Clinico-mycological evaluation of onychomycosis at Bangalore and Jorhat

Sir,

The significance of this article[1] lies in the fact that the rate of recovery of fungi from the nails in culture is better when compared to other studies, and surprisingly the rate of recovery of non-dermatophytic fungi is also high, almost as much as the dermatophytes. An explanation for the former is given (the drying procedure of Milne), but scant regard has been paid to the latter. Non-dermatophytes are generally considered to be weak pathogens and have thus been usually recovered from the toenails in a predominantly shoe wearing population. In this setting the toenails are enclosed and hence kept moist, a situation that is conducive for the fungi to invade nails. Though occlusive footwear has been mentioned in the article,[1] nothing is known about the site from where the non-dermatophytes were recovered on culture. This is very important when seen in the light that the study was restricted to soldiers. This high rate of recovery of non-dermatophytes cannot simply be attributed to hot and humid weather since these factors favor dermatophytes which are the dominant pathogens. Soldiers comprise a healthy population and it would have been more informative to correlate the isolation of non-dermatophytes with the type, site and number of nails involved. Normally non-dermatophytes infect one or a few nails (often the toenails) and cause superficial infection; multiple nail involvement, particularly when both fingernails and toenails are involved, is not a usual occurrence. Having noted this high rate of non-dermatophyte infection, the author must have at some point in the study adopted the stringent criteria[2] quoted in the article, one of which states that at least 5 out of 20 inocula should grow the non-dermatophyte organism in the absence of a dermatophyte. This criteria too has been revised to ensure that the non-dermatophyte has caused the nail infection and has been discussed in a recent commentary.[3]

No mention has been made at all of the associated cutaneous fungal infection. Dermatophytic onychomycosis is a source of repeated attacks of tinea anywhere on the glabrous skin, a feature not shared by the non-dermatophytes. This history is important for the clinician who cannot always resort to culture to differentiate a dermatophyte from a non-dermatophyte, though rarely the latter too has been implicated in skin involvement. Instead, the author has mentioned that younger patients were cosmetically conscious. This is not completely true. Younger people do not have much time to concentrate on asymptomatic and trivial conditions like onychomycosis, unless many nails are affected. In my experience, such patients, especially with one or two infected fingernails, are often detected when they come to us for fungal skin infections.

The classification of the clinical presentations of onychomycosis is also not clear. These types have been well described.[4,5] Three points should have been addressed by the author:

1. The mention of proximal superficial onychomycosis in the abstract and text of the article is confusing. There is no such picture described in the previous literature unless the author wants to draw our attention to some new observation.
2. The clinical picture could also have been correlated with the fungus isolated since some fungi are also known to be frequently associated with a particular type of nail infection.
3. Paronychia has been listed as a morphological pattern of onychomycosis. Chronic paronychia is seen in those doing 'wet' occupations and as such it is not considered as a clinical type of onychomycosis.[4] Candidal onychomycosis includes the one caused by direct invasion of the nail plate in defective immune states like chronic cutaneous candidiasis. In paronychia the nail fold and later the cuticle of the nail plate are eroded, resulting in invasion by yeasts and bacteria. This process ultimately involves the nail matrix and causes the nail dystrophy. In the absence of nail dystrophy one

is not justified to classify paronychia under onychomycosis. Though secondary, at least significant nail involvement must be present in chronic paronychia when it is included in a study of onychomycosis.

REFERENCES

1. Grover S. Clinico-mycological evaluation of onychomycosis at Bangalore and Jorhat. Indian J Dermatol Venereol Leprol 2003;69:284-6.
2. English MP. Nails and fungi. Br J Dermatol 1976;94:697-701.
3. Gupta AK, Ryder JE, Summerbell C. The diagnosis of non-dermatophyte mold onychomycosis. Int J Dermatol 2003;42:272-3.
4. Zaias N. Onychomycosis. Arch Dermatol 1972;105:263-74.
5. Gupta AK, Baran R. Ciclopirox nail lacquer solution 8% in the 21st century. J Am Acad Dermatol 2000;43:96-102.

V. Ramesh
Department of Dermatology & STD, Deen Dayal Upadhyaya Hospital, Hari Nagar, New Delhi -110064, India.

Response by the authors

Sir,

I thank the respondent for his interest in my work and his valuable comments. High culture positivity and a high rate of detection of non-dermatophyte moulds (NDM) were the highlights of the work. An attempt was made to define the role of NDM. Was it purely a contaminant or a primary pathogen causing primary invasion of the nail, as is emerging in recent times? The stringent English criteria to delineate NDM as a primary pathogen were, therefore, applied in the study.[1] As mentioned in the article, eight of the thirteen NDM isolated in the study fit these criteria, i.e. all KOH-positive isolates that cultured pure NDM without dermatophytes. It is these eight (13.5% of the total isolates) that would, therefore, claim their role as a primary pathogen. Though the culture positivity of NDM is high, it still falls within the reported range. A combination of several factors might have contributed to high culture positivity rates: the drying procedure of Milne, the English criteria and the procedure of paired culturing of samples (in plain Sabouraud's Dextrose Agar, and Sabouraud's Dextrose Agar with chloramphenicol) which were repeatedly subcultured. Of course, larger studies would help throw more light on this rather unclear and as yet controversial role of NDM in onychomycosis. Since the study was concluded in May 2001 and submitted for publication in August 2002, we did not have the privilege of the knowledge of the later study by Gupta et al quoted by the respondent.[2]

It is true that a hot and humid climate would favor fungal growth irrespective of the etiological agent, but studies have nonetheless reported this milieu to favor the growth of NDM.[3] NDM can affect all nails, though admittedly the toenails are their main prey. We isolated NDM from practically every nail, either in pure or in mixed cultures and in some cases from multiple sites. There is no break-up to show apart from the finding that DLSO pattern was the most common clinical pattern seen.

No mention either of associated cutaneous fungal infections or of history of repeated attacks of tinea anywhere on the glabrous skin was made simply because it was not within the ambit of the study. The study did not deal with the clinical differentiation between dermatophyte and NDM infections on the skin. It dealt solely with a particular clinical form of fungal infection, viz. onychomycosis and the mycological agents responsible for causing this condition, which obviously involved culturing the isolates.

Onychomycosis is frequently a source of distress to the patient because of the unaesthetic look of the diseased nails as it is readily visible to the onlooker. And it is here where I differ with the respondent in my suggestion of a cosmetically conscious younger person (as compared to an older person) being more motivated in seeking medical consultation for his diseased nails. As already mentioned, this suggestion was *in addition to* the observation that younger persons, more so soldiers, would be more prone to occupation related subclinical trauma predisposing them to fungal infections of the nails.

The question of classification of onychomycosis is not so vexed.[4] Literature abounds in defining onychomycosis broadly as any fungal infection of the nail plate. This includes yeasts and NDM in addition to dermatophytes. Proximal superficial onychomycosis