Occurrence of Entamoeba Histolytica infection in patients with Ulcerative colitis attending to the Al-Diwaniyah gastroenterology center/ Iraq

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KEYWORDS
Entamoeba Histolytica, ulcerative colitis, inflammatory bowel sickness

ABSTRACT
One Hundred Eighteen (118) Stool testers were composed from ulcerative colitis patients distress from intestinal sicknesses, abdominal discomfort, and cases of diarrhea which presence to gastroenterology center in Al-Diwaniyah Teaching Hospital and outpatient clinics from different age groups. for the period from August 2023 - March 2024. The samples were examined with a light microscope using The direct wet smear method from Human stool samples. Microscopic study revealed a important variance at ($P \leq 0.05$) among ulcerative colitis patients and infection with E. histolytica was 81.35% (96 positive samples from 118). The results of showed that non-significant alterations at ($p \leq 0.05$) between infection with the E. histolytica and age groups, Gender and Residency.

1. Introduction

Ulcerative colitis stays an inflammatory bowel disease (IBD) that manifests over time with colon and rectum ulcers. It causes severeas illness and lowers people's quality of life for millions of people throughout the world. Although several variables, such as heredity, immunological deregulation, and environmental triggers, have been proposed as potential causes of ulcerative colitis, its precise a etiology is still a mystery (Ungaro et al.,2017). Recent years have seen an uptick in research on the possibility that some amoeba species, and more specifically the genus Entamoeba , have a role in the progress of ulcerative colitis. Amoeba dysentery is lone of several human illnesses caused by single-celled eukaryotic organisms known as amoeba (Samba-Louaka et al.,2019). Whereas numerous forms of the genus Entamoeba have been institution in human intestines, Entamoeba histolytica is the most mutual source of amoebic dysentery. A number of follow-up examinations have wanted to explain the methods in which amoeba might aggravate ulcerative colitis, one probable description is that some forms of amoeba can reason the mucosa lining the digestive tract to respond in an inflammatory manner (Turner et al.,2021). Indication proposes that some protozoa, for instance Entamoeba histolytica, can activate the relief of immune cells and a cascade of pro-inflammatory mediators, ultimately resulting in tissue damage and inflammation. Some of the indications of ulcerative colitis might be like to this determined inflammation (Brock et al.,2018). Ulcerative colitis might have its roots in dysbiosis, which raises to alterations in the greasepaint of the gut microbiota. Some consider that amoebas can distressed the gut microbiota's subtle steadiness, which can cause an excess of pro-inflammatory and anti-inflammatory bacteria and deteriorate the inflammatory reaction (Rubin et al.,2017). Even though there seems to be a link between some amoeba species and ulcerative colitis, there isn't enough data to draw any firm conclusions just yet. Although amoebae in the intestine may occasionally be coincidental rather than causal, several investigations have shown contradictory findings (Iyer et al.,2019). But there is hope for new treatment approaches to unravel the possible link between amoeba species and ulcerative colitis (van Assche et al.,2015). Previous studies concluded the occurrence and contribution of numerous enteropathogens comprising amoebiasis in IBD, Such as Ulcerative colitis(UC) and Chrohn,s disorder (CD).

2. Methodology

Stool samples collection

Stool testers stood composed as of ulcerative colitis patients distress from intestinal illnesses, abdominal ache, and cases of diarrhea which presence to gastroenterology center in Al-Diwaniyah Teaching Hospital and outpatient clinics. They underwent a colonoscopy and were diagnosed with ulcerative colitis by the specialist doctor for the period from August 2023 to March 2024. Throughout this period, 118 samples were collected from different age groups. The stool testers were composed in a lesser sterilized plastic box of 20 ml size with a inclusive mouth and a constricted lid to maintain the wetness of the tester. The box was marked with the tester number and time of gathering. The testers stood inspected with a light microscope in the hospital's parasitology laboratory using The direct wet smear method took place within a period not exceeding half an hour from the time they were obtained.

