

Evaluation of Clinical Presentation, Management and Prognosis of Liver Abscess in a Tertiary Care Hospital

Anita Gupta¹, Manoj Kumar Mishra², Shyam Sunder Nagpal³, Anil Kumar⁴

¹Assistant Professor, Department of General Surgery, World College of Medical Sciences Research and Hospital, Jhajjar Haryana, India.
Email: anitakamlanehru@gmail.com, Orcid ID: 0000-0003-3792-5640

²Assistant Professor, Department of General Surgery, World College of Medical Sciences Research and Hospital, Jhajjar Haryana, India.
Email: manojnmcian@gmail.com, Orcid ID: 0000-0003-4729-343X

³Associate Professor, Department of General Surgery, World College of Medical Sciences Research and Hospital, Jhajjar Haryana, India.
Email: drnagpal@gmail.com, Orcid ID: 0000-0002-6532-9806

⁴Assistant Professor, Department of General Surgery, World College of Medical Sciences Research and Hospital, Jhajjar Haryana, India.
Email: mjhjind@gmail.com, Orcid ID: 0000-0001-6495-5074

Abstract

Background: A collection of purulent material in the liver parenchyma produced by bacterial, parasitic, fungal, or mixed infection is referred to as a "liver abscess." It's a common affliction that affects people all around the world. Amoebic bacteria cause roughly two-thirds of infections in developing countries, while pyogenic bacteria cause three-quarters of cases in developed ones. **Subjects and Methods:** In the general surgery wards of World College of Medical Sciences Research and Hospital, Jhajjar, 55 patients with liver abscesses were included from September, 2018 to August, 2019. The study eliminated cases with hydatid cysts, solid masses, and primary and secondary liver cancer. **Results:** The study included 54 men and one woman with both forms of liver abscesses, ranging in age from 30 to 73 years old. In the current study, the most cases were found in the 40-49 year age group, with 11 (20.0 %) cases in the 50-59 year age group, 10 (18.2%) cases in the 30-39 year age group, 07 (12.7%) cases in the 60-69 year age group, and 01 (1.8%) cases in the 70 plus year age group. We discovered that males (98.2%) are more likely than females to have this condition (1.8%). We discovered that 20 of the 55 cases had a history of alcohol consumption, with amoebic abscess accounting for 18 (32.7%) and pyogenic abscess accounting for 2(3.6%). **Conclusion:** In conclusion, those between the ages of 40 and 49 were more likely to develop a liver abscess. Males outweighed girls by 98.2 percent in the liver abscess. Two-thirds of liver abscess cases had a history of alcohol consumption. ALA was more common, with only 3.6 percent of cases being pyogenic. PLA was caused by the most frequent bacterium, Escherichia coli. In unsuccessful aspiration instances, we used percutaneous catheter drainage, whereas in ruptured abscesses, laparotomy and drainage were recommended.

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

Corresponding Author: Dr. Manoj Kumar Mishra, Assistant Professor, Department of General Surgery, World College of Medical Sciences Research and Hospital, Jhajjar Haryana, India.
Email: manojnmcian@gmail.com

Received: 16 October 2020

Revised: 21 April 2021

Accepted: 15 May 2021

Published: 12 September 2021

Introduction

The term "liver abscess" refers to a collection of purulent material in the liver parenchyma caused by bacterial, parasite, fungal, or mixed infection. It's a prevalent ailment that affects people all around the world. Around two-thirds of cases in developing nations are caused by amoebic bacteria, while three-quarters of cases in industrialised countries are caused by pyogenic bacteria.^[1] The identification and management of liver abscesses continue to be a serious concern in the healthcare world. It is a potentially lethal and life-threatening disorder if left untreated. As a result, getting an appropriate diagnosis and action as soon as feasible is crucial. The two most common

kinds of liver abscess are an ALA and a pyogenic liver abscess (PLA).^[2] Amebiasis is common in impoverished countries due to unsanitary conditions and inadequate sanitation services. Amoebiasis is thought to afflict about 10% of the world's population, according to new findings. The most common extraintestinal manifestation of Entamoeba histolytica and protozoans is an ALA abscess, which affects 3-9 percent of patients. In India, liver abscess is considered endemic. It can cause severe abdominal pain, requiring an emergency laparotomy. Extraperitoneal and retroperitoneal rupture, spontaneous intraperitoneal rupture, and intrathoracic rupture are all prevalent in a liver abscess. As a result, delays in diagnosis may cause a liver abscess to rupture, increasing morbidity and mortality.^[3] A PLA is a large liver lesion that affects the patient's health and takes up

