

# PREVALENCE OF INTESTINAL PARASITES IN DIARRHOEAL PATIENTS

Pages with reference to book, From 7 To 11

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## Abstract

Variation in climatic and cultural practices are likely to affect the prevalence of various parasites. Faeces from 455 patients with gastrointestinal complaints and diarrhoea were examined by direct microscopy. Of the 324 (71.2%) positive cases, *Giardia lamblia* (43.7%) and *Entamoeba histolytica* (36.5%) were mainly isolated (JPMA. 36: 7, 1986).

## INTRODUCTION

Parasitic infestation is widely prevalent in Pakistan. However the distribution of various parasites are likely to differ according to the climatic, environmental conditions, local habits and customs in the rural and urban population of the country.

To determine the frequency of intestinal parasites in Karachi, faeces from patients with gastrointestinal symptoms and diarrhoea were examined.

## MATERIAL AND METHOD

The faecal samples were collected in clean and dry receptacles from 455 patients with gastrointestinal symptoms and diarrhoea. A small amount of the faeces was diluted with normal saline, covered with a coverslip and used as unstained preparation, similarly another preparation was made with iodine. The two preparations were first examined under low and then high power objective for a detailed diagnosis. The motility of the organisms was observed in the saline preparation.

## RESULTS

Of the 455 fecal samples from patients 324 (71.2%) were positive for parasites. Out of these pathogenic protozoa *Giardia lamblia* (43.7%) and *Entamoeba histolytica* (36.5%) were found in maximum number of cases, while the other parasites were present in lesser numbers. The main presenting symptoms were abdominal pain (63.51%), constipation (19.56%), vomiting (18.46%) and Heartburn (11.4%). Diarrhoea was associated with passage of mucus or blood in 32.96% patients, while 28.35% had only diarrhoea. Twenty five percent cases had no diarrhoea on presentation. Frequency of parasites with relation to sex are shown in Table I, II.

**Table 1** Percentage Distribution of Protozoa according to Sex.

Protozoa isolated	Total cases		Males		Females	
	No.	%	No	%	No	%
<i>Giardia lamblia</i>	170	43.70	82	48.24	88	51.76
<i>Entamoeba histolytica</i>	142	36.50	63	44.37	79	55.63
<i>Entamoeba coli</i>	13	3.34	1	7.69	12	92.31
<i>Trichomonas hominis</i>	3	0.77	1	33.33	2	66.66
<i>Iodamoeba butschlii</i>	2	0.51	2	100	0	0

**Table II** Percentage Distribution of Helminths according to Sex.

Helminths isolated	Total cases		Males		Females	
	No	%	No	%	No	%
<i>Ascaris lumbricoides</i>	31	7.97	15	48.39	16	51.61
<i>Hymenolipis nana</i>	13	3.34	12	92.31	1	7.69
<i>Enterobius vermicularis</i>	6	1.54	2	33.33	4	66.67
<i>Trichuris trichuria</i>	4	1.02	3	75	1	25
Hookworm	3	0.77	3	100	0	0
Taenia	1	0.25	1	100	0	0
<i>Strongyloides stercoralis</i>	1	0.25	0	0	1	100

Distribution of parasite~ with relation to age is shown in Table III, IV.

**Table III** Percentage Distribution of Protozoa according to Age.

Protozoa	Age in years						
	11 – 20	21 – 30	31 – 40	41 – 50	51 – 60	61 – 70	71 – 80
<i>Giardia lamblia</i>	25.88	27.64	21.18	17.05	7.05	0.58	0.58
<i>Entamoeba histolytica</i>	16.12	28.16	23.24	21.83	9.15	0.70	0.70
<i>Entamoeba coli</i>	23.07	15.38	61.54	–	–	–	–
<i>Trichomonas hominis</i>	33.33	–	–	33.33	33.33	–	–
<i>Iodamoeba butschlii</i>	66.67	33.33	–	–	–	–	–

**Table IV** Percentage Distribution of Helminths according to Age.

Helminths	11 – 20	21 – 30	31 – 40	41 – 50	51 – 60	61 – 70	71 – 80
<i>Ascarias lumbricoides</i>	12.90	22.58	32.26	16.13	9.68	6.45	–
<i>Hymenolipis nana</i>	23.07	38.46	23.07	7.69	0	0	7.69
<i>Enterobius vermicularis</i>	16.66	16.66	16.66	33.33	16.66	0	0
<i>Trichuris trichuria</i>	25	25	50	–	–	–	–
Hookworm	–	66.66	33.33	–	–	–	–
<i>Taenia</i>	–	–	–	–	100	–	–
<i>Stronglyloides stercoralis</i>	–	–	–	–	100	–	–

Nearly all the pathogenic protozoa and helminth were found mainly upto 40 years of age. Infestation with single and multiple parasites was observed among patients (Table V).

