

Epidermomycosis at the Avicenne Military Hospital in Marrakech: 6-Year Review

Beddou G^{1*}, SKALI H¹, El Mezouari E¹, Hocar O², Akhdari N², Amal S2, Moutaj R¹

¹Parasitology-Mycology Service, Avicenne Military Hospital, Marrakech, Morocco

²Department of dermatology, Mohamed VI university hospital, Marrakech, Morocco

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*Corresponding author: Beddou Ghita

Abstract

Introduction: Epidermomyces are superficial yeast infections that affect the epidermis outside the intertrigo. The aim of our work is to draw up a clinico-epidemiological profile of epidermomyces diagnosed in the mycology parasitology laboratory of the Avicenne military hospital in Marrakech. **Materials and methods:** This is a retrospective study carried out over a period of 6 years (January 2013 to December 2018) including all the cases of epidermomyces diagnosed. After collecting clinical information, a direct examination of the samples is carried out before culture on Sabouraud media with incubation at 27 ° C. The identification of the identity was based on the speed of growth, macroscopic aspects and microscopic colonies. The identification of yeasts was based on the filamentation and assimilation of sugars test: API 20C. **Results:** Epidermomyces was confirmed in 108 cases or 57% compared to all of the samples examined. The sex ratio M / F is 0.74, the average age is 35.5 years. Outpatients are the majority (86%). the prevalence of superficial dermatophyte mycoses was 81.4% followed by yeasts (14.6%) and molds (4%). Isolated dermatophytes are dominated by a single species Trichophyton rubrum (92%), yeasts by Candida albicans (45%) **Conclusion:** Epidermomyces is still a frequent reason for consultation in dermatology. In the face of any clinical suspicion, the mycological diagnosis remains the diagnosis of certainty and for therapeutic orientation.

Keyword: Superficial mycoses; Dermatophytes; Yeasts; Non-dermatophytic filamentous fungi.

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INTRODUCTION

The epidermomyces are superficial mycoses which affects the epidermis and present three clinical forms: epidermis of the hairless skin, intertrigo, and palmoplantar keratoderma. These forms are very frequent, cosmopolite affections but more frequent in tropical and subtropical zones due to their humid and hot climate. The main agents responsible for these superficial yeast infections are dermatophytes, but yeasts and saprophytic molds also remain involved. Before any suspicion of epidermomyces, a mycological examination must be practiced in order to eliminate a differential diagnosis, to have adapted care, and to define an epidemiological profile because the prevalence of these fungi responsible for superficial mycosis varies according to regional differences, the socio-cultural habits, and immigrations.

Consequently, the aim of our work is to draw up the clinical-epidemiological profile of epidermomyces diagnosed in the mycology

parasitology laboratory of the Avicenne military hospital in Marrakech.

MATERIEL ET METHODS

This is a retrospective study carried out over a period of 6 years (from January 2013 to December 2018) including all cases of epidermomyces diagnosed at the department of mycology parasitology of the Avicenne Military hospital in Marrakech.

The mycological analysis of the epidermis was carried out at the laboratory in the absence of any antifungal treatment or treatment stopped previously at least ten days in the case of local treatment and one month for oral one. The scaly skin lesions were collected in sterile 90 mm diameter Petri dishes by scraping with a scalpel blade. A direct examination of the samples in potash diluted to 30% under an optical microscope for the detection of filaments and cultures were conducted in Sabouraud's culture medium supplemented with chloramphenicol and cycloheximide (actidione*). The cultures were incubated at 27 ° C and checked daily and stored for at least five weeks before

giving negative results. The identification of the fungus was based on the growing duration, the macroscopic appearance of colonies, the microscopic examination after staining with lactophenol blue can show the fruiting bodies and / or ornaments of the dermatophytes. The identification of yeasts was based on the filamentation and assimilation of sugars test: Api 20C aux. The diagnosis of epidermomycosis was made when the direct examination and / or culture of the samples were positive.

The data were compared using the chi-square test analysis as appropriate. The level of statistical significance was set at $P < 0.05$. Statistical analysis was performed using SPSS version 11.

