

## Original Research Article

# Study of clinical presentation, management and prognosis of liver abscess

S. Surendran, V. Vallipriya\*

Department of General Surgery, Government Medical College Hospital Ramanathapuram, Tamil Nadu, India

**Received:** 25 April 2022

**Revised:** 07 May 2022

**Accepted:** 10 May 2022

**\*Correspondence:**

Dr. V. Vallipriya,

E-mail: [drvallipriya@gmail.com](mailto:drvallipriya@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** The term "liver abscess" refers to a collection of pus in the parenchyma of the liver mainly due to the infection of microorganisms. If a liver abscess is not diagnosed early or not treated, it can be fatal, resulting in significant morbidity and mortality. Aim of the study was to study the clinical manifestations, aetiologies, and management of liver abscesses in tertiary care hospital patients.

**Methods:** From March 2015 to August 2016, 99 patients with liver abscesses were studied in the general surgery wards of government Rajaji hospital in Madurai. In the beginning, routine examination history and blood tests were documented. Then, an ultrasound was performed in selected cases, and further treatment was performed.

**Results:** In the current study, the most cases (48%) were from the age group of 41-50 years. We discovered that this disease is more common in men (97.97%), mainly with a history of alcohol intake, with an amoebic liver abscess (ALA) in 95% of cases. Abdominal pain (100%) and fever (57%) were the most common symptoms observed in the patients. For treatment, we used single aspiration in 30 (30.3%) cases, percutaneous catheter drainage in 25 (25.25%) cases, laparotomy and drainage in 22 (22.22%) cases, multiple aspirations in 19 (19.09%) cases, and conservative management in 3 (3.03%) of the cases.

**Conclusions:** Liver abscesses are most commonly found in young males with a history of alcohol consumption. Unfortunately, it is still a disease that causes significant morbidity. To successfully manage the liver abscess aspiration, catheter drainage and laparotomy with drainage can be used, whether single or multiple.

**Keywords:** Liver abscess, Pyogenic liver abscess, ALA, Single/ multiple aspiration

### INTRODUCTION

The diagnosis and treatment of liver abscess remain a major challenge for the healthcare world. If left untreated, it is a potentially fatal and life-threatening condition. As a result, it is critical to obtain an accurate diagnosis and intervention as soon as possible. An ALA and pyogenic liver abscess (PLA) are the main types of liver abscess.<sup>1</sup> In developing countries, amebiasis is expected because of unhygienic environments and poor facilities for sanitization. There is mounting evidence that amoebiasis affects approximately 10% of the world's population. ALA abscess is the most common extraintestinal

manifestation of *Entamoeba histolytica* and protozoans, affecting 3-9% of patients.

Liver abscess is considered endemic in India. It can manifest as acute abdomen pain that necessitates an emergency laparotomy. In a liver abscess, extraperitoneal and retroperitoneal rupture, spontaneous intraperitoneal rupture, and intrathoracic rupture are common. Therefore, delays in diagnosis may result in the rupture of a liver abscess, increasing morbidity and mortality.<sup>2</sup> A PLA is a liver lesion that takes up a lot of space and has severe consequences for the patient's health. Pyogenic liver abscess is a pus-filled infection of hepatic parenchyma

cells with a high morbidity and mortality rate.<sup>3</sup> PLA shows approximately 40% of cases with the complication of biliary tract diseases. As per a recent report, PLA aetiologies have been changed from intra-abdominal infections such as trauma and acute appendicitis to biliary tract pathological conditions. However, up to 55% of PLA cases are cryptogenic without any clear risk factors. PLA is a polymicrobial infection due to the path of disease ascending from the gastrointestinal tract, and it is a rare condition. PLA incidence ranges from 8 to 22 patients per 1,000,000 people.<sup>3</sup> Clinical symptoms are prevalent in both amoebic liver and PLA, making early diagnosis difficult.<sup>4</sup> In the present study, the incidence, aetiology, clinical signs and symptoms, and management of liver abscess were observed in the patients who attended the general surgery wards of government Rajaji hospital, Madurai.

