



## Prevalence of Fungal Infections Among Dermatophytosis Patients in Our Tertiary Care Hospital, Kanchipuram

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### ABSTRACT:

Dermatophytes are one of the commonest infections in the world today. Dermatophytes are a group of fungal infections that affects the keratinized tissues of the skin, hair and nail. The group consists of three genera namely, Trichophyton, Epidermophyton and Microsporum. The present study was undertaken to study the prevalence and to differentiate dermatophytes and non-dermatophytes and also risk factors that are associated with dermatophytes and occupational related to disease in our tertiary care hospital, Kanchipuram

**Methods:** A total of 106 patients showing typical lesions of dermatophytes from outpatient Department of Dermatology and Venerology in MMCHRI. Samples were collected and processed as per the standard protocol and identification done based on colony characteristics and microscopic morphology of dermatophytes.

**Results:** Out of 106 samples received, 64 patients (60%) were positive for dermatophytes. Tinea corporis is more common in the age group of 20-40 years. Trichophyton rubrum shows the commonest etiology 30 (37%) and Agricultural workers were the common risk factor for Dermatophytes 23(36%).

**Conclusion:** Our study concludes that identification of dermatophyte infection is important for prompt treatment and to elaborate counselling on Personal hygiene, contact with pets and to take complete course of the medications

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## 1. Introduction

Dermatophytosis are one of the commonest infection in the world today<sup>(1)</sup>. Dermatophytes are a group of fungal infections that affects the keratinized tissues of the skin, hair and nail<sup>(2)</sup>. The dermatophytosis infection is referred as ringworm/tinea due to the appearance of the lesion and has three major genera, *Trichophyton*, *Microsporum* and *Epidermophyton*<sup>(3)</sup>. Tinea infection can spread from person-person (anthropophilic) or indirectly from fomites (e.g., clothes, hairbrush, and huts), through soil (geophilic) or contact with animals (zoophilic)<sup>(4)</sup>. It is more prevalent in tropical and subtropical countries because of increased humidity, large population, poor personal hygiene, sharing of things with others and close contacts with animals<sup>(5)</sup>. It is more common in men than woman. Dermatophytic infection leads to disease such as trauma, increased sweating, and diabetes<sup>(6)</sup>. It is worldwide with prevalence with the rate of 20-25% according to the WHO<sup>(8)</sup>. The spectrum of dermatophytosis infection continuously changing with time and geographical distribution<sup>(9)</sup>. In previous years, the non- dermatophytes, also produce similar lesion like dermatophytes<sup>(10)</sup>. Due to the changing lifestyles, increased urbanization, occlusive foot wear, tight fitting synthetic clothing, are all predisposing factors leads to higher prevalence<sup>(11)</sup>. Dermatophytic infection are usually noninvasive but in immunocompromised patients and co-morbid conditions association can rapidly progress to life threatening infections<sup>(12)</sup>. Dermatophytosis is very common among pets and live stock animals. This can be acquired from infected animals<sup>(13)</sup>. The present study was undertaken to differentiate dermatophytes and non- dermatophytes prevalence and its risk factors that are associated with dermatophytes and occupation related to disease in our tertiary care hospital.

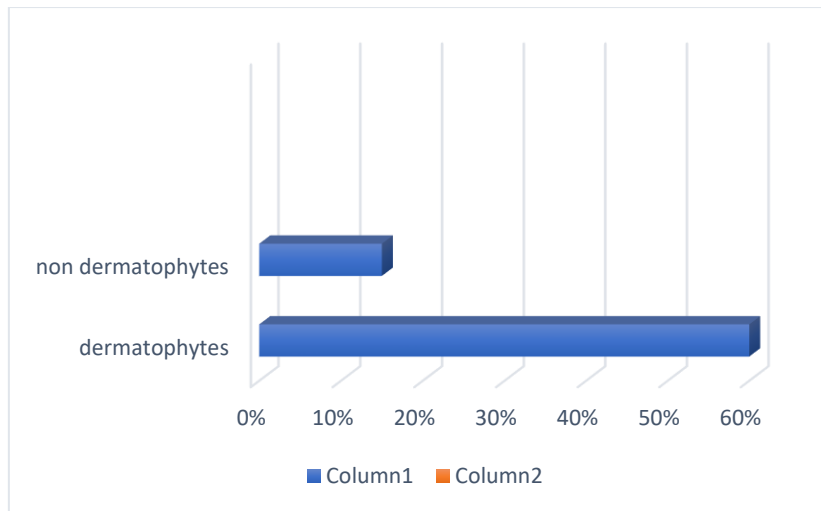
## 2. Materials and Methods:

Our study is a cross sectional study was done over a period of 4 months at in Meenakshi Medical College Hospital and Research Institute. The study population comprised of 106 clinically suspected cases of dermatophytosis attending dermatology out-patient department at Meenakshi Medical College Hospital and Research Institute, Kanchipuram. Informed consent was obtained from all the clinically suspected patients samples were collected from all age and both gender having characteristics lesions of tinea. Patients who are already on antifungal treatment were excluded from the study. Detailed history of name, age, sex, occupation, duration of disease, drugs, socio-economic status, hygiene status, family and personal history were taken<sup>(7)</sup>. The risk factors were also made as to exposure to animals, cases or any other suspected sources<sup>(14)</sup>. The skin scrapings were collected from affected lesions areas swabbed with ethanol(70%) and allowed it to dry. Scrap the lesion until the scales were visible and collected in the sterile black paper.<sup>(15)</sup> The infected nails were swabbed with 70% alcohol and nail clippings were collected in the sterile black paper. KOH mount was done by (10%)skin and (40%)nail. Skin and nail samples were inoculated in the two different media, the Sabourad's dextrose agar with chloramphenicol and cycloheximide and Dermatophyte test medium.<sup>(6)</sup> The plates were incubated at 25°C and 37°C for 3-6 weeks. Culture with growth were identified based on standard mycological procedure with the Lactose Phenol Cotton Blue followed by urease test, colony characteristics and microscopic morphology. Culture negatives were further incubated for another 2 weeks before declaring as no growth.

