

# A study of patterns of various dermal fungal infections and factors associated at tertiary health care center

Sreedevi<sup>1</sup>, Krishna Rao<sup>2\*</sup>

<sup>1</sup>Assistant Professor, Department of Gynaecology, Government Medical College and General Hospital, Ongole

<sup>2</sup>Professor and HOD, Department of Gynaecology, Katuri Medical College, Guntur

Email: [asypoo664@gmail.com](mailto:asypoo664@gmail.com)

## Abstract

**Background:** dermal fungal infections are most commonly seen in tropical countries. These infections are chronic and have tendency to recur. They affect physical as well as social life of a person. Therefore accurate diagnosis and treatment of the active disease is crucial. **Aim and objective:** To study the patterns of various dermal fungal infections and factors associated at tertiary health care center. **Methodology:** This is a prospective study carried out in a tertiary care center. Study population were 100 patients presenting dermal fungal infections in dermatology OPD. Data was collected with pretested questionnaire like sociodemographic data and data related to hygiene. All patients visiting dermatology OPD were clinically examined. Diagnosis of the patient and type of infection was done by the investigator. Data was analysed with appropriate statistical tests. **Result:** Most common infection was tinea corporis (52%). Most common involved site was trunk (52%). Majority of the patients were in the age group of 21-30 years (25%) followed by 11-20 years (22%). Unskilled workers (28%) and housewives (24%) were the most commonly affected population.

**Key Word:** dermal fungal infections.

## \*Address for Correspondence:

Dr. Krishna Rao, Professor and HOD, Department of Gynaecology, Katuri Medical College, Guntur

Email: [asypoo664@gmail.com](mailto:asypoo664@gmail.com)

Received Date: 20/01/2019 Revised Date: 09/02/2019 Accepted Date: 16/03/2019

DOI: <https://doi.org/10.26611/10121012>

## Access this article online

Quick Response Code:



Website:

[www.medpulse.in](http://www.medpulse.in)

Accessed Date:

04 April 2019

## INTRODUCTION

Fungal infections of the skin are very common in the general population. These infections are more common in tropical countries like India due to environmental factors like heat and humidity. The risk factors include socio-economic conditions like overcrowding, poverty and poor personal hygiene.<sup>1</sup> According to World Health Organization (WHO), the prevalence rate of superficial mycotic infection worldwide has been found to be 20-25%<sup>2</sup> Various studies were carried out across the world

to study the prevalence, risk factors and treatment of these dermal fungal infections.<sup>3-5</sup> Skin infections are of two types, dermatophytic and non dermatophytic. Dermatophytic superficial fungal infections affect keratinized tissues and are also known as tinea. The non dermatophytic superficial fungal infections include tinea versicolor, tinea nigra etc. Tinea is a Latin word for worm or grub because the infections were originally thought to be caused by worm-like parasites.<sup>6</sup> These infections are commonly named according to site of involvement. tinea corporis (general skin), tinea cruris (groin), tinea unguum (nails), tinea capitis (scalp), tinea barbae (beard area) and tinea manuum (hands).<sup>7</sup> Preventative measures of Tinea infections include practicing good personal hygiene, keeping the skin dry and cool at all times and avoiding sharing towels, clothing, or hair accessories. As fungal infections affect social life and quality of life this study was conducted to see the various patterns and factors associated with dermal fungal infections.

**How to cite this article:** Sreedevi, Krishna Rao. A study of patterns of various dermal fungal infections and factors associated at tertiary health care center. *MedPulse International Journal of Gynaecology*. April 2019; 10(1): 07-10. <http://medpulse.in/Gynacology/index.php>

## AIM AND OBJECTIVE

to study the patterns of various dermal fungal infections and factors associated at tertiary health care center

## METHODOLOGY

This is a prospective study carried out in a tertiary care center. Study population were patients presenting dermal fungal infections in dermatology OPD. Total 100 patients were studied during study period.

### Inclusion criteria

- Patients clinically diagnosed with dermal fungal infection,

### Exclusion criteria

- Patients who have not given consent for study.

This study was approved by ethical committee of the hospital. A valid written consent was taken from patients after explaining about the study. Data was collected with pretested questionnaire. Data includes sociodemographic data like age, sex, occupation and socioeconomic class, data related to hygiene behaviour like number of family members, per capita sharing of room, sources of water, use of soap and wiping of body parts. All patients visiting dermatology OPD were clinically examined. Diagnosis of the patient and type of infection was done by the investigator. All patients diagnosed as dermal fungal infections were referred for microbiological investigations. Microbiological investigation of infection type has been done using Chander (2002).<sup>8</sup> Data was analysed with appropriate statistical tests.

## RESULTS

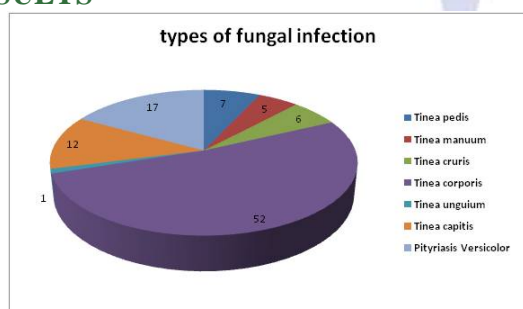


Figure 1: Distribution of patients according to type (pattern) of fungal infection

