

# Successful Response of Onychomycosis caused by Nondermatophytic Molds to Amorolfine Nail Lacquer

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Onychomycosis is a major cause of nail dystrophy. The causative organisms in onychomycosis are dermatophytes, candida and molds. The prevalence of molds is underestimated. If the treatment of dermatophytes and candida is well established, the treatment of molds is still not well standardized.

Onychomycosis caused by nondermatophyte molds (NDM) is difficult to eradicate with standard antifungal therapy.

Many treatments have been tried and the results were different according to the species and the authors.

We report a successful response of onychomycosis caused by four different NDM species to amorolfine nail lacquer alone.

## Materials and Methods:

Five patients with onychomycosis caused by NDM alone were treated with amorolfine nail lacquer during 6 to 12 months.

Mycological exams were performed in the laboratory of the Military Hospital of Tunis.

Nail samples were obtained from the most proximal portion of the affected nail by scraping the hyperkeratotic nail bed and were microscopically studied after clearing for 3 hours in 40% potassium hydroxide. For cultures, nail fragments were inoculated in Sabouraud Agar chloramphenicol medium, with and without cycloheximide, and incubated at 27° for three weeks.

The criteria considered to make the diagnosis of NDM onychomycosis were as follows:

- Nail dystrophy ,
- positive KOH preparation with presence of hyphae in the nail keratin, failure to isolate a dermatophyte in culture.
- And Repeated cultures have been done to eliminate a saprophytic mold growing which may not be the original pathogen of a clinical impression of onychomycosis in a patient <sup>(1)</sup>

All our patients didn't receive any treatment before for their nail dystrophy.

We prescribed amorolfine nail lacquer to be applied once a week during 6 to 12 months according the response to treatment.

Patients were examined at baseline and every three months during one year.

Tab.1: Characteristics of our 5 observations.

Patient n°	Age	Sex	Duration	site	Species	Fig
1	33	F	6 years	Finger nail	<i>Geotrichum Capitotum</i>	1 and 2
2	44	F	2 years	Finger nail	<i>Fusarium</i>	3 and 4
3	71	M	6 months	Toe nail	<i>Scopulariopsis</i>	5 and 6
4	40	M	6 years	Toe nail	<i>Scopulariopsis</i>	
5	50	M	1 year	Toe nail	<i>Aspergillus Niger</i>	7 and 8

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Efficacy of therapy was judged by both the clinical and the mycological response.

Clinical cure was defined as complete absence of signs of onychomycosis.

Mycologic cure was defined as negative direct microscopy and culture.

All the patients were immunocompetents.

## Results:

All the patients responded very well to the treatment and we noted a marked clinical cure from the 6<sup>th</sup> month and a negativation of the mycological exam at 3<sup>rd</sup> month.

## Discussion:

Nail invasion by NDM is variously estimated all over the world. In a United States epidemiologic survey of superficial fungal diseases, NDM were isolated in 11%.<sup>(1)</sup> This prevalence seems to be more important in other areas: India: 22%<sup>(2)</sup>.

This variation can be explained by the geographic distribution of NDM and the methods used for the mycologic diagnosis of NDM. Some techniques seem to be more performant.<sup>(3,4)</sup> False negative results of KOH examination and culture in onychomycosis caused by dermatophytes as well as false positive culture of non dermatophyte molds were reported<sup>(4)</sup>.

The main problem remains the treatment of the NDM onychomycosis because they are difficult to eradicate<sup>(5)</sup>. Systemic and / or topical treatments have been tried and the response varied according to the NDM species.

Nondermatophytes have generally responded poorly to griseofulvin and ketoconazole.

The good results reported by some authors about the efficiency of Itraconazole against *Aspergillus* sp. *Fusarium* sp. And *S brevicaulis*<sup>(6)</sup> were not confirmed by other studies<sup>(5)</sup>.

Topical treatment (terbinafine, ciclopirox nail lacquer) has been used by some authors and can be more successful than systemic therapy to cure some species of NDM onychomycosis<sup>(5)</sup>.

Ciclopirox nail lacquer has been used daily alone for the treatment of onychomycosis caused by molds (*Scopulariopsis brevicaulis*, *Aspergillus niger*, *Aspergillus fumigatus* and *Hendersot toruloidea*) in 60 patients during 6 months. The result was significant<sup>(8)</sup>. Amorolfine nail lacquer alone has been tried for the treatment of onychomycosis associated with *Onychola Canadensis*.<sup>(7)</sup>

Our study report the effectiveness of amorolfine nail lacquer in onychomycosis caused by NDM in five patients.

In fact, amorolfine nail lacquer is a broad spectrum antimicrobial with activity against all the usual dermatophytes as well as yeasts and NDM.

This treatment has been associated with chemical avulsion of the nail plate with 40% urea ointment in two cases. Topical treatment was prolonged for 8 to 12 months.

Topical treatment such as amorolfine nail lacquer (easy to applied: once a week, less expensive and well tolerated) may be a good alternative to the systemic treatment which efficiency is not proved by the majority of authors in NDM onychomycosis.

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fig. 1: Patient number 1



fig. 2: Patient number 1 after 6 months



fig. 3: Patient number 2



fig. 4: Patient number 2 after 6 months



fig. 5: Patient number 3



fig. 6: Patient number 3 after 8 months



fig. 7: Patient number 4



fig. 8: Patient number 4 after 12 months