## 3. Result

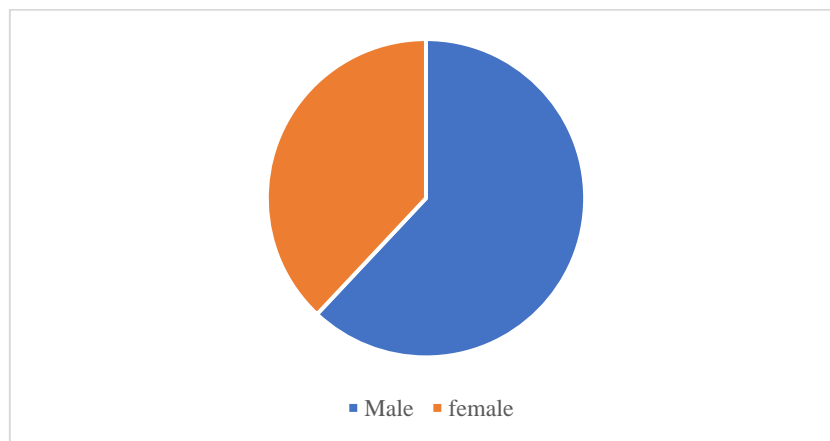
Among 106 clinically diagnosed cases of dermatophytosis, dermatophytes were isolated from 64(60%)cases and 16(15%) were non-dermatophytes.

Picture1: Shows the percentage of Dermatophytes and non-dermatophytes.



Picture:2

Shows the gender wise distribution of dermatophyte infection



Males were more commonly affected than female

TABLE 1 SHOWS THE LESIONS AND AGE WISE DISTRIBUTION

DIAGNOSIS	1-20yrs	20-40yrs	40-60 yrs	>60 yrs	>80 yrs	Total
Tinea corporis	5	16	7	1	1	30
Tinea capitis	2	5	2	1		10
Tinea unguium			1			1
Tinea faciei	3	4	2	1	1	11
Tinea pedis	3	7	1	1		12
Total	13	32	13	4	2	64

Shows that tinea corporis is commonest lesion and more common in age group of 20-40yrs

TABLE 2 : SHOWS THE ETIOLOGY OF DERMATOPHYTE TYPES

ETIOLOGY	NUMBER OF CASES %
<i>Trichophyton rubrum</i>	30(37%)
<i>Trichophyton mentagrophytes</i>	22(28%)
<i>Trichophyton tonsurans</i>	2(2.5%)
<i>Microsporum canis</i>	1(1.25%)

<i>Microsporium gypseum</i>	5(6.25%)
<i>Epidermophyton floccosum</i>	4(5%)
Non- dermatophyte	16(20%)

*Trichophyton rubrum* is the commonest isolate in our study

TABLE 3: SHOWS THE RISK FACTORS FOR DEVELOPING DERMATOPHYTOSIS

RISK FACTOR	NO. OF STUDY PARTICIPANTS%
Agricultural workers	23(36%)
Close contact with animals	20(31.25%)
Sharing clothes with others	11(17.1%)
Family past history	3(5%)
Poor personal hygiene	5(8%)
No risk factor	2(3.1%)

Dermatophytes are more common among agricultural workers followed by close contact with animals

#### 4. Discussion

Among the various fungal infections Dermatophytes are the most common throughout the world *Ramaraj et al 2016*. Our study shows that Dermatophytic infection is common in our area with 64 patients(60%) being positive. Similar findings were also reported by *Ranjith Singh AJA et al 2007*. In our study 38 (59%) were culture positive which is slightly less than *Reena Roy Ghosh et al 2014* who isolated 84% of culture positive and KOH positive. This shows that no mixed type of clinical infection observed. In our study male 66 (62%) were predominant than female 41 (48%). This is similar to the various studies done by *Singh et al 2020* who also isolated more male predominance in their study. This could be due to exposure to the field work is more and low incidence in females may be due to non reporting to the hospitals because of social stigma. In our study Tinea corporis is more common lesion and prevalent in the age group 20-40 years. Similar findings were studied by *Poyamozhi et al 2018* who also isolated Tinea corporis as a common lesion and in the age group of 21 to 30 years. Similar findings were also reported by *Ramaraj et al 2016* who also showed Tinea corporis more common in the age 21-30 years. In our study *Trichophyton rubrum* is the commonest etiology 30 (37%). Similar findings were also reported by *Ranjith Singh A J A et al 2007* who have reported *Trichophyton rubrum* as commonest isolate 52 (72%). In our study it shows that agricultural workers were the common risk factor for Dermatophytes. Similar findings were also reported by *Anand Bhima ray Janagond et al.,2016* who reported agricultural and construction workers were the common risk factors in the study. This could be due to the exposure to dust, hot humid climate, exposure of body parts in water which makes them sweat profusely and their poor personal hygiene. Several studies have shown a strong association between occupation and dermatophytes infection *Anand Bhima ray Janagond et al.,2016*. Since tinea corporis and tinea cruris caused by anthropophilic fungi can be transmitted by infected clothing, towels, and bedding, these items should be disinfected after use and infected individual should not permit others to share them.

## 5. Conclusion:

Our study concludes that identification of dermatophyte infection is important and for prompt treatment. Apart from treatment early diagnosis can limit the spread of disease, prevention, recurrence, re-infection and spreading to others can be inhibited by elaborate counselling on Personal hygiene, contact with pets and to take complete course of the medications.

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