

# Mycological study on incidence of tinea incognito in a tertiary hospital

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## Abstract

**Objective:** The aim of the study was to analyse the clinical and mycological features of tinea incognito cases, distribution of the etiological agents and commonly affected age group and gender also evaluated in this study. **Method:** Specimens collected were skin scrapings from clinically diagnosed tinea incognito patient's attended the dermatology OPD of a tertiary care hospital. Patient's details were collected using a pretested structured questionnaire. **Result:** Out of 125 cases 67 were males and 58 were female's patients. The predominantly affected age group was 30-40 with mean age 32.4. Most of the tinea incognito cases were resembled with eczema (45%), followed by seborrheic dermatitis (20%) and atopic dermatitis (15%). tinea incognito lesions are commonly seen in the skin and groin area. frequently isolated dermatophyte was *Trichophyton rubrum* [36.2%] followed by *Trichophyton mentagrophyte* (26%) **Conclusion:** Differential clinical diagnosis in skin infections is difficult. Treatment without laboratory confirmation of funga etiology may increase atypical presentation dermatophytosis. Laboratory confirmation is necessary before starting steroid treatment which will avoid the misuse of drugs and limit the bizarre appearance of skin lesions.

**Keywords:** Dermatophytes, Tinea incognito, *Trichophyton*.

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## INTRODUCTION

Dermatophytosis is a fungal infection commonly seen in humans and animals. It is caused by a group of fungi known as dermatophytes. Tinea incognito is a steroid modified clinical type caused by dermatophytes. In 1968, Ive and Marks used the term 'tinea incognito' for cases of epidermomycosis, erroneously treated with topical steroids, having clinical manifestations that mimicked other skin conditions, such as seborrheic dermatitis, lichen planus, folliculitis, scleroderma and rosacea; one third of cases also had typical ringworm lesions<sup>1</sup>. Tinea incognito is difficult to diagnose because of the absence of the typical ringworm appearance. The steroid induced infection is frequently because the patient tried topical steroids without consulting a doctor. In fact, corticosteroids decrease resistance to infection, which

depends on immune response and suppress the immune reaction. The infection, therefore, spreads and acquires a form quite different from classical ringworm. The patient is often satisfied initially with the treatment because itching becomes controlled and the inflammatory signs settle. When application of the steroid creams are stopped, eruptions relapse with varying rapidity. Further applications bring renewed relief and the cycles are repeated. Typically the raised margin is diminished, scaling is lost and the inflammation is reduced and it is confused with other skin diseases like eczema, psoriasis, candidiasis, impetigo, rosacea, lichenoid dermatitis, atopic dermatitis, itertrigo<sup>2</sup> etc. To differentiate tinea incognito from these types of diseases, mycological examinations like direct microscopy and culture<sup>3</sup> have to be employed. An increase in the number of cases of tinea incognito has been observed in different places, particularly in European and Asian countries. Published data on the mycological aspects of tinea incognito in our country is very less. In this study we investigated the mycological aspects of tinea incognito in a tertiary care hospital in North Kerala.

**MATERIALS AND METHODS**

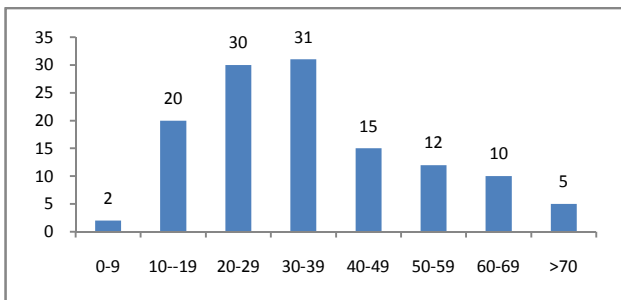
During the study period of one year, skin scrapings were collected from 125 patients clinically diagnosed as Tinea incognito from the skin and venereal disease OPD of a tertiary care hospital in north Kerala, India. Details of the patients were collected using pre tested structured questionnaire. Specimens were examined by 10%KOH mount and culture was done on SDA with cyclohexamide and chloramphenicol. Cultures were incubated at 25°C for at least 3 weeks. Dermatophytes were identified by their colony morphology, microscopic appearance, biochemical reactions and nutritional studies.

**RESULT**

Total of 125 patients were included in the study among which 67 (53.5 %) were males and 58 (46.5%) females (1.15:1). The incidence of tinea incognito was found to be highest in patients between the ages of 30 – 40 years. Mean age being 32.4 years. The rate of infection was found to be lower in the extremes of ages. Age wise distribution of cases has been depicted in Table -1 and Figure – 1.

**Table 1:** Age wise distribution of Tinea incognito cases

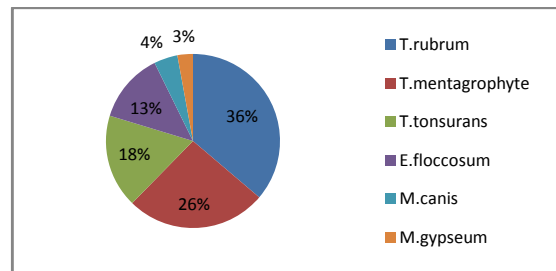
Age group	No of patients	Percentage
0-9	2	2
10--19	20	16
20-29	30	24
30-39	31	25
40-49	15	12
50-59	12	9
60-69	10	8
>70	5	4
<b>Total</b>	<b>125</b>	<b>100</b>



