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A CLINICO-EPIDEMIOLOGICAL AND MYCOLOGICAL STUDY OF RECURRENT DERMATOPHYTOSIS: A CROSS SECTIONAL STUDY.

Dermatology

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ABSTRACT

INTRODUCTION: Dermatophytosis is a common superficial mycosis, the recurrence of which causes significant cosmetic burden and social stigma, along with financial burden to the patients.

OBJECTIVE OFSTUDY: To evaluate the current change in trends of the various risk factors, clinical patterns and causative organisms of recurrent dermatophytosis in the present era.

METHODS: A Cross sectional observational study comprising 100 KOH positive cases of dermatophytosis evaluated with the help of predesigned proforma, complete clinical and mycological examination.

RESULTS: Out of 100 patients, 39% were males and 61% were females. Majority were from age group 21-30 years (27%).Risk factors found were excessive sweating(47%), intrafamilial infections(44%), Tight clothing(42%), and misuse of topical corticosteroids(34%). On mycological examination, T.mentagrophytes was the most common species (52%), followed by T.rubrum(36%).

CONCLUSION: Our study reinforces that intrafamilial infections, poor compliance to treatment,and various host factors, all seemed to have contributed to this ongoingepidemic of recurrent dermatophytosis that is currently prevalent across the country.

KEYWORDS

Recurrent dermatophytosis, Tinea, Dermatophytic infection, recalcitrant dermatophytosis, Dermatophytosis

INTRODUCTION:

Dermatophytosis is a common superficial mycosis causing significant cutaneous morbidity. Itching is severe, and disabling lesions on the genital and other areas cause social embarrassment and impair quality of life as well as cause financial burden to the families[1] The rising prevalence of dermatophytosis has been attributed to many factors including tropical climate, overcrowding, urbanization, shared accommodation such as living in hostels, the use of occlusive footwear, tight-fitting clothes, community showers and sports activity.[2] Moreover, there is a change in the disease presentation, severity, treatment response, and relapse rate.[3] Various mechanisms contributing to chronicity and recurrences have been proposed but the exact reasons have not been elucidated. Despite the increasing incidence of recurrent dermatophytosis, information on the extent of the burden in our country is scarce[4].

AIM OF THE STUDY:

To determine the incidence, risk factors, and clinical patterns of recurrent dermatophytosis in the patients attending the Dermatology OPD in ASRAM. We also investigated the causative dermatophyte species.

NEED FOR THE STUDY:

Dermatophytosis is a very commonly found superficial fungal infection. However, it is no longer a simple infection that is easily amenable to treatment. It has evolved into a chronic and recurrent, difficult-to-treat infection, which affects the physical and the social well-being of the affected patients. Despite the increasing incidence of recurrent dermatophytosis, information on the extent of the burden in our country is scarce.

MATERIALS & METHODS:

A hospital-based study was conducted on patients attending dermatology outpatient department in a tertiary care hospital. Patients were recruited from OPD and study was conducted from August 2019-February 2020.

STUDYDESIGN:

Cross sectional observational study

SAMPLE SIZE:

Study comprised of 100KOH positive patients of dermatophytosis, evaluated with the help of predesigned proforma that includes complete history regarding the risk factors. Complete clinical examination was done to evaluate the various clinical patterns of recurrent dermatophytosis and mycological examination was done to determine the causative organism.

INCLUSION CRITERIA:

Patients attending OPD who have KOH positivity from skin scrapings, and had atleast one episode of relapse of dermatophytosis within few weeks of stopping antifungal drugs in the preceding 6 months.

EXCLUSION CRITERIA:

Patients with T.pedis and T.mannum, patients who are on antifungal therapy, patients who are immunosuppressed, uncontrolled diabetes, acquired immune defciency syndrome, pregnancy and lactating, malignancy, on steroid treatment for other diseases.

