population had or gave a history of nail changes.⁵

In our observation, 67% of our attendees were males while 33% were females. This pattern was seen throughout the age ranges.

Children less than 10 years constituted a small group and nail examination did not show any abnormality. Alejandra Iglesias et al performed a study on Prevalence and Nature of Nail Alterations in pediatric patients and showed that the rate of nail alterations was 11% (1/9) in pediatric dermatology patients. There were 5 infants, 19 preschoolers (2- to 5-year-olds), 38 school children (6- to 11-year-olds), and 38 adolescents (12- to 17-year-olds).

The most frequent diagnoses were onychomycosis, nail alterations in a genodermatosis, nail alterations associated with dermatoses, onychocryptosis, and paronychia. Toenails were involved in 54 patients, fingernails in 25, and both in 21 patients. Twenty nails were involved in 21 patients. A high prevalence of nail alterations was found in pediatric dermatology patients, some of which were nonspecific, while others provided important diagnostic clues.⁶

In our study, most patients (57%) were in age range 10-25 years. This is likely secondary to adolescents constituting a large group attending dermatology department or some nutritional deficiency during growing phase.

Vertical ridges were seen quite commonly. Almost a quarter of the students in the age range 10-25 years showed vertical ridges. Interestingly half of those in age range 25-50 years and above 50 years showed these. The ridges were more pronounced in the aged population. The ridges are apparently a normal observation as age advances. These should however be differentiated from pathological changes like onychorrhexis.

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Longitudinal melanonychia was seen in 7% of the population. No associated causative drug history was evident. Presence of multiple light brown bands was consistent with racial nail pigmentation. Black people commonly have pigmented nails.⁷

Rough nails, like sandpaper, were seen in 8% of the population. These were more pronounced in toe nails, and usually affected a few nails. Cause of this is not known, however laborers and farmers seem to develop these more often. Fisher et al conducted a study on occupational nail disorders and they found out that certain traumatic occupations that involve repetitive trauma to the nails may produce such severe psoriasis or lichen planus changes in the nails, that the nails are practically destroyed.

Exposure of the nails to certain chemicals with a resulting allergic reaction may produce severe destruction and even permanent loss of the nails. This has been shown to be due particularly to an allergic reaction to methyl methacrylate used in sculptured nails. Such allergic reactions may be accompanied by persistent paresthesia of the fingers. Nail "hardeners" such as formaldehyde may produce severe onychia and paronychia.

Subungual keratoacanthomas a very painful condition that may require extensive surgery of the distal phalanx may be associated with foreign body injuries such as steel wool particles.⁸

Housewives constituted the major group showing paronychia and onychomycosis. This may be due to the fact that this group has more frequent and prolonged water contact with their hands and this may facilitate fungal and yeast growth.

A British study on prevalence of onychomycosis has shown a prevalence of 3%⁹ and a Finnish study an even a higher prevalence of 8%.¹⁰ Studies on selected populations have shown a higher prevalence of onychomycosis in the elderly,⁹ in psoriatics,¹¹ diabetics,¹² swimmers¹³ and immunocompromised patients.¹⁴

Psoriatic nail changes and post traumatic dystrophy were evident in around 1% of the population studied.

CONCLUSION: Nail changes are therefore quite common in general population and normal variants need differentiating from diseases, to avoid unnecessary investigations and treatment.

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