

## A PROPOSED TECHNIQUE FOR THE DIAGNOSIS OF NON-DYSENTERIC AMOEBIC COLITIS

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### SUMMARY

Parasitic colitis, especially *Entamoeba histolytica*, is a well-known disorder in the Middle East particularly in Iran. The carrier state of the disease or the chronic type frequently remains undiagnosed or mistaken as irritable bowel syndrome which results in further discomfort and increases the incidence of associated complain. We devised a technique by inserting bisacodyl suppository and then examining the mucosal discharge for finding parasitic organisms. In our study over a period of two years on 1600 patients, which is presented here, 20% of patients who were positive underwent treatment. All signs and symptoms were disappeared after a course of treatment.

**KEYWORDS:** *Amoebiasis Test; Dysentery; Entamoeba histolytica; Parasitic colitis; Proposed technique.*

### INTRODUCTION

Amoebiasis with its various symptoms is a well-known disease in the Middle East countries (1-5). However, there has been no simple method for its diagnosis. In addition to the known technical difficulties involved in the recognition of amoeba in

the feces, serological indirect hemagglutination test is not widely available and a relatively long time is required to obtain the test results. Rectosigmoidoscopy with biopsy are not always diagnostic and are expensive and time consuming (2,4,6,7).

For years, patients undergoing rectosigmoidoscopy were ordered to use bisacodyl suppository for

bowel preparation couple of hours in advance. Sometimes, this was accompanied by a lot of complaints such as burning sensation, tenesmus, gross hyperemia, and heavy mucous discharge. It was decided to subject this mucous to direct laboratory test. The results showed heavy contamination with *Entamoeba histolytica*. This was a clear observation. Meanwhile, there was another experience in this field: Patients infected with *E. histolytica* complained more than usual of pain, bleeding, and tenesmus after anal surgery and had to go through a long period of recovery. Thus, it was concluded to send such patients for a double-blind study of *E. histolytica* (8).

## MATERIALS AND METHODS

Vafaie Amoebiasis Test (V.A.T.) has been devised as a simple laboratory procedure to find out *E. histolytica* in the mucous discharge more easily and more frequently than in the feces.

The method is a direct examination of the mucous discharge; the mucous discharge has to be extracted from the depth of rectal mucosa. Bisacodyl suppository must be used to irritate the rectal mucosa affected by *E. histolytica*. This irritation makes the mucosa to secrete mucous discharge inside the rectum. The mucous discharge contains a considerable number of *E. histolytica*. Examination must be done in a few minutes to make the tester able to observe the movement of amoeba. It is preferable to examine the stool sample before V.A.T. In order to estimate the degree of sensitivity and respective value of V.A.T., a double-blind study was performed on 1717 patients in a period beginning from November, 1987 up to April, 1990.

This study was based on two groups of patients: first group with long standing signs and symptoms of constipation, transitional diarrhea, tenesmus, frequency of bowel movements, crampy abdominal pains, mucous discharge, and rectal bleeding recurring from time to time. The second group of patients who were instructed to undergo double blind study for various colorectal surgery did not have any of the above symptoms.

The results obtained have been presented in the following tables:

Table 1. 852 cases with positive clinical signs

| Parasites                 | No. of cases |
|---------------------------|--------------|
| Entamoeba histolytica     | 184          |
| Giardia lamblia           | 429          |
| Enterobius vermicularis   | 147          |
| Ascaris lumbricoides      | 44           |
| Fasciola hepatica         | 25           |
| Trichuris trichura        | 10           |
| Hymenolepis nana          | 10           |
| Strongyloides stercoralis | 3            |
| Total number of cases     | 852          |

Table 2. 867 cases without clinical signs

| Parasites               | No. of cases |
|-------------------------|--------------|
| Entamoeba histolytica   | 77           |
| Giardia lamblia         | 8            |
| Enterobius vermicularis | 7            |
| Ascaris lumbricoides    | 6            |
| No parasites            | 769          |
| Total number of cases   | 867          |

Tables 3,4 and 5 are statistically extracted from Tables 1 and 2 are only concentrated on *E. histolytica*.

