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Surface Mycoses in Patients under Chemotherapy at the Avicenne Military Hospital of Marrakech

Ahroui Y*, Essadi I, Ait ouzdi Z, Zemrani Y, El Mezouari E. Moutaj R

Mycology parasitology service Avicenne Military Hospital. Medical School Cadi Ayyad University Marrakesh
Oncology Service Avicenne Military Hospital. Medical School. Cadi Ayyad University Marrakesh

***Corresponding author:** Ahroui Yassine
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Abstract **Original Research Article**

Objectives: The aim of this study is to evaluate the prevalence of superficial cutaneous mycosis in patients undergoing chemotherapy followed at the oncology unit of Avicenne Marrakech Military Hospital. Analyze the factors favoring their occurrence. ***Patients and methods:*** We report a cross-sectional prospective study, including 75 patients from the oncology unit of the Avicenne Marrakech MilitaryHospitalundergoingchemotherapy (all tumorsincluded). Clinical and mycologicalexaminations are performed in these patients, involving 8 locations. ***Results:*** On all patients included wenoted a predominance of the male sexwith a sex ratio H / F of 1.5. The averageage of the patients was 56.8 years. The risk factors selected are corticosteroids, radiotherapy, chemotherapy and diabetes. The nails and the dander are by far the most collected locations; these two sites represent more than 90% of all samples, the direct examination was positive for 20 samples (58.9%), while the culture was positive for 18 samples (53%). Dermatophytes were the most common group of agents with 83.3%. Then came in second position the yeasts with 16.7%. The crop has revealed different species. Trichophyton rubrum is the most incriminated species; this dermatophyte was found in 12 cultures or 66.6%. ***Conclusion:*** Given these results, it is therefore important to undertake specific measures of prophylactic and curative control against MCS for improving the comfort of life of patients on chemotherapy.
Keywords: Chemotherapy; Dermatophytes; yeasts; Skin mycosis.

INTRODUCTION

Fungal infections, which are at the forefront of skin infections, represent a frequent dermatological pathology.

Their incidence is significantly increased du to the appearance of immunodepression states caused by certain pathologies or treatments including various chemotherapy protocols. The objectives of our work are:

- To evaluate the prevalence of superficial cutaneous mycosis in chemotherapy patients followed at the oncology unit of the Avicenne Marrakech Military Hospital.
- Analyze the factors that favor their occurrence.
- Identify the responsible fungal flora

PATIENTS AND METHODS

Methodology

It is a prospective cross-sectional study, including all patients of the oncology unit of the Avicenne Marrakech military hospital, under chemotherapy (all tumors included). Clinical and mycological examinations are performed in these patients, involving 8 locations.

Sampling methods

Skin lesions

They are scraped off with a curette, a scraper or a foam scalpel on the periphery of the lesion (on the inflammatory bead), to which is applied a swab previously moistened with sterile distilled water.

Onyxis

The sample is preceded by the cutting of the periphery of the nail using forceps or scissors, the chips are then collected.

Mycological diagnosis

A direct examination of the sample is carried out before cultivation. Indeed, a dermatophyte is confirmed by a positive direct examination and / or a positive culture.

Direct examination

The pathological product is deposited on a blade with a drop of lightening liquid, in particular 20% potassium hydroxide, for microscopic observation at objective 10 and then at 40, in phase contrast.

Culture

Two isolation media were used: Sabouraud-chloramphenicol medium (SC) and Sabouraud-chloramphenicol-Actidione medium (SCA). These media were prepared in tubes and / or Petri dishes, and were seeded by depositing the sample on the agar at different points. The cultures are then incubated at room temperature between 20-30 C.

A culture observation was done every 48 hours, and four-week incubation was necessary before declaring a negative culture.

Identification

The identification of different species of filamentous fungi was based on a set of criteria including: growth rate, macroscopic and microscopic aspects of the colonies after mounting them between blade and lamella in lactophenol blue [1]. The yeasts identification was based on the morphological and physiological characteristics (blastose test) [2].

