# Tinea Capitis in Karachi

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## Abstract

The etiology and prevalence of Tinea Capitis in adults and children was studied in 115 cases. The most common etiologic agent was Trichophyton Violaceum recovered from 82 63% cases, Trichophyton rubrum from 10.4%, Trichophyton tonsurans from 3.47% and Microsporum canis from 3.4% cases. The study includes seventy cases of "blackdot" ringworm of the scalp, four cases of Kerion and forty one cases of usual tinea capitis infection (JPMA 32.263, 1982).

## Introduction

A comprehensive study of one hundred and fifteen cases of tinea capitis was carried out in collaboration with the Department of Dermatology, Jinnah Postgraduate Medical Centre Karachi, Pakistan. Karachi is a big and thickly populated metropolis. It experiences continental type of climate in the northern part of the city and coastal type of climate near the sea. During the summer season the relative humidity and temperature are quite high and are conducive to increased prevalence of tinea capitis during May to October.

Extensive work has been carried out on tinea capitis in different parts of the world. The early workers include Benson (1939), Fox and Fower (1925), Fox (1926), Pernet (1925), Chamber (1926), Bechat (1926), Andrews (1948), White (1929) and many others. Their work was concentrated mainly on the occurrence of tinea capitis in children and adults with particular reference to etiology, geographic distribution, epidemiology and treatment.

Tinea Capitis is common in adults in Europe, China and Japan. A number of workers e.g. Cummer (1937) and Glass (1948), have published their data from these countries. Similarly Altears and Cojocaru (1970), Simu-anges and Halde (1965) and Aoki et al. (1951) have done comprehensive work on tinea capitis in Romania, Philippines and Japan respectively. They have established that tinea capitis is the disease of children but can also occur in adults.

## Material and Methods

One hundred and fifteen cases of tinea capitis were studied between November, 1979 and October, 1981. In every instance the clinical diagnosis was confirmed by microscopic demonstration of the fungus in the hair and skin of the scalp. Those negative were excluded from the study. The clinical diagnosis was further confirmed by culture isolation.

Out of one hundred and fifteen cases of tinea capitis seventy were males and forty five females. Age incidence and duration of infection at the time of presentation are set out in Table I and II respectively.

## Table I

### Age Distribution of Tinea Capitis

| *Age in years* | *Male* | *Female* | *Total* | *Percentage* |
|---|---|---|---|---|
| 1— 5 | 4 | 9 | 13 | 11.30% |
| 6—10 | 47 | 25 | 72 | 62.60% |
| 11—15 | 16 | 11 | 27 | 23.47% |
| 16—20 | 02 | Nil | 02 | 1.80% |
| 21—25 | — | — | — | — |
| 26—30 | 01 | Nil | 01 | 0.90% |
| 31—35 | — | — | — | — |
| 36—40 | — | — | — | — |
| 41—45 | — | — | — | — |
| Total | 70 | 45 | 115 | 100% |

Table II

Duration of Infection

| *Duration of infection in weeks* | *Total* | *Percentage* |
|---|---|---|
| — — 5 | 20 | 17.36% |
| 6—10 | 55 | 47.82% |
| 11—15 | 19 | 16.20% |
| 16—20 | 14 | 12 50% |
| 21—25 | 05 | 4.30% |
| 26—30 | Nil | — |
| 31—35 | 01 | 0.86% |
| 36—40 | Nil | — |
| 41—45 | Nil | — |
| 46—50 | Nil | — |
| 51—55 | 01 | 0.86% |
| Total | 115 | 100% |

The clinical diagnosis of tinea capitis was confirmed in all the cases by microscopic observation of the fungal spores or hyphae in or around the hair, and skin from the scalp. A few drops of 15% KOH were added to the scrapings, gently warmed and examined microscopically.

Hair filaments infected with Trichophyton violaceum or Trichophyton tonsurans were packed with spores, which obliterated the normal structure of the hair shaft. This packing, with partial destruction of the hair shaft made the hair brittle and easily broken at the point of emergence from the skin giving the characteristic "blackdot" appearance.

Sabouraud cycloheximide chloramphenical medium was used (George, 1953) for the culture isolation and iden ification of the etiolo-gic agents. The infected hair were inoculated on the slanted surface of the medium and incubated at 29°C for one to three weeks. The various species of Dermatophytic fungi, isolated during this study were identified on the basis of their gross morphological characteristics, microscopic morphology and physiological characteristics (Rebell and Taplin, 1970). Bacto-Trichophyton Agars (No.l-7) (Difco Supp.

**Results**

Frequency of Dermatophytes isolated from one hundred and fifteen cases of tinea capitis is riven in Table III.

Table III

Frequency of Dermatophytic Fungi Isolated from Tinea Capitis Patients

| *Etiologic Agents* | *Total Isolates* | *Percentage* |
|---|---|---|
| Trichophyton violaceum | 95 | 82.63% |
| Trichophyton rubrum | 12 | 10.43% |
| Trichophyton tonsurans | 04 | 3.47% |
| Microsporum canis | 04 | 3.47% |
| Total | 115 | 100% |

There were seventy cases of blackdot ring worm, four cases of Kerion and forty one cases of ordinary tinea capitis. The results indicate that Trichophyton violaceum is the commonest etiologic agent (82.63%) and affects both sexes almost equally. The incidence of tinea capitis is highest amongst the five to fifteen years age group (62.6%). Past the age of sixteen, no female cases were recorded while only three male cases occurred in this age group.

**Discussion**

The present study indicates that tinea capitis is very common among children in Karachi. Its incidence is 97.95% in children below fifteen years of age and only 2.05% in adults. Intensive work has been carried out on tinea capitis in children and adults in various countries of the world. The early work was initiated by Fox and Fower (1925), Fox (1926), Pernet (1925), Chambers (1926), Bechat (1926), Andrews (1948), White (1929), Cummer (1937) and others. Their work was concentrated mainly on the occurrence of tinea capitis in children and adults with particular reference to the etiology, geographic distribution, epidemiology and treatment. In United States, Canada and England, tinea capitis is the most common infection among school children. Our results are in conformity with these reports. However tinea capitis in adults is common in Europe, China and Japan. From 1927-1935 Maschkil-lcisson (1935) observed superficial infection of scalp in persons over eighteen years of age. In 1931, Chen and Kurotchkin reported twenty one microscopically and culturally proved cases of tinea capitis in adults from China. In Japan, from 1901 to 1910, Mine and Orino (1910) observed one hundred and twenty persons, between sixteen to sixty years of age, with tinea capitis, sixty three of these being

adults over twenty one years of age. Comparison of our results with these reports indicates that scalp ringworm infection in adults is very rare (2.05%) in Karachi. However, Khan and Amtul Hafiz (1979) have reported Trichophyton violaceum in 25% of their cases of tinea capitis. The same organism was isolated by Khan and Anwar (1969) in 62.2% of their cases in Karachi and Uppal and Kamil (1974) in 42.8% of theirs' in Peshawar.

Khan and Anwar (1969) have reported twenty cases of tinea favosa from Karachi but in our study no such case has been isolated.

In this study only one Zoophilic Dermatophyte (Microsporum canis) was seen and all the remaining were anthropophilic. This indicates that majority of Dermatophytic infections in Karachi are transmitted from man to man and rarely from animals to man as indicated by only four cases of Microsporum canis. Karachi being the biggest industrial city of Pakistan, the major profession of the population is either business or service and, therefore, less chance of their coming in contact with animals responsible for transmission of Zoophilic infection.

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