a lot of space. Pyogenic liver abscess is a pus-filled infection of the hepatic parenchyma cells that is associated with a high rate of morbidity and mortality. Approximately 40% of cases have biliary tract illnesses as a complication, according to PLA. PLA aetiologies have shifted from intra-abdominal infections including trauma and acute appendicitis to biliary tract pathological diseases, according to a recent investigation. However, up to 55% of PLA cases are cryptogenic, meaning they have no obvious risk factors. PLA is a polymicrobial infection caused by the disease route ascending from the gastrointestinal system. It is a rare occurrence. The number of PLA patients per 1,000,000 individuals varies between 8 and 22.^[4] Both amoebic liver and PLA have similar clinical signs, making early identification challenging.^[5] The incidence, aetiology, clinical signs and symptoms, and management of liver abscess in patients who visited the general surgery wards of World College of Medical Sciences Research and Hospital, Jhajjar, were investigated in this study.

Subjects and Methods

This prospective study was conducted in the departments of General Surgery at World College of Medical Sciences Research and Hospital, Jhajjar, Haryana, India. In the general surgery wards of World College of Medical Sciences Research and Hospital, Jhajjar, 55 patients with liver abscesses were included from September, 2018 to August, 2019. The study eliminated cases with hydatid cysts, solid masses, and primary and secondary liver cancer. Before recruiting patients, an ethical committee's consent was acquired. The approach of sequential sampling was used. As a result, the study only included 55 cases of liver abscess. All patients had a routine clinical evaluation of the liver abscess, which included gathering a medical history. All blood tests, clinical examinations, X-ray abdomen AP view, chest X-ray PA view, CT scan of the abdomen (in selected cases), ultrasound of the abdomen, and culture and sensitivity of the aspirate have all been completed. All patients signed a consent form, and data was collected on a standard form that included demographics, clinical presentation of liver abscess, risk factors for 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. The consultants in charge of the patient's treatment made the decision on which interventions to use. The patients were checked on a daily basis to see if they were improving clinically. Treatment success was determined by improvements in pain, fever, anorexia, and hepatomegaly. Data was gathered, evaluated, and given as a percentage and frequency.

Results

The researchers looked at 55 patients with liver abscesses of various ages. The study included 54 men and one woman with both forms of liver abscesses, ranging in age from 30 to 73 years old. In the current study, the most cases were

found in the 40-49 year age group, with 11 (20.0 percent) cases in the 50-59 year age group, 10 (18.2 percent) cases in the 30-39 year age group, 07 (12.7 percent) cases in the 60-69 year age group, and 01 (1.8 percent) cases in the 70+ year age group [Table2]. We discovered that males (98.2%) are more likely than females to have this condition (1.8 percent) [Table1]. We discovered that 20 of the 55 cases had a history of alcohol consumption, with amoebic abscess accounting for 18 (32.7%) and pyogenic abscess accounting for 2 (3.6 percent) [Table3].

Table 1: Distribution of patients according to gender.

Gender	n (%)
Male	36 (55.4%)
Female	29 (44.6%)

Table 2: Distribution of patients according to age group.

Different age group	N (%)
30-39	10 (18.2%)
40-49	26 (47.3%)
50-59	11 (20.0%)
60-69	07 (12.7%)
> 70	01 (1.8%)

Table 3: History of alcohol intake

Amoebic (ALA)	Pyogenic (PLA)
18 (32.7%)	02 (3.6%)

Liver abscess clinical symptoms, signs, and lobe-by-lobe distribution in patients

The clinical appearances of PLA and ALA es are identical. In the current investigation, all 55 instances of liver abscess had stomach pain. In 28 (50.9%) of the cases, abdominal distension was present, fever was present in 31 (56.4%), and dysentery was present in 09 (16.4%) of the cases. Fever, right upper quadrant pain, and elevated inflammatory markers are all symptoms of a liver abscess. Intercostal discomfort and hypochondrial pain were seen in all patients. In 49.09 percent of the cases, hepatomegaly was discovered. Jaundice and epigastric mass were identified in 14 (25.5%) and 07 (12.7%) of the cases, respectively. Right lobe abscess 38 was the most prevalent form of abscess in the 55 cases studied (69.09 percent). Table 4 shows that there were four (7.3 percent) cases of left lobe abscess, three (5.5 percent) cases of multiple abscesses, and twelve (21.8 percent) cases of a ruptured abscess.

