

Nail Disorders and Nail Changes in Geriatric Age Group, A Clinical Study

Dr.Asmeen Chawla¹,Dr.Kishor Singh²,Dr.Shivanu Mathon³,
Dr.Prabhleen Grewal⁴

¹(National Institute of Medical Science and Research)

²(National Institute of Medical Science and Research)

³(National Institute of Medical Science and Research)

⁴(National Institute of Medical Science and Research)

Abstract:

Background: The basic function of nail is protection. Loss or damage to the hoof, claw and nail may result in significant disability in animals. In human beings healthy nails are important from social and cosmetological point of view. Nails are also of ornamental value. Nail disorders include those abnormalities that may affect any portion of nail unit. Nail disorders accounts for approximately 10% of all dermatological conditions and affects higher percentage in the geriatric population.

Materials and Methods: A study on the nail changes due to ageing as well as various dermatological and systemic diseases was undertaken at a Tertiary Care Hospital in Jaipur. 100 patients aged more than 60 years were studied for a period of 18 months. Among 100 patients, 71% were male and 29% were female. The majority of the patients (80%) were in the age group of 61-70 years. The first and the fifth digits were more frequently involved and the toe nail involvement was more common than the finger nails

Results: Onychorrhexis was found to be the commonest nail change 97% cases followed by altered contour in 95% cases. Lunula was absent either in the fingernails or in the toenails in 93% patients. Ragged appearance of the cuticle of the digits was present in 88 patients. Ragged nail fold were associated with anemia 35%, psoriasis 2% and palmoplantar keratoderma 1%. History of slow of nail growth rate was present 87% of total cases. Dull/dark opaque nails were seen in 91 cases. Onycholysis was seen in 68 patients, pitting was present in 24 patients, Beau's lines were seen in 23 patients and clubbing was present in 17 patients.

Conclusion: Onychorrhexis was the commonest nail change observed in 97% of patients, which is a characteristic senile nail change. Many of these nail changes had associated systemic diseases like anemia, pulmonary diseases, cardiac dysfunction, diabetes mellitus, malnutrition, internal malignancy etc.

Keywords : Onychorrhexis; Onycholysis; Beau's lines.

AIM

To study the nail changes due to various dermatologic or systemic disorders in the geriatric age group as well as normal ageing process

Date of Submission: 02-07-2022

Date of Acceptance: 14-07-2022

I. Introduction

Nails are the most fascinating, functionally as well as cosmetically important component of skin. Basic function of nail is protection. In case of animals it is more important for their survival. Loss or damage to the hoof, claw and nail may result in significant disability. This function is still partly preserved in humans. But in case of humans healthy nails are important for cosmetic and social point of view. Healthy and good looking nails also reflect good general health, nutritional status, racial background as well as age of an individual. Nail diseases constitute around 10% of all dermatological diseases and increases with increasing age^{1,2}. Certain morphological changes may indicate systemic diseases, dermatological disorders, occupation related health problems etc. They are also of ornamental value. These morphological changes at times may be specific or nonspecific for a particular disease. The prevention and management of these conditions require periodic and appropriate nail care. Unfortunately it is difficult for the elderly because of difficulty in assessing the feet, poor vision, dependency on the others and lack of motivation for personal care³. The nail changes in elderly occurs basically due to reduced oxygenation and nutrition to the nail matrix which is composed of rapidly dividing cells. The UV radiation may also play role to induce nail changes despite nail plate being an efficient sunscreen⁴. With increase in life expectancy, chronic disorders like diabetes mellitus, hypertension, atherosclerosis and malnutrition there is an increase risk of nail changes in this population.

II. Material And Method

The study was carried out in department of dermatology, venereology and leprosy, at Tertiary Care Hospital, Jaipur.