RESULTS

During the study period, 75 patients are included, 525 sites are clinically examined. Out of a total of 15 patients with suspicious lesions (20%), a total of 34 samples are taken.

Among all patients included, we noted a predominance of the male sex (50 H / 25 F) with a sex ratio H / F of 1.5. The average age of patients was 56.8 years with extremes of 42 to 75 years, the median being 58 years.

The risk factors for the development of superficial cutaneous mycoses retained are corticosteroids, radiotherapy, and diabetes mellitus (Table I).

The samples taken concerned suspicious lesions. The feet nails and the feet dander are by far the most collected locations; these two locations represent more than 90% of all samples, while no suspicious lesions were found at two locations; the glabrous skin and the scalp. The following diagram shows the distribution of samples by location (Figure 1).

The direct examination was positive for 20 samples (58.9%), while the culture was positive for 18 samples, a percentage of 53%.

Table-I: Distribution of risk factors in patients with suspicious lesions

	NUMBER	%
DIALYSIS	0	0
CORTICOSTEROIDS	13	81.2
RADIOTHERAPY	7	43.7
DIABETES	0	0
SURGERY	12	75

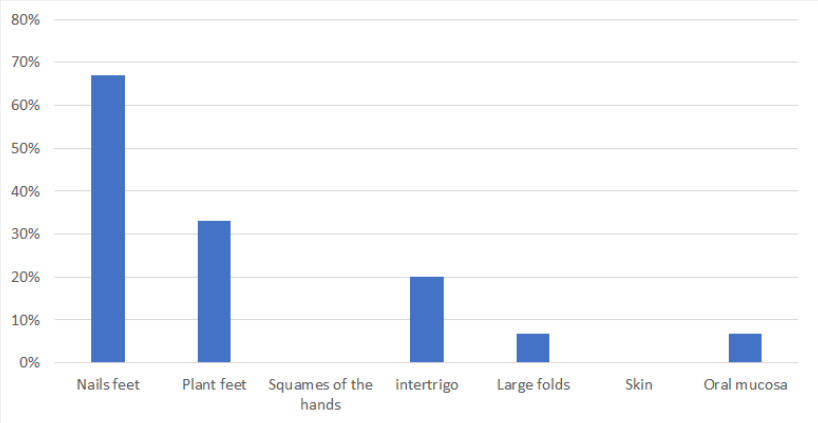

Fig-1: Distribution of samples according to the locations

The number of patients having positive samples is 15, a prevalence of 20%. The following diagram shows the distribution of samples, positive direct examinations and positive cultures by location (Figure 2).

Dermatophytes were the most common group of agents (83.3%). Then come in second place the yeasts (16.7%).

Different species have been revealed by the culture. Trichophyton rubrum is the most incriminated species, it was found in 12 cultures or 66.6% of all positive cultures, followed by Trichophyton mentagrophytes and Candida albicans in 3 cultures each (16.7%).

For foot nail samples, Trichophyton rubrum was isolated from seven cultures, Trichophyton mentagrophytes in two crops. T. rubrum was the most incriminated dermatophyte in foot dander samples (4 crops). Candida albicans has been isolated in oral cavity and folds (inguinal and interdigito-plantar).

