

## Clinical study of amoebic liver abscess and its management: An analysis of 40 cases

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### Abstract

**Aim and Objective:** To study the clinical presentation of patients with amoebic liver abscess (ALA) and to suggest various modalities for its diagnosis and management.

**Methods:** A total of 40 patients of ALA were enrolled in the study. SPSS version 25.0 was used for Statistical Analysis. Chi-square test was used. A 'p' value less than 0.05 was considered statistically significant.

**Results:** Age of patients ranged from 11 to 70 years. All patients presented with abdominal pain (100%). Majority presented with fever (72.5%) and nausea/vomiting (67.5%). Weight loss (42.50%), cough (32.50%), anorexia (27.50%) and diarrhoea (25.00%) were other common presenting complaints. Alcohol use was reported by 62.5%. Hypochondrial tenderness (60%) and hepatomegaly (52.5%) were clinical findings present in majority of the patients. Chest X-ray revealed pleural effusion in 40% cases. Size of abscess assessed by USG ranged between 7.29-220 cm<sup>2</sup>. Out of 40 patients, 18 (45.00%) were treated conservatively. Other treatment modalities used were pigtail insertion (25.00%), USG guided needle aspiration (20.00%), laparotomy (5.00%), both USG guided needle aspiration and Pigtail insertion was done in 5% cases.

**Conclusion:** ALA is a problem mainly associated with lower socioeconomic strata with alcoholism as a strong risk factor. Timely intervention following a systematic diagnostic approach avoids the adverse outcomes. Community studies to recognize the potential risk factors and to suggest preventive strategies are recommended.

**Keywords:** amoebic liver abscess, laparotomy, alcoholism

### Introduction

Liver abscesses are quite rare in the Western countries; however in developing countries like India, they are quite common among the patients attending the OPD services of a hospital. Recent years have seen emergence of new threats that pose the risk of liver abscesses as a result of immunosuppression following organ transplantation, Human Immuno Deficiency Virus (HIV), diabetes and cirrhosis, thus multiplying this risk manifold<sup>[1]</sup>.

Liver abscesses, both amoebic and pyogenic, continue to be an important cause of morbidity and mortality in tropical countries. However, recent advances in interventional radiology, intensive care, progress in antibiotic therapy, and liberal use of Sonography and computerized tomography scanning of the abdomen have led to early diagnosis and treatment of patients with liver abscess, thus improving the patient outcome. Percutaneous drainage of liver abscess has been an important advancement in the treatment of pyogenic liver abscess<sup>[2]</sup>. The primary mode of treatment of amoebic liver abscess is medical; however as many as 15% of amoebic abscess may be refractory to medical therapy<sup>[3]</sup>. Also, secondary bacterial infection may complicate 20% of amoebic liver abscess<sup>[4]</sup>. In such patients and in patients with pyogenic liver abscess, surgical drainage has been the traditional mode of treatment<sup>[5]</sup>. However, operative drainage is associated with significant (10-47%) morbidity and mortality. Owing to these specificities, it is of interest to explore the clinical profile, diagnostic features and management protocol in a clinical situation so as to understand the problem in a better way. Hence, the present study was planned to be carried out as a clinical study of

amoebic liver abscess in patients presenting to a tertiary care centre in North India.

### Aim and objectives

1. To study the clinical presentation of patients with amoebic liver abscess.
2. To study various modalities for diagnosis of amoebic liver abscess.
3. To study the management of amoebic liver abscess.

### Material and Methods

The study was conducted in the Department of General Surgery, Government Doon Medical College & Hospital from December 2017 till December 2018 on 40 patients who were admitted from casualty and outpatient department with a provisional diagnosis of amoebic liver abscess (ALA). The diagnosis of ALA was based on the meticulous history, complete physical examination, amoebic serology and ultrasound examination.

Patients diagnosed with pyogenic liver abscess were excluded from the study.

