DERMATOPHYTES CAUSING TINEA CRURIS IN KARACHI

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Abstract

Eighty-three cases of tinea cruris with positive culture were studied in Karachi between March, 1977 and May, 1978. Males were predominantly affected (89.8%). 72.2% of cases of tinea cruris occurred between the ages of 15 and 30. The causative fungi were Trichophyton rubrum (47%), Trichophyton tonsurans (28.9%), Epidermophyton floccosum (15.6%) and Trichophyton mentagrophytes (8.4%) (JPMA 29:190, 1979).

Introduction

Karachi is the largest city in Pakistan and as a coastal town it enjoys a hot and humid climate for most part of the year. Coupled with unhygienic living conditions in the less affluent part of the city it is ideal for the fungal infections to flourish. For this reason tinea cruris is very common and its frequency is second only to that of tinea corporis. In the present study it accounted for 83 (33.9%) of 245 cases of fungal infections as against 131 (53.5%) of tinea corporis.

Material and Methods

One hundred and nine cases suspected clinically to be suffering from tinea cruris were collected from the dermatology outpatient department of Jinnah Postgraduate Medical Centre, Karachi, between March, 1977 and May, 1978. Diagnosis of tinea cruris was made when there was involvement of medical sides of thighs, inguinal folds, scrotum, perineal region and buttocks. Detailed history was taken from each patient keeping in mind the duration and extent of infection, involvement of other body areas, evidence of recurrence and contact with infected animals.

Microscopy and Culture

Skin scrapings were obtained from each patient after cleaning the edge of the lesions with 70% ethanol. Half of the collected specimen was mounted on a glass slide and warmed gently with 10% KOH. The microscopic examination was done for the presence of mycelia after staining with a drop of lactophenol cotton blue.

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Other half of the specimen was cultured on Mycobiotic agar (Difco) at 28-30°C to identify the causative fungus. Subcultures were subsequently made from a representative colony on Mycobiotic agar and incubated to obtain pure growth. Specific identification of the species was done according to the modified methods described by Ajello et al. (1966) on the basis of colony morphology, pigment production, rate of growth and microscopic morphology of the cultures on corn meal dextrose agar with 1% yeast extract. The latter medium was also incubated at 37°C to compare the rate of growth at two temperatures. Nutritional media (Trichophyton agar No. 1-7) were also employed for identification of Trichophyton species.

Results

The frequency of age and sex and the results of microscopy and culture are listed in table I and II respectively.

Table I: Age and Sex

Age in Years	*Male*	*Female*	*Total*
0 — 5	0	0	0
6 — 10	1	1	2
11 — 15	1	0	1
16 — 20	22	1	23
21 — 30	32	5	37
31 — 40	8	0	8
41 — 50	9	2	11
51 — 60	1	0	1
61 — 80	0	0	0
Total	74	9	83

Table II: Microscopy and Culture

Total cases clinically diagnosed as tinea cruris	109
Microscopy and Culture Positive	61
Microscopy Negative and Culture Positive	22
Microscopy Positive and Culture Negative	4
Microscopy and Culture Negative	22

Out of 109 clinically suspected cases of tinea cruris 65 (59.6%) were positive on microscopy and 83 (76.1%) yielded a positive culture. Results of the culture are set out in table III.

Table III: Types of Fungi Isolated

Type of Fungus	*Number (%)*
Trichophyton rubrum	39 (47 %)
Trichophyton tonsurans	24 (28.9%)
Epidermaphyton floccosum	13 (15.6%)
Trichophyton mentagrophytes	7 (8.4%)

Table IV: Length of Infection Pertaining to the Type of Fungus

Type of Fungus	0-4 *wks*	4-8 *wks*	8-25 *wks*	26-52 *wks*	1-5 *yrs*	5-10 *yrs*
Trichophyton rubrum	10	6	10	5	7	1
Trichophyton tonsurans	5	3	6	5	4	1
Epidermophyton floccosum	9	2	1	0	0	1
Trichophyton mentagrophytes	3	2	2	0	0	0
Total	27	13	19	10	11	3