## METHODS

In this prospective study, 99 patients with liver abscesses were included from March 2015 to August 2016, in the general surgery wards of government Rajaji hospital in Madurai. Cases with hydatid cyst, solid masses and primary and secondary liver malignancy were excluded from the study. Ethical committee approval obtained before recruiting patients. Consecutive sampling method were followed. Therefore, only 99 cases of liver abscess were included in the study. All patients underwent routine clinical examination of the liver abscess by taking a history of patients. We have performed all blood tests, clinical examination, X-ray abdomen AP view, chest X-ray PA view, CT scan of the abdomen (In selected cases), ultrasound of abdomen and culture and sensitivity of the aspirate.

All patients in the study gave signed consent and data were collected on a standard form that included demographic characteristics, clinical presentation of liver abscess, risk factors of liver abscess, coexisting medical conditions, laboratory tests (i.e., microbiological culture from blood and/or aspirate, stool examination, amoebic serology), type of imaging study, abscesses characteristics (i.e., site, size and numbers of abscesses), type of interferences and duration of admission. The choice of interventions was delegated to the consultants in charge of the patient's treatment. The patients were examined daily for clinical improvement. Improvement in pain, fever, anorexia and hepatomegaly were considered criteria for successful treatment. Data were collected, analyzed and presented as frequency and percentage.

## RESULTS

A total of 99 patients with liver abscesses from different age groups were studied. Patients with both types of liver abscesses ranged from 30 to 70 years old, with 97 men and 2 women who participated in this study. In the current study, the maximum cases were 48 (48%) from

the age group of 41-50 years, followed by 20 (20.20%) cases from 51-60 years, 16 (16.16%) cases from 30-40 years, and 15 (15.15%) among those over the age of 60. We noticed that this disease is more common in males (97.97%) than in females (2.02%). Out of 99 cases, we found that 61 had an alcohol intake history, amoebic abscess accounted for 58 (95%), and pyogenic abscess cases accounted for 3 (5%) Table 1.

**Table 1: Patient characteristics of study patients.**

Patient characteristics	Frequency	Percentage (%)	
Age (years)	30-40	16	16.2
	41-50	48	48.5
	51-60	20	20.2
	>60	15	15.2
Gender	Male	97	98
	Female	2	2
History of alcohol intake	Amoebic (ALA)	58	58.6
	Pyogenic (PLA)	3	3

### *Clinical manifestations, signs, and lobe-by-lobe distribution of liver abscess in patients*

PLA and ALA es have identical clinical representations. All 99 cases of liver abscess in the current study experienced abdominal pain. Abdominal distension was present in 51 (51.51%) of the cases, fever was present in 57 (57.57%), and dysentery was present in 16 (16.16%) of the cases. Clinical representation of a liver abscess includes fever, right upper quadrant tenderness, and increased inflammatory markers. All cases showed intercostal tenderness and hypochondrial pain. Hepatomegaly was found in 49.49% of the cases. In 25 (25.25%) and 12 (12.12%) of the cases, Jaundice and epigastric mass were found in the cases. The most common type of abscess in the present study's 99 cases was right lobe abscess 70 (70%). There were 8 (8.08%) instances of left lobe abscess, 5 (5.05%) instances of multiple abscesses, and 21 (21.21%) instances of a ruptured abscess Table 2.

### *Management, cases of co HIV infection, and mortality in liver abscess patients*

In our study, we used single aspiration in 30 (30.3%) of the cases, percutaneous catheter drainage in 25 (25.25%) of the cases, laparotomy and drainage in 22 (22.22%) of the cases, multiple aspirations in 19 (19.09%) of the cases, and conservative management in 3 (3.03%) of the cases Table 2.

Approximately 3 (3.03%) of male amoebic liver abscess patients also had HIV infection in the current study. In addition, we discovered the one death (1.01%) of a 70-year-old man who died after undergoing laparotomy and drainage treatment for a ruptured amoebic liver abscess.

