Studies on Intestinal Helminthiasis
in Dickleh, Arasbaran, Northwest Iran

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Introduction

The wide distribution and high prevalence of various helminthiases in Iran is a fact already established (Arfaa and Mahdavi, 1969). Among 26 different species found in various parts of the country, intestinal helminths have the highest morbidity and intensity (Arfaa, 1971).

The species of helminths found and their intensity differs from one part or the country to another, according to the ecological conditions and the habits of the people in the area.

In the present paper, the results of a survey made in an area in Azerbaijan, northwest Iran, are presented.

Material and Methods

The present studies were undertaken in rural areas of the Dickleh district, a mountainous area with sparse vegetation ground cover, low annual precipitation (300-400 m), and low humidity (Mostofi, 1965), situated in

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Azerbaijan, a northwestern province of Iran. A total of 961 stool samples from inhabitants of villages located along the road from Dicleleh to Ahar were examined, using the Willis flotation technique (WHO, 1967).

Results

Of 961 persons examined, 730 or 67% were found infected with one to four species of helminths, of which 45% had one, 17% two, and 4% three species of helminths.

Only two patients were infected with 4 species of worms.

The highest rate of infection, which was 62%, was found for Ascaris, while respectively 17.3%, 8% and 1% of the people had *T. trichiura*, Trichostrongylus spp. and *H. nana* (see Table 1).

In addition, the eggs of *E. vermicularis* and *Taenia* were found respectively among 3.4% and 1.25% of the people and Strongyloides larvae were seen in the stools of 3 patients.

As indicated in Table 1, the rates of infection with the various helminths were similar in both sexes, except for infection with Trichostrongylus spp., which was significantly higher ($p<0.01$) among females than among males.

Table 2 shows the variation in prevalence in different age groups. As indicated in this table, the highest rates of infection observed for Ascaris were found among persons from 3 to 5 and 31 to 40 years of age, while the highest prevalence for *Trichuris* was in the age groups 6-15 and 41-50. A higher prevalence of Trichostrongylus spp. was found among the age groups 6-10, 26-30 and 51-60.

Discussion

Although the results of the present survey indicate, once again, the high prevalence of some intestinal parasites, the most interesting feature is the significant differences observed between the rates of infection of some of the parasites in this area, and those in another adjacent area in Kalibar (Mobedi et al., 1971).

In the study undertaken in Kalibar, the rates of infection found were:
Table 1 — Rate of infection with various helminthiasis according to age (Dickleh, Azerbaijan, 1971)

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. Exam.</th>
<th>Ascaris</th>
<th>Trichuris</th>
<th>Trichostrongylus</th>
<th>Hymenolepis</th>
<th>Enterobius</th>
<th>Taenia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>460</td>
<td>61.5</td>
<td>17.2</td>
<td>5.6</td>
<td>1.2</td>
<td>3.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Female</td>
<td>501</td>
<td>62.5</td>
<td>17.4</td>
<td>10.4</td>
<td>0.3</td>
<td>3.8</td>
<td>1.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>961</td>
<td>62.0</td>
<td>17.3</td>
<td>8.0</td>
<td>1.0</td>
<td>3.4</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Table 2 — Infection rate of intestinal helminths in different age groups (Dickleh, Azerbaijan, 1971).

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>No. Examined</th>
<th>Ascarias %</th>
<th>Trichurias %</th>
<th>Trichostrongylias %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>79</td>
<td>54</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>3-5</td>
<td>146</td>
<td>70</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>6-10</td>
<td>162</td>
<td>69</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>11-15</td>
<td>119</td>
<td>64</td>
<td>24</td>
<td>9</td>
</tr>
<tr>
<td>16-20</td>
<td>72</td>
<td>68</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>21-25</td>
<td>60</td>
<td>64</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>26-30</td>
<td>63</td>
<td>58</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>31-40</td>
<td>112</td>
<td>72</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>41-50</td>
<td>63</td>
<td>58</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>51-80</td>
<td>34</td>
<td>48</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>61+</td>
<td>51</td>
<td>48</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>961</td>
<td>62</td>
<td>17.3</td>
<td>8</td>
</tr>
</tbody>
</table>

87% for Ascaris, 76% for Trichuris and 21% for Trichostrongylus spp. The higher rates of infection with parasites observed in the Kalibar area might be due to factors such as the higher humidity, the type of soil, and the more condensed vegetation growth in this area.

This assumption is especially true for trichuriasis, in which the higher humidity and denser vegetation cover (as seen in the Kalibar area) are needed for the survival and development of the ova in the soil, while for Ascaris the infective ova can tolerate higher temperatures and desiccation (Beaver, 1963).
The main reason for the significant difference in the rate of infection with Trichostrongylus spp. between males and females may be found in the women’s custom of moulding and preparing animal dung for fuel with their bare hands.

The low percentage of infection observed for Taenia and Oxyuris is not surprising, since only a low proportion of people infected with these parasites show the eggs in the stool.

The finding of infection with Strongyloides stercoralis larvae in 3 persons examined is important, because a higher rate of infection with this parasite will be found if the proper method of examination is used (Boer- mann Funel, Chaia, 1968); it is also important because of the high pathogenicity caused by this parasite, as described recently by several authorities (Woodruff, 1965; Rivera et al., 1970).

Summary

Stool examinations undertaken among 961 inhabitants of a few villages in Dickleh, Azerbaijan, northwest Iran, revealed the presence of Ascaris among 62% of the persons examined.

In addition, 17.3%, 8% and 1% were found infected respectively with T. trichiura, Trichostrongylus spp. and H. nana.

The eggs of Oxyuris and Taenia were seen in the stool of 3.4% and 1.25%, respectively, and 3 patients passed the larvae of Strongyloides stercoralis.

The factors responsible for the finding of higher rates of infection with most of these parasites in another area (Kalibar), which is very close to this area, are discussed.

Résumé

L'examen systématique de selles à la recherche des parasites, effectué sur 961 personnes dans certains villages de Dickleh à Azarbaïdjan en Iran, a montré une infestation par ascaris chez 62% des personnes examinées.
Par ailleurs, 17,3% étaient infestées par *T. trichiura*, 8% par Trichostrongylus spp. et 1% par *H. nana*. Les œufs d'oxyure ont été vus chez 3,4%, de tenia chez 1,25% des personnes et, seulement 3 malades avaient des larves de *Strongyloides stercoralis*. Les facteurs responsables de pourcentage d'infestation plus élevée dans la région de Kalibar, qui avoisine la région suscitée, ont été discutés.

**References**


