

Dermatomycosis At a Tertiary Care Hospital: A Clinicomycological Study

Seeba Hussain

HOD, Department of Dermatology, Venereology & Leprosy, Katihar Medical College, Katihar, Bihar, India

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Abstract

Background: The prevalence of dermatophyte infections in the general population is rising today. Tinea corporis, Tinea cruris, Tinea faciei, etc. are some common names for it. **Methods:** For 130 clinically probable Dermatophytosis cases, samples including skin scrapings, nail clippings, hair, and hair stubs were processed. All of the samples underwent KOH mount and SDA culture. **Results:** The majority of the patients were men, 76 (58.46%) as opposed to 54 women (41.53 percent). The age group 20 to 30 is the most frequently affected one. The most common kind, tinea corporis, made up 66 (or 50.76 percent), followed by tinea cruris 25 (19.23 percent), tinea unguinum 18 (or 13.84 percent), and tinea capitis 10. (07.69 percent). Trichophyton rubrum was the most common isolate, accounting for 27 (38.57%) cases. It was followed by Trichophyton mentagrophytes (16.85%), Microsporium audoni (15.42%), Microsporium gypsum (8.43%), Trichophyton violaceum (3.28%), and Epidermophyton floccosum (01). (1.43 percent). **Conclusion:** Infection with dermatophytes is relatively common today. There are more men and they are mostly in the middle age range. It is most frequently observed in lower middle-class individuals, primarily manual labourers. The most typical manifestation is tinea corporis et cruris.

Keywords: Dermatophytosis, Dermatophytes, Tinea, Trichophyton, Lactophenol Cotton Blue (LPCB)

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Introduction

The most prevalent form of skin illness, which affects millions of people worldwide, is superficial fungal infections. Dermatophytes are mostly responsible for these illnesses[1]. A group of closely related keratinophilic fungi known as dermatophytes can penetrate the stratum corneum of skin or other keratinized tissues derived from the epidermis, such as hair and nails, by producing keratinase. Dermatophytes is an infection brought on by a dermatophytic fungus in the stratum corneum of the skin, hair, and nails[1]. In most cases, dermatophytosis is referred to as "tinea" or "ringworm". Tinea is Latin for "tiny insect larva."

Dermatophytosis is commonly referred to as by adding a Latin word to the name of the anatomical place where the infection is present. Depending on their major natural habitat, distinct species of dermatophytes have distribution patterns that range noticeably from one ecological niche to another. Some dermatophyte species are sporadic but have a global distribution, whereas others are geographically confined and endemic exclusively in specific regions of the world[1]. Environmental factors, personal cleanliness, and individual vulnerability differ from place to location and influence the occurrence of dermatophytosis[2].

Methods

The dermatology and venereology outpatient departments of our hospital saw 130 clinically suspected instances of Dermatophytosis during the course of this retrospective investigation. A thorough history of the patients' age, sex, occupation, site of the lesion, and related illnesses was collected, and patients underwent a clinical examination to determine the nature and location of the lesion. The patient received a detailed explanation of the process prior to sample collection.

A cotton swab soaked in regular saline was used to clean the area.

*Correspondence

Dr. Seeba Hussain

HOD, Department of Dermatology, Venereology & Leprosy, Katihar Medical College, Katihar, Bihar, India

Clinical specimens such as nail, infected hair, and skin scrapings were collected using sterile nail clippers, forceps for hair epilation, and sterilised scalpel blades. After an hour at room temperature, the hair and skin samples were analysed using a 10% KOH mount. After incubating the nail clippings at room temperature for 4-5 hours, the 40 percent KOH mount was used to evaluate the samples. Retractable, hyaline fungal filaments were looked for on all clinical samples. Cyclohexamide and chloramphenicol were used to inoculate the clinical sample into two rounds of Sabouraud's dextrose agar (SDA). Both the inoculated agar slants were incubated, one at 37°C and the other at room temperature. After four weeks of observation, any growth was deemed to be unfavourable and discarded. Slide culture and tease mount techniques were used to identify the growth on SDA[3].

Results

There are 130 participants in our study group with clinical diagnoses overall. The majority of the patients were male, with 76 (58.46%) being male and 54 being female (41.53 percent). 20-30 year olds are the most frequently affected age group, followed by 30-40 years. Tinea corporis, comprising 66 (or 50.76 percent) of the 130 clinically suspected cases of Dermatophytosis, was the most common kind, followed by tinea cruris (25), tinea unguinum (18), and tinea capitis (10). (07.69 percent).