Statistical Analysis:

The data were expressed using the standard error of the mean, often known as the SEM. Comparisons were done by means of one-way investigation of variance (ANOVA1) and the newman-keuls check in order to evaluate the unpaired values of all of the groups. At the level of P 0.05, differences were reflected to be statistically important. The application SPSS (SPSS USA, 2010) was used throughout all statistical analysis procedures

3. Results and discussion

Microscopically study

Prevalence of *Entamoeba histolytica* in ulcerative colitis sick by direct smear of general stool examination

The current study showed an important variance at ($P \leq 0.05$) among ulcerative colitis patients and infection with *E. histolytica*. The stoll samples were composed from 118 sick with ulcerative colitis, the outcomes showed presence 96 **(**81.35%**)** positive samples for infection with *E. histolytica*, Table (1) and Figure (1;2).

Table (1) Prevalence of *E. histolytica* in ulcerative colitis sick via general stool examination

Parasite	**Examined No.**	**Positive**	
		No.	**%**
E. histolytica	**118**	**96**	**81.35**
X2	**9.107(S)**		
P value	**0.008**		

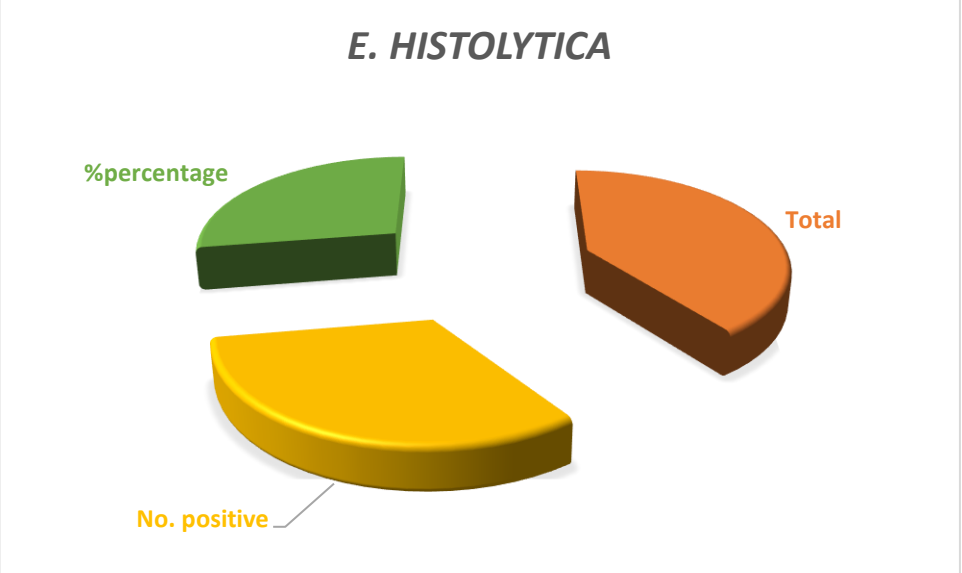

Figure (1) Prevalence of *E. histolytica* in ulcerative colitis sick by general stool examination

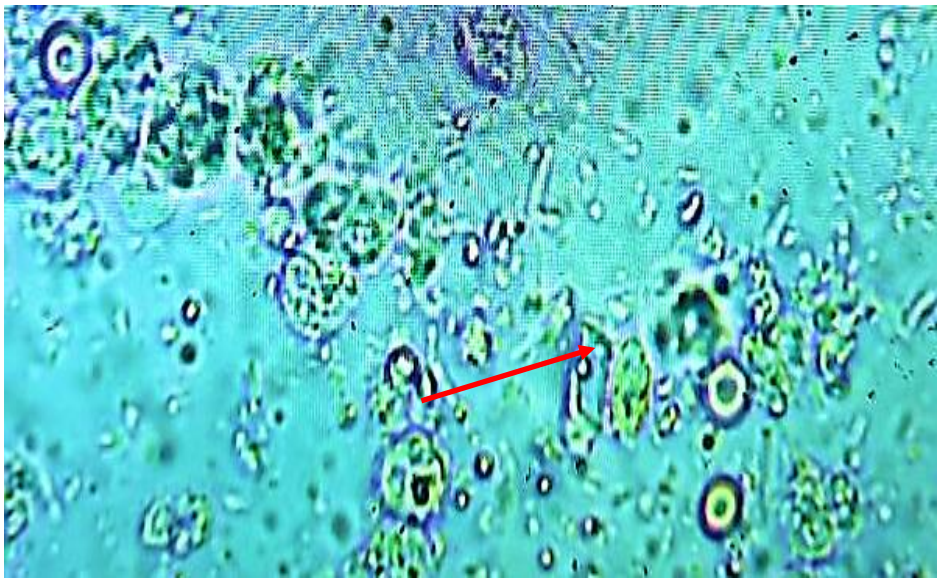

Figure (2) *E. histolytica* under microscopic by general stool examination

Epidemiology

Distribution of infection with *E. histolytica* in ulcerative colitis patients according to age groups