METHOD:

All patients attending dermatology out patient department, with clinical suspicion of dermatophytosis were screened. For the purpose of this study, a diagnosis of "recurrent dermatophytosis" was made in patients who had at least one episode of relapse of dermatophytosis within few weeks of stopping antifungal drugs in the preceding 6 months. Detailed case history of each patient with reference to name, age, sex, address, IP/OP number, occupation, marital status, duration of complaints, treatment history and other associated systemic conditions such as diabetes, tuberculosis, immunosuppressive states (HIV, transplant patients, internal malignancy), family history, hobbies, personal hygiene, clothing habits and contact with pet animals was recorded. Past history of similar infections enquired. General and systemic examinations done. Clinical features like site of involvement and shape of the lesion noted and examination of palms, soles, nails and hair done. Scrapings from the active periphery border of the lesion were examined in 10% KOH, for the presence of hyaline long branching septate hyphae. 100 patients with KOH positivity were selected and subjected to culture. The selected site was cleaned with 70% alcohol and then scales obtained by the scraping were inoculated into Modified Sabouraud's Dextrose Agar medium and kept at 27degree Celsius in an incubator. Macroscopic appearance of the colony was noted weekly for 2 to 3 weeks. Microscopic appearance of the colony in lacto phenol cotton blue was observed.

RESULTS:

SEX DISTRIBUTION:
Out of 100 patients enrolled in this study, 61 (61%) were females and 39(39%) were males.

AGE:
Majority of the patients (27%) were from 21-30 years age. 25% patients were from the age group 31-40 years, and 24% from 11-20 years of age. Least number of patients were seen in the age group greater than 60 years of age.

Table 1: RISK FACTORS

RISK FACTORS	NUMBER
Intrafamilial tinea infection	44
Agriculture	21
Sharing clothes,footwear,towel	25
Tight clothing	42
Excessive sweating	47
Hosteliers	14
Pets	6
Corticosteroid use	34
Irregular usage of antifungals previously	43

Majority of the patients in our study gave history of excessive sweating(47%), followed by family history of tinea infections(44%).

CLINICAL PATTERNS:
Majority of patients were found to be having Tinea corporis(65%), followed by Tinea cruris(42%) and tinea faciei in 14%. 29 patients were found to be having both tinea corporis and tinea cruris infection simultaneously.

Figure 1: A case of Tinea Corporis: the most common pattern of involvement

CULTURE:

Table 2: Dermatophytes grew from 65 of the 100 samples taken.

T.mentagrophytes	34
T.rubrum	24
T.violaceum	1
T.verrucosum	1
M.gypseum	3
E.floccosum	2
Contaminants	5
No growth	30

On mycological examination, growth was present in 65 patients culture plates. The most common organism isolated was Trichophyton mentagrophytes, followed T.rubrum.

DISCUSSION:
Dermatophyte infections are extremely prevalent and cause significant discomfort to the patients socially, emotionally and financially. It is now emerging as a challenge to treat for dermatologists in India, which previously wasn't present[4].

We observed few factors that could contribute to the spread of infection in our study. Ignorant family members harbouring the fungus along with frequent sharing of towel, footwear and clothes seem to be significant factors. Fomites like clothing, bedsheets and towelsharbour the fungal organisms and are capable of transmitting the disease amongst family members[5]. Quite a few patients gave history of excessive sweating and wearing tight clothing, which contributed to the proliferation of oragnisms. Application of topical corticosteroids was seen in more than a fourth of our patients, which are known to suppress inflammation and improve signs and symptoms of tinea initially. However, on discontinuation, dermatophytes flourish leading to subsequent flare of the disease[6]. In the recent times, irrational and irregular use of topical and systemic antifungal medications either alone or in combination with easily available over-the-counter steroid or antibacterial agents are contributing to therecurrence of dermatophytosis. Patients are vigorously and religiously using theseover the counter combination medications to such an extent that they are developing gross striae and hypopigmentation, and yet still continue its usage as well as attribute striae with the disease process.

Trichophyton mentagrophytes was the most commonly isolated organism in our study, followed by Trichophyton rubrum, which corresponded with the results from similar studies done across the country[7,8,9]. Although recurrences may also be due to reinfection from family members, the environmental and host factors, it is also likely that the duration of antifungal therapy given may be inadequate. Most of our patients had stopped topical treatment as soon as they got partial relief. In view of the expected high fungal load, extending the therapy for 2–3 weeks after the clinical cure may be necessary.

CONCLUSION:
In our study of recurrent dermatophytosis, we observed that poor hygiene, a high incidence of intrafamilial tinea infections, poor compliance to medication and the abuse of glucocorticoid-containing topical antifungal preparations all play a role in the causation of recurrences. Also, there is a change in the morphology of the lesion which can be attributed to the various combination creams and irregular medications being used. The recurrent nature of this disease impairs the quality of life and proves to be a heavy financial burden for families with multiple affected members.

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