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A RETROSPECTIVE STUDY ON CLINICAL PATTERN OF DERMATOPHYTOSIS IN A TERTIARY CARE HOSPITAL, CHENNAI.

Dermatology

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ABSTRACT

BACKGROUND: Dermatophytes are one of the major causative organisms of superficial fungal infections.Dermatophytosis is the most common superficial fungal skin infection among patients attending a dermatology clinic.

AIM: To analyse the clinical presentation and demographic characteristics of patients with dermatophytosis.

METHOD: A retrospective analysis of the data was conducted among the patients who attended Dermatology OPD in a Tertiary Care Hospital in Chennai between May 2016 to April 2018.

RESULTS: A total of 1549 patients were diagnosed and treated for dermatophytosis among which 877 were males, 672 were females and among them 108 were children (less than 14 yrs of both sexes). 33.83 % of patients were in the age group of 21 – 30 years, followed by 22.60 % of patients in 11 – 20 years.Tinea corporis was seen in 56.48% of patients followed by Tinea cruris in 25.44 % of patients.

CONCLUSION: Tinea corporis was the most common clinical presentation followed by Tinea cruris.Prevalence rate of dermatophytosis is more among males than females, but the rate varies among various geographic regions. Elaborate studies are required in future regarding the epidemiology of the disease which play an equally important role to topical and systemic therapy in the management of the disease.

KEYWORDS

INTRODUCTION

Dermatophytosis is one of the common superficial fungal skin infections worldwide. It is the infection of keratinized tissues such as epidermis, hair and nails. The infection is commonly called as "Tinea" (literal meaning "Larva") as it was thought that the infection is due to insects in olden days [20]. Dermatophytes represent closely related species of the three genera -Trichophyton, Microsporum and Epidermophyton.

Dermatophytosis which was once considered as an easy infection to treat has now evolved into a difficult-to-treat menace across the country [1]. The prevalence rate of superficial fungal infections worldwide has been found to be 20 – 25% according to WHO, and the prevalence is more in tropical and sub tropical regions like India where the heat and humidity is high [2]. The rising prevalence of dermatophytosis has been attributed to tropical climate, over crowding, urbanisation, tight fitting clothes, occlusive foot wear, shared accommodation, community showers and sports activities[3]. Presentation of dermatophytosis depends upon various factors such as age, sex, geographic location and habits, genetic predisposition, temperature, endocrine and metabolic factors, virulence of the infective organism, competing organisms and co pathogens [21].

The clinical signs of dermatophytosis depend on the affected region of the body; however, pruritus is the most observed symptom in human [4]. Tinea corporis starts as a flat,scaly and more often as a pruritic macules which may further develop into a lesion with raised border spreading radially with erythematous vesicular edges. This may expand as a ring with central clearance and irregular circles [5]. The present study was undertaken to find out the clinical presentation of dermatophytosis among the patients of this geographic location. There are several types of superficial fungal infections like Tinea corporis, Tinea facei, Tinea barbae,Tinea cruris, Tinea capitis, Tinea pedis, Tinea Manuum . On the basis of site of infection there are various types of fungal infection in human beings [6].

METHODOLOGY

A retrospective study was conducted among patients who attended the Dermatology OPD in a Tertiary Care Hospital in Chennai during May 2016 to April 2018. All the necessary informations were collected from the OPD case records. A total number of 1549 patients were diagnosed with dermatophytosis. All patients of all age groups and both sexes were included.

The data analysis showed that the patients with complaints of itching and skin lesions were examined and detailed history had been taken from them. On the basis of anatomical site of involvement they were grouped into various clinical types [13]. Also a detailed history of any applications of antifungal therapy, other comorbid conditions such as diabetes had been recorded. Many patients had complained of recurrent fungal infections. There was history of involvement of other family members staying in the same house and roommates in the hostel.