Study Design :Observational Study

Study Location: This was a tertiary care hospital in Department of Dermatology, Venerolgy nad Leprosy Jaipur

Study Duration: 18 months

Sample size:100 patients

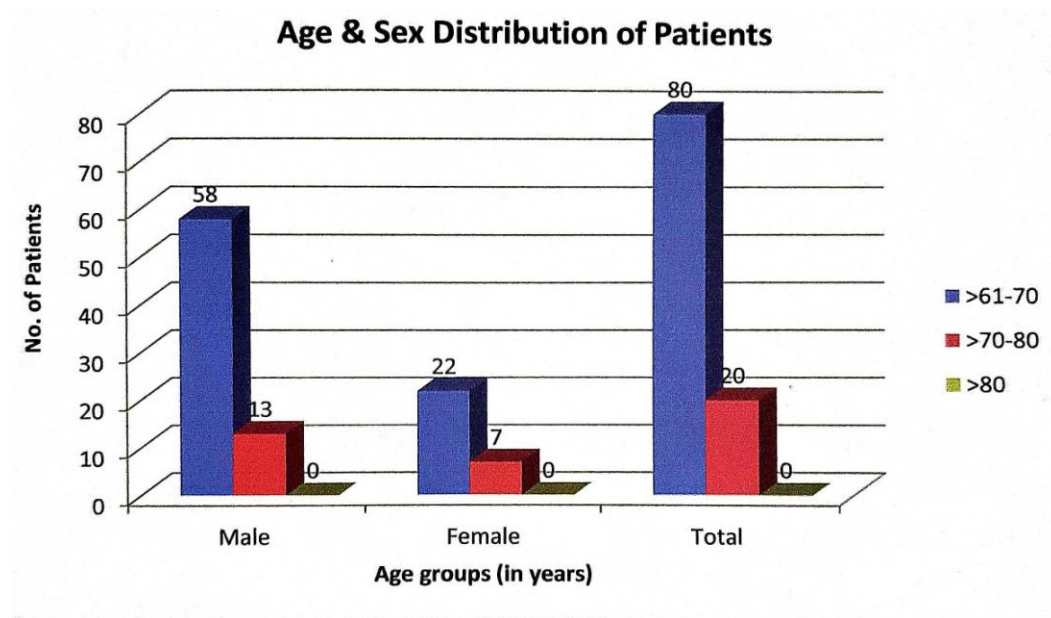
Inclusion Criteria:Patients aged more than 60 years, of both sexes, with nail changes were included in the study

Exclusion Criteria: Patients with nail changes due to genodermatoses and other congenital disorders and unwilling patients were excluded.

Procedure methodology:A detailed history was elicited to detect the onset, duration and progress of the nail changes, their occupational and environmental exposure, precipitating and aggravating factor like cosmetics, medications, trauma.Others factors like cutaneous or systemic disorders mental and physical stress. Investigation like KOH mount examination of the nail clippings, nail biopsy, complete hemogram, urine analysis and other investigation needed were carried out.

III. Observation And Results

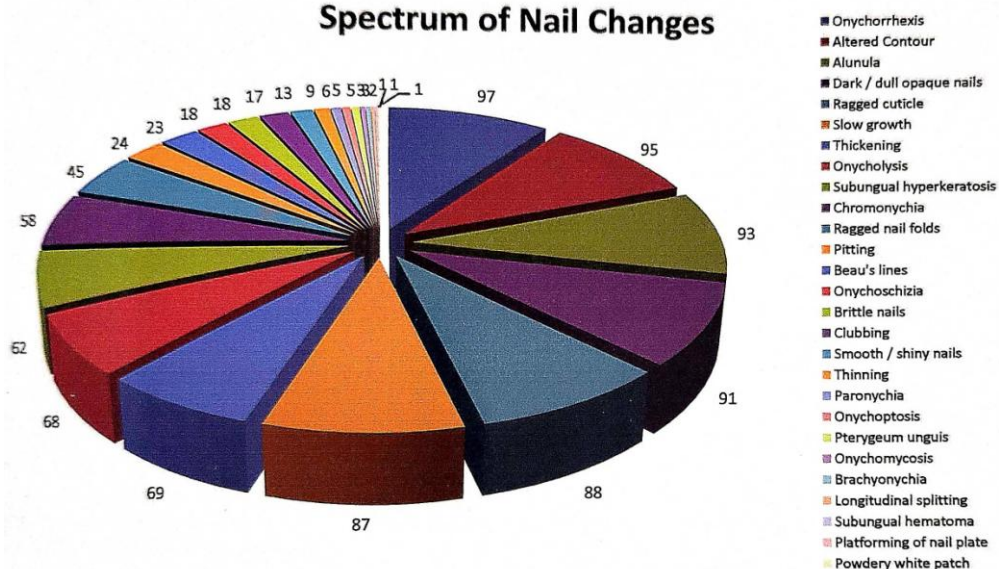
Among 100 patients, 71 (71%) were male and 29 (29%) were female, with a male to female ratio of 2.45:1. The age range of the patients was 61-80 years. Mean age was 67.37 years. The commonest nail changes were onychorrhexis (97%), followed by altered contour (95%) , lunula (93%), dark opaque nails (91%), ragged cuticle (88%), slowing of nail growth rate (87%), thickened nail plate (69%), onycholysis (18%), subungual hyperkeratosis (62%), chromonychia(58 %), ragged nail folds (45%), pitting, beau's lines (23%), onychoschizia (18%), brittle nails(18%), clubbing (17%) smooth shiny nails (13%), thinning of nail plate (9%), paronychia (6%) , onychoptosis (5%), pterygium unguis(5%), onychomycosis (3%), brachyonchia (3%), longitudinal splitting(2%), subungual hematoma, platforming of nail plate and powdery white patch on the nail.

