Intestinal Parasitosis in Samarra'a City

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ABSTRACT:

BACKGROUND:

Intestinal parasitic infections represent a relevant clinical problem especially in the developing countries, where they are responsible for morbidity and mortality in adults and children.

Many epidemiological data are available for this type of infection in Iraq and other developing countries, but still we need to investigate more localities in order to know the difference in it's frequency among different areas and to evaluate factors that affect such difference.

AIM OF THE STUDY:

This study was subjected to emphasize the problem of intestinal parasitosis among people in Samarra'a City and to visualize its distribution according to age and sex.

METHODS:

A total of 1050 patients (580 males and 470 females) , referred to the laboratory in a health center in Samarra'a City for the suspect of intestinal parasitosis, were subjected to stool examination by direct method during the period from January to May 2002.

RESULTS:

Among the 1050 stool samples examined, intestinal parasites were reported in 254 (24.19%), both sexes were nearly equally affected (24.46% in females & 23.96% in males). Interestingly infection with protozoa was predominating, the most common protozoa was *Entamoeba histolytica /E.dispar* (13.33%), the next common pathogenic protozoan found was *Giardia lamblia* (9.04%). Non pathogenic protozoan *Entamoeba coli* was seen in 17 individuals (1.62%).

Only two cases of helminthes infections were reported in this study (0.2%), both were infected with *Hymenolepis nana* which is a tapeworm.

Double infection was detected in two cases , one was infected with both *Entamoeba histolytica /E.dispar* and *Giardia lamblia* and the other one was infected with *Giardia lamblia* and *Hymenolepis nana* at the same time. No triple infection was reported during this study.

CONCLUSION:

Intestinal parasitosis represent a remarkable cause of gastrointestinal diseases, this study demonstrates that these infections are common in the
area under study.

KEY WORDS: Intestinal parasitosis, intestinal parasitic infections, intestinal protozoa.

INTRODUCTION:

Intestinal parasites are those capable of causing intestinal infections, they are considered as endoparasites , are responsible for some of the most common infectious diseases in the developing counties such as amoebiasis and giardiasis.

Amoebiasis is usually caused by *Entamoeba histolytica* which is a protozoan infecting the large intestine of human and may lead to extra intestinal manifestation and serious complications [(1)].

Giardiasis is another important type of intestinal parasitic infections caused by *Giardia lamblia* which is a flagellate considered as the main pathogenic protozoan found in the duodenum and jejunum of human [(1)].

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These two protozoa were considered by many workers as important causes of intestinal parasitic infections [(2, 3, 4, 5, 6, and 7)].

Entamoeba histolytica must be differentiated from non pathogenic protozoa found in the human intestine in which their trophpzoites or cysts may be seen in the stool samples, those are *Entamoeba coli* and *Entamoeba dispar*, The later is distinct form though microscopically is identical to *Entamoeba histolytica* , differentiation based on isoenzyme and genetic analysis , the only difference in stool examination is the presence of RBCs in the trophozoites of *Entamoeba histolytica* and it's absence in the trophozoites of *Entamoeba dispar*, amoebic antibodies in the blood may be another differentiating factor. On the other hand the trophozoites and cysts of *Entamoeba coli* are quite

distinct from those of *Entamoeba histolytica* but sometimes may be confusing , it is non pathogenic protozoan but it's presence in stool may indicate ingestion of fecally contaminated food with other pathogenic parasites [1,6,8].

MATERIALS AND METHODS:

The present study was conducted in the period from January to May 2002 , considered all patients whose stool samples were sent to the laboratory in a health center in Samarra'a with the suspect of intestinal parasitosis (a total of 1050 stool samples). Those patients were 580 males and 470 females.

Their ages were ranging from 3 months to 81 years.

Stool sample from each one was collected in a sterile container which were examined fresh, two direct smears were done , one in normal saline and the other one in lugal's iodine. By using wooden applicator, a small part of stool specimen was taken to be examined with a warm normal saline (37ºc)

Then a cover slip was applied and scanning under 10x and 40x objective lens were performed to demonstrate the presence of worm eggs, larvae, protozoan trophozoites or cysts, RBCs and motility of trophozoites and any other characters. The second smear was stained with iodine which is a toxic solution it is used to stain the internal structure of the cystic stages of the parasites, while it is toxic to the trophozoites and kill the parasite at this stage so it become immotile [9].

Each specimen was subjected to macroscopical examination as well , were noted for many characters including consistency, composition, color, presence of blood and mucous.

RESULTS:

Out of 1050 stool samples examined by direct method, 254 were positive for pathogenic and non pathogenic parasites (24.19%), with a frequency rate of 23.96% among males and 24.46% among female group as shown in table (1).