The existing training revealed that no important variances at ($p \leq 0.05$) among infection with the *E. histolytica* and age groups although there are differences in the numbers of infected patients in different age groups, the uppermost contagion rate appeared in the age group 41-55 year (33; 34.37%), then in 51-60 year (27; 28.13%), ≤ 61year (21; 21.87) and lowest infection rate was in 30-40 year (15; 15.62%) respectively, P value (0.251), Table (2), Figure (3).

Table 2: Distribution of infection with Entamoeba histolytica in ulcerative colitis patients according to age groups .

Age (years)	No. of samples of ulcerativ colitis patients	Patients with *E. histolytica* in Ulcerative Colitis no. (%)

30-40	**17**	**15 (15.62)**
41-55	**38**	**33 (34.37)**
51-60	**33**	**27 (28.13)**
≤ 61	**30**	**21 (21.87)**
Total	**118**	**96 (100)**
X2	**1.021(NS)**	
P value	**0.251**	

Non-significant difference (p ≤ 0.05)

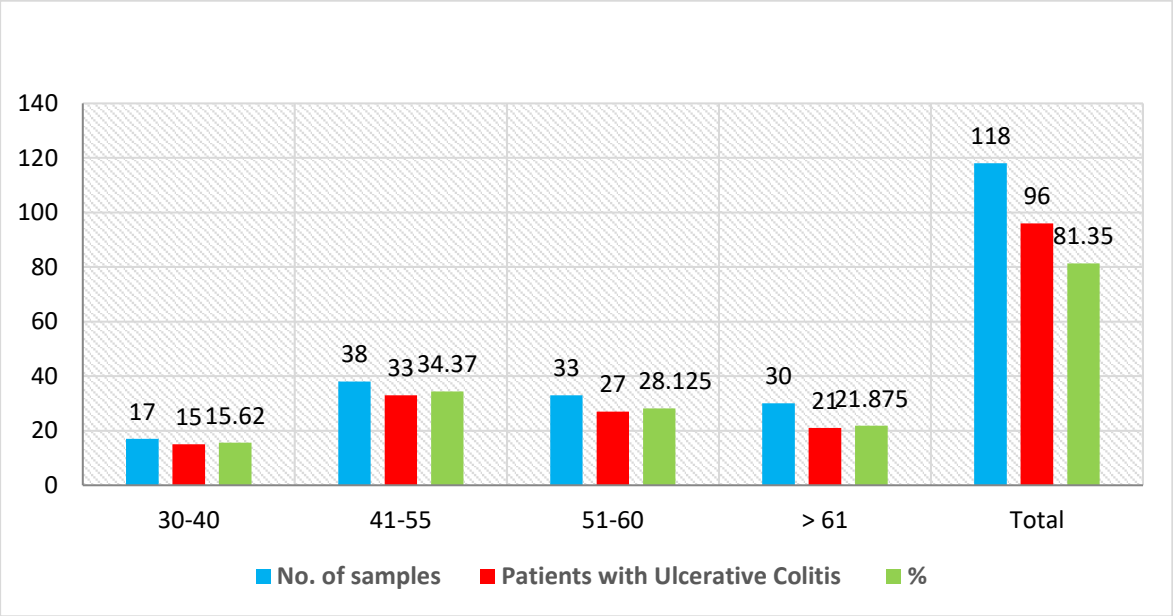

Figure 3: Spreading of contagion with *Entamoeba* in ulcerative colitis patients according to age.

Spreading of contagion with *E. histolytica* in ulcerative colitis patients according to gender groups

The existing training revealed as in Table (3) and Figure (4), that no important variances in infection with the *E. histolytica* and gender groups at (p ≤ 0.05) in males (51; 53.13%) and females (45; 46.87%), P value (0.189).

