



## Prevalence of Intestinal Parasites in Patients with Gastrointestinal Symptoms in Al-Najaf Governorate / Iraq

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### Abstract

Intestinal parasites is still an important public health problem. The aim of this study was to determine the prevalence of intestinal parasitosis in patients with gastrointestinal symptoms, 600 stool samples were examined by direct and concentration method. This study was conducted during September 2014 till April 2015. The patients were classified as coming from rural and urban area. The most common parasites were *Entamoeba histolytica* (61.2%), followed by *Giardia lamblia* (19.1%), *Cryptosporidium spp.* (7.4%), *Chilomastix mesnili* (6.8%) and *Trichomonas hominis* (5.5%). The positive cases were evaluated according to rural and urban environmental criteria, and the most of them were found in urban (55%) and rural (45%). The prevalence among gender with males having the highest (63%) compared to females (37%).

**Key words:** Gastrointestinal protozoa (*E. histolytica*, *G. lamblia*, *Cryptosporidium spp.*, *C. mesnili* and *T. hominis*).

### Introduction

Many of the infections of the gastrointestinal tract are used by parasites that are cosmopolitan in distribution. Protozoa can be directly infectious for man when they are passed in the feces into the environment [1]. Over one quarter of worlds is most likely suffering from some of intestinal parasitic infections [2]. The prevalence of different parasitic diseases depends upon environmental, social and economical factors [3]. It is highly prevalent in developing countries like Iraq. There is paucity of information of prevalence of different intestinal parasitic infections. Poor sanitation, scarcity of portable drinking water and low standard of personal hygiene contributes to rapid spread of these infections [4]. The prevalence of different intestinal parasitic infections reported by different authors shows wide variations probably due to differences in place, time and method used [5]. The frequency of parasitic infections varies with age and sex of general population. Intestinal parasitic infections are more common in children [6]. It affects the nutrition and as a result of morbidity they are at increased risk for detrimental effects like poor cognitive performance and physical growth [7]. It is then important to know the burden of intestinal parasitic physical in community. So this study was undertaken to know the prevalence of intestinal parasitic infection among patients with gastroenteritis in Al-Najaf Governorate.

### Materials and Methods

#### Sample collection and handling

A total of 600 stool samples from patients suffering from diarrhea were collected from Al-Sadder Teaching Hospital and Al-Hakeem/Najaf Hospital this study was conducted during 2014 – 2015. Stool specimen collected in a clean, tight container with screw-cap lid. The importance of timing was also stressed as all samples were examined within half an hour of collection.

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### Macroscopic Finding

Macroscopic examination of the stool samples was the first to determine the consistency and color and the presence of blood and mucus [7].

### Parasitic Examination

#### a. Laboratory solution

- 1) Normal saline solution 0.09% used to observed ova, larva, cyst and trophozoites of protozoa .
- 2) Iodine solution : which used to observe the nuclei and cyst of protozoa and worm ova .
- 3) Formalinized solution : This is used to save and fixed parasites.

#### b. Microscopic examination

- 1) Direct smear method [8].
- 2) Formalin – ether concentration as the following procedure according to [8].  
Transfer half teaspoonful of feces in 10 ml of water in a glass container and mix thoroughly. Place two layers of gauze in a funnel and strain the contents into a 15 ml centrifuge tube . Centrifuge for two minutes at about 1000 rpm. Discard the supernatant and re-suspend the sediment in 10 ml of physiological saline . Centrifuge at 1000 rpm and discard the supernatant. Re-suspend the sediment in 7 ml of 10 % formaldehyde (1 part of 40% formalin in 3 parts of saline ). Add 3 ml of ether ( or ethyl acetate ) . Close the tube with a stopper and shake vigorously to mix, remove the stopper and centrifuge at 1000 rpm for 2 minutes. Rest the tube in a stand . Four layers now become visible the top layer consists of ether, second is a plug of debris, third is a clear layer of formalin and the fourth is the sediment. Detach the plug of debris from the side of the tube with the aid of a glass rod and pour off the liquid leaving a small amount of formalin for suspension of the sediment. With a pipette , remove the sediment and mix it with a drop of iodine. Examine under microscope [7] .

