Trichophyton rubrum infections according to age, anatomical distribution and sex

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SUMMARY

Trichophyton rubrum caused 79.2% of the cases of dermatophytosis observed in a sample of caucoids from Philadelphia. Tinea pedis was found in 84% of the female and male patients with dermatophytosis. Tinea manuum occurred with equal frequency in both sexes whereas tinea unguium was more prevalent in females. Tinea cruris occurred almost exclusively in males. Infections of two or more anatomical sites were observed more frequently in males. The data are compared with those reported by Rosman (1966) from a similar study done in Copenhagen.

Trichophyton rubrum infections have become more prevalent in many countries. Additional data are necessary in order to evaluate the course of these infections and to compare the clinical manifestations in different countries. Rosman (1966) carefully analyzed 240 cases seen in Copenhagen from 1961 to 1964. The present paper examines 232 cases of T. rubrum infections seen in Philadelphia from 1969 to 1971. The cases were categorized according to age, anatomical distribution and sex. All patients in the present study are caucoids which, therefore, permits a comparison between the Copenhagen and Philadelphia studies.

MATERIALS AND METHODS

Materials and methods used in collecting the data have been reported previously (Blank, Mann & Reale, 1974). T. rubrum infections accounted for 79.2% of the 293 female and male caucoid patients with dermatophytosis.

In the present study, the differences between means were evaluated by Fisher t tests and differences between proportions were compared by $\chi^2$ tests; in either test, differences with a probability of occurrence due to chance of less than 0.05 were considered significant.

RESULTS

Table 1 shows the distribution of our cases according to age and sex. Infections occurred in all age groups; however, few infections were found in patients below 10 years of age. The average age of the
TABLE 1. Distribution according to age and sex

<table>
<thead>
<tr>
<th>Years of age</th>
<th>0-9</th>
<th>10-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>70+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>—</td>
<td>8</td>
<td>3</td>
<td>6</td>
<td>14</td>
<td>17</td>
<td>6</td>
<td>5</td>
<td>59</td>
</tr>
<tr>
<td>Males</td>
<td>3</td>
<td>14</td>
<td>25</td>
<td>40</td>
<td>43</td>
<td>24</td>
<td>15</td>
<td>9</td>
<td>173</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>22</td>
<td>28</td>
<td>46</td>
<td>57</td>
<td>41</td>
<td>21</td>
<td>14</td>
<td>232</td>
</tr>
</tbody>
</table>

females was \(46.1 \pm (s.e.) 2.2\) which was significantly higher \((t = 2.11, d.f. 230; P < 0.05)\) than in males \((40.7 \pm 1.2)\).

The frequency of infections was significantly higher in males \((74.6\%)\) than in females.

The anatomical distribution of lesions in females and males is presented in Table 2. Tinea pedis was observed in \(84\%\) of the female and male patients. Infections of the genital region and buttocks were almost exclusively restricted to males. The frequencies of hand, trunk, forearm, neck and face infections were similar in females and males. The frequency of lower leg infections was significantly higher in females than in males. Among patients with lower leg infections, folliculitis was more common in females \((41.2\%)\) than in males \((10\%)\).

The frequencies of feet and hand infections are presented in Table 3. Tinea pedis generally involved skin and nails, especially in females \((76\%)\). Infections of the hands showed a different pattern; nails were involved in \(83.3\%\) of the females and \(52.9\%\) of the males.

Table 4 presents the number of toenail infections according to age and sex. These infections occurred more frequently with increasing age in both sexes and significantly more often in females than in males.

The anatomical sites of infection are listed in Table 5. *T. rubrum* infections were not found on the scalp. The frequency of two or more infected sites was lower in females than in males.
The data in the present study and those from Copenhagen (Rosman, 1966) are comparable. *T. rubrum* caused 40% of the dermatophyte infections in Copenhagen which was lower than the 79.2% observed in our study. In both investigations, the male patients predominated (Copenhagen, 65%; Philadelphia, 75%) and few infections were found in patients under 10 years old. In Copenhagen, the frequency of infections was highest in male patients below the age of 39 years whereas in Philadelphia more males than females were infected in all age groups.

Tinea pedis occurred with the same frequency in both studies regardless of sex. Tinea pedis appears to be the 'first stigma of more widespread infection' (Rosman, 1966). As in Copenhagen, the incidence of toenail infections increased with age and was higher in females. Granulomatous folliculitis of the lower legs, first described by Cremer (1953), was diagnosed by Rosman (1966) in females only, whereas three cases were encountered in the males in our study.
The major difference between the Copenhagen and Philadelphia studies was in the frequency of patients with infections occurring at two or more body sites. Approximately 30% of the patients seen by Rosman (1966) had lesions at multiple anatomical sites whereas 54.2% of our female and 63.5% of our male patients had multiple sites of infection. Therefore, our patients had higher frequencies of infections of the lower legs, trunk, forearms and hands than the patients seen in Copenhagen.

Analyses of comparable data from other countries should lead to further insights into the different aspects of dermatophytosis so frequently caused by *T. rubrum*.

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**REFERENCES**


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