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• BRIEF REPORTS •

# Prevalence of amebiasis in inflammatory bowel disease in Turkey

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## Abstract

**AIM:** To explore the prevalence of amebiasis in inflammatory bowel disease (IBD) in Turkey.

**METHODS:** In this study, amoeba prevalence in 160 cases of IBD, 130 of ulcerative colitis and 30 of Crohn's disease were investigated in fresh faeces by means of wet mount+Lugol's iodine staining, modified formol ethyl acetate and trichrome staining methods and to compare the diagnostic accuracy of wet mount+Lugol's iodine staining, modified formol ethyl acetate and trichrome staining methods in the diagnosis of *Entamoeba histolytica (E. histolytica)*/ *Entamoeba dispar (E. dispar).*

**RESULTS:** *E. histolytica/E. dispar* cysts and trophozoites were found in 14 (8.75 %) of a total of 160 cases, 13 (10.0 %) of the 130 patients with ulcerative colitis and 1 (3.3 %) of the 30 patients with Crohn's disease. As for the 105 patients in the control group who had not any gastrointestinal complaints, 2 (1.90 %) patients were found to have *E. histolytica* /*E. dispar* cysts in their faeces. Parasite prevalence in the patient group was determined to be significantly higher than that in the control group (Fischer's Exact Test, $P<0.05$). When the three methods of determining parasites were compared with one another, the most effective one was found to be trichrome staining method (Kruskal-Wallis Test, $P<0.01$).

**CONCLUSION:** Consequently, amoeba infections in IBD cases have a greater prevalence compared to the normal population. The trichrome staining method is more effective for the detection of *E. histolytica* /*E. dispar* than the wet mount+Lugol's iodine staining, modified formol ethyl acetate methods.

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## INTRODUCTION

Amebiasis, which affects nearly 500 million people in the world, is more prevalent in developing countries in particular[1]. It is difficult to distinguish IBD from colitis associated with amoeba according to both symptomatic and endoscopic appearance of the colon. It is not even possible to establish a differential diagnosis by means of microscopic examination. Sometimes IBD can co-exist with amebiasis. This, of course, leads to confusion in the diagnosis and treatment of the disease[2].

This study was planned to consider amoeba in the cases diagnosed as IBD in the gastroenterology clinic and to compare the accuracy of wet mount + Lugol's iodine staining, modified formol ethyl acetate and trichrome staining methods in the diagnosis of *E. histolytica/E. dispar*.

## MATERIALS AND METHODS

160 people who were diagnosed as IBD by endoscopic, histopathologic, radiologic and laboratory examinations at our clinic were included in this study which was carried out between January 2000 and June 2001. Of all the cases, 130 were diagnosed as ulcerative colitis and 30 as Crohn's disease. 105 people of even age and sex distribution who had not any gastrointestinal complaints and reported to the district health centre with other complaints were assessed as the control group. Fresh faeces samples taken from these people were examined immediately using the wet mount+Lugol's iodine staining, modified formol ethyl acetate and trichrome staining methods.

Fisher's exact test was applied to the groups (ulcerative colitis, Crohn's disease and control) for a comparison of amoeba frequency among them. The assessment of wet mount+Lugol's iodine staining, modified formol ethyl acetate methods used in the diagnosis of *E. histolytica/E. dispar*, was conducted by calculation of sensitivity, specificity, negative predictive value, positive predictive value and rate of accuracy.

## RESULTS

In our study in which the prevalence of *E. histolytica/E. dispar* in IBD was investigated, we found *E. histolytica/E. dispar* cysts and trophozoits in 14 (8.75 %) of the 160 IBD cases. *E. histolytica/E. dispar* cysts and/or trophozoits were also determined in 13 (10.0 %) of the 130 patients with ulcerative colitis and 1 (3.3 %) of the 30 Crohn's disease patients (Table 1). Frequency of *E. histolytica/E. dispar* in patients with IBD was significantly higher than that in the control group (Fisher's exact test, $P<0.05$). When the groups of patients with IBD were compared with the control group separately, the frequency of *E. histolytica/E. dispar* in patients with ulcerative colitis was significantly higher than that in the control group. For Crohn's disease, on the other hand, it was not significantly different from the control group. A comparison between the patients with ulcerative colitis and those with Crohn's disease revealed that *E. histolytica/E. dispar* were more significantly frequent in the patients with ulcerative colitis (Fisher's exact test, $P<0.05$). When the three methods of determining parasites were compared with one another, the most effective one was found to be trichrome staining method as can be seen in Table 1 (Kruskal-Wallis test, $P<0.01$). The sensitivity of wet

mount+Lugol' s iodine staining, modified formol ethyl acetate methods was found to be quite low as compared to the trichrome staining method (36 %, 64 %, respectively) (Table 2).