Table V: Causative Fungi of Mixed Sites

Tinea cruris alone	64	(T. rubrum 28, T. tonsurans 18, E. floccosum 12, T. mentagrophytes 6)
Tinea cruris and tinea corporis	18	(T. rubrum 10, T. tonsurans 6, E. floccosum 1, T. mentagrophytes 1)
Tinea cruris, tinea corporis and tinea pedis	1	(T. rubrum 1)

Epidermophyton floccosum and Trichophyton mentagrophytes infections were usually present for less than six months whereas Trichophyton rubrum and Trichophyton tonsurans infections ran a more chronic course often extending over many years. Details are listed in table IV.

Fungus infection was not necessarily confined to the crural region alone and concomitant involvement of other sites was also recorded. Table V describes such combinations and the breakdown of responsible fungi.

Simultaneous presence of tinea versicolor was also noted in two male patients. Both of them had an underlying Trichophyton rubrum infection. Although 164 cases of tinea versicolor were recorded in this period only two concomitantly with tinea cruris.

Out of nine females, six had tinea cruris alone and remaining three had tinea corporis also.

Discussion

In Europe, tinea cruris is said to be much less common in females (Rook et al., 1972). However, more women suffer from this type of fungus infection in India and Pakistan. The exact reason for this is not known. Shah et al. (1975) report a male to female ratio of 4.6:1 and Kandhari and Sethi (1964) 5.6:1. In this series a ratio of 8:1 was observed. Out of nine females in this study the fungi isolated were Trichophyton rubrum 3, Trichophyton 3, tonsurans 3, Trichophyton mentagrophytes 2 and

Maximum number of patients suffered from tinea cruris between the ages of 15 and 30 (72.2%). Only one case was recorded after the age of fifty and none below the age of seven. Trichophyton mentagrophytes, a zoophilic fungus, was responsible for both the female cases under twenty.

Frequency of tinea cruris, second only to tinea corporis, is in conformity with the majority of reports appearing from various parts of neighbouring India (Kandhari and Sethi, 1964; Mankodi and Kanvinde, 1969; Dutta and Rao, 1970; Shah et al., 1975). However, Gupta and Shome (1959) strike a note of dissension, with tinea cruris marginally tipping tinea corporis into second place.

Very few reliable figures exist regarding the relevant incidence of various types of fungus infection in Pakistan. Khan and Anwar (1969) published a large series of 376 cases of tinea cruris from Karachi collected over three years. One of the aims of the present study was to compare the latest data with that published previously. Trichophyton rubrum still remains the main causative fungus. However, frequency of Trichophyton tonsurans has increased considerably (28.9% compared to 0.26% previously). Another important difference between the study of Khan and Anwar (1969) and the present one is complete absence of Trichophyton violaceum in the latter.

In Europe, Epidermophyton floccosum is the chief cause of tinea cruris (Rook et al., 1972). In India and Pakistan Trichophyton rubrum is the main source of infection of the crural region (Mankodi and Kanvinde, 1969;

Shah et al., 1975). Similar pattern is reported from Bangkok (Kotrajaras 1967). Uppal and Kamil (1974), however, isolated Epidermophyton floccosum in 80% of their cases of tinea cruris in Peshawar.

Trichophyton tonsurans is virtually unknown to cause tinea cruris in Europe (Rook et al., 1972). However, this association has been reported from India (Kandhari and Sethi, 1964; Shah et al., 1975). In the present study frequency of this fungus lies second only to Trichophyton rubrum.

The frequency of Epidermophyton floccosum appears to be higher in Karachi than reported from various parts of India. Khan and Anwar (1969) mention a figure of 31.1% while in the present study it was found to be 15.6%. In the various series published from India frequency of Epidermophyton floccosum has been quoted to range between 1.1% and 6.6% (Kandhari and Sethi, 1964; Mankodi and Kanvinde, 1969; Amin et al., 1971; Shah et al., 1975).

In short, Trichophyton rubrum still remains the main source of tinea cruris in Karachi but the marked rise of Trichophyton tonsurans should be taken note of particularly when it is not a common cause of crural infection elsewhere.

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