“CLINICAL PICTURE AND ETIOLOGY OF DERMATOPHTOSIS IN A TERTIARY CARE CENTER, KANPUR”

R.Sujatha¹, Nidhi Pal²

1. Professor & Head, Department of Microbiology, Rama Medical college Hospital & research center, Kanpur
2. Ph.D. Scholar, Department of Microbiology, Rama Medical college Hospital & research center, Kanpur

ABSTRACT:

Background: Dermatophytoses is worldwide in distribution; however, it is more prevalent in tropical countries due to relatively high humidity and temperature. This study was conducted to rule out the clinical forms and etiology of dermatophytoses. Material and Methods: 70 clinically suspected cases of dermatophytoses were subjected to clinical and mycological study. Skin scrapings, nail clipping and infected hair stubs from the suspected cases were screened for fungal elements by 10% KOH preparation. Results: Of 70 suspected cases of dermatophytoses, the age group below 40 years had accounted for 88.5% of patients. 68.6% of patients were males and 31.4% were females. T. cruris, T. corporis and T. capitis were the most common clinical types. In 60% of the cases, dermatophytes were isolated. The dermatophyte species isolated were T. rubrum, T. vidaceum, T. mentagrophytes, T. tonsurans, t. verrucosum, M. nanum, M. audouinii and E. floccosum in the descending order with isolation rate of 30.9%, 19.04%, 21.4%, 14.3%, 7.14%, 2.4%, 2.4% and 2.4% respectively. Conclusion: Routine screening and health education of hygiene are required to reduce dermatophytoses.

Keywords: Dermatophytoses, T. cruris, T. rubrum.

INTRODUCTION

Dermatophytoses are defined as superficial fungal infection of keratinized tissue of the skin, hair and nail. They are also referred to as Ringworm or Tinea, in association with infected body part¹. Dermatophytosis is caused by a group of related keratinophilic filamentous fungi causing disease in man and animals. The superficial mycosis like Tinea versicolor, Tinea nigra and cutaneous candidiasis are excluded from the dermatophytosis². There are three genera of dermatophyte fungi: Trichophyton, Microsporum and Epidermophyton. Each genus is characterized by a specific pattern of growth in culture and by the production
of macroconidia or microconidia\cite{3}. Different species can be distinguished on the basis of colonial morphology, spore production and nutritional requirements in vitro. There are very few studies on dermatophytosis from in and around Kanpur. This study was undertaken to throw more light on the various clinical forms and isolates causing dermatophytoses in Kanpur.

**Material & Methods:**

This study was conducted in Rama Medical college Hospital & Research Center, Kanpur over a period of a year. Total 70 samples were collected in department of Microbiology. The diagnosis of dermatophytoses was based on a combination of clinical observations supplemented by laboratory investigations. Aseptic techniques were used for sample collection to minimize contamination\cite{4}. Sufficient clinical material like skin scrapping, Hair, nail clips was collected for direct microscopic examination and culture. For Microscopic examination 10% KOH was used for skin scrapping and hair samples while 40% KOH was used for nail clipping. Examine the specimen under low power of the microscope with a reduced light source. To grow dermatophytes SDA with antibiotics were used. Identification of the dermatophytes species was done by colony characteristics in pure culture on SDA and microscopic morphology that was determined by teased mounts or slide culture preparations mounted in Lacto Phenol Cotton Blue (LPCB) mount.

**RESULTS:**

The present study included collection of 70 samples from patients with skin lesions suggestive of fungal infection. Among 70 patients 48 (68.6%) were males and 22(31.4%) were females. The age group below 40yrs had accounted for 62(88.5%) of patients where as the age group above 40yrs had accounted for 8(11.4%) of patients. Thus among both male and female patients most of the patients with skin lesions suggestive of dermatophytosis belong to the age group below 40yrs. Even among those below 40 yrs the age group between 21 –30 in males showed predominance over females. Age wise distribution of male and female patients was shown in **Fig 1**. The spectrum of various clinical types found in 70 patients included in the study is shown in the **Table 1**. Out of the 42 isolates, 13 were T. rubrum (30.9%), 8 were T. violaceum (19.04%), 9 were T. mentagrophytes (21.4%), 6 were T.
Figure 1 shows the age and sex wise distribution of dermatophytosis suspected patients.

