



Dermatomycoses caused by *Natrassia mangiferae* in São Paulo, Brazil

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Received 15 August 2002; accepted in final form 19 June 2003

Abstract

Natrassia mangiferae formerly known as *Hendersonula toruloidea*, is a phaeoid coelomycete described by Natrass in 1933. We report five cases of *N. mangiferae* infections in São Paulo, Brazil. This fungus was isolated from interdigital lesions on the feet in one patient, toenails in three cases and fingernails in the other one. The infections were initially considered to be caused by a dermatophyte. Although there are only a few cases described in the medical literature, the five cases reported suggest that *N. mangiferae* should be taken into consideration in the differential diagnosis of *tinea pedis* infections.

Key words: *Natrassia mangiferae*, dermatomycoses, *Scytalidium lignicola*

Introduction

Many fungi once considered only as laboratory contaminants, saprophytes or plant pathogens are being recognized increasingly as etiological agents of human and other animal mycoses [1, 2]. *Natrassia mangiferae* (formerly known as *Hendersonula toruloidea*), is a phaeoid coelomycete described by Natrass in 1933. It is a well recognized plant pathogen of a very wide range of trees, many of them of economic importance. The fungus has been isolated from bananas and the bark of plum, lemon, lime and grape fruit trees [3–5].

Gentles and Evans [6] were the first to report the pathogenicity of *N. mangiferae* (*H. toruloidea*) isolated from cases of dermatomycoses and onychomycosis. However, it has frequently been reported as the cause of superficial phaeohyphomycosis often clinically indistinguishable from typical dermatophyte infections [7]. Subsequently, several authors revealed that apart from causing superficial infections, *N. mangiferae* and its synanamorph *Scytalidium dimidiatum* could also cause subcutaneous abscesses, fungemia and abdominal abscess, endophthalmitis and maxillary sinusitis [8, 9]. The major prevalence of this mycosis has been reported in patients from trop-

ical and subtropical regions [10]. Most infections have been reported from Thailand, Jamaica and Nigeria [11–13].

This paper describes five cases of dermatomycosis caused by *N. mangiferae* in São Paulo, Brazil and mentions difficulties that may occur in clinical and laboratory settings before a correct diagnosis can be made.

Material and methods

From July 1996 to December 1998, patients with presumptive diagnoses of superficial fungal infections were examined at the Dermatology and Mycology Divisions of the EPM/UNIFESP, São Paulo Brazil.

Skin and nail samples previously cleaned with 70% alcohol, were collected with a heat sterilized scalpel. The first layer of scales from distal toenail lesions were discarded to eliminate the possible presence of contaminating organisms. One part of the scales was stained with 20% KOH plus Parker's blue-black permanent ink (3:1), 20% KOH and observed by direct microscopy. The other part was cultured on four media: Sabouraud-glucose agar (Difco®) with chloramphenicol (200 mg/L), Mycosel agar (BBL),

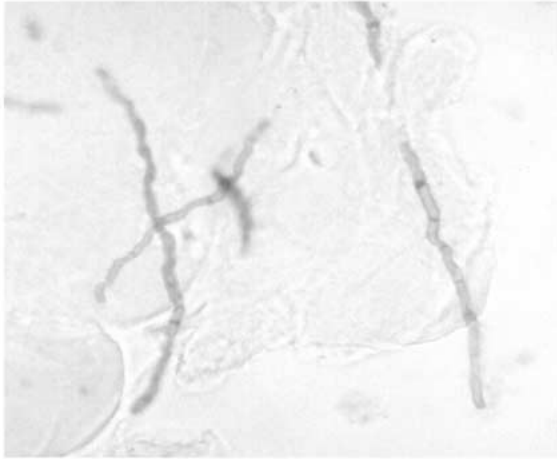


Figure 1. Toe nail preparations in 20% KOH plus Parker ink, showing branched, septate, distorted, hyaline hyphae of *Natrassia mangiferae* that resemble those of the dermatophytes (400 \times).

potato dextrose agar (PDA) and lactrimel agar according to Borelli [14] modified, and incubated at 25 °C for 30 days.

Case reports

Only five of a total of 640 patients with a clinical diagnosis of superficial mycosis, yielded culture of *N. mangiferae*. Table 1 presents the epidemiological and clinical data on these patients. Microscopic examinations of the skin and/or nail scrapings revealed branched, septate, distorted hyaline hyphae resembling those of the dermatophytes (Figure 1). The culture on all of the isolative media except Mycosel agar were identified as *N. mangiferae*.

Mycology

The isolates were subcultured on Sabouraud-glucose agar (Difco®) with chloramphenicol (200 mg/L), lactrimel agar and potato dextrose agar (PDA). The isolates developed white colonies which gradually became greyish-black. Microscopic examination showed numerous cylindrical or globose, one or two-celled, barrel-like brown arthroconidia with dark walls (Figure 2), and 3 celled conidia (Figure 3). The pycnidia were produced on filter paper in microculture plates with PDA agar (Figure 4).