98 (75.38%) of the 130 clinically diagnosed cases were KOH &/or culture positive. The remaining 32 (24.61 percent) patients had negative KOH and culture results. 04 (0.37%) cases were negative for KOH but produced fungal growth, compared to 28 (21.53%) cases that were positive for KOH but negative for culture. The remaining 66 (50.76%) instances had fungal filaments visible in KOH mounts and also produced growth. All three dermatophyte species—Trichophyton, Microsporium, and Epidermophyton—have been produced in culture. According to Table 1, Trichophyton rubrum was the most common isolate, accounting for 27 cases (38.57%), followed by Trichophyton mentagrophytes (16 cases, 22.85%), Microsporium audoni (15 cases, 21.42%), Microsporium gypsum (8 cases, 11.43%), Trichophyton violaceum (3 cases, 4.28%), and Epidermophyton floccosum (1 case, 1.43%).

Table 1: Showing Dermatophytes isolates in different clinical types of tinea

Fungal isolates	Tinea unguinum	Tinea pedis	Tinea barbae	Tinea corporis	Tinea capitis	Tinea cruris	Total
Epidermophyton floccosum	00	00	00	01	00	00	01
Trichophyton rubrum	04	00	01	13	01	08	27
Microsporiumaudoni	04	00	00	08	01	02	15
Trichophyton violaceum	00	00	00	01	01	01	03
Microsporiumgypsiium	01	01	00	05	00	01	08
Trichophyton mentagrophytes	03	01	00	07	01	04	16
Total	12	02	01	35	04	16	70

Discussion

Infecting the skin, hair, and nails of people and animals with dermatophytes results in a range of cutaneous illnesses, including ringworm. The lesion appears grossly as an outside ring of active, spreading infection with a centre that is healing[4]. Since the turn of the century, there have been major changes in lifestyles, migration patterns, and socioeconomic conditions that have had an impact on the epidemiology of superficial fungal infections. Environmental factors may be to blame for the greater occurrence of Dermatophytosis[5]. In accordance with Sumathi S et al. and the results of the current investigation, dermatophytosis was shown to be most prevalent in those between the ages of 20 and 30[4]. Males had a higher incidence than females, 58.46 percent to 41.53 percent, which is in line with the majority of the others. Men are more likely to develop the condition, which may be related to their outdoor physical activity, trauma, hormone patterns, and perspiration[5,6,7]. In our study, dermatophytosis afflicted manual workers more than other occupations. This could be as a result of manual employees participating in greater physical activities, increasing their risk of exposure[2].

In this study, patients with lower socioeconomic status were more negatively impacted than other patients. This might be caused by unsanitary living arrangements, congestion, sharing of linens and towels, or poor diet[8].

Out of 130 clinical samples, 98 (75.38%) patients had KOH and/or culture positive results. The remaining 32 (24.61 percent) patients had negative KOH and culture results. 04 (0.37%) cases were negative for KOH but produced fungal growth, compared to 28 (21.53%) cases that were positive for KOH but negative for culture. The remaining 66 cases, or 50.76 percent of them, are KOH positive and contributed to the increase. This result was consistent with that of Thongam Singh et al[3,4].

Trichophyton rubrum, which accounts for 27 cases (38.57 percent) of the study's fungal isolates, is the most common. It is followed by Trichophyton mentagrophytes (16 cases; 22.85 percent); Microsporiumaudoni (15 cases; 21.42 percent); Microsporiumgypsiium (8 cases; 11.43 percent); Trichophyton violaceum (3 cases; 4.28 percent); and Epidermophyton floccosum[1]. (1.43 percent). Numerous writers have demonstrated comparable results, including Thongam Singh et al[3], and Santhosh Krishna H et al. But according to Grover Sanjiv et al [10], Trichophyton tansurans is the most common fungal isolate. The most prevalent fungal isolate was Trichophyton rubrum because of its superior adaptability, increased virulence, and simplicity in colonising hard keratin[11].

Conclusion

Dermatophytosis is a minor illness with expensive treatment costs and psychological side effects. Infections with dermatophytes are particularly prevalent in our country because of the hot, humid weather, unfavourable hygienic conditions, and other factors. Tinea corporis and tinea cruris were the two clinical types of Dermatophytes that were most prevalent. In different regions of India, distinct species are more or less isolated from one another. But in the majority of the experiments, Trichophyton was the main fungus.

Trichophyton rubrum was the major species, followed by Trichophyton mentagrophyte and Microsporiumaudoni. These fungi infections can be prevented with the use of good hygiene, sanitation, and washing.

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