Table 1 Dermatophyte species isolated under each clinical type

<table>
<thead>
<tr>
<th></th>
<th>T. cruris</th>
<th>T. corporis</th>
<th>T. capitis</th>
<th>T. pedis</th>
<th>Mixed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. rubrum</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>T. violaceum</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>T. mentagrophyte</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>T. tonsurans</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>T. verrucosum</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>M. gypseum</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>M. nanum</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>M. audouinii</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>E. floccosum</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>No growth</td>
<td>10</td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>18</td>
<td>18</td>
<td>8</td>
<td>6</td>
<td>70</td>
</tr>
</tbody>
</table>
tonsurans (14.3%), 3 were T. verrucosum (7.14%), 1 each of, M. nanum (2.4%), M. audouinii (2.4%) and E. floccosum (2.4%).

Table 1

DISCUSSION:

Dermatophytosis is by far the most common fungal infections in humans and is caused by a group of keratinophillic filamentous fungi with marked affinity for keratinized tissue of skin, hair and nail. Climatic conditions like high temperature and humidity have been found to be increasing factors responsible for the high prevalence of the disease.

It was observed dermatophytoses was highly prevalent below 40 years and had accounted for 88.5% of the patients and was almost similar to other studies which accounted for 81.13% and 91%[8,9]. The high prevalence of the age group 11-20 years was because of an epidemic of T. capitis in an orphanage.

The preponderance of the disease in males than in females and patients of less than 40 years can be explained by the fact that this group of patients are highly active and take part in majority of out door activities, which enhance the chances to acquire infection from increased environmental exposure. Lack of hygiene and overcrowding are also some of the factors responsible for dermatophytic infection. The most common clinical type was T. cruris followed by T. corporis, T. capitis, T. unguium, T. pedis, T. fasceii, T. barbae and mixed infections. This is similar to a study where T. cruris is followed by T. corporis and T. capitis[10]. Severe itching associated with T. cruris and T. corporis may force the patient to seek early medical advice[5,10]. Other types of dermatophytoses usually remain asymptomatic and hence the patients are likely to attend the clinic in severe stages[5].

All the males had toenail infection, which may be attributed to trauma to nails and also the active field work[9]. Most of the female patients had finger nail infection as they immersed their hands frequently in water[11]. T. barbae was found in nails who regularly visited barber shop for shaving their beards. It was noted from these patients that barbers used same blades for different customers.

T. rubrum was the main aetiological agent responsible for 30.9% of dermatophytoses mainly causing T. cruris infection. This is in conformity with most of the studies[12,13,14].

T. mentagrophytes was the second common species isolated which was also responsible for T. cruris and T. corporis infection in our study and is comparable to studies from
Madras, Pondicherry and in N. Karnataka\[^9\]. We had 2 zoophilic strains of T. mentagrophytes.

T. tonsurans was isolated from T. cruris, T. corporis and T. barbae and constituted 12.7\% of the isolates which correlates with a study from Bangalore\[^15\]. This differs from a study from Delhi where 21.8\% of the isolates were got from cases of T. corporis and T. cruris. M. gypseum was isolated from a case of T. fasceii in a woman similar to a study from Madras\[^8\]. This patient had come with highly inflammatory reaction on her chin. This is the most common zoophilic fungus isolated in human infection\[^16\]. We had only one isolate of E. floccosum from a case of T. cruris. One study showed mixed infection of E. floccosum with T. rubrum from a case of T. cruris\[^7\]. M. audouinii was isolated from a case of T. corporis which differed from a study in Bijapur and Thane where it constituted about 6.2\% and 8.92\%\[^12,18\].

**CONCLUSION:**

T. cruris was the most common clinical type followed by T. corporis and T. capitis. T. rubrum was the most common isolate among other fungal isolates of T. molaceum, T. mentagrophytes, T. nanum, M audouinii, and E. floccosum. Hair infection was most commonly caused by T. violaceum. Routine screening and health education (counseling about using clean clothes, taking bath, not having clothes, combs, caps) should go a long way in reducing the dermatophyte infection.

**REFERENCES:**


**CORRESPONDING AUTHOR:**
Dr. R.Sujatha
Professor and Head of Department of Microbiology
Rama Medical College Hospital& Research Centre,Mandhana, Kanpur, U.P.
EmailID: drsujatha152@gmail.com