Table 3: Distribution of infection with Entamoeba in ulcerative colitis patients according to Gender.

Gender	No. of samples	Patients with *E. histolytica* in Ulcerative Colitis No. (%)
Males	**62**	**51 (53.13)**
Females	**56**	**45 (46.87)**
Total	**118**	**96 (100)**
X2	**0.568 (NS)**	

P value	**0.189**

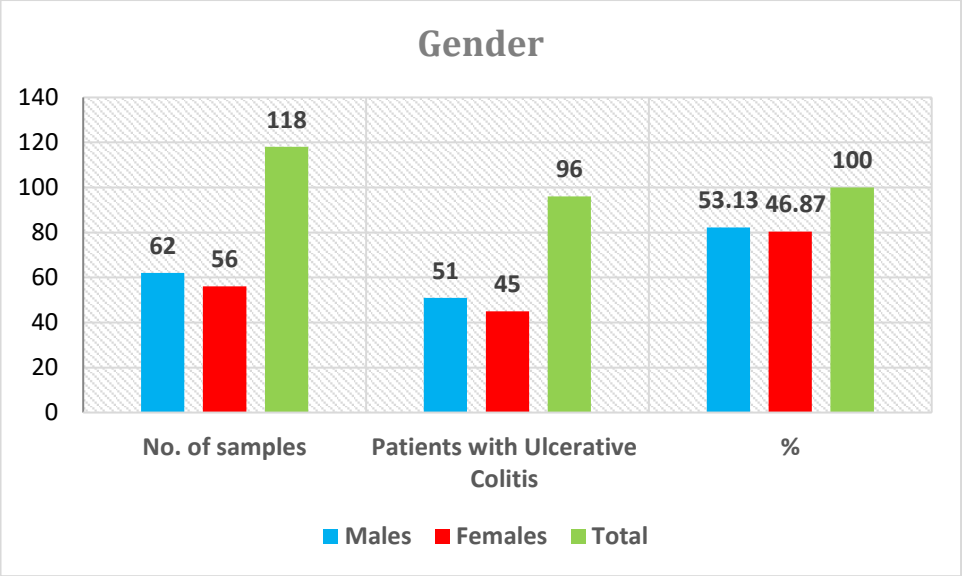

Figure 4: Distribution of infection with *Entamoeba histolytica* in ulcerative colitis patients according to Gender

Distribution of infection with *Entamoeba histolytica* in ulcerative colitis patients according to residence area

The existing study revealed the no important variances at ($p \leq 0.05$) in infection with the *E. histolytica* and residency of patients, in rural (44; 45.83%) and in urban (52; 54.17%), P value (0.363). Table (4) and Figure (5).

Table 4: Distribution of infection with *Entamoeba histolytica* in ulcerative colitis patients according to residence area.

Residency	No. of samples	Patients with *E. histolytica* in Ulcerative Colitis n (%)
Rural	**53**	**44 (45.83)**
Urban	**65**	**52 (54.17)**
Total	**118**	**96 (81.35)**
X2	**0.284 (NS)**	
P value	**0.363**	