### Statistical

#### analysis

Chi-square (P- value , 0.05 ) were carried out according to [9] .

### Results

#### The occurrence of parasites in studying subjects .

*E. histolytica* being the main cause of diarrhea and having the highest number 99(61.2%) followed by *G. lamblia* with 31(19.1%), *C. mesnili* with 11(6.8%) , *Cryptosporidium* spp. with 12 (7.4) and *T. hominis* 9(5.5%), the total percentage of parasites are 27% .

**Table 1 : distribution of positive cases according to the total parasites .**

Parasites	Positive cases (N : 600)	%
<i>E. histolytica</i>	99	<b>61.2</b>
<i>G. lamblia</i>	31	<b>19.1</b>
<i>Cryptosporidium</i> spp.	12	<b>7.4</b>
<i>C. mesnili</i>	11	<b>6.8</b>
<i>T. hominis</i>	9	<b>5.5</b>
Total	162	<b>100</b>



### The prevalence of parasites according to age group .

A total of 600 patients analyzed for the presence of parasitic agents as the cause of diarrhea. The overall percentage was 27% positive occurrence of parasites. Table 2: shows that 162 samples were positive for parasites .The highest incidence (significant) occurred in age group 20-29 years .The lowest occurrence was in age group 70-79. There is a significant differences ( $P < 0.05$ ) between age and parasite infections.

**Table 2: distribution of positive cases of total infection according to age group.**

Age group	Positive cases	%
20-29	54	33.4
30-39	25	15.4
40-49	28	17.3
50-59	24	14.8
60-69	16	9.8
70-79	15	9.3

The prevalence of parasitic infection according to gender the parasitic incidence among the sexes , male having the highest with 102(63%) compared to female 60 (37%). There are a significant differences ( $P < 0.05$ ) (tab. 3).

**Table 3 : distribution of parasites according to gender .**

Gender	Positive samples	%	P. value
Male	102	63	$< 0.05$
Female	60	37	$< 0.05$
Total	162	100	

The parasites incidence among the urban regions have the highest with 89(55%) compared to rural 73(45%). There is a significant differences ( $P < 0.05$ ) (tab. 4).

**Table 4: prevalence of parasites according to rural and urban region.**

Region	Positive samples	%	P. value
Urban	89	55	$< 0.05$
Rural	73	45	$< 0.05$
Total	162	100	

### Discussion

The present study shows high prevalence rate of intestinal parasites (27%), this results are like other reports from different authors in different parts of Iraq. These results are so that cause there are many people suffering from parasites due to poor sanitation ; poor public health practice, increasing of vectors; malnutrition states; source of unsafe drinking water supply; defecation at open site, no hand washing after defecation and no wearing of foot ware [8], [9]. In addition to affect of the economic blockage in Iraq for long period leading to decreasing of drugs and sanitation [10], [11]. The study result, showed the



presence of infection with parasites among patients aged 20-29 years were 33.4%. The results revealed that the amoebic dysentery among examined samples were 61.2%. The results are not agreed to result of a study in Bartella that reached to 33.9%, from this area may be the reason belong to the health environment conditions that vary from one area to another [12], [13], while the converged results of the study conducted in Saudi Arabia and that percentage of blood diarrhea in which 15.24%, perhaps that the reason for this level of health and retirement system in the study area flies and cockroaches serve as a vector for *E.histolytica* infection [14]. To conclude, the high prevalence of intestinal parasitic infections suggests that it due to decreased awareness and unimprovement of sanitary practices, personal hygiene, safe drinking water supply, patients early treatment seeking behavior and health education.

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