Original article

Amoebic liver abscess: A 20-year retrospective analysis at Tikur Anbessa Hospital, Ethiopia

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Abstract

Background: Amoebic liver abscess is the most common manifestation of extra-intestinal amebiasis. Although a high prevalence of intestinal amebiasis is reported in Ethiopia, information about the prevalence of confirmed amebic liver abscess is very scanty. Our previous study using the molecular technique proved that there is a considerable over diagnosis of intestinal amebiasis by using microscopy alone, while cases of truly invasive *Entamoeba histolytica* appear to be very rare.

Objective: To assess the occurrence of amebic liver abscess among admitted patients at Tikur Anbessa Hospital.

Method: A retrospective analysis was conducted from clinical records of patients who were admitted to the medical wards of Tikur Anbessa Hospital, on suspeced cases of liver abscess over a 20 year period, from 1982 to 2002.

Results: Only 47 suspected liver abscess cases; (2 suspected liver abscess per 5854 patients per year) were admitted and treated in Tikur Anbessa Hospital in the past 20 years. Liver abscess appears to be rare among patients admitted in the hospital. The most frequent diagnosis of liver abscess was of amebic origin 35(74 %).

Conclusion: The total number of hepatic amebic liver abscess is extremely low considering the high number of reported intestinal amebiasis cases by microscopy in routine laboratory diagnosis, suggesting overdiagnosis. [*Ethiop.J.Health Dev.* 2004; 18(3):199-202]

Introduction

Compared to other intestinal parasites intestinal amebiasis features top in the annual reports of most hospitals and clinics in Ethiopia according to the Ministry of Health (unpublished data). Tropozoites and cysts discovered microscopical examination of faeces are commonly referred to as " *Entamoeba histolytica"*. It has now been generally accepted that the species called "*E. histolytica*" is in reality a complex of two species: *E. histolytica*, the potentially invasive parasite, and *E. dispar*, a commensal protozoan of the large intestine. The cysts and trophozoites of the two species are morphologically identical and it is not possible to distinguish both species microscopically. Microscopic confirmation of infection with true *E. histolytica* can only be made when haematophageous trophozoites with engulfed red blood cells are seen (1).

Amebic liver abscess is the most common extraintestinal manifestation of amebiasis. It is reported to occur in 3-9 % of all patients with intestinal infection (2). Amebic liver abscess is rarely seen among children. The majority of patients are males between 20 and 40 years of age (3). The classical clinical presentation is characterized by a one to two weeks history of fever and right upper quadrant abdominal pain (4). Amebic liver abscess might be mistakenly diagnosed as pyogenic abscess, necrotic hepatoma or echinococcal cyst. Differential diagnosis is sometimes difficult. Most of the patients diagnosed with an amebic liver abscess do not have coexistent dysentery, although a past history of dysentery is common (5).

In a previous study undertaken to identify cases of intestinal amebiasis using molecular tools, we did an extensive survey at Wonji Sugar Plantation and Akaki Fiber Factory where a high number of cases of "intestinal amebiasis" was reported using microscopy alone (6). Our findings in both areas, using a more sensitive and specific diagnostic test, the Polymerase Chain Reaction-Soluble Hybridization Enzyme Linked Immuno Assay or PCR-SHELA (7), proved that there was considerable over diagnosis of "intestinal amebiasis" while cases of truly invasive *E. histolytica* could not be found (6). Similar studies, elsewhere in Ethiopia, using Real Time PCR, confirmed these findings (8). In the present study, we focused on the clinical manifestation of extra-intestinal amebiasis. Because of the low incidence of such cases, we conducted a retrospective study, considering the risk of erroneous diagnoses imminent in retrospective clinical studies.

Methods

A retrospective study was conducted using clinical records of patients who were admitted to the medical

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wards of Tikur Anbessa Hospital, on suspicion of liver abscess during a 20-year period, from 1982 till 2002.

Four fifth year medical students at the Addis Ababa University reviewed all medical record books, discharge summaries, and death certificates of patients admitted in the medical wards over the specified period of time. In addition, patients' charts that indicate all suspected liver abscess cases were retrieved from the archive of the hospital using their record numbers.

The diagnosis of amebic liver abscess was based on clinical symptoms and signs, such as weight loss, fever, abdominal pain, tenderness, ultrasound results (reduction in abscess size), and a good response to therapy with metronidazole as shown by the disappearance of clinical symptoms. Demographic data like age, sex, place of origin, clinical features including duration, vital signs, physical findings and laboratory data, ultrasound, chest x-rays, outcomes of treatment and complications were recorded in a pre-prepared questionnaire.

