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STUDIES

A CLINICO-MYCOLOGICAL STUDY OF SUPERFICIAL MYCOSES IN UPPER ASSAM

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Clinico-mycological study of one hundred clinically diagnosed cases of superficial mycoses was conducted for one year. Overall male predominance was observed and *T. rubum* was the commonest isolate.

Key Words : Dermatophytes, Superficial mycoses, Tinea

Introduction

Superficial mycoses can be defined as fungal infection of the superficial part of the skin. Infection can remain confined only to the superficial part of the skin and the results thus produced are of cosmetic importance and sometimes causes dermal inflammatory response with intense itching. In India, cases of superficial mycoses was first reported from Upper Assam by Dr Powel in 1900 AD. Since then various studies on superficial mycoses were conducted from various parts of the country.[1-6] But till date no such study was performed from this part of the country after 1900 AD with identification of isolates.

In view of these, this study has been undertaken in an attempt to identify the clinical pattern of superficial mycoses prevailing in Upper Assam and also to identify the most common fungal pathogen responsible for superficial mycoses.

Materials and Methods

The study was conducted in Assam Medical College and Hospital in the department of Dermatology and Venereology. One hundred clinically diagnosed cases of superficial mycotic infections were selected at random for the study during the period of September 1993 to August 1994. Scrapings were taken from all the cases and the material was examined under microscope in 10% KOH. For examination of nail scrapings or clipings the material was dipped in 10% KOH solutions overnight and examined next morning. Some part of the scraped material was cultured simultaneously in parallel in Sabouraud's glucose agar gel with and without Chloramphenicol and Cycloheximide (Fungobiotic Agar). One set of tubes were incubated at 37°C and other set at room temperature. Each set of tubes were examined daily. If no growth was observed after 3 weeks of incubation, the culture was labelled as negative. If any growth occurred, it was observed for pigment production, colonical morphology and direct examination of the smear prepared from the colony under microscope. Germ tube tests and other appropriate biochemical tests were performed as and when necessary.

Clinically diagnosed cases of pityriasis versicolor were subjected to KOH preparation only. As pityrosporum is a normal skin commensal, the culture is of doubtful value and hence was not performed.

Results

Amongst the one hundred cases observed, 65 were male and 35 were female.

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It was noted that the most common clinical presentation was with dermatophyte infection involving multiple sites simultaneously (30%). The second most common presentation was with tinea corporis (23%). Pityriasis versicolor occupied third position with an overall incidence of 16%. Although tinea infection causing erythroderma is reported to be very rare, we encountered 2 such cases in our study.

Most of the clinically diagnosed cases were positive for both direct KOH preparation and culture studies (Table-III; Figs 1-3). But 34% cases demonstrated positive results on culture studies even when no fungal element was demonstrable on direct KOH preparation. Six cases (7%) diagnosed clinically as fungal infection, yielded negative results in both culture studies and KOH preparation. Only in one case even when direct microscopy showed fungal forms, the culture remained negative. In clinically diagnosed sixteen cases of pityriasis versicolor, thirteen cases (81%) showed positive result in direct KOH preparation, whereas the remaining three cases (18%) did not reveal any fungal element under microscope.

From Table III, it is evident that the total culture positivity and negativity are 91.6% and 8.3% respectively.

Table I. Incidence of various superficial mycoses in our study.

Clinical type	% incidence
Tinea corporis	23
Pityriasis versicolor	16
Tinea cruris	9
Tinea pedis	7
Tinea unguium	6
Tinea capitis	3
Tinea manuum	3
Tinea faciei	1
Erythroderma	2
Multiple site involvement	30
Total	100

Table II. Correlation of the results of KOH preparation and Mycological culture studies

	Number of cases	%
KOH + ve Culture + ve	48	57.14
KOH - ve Culture + ve	29	34.52
KOH - ve Culture - ve	6	7.14
KOH + ve Culture - ve	1	1.19
Total	84	100.00

In this study the maximum incidence of superficial mycosis was found in between age group of 10-30 years. The highest incidence of 36% is found in between 10-20 years of age, 32% incidence in between 10-20 years of age, 12% in between 30-40 years of age and

Table III.

Clinical type	Total no. of case	%	KOH +ve culture +ve	KOH -ve culture -ve	KOH +ve culture -ve	KOH -ve culture +ve	Total +ve culture	Total -ve culture
T Corpis	23	27.3	16	-	-	7	23	-
T Cruris	9	10.7	7	-	-	2	9	-
T manuum	3	3.5	2	-	-	1	3	-
T Pedis	7	8.3	2	-	-	5	7	-
T unguium	6	7.1	-	2	-	4	4	2
T faciei	1	1.1	-	-	-	1	1	-
T capitis	3	3.5	-	1	-	2	2	1
Multiple site involvement	30	35.7	20	3	1	6	26	4
Erythroderma	2	2.3	1	-	-	1	2	-
Total	84	100.0	48	6	1	29	77	7