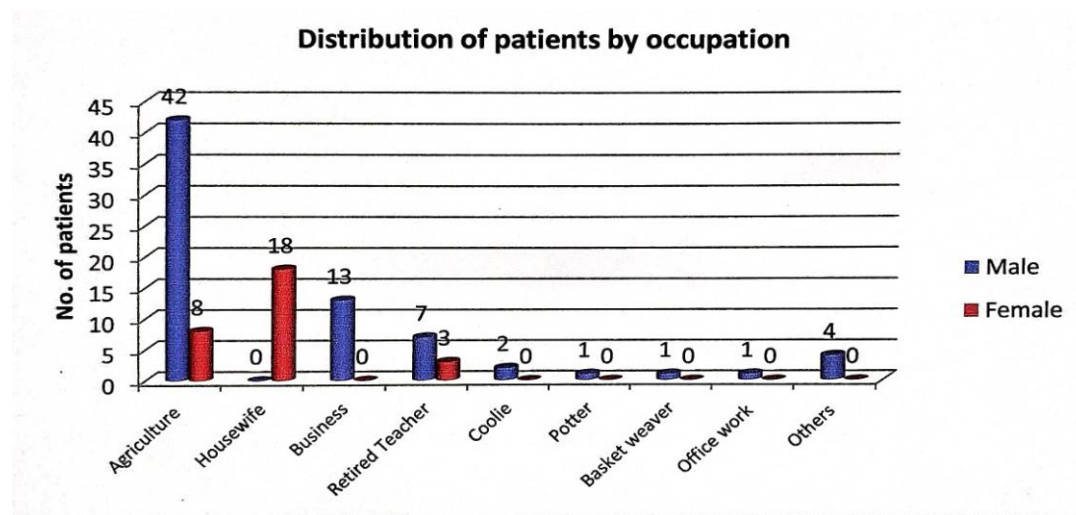


Spectrum of Nail Changes

S. No.	Nail Change	No. of Patients						Total no. of cases (M+F)
		Hands	Feet	Total (any digit)	Hand	Feet	Total (any digit)	
1.	Onychorrhexis	64	68	69	28	29	28	97
2.	Altered contour	45	62	68	17	25	27	95
3.	Alunula	31	61	65	15	27	28	93
4.	Dark/dull opaque nails	53	62	64	21	27	27	91
5.	Ragged cuticle	43	64	64	21	24	24	88
6.	Slow growth	32	62	62	13	25	25	87
7.	Thickening	13	51	51	04	18	18	69
8.	Onycholysis	24	39	47	08	21	21	68
9.	Subungual hyperkeratosis	18	41	46	06	15	16	62
10.	Ragged nailfold	22	26	40	11	11	18	58
11.	Ragged nailfold	10	20	35	03	05	10	45
12.	Pitting	16	00	16	08	00	08	24
13.	Beau's lines	04	14	17	02	05	06	23
14.	Onychoschizia	06	13	15	00	03	03	18
15.	Brittle nails	06	13	15	00	03	03	18
16.	Clubbing	-	-	11	-	-	06	17
17.	Shiny nails	06	02	08	05	00	03	13
18.	Thinning	04	06	06	02	030	03	09
19.	Paronychia	02	00	02	04	02	04	06
20.	Pterygium unguis	02	01	03	01	01	02	05
21.	Onychoptosis	01	03	04	01	00	01	05
22.	Onychomyosis	00	02	02	00	01	01	03
23.	Brachyonychia	02	01	03	00	00	00	03
24.	Longitudinal	01	01	02	00	00	00	02
25.	Subungual hematoma	00	00	00	01	00	01	01
26.	Plicated nail	01	01	01	00	00	00	01
27.	Powdery White patches	00	00	00	00	01	01	01