**Table V**  
**Infestation with single and multiple Parasites.**

	Number (389)	Percent
One Parasite	243	62.46
Two Parasites	67	17.22
Three parasites	5	1.28
Double protozoal infestation	41	10.53
Double Helminthic infestation	2	0.51
Double mixed infestation	26	6.68
Triple protozoal infestation	2	0.51
Triple mixed infestation	3	0.77

Double protozoal infestation was present with *Giardia lamblia* and *Entamoeba histolytica* and many of the positive faecal samples contained a combination of both protozoa and helminth. Comparative study for parasites is shown in Table VI, VII.

**Table VI Comparison of Protozoa among Patients in Different Cities.**

Cities	Author	No. of Patients	EH	GL	EC	IB	TH
Karachi	Present study (1985)	455	43.70	36.50	3.34	0.51	0.77
Karachi	Haleem et al (1965)	6197	13%	5.4%	9.8%	0.6%	1.8%
Karachi	Bilqees et al (1982)	3249	58.4%	26.9	—	—	—
Lahore	Ansari & Naru (1966)	1771	0.8%	1.8%	6.2%	8.2%	—
Rawalpindi	Pal & Rana (1983)	5360	5.3%	32.9%	1.4%	1.7%	0.3%
Islamabad	Pal & Rana (1983)	3490	5.6%	31.7%	2.6%	1.4%	0.6%
Peshawar	Farooqi (1964)	572	3.5%	9.8%	—	—	—

EH – Entamoeba histolytica

IB – Iodamoeba butschlii

GL – Giardia lamblia

TH – Trichomonas hominis

EC – Entamoeba coli

**Table VII Comparison of Helminths among Patients in Different Cities.**

Cities	Author	No. of Patients	AL	HN	HW	EV	TT	T	SS
Karachi	Present study (1985)	455	7.97	3.34	0.77	1.54	1.02	0.25	0.25
Karachi	Haleem et al (1965)	6197	11%	1.6%	1.6%	0.4%	0.6%	0.5%	0.5%
Karachi	Bilqees et al (1982)	3249	11.9%	2.3%	2.3%	6.0%	2.3%	0.2%	0.2%
Rawalpindi	Pal & Rana (1983)	5360	15.5%	8.8%	9.8%	4.7%	2.8%	1.2%	0%
Islamabad	Pal & Rana (1983)	3490	5.8%	16.4%	1.2%	4.6%	1.7%	0.4%	0%
Peshawar	Farooqi (1964)	572	1.5%	2.8%	5.5%	0.2%	0.2%	0.2%	0%

AL – Ascaris lumbricoides

HN – Hymenolipis nana

SS – Strongyloides stercoralis

HW – Hookworm

EV – Enterobius vermicularis

TT – Trichuris trichuria

T – Taenia

## DISCUSSION

Intestinal protozoal infestation seems to be rising in Karachi. It may be due to overcrowding, insanitary conditions or migration of population.<sup>1</sup> Favourable temperature and humidity in this city are likely to enhance longevity of cysts<sup>2</sup>. Amoebiasis appears to be more frequent in Karachi and helminthic infestation in central and northern areas of Pakistan as cool temperatures in those areas favour the survival of ova<sup>3,4</sup>. Parasitic infestation also depends upon literacy rate, socioeconomic conditions, hygiene and sanitary facilities available to the inhabitants<sup>5-7</sup>. The effect of these factors on variation in protozoal and helminthic infestation has been shown in a study conducted in the twin cities of Rawal-

pindi and Islamabad which are just 12km apart<sup>4,5</sup> Helminthic infestation especially hookworm is more common in villages<sup>8</sup> than in urban areas<sup>9</sup>.

Factors which contribute to the developmental stage of parasite are present in villages. People in villages move about with barefeet and defaecate in the fields. Human night soil is used as fertilizer. All these conditions favour the extrinsic development of hookworm. Few positive cases of hook. worm are reported in this study while the mci dence was higher in villages<sup>8</sup>.

The frequency of parasites reported in this study gives us some idea of the prevalence of intestinal parasitic population in Karachi hence steps should be taken to control it by improving the sanitary facilities and educating the population in personal hygiene.

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