

## Original Article

# Amebic Liver Abscess: Clinical Presentation and Diagnostic Difficulties

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**ABSTRACT**

**Objectives:** To identify the symptoms and signs of amebic liver abscess (ALA) in our population in order to establish early diagnosis.

**Subjects and Methods:** A prospective study was conducted in the Department of Surgery, Unit-I, Sir Ganga Ram Hospital Lahore, Pakistan, during the year 2000 to 2002 (2 1/2 years). All patients with a confirmed diagnosis of ALA during this period were included in the study. The detailed history and relevant clinical data including investigations and daily progress were recorded on proforma, later analyzed and compared with other studies.

**Results:** Fifty-three patients with ALA, accounting for 0.5% of yearly hospital admission were included in this study. The age ranged from 10 to 60 years (mean 29 years). The male to female ratio was 2.8 to 1. Upper

abdominal pain occurred in 90%, right upper abdominal quadrant pain in 70%, radiation to tip of right shoulder in 10%, fever in 85%, co-incident diarrhea in 7.5% and concurrent pulmonary symptoms in 26%. The most common signs were tender hepatomegaly in 79%, and jaundice in 20.7%. Abscess ruptured in 3.8% due to delayed diagnosis, and ruptured despite treatment in another 3.8%. Diagnosis was missed in 28% of the patients particularly those with atypical presentations. Ultrasonography (US) was useful in diagnosing ALA.

**Conclusion:** ALA has a highly variable presentation. Clinical diagnosis is difficult. Delayed diagnosis may result in rupture of abscesses. High index of clinical suspicion combined with US of abdomen is helpful in reaching an early diagnosis.

KEY WORDS: amebiasis, amebic liver abscess

**INTRODUCTION**

Amebic liver abscess (ALA) is the most common inflammatory space-occupying lesion of the liver. The causative agent is a protozoan, *Entamoeba histolytica*. Ten percent of the world population harbors *E. histolytica* in their colon, 10% of them may develop invasive amebiasis<sup>[1]</sup> and 1 to 10% of the patients develop amebic abscess in the liver<sup>[2,3]</sup>. ALA is common in tropical countries<sup>[4]</sup>. The colon is the initial site of infection. The protozoa reach the liver via the portal vein<sup>[5,6]</sup>. Amebiasis may involve any other site but the liver is the most common site for extra-intestinal infection<sup>[7]</sup>.

ALA has a highly variable presentation, causing diagnostic difficulties. As described by Berne<sup>[8]</sup>, ALA may mimic acute cholecystitis, perforated peptic ulcer, acute hepatitis, malignancy of biliary tree, liver, colon, stomach, cirrhosis, hydatid cysts, pancreatic pseudocysts, pneumonia, acute pleurisy with effusion, empyema, chronic lung disease, malignancy, tuberculosis and pyrexia of unknown origin.

Early and correct diagnosis of ALA is imperative, because delayed diagnosis and treatment leads to complications<sup>[9,10]</sup>. Complicated disease, e.g., peritoneal

rupture has mortality varying from 18 to 45%, while uncomplicated disease has negligible mortality<sup>[9,10]</sup>. This study was conducted to find out the different clinical presentations of ALA in our population and to find means of making an early diagnosis.

**PATIENTS AND METHODS**

The study was conducted prospectively over a period of 2 1/2 years in Surgical Unit-I of Sir Ganga Ram Hospital Lahore, Pakistan. All patients with the confirmed diagnosis of ALA were included in this study.

The diagnostic criteria were: clinical features, positive Indirect Hem-Agglutination Test > 1:512, abdominal ultrasonography, radiology, aspiration of anchovy sauce from the liver lesion, absence of bacteria and neutrophils on microscopy of liver aspirate, isolation of *E. histolytica* from the aspirate or stool of the suspected patient and/or findings on laparotomy.

