Virology & Mycology
ISSN: 2161-0517
OPEN ACCESS Freely available online
Research Article

Onychomycosis Diagnosed in the Department of Parasitology –Mycology at the University Hospital Center (UHC) of Batna –Algeria: 10 Years Assessment

Ouanassa Hamouda*

Department of Parasitology–Mycology, UHC Benflis Touhami, Batna, Algeria

ABSTRACT

Objective: The aim of this study is to describe the clinical aspects and to specify the fungal agents most frequently isolated in patients with onychomycosis consulting at the parasitology–mycology department at the university hospital center of Batna-Algeria.

Methods: This is a retrospective and descriptive study conducted from January 1, 2010 to december 31, 2020, including patients in whom the diagnosis of onychomycosis had been asked. Socio-demographic, clinical, Biological data of patients fulfilling the inclusion criteria were collected and analyzed.

Results: 343 patients were included in this study. Their average age was 41, 54 years, they were mainly made up of men (55.10%). The main contributing factor found was heat and humidity (90.96%). Involvement exclusively of the toenails was predominant (72.30%). In 23 cases (6.71%), there was simultaneous involvement of the fingers and toes. The most common clinical appearance was distolateral subungual onychomycosis (41.04%). Dermatophytes (86.88%) were the most common pathogens, followed by yeasts (13.29%). *Trichophyton rubrum* (80.17%) were the majority species.

Conclusion: Onychomycosis remains a neglected condition, dermatophytes remain the main fungal agents involved. The importance of mycological confirmation of onychomycosis in any patient with onychopathy, which allows treatment to be adapted and to avoid costly and ineffective lengthy treatment.

Keywords: Onychomycosis; Dermatophytes; Yeasts; *Trichophyton rubrum*

INTRODUCTION

Onychomycosis is defined as a fungal infection of the nail system caused by dermatophytes, yeasts or molds [1]. The most common cause of onychopathies is nail fungus infection. The prevalence of onychomycosis in the literature varies according to the series from 3 to 29% of the general population [2]. They are one of the most frequent reasons for consultation in dermatology. This common and cosmopolitan pathology, although it does not endanger life, it alters the quality of life and causes aesthetic and psychological discomfort.

The objective of this work is to describe the clinical aspects and to specify the most frequently fungal agents isolated in patients with onychomycosis consulting at the parasitology-mycology department at the university hospital of Batna-Algeria.

PATIENTS AND METHODS

This is a retrospective and descriptive study based on the medical records of patients seen in dermatology consultations over the period from January 1, 2010 to December 31, 2020 (10 years). Included were patients of all ages and both sexes in whom a positive diagnosis of onychomycosis was made, based on clinical and mycological examinations. Only complete patient files were retained. Data was collected on the basis of a technical sheet including the study variables: the socio-demographic data of the patients, clinical and mycological.

RESULTS

Population distribution

Of 847 files consulted, 343 (40.49%) met the inclusion criteria.

The male sex was the most representative with 189/154 (55.10%),

Correspondence to: Ouanassa Hamouda, Department of Parasitology–Mycology, UHC Benflis Touhami, Batna, Algeria, E-mail: Hamoudaouanassa@yahoo.fr

Received: March 02, 2021; **Accepted:** March 16, 2021; **Published:** April 13, 2021

Citation: Hamouda O (2021) Onychomycosis Diagnosed in the Department of Parasitology–Mycology at the University Hospital Center (UHC) of Batna–Algeria: 10 Years Assessment. Virol Mycol. 10:206.

with a sex ratio of 1.23.

The average age was 41.54 years old.

The most representative age groups are in the 30 to 60 year range (Figure 1).

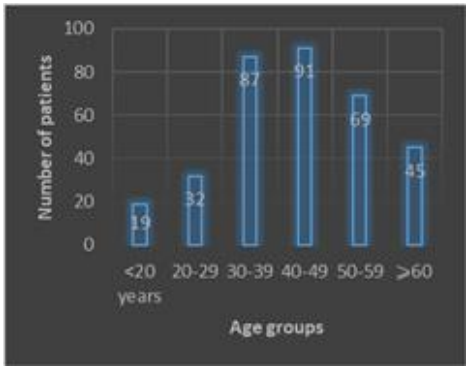

Figure 1: Distribution of patients by age groups.

Clinical aspects

Several contributing factors were identified. Of these, heat/humidity were the most encountered 312/343 (90.96%). the other contributing factors are detailed in (Figure 2).

