# CORRELATION BETWEEN IHA ANTIBODY TITER AND IMAGING FINDINGS AMONG THAI HOSPITALIZED PATIENTS WITH AMEBIC LIVER ABCESS

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## ABSTRACT

Amebic hepatic abcess is a tropical disease with wide spectrum of clinical presentations. The retrospective case review was made on 39 Thai hospitalized patients who had diagnosis of amoebic liver abcess. In our series, there were 23 men (59 %) and 16 women (41 %), with a mean age of 44.56 ± 21.81 years (range, 10 to 88 years). Concerning the imaging presentations, most cases had single abcess at right lobe of liver. Concerning the serological study, average IHA titer of the cases was 1: 1190.35 ± 895.42 (range, 1:256 to 2048). Concerning the multiple logistic regression analysis, no significant correlation was found between antibody titer and the other parameters

## INTRODUCTION

Amebiasis is a widespread parasitic disease caused by Entamoeba histolytica. This protozoan organism is the third leading parasitic cause of death in the developing world and is an important health risk to travelers in endemic areas.[1] Amebiasis most commonly results in asymptomatic colonization of the gastrointestinal tract, but some patients may develop intestinal invasive disease or extraintestinal disease. The most common extraintestinal manifestation of is a hepatic abscess.[1] This infection is common throughout the world and can be associated with life-threatening consequences.[1-4]

Concerning hepatic amebiasis, the nfection starts from ingestion of amoebic cysts, which after excystation form trophozoits in the small intestine, colonize the bowel lumen and invade the intestinal epithelium resulting in amoebic colitis. Spread to the liver and formation of amoebic liver abscesses occurs in one third of the cases.[1-4] This infection can demonstrate a wide spectrum of clinical presentations from no complaints to arrest.[5-9] Given the often nonspecific nature of the complaints related to an amebic abscess, a retrospective review of patients with confirmed disease to recognize the most common patterns of presentation is useful.[5-9]

Since amoebic liver abscess have a good prognosis when treated with metronidazole,[1-4] therefore, an early diagnosis and treatment is therefore important. The diagnosis is made by demonstration of E. histolytica cysts in the pus or positive serology.[1-4] Essentially, all patients with invasive amoebiasis have E. histolytica- specific IgG;[10] presence of these antibodies is indicative of current or previous infection.[10] The serological titers are elevated in 100% of patients with amebic liver abscess, 98% with amebic dysentery and 66% of asymptomatic carriers.[11]

Here, we retrospectively study the serological titer from Entamoeba histolytica indirect hemagglutination (IHA) test among hospitalized 39 Thai patients with amebic liver abcess. The

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correlation between the titer and the other laboratory results of the patients is also studied as well.

## MATERIALS AND METHODS

### CASES RECRUITMENT

The retrospective case review was made on hospitalized patients who had diagnosis of amoebic liver abcess at the King Chulalongkorn Memorial Hospital, Bangkok, Thailand. This study focused on a ten-year period, from January 1992 to December 2001.

The inclusion criteria are 1) the cases with amebic liver abcess and 2) the cases with complete medical records for further analysis. Concerning the operative definitions, the liver abscess was diagnosed according to both the presentation of the abscess cavity on hepatic US and/ or CT scans, and according to pus drained from the cavity during needle aspiration or surgery. The confirmation of amoebic liver abcess was according to the identification of Entamoeba histolytica by microscopic examination of the pus or serological titer by ntamoeba histolytica indirect hemagglutination (IHA) test was 1:256 or greater.[12] The exclusion criteria are 1) the cases with liver cirrhosis, 2) the cases with malnutrition and 3) the cases with Anti HIV seropositive. Since these cases are mentioned to have impaired immune response and is reported to be risk for aberrant clinical and laboratory presentations.[13]

According to this study, there were 39 cases included. The review of these patients' medical records for further analysis was performed. The data from the discharge summary of these patients were then recorded including their age and sex, as well as the final diagnosis. Imaging information collected, included size, location and number of abscesses.

### STATISTICAL ANALYSIS

Descriptive statistics were used in analyzing the demographic and laboratory parameters for each group. The multiple logistic regression analysis was used in determination of the correlation between the titer and the patients' characteristics. The statistical significant level was accepted at p value = 0.05. All the statistical analyses in this study were made using SPSS 7.0 for Windows Program.

## RESULTS

Thirty-nine cases of liver cirrhosis patients with liver abcess were diagnosed. There were 23 men (59 %) and 16 women (41 %), with a mean age of $44.56 \pm 21.81$ years (range, 10 to 88 years). Concerning the imaging presentations, the abscesses were in the right lobe in 29 patients (74.4 %) in the left lobe in 3 patients (7.7 %), and in both lobes in 7 patients (17.9 %). In our series, 30 had single abscess (76. 9 %) and 9 patients had multiple abscesses (23.1 %). All of single abcesses were larger than 5 cm and all of multiple abcess were smaller than 5 cm. Concerning the serological study, average IHA titer of the cases was 1: $1190.35 \pm 895.42$ (range, 1:256 to 2048).

Concerning the multiple logistic regression analysis, no significant correlation was found between antibody titer and the other parameters (Table 1).

**Table 1.** Correlation coefficient between antibody titer and the imaging characteristic

| Imaging characteristics | Correlation coefficient (r) | P value |
|---|---|---|
| Size of abcess | 0.42 | 0.09 |
| Location of abcess | 0.12 | 0.16 |
| Number of abcess | 0.11 | 0.14 |

## DISCUSSION

Amebic liver abcess is one of the two most common causes of liver abcess. Of interest, patients may or may not have symptoms of intestinal infection concurrently with amebicliver abscess.[2-4] This infection is present worldwide, but is most common in tropical areas where crowded living conditions and poor sanitation exist. Transmission occurs through ingestion of cysts in fecally contaminated food or water, use of human excrement as fertilizer, and person-to-person contact. The incidence is about 1 out of 100,000 people for amebic liver abscess.[2-4]

According to our series, the clinical and laboratory presentations in our patients were similar to those in the previous reports.[1, 4-5] The abcess usually present as a single abcess on the right lobe of liver. Nevertheless, these clinical manifestations are similar to those in pyogenic liver abcess patients.[13]

Of interest, we cannot find any correlation between the antibody titer to any imaging characteristic. However, since the total case in our study is rather few, the larger study to answer this question is necessary.

## COMPETING INTERESTS

Not declared.

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