

Studies on Intestinal Helminthiasis in Dickleh, Arasbaran, Northwest Iran

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Introduction

The wide distribution and high prevalence of various helminthiasis 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 of 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 mm), 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 Dickleh 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)

Sex	No. Exam.	Prevalence of Infection (%) with:					
		Ascaris	Trichuris	Trichostrongylus	Hymenolepis	Enterobius	Taenia
Male	460	61.5	17.2	5.6	1.2	3.0	1.5
Female	501	62.5	17.4	10.4	0.8	3.8	1.0
TOTAL	961	62.0	17.3	8.0	1.0	3.4	1.25

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

Age Groups	No. Examined	Ascariasis %	Trichuriasis %	Trichostrongyliasis %
0-2	79	54	9	5
3-5	146	70	18	1
6-10	162	69	26	15
11-15	119	64	24	9
16-20	72	68	18	5
21-25	60	64	16	7
26-30	63	58	14	13
31-40	112	72	12	9
41-50	63	58	28	6
51-60	34	48	14	17
61 +	51	48	6	2
TOTAL	961	62	17.3	8

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 (Boermann 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 selle 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 oeufs 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 sus-citées, ont été discutés.

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