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Prevalence and Epidemiology of Dermatophytosis: A Clinico Mycological Diagnostic Approach in Uttar Pradesh

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ABSTRACT
Infections with fungi are a frequent medical concern in India. The age, sex, occupation, level of education, economic standing, and personal cleanliness of the patients are the main factors that determine the prevalence of various diseases in a community. Males dominated the age range affected, with 21-30 years old being the most common age group impacted out of 186 clinically identified cases. Tinea corporis is the most prevalent form among females, occurring in 15.05% of males and 29.72% of females. For men, Tinea cruris is the most prevalent kind. With 89 members, Manual Workers make up the majority of the group. In 76.88% of cases, KOH was positive. Considered as important contributing causes to the current rising trend of fungal infections, especially dermatophytosis, are because of illiteracy, low socioeconomic status, humid climate, excessive sweating, ignorance of the diseases and poor personal cleanliness. Dermatophytosis, epidemiology.

INTRODUCTION

The most prevalent type of skin illness, affecting millions of individuals worldwide is superficial fungal infections. Dermatophytes are the primary cause of most of these illnesses[1]. A class of closely related keratinophilic fungi known as dermatophytes produce keratinase, which is capable of penetrating the stratum corneum of the skin and other keratinized tissues that are derived from the epidermis, including nails and hair. A common superficial mycosis that causes serious cutaneous morbidity is called dermatophytosis. Severe itching is experienced and incapacitating lesions on the genitalia and other regions lead to social disgrace and lower quality of life[2]. Numerous variables, such as the tropical environment, urbanization, overcrowding, shared housing like hostels the use of occlusive footwear, tight clothing, community bathing, and athletic activities, have been linked to the increased prevalence of dermatophytosis[3].

More than 75% of all mycological infections are dermatophytosis. It is more common in tropical and subtropical regions, such as India, where moisture and heat are key factors[4]. Its intensity can cause significant discomfort even if it is rarely life-threatening, especially in immunosuppressive settings. It is still a widespread issue in public health that affects people of all ages and genders[5]. Because the fungi's clinical lesions can vary greatly and resemble other skin conditions, a laboratory diagnosis and confirmation are required[6,7].

Variations in population density, mass migration, socioeconomic level, lifestyle, cultural traditions, climate change and evolving medication regimens can all affect the occurrence of a given dermatophyte species in a given area[8,9]. India is a sizable subcontinent that is inside the world's tropical and subtropical belts and has an incredibly diverse geography. Its environment is favorable for mycotic infection acquisition and maintenance[10]. To determine the extent of the treatment problem and to take appropriate action to stop the spread of these illnesses, an accurate assessment of the prevalence and etiological agent is preferred[11]. In order to evaluate the clinical profile of dermatophytic infections the current investigation was carried out.

MATERIAL AND METHODS

A cross-sectional observational research was conducted at Autonomous State Medical College, Shahjahanpur, Uttar Pradesh. A total of 186 clinically diagnosed instances of Dermatophytosis over the course of more than a year were received. This study comprised patients who had not received systemic or topical antifungal medication in the previous four weeks. In every case, a thorough history, a clinical examination, and pertinent laboratory tests were completed.

Specimen Collection-Seventy percent alcohol was used to wipe the lesion or afflicted region. The specimen consists of scraping under the nails, hair, hair roots and skin scales. Samples were gathered in pristine packets made of black paper. Using a curved, disposable scalpel blade, skin specimens were extracted by scraping past the lesion's inflammatory edge and into the surrounding, seemingly healthy tissue. In the instance of the nail samples, nail clippings were extracted with a nail clipper from the afflicted nails. Moreover, friable tissue under the nail was removed by scraping with a disposable scalpel blade. Using epilating forceps the base of the diseased hair shaft around the follicle was removed. Conventional mycological techniques were applied to process the specimens.

Direct microscopic examination: A part of each sample (skin scales, hair, hair roots, nail clippings and scraping under the nails) was placed on a sanitized, grease-free microscope glass slide to create a KOH wet mount. Then, for the skin and hair samples, 1-2 drops of 10% KOH were applied and for the nail samples, 20% or 40% KOH. After thoroughly mixing the sample and KOH the slide was gently heated and a clean cover slip was placed over it. The slide was examined under a bright field microscope with low (XI0) and high (X40) magnification after being left to cool and 'ripen' for a few minutes. The slide was next examined for the presence of arthroconidia, which are fragments of densely septate hyphae that resemble rectangular or barrel-shaped cells or fungal hyphae, which are distinguished by their long, branching, and highly refractile septate threads.

RESULTS

A total of 186 clinically diagnosed cases of dermatophytosis attending the ASMC Shahjahanpur Skin and Venereal Disease Outpatient Department participated in the current investigation. A mycological examination was conducted in the microbiology department. The age group most frequently impacted in the current study was 21-30 years old (33.87%), followed by 31-40 years old (22.04%) (Table 1 and Fig 1). Of the overall count, 112 people (or 60.21% of the total) were male, and 74 people (or 39.78%) were female (Table 2 and Fig 2).

