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PREVALENCE AND SPECIES IDENTIFICATION OF DERMATOPHYTOSIS IN TERTIARY CARE HOSPITAL, RIMS , RANCHI, JHARKHAND.

Microbiology

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ABSTRACT

Introduction- Dermatophytoses is common worldwide and continue to increases. It is a fungal infection of human predominantly caused by keratinophilic mycelia fungi known as dermatophytes such as Trichophyton, Epidermophyton, and Microsporum **AIMS AND OBJECTIVES** To determine prevalence of dermatophytes and species identification. **Materials and Methods - Study place-** Mycology section of Department of Microbiology, RIMS, Ranchi for a period of 12 months from July 2018 to June 2019. A total 112 clinically diagnosed cases of dermatophytes who presented to veneral and skin department of RIMS, Ranchi were included in our study. After detailed history and clinical examination specimens such as nail, hairs, skin scrapping were sent to department of Microbiology for microscopic examination and fungal culture. **Results-** In our study male: female ratio is 1.8:1. T.corporis was the most common clinical presentation followed by T. cruris. T.mentagrophytes was most common isolates followed by T.rubram and rest are Microsporum and other Trichophyton species. **Conclusion-** KOH positive has higher positively rate than culture positive. Family history was present in (43%) of cases. Good hygiene and non-sharing behaviour of objects such as towels, handkerchief can prevent transmission and further spread of such infection.

KEYWORDS

INTRODUCTION

Dermatophytosis are the most common types of superficial cutaneous fungal infections worldwide, affecting almost every age groups. Dermatophytosis belongs to three mycelial fungal genera i.e;Trichophyton, Microsporum and Epidermophyton and are collectively known as dermatophytes. It is also known as Tinea or Ringworm infection (1). Depending on morphological characteristic dermatophytes includes Trichophyton species: infect skin, hair and nails. Microsporum species -Infect skin and hair. Epidermophyton species-Infect skin and nail (2).These groups of fungi invade the stratum corneum of the skin or other keratinized tissues derived from the epidermis such as hair and nails (3,4)

AIMS- To determine prevalence of dermatophytes and species identification.

MATERIALS AND METHODS- This present study was carried out from period of 12 months from July 2018 to June 2019 in Microbiology Department of RIMS, Ranchi. A total 112 clinically diagnosed cases of dermatophytes who presented to veneral and skin department of RIMS, Ranchi were included in our study.

SAMPLE PROCESSING-

1. DIRECT MICROSCOPY EXAMINATION-10% and 40% KOH Mount.

2. FUNGAL CULTURE-

- Sabouraud's Dextrose agar (SDA) with chloramphenicol and Cycloheximide.
- Dermatophytes testing media(DTM)

3. Microscopic Examination of growth by-

- Lactophenol cotton blue mount
- Scotch tape preparartion

4. Species identification of isolated fungus by-

- Slide culture
- Scotch tape preparation
- Urease hydrolysis test.

After detailed history and clinical examination specimens such as nail, hair, skin scrapping were sent to department of Microbiology for direct microscopic examination was performed using potassium hydroxide (KOH) mount. The samples were inoculated onto Sabouraud dextrose agar (SDA) and dermatophyte test medium (DTM). Each sample was inoculated on two tubes of SDA with Cycloheximide and Chloramphenicol incubated at 25°C and 37°C for four weeks before being reporting them to be as sterile .The fungal colony of each isolates was stained with lactophenol cotton blue mount, and observed under microscope for species identification.

RESULT A total of 112 dermatophytosis affected patients were included in present study,out of which 72 were males and 40 were females.

TABLE 1-SEX DISTRIBUTION OF PATIENTS.

SEX	NUMBER	PERCENTAGE
MALE	72	62.06%
FEMALE	40	35.71%

AGE WISE DISTRIBUTION OF PATIENTS-

Age of the patients included in the present study was between 15-65 years. 30.35%patients were in 15-25 years of age group,25% were in 26-35 years of age group, 26.78% in 36-45years of age group, 12.5%were in 46-55years of age group and 5.35% were in age group of 56-65years. Maximum number of patients was in the age group of 15 to 25 years.

TABLE 2-AGE WISE DISTRIBUTION OF PATIENTS

AGE	NO.	PERCENTAGE%
15-25	34	30.35%
26-35	28	25%
36-45	30	26.78%
46-55	14	12.5%
56-65	6	5.35%

Table-3

Based on occupation 112 patients, 22.32% were housewives, followed by students which were 17.85% in number. 12.5% patients were farmer,10.71% were laborerand same percentage involved in government job.9.82% were involved in private job.6.25% were driver and 5.35% were shopkeeper.

TABLE3- DISTRIBUTION OF PATIENTS ACCORDING TO OCCUPATION.

OCCUPATION	NUMBER	PERCENTAGE%
STUDENTS	20	17.85%
LABOUR	12	10.71%
FARMER	14	12.5%
PRIVATE JOB	11	9.82%
GOVERNMENT JOB	12	10.71%
SHOPKEEPER	6	5.35%
HOUSEWIFE	25	22.32%

DRIVER	7	6.25%
OTHERS.	5	4.46%

On the basis of site of Involvement maximum number of patients affected was having both T.corporis and T.cruris 48.21% followed by isolated cases of Tinea corporis 19.64% and T.cruris16.07%. 7.14% were T.faciei, 4.46% were T. pedis, 2.67% were T.unguium and 1.78% was T. capitis.

