

## Study of Clinical Presentation of Amoebic Liver Abscess

Shashank Desai,\* Vidhyasagar Sharma\*\*

### Abstract:

**Introduction :** Amoebic liver abscess (ALA) is a common and major health problem in India. ALA has a highly variable presentation, causing diagnostic difficulties. Early and correct diagnosis of Amoebic liver abscess is essential, because delayed diagnosis and treatment leads to complications which has significantly higher morbidity and mortality than uncomplicated disease. **Objective:** To find out different clinical presentations in order to establish early diagnosis of ALA. **Materials & Methods:** This retrospective, observational study was carried out in the Department of Surgery of GCS Medical College, Ahmedabad during January 2013 to December 2015. Inclusion criteria were defined. The data of patients were enrolled according to variables in performa predesigned for this study and analyzed. **Results:** 254 cases of ALA were enrolled with male to female ratio of 3.09:1. Right hypochondrial pain occurred in 98.4%, left hypochondrial pain occurred in 6.41%, pain radiating to tip of right shoulder in 8.02%, fever in 89.8%, coincident diarrhea in 34.6% and concurrent pulmonary symptoms in 9.4%. The most common signs were tender hepatomegaly in 96.1% and jaundice in 13%. 3.20% patients had past history of aspiration of ALA. 22 patients had ruptured abscess. Mortality rate was 3.20% amongst patients with ruptured ALA. Diabetes, hypertension, AIDS and alcoholism were commonly associated co morbidities. Right lobe (82.36%) is commonly involved than left lobe and single abscess (78%) was more common than multiple abscess. Diagnosis was missed in 14% patients particularly those with atypical presentations. Ultrasonography, Computerized tomography (CT) scan with diagnostic aspiration were useful in diagnosing 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 ultrasonography, US aspiration and CT scan will improve the diagnostic accuracy to reduce catastrophic complication as a result of delayed diagnosis.

**Key words:** Amoebic liver abscess, Clinical presentation

### Introduction:

Amoebic 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 amoebiasis. <sup>(1-3)</sup> ALA is common in tropical and sub-tropical countries especially India due to overcrowding and poor sanitation. <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>(2,3,7)</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 or stomach, cirrhosis, hydatid cysts, pancreatic pseudo cysts, pneumonia, acute pleurisy with effusion, empyema, chronic lung disease, 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. rupture has mortality varying from 18 to 45%, while uncomplicated disease has negligible mortality. <sup>(9,10)</sup> Despite tremendous improvement in the diagnostic accuracy, delayed diagnosis continues to occur. This study was conducted to find out different clinical presentation and its differential diagnosis which certainly helps early diagnosis of ALA to avoid catastrophic results of complications.

### Materials & Methods:

This retrospective, observational study was carried out in the Department of Surgery of GCS Medical College, Ahmedabad during January 2013 to December 2015. Inclusion criteria were: patient with confirmed

\* Associate Professor,

\*\* Assistant Professor, Department of Gen. Surgery GCS Medical College, Ahmedabad, Gujarat, India

Correspondence: sharma\_vidhyasagar@yahoo.com

diagnosis of ALA. Non amoebic liver abscess cases were excluded. The diagnostic criteria were: clinical features, abdominal ultrasonography, radiology, aspiration of anchovy sauce pus from the liver lesion, absence of bacteria and neutrophil on microscopy of liver aspirate and findings of laparotomy.

The data of patients were enrolled in preformed predesigned for this study in regards to age, sex, symptoms and signs and other positive history, findings of general, systemic examination and proctosigmoidoscopy, values of complete blood and urine examination, serum alanine aminotransferase(ALT), alkaline phosphatase, serum albumin, urea, creatinine, examination results of stool for ova and cysts, X-ray chest PA view, abdominal ultrasonography, aspiration study of the lesion if greater than 5 cm, computerized tomography (CT) scan and outcome of the disease. Total 254 patients were enrolled.

### Results:

254 cases of ALA, accounting for 2.6% of the total yearly admissions in GCS Medical College, Ahmedabad were included in the study. The age ranged from 15 to 60 years (mean 35 years). There were 192 males and 62 females (male to female ratio = 3.09:1). Age and sex distribution is shown in table 1.

**Table 1: Age and sex distribution of patients with Amoebic liver abscess**

Age (Years)	Male		Female		Total	
	No.	%	No.	%	No.	%
<20	18	7.1	7	2.8	25	9.8
21-30	28	11.0	12	4.7	40	15.7
31-40	62	24.4	24	9.4	86	33.9
41-50	54	21.3	12	4.7	66	26.0
>50	30	11.8	7	2.8	37	14.6
Total	192	75.6	62	24.4	254	100.0

The duration of symptoms ranged from 7 to 60 days. 131 patients (51.57%) presented within two weeks, 94 (37%) patients within four weeks, 24(9.44%) patients within six weeks and 5 (1.9%) patients after 6 weeks of onset of symptoms.

Most of the patients presented with pain and tenderness. The pain was located, most commonly in the right hypochondrium. Abscess pointed in the right hypochondrium in one patient (0.53%). 244 (96.1%) patients had tender hepatomegaly. 88(34.6%) presented with diarrhea. Among the 24(9.4%) patients with concurrent respiratory complains, 16 had dyspnoea during routine activity and 8 patients had respiratory symptoms as the sole presentation. However, 49 patients had positive respiratory signs of pleural effusion and/or basal crepitation corresponding to the side of the abscess which was evident in x-ray chest. 6 patients had past history of aspiration of ALA.