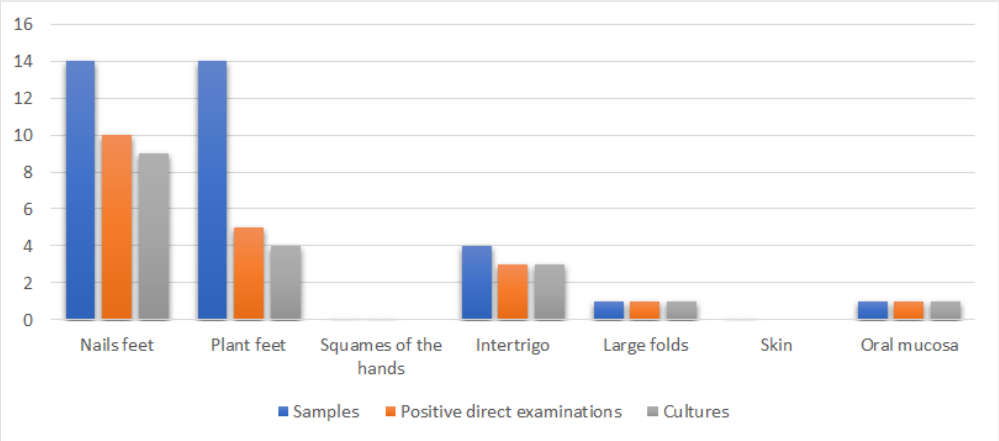

Fig-2: Distribution of samples, positive direct examinations and positive cultures by location

DISCUSSION

After a deep literature search, we did not find a study similar to ours, despite the seriousness of these infections in this type of patients. As a result, we decided to compare our results with other studies in patients having other immunodeficiency causes and with the general population.

The average age of our patients as well as the sex ratio H / F is consistent with those found in these studies. Lower results were found in a national series on the general population. This may be explained by the incrimination of pediatric patients in this study (Table II).

The prevalence of superficial mycotic infections in our study is 20%. Elsewhere in Africa, in a Tunisian study, Chaker and al. had obtained a superior result to ours with 53.7% superficial mycosis [7] while in an intertropical zone (Brazil) a prevalence of 50.6% was found [8]. In Europe, more particularly in Malta, in France and in Turkey prevalences of 32%, 63.1% and 70% respectively were obtained [9-11]. Malta's prevalence is close to our result while those obtained in the other two European countries are much higher than ours. This seems contrary to the observations which stipulate that in tropical zones, due to their hot and humid climate, superficial mycoses are more frequent than in temperate zones [12].

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 that welcome the most immigrants, particularly African, and, on the other hand, by the socio-economic conditions in these countries far in advance compared to ours in development. However, regardless of the geographic area, the most prominent superficial mycosis agents in descending order are dermatophytes, yeasts and molds [9, 12, 11]. Our results are perfectly in phase with this observation. Regarding the dermatophytes, the most found species vary according to the geographical area [13].

Table-II: epidemiology of the age of our patients according to the authors

	Average age	Sex ratio M/W
ZIDA ET AL [3]	42	0.89
ABOUNOUH [4](immunosuppressed)	49,9	1.45
KAMIL [5] (general population)	32	0.7
DIONGUE [6] (general population)	31	0.4
Our study (2018)	56,8	1,5

The predominant dermatophyte in our study is the T. ruburm, cosmopolitan species. This result confirms what has been found before by other studies in Morocco (Table III), in Tunisia, Turkey, China, France, Brazil, Malta and French Guiana [8-15]. The yeasts found remain dominated by the genus Candida and the

species C. albicans, probably linked to their wide distribution and their commensal character, despite the emergence of other genera as Trichosporon.

Table-III: Epidemiology of germs according to the authors

	Trichophyton rubrum	Trichophyton mentagrophytes	Candida albicans
ABOUNOUH [4] (immunodéprimé	85,71%	6,12%	2,04%
KAMIL [5] (population générale)	70.1%	1.002%	10.9%
Notre étude (2018)	66,6%	*16,7%*	*16,7%*

The Malassezia's absence in this study does not reflect the true epidemiological reality. Indeed, malassezioses remain mostly neglected: these affections are clinically very frequent in Morocco but have very little consultation or mycological diagnosis.

CONCLUSION

We report a low overall prevalence of superficial cutaneous mycosis (SCM) in patients receiving chemotherapy. On the other hand, our results confirm the conclusions of previous studies according to which immunosuppression would be a favorable factor in the occurrence and the development of SCM, especially those du to some fungal species such as T. rubrum and C. albicans. Given these results, it is therefore important to undertake specific measures of prophylactic and curative control against SCM for improving the life comfort of patients on chemotherapy.