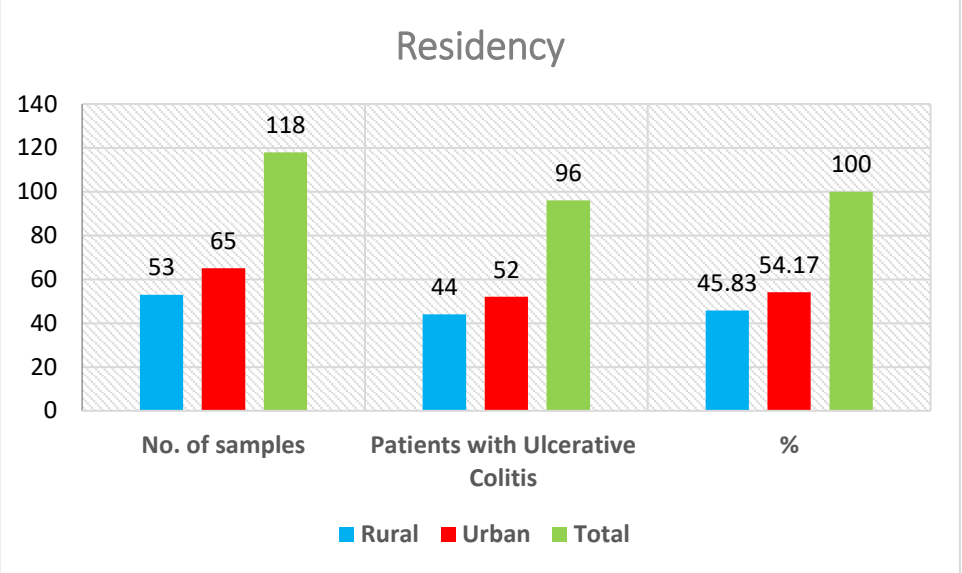

Figure 5: Distribution of infection with *Entamoeba histolytica* in ulcerative colitis patients according to residence area

Discussion

The outcomes revealed a statistically important disparity ($P < 0.05$) among patients with ulcerative colitis and those infected with *E. histolytica*. Among the 118 stool samples obtained from patients with ulcerative colitis, an astonishing 96 testers stayed positive for *E. histolytica*, proposing a significant prevalence of co-infection. These outcomes are related to other earlier trainings that have inspected the association between *E. histolytica* infection and (IBD), for instance ulcerative colitis. The raised occurrence of *E. histolytica* in persons through ulcerative colitis institute in this examination may be attributed to numerous causes. The debilitated mucosal barrier and intestinal inflammation related to ulcerative colitis might permit the invasion and quick reproduction of *E. histolytica* trophozoites (Samie *et al*., 2020). However, it is critical to recognize that this process displays restricted sensitivity and specificity, since it be contingent on the ability of the microscopist and might not discriminate among pathogenic *E. histolytica* and non-pathogenic *Entamoeba* species (Oliveira *et al*., 2022). Conventional microscopic trainings relating to protozoan morphology, such as amoeba trophozoite explanations in stool, stood used to analyze *amoebiasis* in 1875 through a physician named F. Lesh. Additionally, as projected through the World Health Organisation (WHO), further procedures must be established to differentiate among *E. histolytica* and *E. dispar*, since the later has been morphologically vague from the previous (WHO, 1997). Petri *et al*. (2000) institute that microscopic investigation of stool testers would not be the finest technique for identifying *amoebiasis* because of the technique's little sensitivity, specificity, and possible for false positive outcomes. Furthermore, it is necessary to indicate dysentery caused by entities such as viruses, bacteria, and others (Evangelopoulos *et al*.,2000; Blessmann etal.,2002). Detecting antibodies is a highly important test for invasive extraintestinal amoebiasis, however it does not confirm the intestinal form of the illness. Because antibodies may remain for years after clinical cure, it cannot distinguish between recent infections and those of the past (Stanley,2003; Haque and Petri, 2006). The lack of a statistically significant difference in *E. histolytica* infection rates among the age categories (30-40, 41-55, 51-60, and >61) indicates that age alone may not be a relevant factor in determining the risk of infection in this particular population. Nevertheless, it is crucial to analyse these findings in the wider framework of current scholarly works and take into account any underlying causes that may impact the observed age distribution. Numerous presently trainings has observed the incidence of *E. histolytica* contagion in diverse age groups and recognized the features that rise the danger of contagion. These trainings have attentive on mutually the universal population