The frequency distribution of different intestinal parasites in relation to sex and age were described in table (2 &3) respectively.

Approximately all samples examined showed single infection a part from two samples that showed double involvement table (4).

Table (1): intestinal parasitosis in relation to sex.

Sex	Stool samples examined No.	Positive cases No.	%
Males	580	139	23.96
Females	470	115	24.46
Total	1050	254	24.19

Table (2): The frequency distribution of different intestinal parasites in relation to sex.

Parasites	Males (total examined 580) No.	%	Females (total examined 470) No.	%	Total
Entamoeba histolytica /E.dispar	82	14.13	58	12.34	140
Giardia lamblia	50	8.62	45	9.57	95
Entamoeba coli	6	1.03	11	2.34	17
Hymenolepis nana	1	0.17	1	0.21	2
	139	23.96	115	24.46	254

Table (3): Frequency distribution of intestinal parasites in different age groups using direct method for stool examination.

Age groups in years	No. of stool samples examined	Entamoeba histolytica /E.dispar		Giardia lamblia		Entamoeba coli		Hymenolepis nana	
		No.	%	No.	%	No.	%	No.	%
0-10	715	84	11.7	75	10.48	12	1.67	1	0.14
11-20	125	26	20.8	9	7.2	1	0.8	1	0.8
21-30	88	4	4.54	8	9.09	3	3.4	0	
31-40	58	14	24.13	1	1.72	1	1.72	0	
41-50	36	1	2.77	1	2.77	0		0	
51-60	8	2	25	1	12.5	0		0	
61& above	20	9	45	0		0		0	
Total	1050	140	13.33	95	9.04	17		2	0.2

Table (4): Type of intestinal parasitic infections in 1050 stool samples examined.

Type of parasitosis	Positive for intestinal parasites No.	%	Total No. examined
Single	252	24	1050
Double	2	0.2	
Triple or more	None		

DISCUSSION:

Infections caused by intestinal parasites is still a common problem specially in the developing countries. In this study a total of 1050 stool samples were examined by direct method, 254 (24.19%) were positive for pathogenic and non pathogenic parasites, we considered both pathogenic and non pathogenic parasites since it was difficult to differentiate *Entamoeba dispar* from *Entamoeba histolytica* and a good number of *Entamoeba coli* were detected which also has it's epidemiological importance since it may be confused with *Entamoeba histolytica* and it's presence in stool may indicate ingestion of fecally contaminated food that may contain another parasites which are usually pathogenic [1].

Nearly similar results were obtained in both sexes (23.96%) in the male individuals and (24.46%) in the female group, this may agrees with results obtained by others [5,7]. Interestingly, most of the parasites identified were protozoa, similar results were reported by other authors [10,11], others stated that infection with both helminthes and protozoa was equally distributed [12]. During the present study, *Entamoeba histolytica /E.dispar* was considered the most common protozoa infecting (13.33%) of individuals under examination, similar results but with higher infection rate ranging from (22-38.9%) were detected by other workers [2,3,4,5]. However others reported lower infection rate [13,14]. Giardiasis was reported in (9.04%), this could be compared with the results obtained by other colleagues who found higher infection rate ranging from (20-24.8%) [4,5,15] ,and those who found lower infection rate ranging from (2-6.4%) [2,13]. *Hymenolepis nana* , a helminth was reported only in 2 cases (0.2%),this is a tape worm considered as the most common helminth detected by many workers [4,5,13]. Double infection was reported in 2 cases , in the first case both *Giardia lamblia* and *Hymenolepis nana* were existing in the same patient, while in the second case combined infection with both *Giardia lamblia* and

Entamoeba histolytica /E.dispar was detected, this type of double infection was also mentioned by some investigators [12,16,17]. Regarding different age groups subjected to this study, the higher rate of infection with *Entamoeba histolytica /E.dispar* was noted in the ages 61 and above which was (45%), with a rate ranging from (20-25%) in the age groups (11-20), (31-40 years) and(51-60 years). Giardisis was reported in 95 patients (9.04%) with the higher infection rate (12.5%) in the age group (51-60 years), with slightly lower rate (10.48%, 9.04%) in the age groups (0-10 years) and (21-30 years). Previous studies denoted that the infection rate was higher in infants and children [7,18,19], this difference may result from the improvement of socio-economic status and the sanitary way of living of the population with better attention paid to these group of individuals.

CONCLUSION:

Intestinal parasitosis represent a remarkable cause of gastrointestinal diseases, this study demonstrates that these infections are common in the area under study. Nearly similar results were obtained in both sexes.

Mixed parasitic infection was detected in few cases which may be due to improvement of socio-economic and sanitary way of living of population.

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