

A clinico-epidemiological study of nail changes in various dermatoses

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Abstract:

Introduction: "Face is the mirror of the mind", likewise nails are a reflection of both internal and external disease. The worldwide incidence of nail disorders is increasing and it continues to persist.

Aims and Objectives: To study the prevalence of nail disorders among patients visiting DVL OPD at a tertiary care hospital over a period of six months.

Materials and Methods: A total of 200 patients with nail changes of both sexes and all ages, irrespective of their presenting symptoms, were included in the study. Nail abnormalities were noted including nail plate surface, color, shape and nail fold abnormalities. Specific investigations like KOH mount fungal cultures of nail clippings, skin and nail biopsy were carried out wherever necessary.

Results: On the whole, infections were found to be the most common dermatoses affecting nails. Paronychia, both acute and chronic, was found in 34% patients while Onychomycosis was seen in 27%.

Conclusion: No cutaneous examination is complete without a careful evaluation of the nails. Keeping the nails clean, dry & trimmed is essential to maintain hygiene and prevent infections. In this era of well-developed cosmetology world, nail becomes an area of aesthetic concern and needs further studies for preventive measures.

Key Words: nail biopsy, nail disorders, onychomycosis, paronychia.

I. Introduction

"Face is the mirror of the mind"; likewise nails are a reflection of both internal and external disease. Functions of nail are to assist in picking up small objects, to protect the distal digit, to improve fine touch sensation and to enhance aesthetic appearance of hands. Nail disorders comprise 10% of all dermatological conditions. The accurate recognition and description of nail findings is the crucial first step in diagnosing a nail disorder. The worldwide incidence of nail disorders is increasing and it continues to spread and persist.

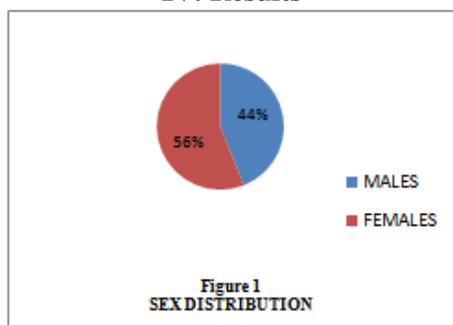
II. Aims And Objectives

To study the prevalence of nail disorders among patients visiting DVL OPD at a tertiary care hospital.

III. Materials And Methods

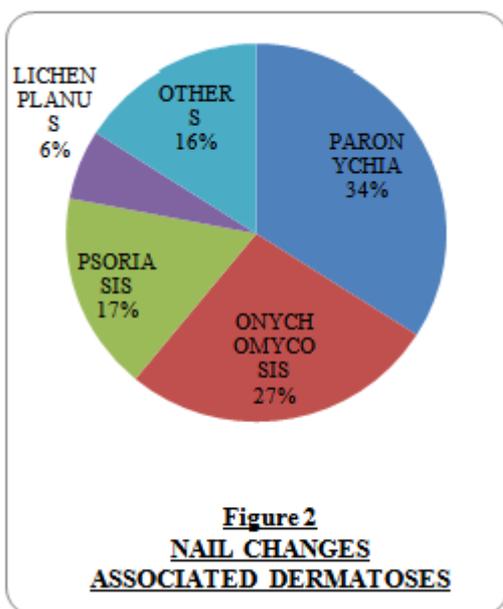
A total of 200 patients with nail changes of both sexes and all ages, irrespective of their presenting symptoms, were included in the study. Detailed history was taken and thorough cutaneous examination done. Nail abnormalities were noted including nail plate surface, color, shape and nail fold abnormalities. Routine investigations were done in all. Specific investigations like KOH mount, fungal cultures of nail clippings, skin and nail biopsy were carried out wherever necessary.