**Table 2: Clinical manifestations of study patients.**

Patient characteristics		N	%
<b>Clinical symptoms</b>	Abdominal pain	99	100
	Fever	57	57.6
	Abdominal distension	51	
	Dysentery	16	16.2
<b>Clinical signs</b>	Right hypochondrial tenderness	99	100
	Intercostal tenderness	99	100
	Hepatomegaly	49	49.5
	Jaundice	25	25.3
	Epigastric mass	12	12.1
<b>Lobe wise distribution of liver abscess</b>	Right lobe	70	70.7
	Ruptured abscess	21	21.2
	Left lobe	8	8.1
	Multiple abscesses	5	5.1
<b>Treatment</b>	Single aspiration	30	30.3
	Percutaneous catheter drainage	25	25.3
	Laparotomy and drainage	22	22.2
	Multiple aspirations	19	19.2
	Conservative management	3	3

## DISCUSSION

Both ALA and PLA are frequent and have similar signs and symptoms; however, current diagnostic testing strategies are not very advance and face limitations. Despite numerous sensitization facilities, proper awareness of personal hygiene, and availability of broad-spectrum antimicrobials and antibiotics, liver abscess remains one of the most common liver disorders.<sup>5</sup> The purpose of this study is to investigate the epidemiology, clinical presentation, and management methods of liver abscess cases. Our study noticed that the liver abscess mostly affects the age group 41-50 years, accounting for 48.8%. This is consistent with the findings of Ahsan et al who discovered that this age group had a higher risk of pyogenic abscess.<sup>6</sup> Similarly, ALA can occur at any age, but it is most common in adults between 31 to 50 years. Liver abscess is more common in males than females. The cause of such a drastic difference is unknown, but it is most likely related to hormonal effects, alcohol consumption, and contaminated food and water consumption.<sup>7</sup> Our finding agrees with previous studies that showed the predominance of males.<sup>8</sup> Males who

drink a lot of alcohol are more likely to get an ALA. Alcohol reduces Kupffer cells' function in the liver to clear amoeba. A high iron-content diet, such as that obtained from country liquor and a high carbohydrate content diet, predisposes to invasive amoebiasis.<sup>9</sup> We also found that 61 cases had an alcohol intake history with amoebic abscess accounted for 58 (95%), and pyogenic abscess cases accounted for 3 (5%). Etiologically, in the gut and biliary microflora, the most common inhabitant is gram-negative organisms, which we frequently encounter, *E. coli* being the most common pathogen. In the present research study, we reported that ALA was in (90.09%) of the cases and PLA was in 9 (9.09%) cases. It was in line with the previous experience.<sup>10</sup> The majority of the patients presented with abdominal pain (76%) and fever (90%). This is consistent with a report from another study in which pain in the abdomen and fever were the common symptoms reported. Abdominal tenderness in the right hypochondrium is the most common sign observed, followed by hepatomegaly in 50% of patients.<sup>11</sup> We discovered that half of the patients had hepatomegaly and that one-fourth had jaundice. Previous research by Abdullah et al and Kebede et al coincided with our findings.<sup>6,12</sup> In our study, we have discovered that the right lobe is the most commonly involved part of the liver, accounting for approximately 71% of cases. This finding is consistent with the results of other researchers.<sup>12,13</sup> It has been discovered that liver abscess formation occurs more frequently in the right lobe of the liver than in the left lobe of the liver. The reason seems to be that the right side of the lobe has a higher volume of blood flow than the left side.<sup>6,14</sup> In our study, the majority of the liver abscess cases were surgically treated. A single aspiration was used in about 30% of the cases, and multiple aspirations were used in 20% of the cases. In 25% of cases, percutaneous catheter drainage was used as a treatment method. In all of the ruptured abscesses, 22% of the cases required a laparotomy and drainage. Only 3% of patients with abscesses smaller than 5 centimetres received conservative treatment. According to Zerem and his colleagues' study, single or multiple aspirations were successful in 67% of patients, and percutaneous catheter drainage was effective in all patients.<sup>15</sup> Similar findings were made by other studies.<sup>16,17</sup>

## Limitations

This is an hospital-based study rather than population-based study. Higher sample size is required.