TABLE 4-DISTRIBUTION OF PATIENTS ACCORDING TO SITE OF INVOLVEMENT.

SITE	NUMBER	PERCENTAGE (%)
Tinea corporis	22	19.64%
Tinea cruris	18	16.07%
Tinea corporis +Tinea cruris	54	48.21%
Tinea pedis	5	4.46%
Tinea unguium	3	2.67%
Tinea faciei	8	7.14%
Tinea Capitis	2	1.78%
Total	112	

Out of 112 clinically suspected cases of dermatophytosis, fungi was demonstrated in 87.5%by direct microscopy (KOH mount) and/or culture. Fifty-two cases (46.42%) were positive by both microscopy and culture. Sixty cases (53.57%) were positive by microscopy and negative by culture. Three cases were negative by microscopy but culture positive.

TABLE 5-DEPICTING KOH MICROSCOPY RESULTS

KOH	NUMBER	PERCENTAGE (%)
POSITIVE	98	87.5%
NEGATIVE	14	12.5%

TABLE 6-DEPICTING CULTURE POSITIVITY RESULTS

CULTURE	NUMBER	PERCENTAGE
POSITIVE	52	46.42%
NEGATIVE	60	53.57%

TABLE 7- KOH AND CULTURE FINDING

	KOH positive Culture positive	KOH positive Culture negative	KOH negative Culture Positive	KOH negative Culture negative
Number of cases	52	60	3	14
Percentage	46.42%	53.57%	2.67%	12.5%

Out of 112 patients, 52 were having culture positive and 98 were KOH positive, 60 were culture negative and 14 were KOH negative.

TABLE 8-PATIENT DISTRIBUTION ACCORDING TO CULTURE AND KOH POSITIVITY.

	POSITIVE	NEGATIVE	TOTAL
CULTURE	52	60	112
KOH	98	14	112

TABLE 9DISTRIBUTION OF PATIENTS ACCORDING TOSPECIES OF DERMATOPHYTES ISOLATED

SPECIES	NUMBER	PERCENTAGE
T.mentagrophyte	14	26.92%
T.rubrum	8	15.38%
M.gypseum	4	7.69%
M.canis	2	3.84%
T.tonsurans	2	3.84%
Mixed Growth	22	42.30%

DISCUSSION-

In present study, the most common affected age group was 15-25 years 32.14%. Least common affected age group was 55-65 years 5.3%.The predisposing factor was working age group rather than the relatively sedentary age groups. Although the majority of studies have observed higher incidence in the third decade. Dermatophytosis was more common in males below 30 years and in females more cases were seen above 30 years.

OCCUPATIONAL ANALYSIS OF DERMATOPHYTOSIS

In present study, most affected patients were housewives (22.32%). The above observation was similar with the study conducted by Carla Andrea Avelar Pires et al (5).

CULTURE AND KOH POSITIVITY

In present study 87.5% samples were positive for KOH and 46.42% were culture positive.

In KOH positive 87.5%, 46.42% were culture positive and 53.57% were culture negative.

In KOH negative samples (14 samples), 3 were culture positive and 11 were culture negative. In present study, total KOH positive samples had less culture positive isolates. It would be due to Patients were alreadybeing on antifungal treatment.

SPECIES IDENTIFICATION-

In present study the most common species observed was Trichophyton mentagrophytes 26.92%, followed by Trichophyton rubrum 15.38% and Microsporum gypseum 7.69% of patients. This result were similar with study of Vikesh Kumar Bhatia et al. (1)

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CLINICAL PROFILE OF DERMATOPHYTOSIS

In the present study, most common type of dermatophytosis on skin surface is both Tinea corporis and Tinea cruris 48.21%.Tinea corporis was observed in 19.64% cases, followed by Tinea cruris affecting 16.07% of patients, Tinea faciei in 7.14%, Tinea pedis in 4.46% cases,Tinea unguium in 2.67% and 1.78% were Tinea capatis.

CONCLUSION

Dermatophyte infections are very common in our country where hot and humid climate in association with poor hygienic conditions play an important role in the growth of these fungi.Prevalence of dermatophytic infections depends on environmental factors, personal hygiene, and individual susceptibility.The present study gives an insight about the etiological agents of dermatophytosis in Ranchi, Jharkhand. By and large Trichophyton species forms the commonest cause of dermatophytosis which includes T.mentagrophytes 26.92% is the most commonest isolate followed by T.rubrum 15.38%, M.gypseum, 7.69%, M.canis and T.tonsurans 3.84% respectively one.In present study we include patients between 15-65 years of age group. In which most common affected age group belongs to 15-25 years and least common affected age group are 56-65 years. In Dermatophytosis males are more common affected than females. In present study 64.28% (72 out of 112) patients were males and 35.71% (40 out of 112) were females. Tinea corporis and Tinea cruris are more common infection of dermatophytes followed by T.faciei, T.pedis,T.unguium and T. capatis. In our study of recurrent dermatophytosis, we observed that a high incidence of intrafamilial tinea infections, misuse of corticosteroids-containing topical antifungal Preparations, poor compliance to treatment and poor personal hygiene were associated with recurrences and poor responses to treatment.

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