IV. Results



Age	No. of patients	Percentage
< 20 years	48	24%
21 to 40 years	80	40%
41 to 60 years	52	26%
61 to 80 years	20	10%

	Number	Percentage
Housewife	82	41
Students	44	22
Labourers/ Farmers	40	20
Service / Business	34	17
Total	200	100



Drug induced changes	5 %
Ichthyosis	4 %
Periungual warts	2 %
Epidermolysis bullosa	2 %
Bullous disorders	2 %
Traumatic changes	1 %



Figure 3: paronychia

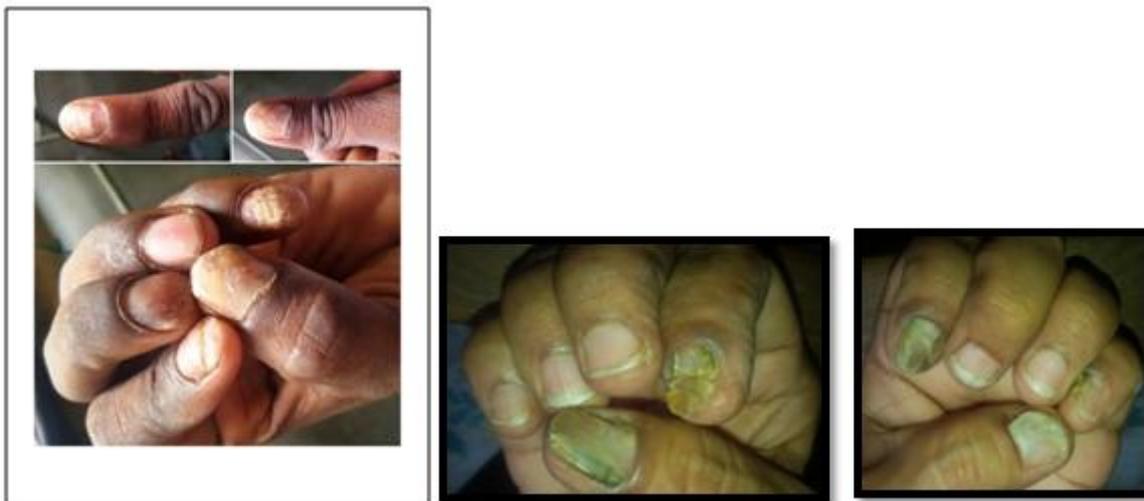


Figure 4: Onychomycosis



Figure 5: Psoriasis (with pitting)

Table 4: nail changes in 34 patients of psoriasis		
Nail changes	No. Of cases	Percentage
Pitting	30	88%
Subungual hyperkeratosis	10	29.4%
Onycholysis	21	61%
Discoloration	17	50%
Longitudinal ridging	25	73.5%
Beau's lines	15	44%



Figure 6: Lichen planus patient with pterygium in 3 nails

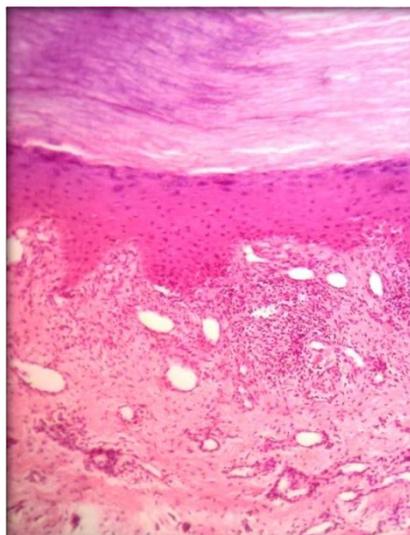


Figure 7: Nail changes without cutaneous manifestations. **Figure 8:** nail matrix biopsy of same patient



Figure 9: Twenty nail dystrophy



Figure 10: pemphigus vulgaris with paronychia and onychomadesis

V. Discussion

Nail disorders are seen in various dermatoses like fungal infection, psoriasis, lichen planus, vesicobullous and collagen vascular disorders. In our study, infections were found to be the most common condition affecting nails. Paronychia (both acute and chronic) (Fig. 3) was found to be the most common among them (34%). Most of the patients were females (56%) (Fig. 1) and were house wives by occupation (41%). This explains the increased presentation of paronychia patients in our study. It is regarded as a troublesome and intractable condition and source of considerable discomfort and annoyance to the patient. It can affect one or multiple digits. Any finger may be involved. The initial change starts with loss of cuticle due to overexposure to water, caustics and detergents and thus the nail fold is separated from the nail where a little pouch is formed. These abnormal interstices are very difficult to keep dry. It remains moist for a long period after wet work and the moist grooves are thus invaded by fungi and bacteria which produce chronic inflammation and characteristic swelling of the nail folds. It is often accompanied by pruritus, pain and nail changes. This chronic process may have acute flare ups. ^[3]