**Figure 1:** Diagrammatic representation of age wise distribution of dermatophytosis

Among the clinically diagnosed tinea incognito cases included in the study, 45% mimicked eczema, 20% seborrheic dermatitis, 15% atopic dermatitis and remaining 25% resembled other skin disorders like psoriasis, contact dermatitis, lichen planus, and vitiligo. 85% of the patients had previously self-medicated themselves with steroids or were prescribed steroids by quacks. 15% patients were immune compromised with different factors. Lesions were commonly seen in the

glabrous regions of the skin predominantly trunk and groin (48%). 34% of lesions were seen in the face. Remaining 28% lesions were seen in different body sites including foot, hand and palms. Out of the 125 skin scrapings, 98(78.4%) specimens were positive by light microscopy using 10% KOH. 69(55.2%) of these were also culture positive. There were no KOH negative culture positive cases. The commonly identified dermatophytes were *Trichophyton rubrum* (36.2%), followed *Trichophyton mentagrophytes* (26%), *Trichophyton tonsurans* (17.4%), *Epidermophyton floccosum* (13%) *Microsporum canis* (4.3%) and *Microsporum gypseum* (2.9%). (Figure-2).



**Figure 2:** Dermatophytes species isolated from tinea incognito cases

**DISCUSSION**

The term tinea incognito has been used to describe dermatophyte infections modified by corticosteroid treatment. Clinical presentation of tinea may be altered by the use of steroids through the suppression of the fungus-induced local immunity. Thus inflammatory effect is inhibited, erythema and scaling are decreased, but the growth of the fungus is enhanced, transforming the typical clinical presentation of ringworm and mimicking other skin diseases<sup>4</sup>. In recent reports, not only corticosteroids, but also new class topical non-steroidal medications including pimecrolimus and tacrolimus have been also reported to induce tinea incognito<sup>5,6</sup>. Commonly the lesions mimic other skin disorders like atopic dermatitis, seborrheic dermatitis, lichenoid, rosacea, psoriasis and eczema, contact dermatitis, and other dermatological lesions<sup>5</sup>. In our study male patients (53.5%) were found to be infected more than female (43.5%). The present study also observed that the commonly affected age group was 30-40 years followed by 20-30 years. The mean age group was 32.4 years. A study regarding tinea incognito in Italy<sup>7</sup> reported similar gender distribution and mean age (42 years). A study by Kim. J.W *et al*<sup>8</sup> also reported equal gender distribution with younger mean age (32.6 yr). Results from all these studies suggest that tinea incognito predominantly affects patients in the age group 30 to 40 years. Among the 125 clinically diagnosed cases of Tinea incognito included in the present study, 45% cases mimicked the clinical

features of eczema, 20% and 15% cases resembled seborrheic dermatitis and atopic dermatitis respectively. Several studies have reported that clinical manifestations of tinea incognita are mostly misdiagnosed as eczema and impetigo. Some of them may also resemble lupus erythematosus, rosacea, plaque type or pustular psoriasis, vasculitis, seborrheic dermatitis, and lichen planus<sup>7,9,10,11</sup>. Considering the anatomical site of distribution of tinea incognita lesions, the most commonly involved region was the glabrous skin predominantly trunk and groin (48%) followed by the face (34%). Similar studies conducted in Italy and Korea<sup>8</sup> also reported that glabrous skin and face are the commonly involved sites. Scalp involvement has not been reported in patients with tinea incognita<sup>7,9</sup> as is the finding in our study. In the present study 85% of patients under took self-treatment with steroids or were prescribed steroids by quacks. A study conducted in Korea<sup>11</sup> included 60% patients who self-treated themselves or were treated by non-dermatologists and 40% patients who were treated by dermatologists without proper laboratory diagnosis. Easy availability of steroids without prescription as over the counter medication is a major factor leading to their rampant misuse. Thoughtless prescription of steroids by physicians of primary health care or dermatologists without considering fungal etiology in the differential diagnosis also lead to inappropriate steroid usage<sup>4</sup>. Kim.J.W *et al*<sup>8</sup> in Korea reported that 91.5% of tinea incognita cases were positive by direct microscopy using KOH. Another study conducted by Gerceker Turk *et al.* reported 80.95% KOH positivity and 90% culture positivity. In our study KOH positivity was 78.4% and culture positivity 55.2%. In a study conducted by Banarjee U<sup>13</sup> in Delhi, the rate of KOH positivity was 52.2 %. In other studies the KOH positivity ranges from 48% to 68%. These findings were in agreement with the present study. In conjecture with a few earlier reports<sup>10,12</sup> The present study also confirmed *Trichophyton rubrum* (*T. rubrum*) as the most frequently identified dermatophyte. *T. rubrum* is an anthropophilic dermatophyte and also the most common pathogen causing dermatophytosis<sup>9,11</sup>. Other dermatophytes isolated were *T. mentagrophyte*, *T. tonsurans*, *E. floccosum*, *M.canis*, *M. gypseum*. A study conducted by Romano *et al.*<sup>7</sup> found *T. rubrum* (50.5%) as the most common agent of tinea incognita followed by *T. mentagrophytes*, *Epidermophyton floccosum*, *M. canis*, *M. gypseum*, *T. violaceum*, and *T. erinacei*, in descending frequency of isolation. Another study of 56 cases with tinea incognita from Iran revealed *T. verrucosum* as the most frequent agent.

## CONCLUSION

Most of the studies and text books articulate the need for laboratory confirmation of mycological etiology before starting antifungal treatment. This is so because clinical diagnosis of fungal infection could many a times be inaccurate. Misdiagnosis of dermatophytosis results in improper treatment with steroid which further exacerbates the disease. In our country topical steroid applications are easily available over the counter and this is one of the main reasons for the increasing incidence of tinea incognita cases. We strongly recommend that antifungal treatment for skin disorders should be started only after an attempt has been made to identify the fungal etiology in the laboratory.

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