



## CLINICAL DIAGNOSTIC COMPARISON OF *ENTAMOEBIA HISTOLYTICA* IN IRAQI PATIENTS

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### Abstract

*Entamoeba histolytica* is the responsible amöbiasis parasite and remains one of the top three parasite mortality triggers worldwide. With increased travel and mass migration to developed countries, infection in nonendemic regions is becoming more widespread. Though most people were afflicted with *E. histolytica* stays asymptomatic, some with amöbian colitis and spread illness. As more is known about their etiology and the inflammatory response of the host, there is hope for the ability to create a vaccine. This study has been related with investigation of this parasite and several parameters like: age, sex and occupation.

**Keywords:** Clinical diagnostic, *Entamoeba histolytica*

### Introduction

The word "peristalsis" derives from the Greek word "peristaltikos" meaning clasping and compressing. Due to its applications in the bio-medical engineering and industry, peristaltic transport has become an important research area. The peristaltic circulation is unique to the flow of blood, urine, ovum, chyme etc. The peristaltic flow is similar to the flow of blood, urine, ovum, chyme etc. Roller supports and hygienic transportation name a few for diverse industries. Roller supports and hygienic transportation name a few for diverse industries (Noreen, 2017). Regular laboratory diagnosis in parasitology requires traditional methods, such as optical microscopy, used to classify parasites morphologically. Classical parasitological experiments have the opportunity of being less expensive without the need for expensive reagents and equipment. In addition, these analyzes can be carried out simply when there is a qualified microscopist obtainable (Tavares *et al.*, 2017).

Parasites made up of protozoa such as (*Entamoeba histolytica*, *Giardia lamblia* and *Plasmodium falciparum*) and helminths (*Ascaris lumbricoides*, *Ancylostoma duodenale*, *Trichuris trichiura*, and *Schistoma* spp.) are the major virulence parasites in the world leading to serious infection and death (Alaa hamady obeid Al-Taei, 2019).

The genus *Entamoeba* comprises several species, six of which live in the human intestinal lumen (*Entamoeba histolytica*, *Entamoeba dispar*, *Entamoeba moshkovskii*, *Entamoeba polecki*, *Entamoeba coli* and *Entamoeba hartmanni*). The only genus certainly related to pathological sequelae in humans is *Entamoeba histolytica*. Others are considered nonpathogenic. *Entamoeba histolytica* is the cause of amebiasis and is believed to be the world's leading parasitic cure for human death (Haque and Petri, 2006).

Amebiasis Medical symptoms due to *E. histolytica* varies from asymptomatic colonization to amebial dysentery and invasive extraintestinal amebiasis, most often expressed in the form of hepatic abscesses. Around 50 million people suffer from infectious disease, leading to 100,000 deaths per year. Even though the parasite is spread worldwide, high incidence levels of over 10 percent of the total population have been recorded from different developing countries. *Entamoeba histolytica*-related diarrheal diseases have been

reported recently as having a negative impact on children's growth (Fotedar *et al.*, 2007).

Amoebiasis is still a major human civilization issue at the beginning of the 21st century, so every research in this field is important. Amoebiasis is triggered by the parasitic protozoan *Entamoeba histolytica* which mainly infects human and other primates. Approx 40 million people suffered from this disease worldwide each year and 40,000 died from dysentery, intestinal disorders and liver abuse. The definitive hosts is human. There is indistinguishable specie, *Entamoeba. dispar*, which is not usually, if ever, distinguished clinically. Hence, most of the cited prevalence, particularly in the US, can really be attributed to this benevolent species rather than to *E. histolytica*. Theoretically, one viable cyst being swallowed is an infectious dose. Housefly and the use as fertilizer of human feces is an effective mode of spread. The infection is not unusual in the tropical and polar regions, but is also present in other crowded circumstances with poor hygiene in mild urban environments (Munazza *et al.*, 2011).