RESULTS

A total of 1549 patients were clinically diagnosed with dermatophytosis. Among 1549 patients, 877 were males (56.62%), 672 were females (43.38%) and among them 108 were children (less than 14yrs of both sexes) as shown in Chart 1.

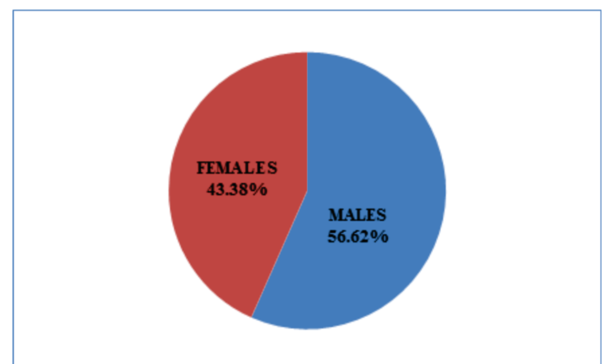

CHART 1: Gender Distribution In The Study

The most common presentation was Tinea corporis with 875 patients affected in which 387(57.51%) were females and 488(55.64%) were males, followed by Tinea cruris in which 245(27.93%) were males and 149(22.17%) were females as shown in Table 1 and Chart 2.

Table 1: Percentage of Patients according to Clinical Types

Clinlcal Types	Percentage
Tinea corporis	56.48%
Tinea cruris	25.44%
Tinea glutealis	4.59%
Tinea pedis	4.33%
Tinea manuum	2.32%
Tinea axillaris	2.26%
Tinea facei	2.19%
Tinea capitis	1.36%
Tinea barbae	1.03%
Grand Total	**100.00%**

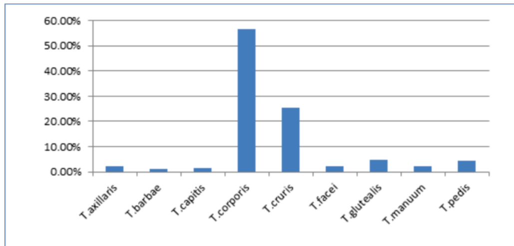

CHART 2: Percentage of Patients with various Clinical Types

According to age, patients in the age group of 21 to 30 years were more with 524 in number and next predominant age group was 11 to 20 years with 350 patients as shown in Table 2 and Chart 3.

Table 2: Total Patients according to Age

Age-Group in Years	Number of Patients	Percentage
01-10	59	3.81%
11-20	350	22.60%
21-30	524	33.83%
31-40	315	20.33%
41-50	156	10.07%
51-60	88	5.68%
61-70	43	2.78%
71-80	11	0.71%
81-90	3	0.19%
Grand Total	**1549**	**100%**

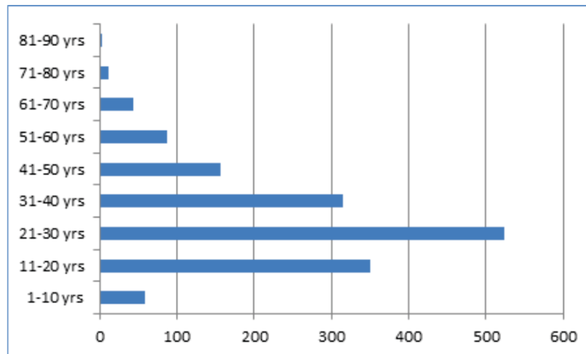

CHART 3 : Total Patients according to Age

Tinea corporis followed by Tinea cruris were the most common presentations in both males and females, which has been shown in the Tables 3 and 4 and Charts 4 and 5.