Onychomycosis (Fig. 4) was found to be the next most common dermatoses in our study (27%). It comprises all fungal infections affecting the nail apparatus, i.e., nail matrix, nail plate, cuticle, mesenchymal tissue and nail folds⁴. A brownish discoloration at the edge of the nail is the earliest sign when fungal infection reaches the nail plate from the nail bed. The nail bed may become thickened, cause subungual hyperkeratosis, thickening of the nail plate or onycholysis. Traumatic discoloration and separation of an already diseased nail may follow⁴. Diagnosis can be made on clinical appearance, direct microscopy of KOH mounts and culture of the fungus.

Psoriatic nail changes were found to be the third most common dermatoses in our study (17%). Nail involvement in psoriasis is common and can have a significant impact on quality of life. Nail psoriasis engenders both physical and psychological handicap, leading to significant negative repercussions in the quality of life.⁵ Cosmetic handicap in nail psoriasis is sometimes so extensive that the patients tend to hide their hands and/or feet or shy away from social and business interactions. Manifestations of nail changes in psoriasis include pitting, onycholysis, subungual hyperkeratosis and splinter haemorrhages⁵. Pitting is the commonest manifestation of nail psoriasis, as seen in our study (Fig. 5). Pits affect the fingernails more commonly than the toenails.⁶ They are superficial depressions in the nail plate that indicate abnormalities in the proximal nail matrix. Psoriasis affecting the proximal nail matrix disrupts the keratinization of its stratum corneum by parakeratotic cells.⁷ These cells are exposed as the nail grows and are sloughed off to form diffuse and coarse pits.⁷ The length of a pit is suggestive of the length of time, the matrix was affected by the psoriatic lesion and a deeper pit is suggestive of involvement of intermediate and ventral matrix along with the dorsal matrix. Pitting may be arranged in transverse or longitudinal rows or it may be disorganized.⁷

Lichen planus (LP) is defined as a sub acute, chronic dermatosis characterized by small, flat topped, shiny, polygonal violaceous papules that may coalesce in to plaques⁸. Specific nail changes are present in 10% of patients with Generalised LP⁹. An early change is bluish-red discoloration of the proximal nail fold. In advanced cases, there is focal or diffuse thinning, koilonychia, exaggerated longitudinal ridging, onychorrhexis, distal splitting (onychoschizia), pterygium formation (Fig 6) and proximal onycholysis. Fig. 7 shows a 19 year old male patient who present with nail changes without any cutaneous manifestations. We have carried out a nail matrix biopsy (Fig. 8) which showed characteristic features Lichen planus (basal cell degeneration and lymphocytic infiltrate).

Other nail changes included drug induced changes in 5%, ichthyosis associated changes in 4%, periungual warts in 2 %, bullous disorders in 2%, and traumatic changes in 1% of the patients in the study. Fig. 9 shows a 3 year old female child who presented with twenty nail dystrophy, also known as trachyonychia. It is characterized by a spectrum of nail plate abnormalities that lead to nail roughness. The dystrophy can either be idiopathic or e associated with a variety of inflammatory and other disorders like lichen planus, psoriasis, alopecia areata, ichthyosis vulgaris, eczema, vitiligo, primary biliary cirrhosis and IgA deficiency.

Nail changes also occur following use of certain drugs. In our study we have seen drug induced melanonychia following use of zidovudine and NSAIDs. Other drugs like beta blockers, ACE inhibitors, cancer chemotherapy, carbamazepine etc also induce nail changes¹¹.

Nail involvement can be present associated with bullous disorders like pemphigus, with paronychia and onychomadesis being the most common, as seen in our study (Fig. 10). Pitting, cross ridging, discoloration, trachyonychia, onychorrhexis, onycholysis, subungual hyperkeratosis, and complete destruction of nail plate are some of the other nail abnormalities reported in various studies¹⁰.

VI. Conclusion

No cutaneous examination is complete without a careful evaluation of the nails. Nails remain an understudied and yet quite accessible structure that lends itself for examination and evaluation. In our study, infections were found to be the most common condition. Keeping the nails clean, dry & trimmed is essential to maintain hygiene and prevent infections. In this era of well-developed cosmetology world, nail becomes an area of aesthetic concern and needs further studies for preventive measures.

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