Table 3. Definite and relative distribution of *E. histolytica* in patients with positive clinical signs in different age groups

| Sex   | Male      |     |      |          | Female |     |      |          | Total |     |      |          |
|-------|-----------|-----|------|----------|--------|-----|------|----------|-------|-----|------|----------|
|       | Age group | %   | No.  | +/- E.H. | %      | No. | %    | +/- E.H. | %     | No. | %    | +/- E.H. |
| 0-1   | 89.5      | 17  | 40   | 2        | 10.5   | 2   | 60   | 3        | 100   | 19  | 26.3 | 5        |
| 2-4   | 66.1      | 78  | 33.3 | 2        | 33.9   | 40  | 66.7 | 4        | 100   | 118 | 5.1  | 6        |
| 5-9   | 69.2      | 101 | 68.2 | 15       | 30.8   | 45  | 13.8 | 7        | 100   | 146 | 15.1 | 28       |
| 10-20 | 50.7      | 37  | 25   | 3        | 46.3   | 36  | 75   | 9        | 100   | 73  | 16.4 | 12       |
| 21-30 | 32.9      | 49  | 20.7 | 11       | 67.1   | 100 | 79.3 | 42       | 100   | 149 | 33.5 | 53       |
| 31-40 | 32.6      | 56  | 29.1 | 13       | 67.4   | 116 | 75.9 | 41       | 100   | 172 | 31.4 | 54       |
| 41-50 | 37.5      | 33  | 50   | 7        | 62.5   | 7   | 50   | 7        | 100   | 88  | 15.9 | 14       |
| 51-60 | 48.6      | 34  | 62.5 | 5        | 51.4   | 36  | 37.5 | 3        | 100   | 70  | 11.4 | 8        |
| 60+   | 64.7      | 11  | 30   | 3        | 32.3   | 6   | 60   | 7        | 100   | 17  | 50.8 | 10       |
| Total | 48.8      | 416 | 33.2 | 61       | 51.2   | 388 | 66.8 | 123      | 100   | 852 | 21.6 | 184      |

The total rate of patients infected with *E. histolytica* was 21.6%. According to the above table, there is a meaningful difference in the incidence of infection between two sexes: Females are infected more than males.

$$\text{Female/Male ratio is } \frac{66.8}{48.8} = 1.4$$

$$P < 0.001$$

Table 4. Infection in males and females of various age groups

| Sex   | Male      |      |          | Female |      |          | Total |      |          |
|-------|-----------|------|----------|--------|------|----------|-------|------|----------|
|       | Age group | %    | +/- 2 SE | %      | %    | +/- 2 SE | %     | %    | +/- 2 SE |
| 0-1   | 40        | 40   | +/- 9    | 60     | 60   | +/- 10.9 | 26.3  | 26.3 | +/- 26.3 |
| 2-4   | 33.3      | 33.3 | +/- 2.7  | 66.7   | 66.7 | +/- 8.7  | 5.1   | 5.1  | +/- 17.9 |
| 5-9   | 68.2      | 68.2 | +/- 7.7  | 13.8   | 13.8 | +/- 7.7  | 15.1  | 15.1 | +/- 15.3 |
| 10-20 | 25        | 25   | +/- 10.1 | 75     | 75   | +/- 10.1 | 16.4  | 16.4 | +/- 21.3 |
| 21-30 | 20.7      | 20.7 | +/- 6.6  | 79.3   | 79.3 | +/- 6.6  | 35.5  | 35.5 | +/- 13.1 |
| 31-40 | 24.1      | 24.1 | +/- 6.5  | 75.9   | 75.9 | +/- 6.5  | 31.4  | 31.4 | +/- 12.6 |
| 41-50 | 50        | 50   | +/- 4.6  | 50     | 50   | +/- 4.6  | 15.9  | 15.9 | +/- 19.5 |
| 51-60 | 62.5      | 62.5 | +/- 11.5 | 37.5   | 37.5 | +/- 11.5 | 11.4  | 11.4 | +/- 22.5 |
| 60+   | 30        | 30   | +/- 8.3  | 60     | 60   | +/- 11.5 | 50.8  | 50.8 | +/- 31.6 |

Statistically, infection in males and females of various age groups with 95% assurance coefficient has no meaningful outcome which means that none of the age groups is in high risk of contamination.

