Intestinal Parasitism in Pokhara: A Preliminary Survey

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In Nepal, intestinal parasitism constitutes a public health problem of considerable proportions. Although this is common knowledge among clinicians, it has seldom been possible to define precisely the magnitude of the problem and documentation has not been extensive. (Svensson, 1956; Worth and Shah, 1969; Pandey and Acharya, 1970; Sharma and Tuladhar, 1971). The picture is complicated by the existence of carriers and the fact that much of the Nepalese population eats with its hands. Whether or not this custom is important in the spread of intestinal parasites was a matter of speculation. Thus it was felt that a preliminary survey would help determine the problem's dimensions as well as implicate or exonerate this custom of any role in transmission. For this purpose and in order to obtain a random sample of the population resident in Pokhara, Dooley Foundation personnel went from house to house in the month of July, 1974 and collected 100 stool samples from children (0-15 years of age) and adults (over 16). Stool specimens were preserved in a container of merthiolate-iodine-formalin (MIF). (Frankel, Reitman, Sonnenwirth, 1970). At the same time each participant's finger nails were cut and the point of a nail file was used to remove the material present under his finger nails. Nail cuttings and scrapings from both hands were pooled and preserved in a separate container of MIF.

Results:

The results of the examination of the 50 children's and 50 adults' stool are shown in Table I. Finger nail scrapings were universally negative.

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Table I

Prevalence of Intestinal Parasites in a Random Sample of Adults' and Children's Stools in Pokhara, July, 1974.

	<u>No. Pos.</u>	=	%
	No. Tested		
Some parasite or ova	67/100		67
<i>Ascaris lumbricoides</i>	41/100		41
Hookworm	16/100		16
<i>Trichuris trichuris</i>	22/100		22
<i>Endamoeba histolytica</i>	9/100		9
<i>Giardia lamblia</i>	7/100		7
<i>Strongyloides stercoralis</i>	1/100		1
Double infestations	21/100		21
Triple infestations	4/100		4

In order to investigate further the possibility that dirty finger nails might play a role in the transmission of intestinal parasites, and because several of our personnel had developed symptoms attributable to intestinal parasites after eating in restaurants, it was decided to investigate these as possible links in the chain of transmission. To do this, the managers of several restaurants were approached and their co-operation secured. They requested each employee to undergo a cleaning of the material under his finger nails and to furnish a stool specimen. Again nails and scrapings from both hands were pooled and preserved in MIF; stools were separately preserved in the same fluid. Co-operation was excellent: only one of 81 (1%) food handlers refused to participate. The results are set out in Table II. Once again, all finger nail scrapings were negative.

Table II

Prevalence of Intestinal Parasites in 80 Food Handlers' Stools
Pokhara, July, 1974

	<u>No. Pos.</u>	=	%
	No. Tested		
Some parasites or ova	54/80		68
<i>Ascaris lumbricoides</i>	29/80		36
Hookworm	22/80		28

Trichuris trichuris	27/80	34
Endamoeba histolytica	5/80	6
Giardia lamblia	2/80	3
Strongyloides stercoralis	0/80	0
Double infestations	13/80	16
Triple infestations	8/80	10
Quadruple infestations	1/80	1

Discussion:

Worth and Shah (1969) found an overall prevalence of 250/347 (72%) but this represents all of Nepal whereas the present figures are from Pokhara only. The prevalence of *Ascaris* reported by them (106/347 = 31%) was lower than they expected and explained as due probably to low winter temperatures reducing the environmental load of infective eggs. Such reasoning cannot be applied in Pokhara, however, which enjoys a warm median annual temperature; some other explanation must be sought.

On the basis of a large series, Gabaldone et al (1967) report that in Japan a prevalence of *Ascaris* of 60% in 1949 was reduced to 5% in urban areas and an average of 20% in rural areas in 1961. As Pokhara is intermediate in nature between an urban area and a truly rural area, intermediate figures are to be expected.

The low prevalence of Hookworm in the present survey (16% in the random sample) contrasts with the figure (37%) reported by Worth and Shah (1969). It is probably best explained as being due to the small size of the sample and thus indicates the need for further studies.

Most interesting is the absence of any evidence which would implicate the custom of eating with the hands in the transmission of intestinal parasites. It is worthy of note that all finger nail scrapings were negative even for dead eggs which might have been expected. This exoneration of food handlers' dirty finger nails of any role in transmission should allay many fears and necessitates further search for the precise agency of transmission.

Summary :

A small survey in Pokhara found a high prevalence of intestinal parasites in a random sample of the population; similar results were found in a series of food handlers.

In neither group did the examination of the finger nail scrapings yield any evidence that transmission occurs by this route.

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