REFERENCES

1. Chabasse D, Bouchara JP, De Gentile L, Brun S, Cimon B, Penn P. Les dermatophytes. Cahier de Formation Biologie Médicale. 2004;31:75-121.
2. Bouchara JP, Pihet M, Gentile L, Cimon B, Chabasse D. Yeasts and yeast infections. Training Booklet Medical Biology. 2010; 44: 76-167.
3. Zida A, Sawadogo PM, Diallo I, Tapsoba H, Bazie Z, Drabo YJ, Guiguemde TR. Aspects épidémiologiques des mycoses cutanéo-phanériennes chez les patients infectés par le VIH au Centre national de référence du Burkina Faso, Afrique de l'Ouest. Journal de mycologie médicale. 2016 Jun 1;26(2):133-7.
4. Abounouh N. *Mycoses cutanées superficielles chez les patients immunodéprimés à l'Hôpital Militaire d'Instruction Mohammed V de Rabat* (Doctoral dissertation).
5. KAMIL N. *Les mycoses superficielles selon une série de l'hôpital Ibn Sina de Rabat (3ans, 2085 cas)* (Doctoral dissertation).
6. Diongue K, Diallo MA, Ndiaye M, Badiane AS, Seck MC, Diop A, Ndiaye YD, Ndiaye D. Champignons agents de mycoses superficielles isolés à Dakar (Sénégal): Une étude rétrospective de 2011 à 2015. Journal de Mycologie Médicale. 2016 Dec 1;26(4):368-76.
7. Chaker E, H'mida S, Sfar Z, Souissi R, Kamoun MR. Bilan des mycoses superficielles rencontrées à l'hôpital Habib Thameur de Tunis. Ann Soc Belge Méd Trop. 1987;67:283-90.
8. Chiacchio ND, Madeira CL, Humaire CR, Silva CS, Fernandes LH, Reis AL. Superficial mycoses at the Hospital do Servidor Público Municipal de São Paulo between 2005 and 2011. Anais brasileiros de dermatologia. 2014 Feb;89(1):67-71.
9. Faure-Cognet O, Fricker-Hidalgo H, Pelloux H, Leccia MT. Superficial fungal infections in a French teaching hospital in Grenoble area: retrospective study on 5470 samples from 2001 to 2011. Mycopathologia. 2016 Feb 1;181(1-2):59-66.
10. Koksal F, Er E, Samasti M. Causative agents of superficial mycoses in Istanbul, Turkey: retrospective study. Mycopathologia. 2009 Sep 1;168(3):117-23.
11. Vella Zahra L, Gatt P, Boffa MJ, Borg E, Mifsud E, Scerri L, Vella Briffa D, Pace JL. Characteristics of superficial mycoses in Malta. International journal of dermatology. 2003 Apr;42(4):265-71.
12. Simonnet C, Berger F, Gantier JC. Epidemiology of superficial fungal diseases in French Guiana: a three-year retrospective analysis. Medical mycology. 2011 Aug 1;49(6):608-11.
13. Ameen M. Epidemiology of superficial fungal infections. Clinics in dermatology. 2010 Mar 1;28(2):197-201.
14. Neji S, Makni F, Cheikhrouhou F, Sellami A, Sellami H, Marreckchi S, Turki H, Ayadi A. Epidemiology of dermatophytoses in Sfax, Tunisia. Mycoses. 2009 Nov;52(6):534-8.
15. Cai W, Lu C, Li X, Zhang J, Zhan P, Xi L, Sun J, Yu X. Epidemiology of superficial fungal infections in Guangdong, southern China: a retrospective study from 2004 to 2014. Mycopathologia. 2016 Jun 1;181(5-6):387-95.