### The patients in the study group were subjected to

1. A complete general medical and physical examination.
2. Investigations like Complete Haemogram, Liver function test, Prothrombin time, Serum creatinine, amoebic serology test, ECG, Stool examination. Ultrasound Abdomen, Chest X-ray, Aspirate Microscopy/ Culture & sensitivity tests. All patients were counselled on their disease and due consent was taken for any procedure performed. Amoebic liver abscess was diagnosed usually

as a solitary abscess on ultrasonography or aspiration of anchovy sauce like pus. Medical treatment consisted of antibiotics on the basis of culture and sensitivity reports and intravenous metronidazole. Empirical antibiotics were started in patients in whom culture was sterile. For those who did not responded to therapy in three days, chloroquine was added, followed by Diloxanide Furoate to eliminate luminal infection. Paediatric patients received age appropriate doses.

Needle aspiration was done in the following patients: 1. Those in which the size of the abscess cavity was greater than five centimeters on initial ultrasonography. 2. Those in the left lobe of the liver. 3. Failure of therapy in three days and especially if difficult to differentiate from pyogenic abscess. 4. Age older than 55 years.

Pigtail catheter drainage was reserved for those where the pus was deemed too thick for aspiration. Surgical drainage (laparotomy) was carried out only in two patients for the complication of abscess perforation leading to perforation peritonitis. All collected pus was sent for gram staining, culture and sensitivity, aspirate microscopy for isolation of E. histolytica and amoebic serology test. A meticulous record of the demographic data, clinical presentation, radiological findings, laboratory reports, procedures performed, clinical progress, complications, duration of hospital stay was maintained in a specially prepared proforma for this purpose. A statistical review of all relevant data was done.

**Results**

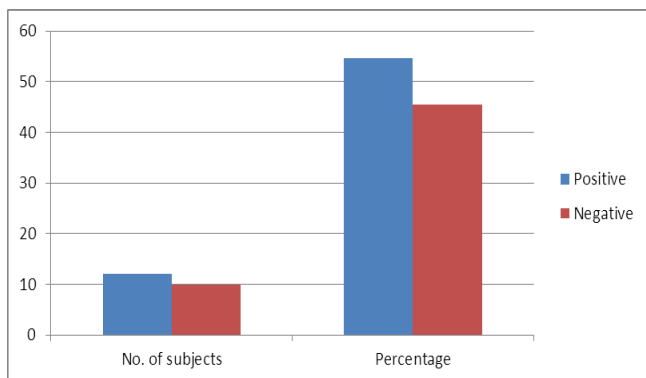
In age groups 21-30, 31-40 and 51-60, all the patients were males.

Proportion of females in age group Upto 20, 41-50 and >60 years was 25.00%, 12.50% and 100% respectively. Association of age and gender was found to be statistically significant (p=0.005).

**Table 1:** Association of Age and Gender

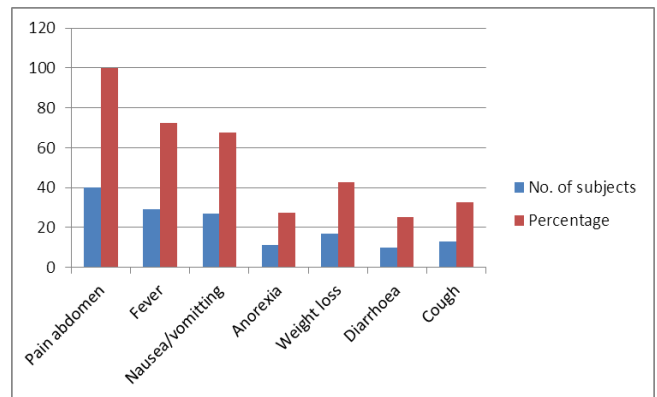
Age Group (years)	Females (n=3)		Males (n=37)		Total (N=40)	
	No.	%	No.	%	No.	%
Upto 20	1	25.00	3	75.00	4	10.0
21-30	0	0.00	11	100.00	11	27.5
31-40	0	0.00	14	100.00	14	35.0
41-50	1	12.50	7	87.50	8	20.0
51-60	0	0.00	2	100.00	2	5.0
>60	1	100.00	0	0.00	1	2.5

$\chi^2=16.577(df=5); p=0.005$



**Fig 2:** Distribution of subjects according to amoebic serology (n=22)

Amoebic serology was done in 22 patients only. Serological findings were positive in 12 (54.55%) and negative in rest 10 (45.45%).