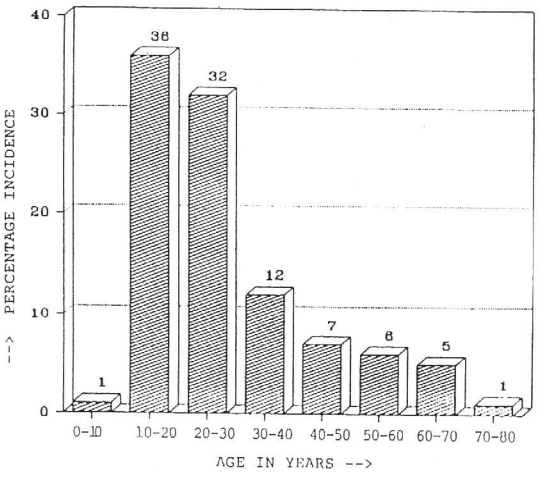

Fig.1. Bar diagram showing the incidence of dermatomycoses in percentage in relation to various age groups.

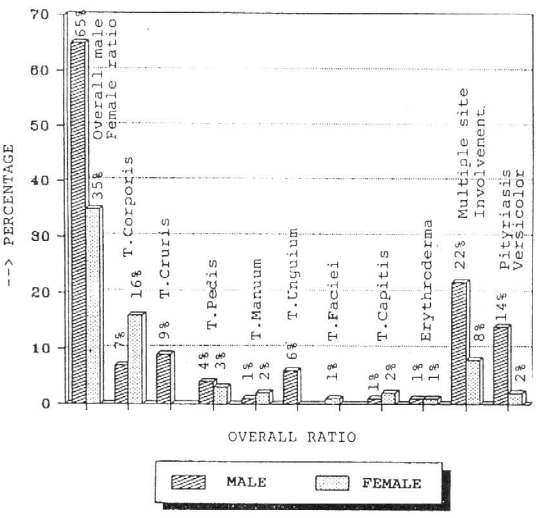

Fig.2. Bar diagram showing the correlation of sex ration in different clinical types of superficial mycoses.

pityriasis versicolor is very common in 10-20 years of age group.

Regarding sex incidence it was observed that overall male : female ration was 13 : 7.

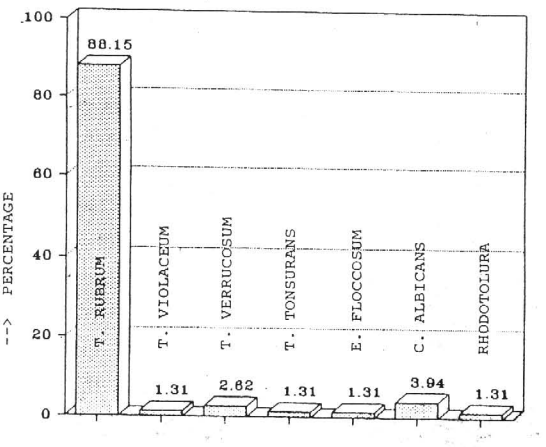

Fig.3. Bar diagram showing the various organism isolated in percentage.

Except in tinea corporis and tinea capitis, male predominance was observed in all types of superficial mycoses. Cent percent incidence of tinea cruris was observed in male. Males outnumbered females in involvement of multiple sites also. Incidence of pityriasis versicolor was also found to be higher in males. In addition to only one case of tinea faciei was observed in female.

In this study, the most common isolate was of *T rubrum* which accounted for 88.15% of total isolates. *Candida albicans* came next with 3.94% incidence. *T verrucosum* was isolated in 2.62% cases.

Discussion

Superficial mycoses form a large group of patients attending dermatological outdoors and the disease is more prevalent in tropical countries than temperate zones because of high relative temperature and humidity. The diagnosis of superficial mycoses is mostly clinical, assisted by direct microscopical examination of the scraped material. The

identification of species concerned is not only important for academic interest, but also for epidemiological reason to find out the source of infection and prevention of its transmission. This study was done from Upper Assam which is situated along the bank of river Brahmaputra and it comprises of Dibrugarh, Lakhimpur, Sibsagar, Golaghat and Jorhat districts. The study centre, Dibrugarh, has an altitude of 110 metres MSL and average relative humidity of 78.7% almost throughout the year. The temperature varies from 30.5°C to 16.8°C. These high temperature and humidity along with heavy monsoon form a very fertile ground for fungal growth and proliferation, thus accounting for very high incidence of fungal diseases in these areas.

In our one hundred selected cases, the most common clinical presentation was with dermatophyte infection. The most common sites affected either singly or in combination was of lower abdomen and groin. Abdominal involvement can be explained by the fact that the indigenous population of this part of the country wear clothes around the waist with a tight knot. The knot acting as a band produces damage to the skin, which may be accentuated by associated maceration with sweating.

Most of our patients were between 10-40 years of age. This can be explained by the fact that this population group is highly active and mobile and takes part in maximum outdoor activities like agriculture and manual activities predisposes these individuals to acquire infection from increased environmental exposure.

The highest isolate of *T rubrum* is due to the fact that *T rubrum* is gradually replacing all other strains of fungus from the world. All three isolates of *Candida albicans* were from female patients who were engaged in frequent wet works.

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