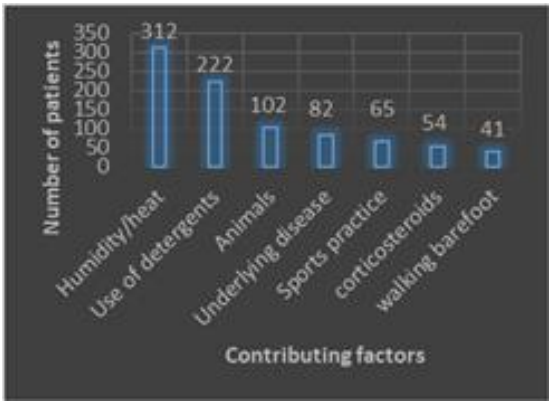

Figure 2: Distribution of patients with onychomycosis according to the contributing factors.

The toes were the most common location, found in 248/343 (71.67%) patients, followed by the fingers in 72/343 (20.99%) patients. Involvement of both sites (toes and fingers) was found in 23/343 (6.71%) patients (Table 1).

Table 1: Distribution of cases according to the location of onychomycosis.

Sites	Number	Percentage
Toes	248	72,30%
Fingers	72	20,99%
Toes and fingers	23	06,71%
Total	343	100%

Subungual Distolateral Onychomycosis (OSUDL) was the most common clinical form in 142/343 (41.39%) cases, followed by Onychomycodystrophy (ODT) 89/343 (25.94%) cases, then l 'Onychopathy (OPA) 32/343 (09.32%) cases then Onycholysis (OLY) 24/343 (06.99%) cases and other forms 56/343 (16.36%) cases (Figure 3).

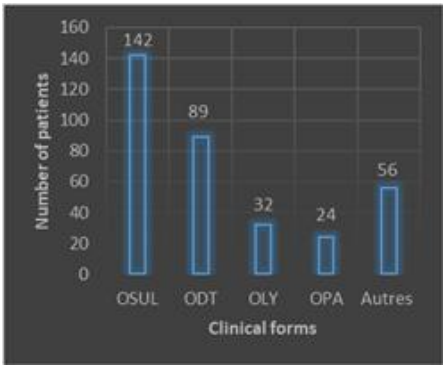

Figure 3: Distribution of cases according to clinical forms of onychomycosis.

Lesions associated with onychomycosis were found in 51/343 (14.86%) patients (Figure 4).

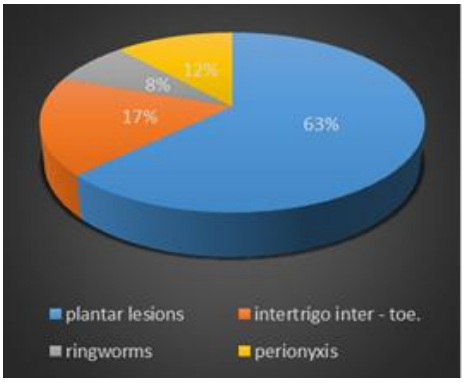

Figure 4: Distribution of associated lesions.

We distinguish:

- 32/51 (62.74%) plantar lesions.
- 9/51 (17.64%) of intertrigo inter-toe.
- 4/51 (17.84%) of ringworms.
- 6/51 (11.76%) of perionyxis.

Mycological data

Dermatophytes were the most common fungi with: 298/343 (86.88%) cases. *Trichophyton rubrum* was the most common species 275/343 (80.17%). Yeasts came in second in 34/343 (9.91%) cases, then molds: 8/343 (2.33%) cases (Figure 5 and Table 2).

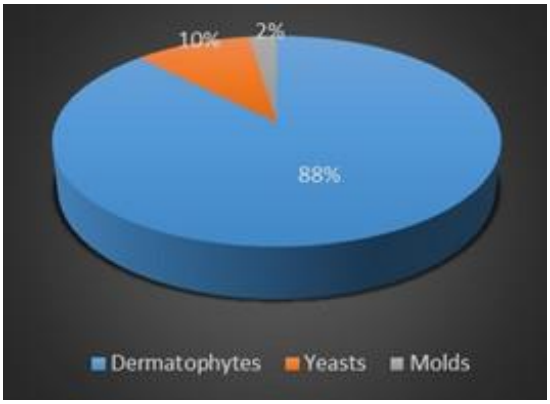

Figure 5: Distribution of cases by group of fungi.

Table 2: The distribution of the species encountered.

Species	Number	Percentage
Trichophyton rubrum	275	80,17%
Candida albicans	23	06,70%
Candida glabrata	01	00,29%
Aspergillus niger	08	02,33%
343	343	343
Trichophyton mentagrophytes	07	02,04%
Microsporum gypseum	02	00,58%
Trichosporon sp	10	02,91%
Trichophyton verrucosum	07	02,04%
Trichophyton violaceum	06	2,65%
Total	343	100%

DISCUSSION

This study allowed us to find a positivity rate of (40.50%) among 847 cases of onychopathies diagnosed between January 1, 2010 to December 31, 2020 (10 years) at the (UHC) of Batna-Algeria. This prevalence is most often due to the heat and humidity frequently associated with frequentation of baths, beaches and communal showers and hammams (hot humid environments, conducive to onychomycosis).