During hospitalization the following tests were uniformly performed on the patients: proctosigmoidoscopy, complete blood and urine examination, serum alanine aminotransferase, alkaline phosphatase, serum albumin, urea

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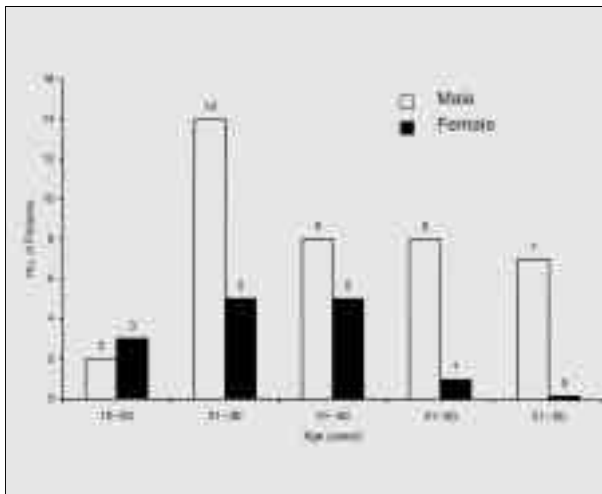


Fig 1: Distribution of age and sex

creatinine, Indirect Hem-Agglutination Test, hepatitis profile, examination of stool for ova and cysts, X-ray chest PA view, abdominal US, aspiration study of the lesion, if greater than 5 cm. and analysis of the peritoneal fluid in case of laparotomy for ruptured abscess.

All the data were recorded on appropriate proforma, analyzed and a comparison was made with the contemporary studies.

## RESULTS

Fifty-three cases of ALA, accounting for 0.5% of the total yearly admissions in Sir Ganga Ram Hospital Lahore, Pakistan, were included in the study. The age ranged from 10 to 60 years (mean 29 years). Maximum occurrence of ALA (19 patients, 35.8%) was in the age group 21 to 30 years (Fig. 1). There were 39 male and 14 female (male to female ratio = 2.8:1). The duration of symptoms ranged from seven to 148 days. Thirty-five patients (66%) presented within two weeks, and 47 (88.6%) within four weeks of the start of symptoms.

The initial clinical diagnosis was wrong in 19 patients (36%). Of the 42 patients clinically suspected of ALA, 38 (90%) had ALA confirmed on appropriate investigations, mainly US. The remaining four patients were excluded from the study; they were: two hepatoma patients, one empyema of gallbladder and one secondary tumor in the liver. Fifteen (28%) patients were misdiagnosed initially, as pneumonia four patients (in two of these, the abscess ruptured), perforated peptic ulcer three, acute hepatitis three, typhoid enteric perforation two, acute cholecystitis two, and secondary tumor one. Final diagnosis was clear after laparotomy, in the three patients misdiagnosed as perforated peptic ulcer, two as typhoid enteric perforation, and the two patients as pneumonia (in whom the abscess ruptured). In the remaining eight patients, further

**Table 1**  
Initial diagnosis vs. Final diagnosis

Initial diagnosis	Final diagnosis	Diagnostic modality	No. of patients
Pneumonia	Amebic liver abscess	US	2
Pneumonia	Amebic liver abscess	Lap	2
Acute typhoid perforation	Amebic liver abscess	Lap	3
Peptic ulcer perforation	Amebic liver abscess	Lap	3
Acute hepatitis	Amebic liver abscess	US	2
Acute cholecystitis	Amebic liver abscess	US	2
Multiple Secondaries	Amebic liver abscess	US+FNAC	1
Amebic liver abscess	Hepatoma	US + FNAC+	2
Amebic liver abscess	Empyema gall bladder	US	1
Amebic liver abscess	Metastatic Carcinoma	US+ FNAC	1

US= ultrasonography  
FNAC= Fine Needle Aspiration  
Lap= Laparotomy

**Table 2**  
Ultrasonographic findings (n=46)

Parameters	No. of patients	(%)
Solitary Abscesses	38	(82.6)
Multiple	8	(17.4)
Right Lobe	36	(78.2)
Left Lobe	4	(8.6)
Both Lobe	6	(13.0)
Right : Left	9:1	

investigations, mainly US, revealed the diagnosis of ALA (Table 1).

All the 53 patients presented with pain and tenderness. The pain was located, most commonly in the right hypochondrium in 37 patients (70%), in the whole abdomen in five (9.4%), lower chest in four (7.4%) and in the left hypochondrium in one (2%). Five patients (9.4%) had vague upper abdominal pain. Abscess pointed in the epigastrium in one patient (2%). Pain radiated to the tip of shoulder in 10 patients (19%). Forty-two patients (79%) had tender hepatomegaly and 11 (20.7%) had jaundice.