Of the 22(8.7%) patients with ruptured ALA, 20 presented with already ruptured abscess and acute peritonitis, in 2 patients the abscess ruptured with resultant peritonitis during hospitalization due to delayed diagnosis. In 9 patients, the abscess ruptured after 24-48 hours despite aspiration and metronidazole treatment. In 3 patients presented with ruptured left lobe abscess with localized peritonitis and 8(4.27%) patients had rupture below the right dome of diaphragm and/or in right thoracic cavity without signs and symptoms of peritonitis. Mortality rate was 3.20% (6 patients) in patients with ruptured ALA. Ultrasonography was performed in all patients, the findings of which were summarized in table-4. 10.16%(19) patients having abscess<5 cm sized responded to metronidazole alone and rest of the patients and patients with abscess size >5 cm treated with metronidazole with aspiration of abscess. However out of them 9 patients developed rupture despite these treatment and 20 patients already presented with rupture underwent laparotomy and open drainage. Patients with rupture in right thoracic cavity treated with intercostal drainage tube insertion with metronidazole and aspiration of ALA.

### Discussion:

Amoebic liver abscess is widely prevalent in the Indian subcontinent.<sup>(11-13)</sup> In this study, the most common age affected was the 20-40 year age group and male to female ratio was 3.09:1. Similar results have been obtained by other studies also.<sup>(10,13)</sup> Pain and fever were the most prevailing features in this study. So, pain and fever in a young man from a lower socioeconomic status should raise the suspicion of amoebic liver abscess.<sup>(14-21)</sup> Diarrhea was present in 36.37% of

**Table 2: Presenting manifestations of patients with Amoebic liver abscess at time of admission**

Symptoms	No. of patients	%	Signs	No. of patients	%
Abdominal Pain	250	98.4	RHC Tenderness	244	96.1
Fever > 100 ° F	228	89.8	Acute Abdomen	22	8.7
Anorexia	242	95.3	Icterus	33	13.0
Nausea	248	97.6	Ascites	8	3.1
Jaundice	42	16.5	--		
Diarrhoea	88	34.6			
Cough with expectoration	24	9.4			

**Table 3: Co-morbidities in patients with Amoebic liver abscess**

Co-morbid conditions	Frequency	%
Diabetes Mellitus	28	11.0
Hypertension	42	16.5
Diabetes Mellitus & Hypertension	16	6.3
Ischemic heart disease	36	14.2
Chronic obstructive pulmonary disease	12	4.7
Acquired Immunodeficiency Syndrome	5	2.0
Alcohol Intake	84	33.1

**Table 4 : Ultrasonography findings in patients with Amoebic liver abscess**

Sr. No.	USG Findings	No. of Pts.	%
1	Hepatomegaly	188	74.0
2	Abscess	218	85.8
3	No. of Abscess		
	a. Single	198	78.0
	b. Multiple	20	7.9
4	Size of Abscess		
	a. < 5 cms	166	65.4
	b. > 5 cms	52	20.5
5	Findings of Rupture	22	8.7

patient, however in other studies it is reported as 9%.<sup>(14, 15, 21)</sup> Jaundice has been attributed to severe illness, large abscess compressing the portahepatis, sepsis, peritoneal rupture.

In our study 16.5% patients had jaundice which is comparable to other literature.<sup>(20, 21)</sup> 11.22% of patients had signs and symptoms of peritonitis from which it is difficult to diagnose ALA without necessary investigations. 9.4% patients had respiratory symptoms alone without any specific symptoms of ALA which is comparable to other studies.<sup>(14, 22)</sup> Other co morbidities like diabetes, hypertension, ischemic heart disease, HIV etc. are commonly associated with ALA which makes the clinical picture diffuse. However

association between alcoholism and ALA is strong as alcoholism causes hepatic damage which predisposes to organ invasion and it also suppresses the production of amoebistatic substance in the liver. So, patients with alcoholism tend to have larger and multiple abscesses, greater frequency of complications and delayed resolution of abscesses.<sup>(1, 7, 8)</sup> Like the clinical features, investigations too are neither sensitive nor specific. According to some literature, indirect haemagglutination test is positive in >90% of cases<sup>14</sup> but may be of limited value in endemic areas.<sup>(23, 24)</sup> Isolation of amoeba is specific but very difficult. These investigations are neither helpful in the early diagnosis nor available at the time of making decision.<sup>(17, 25, 26)</sup>

Thus, ALA is difficult to diagnose and may be missed on initial clinical examination like in 30.48% of patients as in our case which coincides with other studies also.<sup>(17,18)</sup> Ultrasonography is safe and economic, but is observer-dependent. The sensitivity of ultrasonography is nearly 92 to 97%.<sup>(7, 17)</sup> However, ultrasonography features of ALA and other space occupying lesions of the liver like hepatoma, hemangioma may overlap, but sensitivity of ultrasonography may be enhanced by ultrasonography guided needle aspiration which also has therapeutic value.<sup>(7,14,27-29)</sup> Nowadays availability of computerized tomography (CT) scan also have pivotal role but may not be available in remote area where clinical suspicion, laboratory investigations have only use. So in these settings, other differential diagnosis also has to be kept in mind.

### 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 ultrasonography, US aspiration and CT scan will improve the diagnostic accuracy to reduce catastrophic complication as a result of delayed diagnosis.

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