Tinea corporis is the most prevalent form among females, occurring in 15.05% of males and 29.72% of females. Tinea cruris is the most prevalent kind in men, occurring in 34.82% of cases in women, it is reported in 25.67% of instances. 9.67% of men and 6.75% of women have Tinea capitis. About equally common in both sexes are Tinea unguium and T. faciei at 6.25% in men and 12.16% in females and T. faciei at 7.14% in males and 10.81% in females. At 8.10%, Tinea pedis is only found in females. At 1.78%, Tinea barbae is exclusively observed in males. Present in 2.70 per of

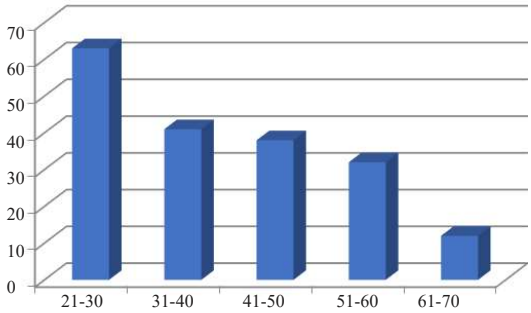

Fig. 1: Age wise distribution of dermatophytoses cases.a

Fig. 2: Skin lesion diagnosed as Tinea cruris

Table 1: Age wise distribution of dermatophytoses cases

Age	Number	Percentage
21-30	63	33.87
31-40	41	22.04
41-50	38	20.43
51-60	32	17.20
61-70	12	6.45
Total	186	100

Table 2: Gender-wise distribution of dermatophytosis cases

Gender	Number	Percentage
Male	112	60.21
Female	74	39.78

Table 3: Distribution of dermatophytosis cases according to clinical types

Clinical type	Male	Female
Mixed	06 (5.35%)	02 (2.70%)
T. barbae	02 (1.78%)	00
T. capitis	18 (9.67%)	05 (6.75%)
T. corporis	28 (15.05%)	22 (29.72%)
T. cruris	39 (34.82%)	19 (25.67%)
T. faciei	08 (7.14%)	08 (10.81%)
T. manuum	04 (3.57%)	03 (4.05%)
T. pedis	00	06 (8.10%)
T. unguim	07 (6.25%)	09 (12.16%)

Table 4: Distribution of patients according to their occupation

Occupation	Number	Percentage
Manual worker	89	47.84
Professional	36	19.35
Student	61	32.79

females and 5.35% of males, mixed clinical forms are uncommon. The least prevalent type, Tinea manuum, affects 3.57% of men and 4.05% of women (Table 3). With 89 members, manual workers make up the majority of the group. These sums up to 47.84% of the

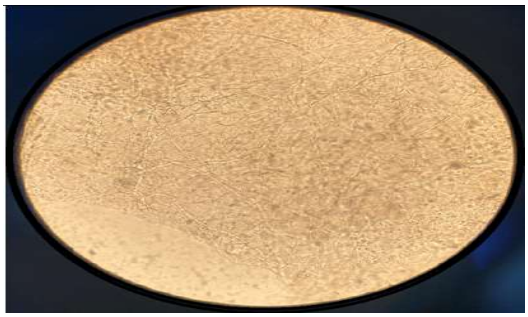

Fig. 3: Skin KOH mount showing fungal hyphae (40X)

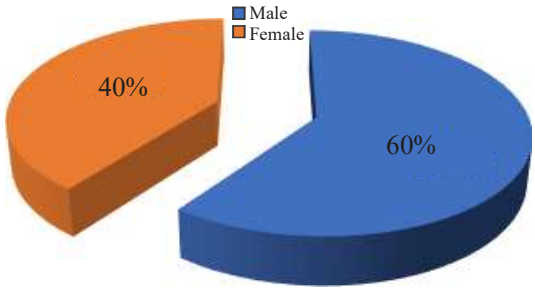

Fig. 4: Gender wise distribution of dermatophytoses

entire amount with 36 members, professionals are the smallest group. This is 19.35% of the entire amount. 61 people in total are students or 32.79% (Table 4). KOH positive results comprise 143 tests or 76.88% of total tests. Conversely, 23.1% of the tests are KOH negative, with 43 tests falling into this category.

DISCUSSION

Widespread dermatophyte infections significantly impair patient's social, emotional and economical well-being. Dermatologists in India are increasingly facing the issue of treating recurrent dermatophytosis[12]. The age group of 21-30 years old accounted for the greatest number of dermatophytosis cases in the current study (33.87%), followed by 31-40 years old (22.04%). Verenkar *et al*. observed similar findings, reporting that infections were prevalent in the 21-30 age group[13]. The age range of 15-30 years old had the highest incidence, according to Sumathi *et al*.[14]. The current study was compared to other research conducted in Jammu and Kashmir, Bijapur, Assam, Mangalor, Aurangabad and Assam[15-17].

The high rate of dermatophytosis infection in this age group (21-60 years old) may be caused by hormonal variables, increased physical activity, and high exposure risks. The majority of studies, including ours, indicate a preponderance of men. The studies by Janardhan *et al*., Sharma *et al*., Mahajan *et al*. and Aruna *et al*.[18-21] produced similar findings. In our study, dermatophytosis afflicted manual workers more than other workers. This was consistent with the

research conducted by Veer *et al.*[17]. This could be because manual labourers engage in greater physical activity, increasing their risk of exposure[22]. Tinea cruris was the most prevalent clinical type in males, while Tinea corporis was the most prevalent clinical type in females. These findings were consistent with previous research carried out by Sen *et al*., Singh *et al*. and Indu *et al*.[16,23,24]. KOH positivity was found in 76.88% of the cases. Other writers, including Sharma *et al*. (55.21%)[19] Mahajan *et al*.[20] 79.6%, Manjunath *et al*. 75.38% and Poluri *et al*. 58.18%, have also noted varying KOH positivity results[25,26].

CONCLUSION

Due in large part to the country's hot, humid environment and inadequate sanitation, which encourage the growth of certain fungi, India has a high prevalence of dermatological diseases. Fungal diseases are a global public health concern that is extensively disseminated. It changes depending on the patient's age group. It was also clear that the incidence decreases with age and is not as high as it was in the early years. It might be brought on by immune system components, personal hygiene awareness and certain dietary choices made by the body that harbour microorganisms.

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