Fever was observed in 45 patients (85%), it was more than 39°C in 34 (64%). Four patients (7.4%) presented with new onset diarrhea and nine patients (17%) had this symptom for six months. Twenty-two patients (41.5%) had nausea and eight (15%) had anorexia.

Among the 14 patients (26%) with concurrent respiratory complaints, five (9.4%) had dyspnoea during routine activity and four (7.5%) had respiratory symptoms as the sole presentation.

However, 32 patients (60%) had positive respiratory signs of pleural effusion and/or basal crepitations corresponding to the side of the abscess. One patient (2%) had ALA aspirated 18 years back.

Of the 10 patients (19%) with ruptured ALA, five (9.4%) presented with already ruptured abscesses and acute peritonitis, in two (3.8%) the abscesses ruptured with resultant peritonitis during hospitalization, due to delayed diagnosis. In another two (3.8%) the abscess ruptured after 24 hours despite aspiration and metronidazole and one patient (2%) presented with ruptured left lobe abscess with localized peritonitis.

Forty-five patients (85%) had leukocytosis, 11 (22.6%) had anemia, 27 (50.9%) had abnormal liver function tests reflecting cholestasis and 47 (88.7%) had positive Indirect Hem-Agglutination test. The size of the abscess in the whole series ranged from three to 16 cm (average 10 cm.).

US performed in 46 patients, was the most accurate modality of diagnosis (findings summarized in Table 2). The remaining seven patients had emergency laparotomy and US was not performed.

Four patients (7.5%) having abscesses less than 5 cm responded to metronidazole only. In 40 patients (75.5%), with abscesses larger than 5 cm, US guided drainage/aspiration of the abscess was combined as a part of our routine. Eleven (20.7%) patients, including the two patients who progressed to rupture despite aspiration and metronidazole underwent open drainage.

## DISCUSSION

Pain and fever were the most common presenting features in this report. These findings in a young man from a low socioeconomic status should raise the suspicion of amebic liver abscess<sup>[10-18]</sup>. Diarrhoea is reported in 12-33% of the patients, in our cohort only 7.5% presented with this symptoms<sup>[5,11,18]</sup>.

Twenty-six percent of our patients had respiratory complaints without true amebic involvement of the chest, in confirmation with the reported incidence of 25 to 42%<sup>[11,19]</sup>. We did not see true thoracic amebiasis as a complication of ALAs in our series, though the reported incidence in the literature is 13 to 35%<sup>[20,21]</sup>.

Jaundice has been attributed to severe illness, large abscess compressing the porta hepatis, sepsis, peritoneal rupture, cholestasis<sup>[22,23]</sup> or abscess-biliary communication<sup>[24]</sup>. 20.7% (11/53) of patients presented with jaundice, which is in accordance with the literature, 6-33%<sup>[11,17,18]</sup>.

Like the clinical features, investigations too are neither sensitive nor specific. Indirect Hem-agglutination Test though positive in more than 90% of the patients<sup>[11]</sup>, (88.7% of our patients) may be of

limited value in endemic areas<sup>[25]</sup>. Isolation of ameba is specific but very difficult<sup>[10,26]</sup>. These investigations are neither helpful in the early diagnosis nor available at the time of making a decision<sup>[14]</sup>. Thus, ALA is difficult to diagnose and may be missed on initial clinical examination in about 30-69% patients<sup>[14,15]</sup>.

US is safe, economical and easily available, but is observer-dependent. The sensitivity of US is nearly 92 to 97%<sup>[7,11]</sup>. However, US features of ALA and other space occupying lesions of the liver, e.g., hepatoma, pyogenic liver abscess, etc. may overlap<sup>[26]</sup>. The combination of US findings with clinical features and aspirate analysis increases its sensitivity<sup>[7,11,26]</sup>. Therefore, in an endemic area, a patient with lower chest and upper abdominal symptoms with space occupying lesion should raise the suspicion of ALA.

## CONCLUSION

The typical features of ALA, which include pain, fever, and tender hepatomegaly, are nonspecific. ALA may be missed because of variable clinical features and atypical presentation. A high index of clinical suspicion in patients from an endemic area and low socioeconomic class combined with US, will improve the diagnostic accuracy.

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