## CONCLUSION

Liver abscess was more common in people between the ages of 41 and 50. In the liver abscess, males outnumbered females by 97.9%. A history of alcohol consumption was observed in two-thirds of liver abscess cases. ALA was more frequent, while only 10% were pyogenic. The most common organism, *Escherichia coli*, caused PLA. We used percutaneous catheter drainage in

failed aspiration cases, whereas in ruptured abscesses, laparotomy and drainage were preferred.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Khim G, Em S, Mo S, Townell N. Liver abscess: diagnostic and management issues found in the low resource setting. *Br Med Bull.* 2019;132:45-52.
2. Memon AS, Siddiqui FG, Memon HA, Ali SA. Management of ruptured amoebic liver abscess: 22-years' experience. *J Ayub Med Coll Abbottabad.* 2010;22:96-9.
3. Serraino C, Elia C, Bracco C, Rinaldi G, Pomero F, Silvestri A et al. Characteristics and management of pyogenic liver abscess: A European experience. *Medicine (Baltimore).* 2018;97:e0628.
4. Kurland JE, Brann OS. Pyogenic and amebic liver abscesses. *Curr Gastroenterol Rep.* 2004;6:273-9.
5. Lübbert C, Wiegand J, Karlas T. Therapy of liver abscesses. *Viszeralmedizin* 2014;30:334-41.
6. Abdullah AA, DM F. Clinical analysis of Amebic Liver Abscess in Sulaimany governorate. *Age (years).* 2005;37:19.
7. Mukhopadhyay M, Saha AK, Sarkar A, Mukherjee S. Amoebic liver abscess: presentation and complications. *Indian J Surg.* 2010;72:37-41.
8. Sharma N, Sharma A, Varma S, Lal A, Singh V. Amoebic liver abscess in the medical emergency of a North Indian hospital. *BMC Res Notes.* 2010;3:21.
9. Makkar RPS, Sachdev GK, Malhotra V. Alcohol consumption, hepatic iron load and the risk of amoebic liver abscess: a case-control study. *Intern Med.* 2003;42:644-9.
10. Pang TCY. Pyogenic liver abscess: An audit of 10 years' experience. *World J Gastroenterol.* 2011;17:1622.
11. Ghosh S, Sharma S, Gadpayle AK, Gupta HK, Mahajan RK, Sahoo R et al. Clinical, laboratory, and management profile in patients of liver abscess from northern India. *J Trop Med.* 2014;2014:142382.
12. 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. *Ethi J Health Development.* 2004;18(3):199-202.
13. Qazi AR, Naqvi S, Solangi RA. Liver abscess: diagnosis and treatment. *Pak J Surg.* 2008;24:203-6.
14. Muthukumarasamy H, Ramakrishnan R. Liver abscess-anatomical correlation. *Anatomica Karnataka* 2011;5:81-6.
15. Zerem E, Hadzic A. Sonographically guided percutaneous catheter drainage versus needle aspiration in the management of pyogenic liver abscess. *AJR Am J Roentgenol.* 2007;189:W138-42.
16. McGarr PL, Madiba TE, Thomson SR, Corr P. Amoebic liver abscess--results of a conservative management policy. *S Afr Med J.* 2003;93:132-6.
17. Ramani A, Ramani R, Kumar MS. Ultrasoundguided needle aspiration of amoebic liver abscess. *Postgrad Med J.* 1993;69:381-3.

**Cite this article as:** Surendran S, Vallipriya V. Study of clinical presentation, management and prognosis of liver abscess. *Int Surg J* 2022;9:1142-5.