Spectrum of Nail Changes





IV. Discussion

One hundred patients aged more than 60 years attending Opd and ward at Tertiary Care Hospital in Jaipur for a period of 18 months were included. 60 years was taken as the cut of age internationally for defining older population⁵. Among 100 patients, 71% were male and 29% were female. The male predominance in our study possibly reflect relatively high consultation sought by male patients in this age group for various illnesses. History of varying degree of the trauma was present in 73% patients. Trauma remains one of the most common etiological factors for nail changes in elderly. The first and fifth digits were most frequently involved⁶ and toe nails were more commonly affected than finger nails in the most of the cases⁷. In our study onychorrhexis (longitudinal ridging and beading) was the commonest nail change, observed in as many in as many as 97% of the patients⁸. Old age is the commonest cause of onychorrhexis as reported in various studies⁹. Altered contour was the next commonest change found in the 95 patients, of which 68 were males and 27 were females. Toe nails were more frequently affected. History of slowing of nail growth rate was present in 87% of total cases in age group of 61-80 years. Dark dull opaque nails were seen in high proportion 91% of cases, which is yet another important sign of senility of the nails¹⁰. Absence of lunula, was found in 93% of our patients¹¹. Terry nails were associated with systemic illness in 6 cases, namely type II diabetes mellitus (3 cases), pleural effusion with congestive heart failure (1 cases), stroke (1 case) and 1 patient of renal failure¹². However 7 more patients in our study had no apparent associated disorder. These cases had terry nails presumably due to ageing process. Onycholysis was present in 68 patients in our study out of which 47 were male and 21 were female. Onycholysis is found in association with many systemic and dermatological diseases. In our study anemia was present in 29 patients, psoriasis in 9 patients, palmoplantar keratoderma in 4 patients and leprosy in 1 patient¹³. The remaining patients had no obvious cause. In the study only 3 cases were found to be KOH positive. This implies that these changes may largely be part of ageing process. Nail pitting was seen in 24 patients, out of which 16 were males and 8 were females, 8 cases of psoriasis had thimble pitting, 4 cases had alopecia areata with geometrical pitting, 2 cases were having contact dermatitis with irregular pitting, 1 case was treated case of borderline lepromatous leprosy with other nail changes and 1 patient with associated paronychia also had pitting while the remaining 8 cases were probably due to ageing¹⁴. Beau's lines were noticed in 23 patients out of which 17 were males and 6 were females. Out of which 2 patients gave history of acute febrile illness in recent past, another 2 patients had chronic obstructive pulmonary disease, 1 was on chemotherapy for carcinoma breast, 1 had stroke, 1 had contact dermatitis, and one patient gave history of nail trauma to the involved digits. All these factors are known to cause Beau's lines¹⁵.

V. Conclusion

Onychorexis was the commonest nail change observed in 97% of patients, followed by altered contour (95%), lunula (93%), dark/dull opaque nails (91%), ragged cuticles (88%), slowing of nail growth(87%) , thickened nail plate(69%),onycholysis (68%) , subungual hyperkeratosis(62%), chromonychia (58%) , ragged nail fold (45%) , pitting (24%) , beau's lines (23%), onychoschizia (18%), brittle nails (18%), clubbing (17%), thinning of nail plate (9%) , smooth shiny nails (7%), paronychia (6%), onychoptosis (5%), pterygium unguis(5%), onychomycosis (3%), brachyonychia (3%), longitudinal splitting (2%), subungual hematoma (1%), platforming of nail plate (1%), and powdery white patch (1%).

The nail changes may indicates underlying systemic diseaseslike anemia, pulmonary disease, cardiac dysfunction, diabetes mellitus, malnutrition, internal malignancies or dermatological disorders likepsoriasis,

lichen planus, alopecia areata, paronychia, palmoplantarkeratoderma, eczema and leprosy, occupation related dermatoses etc.

The present study re-emphasize on the careful examination of the nails specially in the elderly for the early detection of the dermatological as well as underlying systemic illness as well as dermatological disorders.

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Dr.Asmeen Chawla, et. al. "Nail Disorders and Nail Changes in Geriatric Age Group, A Clinical Study." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(07), 2022, pp. 35-39.