**Table 1** Number and methods for determination of *E. histolytica* determined in cases with IBD diagnosis and control group

| | Wet mount ± Lugol's iodine staining | Modified formol ethyl acetate | Trichrome staining method | Total (none of parasite / patient) |
|---|---|---|---|---|
| Ulcerative colitis | 5*(%3.84) | 8*(%6.15) | 13*(%10.0) | 13 / 130 |
| Crohn's disease | - | 1*(%3.33) | 1*(%3.33) | 1 / 30 |
| Control group | 1*(%0.95) | 2*(%1.90) | 2*(%1.90) | 2 / 105 |

*The parasite was determined by more than one method (+).

**Table 2** Comparison of wet mount+Lugol's iodine, modified formol ethyl acetate methods with trichrome staining method

| | Modified formol ethyl acetate (%) | Wet mount+Lugol's iodine staining (%) |
|---|---|---|
| Sensitivity | 64 | 36 |
| Specificity | 99 | 98 |
| False negatives | 36 | 64 |
| False positives | 0.1 | 0.1 |
| Positive predictive value | 90 | 63 |
| Negative predictive value | 97 | 95 |
| Rate of accuracy | 97 | 93 |

## DISCUSSION

Few studies have been performed in Turkey on this particular subject. In a study they carried out in the Province of Istanbul between April 1994 and July 1995. Bayramicli *et al*[3] explored the presence of amebiasis in 19 patients being investigated with a preliminary diagnosis of ulcerative colitis and found *E. histolytica* in 69 % of the cases. In a study they carried out in the Province of Antalya to determine the rate of amebiasis in 43 patients with ulcerative colitis. Suleymanlar *et al*[4] found *E. histolytica* cysts and trophozoites in 22 (54 %) of the patients. These values are higher than those we have found. The reason for this is the fact that the incidence of *E. histolytica/E. dispar* has been diminishing in Turkey in recent years.

Prokopowicz *et al*[5] determined 5 cases of amebiasis (4.85 %) among 103 patients with ulcerative colitis and claimed that this rate was significant in the treatment of chronic ulcerative colitis patients. We have obtained a higher rate than that of Prokopowicz in our study in which we found *E. histolytica/E. dispar* cysts and trophozoites in 13 (10.0 %) of 130 patients with ulcerative colitis**.** This was due to the environmental factors as high temperature and humidity, which are effective in and around Izmir, as well as lower immune resistance against the infection in addition to poorer hygiene. Chan *et al*[6] presented three cases with ulcerative colitis and *E. histolytica* infection and mentioned the problems to be faced during treatment.

In conclusion, amoeba infection in IBD cases, especially in patients with ulcerative colitis is more prevalent compared to the normal population. A differential diagnosis is extremely important for IBD and amebiasis cases. Therefore, we believe that *E. histolytica/E. dispar* must be explored in the faeces before planning a diagnostic scheme for cases diagnosed as IBD. In addition, the sensitivity of wet mount+Lugol' s iodine staining and modified formol ethyl acetate methods was found to be low in this study. Therefore, we think it would be necessary to use the trichrome staining method in the investigation of *E. histolytica/E. dispar* in patients with IBD diagnosis.

## REFERENCES

1 **Andersen PL**. Amebiasis. *Ugeskr Laeger* 2000; **162:** 1537-1541
2 **Hansen LH,** Lund C. Amebiasis-a differential diagnosis from inflammatory bowel disease. *Ugeskr Laeger* 1998; **160:** 5514-5515
3 **Bayramicli OU,** Dalay R, Konuksal F, Kilic G, Akbayir N, Ovunc O. Ulseratif kolitle amebiasisin birlikteligi. *Turk J Gastroenterol* 1997; **8:** 94-96
4 **Süleymanlar I,** Atilgan S, Ertugrul C, Isitan F. Ulseratif kolit ve intestinal amebiasis birlikteligi ve tedavide karsilasilan sorunlar. *Gastroenteroloji* 1996; **7:** 22
5 **Prokopowicz D,** Zagorski K, Kramarz P. Amoebiasis-a problem in patients with ulcerative colitis. *Wiad Lek* 1994; **47:** 248-251
6 **Chan KL,** Sung JY, Hsu R, Liew CT. The association of the amoebic colitis and chronic ulcerative colitis. *Singapore Med J* 1995; **36:** 303-305

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