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A Study of Clinical Pattern of Nail Changes in Patients who attended DVL OPD at Tertiary Care Centre

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Abstract
Introduction: *Nails can be called the index of inner health as they show specific changes that are markers for a wide range of systemic & dermatological disorders. The nail changes can be broadly classified as congenital, acquired (infective & non infective), traumatic and miscellaneous.*
Aims and Objectives: *To study the clinical patterns of nail changes and to correlate with the underlying diseases involved.*
Materials & Methods: *A retrospective study was conducted to determine the various nail changes of DVL OPD patients in Tertiary care hospital from January 2013 to December 2016. Study tools-Records & clinical photographs.*
Statistical analysis – *Percentages.*
Results: *Out of 55 cases studied, male to female ratio was 2:3 and nail changes were seen common in 3rd & 4th decade with maximum distal nail involvement. The commonest type is the Acquired infective type with Onychomycosis (36%) as the main cause. The acquired non infective type has Psoriasis (16%) as the commonest. The other causes of nail changes accounted in study were Congenital (11%), Traumatic (6%), Drugs induced(6%), Malignancy(2%), Renal failure(3%), Nutritional deficiency(3%) and Idiopathic(3%).*
Conclusion: *No cutaneous examination is complete without a careful evaluation of the nails. The study was conducted to categorise nail changes but long term descriptive study is needed to know the specific pattern of nail changes associated with dermatological and systemic conditions.*
Keywords: *Nails, Onychomycosis, Psoriasis.*

Introduction

With evolution, nails have become an important appendage of the body. A pink and lustrous nails has always been equated with good health. Anatomically, nail consists of root, the nail plate & the soft tissues underneath it.[1] The functions of nails are Protection, Sensory perception, Manual dexterity, Scratching and Cosmetic/ Beauty purpose. The nail unit may show specific changes that are markers for a wide range of Dermatological & Systemic disorders.[1] The nails remain an understudied, underutilized and yet quite accessible structure that lends itself so easily for examination and evaluation.[1] Nail changes can be broadly categorized as Hereditary/Congenital, Acquired (infective or non infective), Traumatic & Miscellaneous. Hereditary/Congenital types of nail changes are seen in Ectodermal Dysplasia, Epidermolysis Bullosa, Pachyonychia Congenita, Nail Patella Syndrome & Congenital

Malalignment of the Hallux. Non infectious type of nail changes are seen in Psoriasis (the commonest) in which pitting, oil drop sign and salmon patch sign are the common manifestations and in Lichen planus we see features like pterygium nail, longitudinal ridging and onycholysis. Infectious causes of nail changes are Fungal, Bacterial and Viral. Some other causes of Non infectious types are Drug induced, Ageing, Nutritional related and Nail tumors.

Aims and Objectives

To study the clinical patterns of nail changes and to correlate with the underlying disease involved, To correlate the clinical patterns of nail changes with dermatological diseases in the patients who had attended DVL OPD & To evaluate and classify the nail changes into Congenital, Acquired (Infective & Non infective) and Traumatic & Miscellaneous.

Materials & Methods

A Retrospective Study was conducted on patients who had attended DVL OPD at Bharati Vidyapeeth (Deemed to be University) Medical College and Hospital, Sangli from January 2013 to December 2016 were enrolled, studied and analyzed with the help of Clinical record book and the Clinical photographs. Statistical analysis was done with percentages.

Observations & Results

The Study group consisted of 55 patients, out of which total males were 25 (45.45%) and total females were 30 (54.54%). The maximum age group involved is 31 to 45 years of age while the commonest part of nail involved are the distal nail (45.45%). Congenital nail changes accounted for 10% and Acquired infective nail disorders accounted for 41.45%. Acquired non infective nail disorders accounted for 36.52%. Traumatic nail changes were 5.45 %and miscellaneous accounted for 5.45%.

Table 1: Gender wise Distribution Of Nail Changes

GENDER	NUMBER OF PATIENTS	PERCENTAGES
MALES	25	45.45%
FEMALES	30	54.54%
TOTAL	55	100%

Table 1 shows that out of the total 55 cases studied, females outnumbered males in a ratio of 3:2.5. This may be due to the occupation or involvement of woman in more frequent contact with water that facilitates nail infection and trauma to the nails.

Table 2: Incidence of Nail Changes amongst Different Age Groups (n=55)

AGE GROUPS	Number of patients with nail changes F PATIENTS WITH NAIL CHANGES
1 — 14 YEARS	5
15 — 30 YEARS	9
31— 45 YEARS	30
46 — 60 YEARS	6
> 60 YEARS	5
TOTAL	55

Table 2 shows that the most common age group in our study falls in 31 to 45 years (middle age group) with 30 patients out of the 55 cases studied.