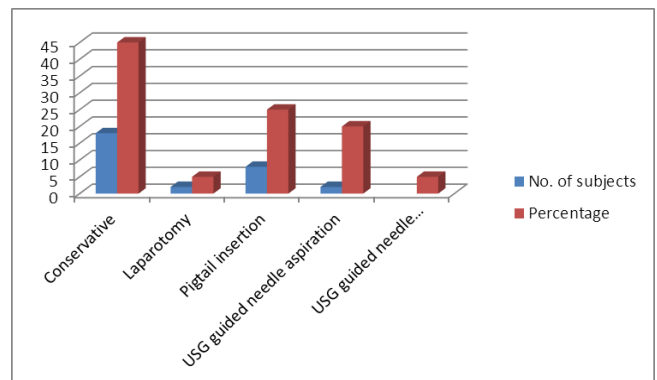


**Fig 3:** Incidence of presenting symptoms in study subjects

Pain in abdomen was presenting symptom in all the patients. Fever (72.50%) and nausea & vomiting (67.50%) were present in majority of the patients. Weight loss (42.50%), cough (32.50%), anorexia (27.50%) and diarrhoea (25.00%) were other presenting symptoms.

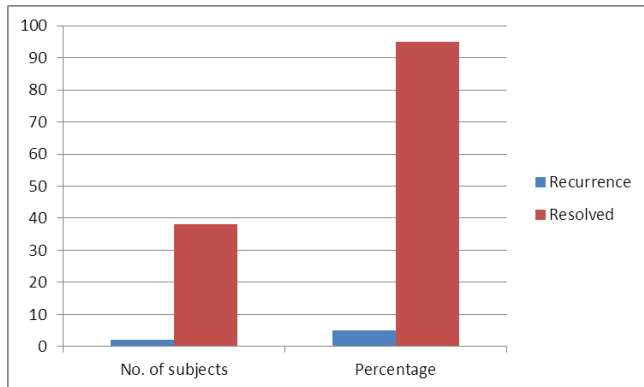
**Table 4:** Haematological/Biochemical profile of study subjects

Variable	No.	Min.	Max.	Mean	SD
Hb	40	4.9	14.1	10.67	1.89
TLC(x100)	40	2650	32000	14069	6915
DLC(Polymorphs)	40	28	95	78.58	13.22
DLC(Lymphocyte)	40	4	65	15	11.54
DLC(Eosinophil)	40	0	7	2.83	2.16
DLC(Monocytes)	40	0	10	3.2	2.11
Blood urea	40	20	140	47.29	30.08
S.Creatinine	40	0.58	2.7	1.11	0.47
S.Bil. Total	40	0.2	4.3	1	0.8
S.Bil. Direct	40	0.1	1.6	0.44	0.37
SGOT	40	13	816	101.95	157.16
SGPT	40	14	652	82.23	117.93
ALP	40	62	497	201.87	109.24
Total Protein	37	4.5	7.9	6.2	2.97
S.Albumin	37	2	4	2.97	0.52
PT	40	12	35	16.88	4.52
INR		1	2.9	1.51	0.43



**Fig 4:** Distribution of study subjects according to treatment

Most common treatment was conservative (45.00%), followed by pigtail catheter drainage (25.00%) and then USG guided needle aspiration (20.00%). Laparotomy was done in 2 (5.00%) patients. USG guided needle aspiration followed by pigtail catheter drainage was done in 2 (5.00%) patients.



**Fig 5:** Final outcome of study subjects (n=40)

Out of 40 subjects, liver abscess resolved in 38 and in only 2 cases recurrence was reported.