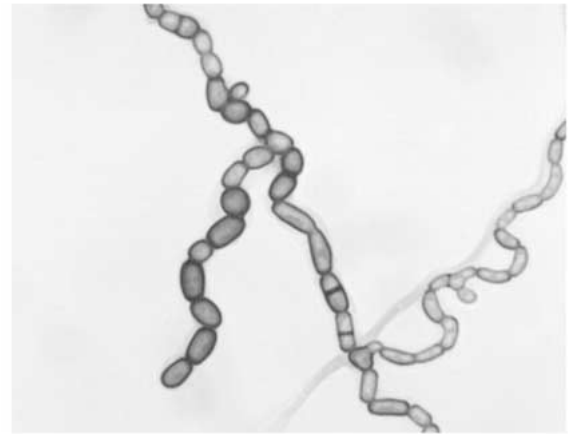


Figure 2. Barrel-like arthroconidia with phaeoid walls of *Natrassia mangiferae* (400 \times).

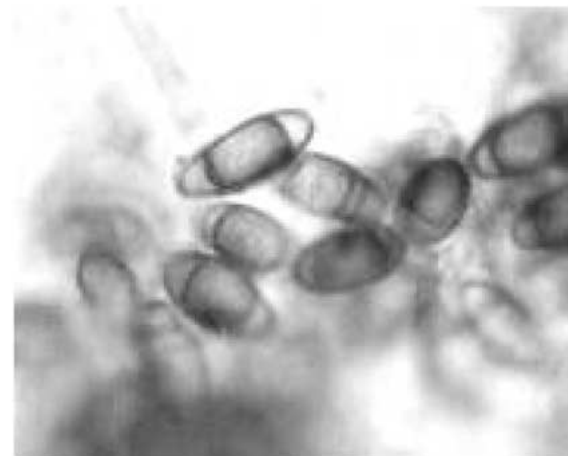


Figure 3. Three-celled conidia of *Natrassia mangiferae* (1000 \times).

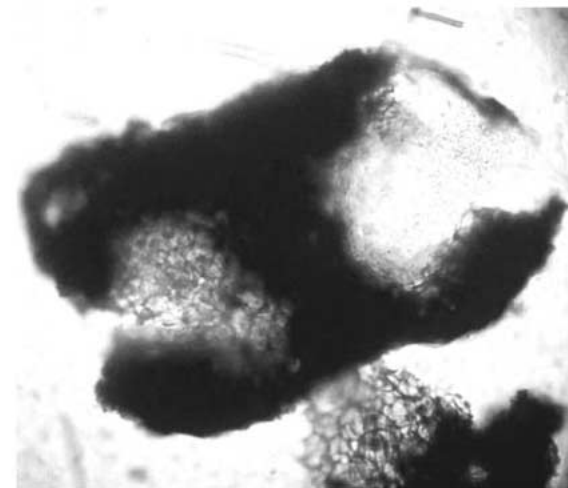


Figure 4. A single pycnidium of *Natrassia mangiferae* (400 \times).

Table 1. Clinical and epidemiological characteristics of the five patients infected by *Natrassia mangiferae*

Case	Sex	Age	Race	Clinical signs	Evolution period (years)
1	Male	65	Asiatic	Desquamative interdigital lesions on both feet	5
2	Female	46	Negro	Distal subungual hyperkeratosis in toenails	5
3	Female	41	Negro	Thin and free edge onycholysis in fingernails	2
4	Male	53	White	Distal subungual hyperkeratosis in toenails	2
5	Male	50	White	Distal subungual hyperkeratosis in toenails	1

Discussion

Natrassia mangiferae has been isolated from patients living mainly in the tropical and subtropical areas of the world. These regions are the natural reservoir of this fungus [2]. Three cases of nail and toe web infections in the states of Rio de Janeiro, Aracaju and Paraíba (Brazil) attributed to *Scytalidium lignicola* (synanamorph *N. mangiferae*) were reported in Brazil [15, 16]. Nevertheless Sigler et al. [8] concluded that only *N. mangiferae*, including its *Scytalidium* synanamorph (*S. dimidiatum*) and its hyaline mutant *S. hyalinum* caused infections in humans, and that *S. lignicola* should be considered a non-pathogenic distinct species.

Our patients had a normal immune status and were mostly men between 41 and 65 years of age. The infections had a history ranging from 1 to 5 years. The toenails were the most frequently affected region. Distal, subungual hyperkeratosis in toenails in three of the patients and free edge onycholysis in fingernails in one case were diagnosed. One patient who lived in a rural area showed macerated and eroded lesions between the first and the second interdigital spaces of both feet. The affected nails of all patients showed yellowish brown coloration. Their clinical features were indistinguishable from those caused by dermatophytes, a finding which is in agreement with that of many authors [7, 8].

According to Baban et al. [2] and Liony et al. [5], superficial infections caused by *N. mangiferae* are often misdiagnosed. The presence of hyaline mycelium in direct microscopic examination, the poor confirmation of laboratory findings, the use of inappropriate culture media for the development of this fungus and the lack of pathogenomic characteristics of the lesions contribute to this fact [17].

Repeated isolations of the same fungus from scrapings and the presence of the fungus in histopatholo-

gical examinations offers convincing proof that the microorganism does invade the nails and skin of humans [18].

Acknowledgements

We thank Dr. Josep Guarro and Dra. Eveline Pipolo Milan whose comments helped to improve the manuscript. This study was partially supported by grants from the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).

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