Table 5. Comparison between two groups of positive and negative clinical signs

| Sex   | Male |     |      |             | Female |             |      |             | Total |      |      |             |
|-------|------|-----|------|-------------|--------|-------------|------|-------------|-------|------|------|-------------|
|       | %    | No. | %    | +/-<br>E.H. | %      | +/-<br>E.H. | %    | +/-<br>E.H. | %     | No.  | %    | +/-<br>E.H. |
| * +   | 48.8 | 416 | 33.2 | 61          | 51.2   | 436         | 66.2 | 123         | 100   | 852  | 21.6 | 184         |
| ** -  | 47.3 | 409 | 45.5 | 35          | 52.7   | 458         | 54.5 | 42          | 100   | 865  | 8.9  | 77          |
| Total | 48.1 | 825 | 36.8 | 96          | 51.9   | 894         | 63.2 | 165         | 100   | 1717 | 15.2 | 261         |

\* Positive clinical signs

\*\* Negative clinical signs

Statistically, with  $P < 0.5$ ,  $X = 53.1$  infection rate is higher in positive clinical signs than negative.

| Parasites            | No. of cases |
|----------------------|--------------|
| False positive       | 8.9%         |
| False negative       | 78.4%        |
| Sensitivity          | 21.6%        |
| Specificity          | 91.1%        |
| Total infection rate | 15.2%        |

Statistically, infection in males and females of various age groups, with 95% assurance coefficient, has no meaningful outcome which means that none of the age groups is in high risk of contamination.

## DISCUSSION

Amoebic colitis is an endemic disease in the Middle East countries, manifesting itself in different forms from acute to carrier (1-4,9), but mild non-dysenteric amoebic colitis is a common form and may have the features of irritable bowel syndrome so that most of the patients do not remember the onset of the contamination (5,10-13). The reason is that *E. histolytica* tends to hide in the depth of the mucosal crypts of the colon, especially in the cecum and rectum causing bowel irritation (12,13,15). Patients usually complain of pain, bleeding, tenesmus, and a long time recovery after the anal surgery. Up to now, the simplest test for the diagnosis of *E. histolytica* has been stool

examination with 50% sensitivity performed by experienced technicians.

However, still a simpler, faster, safer, more readily available, and cheaper test is required. V.A.T. with mucous discharge examination seems to fulfill these requirements.

Statistically, V.A.T. has a specificity of 91.1% in diagnosing *E. histolytica*. We propose this simple procedure in order to be accepted as a routine test for the patients with positive clinical signs as it has been indicated in Table 1.

*Giardia lamblia* is a cosmopolitan parasite with worldwide distribution; incidences vary between 20-30%. Most patients harboring this parasite are symptomatic, but there is a general agreement that it is a pathogen and not simply a commensal accord-

-ding to different papers. If *Giardia lamblia* cysts or trophozoites are present in the examination of feces, the diagnosis of *Giardiasis* will be made. However, as many as 50% of stool specimens of the patients proved to have *Giardiasis*. In this study, we found that V.A.T. is useful for the diagnosis of *Giardiasis* as well as other intestinal parasites.

For the treatment of positive *Entamoeba histolytica*, we used 750 mg metronidazole three times a day and 500 mg di-iodohydroxyqueleine three times a day for a period of ten days. Although there might happen the recurrence of symptoms in some cases, it was a satisfactory treatment in most cases (13,16).

Meanwhile, in cases that different drugs were used locally and the treatment was failed, we looked for a proper topical treatment.

This paper is presented for diagnostic purposes and we look for proper treatment.

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