## Discussion

Hepatic or liver abscesses are localised collections of necrotic inflammatory tissue caused by bacterial, parasitic or fungal agents.<sup>[6]</sup> The two most common abscesses being pyogenic and amoebic. In our settings, amoebic liver abscess (ALA) are relatively more common and potentially life-threatening complications of infection with the protozoan parasite *Entamoeba histolytica*. *E. histolytica* is widely distributed throughout the tropics and subtropics, causing up to 40 million infections annually. The parasite is transmitted via the fecal-oral route, and once it establishes itself in the colon, it has the propensity to invade the mucosa, leading to ulceration and colitis, and to disseminate to distant extra intestinal sites, the most common of which is the liver. According to WHO fact sheet, it is prevalent throughout the under developed and developing nations of the tropics with up to 50 million true *E. histolytica* infections and approximately 100,000 deaths occur each year mostly from liver abscesses or other complications<sup>[7]</sup>. Despite its medical importance, little is known about the current epidemiology of amoebic liver abscess but it is assumed that the disease is prevalent within *E. histolytica* endemic countries. Owing to lack of systematic literature, its clinical identification and subsequent management is challenging. Considering this fact, the present study was carried out in order to study the clinical presentation and diagnosis of patients with amoebic liver abscess and to subsequently studies the management of amoebic liver abscess. The age profile of patients in present study is close to that reported by Kebede *et al.* (2004)<sup>[8]</sup> who reported the age range of patients from 14 to 66 years and mean age 36 years. Overview of the age profile of amoebic liver abscess also shows that the problem is mainly restricted to less developed or developing countries only. In present study, majority of patients (92.5%) were males. The male to female ratio was phenomenally high at 12.33. Similar to age profile variability in gender profile of patients of amoebic liver abscess has also been shown in literature. In present study, serological positivity rate was 54.55%. In present study, we used combined criteria for recognition of amoebic liver abscess based on the history, complete physical

examination, amoebic serology and ultrasound examination. Contrary to this several studies have based their diagnosis on the basis of seropositivity alone<sup>[9-11]</sup>. One of the reasons for excluding the seropositivity as the inclusion criteria was the fact that a number of patients in our series had a previous history of treatment and antibiotic intake which might have affected the serological results and hence serological assessment as the sole criteria was ruled out. Similar to our methodology, Haque *et al.*<sup>[12]</sup> also based their diagnosis on the basis of multiple diagnostic criteria instead of basing their diagnosis on serology alone. In present study, conservative management was done in 45% cases whereas in remaining 55% - three different surgical modalities were used. In general medical management is the primary mode of Similar to our study, Zafar *et al.* (2002)<sup>[13]</sup> also used conservative management as the primary mode of treatment depending on the size of liver abscess. The proportion of patients undergoing medical management varies in different series depending on the clinicopathological profile of the patient. Djossou *et al.* (2003)<sup>[14]</sup> in their study reported use of medical management in 65% of their patients. In another study, Memon *et al.* (2010)<sup>[15]</sup> also adopted conservative management approach in 55% of their patients.

Among different interventions, Pigtail insertion (25%) was most common followed by USG aspiration (20%), Laparotomy (5%). Both USG guided needle aspiration and Pigtail insertion was done in 5% cases. Percutaneous pigtail approach is one of the preferred approaches for interventional management of amoebic liver abscesses. Lokanandham (2015)<sup>[16]</sup> in their study used variable interventions – of which pigtail drainage was more common (22.5%) as compared to open surgery (5.8%). No doubt minimal invasive techniques like percutaneous drainage using pigtail catheter and USG guided needle aspiration are better than open procedure but their usefulness in larger abscesses is often doubted<sup>[17]</sup>. In present study we also followed the same strategy in mind. In present study, success rate was 95%. This is close to success rate of 96.3% as reported by Zafaret *al.* (2002)<sup>[13]</sup>. The success rate has been reported to be dependent on mode of treatment used. Aras *et al.* (2005)<sup>[18]</sup> in their study reported success rate of 88.1% while using a conservative management approach whereas Jha *et al.* (2015)<sup>[19]</sup> reported it to be successful in 100% of cases undergoing percutaneous catheter drainage.

