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Trichophyton verrucosum: about two cases of onychomycosis in Morocco

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Résumé :
Trichophyton verrucosum est un dermatophyte zoophile, connu comme agent responsable de divers aspects cliniques, notamment des lésions inflammatoires de la peau et de cuir chevelu, il détermine rarement des onychomycoses. Nous rapportons les 2 premiers cas au Maroc d'onychomycoses provoqués par Trichophyton verrucosum.
Mots clés : Trichophyton verrucosum – onychomycoses.
Abstract:
Trichophyton verrucosum is a zoophilic dermatophyte known to be responsible for various clinical aspects, including inflammatory lesions of the skin and scalp, it rarely determines onychomycosis. We report the first 2 cases in Morocco of onychomycosis caused by Trichophyton verrucosum.
Key words: *Trichophyton verrucosum – onychomycosis.*

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I. Introduction:

Onychomycosis are fungal diseases of the nails, caused in most cases by microscopic, keratinolytic filamentous fungi: dermatophytes

Trichophyton verrucosum (*T. verrucosum*) is a zoophilic and cosmopolitan dermatophyte. It mainly causes inflammatory mycosis of the skin and scalp and less frequently onychomycosis. We present two cases of onychomycosis caused by *T. verrucosum*. Both patients presented with lesions affecting the toenails.

The aim of this work is to report two first cases in Morocco of onychomycosis secondary to

T. verrucosum, diagnosed in the parasitology-mycology department of the Hassan II University Hospital in Fez

II. Observation 1:

A 49 year old patient, followed for Behçet's disease. She presented to the parasitology-mycology laboratory of the University Hospital of Fez for a diagnosis of onychomycosis following a dermatological consultation.

The clinical aspect showed an affection concerning the 2 big toes, of distolateral semiology with subungual hyperkeratosis, and a yellowish coloration of the nails with the presence of a distal onycholysis, evolving since 1 year. The nails of the other toes as well as those of the fingers were unaffected. In addition, the clinical examination did not show any other mycotic dermatological damage, especially in the folds. Moreover, the patient did not report any contact with animals.

III. Observation 2:

A 39 year old man, with a history of Verneuil disease, presented to the parasitology-mycology department of the University Hospital of Fez for mycological nail sampling. The patient denied any contact with an animal , he presentes an onyxis of the right big toe, which has been evolving for about 6 months. The clinical examination revealed an involvement of the entire nail plate with a yellowish aspect of the nail. The nail was thickened, particularly at its free edge, with the presence of subungual hyperkeratosis and the beginning of onycholysis. The nails of the other toes and fingers were normal.

IV. Mycological study:

Our 2 patients benefited from a mycological sampling collecting nail scales at the level of the affected areas in order to carry out a mycological study (direct examination + culture)

The direct examination, carried out after clarification in a KOH solution (potash at 30%), showed the presence of regular, septate and branched mycelial filaments in both samples.

A culture was made on Sabouraud-Chloramphenicol (SC), Sabouraud-Chloramphenicol-Actidione (SA) incubated at 27c° and on Sabouraud-chloramphenicol (SC) incubated at 37c°. In the first case, we noted the appearance of warty colonies, finely downy, whitish on the front side, brown on the back side after 20 days of incubation (figure 1). A similar type of growth was obtained in the sample of the second patient after 15 days of incubation.

Microscopic examination, after mounting in lactophenol blue between slide and coverslip, revealed the presence of septate mycelial filaments, and chlamydospores in chains (figure 2), with absence of micro and macroconidia,evoking *Trichophyton verrucosum.*

