

## **Dermatophytes from Apparently Healthy Toe-webs of Service Personnel Stationed in Northeastern Region of India**

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**Abstract.** Apparently healthy toe-webs of 230 individuals belonging to various Army units stationed in Northeast India were studied for dermatophytes. 35 were found positive. This revealed the presence of 28 *Trichophyton mentagrophytes*, 4 *Epidermophyton floccosum*, 2 *Microsporum gypseum* and 1 *T. rubrum*.

### **1. Introduction**

Hot and humid climatic conditions prevailing in the northeastern region of India are highly conducive for the growth of pathogenic fungi. Profuse sweating and insufficient evaporation impair skin defences against these pathogenic fungi<sup>1</sup>.

Dermatophytes have been isolated from apparently healthy toe-webs by various authors<sup>2,3</sup>. Ajello *et al.*<sup>4</sup> screened 349 men entering military life and obtained 1.7 per cent positive slides. Similar observations had also been made by other workers<sup>5,6</sup>. People may carry the fungus in their interdigital spaces without showing any clinical signs<sup>7</sup>. Survey for the presence of dermatophytes in the apparently healthy toe-webs of jawans was undertaken to have an idea regarding recurrence of the dermatomycoses in army personnel where strict hygiene is maintained.

### **2. Materials and Methods**

Survey was carried out in nine army units belonging to various arms such as Artillery, Engineers, Pioneers, Signals etc. during January 1979. Subjects were selected from each unit in a manner that it covered maximum possible trades like gunners, MT drivers, Veh. mechanics, road builders, wireless/telegraph operators. Samples of skin

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scrappings were collected from the toe-webs after cleaning with 70 per cent alcohol. A portion of each sample was subjected to direct microscopic examination in a drop of 20 per cent KOH solution. The rest was inoculated in Sabouraud's dextrose agar supplemented with 0.05 gm/lit chloramphenicol and 0.5 gm/lit cycloheximide and incubated at  $28 \pm 2^\circ\text{C}$  for three weeks or till the appearance of the colony, whichever was earlier.

### 3. Results and Discussion

The results of the microscopic examination of scrappings from the apparently healthy toe-webs of 230 individuals and the dermatophytes duly identified are given in Table 1. Direct microscopic examination on KOH mount revealed the presence of fungal elements in 40 cases, while on culturing only 35 isolates of dermatophytes were obtained. These included 28 *Trichophyton mentagrophytes* (80.0 per cent), 4 *Epidermophyton floccosum* (11.42 per cent), 2 *Microsporum gypseum* (5.71 per cent) and 1 *T. rubrum* (2.85 per cent). *M. gypseum*, an occasional parasite of man has been isolated in rare cases from smooth skin infection<sup>7</sup>. Out of 28 isolates of *T. mentagrophytes*, 11 belong to var. *granulosum*. Mixed infections as reported by English<sup>8</sup> were not found in this study.

Table 1. Isolation of dermatophytes from healthy toe-webs.

Sl. No.	Total No. examined	KOH positive	Culturally positive	Culture identified
1.	23	5	2	<i>Trichophyton mentagrophytes</i>
2.	23	5	4	<i>T. mentagrophytes</i>
3.	30	8	7	<i>T. mentagrophytes</i> var. <i>granulosum</i>
4.	37	4	2	<i>Epidermophyton floccosum</i>
			1	<i>T. rubrum</i>
5.	24	1	1	<i>Microsporum gypseum</i>
			3	<i>T. mentagrophytes</i>
6.	11	—	—	—
7.	16	1	1	<i>T. mentagrophytes</i>
			1	<i>E. floccosum</i>
8.	28	7	7	<i>T. mentagrophytes</i>
			1	<i>E. floccosum</i>
			1	<i>M. gypseum</i>
9.	38	9	4	<i>T. mentagrophytes</i> var. <i>granulosum</i>
Total	230	40	28	<i>T. mentagrophytes</i>
			4	<i>E. floccosum</i>
			2	<i>M. gypseum</i>
			1	<i>T. rubrum</i>

The results support the findings and hypothesis of Sulzberger and Baer<sup>9</sup> that *tinea pedis* may take place by contagion from external sources or the fungus already acquired

and lying dormant in the tissues awaiting a period of break down of the host resistance to propagate the disease. The isolation of dermatophytes from apparently healthy toe-webs of 230 personnel support the latter hypothesis.

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