

Epidemiological and Predisposing Factors of Dermatophytosis Study among Patients Attending Government General Hospital, Ananthapuram.

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ABSTRACT

Background: Cutaneous fungal infections are most commonly presenting among fungal infections and are usually referred as Tinea. Dermatophytes spreads easily by skin to skin contact or by touching infected animal or object, frequently encountered disease in dermatology OPD's, Study on predisposing and epidemiological factors helps to eliminate the spread of infection and reinfection, So we selected this study to do. **Methods:** A total of 115 suspected dermatophytosis patients were selected, localized lesions were examined properly, also inspected for other skin lesions and examination of systems done. All patients were explained about dermatophytosis consequences, advised to undergo fungal culture. All the data were entered into spread excel sheet and evaluated the epidemiological, predisposing factors of dermatophytosis. **Results:** Tinea corporis is the most common clinical presentation was 41.7% followed by 30.1% of Tinea cruris, 24.3% of Tinea capitis, 20% of Tinea pedis, 13.9% of Tinea unguim, 12.1% of Tinea barbae and 11.3% of Id reactions. Out of 115 suspected dermatophytosis, fungal culture positivity shown in 38 (33%) patients. Out of 38 culture positive patients, 16 (42.1%) were T.rubrum, 9 (23.6%) were T.mentagrophytes, 5 (13.1%) were T.tonsurans, 8 (21%) were Microsporum species. **Conclusion:** Study on predisposing factors and epidemiological factors helps us to find out the diagnosis easily and also to eliminate the spread of dermatophytosis and reinfection. Prognosis is excellent with good compliance from patient side and subsequent precautions such as proper hygienic practices, maintaining moist skin to avoid repeat infection.

Keywords: Dermatophytosis, Etiology, Predisposing factors.

INTRODUCTION

Dermatophytes are Filamentous fungi infects humans (anthropophilic) and animals (zoophilic) causing superficial mycoses also called as "Dermatophytosis". Dermatophytosis, etiological agents includes 3 genera: Trichophyton, Microsporum and Epidermophyton.^[1] Dermatophytes involve the superficial areas of the body including the hair, skin and nails. Trichophyton infects all these three structures, whereas Microsporum and Epidermophyton are capable to infect hair, skin and skin, nails respectively.

Cutaneous fungal infections are most commonly presenting among fungal infections and are usually referred as Tinea (worm or ringworm).^[2] Clinical nomenclature differs depending on the area infected by dermatophytes. Examples include Tinea capitis which is ring worm of scalp and hair, Tinea corporis

which is ring worm of the body, Tinea cruris which is ring worm of groin, Tinea unguim which is ring worm of nail, Tinea barbae which is ring worm of beard.

Incidence of Dermatophytosis reported as 16 per 10,000 persons annually by the Royal College of General Practitioner's Birmingham Research Unit.^[3] The Royal College of General Practitioner's Birmingham Research Unit reported an annual incidence of dermatophytosis of 16 per 10,000 persons (age standardized).^[4] At any given time in a year, approximately 20% of total human population affected by Dermatophytes.^[5] Infections of Groin common in adults whereas scalp infections more common in children.^[4]

Dermatophytes spreads easily by skin to skin contact or by touching infected animal or object, frequently encountered disease in dermatology OPD's, Study on predisposing and epidemiological factors helps to eliminate the spread of infection and reinfection, So we selected this study to do. The present study aimed at epidemiological and predisposing factors of dermatophytosis in patients attending Government

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MATERIALS AND METHODS

A study which is randomized prospective done on patients presenting with symptoms of dermatophytosis to dermatology OPD. Study conducted at government medical college/hospital at ananthapuram, a district hospital, many of the patients hail from rural areas in and around ananthapuram district. Institutional ethical committee approval has taken before doing this study. Informed consent took from all the patients included under this study.

Overall 115 suspected dermatophytosis patients attending to dermatology Out Patient Department in the year 2016 were selected to do this study. Patients history pertaining to presenting complaints such as itching, hair loss, black dots, lesions, scales, and also age, sex, occupation, literacy, living condition, hygiene practices, sanitary conditions, contact with dermatophytosis persons or animals, family history or past history of dermatophytosis and other skin disease were collected.