Table 3: Percentage of Female Patients in Clinical Types

Clinical Types	Percentage
Tinea corporis	58.02%
Tinea cruris	22.33%
Tinea pedis	5.25%
Tinea glutealis	4.50%
Tinea manuum	3.60%
Tinea facei	2.85%
Tinea axillaris	2.25%
Tinea capitis	1.20%
Tinea barbae	0
Grand Total	**100.00%**

Table 4: Percentage of Male Patients in Clinical Types

Clinical Types	Percentage
Tinea corporis	55.33%
Tinea cruris	27.77%
Tinea glutealis	4.65%
Tinea pedis	3.64%
Tinea axillaris	2.27%
Tinea barbae	1.81%
Tinea facei	1.70%
Tinea capitis	1.47%
Tinea manuum	1.36%
Grand Total	**100.00%**

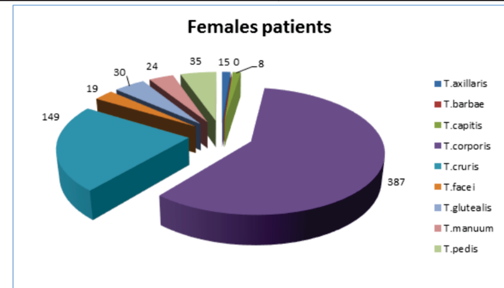

CHART 4: Number of Female Patients in each Clinical Type

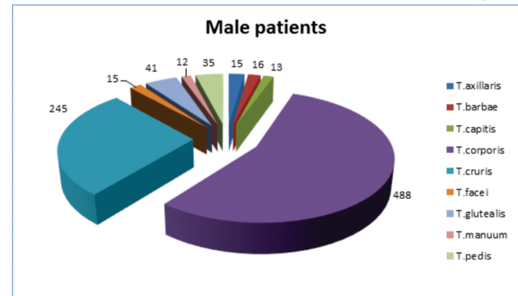

CHART 5: Number of Male Patients in each Clinical Type

PICTURES SHOWING VARIOUS CLINICAL PRESENTATIONS OF DERMATOPHYTOSIS

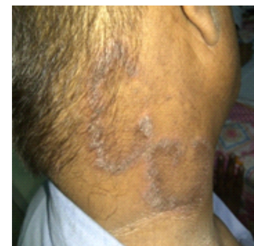

FIG 1: Tinea corporis

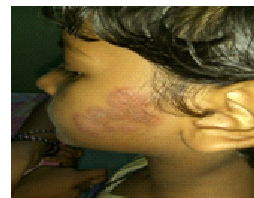

FIG 2: Tinea facei

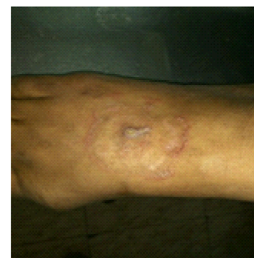

FIG 3: Tinea pedis

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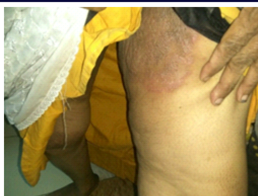


FIG 4: Tinea cruris

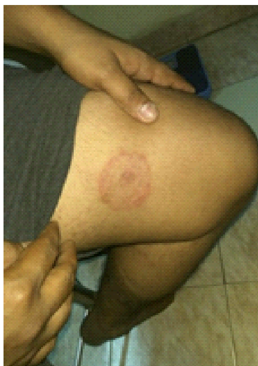


FIG 5: Tinea incognito

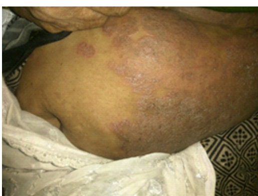


FIG 6: Tinea corporis

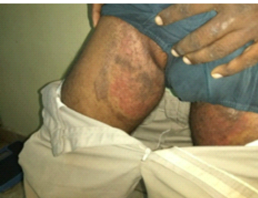


FIG 7: Atrophy of the skin due to application of potent steroids

Rural patients were more about 59.46% compared to Urban patients about 40.64% as shown in Table 5.

Table 5: Distribution of Patients depending on the Type of Location

Location	Number of Patients	Percentage
Rural	921	59.46%
Urban	628	40.64%
Total	**1549**	**100%**

About 36.15% of patients had history of other family members affected as shown in Table 6.