RESULTS

The total number of samples taken for the search for epidermomycosis was 548 cases. The female gender was predominant with a sex-ratio (M / F) at 0.74. The patients included in this study are between 12 and 75 years with an average age of 38.5 years. Out of the 548 samples taken, epidermomycosis was confirmed in 343 cases (61%). The direct examination and culture were both positive in 80% of the cases, while in 20% of the cases the sample was positive with only direct examination or culture.

The age distribution of epidermomycosis was heterogeneous, with a maximum of involvement in the age group over 55 years except for Pityriasis Versicolor where the average age was 26 years.

Table-1: Epidemiological data

Prevalence	Sex-ratio (M/F)	Average age	Positivity rate
80%	0,74	38,5 years	61%

Out of the 343 cases of epidermomycosis collected, 274 cases had localized lesions on the feet, 45 cases had hairless skin lesions and non-specific sites, 13 cases had lesions localized in hands and 11 cases had lesions on large folds. 92% of epidermomycosis cases

diagnosed had an association with other superficial mycotic lesions, including feet onychomycosis.

Table-2: distribution by location

Location	Rate
Soles	274
Hairless skin	45
Hands	13
Large folds	11

The epidermomycoes in our series were distributed as follows

At the level of the feet, 221 cases were dermatophytes whose predominant species was *Trichophyton Rubrum* with 198 cases, followed by *Trichophyton mentagrophytes* var. *interdigitales* with 11 cases. For yeasts, 53 cases were diagnosed with *Candida* sp as the predominant species in 42 cases.

In the hairless skin and non-specific site, 21 cases were dermatophytes, the predominant species of which was *T. rubrum* with 16 cases. For yeasts, 24 cases were diagnosed with *Pityriasis versicolor* with *Malassezia furfur*.

In the hands, 5 cases were dermatophytes, the predominant species of which was *T. rubrum* with 4 cases. For yeasts, 8 cases were diagnosed with *Candida* sp as the predominant species in 6 cases.

At the level of the large folds, 94 cases (54.3%) of dermatophytes, the predominant species of which was *T. rubrum* with 89 cases. For yeasts, 79 cases (45.6%) with *Candida albicans* 40 cases as the predominant species; are 81.4% due to dermatophytes. *Trichophyton Rubrum* is found in 90% of cases in our cultures followed by *Trichophyton mentagrophytes* var. *interdigitales* at 5%. Yeasts are responsible for 14.6% of cases. And 80% of *Candida Albicans*, while *Malassezia* is the only genus responsible for *pityriasis versicolor*.

Table-3: distribution of dermatophytes according to location

Location	<i>Trichophyton rubrum</i>	<i>Trichophyton mantagrophytes</i>
Soles	198	11
Hairless skin	16	-
Hands	4	-
Large folds	89	-

Table-4: distribution of yeasts by location

Location	<i>Candida</i> sp	<i>Candida albicans</i>	<i>Malassezia furfur</i>
Soles	42	-	-
Hairless skin	-	-	24
Hands	6	-	-
Large folds	-	40	-

DISCUSSION

Morocco is an intertropical African country where superficial yeast infection remains frequent. Thus, a good knowledge of the epidemiology of these superficial yeast infections will be important in the management of the diagnosis and treatment of these yeast infections. Hence the importance of identifying the fungal agents of superficial yeast infection in this region. Thus, the data relating to all superficial mycosis diagnosed at the laboratory during the period from January 2013 to December 2018 were used. From these data, a 34.2% prevalence of superficial yeast infection was found. In addition, this prevalence has remained almost constant if one considers its evolution according to the years of study varying between 29 and 38.4% (laboratory data). This is a high prevalence if one considers that 20 to 25% of the world population would suffer from superficial yeast infections but with, however, an evolutionary tendency [1]. Elsewhere in Africa, in a Tunisian study, Chaker et al. had obtained a result superior to ours with 53.7% of superficial mycosis [2] while in another intertropical zone a prevalence of 50.6% was obtained in Brazil [3].