Localized lesions were examined properly, also inspected for other skin lesions and examination of systems done. Lesions of skin, hair or nails observed for scales, pigmentation, pustules, papules, hair loss, black dots, id reaction were observed.

All patients were explained about dermatophytosis consequences, advised to undergo fungal culture. Samples of skin, nails or hair from lesions were collected in a sterile containers, sent to Microbiology department. Sample were inoculated onto modified sabouraud dextrose agar slants incubated aerobically at 260C for up to 28 days before discarding as negative.

All the data were entered into spread excel sheet and evaluated the epidemiological, predisposing factors of dermatophytosis.

RESULTS

Out of 115 suspected dermatophytosis 83 (72.1%) males and 32 (27.8%) females. Most of the patients presented to OPD with dermatophytosis lesions were in the age group of 11-40 years, 70.4% followed by 16 (13.9%) patients in 1-10 years, 14 (12.1%) and 4 (3.4%) patients were in the age group of 41-50 years and >50 years respectively [Table 1]. Among 115 patients, most of them 33.9% and 29.5% were belong to lower middle class and upper lower class according to Kuppaswamy socioeconomic scale where education, occupation of the head of the family and family income per month were considered.

Various predisposing factors pertaining to dermatophytosis were assessed, among them many of patients were from poor living condition without proper sanitary conditions, following unhygienic

practices such as improper bathing, usage of unwashed clothes repeatedly, not drying web spaces properly etc., 36.5% of patients with multiple lesions, 34.7% have dry skin or xerosis and 33% presented with recurrence of lesions. [Table 2].

Table 1: Epidemiological factors of dermatophytosis

Epidemiological factors	No. of patients (n=115)	Percentage
Age		
1-10 years	16	13.9%
11-20 years	26	22.6%
21-30 years	34	29.5%
31-40 years	21	18.2%
41-50 years	14	12.1%
>50 years	4	3.4%
Sex		
Males	83	72.1%
Females	32	27.8%
Socioeconomic status		
Upper class	8	6.9%
Upper middle class	16	13.9%
Lower middle class	39	33.9%
Upper lower class	34	29.5%
Lower class	18	15.6%

Table 2: Predisposing factors of dermatophytosis

Predisposing factors	No. of patients (n=115)	Percentage
Persons in close proximity with infected individuals	32	27.8%
Patients with multiple lesions	42	36.5%
Patients with dermatophytosis infected animals at home	16	13.9%
Poor living conditions	74	64.3%
Unhygienic practices	77	66.9%
Improper sanitary conditions	62	53.9%
Dry skin	40	34.7%
Lesions recurrence	38	33%
No proper history given	34	29.5%

Tinea corporis is the most common clinical presentation was 41.7% followed by 30.1% of Tinea cruris, 24.3% of Tinea capitis, 20% of Tinea pedis, 13.9% of Tinea unguim, 12.1% of Tinea barbae and 11.3% of Id reactions. Tinea faciei was not observed [Figure 1].

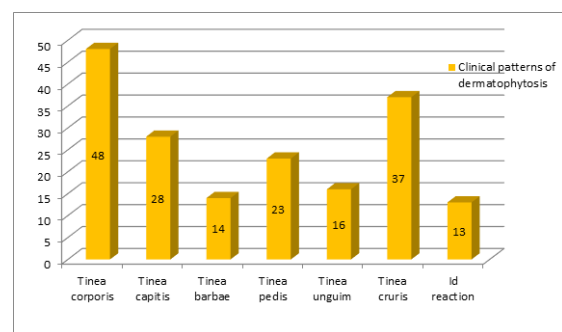


Figure 1: Different clinical patterns of dermatophytosis

Trichophyton rubrum [Figure 2] was predominant pathogen isolated from dermatophytosis, followed by *Trichophyton mentagrophytes* [Figure 3], *Trichophyton tonsurans*, *Microsporum* species. Out of 115 suspected dermatophytosis, fungal culture positivity shown in 38 (33%) patients. Out of 38 culture positive patients, 16 (42.1%) were *T.rubrum*, 9 (23.6%) were *T.mentagrophytes*, 5 (13.1%) were *T.tonsurans*, 8 (21%) were *Microsporum* species.