Table 6: Distribution of Patients according to Family History

Family history	Number of Patients	Percentage
Present	560	36.15%

About 39.38% of patients applied steroid as first level of treatment as shown in Table 7.

Table 7: History of Steroid Abuse

History of Steroid Abuse	Number of Patients	Percentage
Present	610	39.38%
Absent	939	60.72%

Recurrence of dermatophytosis was seen in about 30.99% patients as shown in Table 8.

Table 8: History of Recurrence

History of Recurrence	Number of Patients	Percentage
Present	480	30.99%
Absent	1069	69.01%

Tinea corporis and Tinea cruris were seen more in age group of 21-30 yrs and 11-20 yrs as shown in Table 9.

Table 9: Number of Patients in each Clinical Type according to Age

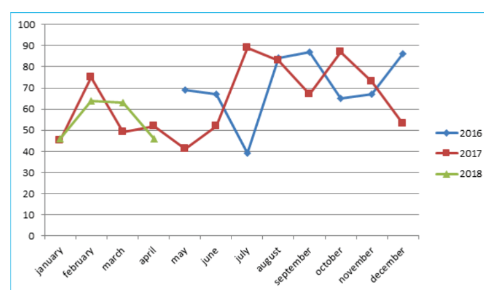
AGE	T.axil	T.barb	T.capitis	T.corp	T.cruris	T.facei	T.glu	T.manu	T.pedis	TOTAL
01-10	2	-	8	31	10	3	2	-	3	59
11-20	7	1	10	201	91	3	18	9	10	350
21-30	12	8	3	270	154	16	35	6	20	524
31-40	6	3	-	180	79	7	10	11	19	315
41-50	1	2	-	107	30	1	3	3	9	156
51-60	3	1	-	50	20	4	2	5	3	88
61-70	4	1	-	27	5	-	1	2	3	43
71-80	-	-	-	7	4	-	-	-	-	11
81-90	-	-	-	2	1	-	-	-	-	3
TOTAL	35	16	21	875	394	34	71	36	67	1549

In both male and female patients Tinea corporis was the highest and the next predominant was Tinea cruris as shown in Table 10.

Table 10: Number of Patients in each Clinical Type according to Gender

Gender	T.axil	T.barbae	T.capitis	T.cor	T.cruris	T.facei	T.glu	T.manu	T.pedis	TOTAL
Female	15	0	8	387	149	19	30	24	35	667
Male	20	16	13	488	245	15	41	12	32	882
TOTAL	35	16	21	875	394	34	71	36	67	1549

Graph showing the number of patients in these 2 years according to months



More number of cases were seen between the months of August to December in both the years which is shown in Table 11.

Table 11: Number of cases according to Months

MONTHS	2016	2017	2018	Grand Total
January		45	46	91
February		75	64	139
March		49	63	49
April		52	46	98
May	69	41		110
June	67	52		119
July	39	89		128
August	84	83		167
September	87	67		154
October	65	87		152
November	67	73		140
December	86	53		139
Grand Total	**564**	**766**	**219**	**1549**

DISCUSSION:

Dermatophytosis infections are widespread and cause significant distress to the patient socially, emotionally and financially [3]. Dermatophytosis is common in tropical countries like India and may reach epidemic proportions in areas with high rate of humidity and over population and poor hygienic conditions [8]. The presentation of dermatophytosis varies with regard to age, sex, occupation and geographic location.

In our study majority of patients were between 21 – 30 years (33.83%) followed by 11 – 20 years (22.60%) which is similar to studies of Sanjiv et al[11],Kumar et al [13]. Similar studies were reported by Balakumar et al [4] were 25.6% was seen in 11-20 yrs and about 25.4% in 21 to 30yrs. In previous similar studies conducted by Mahajan et al [9] and Lakshmanan et al [2], majority of patients were between the age group of 20 – 40 years. The probable reason for the higher prevalence

in this group could be due to the reason that individuals in this age group are most active because of their involvement in outdoor activities[7].

