

Dermatophytes in North West of Algeria a Prospective Study

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Abstract: The aim of this study was to determine the dermatophyte flora in the north west region of Algeria. One hundred and twenty one cases of dermatophytosis in both sexes of different ages were studied. These clinical cases were examined at the dermatology out patient clinic of Oran University Hospital center. The samples were taken from skin, hair and nails to be analysed at the Microbiological laboratory at the department of biology, University of Mostaganem Algeria. The direct Microscopic examination and the culture in Sabouraud medium gave 39.67% of positive results. The results were as follows: *Trichophyton rubrum* 27.08%, *Trichophyton tonsurans* 04.10%, *Microsporum canis* 20.83%, *Microsporum audouinii* 02.08%, *Trichophyton violaceum* 18.76%, *Trichophyton verrucosum* 02.08%, *Epidermophyton floccosum* 08.33%, *Trichophyton soudanense* 02.08%, *Trichophyton schoenleinii* 06.26%, *Microsporum equinum* 02.8% and *Trichophyton gourvilii* 06.26%. We noticed that the trichophytic dermatophytes were more predominant: 66.68% than the Microscopic dermatophytes: 24.99%, however the *Epidermophyton floccosum* germs were present only at the rate of 08.33%.

Key words: Dermatophytosis-ratio of dermatophytes

INTRODUCTION

There are many different fungal flora around the world, these variations are caused by different climatic conditions, life styles, working conditions and socio-economic factors [1].

Dermatophytes cause most superficial fungal infections, but some yeasts and dermatophytic molds are also sometimes involved [2]. The transmission of the Tinea infections can be spread via person, by soil contact or from animal contact [3].

Fungal infections of scalp are referred to as Tinea capitis, Tinea pedis is a superficial infection of the foot, groin are referred to Tinea cruris; and most of other superficial skin infections due to Tinea are categorised as Tinea corporis. Superficial infections are seen world wide [4-6]. A reported increase in incidence of dermatophytosis can be attributed to the increased use of broad-spectrum antibiotics and the expanding number of immunocompromised patients [7].

Chronic superficial fungal infections probably occur in about 20% of the population and over 90% of adult

males have had one or more superficial fungal infections sometimes in their lives [8, 9].

Some other incidences have been reported as nosocomial spread; in developed countries [10-13]. In developing countries particularly in hot climates some studies were done [14-17]. In Algeria many studies on dermatophytes were done [18-20]; these studies reported that most of cases of dermatophytosis in this country were caused by spready anthropophilic dermatophytes species leading to endemic or epidemic diseases.

In the present study we determine, the prevailing species of dermatophytes in several common fungal infections in Oran region which represent the north west of Algeria.

MATERIALS AND METHODS

One hundred and twenty one patients with clinical Dermatophytosis were studied at the dermatology out patients clinic center of Oran university Hospital from June 2004 to June 2005.

Table 1:

Type of dermatophyte species	Number of positive cultures	Percentage of a positive culture to the total of dermatophytes (%)
<i>Trichophyton rubrum</i>	13	27.08
<i>Microsporum canis</i>	10	20.83
<i>Trichophyton violacium</i>	09	18.75
<i>Epidermophyton floccosum</i>	04	08.33
<i>Trichophyton schoenleinii</i>	03	06.25
<i>Trichophyton gouvillii</i>	03	06.25
<i>Trichophyton tonsurans</i>	02	04.16
<i>Microsporum audouinii</i>	01	02.08
<i>Trichophyton soudaneuse</i>	01	02.08
<i>Microsporum equinum</i>	01	02.08
<i>Trichophyton verrucosum</i>	01	02.08

Table 2: Number of positive results in direct microscopic examination and cultures and the percentage of positive culture to the total of positive clinical diagnosis

Clinical diagnosis	No. of cases	No. of positive direct Microscopic examination	No. of positive after culture	Percentage of cultures to the total of positive clinical diagnosis (%)
TINEA capitis	41	25	17	41.46
TINEA corporis	33	22	11	33.33
TITEA pedis	42	34	19	45.24
TITEA ungunum	05	04	01	20.00

Table 3: The percentage of dermatophytes Isolated from their natural habitat

The isolated dermatophytes	Number of the species isolated	Percentage of dermatophytes (%)	The isolated the positive	Number of Isolates	Percentage of the positive
<i>T. rubrum</i>	13	36.11	<i>M. canis</i>	10	33.33
<i>T. violacum</i>	09	25.00	<i>M. verrucosum</i>	10	08.33
<i>E. floccosum</i>	04	11.11	<i>M. equinum</i>	01	08.33
<i>T. schoenleinii</i>	03	3.33			
<i>T.gourvillii</i>	03	3.33			
<i>T. tonsurans</i>	02	5.55			
<i>M. andouinii</i>	01	2.77			
<i>T. soudanense</i>	01	2.77			

Most patients were came from rural places of Algeria. They were classified as follows:

- 1st group diagnosed clinically as Tenia Capitis.
- 2nd group diagnosed clinically as Tenia Corporis.
- 3rd group diagnosed clinically as Tenia Ungunum
- 4th group diagnosed clinically as Tenia Pedis.

The hair scalps were collected from each one of these patients in Petri-box using a sterilized scalpel. The specimens were taken from the periphery of the lesions previously wiped with ethyl alcohol 70% to remove dirt and contaminating bacteria, the specimens were analysed by direct microscopy by using one drop 10% of KOH for 5 minutes and cultured in sabaraud's dextrose agar tubes (Institut Pasteur d'Algérie).

The Medium containing either 0.05 mg ml⁻¹ of chloramphenical or 0,04 mg/ml of cycloheximid to

prevent bacterial contamination subcultures of the colonies were made on sabaraud's plate for a macroculture study of colonies of dermatophytes incubated at 27°C and examined a week up to four weeks. A Microscopic examination was made for slides stained by lactophenol methylen bleu.

Results and comments: Results are summarized in Table 1-3. Type of dermatophytes isolates with a percentage of positive culture of the total of isolates

DISCUSSION

From this study we can see that *T. rubrum* was the most common case of dermatophytes in Oran followed by *M. canis*, *T. violacum*, *E. floccosum* *T. schoenleinii*, *T. gourvillii*, *T. tonsurans*, *M. audouinii*, *T. verrucosum*, *T. sondaneuse* and *M. aquinum*. The study of Dahlouk

1998 had the same dominant species: *T. rubrum* and *T. violacium*. The frequency with which the dermatophytes were isolated from clinical types of *Tenia capitis* and *Tenia corporis* are given in Table 2.

We can see from these results that *Tenia pedis* has a higher frequency: 45.24% than *Tenia capitis*: 41.46%, *Tenia corporis*: 33.33% and *Tenia Ungunum*: 20%.

Anthropophilic species isolated in this work were mainly *T. rubrum*, *T. violacium* and *E. floccosum*, however the zoophilic species were *M. canis*, *T. verrucosum* and *M. equinum* were shown in Table 3, from the interview done on patients, we can say that the transmission of the ringworm in Oran area seems to be by direct contact between healthy and infected persons rather than by contact between person and domestic animals.

We can conclude that the dermatophytes infections present an important public health problem, as dermatologic diseases from a patient coming to the service of Dermatology in Oran hospital university and the diseases of dermatophytoses in Oran region remain endemic and epidemic in this region; specially if we consider that the service of dermatology present all patients of the north west of Algeria. Measures for prevention should be done by the maintenance of resistance to infection by individual care and hygiene in this region of Algeria

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