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ORIGINAL RESEARCH

Analysis of onychomycosis cases in a study group- A clinical study

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ABSTRACT:)
Background: Onychomycosis is the most common nail infective disorder. The present study was conducted to analyze cases of onychomycosis (OM) in a study group. **Materials & Methods:** The present study was conducted on 136 cases of onychomycosis of both genders. In all patients, the site of nail involvement, the number of involved nails, the type of involvement, morphological changes, and also any associated dermatological disorder were reported. **Results:** Out of 136 patients, males were 60 and females were 76. Left hand was involved in 5, right hand in 13, left foot in 16, right foot in 8, both hands in 37, both feet in 25 and all hands and feet in 32. The difference was significant (P< 0.05). The types of onychomycosis was distal and lateral subungual onychomycosis in 92, total dystrophic onychomycosis in 11, both DLSO and TDO in 10, DLSO and White superficial onychomycosis in 15 and TDO and WSO in 8. Various nail changes were color change in 68, subungual hyperkeratosis in 27, distal onycholysis in 13, total nail plate dystrophy in 5, partial nail plate dystrophy in 6, nail plate thickening in 2 and nail plate thinning in 15. The difference was significant (P< 0.05). **Conclusion:** Onychomycosis was seen more commonly in females as compared to males. Distal and lateral subungual onychomycosis type was commonly seen in both hands and legs.

Key words: Onychomycosis, Nail, Subungual hyperkeratosis

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INTRODUCTION

The term onychomycosis (OM) is derived from the Greek word *onyx* meaning nail and mykes meaning fungus. It describes fungal infection of the nail caused by dermatophytes, yeasts, or non dermatophytic molds.[1] It constitutes 50% of all nail‑related diseases. Till the late 1990, OM was not in the limelight as an important health problem and is getting focussed only in the last decade. At present, the worldwide incidence of OM is increasing and the prevalence rate ranges from 2% to 50%.[2] Onychomycosis is the most common nail infective disorder, and it is responsible for about 50% of all consultations for nail disorders. Onychomycosis has been reported as a gender- and age-related disease, being more prevalent in males and increasing with age in both genders. In the elderly, onychomycosis may have an incidence >40%. Predisposing factors are diabetes mellitus, peripheral arterial disease, immunosuppression due to HIV or immunosuppressive agents.[3\] Fungi reach the nail through the hyponychium and invade the undersurface of the nail unit plate spreading proximally. Distal and lateral subungual onychomycosis (DLSO) usually affects one or both of the great toenails and is also usually associated with tinea pedis. The nail plate appears yellow-white, is detached due to onycholysis, with distal subungual hyperkeratosis.[4] Less frequently, a brown, black or orange discoloration of the onycholytic nail can be seen. A possible presentation of DLSO due to dermatophytes is dermatophytoma, a subungual accumulation of hyphae and scales, scarcely reached by antifungals, which require excision of the area and systemic treatment.[5] The present study was conducted to analyze cases of onychomycosis (OM) in study group.

MATERIALS & METHODS

The present study was conducted in the department of Dermatology. It comprised of 136 cases of onychomycosis of both genders. All were informed regarding the study and written

consent was obtained. Ethical clearance was obtained prior to the study. Information such as name, age, gender etc. was recorded. In all patients, the site of nail involvement, the number of involved nails, the type of involvement, morphological changes, and also any associated dermatological disorder were reported. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I shows that out of 136 patients, males were 60 and females were 76.

Table I Distribution of patients

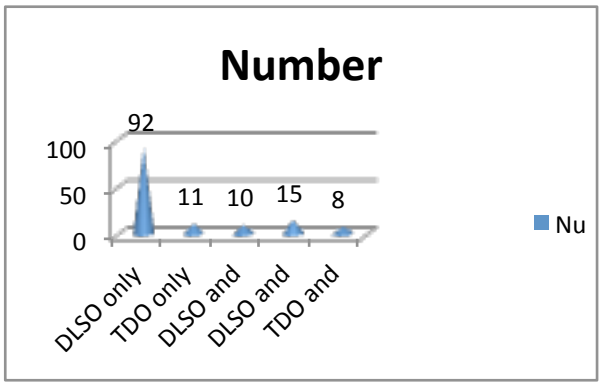
Total- 136		
Gender	**Males**	**Females**
Number	60	76

Table II Distribution of nail involvement

Site	Number	P value
Left hand	5	0.01
Right hand	13	
Left foot	16	
Right foot	8	
Both hands	37	
Both feet	25	
All hands & feet	32	

Table II shows that left hand was involved in 5, right hand in 13, left foot in 16, right foot in 8, both hands in 37, both feet in 25 and all hands and feet in 32. The difference was significant (P< 0.05).

