

Tinea pedis due to *Cylindrocarpon lichenicola* beginning onycholysis



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ABSTRACT

A 33 year old woman presented with both feet, humid and white *Tinea pedis* at the second, third and fourth inter-toes areas associated with a beginning onycholysis of the nails lasting for 18 months. KOH mount of the samples was positive for fungal hyphae. The fungus was isolated on Sabouraud-chloramphenicol agar and identified as *Cylindrocarpon lichenicola*. The patient was treated with an association of terbinafine tablet and terbinafine cream and presented clinical cure after three months.

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1. Introduction

Species of *Cylindrocarpon* are common soil inhabitants, occurring as saprobes or weak pathogens, often associated with roots of herbaceous and woody plants [1]. They have been rarely associated with human diseases [2] but increasingly human infections due to the genus *Cylindrocarpon* species are reported especially caused by *C. lichenicola*. Besides Champa et al. [2] did the background for some of these published cases including localized infections such as athlete's foot, keratitis and deep infections like peritonitis or disseminated infections [2]. The majority of these cases are reported in rurals, Indian for the most [2–4] and/or immunocompromised people [5,6]. We report a case of tinea pedis with onycholysis due to *Cylindrocarpon lichenicola* at Dakar (Senegal) in an immunocompetent patient.

2. Case

A 33 year old woman, living in suburban area of Dakar was consulted in the Dermatology service at the military hospital of Ouakam (HMO). She was addressed to the parasitology–mycology laboratory of Le Dantec university hospital for mycological analysis (**day 0**). This patient presented with both feet, humid and white

Tinea pedis at the second, third and fourth inter-toes areas associated with a beginning onycholysis of the nails (**day 1**) lasting for a year and six months (Fig. 1a and b).

The mycological direct examination (**day 1**) of the samples (squares and nails) with KOH revealed numerous septate fungal hyphae (Fig. 2).

The remaining of the samples was inoculated in Sabouraud-chloramphenicol (SC) and Sabouraud-chloramphenicol-Actidione (SCA) agar (**day 1**). The media were incubated at 28 °C and were observed regularly once at least by day. Colonies appeared after two days (**day 3**) and were woolly, extensive and bright-colored. The reverse of the fungal colonies was brown and became black with age. There is production of a brown diffusible pigment becoming dark to black with age (Fig. 3). Those colonies had grown on all seedling points of the SC and not on the SCA.

Microscopic examination (**day 3**) with blue lactophenol show rare macroconidia which were twice to several septate, hyaline, straight or curved, cylindrical to fusiform, like a *Fusarium* (Fig. 4a). However the macroconidia had a rounded apex and flat base. After eight days (**day 8**), it appeared more numerous macroconidia associated with chlamydospores hyaline to brown, spherical, formed singly, in chain or in clumps, intercalary or terminal (Fig. 4b). The species was identified as *Cylindrocarpon lichenicola*.

Since this species is a mold, isolated for the first time in our laboratory, we looked for contributing factors at the source patient. These investigations showed that the patient was neither immunocompromised nor diabetic (**day 10**). However, the patient

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Fig. 1. Clinical aspect of the *Tinea pedis* (a) and the onycholysis (b).

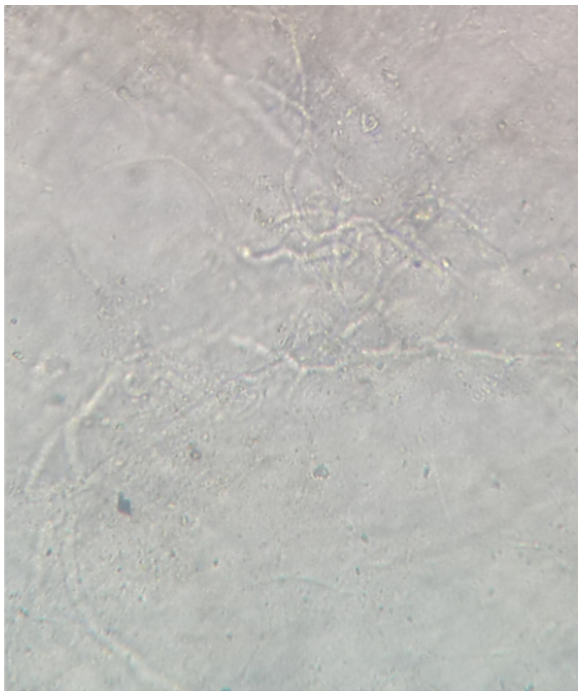


Fig. 2. Direct examination showing septate fungal hyphae (X40).

