

Incidence of Intestinal Ulceration Caused by *Entamoeba histolytica* in Rural Population of Aba in Abia State, Nigeria

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Entamoeba histolytica, the causative agent of human amebiasis, is endemic in most tropical and subtropical countries and is considered responsible for most cases of amoebic dysentery, amoebic hepatitis, and ulceration .Despite its medical importance; there is a considerable lack of knowledge about the epidemiology of this parasite in this locality. To gain insight into the dynamics of intestinal *Entamoeba histolytica* infection, particularly in this part of the world, a study was performed over a period of four months with a group of 1274 patients (mean age, 35 years) living in Aba, Abia State, Nigeria. The presence of the parasite was detected by microscopic examination of fresh stool samples stained with iodine solution. Occult blood in the faeces of those with intestinal ulceration was detected using oko kit which works on the principle that the peroxidase activity of haemoglobin and its iron containing derivative catalyze the oxidation of the non carcinogenic chromogen to form a blue colour in the presence of hydrogen peroxide. From the results 610 (47.9%) were *E. histolytica* positive. While those with intestinal ulceration were 94, out of which 42 were *E. histolytica* positive. There is therefore, an urgent need to educate the populace of the prevalence of this parasite considering its health implication.

Key words: Occult blood, Faeces, Ulceration, Peroxidase activity, *Entamoeba histolytica*.

Entamoeba histolytica, the causative agent of human amebiasis, is endemic in most tropical and subtropical countries and is considered responsible

for several cases of amoebic dysentery, amoebic hepatitis, and ulceration (Blessmann *et al.*, 2002a and 2002b; Ramos *et al.*, 2002). Primarily, the parasite inhabits the large intestine of man but also establishes itself in the liver, lungs, brain and other organs where secondary lesions are produced (Braga *et al.*, 1998; Gatti *et al.*, 1998 and 2002; Haque, *et al.*, 1998). The parasite secretes proteolytic enzymes with which the gut wall is digested leading to ulceration of the intestine (Wynants *et al.*, 1995). Despite its medical

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importance, there is a considerable lack of knowledge about the epidemiology of this parasite in this locality. To gain insight into the dynamics of intestinal *Entamoeba histolytica* infection, particularly in this part of the world, we therefore carried out this study.

MATERIAL AND METHOD

Study area/subjects

The study was performed over a period of four months with a group of 1274 patients (mean age, 35 years) living in Aba, Abia State, Nigeria. *Sample Collection and Examination:* Faeces were collected and analyzed within three hours of collection as stated (Ash and Orihel 1987). The presence of the parasite was detected by microscopic examination of fresh stool and the samples was also stained with iodine solution to identify the trophozoites and the infective cyst (Fotedar *et al.*, 2007; Oyerinde, 1999; Cheesbrough, 2006). Following these, was the testing of the faeces for occult blood using oko kit which signifies intestinal ulceration. The oko kit works on the principle that the peroxidase activity of haemoglobin and its iron containing derivative catalyze the oxidation of the non carcinogenic chromogen to form a blue colour in the presence of hydrogen peroxide. Though some faeces without cyst were also tested using oko kit. It is essential for the patient to be kept on a meat-free diet for three days prior to the examination of faeces for occult blood. Foods such as liver, black puddings and those containing haematinin substances were avoided. Rectal or menstruating women were not included. These could give false positive results. The sensitivity of the test should indicate blood loss greater than 2.5-4.5ml per day and should be strongly positive for the characteristic black and glistening tarry specimen. It is usual to examine three daily specimens before the presence or absence of occult blood is confirmed.

RESULT AND DISCUSSION

The results obtained are highlighted on Table 1. Table 1 shows the prevalence of *Entamoeba histolytica* infection among the 1,274 consenting individuals examined. Also shown

(Table 1) is the incidence of intestinal ulceration in subjects with or without the *E. histolytica* infection.

From the results (Table 1), 610 were *E. histolytica* positive representing 47.9% of those studied. While those with intestinal ulceration were 94, out of which 42 were *E. histolytica* positive, representing 44.7% of those with ulceration.

It should be noted that upon ingestion of the infective cyst of *E. histolytica* through food or contaminated water it goes down to the intestine. In the intestine, the membrane of the cyst ruptures

Table 1. Prevalence of *Entamoeba histolytica* and rate of intestinal ulceration among the rural populace in Aba, Nigeria

Prevalence of <i>E. histolytica</i> infection (n= 1,274)	
Positive 610(47.9%)	Negative 664(52.1%)
Incidence of intestinal ulceration (n=94)	
42(44.7%)	52(55.3%)

and releases the four nuclei. The four nuclei re-divide to become eight metacyclic amoebae (Amoebulae). These amoebulae will move to the mucous membrane of the large intestine where they will develop to trophozoites. These are the stage where they now move to the crypts of Lieberkum causing the release of blood and mucus along with food particles out of the body which result on ulceration and is detected using oko kit. (Allason *et al.*, 1984; Gatti, *et al.*, 1998 and 2002; Gathiram, *et al.*, 1985). Unfortunately, the mode of infestation of this parasite is through fecal-oral route which call for concern because it only indicate low standard of personal hygiene. From the results of this study it is observed that the degree of prevalence of this parasite in our area is high. Hence the urgent need to educate the populace of the prevalence of this parasite considering its health implications.

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