Graph I Types of onychomycosis

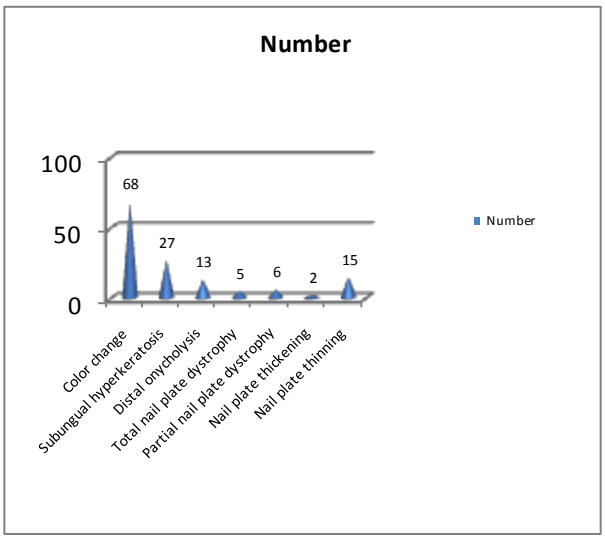


Graph I shows that types of onychomycosis was distal and lateral subungual onychomycosis in 92, total dystrophic onychomycosis in 11, both DLSO and TDO in 10, DLSO and White superficial onychomycosis in 15 and TDO and WSO in 8. The difference was significant (P< 0.05).

DISCUSSION

"Onychomycosis" traditionally referred to a nondermatophytic infection of the nail but is now used as a general term to denote any fungal nail infection (tinea unguium specifically describes a dermatophytic invasion of the nail plate).[6] In spite of the clearly diseased appearance associated with this condition, onychomycosis is all too often regarded as merely a cosmetic problem of relatively minor importance that is hardly worth the effort to resolve. This belief may have been supported by the adverse effects and long dosing courses associated with some of the earlier antifungal agents.[7] Toenails are more commonly

Graph II Distribution of nail changes



Graph II shows that various nail changes were color change in 68, subungual hyperkeratosis in 27, distal onycholysis in 13, total nail plate dystrophy in 5, partial nail plate dystrophy in 6, nail plate thickening in 2 and nail plate thinning in 15. The difference was significant (P< 0.05). affected than fingernails: onychomycosis in these cases frequently involves several nails, and dry-type plantar tinea pedis. There are different clinical types of onychomycosis, depending on the modality of nail invasion. Clinical diagnosis of onychomycosis always requires laboratory confirmation, and treatment depends on many factors, like the fungus species and the number of affected nails.[8] The present study was conducted to determine cases of onychomycosis (OM) in study group. We found that out of 136 patients, males were 60 and females were 76. We found that left hand was involved in 5, right hand in 13, left foot in 16, right foot in 8, both hands in 37, both feet in 25 and all hands and feet in 32. Garg et al[9] found that males were infected more often than females (1.61:1). The most common age group affected was 21–40 years. Finger nails were affected more frequently than toe nails. Distal and lateral subungual OM was the most common (48 cases, 70.59%) clinical pattern. For most of the patients (66.18%), nail involvement was severe. Discoloration was the most common (67 cases, 98.53%) change, followed by subungual hyperkeratosis (51 cases, 75%). Principal causative agents were dermatophytes (55 cases, 80.88%) with Trichophyton

rubrum being the most common one (35 cases, 51.47%). In 9 (13.23%) cases, Candida albicans, in 6 (8.82%) Aspergillus niger and in 1 (1.47%) case Acremonium sp. (AC) have been isolated as the sole causative agent. In 2 (2.94%) cases, mixed infection with dermatophyte and Aspergillus and in 1 (1.47%) case dermatophyte and Candida were noted. The types of onychomycosis in our study was distal and lateral subungual onychomycosis in 92, total dystrophic onychomycosis in 11, both DLSO and TDO in 10, DLSO and White superficial onychomycosis in 15 and TDO and WSO in 8. The clinical suspect of onychomycosis should be confirmed by mycology. The mycological examination is composed by two parts: direct microscopic exam and culture. For the first one, the nail material, previously collected from the affected nail and immersed in a solution of KOH 40%, is put on a slide and then observed under the optical microscope to look for hyphae and spores. KOH does not allow one to recognize the type of fungus causing the onychomycosis, and a culture is needed for a more specific diagnosis. The histopathology of nail clippings can be utilized for diagnosing onychomycosis, with periodic acid-Schiff (PAS) stain that allows easy visualization of fungal hyphae.[10] Lasers such as carbon dioxide laser, the Nd:YAG laser and the diode 870-nm, 930-nm laser (all approved by the FDA, for improvement of the cosmetic appearance of the nail and not for mycological cure), due to their minimally-invasive nature and the few number of requested treatment sessions. The carbon dioxide laser is the oldest laser and is infrequently used today thanks to the advent of less invasive lasers. With the Nd:YAG laser, small clinical trials have demonstrated mycological cure rates as high as 87.5%.[11] Wang et al[12] demonstrated that the efficacy of long-pulsed Nd:YAG 1064 nm against affected toenails is superior to that against fingernails. The diode laser has shown mycological cure rates as high as 38% reported at the nine-month follow up, with minimal to no side effects.

CONCLUSION

Authors found that Onychomycosis was seen more commonly in females as compared to males. distal and lateral subungual onychomycosis type was commonly seen in both hands and legs.

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