revealed that she frequently has wet feet with at least 5 washes for daily ablutions. She says also that she wears plastic shoes everyday for her nursing aid work. She was not under any medication before the mycological examination. At this moment (**day 10**), mycological analysis (samples and culture) have been repeated and same results were found.

After reporting results, she received a treatment based on

terbinafine tablet with a dosage of 250 mg per day (**day 15**). This oral treatment was associated with a local treatment of terbinafine cream at 1%. A skin rash inconsequential had been noted during the first week of treatment. After one month of treatment (**day 46**), mycological samples for control were realized by scrapping the tinea pedis and collecting nail's debris. Cultures were negative for the onycholysis and again pure and abundant colonies of *C. lichenicola* were grown for samples collecting from the tinea pedis (**day 49**). Treatment continued until three months was successful with a clinical cure of the tinea pedis also and a renewal of the nail plate.

3. Discussion

The genus *Cylindrocarpon* includes saprophytic species of soil, rarely parasites of plants or humans. They are known as rare causative agents of keratitis, mycetomas or disseminated infections in immunocompromised people [3–5]. *Cylindrocarpon's* tinea pedis, although rare, was described for the first time by Lancy et al., in 1985. It's the same for onychomycosis, which was also found in a study conducted in Brazil in immunocompromised patients [7,8]. So the association of these infections may result from a beginning by either because of their anatomical proximity.

The genus *Cylindrocarpon* is very often confused with the genus *Fusarium* especially with their macroscopic aspects. Besides, some authors even report *C. lichenicola* as *Fusarium lichenicola* [3,9]. But the microscopic appearance of their macroconidia may help to distinguish them [6]. In our case, this confusion had been made in particular to the appearance of the first colonies were thinking about *F. oxysporum* but the confusion was soon lifted by the absence of microconidia and especially by the rounded apex of the macroconidia.

For the majority of the *Cylindrocarpon* infections, that concerned rural patients and/or being in contact with plant [2,3] or immunocompromised people; voriconazole and/or amphotericin B were used for the treatment, which was effective [10–12]. However these molecules are often unavailable in our country and are difficult to obtain. Moreover terbinafine remains among the available molecules, one of the most effective, which motivated this treatment after consulting between the dermatologist and the biologist even if this molecule had not shown *in vitro* activity on *Cylindrocarpon* spp. [13]. However *in vitro* susceptibility could not always accurately predict *in vivo* response.

The duration of treatment is short relating to an onychomycosis [14]. However, given that the onycholysis was beginning, it could be explained by this reason, the first appearance of the infection has been the tinea pedis. *Tinea pedis* is considered for most patients as minor and is not usually a reason for dermatological consultation [15]. It is sometimes not even reported as a lesion during the questioning before the mycological analysis if the consultation is motivated by another lesion. It is considered by some patients as a natural consequence of the ablutions. But the systematic search for associated injuries during the mycological analysis leads us to separately take these sites to detect infection by multiple mycological agents from associated infections as is the case here.

The vulgarization of the antifungal susceptibility testing would allow us to more targeted treatments.

Conflict of interest

There are none.