Parasite pathogens can typically be transferred automatically from one individual to the next through the sharing of instruments (Idowu and Rowland, 2006). The tested individuals belong to various levels of life and commune conditions.

The aim of this study is to estimate the prevalence of *E. histolytica* in Iraqi patients, male and females, age, and occupation.

### Materials and Methods

#### Phenotypic characterization

##### Sample collection

Samples (120) were obtained from patients that visit clinic and lab for one month. Clinical specimens comprising; stool.

##### Sample type

All samples were divided according to age, sex, occupation and appearance of stool.

##### Identification of *E. histolytica*

The samples were examined under microscope, (45) samples from (120) samples were infected with *E.*

*histolytica*. In a nutshell, the fecal samples were immersed in 4% of Lugol's iodine solution and microscopic measurements were conducted at magnification levels of 10 and 40. We used the Faust-Ferreira method in the existence of a zinc sulfate gradient solution to assess the concentration of ovas and cysts ( $d = 1.192$ ). A specimen was obtained using a Pasteur pipette from the flotation disk, suspended in 4% of Lugol's solution and microscopically analyzed as mentioned above (Ash RL, and Orihel TC, 1987).

## Results and Discussion

All samples were stool samples taken from patients that have been visit clinic and lab. The samples were divided according to age, sex, occupation, and appearance of stool. According to the occupation of patients, samples were in rural (97) and in urban (23), the result of infectious samples were (42) (43.29%) in rural region and (3) (13.04%) in urban region, as shown in table (1).

**Table 1 :** Result of infectious samples according to the occupation of patients

Occupation	Patients	Number of patients	Infected	Non infected	Percentage
	rural	97	42	55	43.29%
	urban	23	3	20	13.04%

The above findings showed that occupational behavioral nutrition involved consuming of untreated water or unpasteurised milk, intake of unwashed raw vegetables or fruits, frequency of eating away from home (in restaurants or fast food outlets), raising farm animals (chickens, pigs, horses, goats or sheep), traveling abroad, interaction with soil

(gardening or farming in restaurants). This result agreed with Cosme Alvarado-Esquivel, *et al.*, 2015.

Table (2) shows the result of infectious samples according to the age. The result of infectious samples were (32) (36.78%) in adult and (13) (39.39%) in pediatric.

**Table 2 :** Result of infectious samples according to the age of patients

Age	Patients	Number of patients	Infected	Non infected	Percentage
	Adult	87	32	45	36.78%
	pediatric	33	13	20	39.39%

These results is due to that the adults have more social activities and greater opportunity for exposure to *E. histolytica*, and this result agreed with that of Bin Yang *et al.*, 2012 and Micaella Kantor *et al.*, 2018, and Ihsan M. Al-Saqur *et al.*, 2017.

male, this result was disagreed with Micaella *et al.*, 2018 and Ihsan M. Al Saqur *et al.*, 2017, which may be due to the number of samples.

But in pediatric gender the results was accepted with Ihsan M. Al Saqur *et al.*, 2017 and Moustafa Abdelaal Hegazi *et al.*, 2013.

The results of adult sex in table (3) shown that the infection with the parasite in female is more than that in

**Table 3 :** Result of infectious samples according to the sex of patients

Sex	Patients	Type Sex	Number of patients	Infected	Non infected	Percentage
	Adult	Male	40	10	30	25%
		Female	47	22	25	46.80%
	pediatric	Male	20	9	11	45%
		Female	13	4	9	30.76%

There have been several theories to understand why some hospitals have asymptomatic infection, while others are transitioning to infectious illness and are undergoing testing. Virulence of the strain, climate and genetic

predisposition, immune state, age and sex of the host were all found to indicate severity of the disease (Bernin and Marggraff, Jacobs., 2014).

**Table 4 :** Result of infectious samples according to the appearance of stool of patients

Appearance of stool	Number of patients	Infected	Non infected	Percentage
Yellow wash	100	38	62	61.29%
brown soft stool	8	1	4	12.5%
brown semi soft stool	12	3	5	25%

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