Table 3: Incidence of Congenital Nail Changes (n= 6)

ETIOLOGY	NUMBER OF PATIENTS	PERCENTAGES
Twenty Nail Dystrophy	2	3%
- Congenital Clubbing	1	2%
- Racquet Nails	2	3%
- Half and Half Nails	1	2%
TOTAL	6	10%

Table 3 shows that congenital nail changes seen are Twenty nail dystrophy (3%), Congenital clubbing (2%), Racquet nails (3%) & Half & Half nails (2%)

Fig 2: Twenty dystrophic nails

Fig 1: Congenital clubbing

Fig 3: Racquet nails

Fig 4 : Half & Half nails in two siblings with EBS

Table 4: Incidence of Acquired - Infective Nail Disorders (n=23)

ETIOLOGY	PATIENTS	PERCENTAGES
ONYCHOMYCOSIS	20	36%
PARONYCHIA	3	5.45%
TOTAL	23	41.45%

Table 4 shows that onychomycosis comprises 36% of all the infective nail changes while paronychia comprises 5.45%.Out of the total 55 cases maximum had infected nails with fungal infection (onychomycosis) being the main cause. This is probably due to frequent exposure of nails as they being located at the easily accessible distal areas of our body.

Fig 6: Onychomycosis (finger nail)

Fig 7: Paronychia with abscess

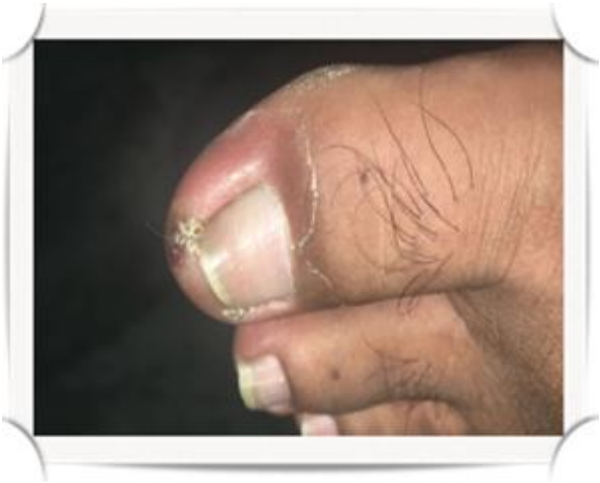

Fig 8: Paronychia with in growing toe nail

Table 4: Incidence Ofacquired non Infective Nail Disorders (n=20)

ETIOLOGY	NO. OF PATIENTS	PERCENTAGES
1. PSORIASIS	9	16.36%
2.LICHEN	2	5.45%
3. ALOPECIA AREATA	1	2%
3. CRF	2	3.63%
4. CHRONIC DISEASE (PEMPHIGUS)	1	2%
4. DRUG INDUCED	3	5.45%
5. INGROWING TOE NAIL	1	2%
6.IRON DEFICIENCY — KOILONYCHIA	1	2%
TOTAL	2	38.89%

Table 4 shows that psoriasis is the most common non infective cause followed by Lichen planus, CRF, Drug induced etc. In psoriasis, typical nail changes seen are oil drop sign & pitting. Oil drop sign (Fig: 9) is due to deposition of yellowish, greasy friable keratin under the nail plate as a result of parakeratosis of the hyponychium. Nail Pitting (Fig:10) in Psoriasis are irregular shaped pits that are arranged randomly due to rapid proliferation of cells that are easily cast off from the surface of nail plate. In Lichen planus we see Pterygium of nails (Fig: 11) i.e., diffuse longitudinal ridging of nails.