In Europe, more particularly in Malta, France, and Turkey, prevalence rates of 32%, 63.1%, and 70% respectively were obtained [4-6]. That of Malta is close to our result while those obtained in the two other European countries are much higher than ours. This seems contrary to observations which stipulate that in intertropical zones, due to their hot and humid climate, superficial yeast infections are more frequent than in temperate zones [7]. However, these values found in these two countries could, on the one hand, be explained by the important migratory phenomena in these two countries which are among the European countries which receive the most immigrants, African in particular and, on the other hand, by the socio-economic conditions in these countries far ahead compared to ours in development. Indeed, mycoses remain very little known to the population in sub-Saharan Africa where they only rarely consult. However, whatever the geographical area, the agents of superficial yeast infections most frequently found in decreasing order are dermatophytes, yeasts, and molds. In Asia, in China [8] being the largest population in the continent, the prevalence of epidermomycosis remains low compared to our series with a rate of 20.7%. concerning the infectious agent, in our series the *Trichophyton Rubrum* is found in 90% which joins the series reported in Malta (34.5%) [4], Turkey (68%) [6], Greece (48%) [9] and Senegal (52.8%) [10] whereas in China [8] *Tinea unguis* was the most frequent agent (28.5%) and in Tunisia [2] *Tinea rubrum* was the most frequent (74.5%).

CONCLUSION

Our study shows that the fungal agents fungi in Marrakech (Morocco) are dermatophytes. Their

infections are more common in women than men. However, the distribution of these agents of superficial fungi varies according to age since dermatophytes are mostly found in young adults. Yeast agents of superficial yeast infection vary according to age since dermatophytes are mainly found in young adults. yeasts which are more common in young adults while molds are more common in older adults and the elderly. Finally, these epidemiological data should allow better diagnostic and therapeutic management of superficial yeast infections caused by these fungi.

REFERENCE

1. Ameen, M. (2010). Epidemiology of superficial fungal infections. *Clinics in dermatology*, 28(2), 197-201.
2. Chaker, E., H'mida, S., Sfar, Z., Souissi, R., & Kamoun, M. R. (1987). Bilan des mycoses superficielles rencontrées à l'hôpital Habib Thameur de Tunis. *Ann Soc Belge Méd Trop*, 67, 283-90.
3. Chiacchio, N. D., Madeira, C. L., Humaire, C. R., Silva, C. S., Fernandes, L. H. G., & Reis, A. L. D. (2014). Superficial mycoses at the Hospital do Servidor Público Municipal de São Paulo between 2005 and 2011. *Anais brasileiros de dermatologia*, 89(1), 67-71.
4. Faure-Cognet, O., Fricker-Hidalgo, H., Pelloux, H., & Leccia, M. T. (2016). Superficial fungal infections in a French teaching hospital in Grenoble area: retrospective study on 5470 samples from 2001 to 2011. *Mycopathologia*, 181(1-2), 59-66.
5. Koksal, F., Er, E., & Samasti, M. (2009). Causative agents of superficial mycoses in Istanbul, Turkey: retrospective study. *Mycopathologia*, 168(3), 117-123.
6. Vella Zahra, L., Gatt, P., Boffa, M. J., Borg, E., Mifsud, E., Scerri, L., ... & Pace, J. L. (2003). Characteristics of superficial mycoses in Malta. *International journal of dermatology*, 42(4), 265-271.
7. Simonnet, C., Berger, F., Gantier., J-C. (2011). Epidemiology of superficial fungal diseases in French Guiana: a three-year retrospective analysis. *Med Mycol*, 49:608—11.
8. Wenying, C., Changming, L., Xiqing, L., Junmin, Z., Ping, Z., Liyan, X.(2016). Epidemiology of superficial fungal infections in Guangdong, Southern China: a retrospective study from 2004 to 2014. *Mycopathologia*, 181(5-6):387—95.
9. Sofia, Maraki, A. (2007). 7-year survey of dermatophytoses in Crete, Greece Mycoses, 50, 481–484
10. Cai, W., Lu, C., Li, X., Zhang, J., Zhan, P., Xi, L., ... & Yu, X. (2016). Epidemiology of superficial fungal infections in Guangdong, southern China: a retrospective study from 2004 to 2014. *Mycopathologia*, 181(5-6), 387-395.