

## CLINICAL AND MYCOLOGICAL STUDY OF DERMATOPHYTOSIS IN JAIPUR (INDIA)

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## ABSTRACT

Dermatophytosis constitutes a group of superficial fungal infections of the epidermis, hair and nails. The present study indicated that dermatophytosis is the most common skin disease in the rural population and around Sitapura and Sanganer area, Jaipur. Among the 200 suspected patients with clinical symptoms of dermatophytosis, 170 samples (85%) found to be positive by KOH examination and 120 (60%) confirmed in culture. *Tinea corporis* (infection of the glabrous skin) was the most common dermatophytosis reported followed by *Tinea cruris*, *Tinea capitis*, *Tinea pedis* and *Tinea manuum*. *Tinea barbae* and *Tinea faciei* reported least among all the cases of dermatophytosis.

**Keywords:** Fungal infections, Superficial, *Tinea*

## INTRODUCTION

Fungal infections are quite widespread and have affected a growing number of people in recent years. Most fungal infections are located on the skin's outermost layer (epidermis). Fungal infections in the lower layers of skin, internal organs and blood are rarely seen. Dermatophyte infections are one of the earliest known fungal infections of mankind and are very common throughout the world. Dermatophytosis constitutes a group of superficial fungal infections of the epidermis, hair and nails. Dermatophytosis has been reported to be encouraged by hot and humid conditions and poor hygiene and occur throughout tropical and temperate regions of the world<sup>1-2</sup>. Dermatophytes are pathogenic fungi that have a high affinity for keratinized structures like nails, skin or hair, causing superficial infections known as dermatophytosis in both humans and animals<sup>3</sup>.

## MATERIALS AND METHOD

## Collection of samples from patients

The collection of infected material was done from Department of Dermatology, Venerology and Leprology, E.S.I.C (Employee State Insurance Corporation) Hospital and private clinics at Jaipur. A proper specimen collection is essential for accurate diagnosis and initiation of appropriate therapy. The materials for the study were skin scrapings, hair pluckings and swabs. The first step of the sample collection process is thorough cleaning of the infected area with 70 % ethanol cotton swabs to remove dirt and contaminants, then after drying, skin scrapings were collected from the active edge of the lesions with the help of sterilized scalpel blade. These scrapings were preserved in sterilized small black paper envelopes. Black paper allows easy visualization of small skin squames and

absorption of moisture to reduce/eliminate bacterial load, it should be thin enough to fold tightly at the corners and not leak specimen. In *Tinea capitis* and *Tinea barbae*, the basal root portion of the hair is best for direct microscopy and culture. Hair are best sampled by plucking so that the root is included with the help of sterilized forcep. If this is not possible due to hair fragility, as in "black dot" in *Tinea capitis*, a scalpel may be used to scrape scales and excavate small portions of the hair root.

## RESULT AND DISCUSSION

A survey study was conducted over a period of 1 year from January 2008 to December, skin outdoor patients of Department E.S.I.C. Hospital and some other private clinics in Jaipur. During the survey, the total number of patients examined from E.S.I.C. Hospital and private clinics was 200. The results of the present study indicate that dermatophytosis was the most common skin disease in the rural population in and around Sitapura and Sanganer area, Jaipur. Among the 200 suspected patients with clinical symptoms of dermatophytosis, 170 samples (85%) were found to be positive by KOH examination and 120 (60%) were confirmed in culture as shown in Table-1. The dermatophytes were identified to species level with Lactophenol cotton blue preparation<sup>4</sup>(Adeniyi et al 2011). Thus, the diagnosis of dermatophytosis could be established in 60% of the cases examined. The isolation rate in this study seemed to be higher when compared to various studies where it has ranged from 45.3-52.2%<sup>5</sup>. In the present study, *Tinea corporis* (infection of the glabrous skin) was the most common dermatophytosis reported (Fig. 1.1A, B and C). This was followed by *Tinea cruris* (Fig. 1.2 A, B and C). The incidence of *Tinea corporis* was (100/200; 50%) and *Tinea cruris*(35/200; 17.5%) in our study, which concurs with reports from other parts of India<sup>6</sup>.



Fig. 1.1: A, B and C- Symptoms of disease caused by *Tinea corporis*

Present work coincides with other workers<sup>7</sup> who also reported that *Tinea corporis* as the commonest clinical type of dermatophytosis followed by *Tinea cruris*. It appears from the present study that *Tinea corporis* was the most common clinical type of dermatophytosis followed by *Tinea cruris*. On the other hand, a study from Singapore

has found that the most common infection done by *Tinea pedis* followed by *Pityriasis versicolor* and *Tinea cruris*<sup>8</sup> which was unlike the findings from the present study. Thus, it appears that superficial fungal infection patterns and its type are not the same everywhere. The incidence of *Tinea capitis* was 15% in our study which was

comparable with reports from other workers (0.57% to 10%) and (10.8%)<sup>9</sup>. This may be attributable to the use of hair oils (particularly mustard oil) which are customarily used by Indians and have been shown to have an inhibitory effect on dermatophytes *in vitro*<sup>10</sup>. Itraconazole, also reported for antifungal and antibacterial properties

applied locally in mild uncomplicated dermatophyte and other cutaneous infections<sup>11</sup>. The reported incidence of *Tinea pedis* varies for different places i.e. 0.4% from Ahmadabad and 26.4% from Pune<sup>12</sup>. We reported incidence of *Tinea pedis* 7.5% in our study. Occurrence of *Tinea pedis* was relatively lower in the present study (Fig. 1.3 A and B).



Fig. 1.2: A, B and C- Symptoms of disease caused by *Tinea cruris*



Fig. 1.3 A and B - Symptoms of disease caused by *Tinea pedis*

Majority of the patients, who came for the treatment, belonged to lower economic groups and they work bare-footed. The incidence of *Tinea manuum* was found 5% in our study which matches with the work of Jain *et al*<sup>13</sup>, who also reported 5% incidence of *Tinea manuum* in Jaipur and with the findings of Singh and Beena<sup>14</sup> who also found 6.2% prevalence of *Tinea manuum* in Baroda (Fig. 1.4 A and B).



Fig. 1.4 A and B - Symptoms of disease caused by *Tinea manuum*

*Tinea faciei* and *Tinea barbae* were the least to be reported among the cases in the present study. The incidence of *Tinea faciei* and *Tinea barbae* found 3% and 2% in our study (Fig. 1.5 A and B-1.6 A and B).



Fig. 1.5: A and B - Symptoms of disease caused by *Tinea faciei*



Fig. 1.6: A and B - Symptoms of disease caused by *Tinea barbae*

According to Singh and Beena<sup>14</sup> (Singh and Bcena, 2003 prevalence of *Tinea faciei* and *Tinea barbae* was found 1.5% and 0.77% respectively which was comparable with the reports of our study (Table-1).

**Table 1 : Incidence of clinical types of dermatophytosis**

Clinical types	Total no. of cases	% of cases	No. of cases positive by culture	% of culture positive
<i>Tinea corporis</i>	100	50%	71	71%
<i>Tinea cruris</i>	35	17.5%	21	60%
<i>Tinea capitis</i>	30	15%	15	50%
<i>Tinea pedis</i>	15	7.5%	6	40%
<i>Tinea manuum</i>	10	5%	4	40%
<i>Tinea faciei</i>	6	3%	2	33.3%
<i>Tinea barbae</i>	4	2%	1	25%
Total	200	85%	120	60%

Culture positive cases were highest with *Tinea corporis* and lowest with *Tinea barbae* matches concides with the work of Singh and Beena<sup>14,13</sup>.

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