Fig 1 shows distribution of patients according to type (pattern) of fungal infection. Most common infection was tinea corporis (52%) followed by Pityriasis Versicolor (17%). Tinea capitis was seen in 12 % patients. Tinea unguium was observed in only one patient. Mean age of the patient was  $28.31 \pm 2.3$  years. Most common involved site was trunk (52%) followed by palm/plantar surface (15%). Other involved sites were leg /arm (11%), scalp (12%), groin (6%), face (3%) and toe (1%). Table 2 shows distribution of patients according to duration of present illness. Majority of the patients had duration of illness of 1-6 months (30%). 27 % patients were having illness from 6months to 1 year. 17% patients were having duration of one month. In our study we found that 66% patients gave history of previous infection while 34 % were not having any history of previous infection. Out of total 100 patients 20% of patient's family member were affected by same infection. Table 3 shows comparison of various fungal infection patterns with sociodemographic variables. Most commonly observed type was Tinea corporis. Majority of the patients were in the age group of 21-30 years (25%) followed by 11-20 years (22%). In all types of infection majority patients were in age group of 21-30 years. Males and females were equally affected. Tinea corporis was commonly seen in females. In our study we found that majority of the patients with fungal infection were associated with water at their work place (40%). Tinea corporis and Tinea pedis were most commonly seen associated with occupation related to water. Some infections like Tinea capitis and Ptyriasis versicolor are commonly seen in occupation associated with other factors. Unskilled workers (28%) and house wives(24%) were seen related to dermal fungal infections. Business person and service workers were least commonly involved. After studying socioeconomic status of the patient we found that majority of the patient were from middle income group (65%) followed by lower income group(33%). Table 4 shows distribution of patients according to hygienic practices of the r patients. Most common source of water was piped water. Out of 100 patients 67 were having habit of taking bath once daily. 53% patients were body usparts.ing soap and55% patients were wiping off the wet body parts.

Table 1: Distribution of patients according to site of involvement

Sr. no	Site of involvement	No of patients	Percentage
1	Face	03	3%
2	Finger/ toe	01	1%
3	Groin	06	6%
4	Leg/arm	11	11%
5	Palm/ plantar surface	15	15%
6	Scalp	12	12%
7	Trunk	52	52%

**Table 2:** Distribution of patients according to duration of present illness

Sr. no	Duration of present illness	No of patients	Percentage
1	< 1 month	17	17%
2	1 month- 6 months	30	30%
3	6 months – 12 months	27	27%
4	>12 months	26	26%

**Table 3:** Comparison of patterns of fungal infection in patients according to variables

Variables	Tinea pedis	Tinea manuum	Tinea cruris	Tinea corporis	Tinea unguium	Tinea capitis	Pityriasis Versicolor	Total
Age group (years)								
<10	00	01	02	02	00	02	02	09
11-20	00	01	01	07	00	04	09	22
21-30	03	02	02	13	00	02	03	25
31-40	03	01	00	11	00	02	01	18
41-50	01	00	00	11	00	02	01	15
>50	00	00	01	08	01	00	01	11
Sex								
Male	07	02	05	22	00	03	11	50
Female	00	03	01	30	01	09	06	50
Occupational exposure								
Associated with water	03	00	03	26	01	03	04	40
Associated with chemical	02	03	00	05	00	00	00	10
Working in public places	01	00	01	14	00	02	04	22
Others	01	02	02	07	00	07	09	28
Occupation								
Skilled	03	02	02	07	00	01	01	16
Unskilled	03	01	01	21	00	02	02	30
Service	00	00	01	04	00	01	03	09
Business	00	00	01	02	00	00	02	05
Housewife	00	01	01	16	01	02	03	24
Student	01	01	00	02	00	06	06	16
Socioeconomic status								
Upper	00	00	00	01	00	00	01	02
Middle	02	01	02	36	01	10	13	65
Lower	05	04	04	15	00	02	03	33

**Table 4:** Distribution of patients according to hygienic practices of the patients

Sr. no	Variables	No of patients	Percentage
1	<b>Sources of water</b>		
2	Piped water	53	53%
3	Tube well	22	22%
4	Pond	19	19%
5	Well	06	6%
6	<b>Bath per day</b>		
7	Once	67	67%
8	Twice	25	25%
9	Thrice	05	5%
10	Four times	03	3%
11	<b>Regular use of soap</b>		
12	Yes	53	53%
13	No	47	47%
14	<b>Wiping of wet body parts</b>		
15	Yes	55	55%
16	No	45	45%

## DISCUSSION

Most common infection was tinea corporis (52%) followed by Pityriasis Versicolor (17%). Tinea capitis was seen in 12% patients. Mean age of the patient was  $28.31 \pm 2.3$  years. Similar results were seen in Kar *et al*<sup>9</sup> and Belurkar *et al*<sup>10</sup> where they found that tinea corporis was most common infection among all fungal infections. In a study conducted in Bijapur, tinea corporis (35.4%) was the predominant clinical condition followed by tinea cruris (16.8%) and tinea capitis (16.7%).<sup>11</sup> Most common involved site was trunk (52%) followed by palm/plantar surface (15%). Majority of the patients had duration of illness of 1-6 months (30%). In our study we found that 66% patients gave history of previous infection while 34% were not having any history of previous infection. Out of total 100 patients 20% of patient's family member were affected by same infection. As the infection spread by contact prevalence is more in family members. Similar results were seen in study by Krishnendu Das *et al*.<sup>12</sup> Some of the factors commonly seen in fungal infections were age group 21-30 years, unskilled workers and housewives, middle socioeconomic class and poor hygienic conditions. Similarity, Krishnendu das *et al*<sup>12</sup> found that middle age group, lower socioeconomic class, occupation related to water and poor hygienic conditions were common risk factors.

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Source of Support: None Declared  
Conflict of Interest: None Declared