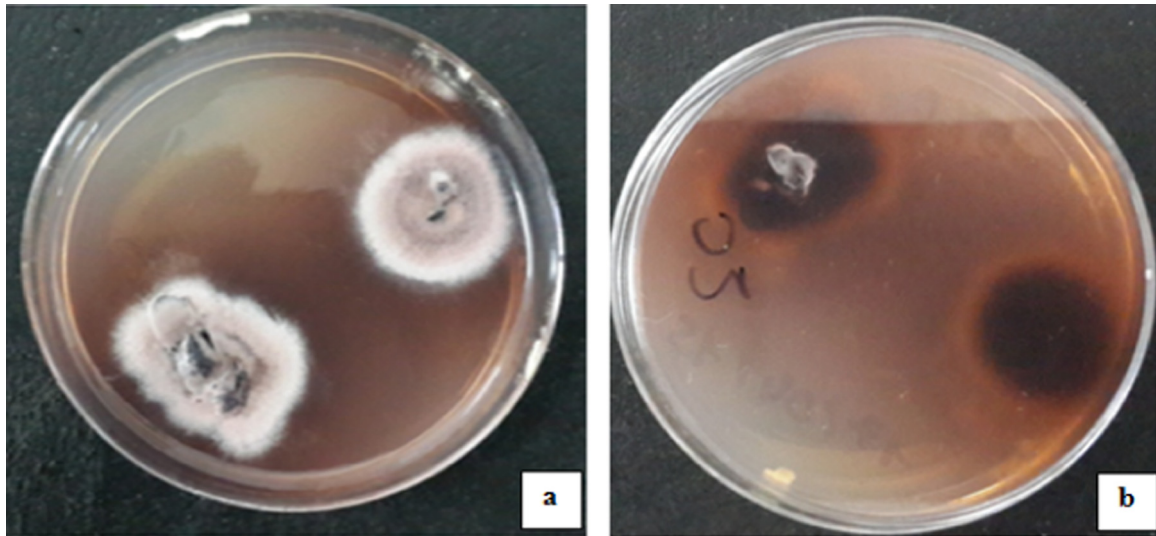


Fig. 3. Colonies of *Cy lindrocarpon lichenicola* on Sabouraud-chloramphenicol after 2 days at 28 °C (a); reverse (b).

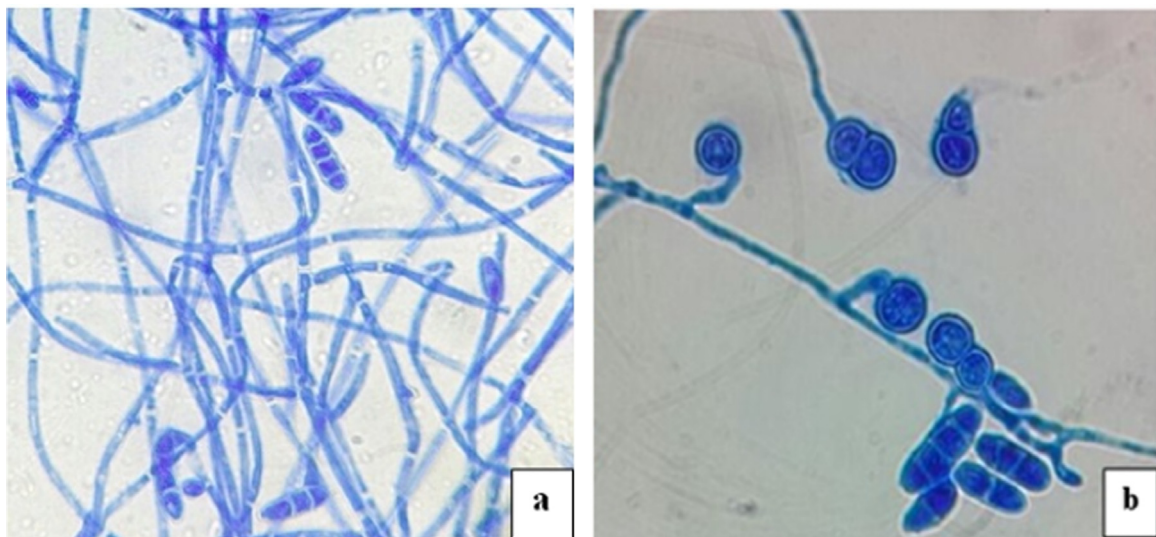


Fig. 4. Microscopic examination (X100) of the cultures showing macroconidia (a) associated with chlamydospores (b) of *Cy lindrocarpon lichenicola*. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

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