Results

A total of 117,080 patients (on average 5854 patients per year) were admitted in the medical wards of Tikur Anbessa Hospital during the study period. Based on the information found in the hospital record books, discharge summaries, and death certificates, only 47 cases of liver abscesses were admitted and treated in the hospital between 1982 and 2002. The incidence of liver abscess was found to be 2.35 in 5854 cases per year, or 40.1 per 100,000 cases hospitalized in the medical wards.

The admission and discharge diagnosis of patients with liver-abscess over the past 20 years is shown in table 1. Among these liver abscess cases, the most common admission diagnosis was amoebic liver abscess 35 cases (74%) followed by pyogenic abscess 3 cases (6%). In 9 cases (19%), the etiology of the liver abscess remained undetermined (Table 1). The cumulative incidence of possible am;ebic liver abscess can be estimated to be 30.0 per 100,000 admissions at the medical wards of Tikur Anbessa Hospital (35 per 117,080). The cumulative incidence of pyogenic liver abscess in Ethiopia is 7.7 per 100,000 admissions in 20years.

As far as discharge diagnosis was concerned, the figures were very similar to that of the admission diagnosis i.e. 36 cases (77%) were amoebic liver abscess. Although there was one fatal case, the death was not related to the amebic liver abscess.

We were able to trace only 16 out of 47 patients from the hospital record archives. All of them were admitted in the period from 1995 up to 2002. For the remaining 31 cases no records were available. The admission and discharge diagnosis of the 16 patients were very similar to the total 47 patients from the record books alone. The mean age of the amebic liver abscess patients was 36 years (range 14-66), and there were more females (56%) than males (44%). The most common complaints were abdominal pain in the right upper quadrant (88%), fever (75%), hepatomegaly (69%), night sweating (63%), cough (56%), nausea and vomiting (56%) and poor appetite (50%) (Table 2).

The 16 patients were diagnosed on the basis of clinical symptoms and ultrasound findings, followed by improvement with metronidazole treatment. The right liver lobe was most commonly affected (94%), whereas the left lobe was affected in two cases of one case had both lobes affected. A single abscess was recorded among 69 % of cases, while multiple abscesses were documented in 31%.

Chest radiography abnormalities were noted in 13 out of the 16 patients (81%). Fever (75%), right upper quadrant pain (88%), tenderness and dullness to percussion (54%) and decreased air entry in the right post lung fluid (46%) were the most common physical findings recorded. The abnormalities included were elevation of the right hemi-diaphragm, point tenderness on the right lateral chest, right side pleural effusion or atelectesis and right-sided chest pain with dry cough in the range of 8 to 23%.

A wide variation and inconsistent recording was observed for clinical chemistry laboratory results of the 16 patients for whom the hospital records was available. Most of the parameters were elevated, i.e. erythrocyte sedimentation rate, creatinine, SGOT, SGPT, bilirubin total, bilirubin direct, and alkaline phosphatase (data not given).

Table 1: **Admission and discharge diagnosis of liver abscess cases at Tikur Anbessa Hospital: 1982-2002**

	Admission Diagnosis (%)			Discharge Diagnosis (%)			Total (%)
	ALA	Pyogenic	LA	ALA	Dead	NM	
1982-1986	11(79)	2(14)	1(7)	9(64)	0	5(36)	14(30)
1987-1991	3(43)	1(14)	3(43)	6(86)	0	1(14)	7(15)
1992-1996	12(80)	0	3(20)	14(93)	0	1(7)	15(32)
1997-2002	9(82)	0	2(18)	7(64)	1(9)	3(27)	1(23)
Total	35(74)	3(6)	9(19)	36(77)	1(2)	10(21)	47(100)

ALA = Amoebic liver abscess; LA = Liver abscess; Dead = died during hospitalization due to other causes
NM = discharge diagnosis not mentioned in the record book

Table 2: **Common clinical symptoms and signs among admitted liver abscess cases in Tikur Anbessa Hospital for whom the hospital card was available: 1995-2002**

	No. of cases (%)
SYMPTOM	
Right upper quadrant pain	14(88)
Fever	12(75)
Hepatomegaly	11(69)
Night sweating	10(63)
Cough	9(56)
Nausea/Vomitting	9(56)
Poor appetite	8(50)
Weight loss	7(44)
Epigastric pain	4(25)
Abdominal cramps	2(13)
Splenomegaly	2(13)
ULTRASOUND	
Right lobe affected	15(94)
Left lobe affected	2(13)
Single abscess	11(69)
Multiple abscess	5(31)

Discussion

Although documentation of records at Tikur Anbessa Hospital was far from satisfactory, we have tried to analyze the accessible data for the diagnosis of amoebic liver abscess over the past 20 years. Liver abscess in general appears to be very rare among admitted patients in the hospital. Due to the poor quality of record keeping and the unavailability of hospital records for many patients, the etiology of the liver abscess could not be ascertained in the majority of cases.