Evaluating the prevalence of onychomycosis in the general population remains difficult due to the fact that patients with onychomycosis are not aware of the pathology and its possible complications.

In our study series we found a predominance of the male sex (55.10%) with a sex ratio=1.23. This was also found in several studies such as that made by Jaiswal et al. in India (72.06%) [3]. The young population was the most represented with a predominance of the age groups of 30 to 60 years (72.01%) , the average age was 41.54 years, which is in accordance with several studies [4,5]. Beyond 60 years, the frequency of onychomycosis decreases in our study population (13% and 11%), this can be explained by the neglect of this mycosis by this population, since most of the time it is painless and that these patients are much more concerned about other health problems such as diabetes or high blood pressure than their onychomycosis.

Heat and humidity were the contributing factors most represented in our study, which has also been described in several studies [6,7].

In our study, onychomycosis predominated in the toenails (72.30%). This is also found in the study carried out by Imarazene et al. in Tizi ouzou (63%) [8], in Morocco by Halim et al. (74%) [9]. This localization can be explained by the growth rate of the nail which is slower at the toes reducing the elimination of the fungus and by the frequency of contamination from soiled soil (collective showers) by anthropophilic dermatophytes and humidity favored by wearing closed shoes [10-12].

Disto-lateral subungual onychomycosis was the clinical form most represented in our study, this has also been found by other authors [9,13].

Dermatophytes represent the most frequent etiology of onychomycosis in our study with a rate of (86.88%). *Trichophyton rubrum* is the most common species, a result comparable to several studies [5,9].

CONCLUSION

Our study made it possible to underline the interest which should be shown in onychomycosis in terms of their frequency and to better understand the epidemiological, clinical and mycological characteristics of onychomycosis. This study reinforces the importance of mycologic confirmation of onychomycosis in any patient with onychopathy, allowing treatment to be adjusted and long, costly and ineffective treatment to be avoided.

We can thus say that our results are in their sets identical to those of the literature.

COMPETING INTEREST

The authors declare that they have no conflict of interest directly or indirectly related to this article.

REFERENCES

1. Kashyap B, Bhalla P, Kaur R. Onychomycosis: Epidemiology, diagnosis and management. Indian
2. Indian J Med Microbiol. 2008;26(2):108-116.
3. Richard K. Scher C. Ralph Daniel. Onychologie: Diagnostic, traitement, chirurgie, Elsevier Masson. 2007:21-26.
4. Jaiswal A, Sharma RP, Gupta K. Onychomycosis: A clinicomycological study from western Uttar Pradesh, India. India J Med Specialities. 2015;6(1):8-12.
5. Sbay A. Epidémiologie des onychomycoses à l'hôpital militaire d'instruction Mohamed V de Rabat. Thèse en Pharmacie. 2010.
6. Akammar S. Les onychomycoses : Études rétrospectives et particularité chez les diabétiques. Thèse de pharmacie FES Maroc. 2013.
7. Guibal F, Baran R, Duhard E, Feuilhade de Chauvin M. Épidémiologie et prise en charge des onychomycoses en pratique dermatologique libérale en France. J Mycol Med. 2008;135(8-9):561-566.
8. Zukervar P, Dabin G, Secchi T,Petiot-Roland A, Mathon N, Maccari M, et al. Étude des onychomycoses en médecine de ville dans la région lyonnaise. J Mycol Med. 2011;21(2):118-122.
9. Imarazene L, Ouhib L. Les cas d'onychomycoses diagnostiqués au Centre-Hospitalo-Universitaire de TIZI OUZOU [Mémoire]. Tizi-Ouzou. 2015.
10. Halim I, El Kadioui F, Soussi Abdallaoui M. Les onychomycoses à Casablanca (Maroc). J Mycol Med. 2013;23(1):9-14.
11. Nzenze Afène S, Ngoungou EB, Mabika Mamfoumbi M, Bouyou Akotet MK, Avome M IM, Kombila M. Les onychomycoses au Gabon: Aspects cliniques et mycologiques. J Mycol Med. 2011;21(4):248-255.
12. Duhard E. Ongle normal et ongle mycosique. Ann Dermatol Venereol. 2003;130(12):1231-1236.
13. Souza LKH, Fernandez OFL, Passos XS, Costa CR, Lemos JA, Silva MRR. Epidemiological and mycological data of onychomycosis in Goiania, Brazil. Mycoses. 2009;53(1):68-71.
14. Seck MC, Ndiaye D, Diongue K, Ndiaye M, Badiane AS, Sow D, et al. Profil mycologique des onychomycoses à Dakar. Revue de Médecine et de Pharmacie. J Mycol Med. 2014;24(2):124-128.