and those with inflammatory bowel illnesses such as ulcerative colitis. In their training, Sahab *et al*. (2019) inspected the occurrence of *E. histolytica* in several age groups in Saudi Arabia, they exposed that there stayed no distinguished association between age and the danger of infection, which is reliable through the outcomes of the existing training showed on persons with ulcerative colitis. Alshawish *et al*. (2022) available a case training of a 32-year-old sick with ulcerative colitis who had a deteriorating of indications after being diseased with *E. histolytica*. The findings indicated that there stayed no statistically important variance ($p > 0.05$) in the occurrence of *E. histolytica* infection among the two gender groups. The study revealed that 82.25% of male patients and 80.35% of female patients were infected with *E. histolytica*. The p-value of 0.189 proposes that there is no statistically important variance in infection rates between males and females. The presence of intestinal inflammation and immunological dysregulation caused by ulcerative colitis may have the ability to surpass gender-related variations in vulnerability to *E. histolytica* infection (Samie *et al*., 2021). In areas characterised through insufficient hygiene and restricted obtainability of clean water, the likelihood of being exposed to *E. histolytica* is evenly spread among both genders, leading to a lack of substantial gender-specific infection patterns (Oliveira *et al*., 2022). The existing study's outcomes on the occurrence of *Entamoeba histolytica* infection among ulcerative colitis patients, categorized via their place of seat (rural or urban), improve our understanding of the probable environmental and socioeconomic features related to this parasitic illness. The absence of a statistically important variance in *E. histolytica* infection proportions between rural (83.01%) and urban (80.00%) populations indicates that placement only might not be a chief feature in decisive the danger of infection in this specific populace. A number of new trainings have inspected the occurrence of *E. histolytica* contagion in linking to placement forms, mutually in the overall populace and in persons with (IBD) for instance ulcerative colitis. In their training, Calegar *et al*. (2016) institute that the occurrence of *E. histolytica* contagion was upper in rural parts of Brazil paralleled to urban areas. This alteration might be accredited to variables such as inadequate sanitation, restricted availability of clean water, and low socioeconomic status. In their training, Sahab *et al*. (2019) inspected the occurrence of *E. histolytica* in Saudi Arabia and exposed that there stayed no distinguished association between residency (rural or urban) and the probability of contagion. Alshawish *et al*. (2022) accessible a case article describing a patient with ulcerative colitis who grieved a deteriorating of indications next an *E. histolytica* infection. Nonetheless, the authors did not reveal the patient's place of habitation. While placement does not stance a essential hazard for *E. histolytica* contagion in ulcerative colitis patients, the training institute a high prevalence of contagion in mutually rural parts (83.01%) and urban parts (80.00%). The study stayed commended to be showed on that particular group as there is a absence of accessible data on amoebiasis and its relationship to UC action, and because amoebic illness is mutual in numerous nations (Babic *et al*.,2016). The absence of faecal trophozoites and cysts in sure examples makes a conclusive analysis problematic, and the extensive variability of medical and colonoscopic presentations of amoebic colitis styles it informal to complicate with additional formulas of colitis, such as ulcerative colitis (UC) (Roure *et al*.,2019). Outcome *E. histolytica* via distinguishing the parasite and its particular Ag in stool, like in our instances, rises the sensitivity to ultimately notice amoebic contagion and provisions the analytic value (Roure *et al*., 2019). Out of 68 individuals with active UC, our study found that 70.83 percent had amoebiasis. Because it is endemic to our region and influenced by a number of environmental and socioeconomic factors, our finding stood upper than that indicated in earlier research in Mexico 5%, Turkey 17.2%, and Bosnia and Herzegovina 14.3% (Yamamoto *et al*., 2010). Consistent with earlier studies (Babic *et al*.,2016) institute that amoebiasis stayed considerably associated with a severe course in those UC patients. This is likely due to the fact that mucosal disruption allows trophozoites to invade the mucosa, which in turn worsens the clinical and endoscopic conditions.

4. Conclusion and future scope

The existing study revealed presence or occurrence of infection with E. histolytica and other species

Entamoeba in ulcerative colitis patients. The results of showed that non-significant variances at ($p \leq 0.05$) among infection with the E. histolytica and age groups, Gender and Residency. From what the study showed, there appears to be a relationship between ulcerative colitis (UC) and amoebiasis, even though they are two different conditions through the similarity of symptoms. Both ulcerative colitis and amoeba can cause indications for instance diarrhea, abdominal ache, and bloody stools, and this is similar in symptoms. It can sometimes lead to confusion in diagnosis. Likewise, ulcerative colitis is a chronic inflammatory illness that sources inflammation and ulcers in the lining of the colon and rectum, while amoebiasis caused by the parasite Entamoeba histolytica can also source inflammation and ulcers in the colon. Amoeba can worsen the symptoms of ulcerative colitis (UC) leading to more severe infections and complications. This makes it important for patients with UC to avoid exposure to E. histolytica.

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