The low number of patients admitted with liver abscesses cases, on the other hand, is likely to reflect reality since the admission and discharge record books in the medical wards were presented well. Even if *E. histolytica* was the cause of the liver abscess in all cases in the study, the total number of cases of liver amebiasis would still be extremely low in view of the reported high number of cases of intestinal amebiasis. The discrepancy suggests either a massive underreporting of cases of hepatic amebiasis or an important overreporting of intestinal amebiasis. Intestinal amebiasis is one of the most commonly reported infections in Ethiopia. In a survey of 50 communities covering the central plateau of Ethiopia, "*Entamoeba histolytica*" was reported in 94% of the communities, the highest prevalence rate was 55% from the Blue Nile Gorge (9).

Because only a few uncommon diseases like pyogenic liver abscess were present with a combination of symptoms and signs similar to those of amebic liver abscess, the clinical diagnosis of amebic liver abscess is more reliable than that of intestinal amebiasis where as other causes of intestinal diseases may closely mimic amebiaisis. Therefore, we feel that it is appropriate not to stress fruithess attempts to differentiate amebic liver abscess from other cases abscess of the liver, in this retrospective study. Right upper quadrant pain, fever and hepatomegaly, all of which are the reported predominant clinical features, are seen in the majority of cases, pyogenic, amebic and other cases alike. Similar symptoms and signs have been described by others, in cases of liver amebiasis (10-12).

Most of the abscesses reported were solitary and in the right lobe. One of the strong arguments for the amebic nature of a liver abscess is the dramatic and quick response to metronidazole treatment (13-15). In all patients treated at Tikur Anbessa Hospital and which were classified as amoebic liver abscess, cases such a response was seen (data not given). It was also attempted to obtain direct evidence for the nature of the liver abscess cases studied. In four of the 16 cases, the abscess was aspirated, and in two of these cases the classical dark brown pus was seen. There is little doubt about the etiology of at least these cases. Finally, the laboratory findings appear to be unable to prove the etiology of the abscess but they were compatible with the diagnosis of "amebic liver abscess".

Documented extra-intestinal amebiasis appears to be rare in the literature found in Ethiopia. From Ras Desta Hospital in 1959 a case of pleurisy due to *E. histolytica* in the effusion was reported (16). In this case there were no signs of liver abscess, such as fever, leukocytoses, pain and tenderness, all of which are classical clinical symptoms of hepatic amebiasis. Though pleural effusion was seen in both sides, *E. histolytica* trophozoites were observed only in the right side. Similarly, two patients with left pleural effusion as a complication of amebic hepatic abscess were reported from Jimma Hospital (17). In this report, the classic dark-brown (chocolate-like) fluid was withdrawn from one of the patients only, but both of them responded well to metronidazole treatment. Apart from these two reports further data on extra-intestinal amebiasis in Ethiopia is lacking. Most of the liver abscess cases reported were probably of amebic origin.

However, the mere number of 35 suspected cases, which is less than two cases per year, is very little compared with hyper endemic areas like Mexico and Vietnam. In a hospital in Mexico city 50 confirmed amebic liver abscess cases were admitted in five years, which is 5 times more that higher than our findings (11). Similarly, high incidences of amebic liver abscess were reported from central Vietnam, 21 per 100,000 inhabitants (18) compared to 30 per 100,000 hospital admissions in Ethiopia. In non-endemic countries in Western Europe like Belgium, 36 cases of amebic liver abscess over a period of 8 years were reported, which is about 5 cases per year (13). Similarly, in Japan in a given hospital a total of 69 amoebic liver abscess patients have been reported over 12 years out of the 227 patients with intestinal amebiasis (14). It may be concluded that the findings of Amha *et al* (6), which reported over-diagnosis

of intestinal amebiasis in the study areas of Wonji and Akaki comply with the present findings. Without any doubt the transmission of truly invasive *Entamoeba histolytica* takes place, from time to time, but extra-intestinal amebiasis was shown to be a rare disease in the present study. Data from the Ministry of Health on the incidence of intestinal and extra-intestinal amebiasis in various regions suggest that there could be important differences. However, whether or not the findings documented at Tikur Anbessa Hospital reflect the situation elsewhere in Ethiopia requires further study.

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