Male to female ratio was 1.3:1 in our study, which was similar to the studies conducted by Lakshmanan et al [2] (1.28:1), Madhavi et al [8] (1.3:1) , Gandhi et al[17](1.27:1) and Kumar et al[13] (1.12:1) among patients of similar geographic area. In studies conducted by Mahajan et al [9] (3:1), Bhatia and Sharma et al [7] (5.6:1), Bhavasar HK et al[10] (2.14:1), Agarwal et al [16] (2.16:1), Pathania et al [3] (1.70:1) and Sanjiv Grover and P Roy et al[11] (4.26:1) among patients from different geographic area the prevalence was little more higher in males compared to our study.

Tinea corporis was the most common clinical presentation in our study (56.48%) followed by Tinea cruris (25.44%). Similar observations were made by others researchers Venkatesan et al[12] (64.8% and 26.8%), Lakshmanan et al [2](78.1% and 10.1 %) , Madhavi et al [8] (27% and 12.2 %) Mahajan et al [9](20.8% and 18.9%), Gandhi et al [17] (45% and 28%), Agarwal et al [16] (37.3% and 13.7%) and Bhatia and Sharma et al[7] (39.1 % and 29.0 %).

In our study, both Males and Females had Tinea corporis with a percentage of 55.33% and 58.02% respectively. Tinea corporis was seen the highest in female patients.The next common presentation was Tinea cruris in both the genders with Males 27.77% and Females 22.33%. Next most common was Tinea glutealis in both genders. Similar reports were given by Brigida et al [5] were Tinea corporis in Males was 55.62% and in Females 44.37% and Tinea cruris in Males was 44.92% and in Females 55.07%.

Rural population had dermatophytosis more than urban population with a total number of rural 59.46% and urban 40.64%. In studies of Kumar et al [13], Gandhi et al [17] about 57.7% and 72% respectively were rural population. Since the study was done in rural population which included illiterate people of low socioeconomic group who are unaware of the disease, neglected the initial lesions and did not take any treatment presented with lesions at multiple sites. This also explains the chronicity of lesions in some cases[8].

In our study, about 560 patients had a family history of dermatophytosis infection. In studies done by Pathania et al [3], Mahajan et al [9] and Kumar et al[13] about 72%, 30.9% and 41.6% patients had family history of dermatophytosis. The importance of an untreated and undocumented dermatophytosis affected family member being a constant source of reinfection is often mistaken for treatment failure[18].

Many patients, about 610(39.38%) had steroid abuse and the patients presented with Tinea incognito. In studies done by Kumar et al[13], Pathania et al [3] and Mahajan et al [9] about 34.9%, 53.2% and 70.6% respectively had used topical corticosteroids either alone or in combination with antibacterial and antifungal agents.

Many people from rural region had recurrent infection of dermatophytosis because of insufficient usage of medicine and no proper knowledge about the spreadibility of superficial fungal infection. Personal hygiene was found to be poor in most of the patients which included the failure to bathe daily and wear freshly washed clothes, towels, and combs. These factors play an important role in causing the spread of infection leading to its persistence and recurrence which are important factors in treatment failure. Educating the parents in detail about the personal hygiene, particularly the need to avoid overcrowding, washing clothes separately with hot water each day, avoiding dampness, and sharing of clothes and fomites among children is essential for tackling dermatophyte infection[17].

The number of cases were more during the months of August to December, about 160 to 170 patients were diagnosed each month and the least number of patients were seen in March month. Similary in Bhavasar et al [10] study the highest incidence of Superficial Fungal Infection was found in the months of September and lowest in February .

CONCLUSION:

Dermatophytosis is more common among males than females but the prevalence rate varies with different geographic regions. Tinea corporis was the most commonest clinical presentation followed by Tinea cruris which was similar in different geographic regions. Elaborate studies are required in future regarding epidemiology of the disease which plays an equally important role to topical and systemic therapy in the management of the disease.

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