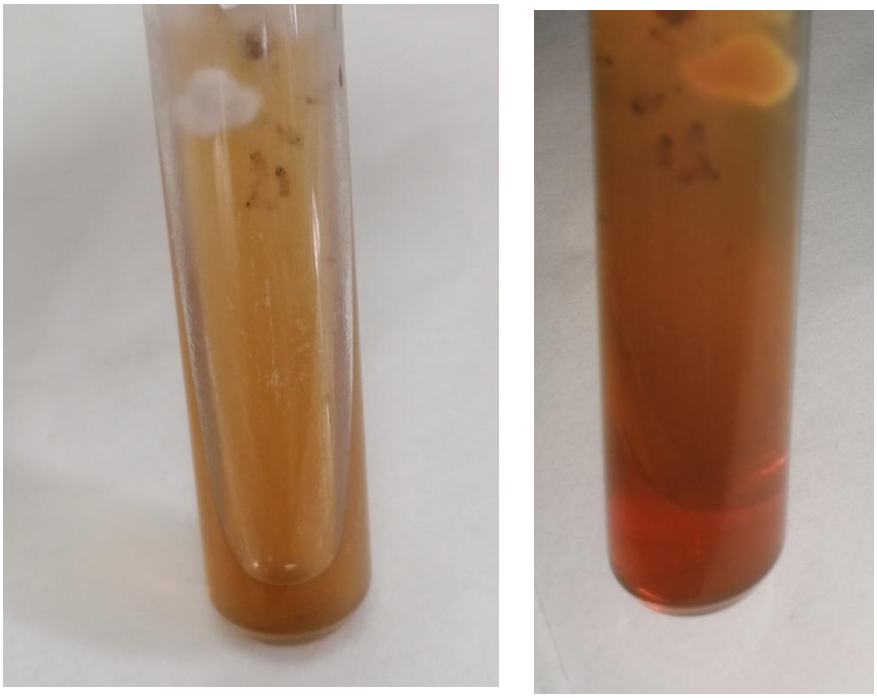

Figure 1: macroscopic aspect of *Trichophyton verrucosum*

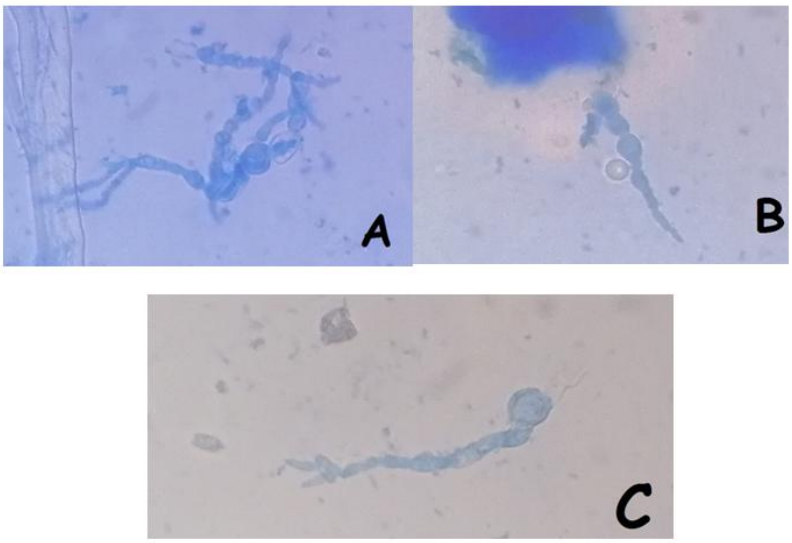

Figure 2: Lactophenol blue coloration: mycelial filaments with intercalated (in chain (A and B)) or terminal (C) chlamydospores

V. Discussion:

T. verrucosum is a cosmopolitan zoophilic dermatophyte, parasitic on cattle, and is especially common in rural areas with livestock.

The number of *Trichophyton verrucosum* cases isolated from patients with mycoses has been steadily increasing in the last few years, which is related to the presence of an increasing number of free-range farms. Farmers and their families as well as veterinarians and technicians involved in handling the animals are at higher risk of infection (1).

Contamination can occur: either directly through contact with parasitized animals, or indirectly through objects soiled with contaminated hair or through the soil (1, 2, 3, 4). Therefore, infections related to this fungus mainly affect people having direct contact with parasitized animals (farmers, breeders...) (1,2). The entry point of the infection can be a local trauma or scratching lesions (4). For our 2 patients, there was no notion of contact with an animal; the nail mycotic infection could be due to an indirect transmission from contaminated objects or by the soil.

In humans, this fungus is often responsible for highly inflammatory or suppurated lesions: ringworm, kerion, sycosis, folliculitis and epidermophytes of the hairless skin (5,6,7). In addition, it is exceptionally incriminated in onychomycosis.

In 2017 a study of 117 cases of onychomycosis was conducted in Cameroon, 11 of which were secondary to *T.verrucosum* (8). Two other cases were identified in a Taiwanese study representing 0.53% of a total population of 227 cases of dermatophyte onychomycosis (9).In addition, this fungus was reported in 5 cases out of 100 positive cases of nail fungus in India (10). In Morocco, it has not been described any case of onychomycosis secondary to this dermatophyte.

VI. Conclusion:

Onychomycosis caused by zoophilic dermatophytes seems to be less frequently encountered, except in certain geographical areas where contact with animals is very close. We report here the first two cases of *Trichophyton verrucosum* onychomycosis in Morocco, an extremely rare zoophilic fungus of ungual mycosis, most often responsible for circinate epidermophytes and inflammatory ringworms.

Disclosure of Interest:

The authors declare that they have no conflicts of interest concerning this article

Figures:

Figure 1: macroscopic aspect of *Trichophyton verrucosum*

Figure 2: Lactophenol blue coloration: mycelial filaments with intercalated (in chain (A and B)) or terminal (C) chlamydospores.

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