## Conclusion

ALA is a problem mainly associated with lower socioeconomic strata with alcoholism as a strong risk factor. Timely intervention following a systematic diagnostic approach avoids the adverse outcomes. Community studies to recognize the potential risk factors and to suggest preventive strategies are recommended.

## References

1. Rajagopalan S, Langer V. Hepatic abscesses. Medical J. Armed Forces. 2012; 68:271-275.
2. Singh S, Chaudhary P, Saxena N, Khandelwal S, Poddar DD, Biswal UC. Treatment of liver abscess: prospective randomized comparison of Catheter drainage and needle aspiration. Annals of Gastroenterology. 2013; 26:1-8.
3. Thompson JE, Firenze S, Verma R. Amoebic liver abscess: a therapeutic approach. Rev Infect Dis. 1985; 7:171-179.

4. Drooley JS, Lok A, Burroughs AK, Heathcote J (Eds) Sherlock's Diseases of the Liver and Biliary System. 12th Ed. Wiley-Blackwell, 2011, 635-637.
5. Theron P. Surgical aspects of amoebiasis. Br Med J. 1947; 2:123-126.
6. Krige JEJ, Beckingham IJ. ABC of diseases of liver, pancreas, and biliary system: Liver abscesses and hydatid disease BMJ. 322 (7285):537.
7. WHO. Scientific Working Group: Parasitic Related Diarrhoeas. Bull World health Organization. 1980; 58(6):819-830.
8. Kebede A, Kassa E, Ashenafi S, Woldemichael T, Polderman AM, Petros B. Amoebic liver abscess: A 20-year retrospective analysis at Tikur Anbessa Hospital, Ethiopia. Ethiop. J. Health Dev. 2004; 18(3):199-202.
9. Lodhi S, Sarwari AR, Muzammil M, Salam A, Smego RA. Features Distinguishing amoebic from pyogenic liver abscess: A review of 577 Adult cases. Trop Med Into Health. 2004; 9:718-23.
10. Cosme A, Ojeda E, Zamarreño I, Bujanda L, Garmendia G, Echeverría MJ. Pyogenic versus amoebic liver abscesses. A Comparative clinical study in a series of 58 patients. Rev Esp Enferm Dig. 2010; 102(2):90-99.
11. Sharma N, Sharma A, Varma S, Lal A, Singh V. Amoebic liver abscess in the medical emergency of a North Indian hospital. BMC Research Notes. 2010; 3:21.
12. Haque R, Mollah NU, Ali IKM, Alam K, Eubanks D, Petri WA. Diagnosis of Amoebic Liver Abscess and Intestinal Infection with the Tech Lab Entamoebahistolytica II Antigen Detection and Antibody Tests. Journal of Clinical Microbiology. 2000; 38(9):3235-3239.
13. Zafar A, Ahmed S. Amoebic liver abscess: a comparative study of Needle aspiration versus conservative treatment. J Ayub Med Coll Abbottabad. 2002; 14(1):10-12
14. Djossou F, Malvy D, Tamboura M, Beylot J, Lamouliatte H, Longy-Boursier M, *et al.* Amoebic liver abscess. Study of 20 cases with Literature review. Rev Med Interne. 2003; 24(2):97-106.
15. Memon AS, Siddiqui FG, Memon HA, Ali SA. Management of Ruptured Amoebic Liver Abscess: 22-Years Experience. J Ayub Med Coll Abbottabad. 2010; 22(2):96-99.
16. Lokanadham D. Clinical Study of Liver Abscess at a Tertiary Care Hospital. International Journ. 2015; 15(3):654-656.
17. Amin AB, Patel RD, Doshi C, Bhuvu AV. A comparative study of Different modalities of treatment of liver abscesses. IAIM. 2015; 2(4):11-16.
18. Abdullah AA. Clinical analysis of Amoebic Liver Abscess in Sulaimany governorate. IJGE. 2005; 5(1):63-67.
19. Jha AK, Das A, Chowdhury F, Biswas MR, Prasad SK, Chattopadhyay S. Clinic pathological study and management of liver abscess in a Tertiary care centre. Journal of Natural Science, Biology, and Medicine. 2015; 6(1):71-75.