Figure 2: Showing *T.rubrum* on Sabouraud dextrose agar

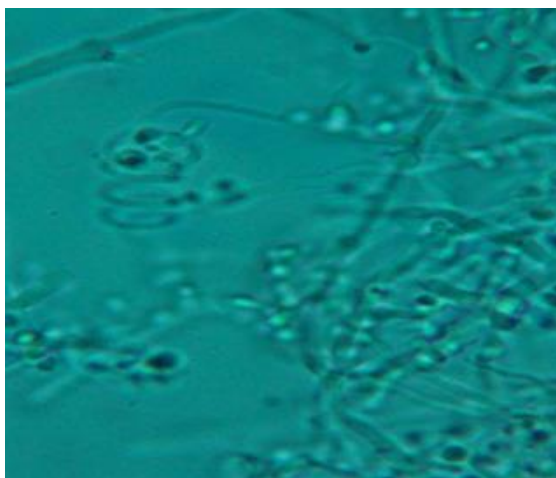


Figure 3: Showing Microscopy of *Trichophyton mentagrophytes*

DISCUSSION

Dermatophytes are usually incapable of penetrating subcutaneous tissue, unless the host is immunocompromised, they break down and utilize keratin as a source of nitrogen.^[6] Tinea is a gross appearance of the lesion is that of an outer ring of the active, progressing infection, with central healing within the ring which is a typical rash pattern. At Out Patient Department, dermatophytes which fluorescence under the ultraviolet light of Wood's lamp can be screened.

In this present study, 115 were suspected dermatophytosis, 83 (72.1%) males and 32 (27.8%)

females. Most of the patients presented to OPD with dermatophytosis lesions were in the age group of 11-40 years, 70.4% followed by 16 (13.9%) patients in 1-10 years, 14 (12.1%) and 4 (3.4%) patients were in the age group of 41-50 years and >50 years respectively. Among 115 patients, most of them 33.9% and 29.5% were belong to lower middle class and upper lower class. >60% of patients are living in unhygienic places, 36.5% of patients with multiple lesions, 34.7% have dry skin or xerosis and 33% presented with recurrence of lesions.

Qadim HH et al done a study at Sina hospital in Tabriz reported that 46 (60.5%) were males and 30 (30.5%) were females out of 76 confirmed dermatophytosis cases,^[7] Tinea corporis is most common in third decade. Xerosis is the most common predisposing factor. Many studies observed that males were predominant than females.^[8-10]

As per this study, Tinea corporis is the most common clinical presentation was 41.7% followed by 30.1% of Tinea cruris, 24.3% of Tinea capitis, 20% of Tinea pedis, 13.9% of Tinea unguim, 12.1% of Tinea barbae and 11.3% of Id reactions. Tinea faciei was not observed. Ring worm manifestations spread due to excessive sweating due to increased physical activity and tightly worn clothes, resulting in increase in temperature and humidity of the body.^[11]

Out of 115 suspected dermatophytosis, fungal culture positivity shown in 38 (33%) patients. Out of 38 culture positive patients, 16 (42.1%) were *T.rubrum*, 9 (23.6%) were *T.mentagrophytes*, 5 (13.1%) were *T.tonsurans*, 8 (21%) were *Microsporum* species as per this study.

A Study done at Sri Ramachandra Medical College, Chennai by Vijayakumar ramaraj et al documented that a total of 143 dermatophytes were isolated,^[12] *T.rubrum* (70/143) was predominant etiological agent followed by *T.mentagrophytes* (64/143). Tinea corporis is the most common clinical presentation followed by Tinea cruris. Parameswari K et al,^[13] Kumar K et al^[14], Venkatesan G et al also reported *T.mentagrophytes* was second most common isolate followed by *T.rubrum*.^[11]

Oral or Topical antifungal agents treatment is successful against dermatophytosis. Antifungal agents such as terbinafine, itraconazole and flucanazole can use against dermatophytosis for 2-12 weeks depending on the severity.^[15]

CONCLUSION

As dermatophytes are keratinophilic fungi, all layers of skin, nails and hair are prone to affected. There are many predisposing factors responsible for dermatophytosis. Study on predisposing factors and epidemiological factors helps us to find out the diagnosis easily and also to eliminate the spread of dermatophytosis and reinfection. Prognosis is excellent with good compliance from patient side and subsequent precautions such as proper hygienic

practices, maintaining moist skin to avoid repeat infection.

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