Fig 9: Oil drop sign with psoriatic plaque in Psoriasis

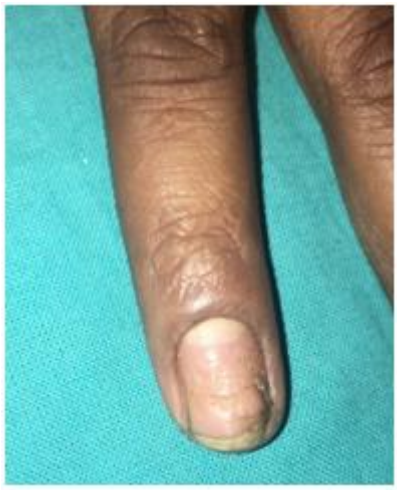

Fig 10: Nail Pitting in Psoriasis

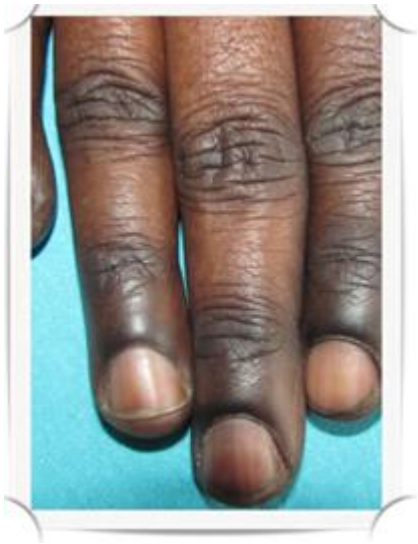

Fig 11: Zidovudine induced melanonychia

Fig 12: Pterygium in a case of Lichen Planus

Fig 13: Half and half nails in Erythroderma

Fig 14: Nail discoloration in a case of Pemphigus on cyclophosphamide

Fig 15: Half & half nails in CRF

Fig 16: Pitted nails in a case of Alopecia Areata

Fig 17: Spoon shaped nails (Koilonychia)

Other nail changes are trauma induced, beau's line, terry's nail and leuconychia. Trauma induced nail changes are mostly in the form of subungual haematoma (Fig.18) seen as a dark brown or blackish discoloration of nail. Beau's nails (Fig.19) are deep grooved lines running side to side on the finger nails or toe nails and are seen in a variety of chronic disease. Terry's nail (Fig.21) are usually seen in chronic liver disease that is characterized by a pale proximal part of nail with a pink or brown distal part. Leuconychia also known as white nails or milk spots characterized by white discoloration of the nails mostly due to trauma or nutritional deficiencies.

Fig 18: Nail changes due to Habit tic

Fig 19: Traumatic nail

Fig 20: Beau's line in a case of chronic Eczema

Fig 21: Terry's nail in Cirrhosis of liver

Table 6: Nail Changes According to parts Involved

PARTS OF NAIL INVOLVED	NUMBER OF PATIENTS	PERCENTAGES
PROXIMAL	3	5.45%
DISTAL	25	45.45%
LATERAL	4	7.3%
NAIL BED	2	3.63%
WHOLE NAIL	21	32.72%

Table 6 shows that of all the 55 cases of nail changes studied the distal part of nail has the maximum involvement of 45.45%

Table 8 : Incidence of Nail Changes in Dermatological Diseases

DERMATOLOGICAL DISEASE INVOLVED	NUMBER OF PATIENTS WITH NAIL CHANGES
1.ONYCHOMYCOSIS	20
2. PSORIASIS	9
3.LICHEN PLANUS	2
4. PARONYCHIA	3
5. EPIDERMOLYSIS BULLOSA SIMPLEX	1
6. INGROWING TOE NAIL	1
7. ECZEMA	1
8. ALOPECIA AREATA	1
9. ERYTHRODERMA	1
10. PEMPHIGUS	1
TOTAL	40

Table 8 shows that 40 of the total 55 cases studied were nail changes with dermatological diseases. The most common changes seen in fungal infection of nails (Onychomycosis) with 20 patients out of the total 55 followed by psoriatic nail changes accounting 9 cases of the total 55.

Discussion

Nail changes can be seen in a wide range of dermatological and systemic diseases. Few studies have been conducted so far. Nails are the window and a clue to many deseases underlying the body even when the patients have no systemic complaints and so is an important tool for us clinicians to come to a proper diagnosis and not to miss any important other comorbities of our patients. Karim ATMR et al did a similar study on nail changes in 2015 at Bangladesh.

Our study can be compared with the similar study done by Karim ATMR et al. The common age group in our study was 30 to 45 years of age while in their study it was 21 to 40 years of age. Male to female ratio in our study was 2.5:3 while it was 2:3 in their study. Both the studies have the common infective cause of nail changes as due to Onychomycosis and commonest non infective nail changes as due to Psoriasis. In our study the common part of nail involved was distal nail while in their study it was lateral distal parts of nails.

Conclusion

In our study it was concluded that nail disorders are more common in females. The ratio of male: female is 2.5:3. Age groups of 30 to 40 presented with the maximum nail changes. Distal nail involvement is the most common presentation. Acquired Infective type of nail disorder are the most common (41%) with Onychomycosis accounting for 36% followed by paronychia with 5.45%. Acquired non infective type accounted for 36% in my cases studied with Psoriasis being the most commonest with 16.36%. Congenital nail changes accounted 10% of all the cases studied. With our study, we were able to relate the clinical pattern of nail changes with the underlying dermatological & systemic diseases though a long term descriptive study is required for thorough examination and understanding.

Conflict of interest: None

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