Table 4: Clinical manifestations of study patients.

Patient characteristics	N(%)	
Clinical symptoms	Abdominal pain	55 (100.0%)
	Fever	31 (56.4%)
	Abdominal distension	28 (50.9%)
	Dysentery	09 (16.4%)
Clinical signs	Right hypochondrial tenderness	55 (100.0%)
	Intercostal tenderness	55 (100.0%)
	Hepatomegaly	27 (49.09%)
	Jaundice	14 (25.5%)
	Epigastric mass	07 (12.7%)
Lobe wise distribution of liver abscess	Right lobe	38 (69.09%)
	Ruptured abscess	12 (21.8%)
	Left lobe	04 (7.3%)
	Multiple abscesses	03 (5.5%)
Treatment	Single aspiration	16 (29.09%)
	Percutaneous catheter drainage	14 (25.5%)

Laparotomy and drainage	12 (21.8%)
Multiple aspirations	11 (20.0%)
Conservative management	02 (3.6%)

In patients with a liver abscess, management, cases of co-infection with HIV, and death are all factors to consider.

Single aspiration was employed in 16 (29.09%) of the cases, percutaneous catheter drainage in 14 (25.5%), laparotomy and drainage in 12 (21.8%) of the cases, multiple aspirations in 11 (20.0%) of the cases, and conservative therapy in 02 (3.6%) of the cases in our study. Table No. 4 In the present study, around 02 (3.6 percent) of male amoebic liver abscess patients also had HIV infection.

Discussion

In tropical areas such as the Indian subcontinent, liver abscess (LA) is widespread. *E. histolytica* (amoebic), bacterial (pyogenic), *Mycobacterium tuberculosis*, and different fungi are the most common etiological agents for LA. ALA is primarily a disease of poor countries such as India. They primarily affect the younger population, particularly males. Abdominal pain, fever, and weight loss are all common symptoms. It's also a common cause of fever with no identified reason. Coexisting diarrhoea affects 30% of patients, and finding amoebic trophozoites in the stool is quite uncommon.^[6] Both ALA and PLA are common and have comparable signs and symptoms; however, present diagnostic testing procedures are limited and ineffective. Despite the availability of multiple sensitization facilities, adequate personal hygiene awareness, and broadspectrum antimicrobials and medications, liver abscess is still one of the most frequent liver illnesses.^[7] The goal of this study is to look into the epidemiology, clinical presentation, and treatment options for instances with liver abscess. According to our findings, liver abscess primarily affects people in their 40s and 50s, accounting for 26 percent of all cases (47.3 percent). This is in line with Ahsan et al's findings, which found that this age group had a higher incidence of pyogenic abscess.^[8] ALA can also affect people of any age, however it is most common in people between 30 to 49. Males are more likely than females to get a liver abscess. The reason for such a large disparity is unknown, although it is most likely due to hormonal changes, alcohol consumption, and polluted food and water consumption.^[9] Our findings are consistent with earlier research that has shown a male predominance.^[10] Males who consume a lot of alcohol have a higher risk of developing an ALA. Alcohol impairs the ability of Kupffer cells in the liver to remove amoeba. Invasive amoebiasis is predisposed by a high iron-content diet, such as that derived through country whiskey, and a high carbohydrate-content diet.^[11] We also discovered that 20 of the cases had a history of alcohol consumption, with amoebic abscess accounting for 18 (32.7%) and pyogenic abscess accounting for 2% (3.6 percent). Gram-negative organisms are the most common dweller in the gut and biliary microbiota, which we commonly meet, with *E. coli* being the most common infection. We found that ALA was present in 49 (89.09

percent) of the cases and PLA was present in 06 (10.9 percent) of the patients in the current study. It was consistent with prior experience.^[12] The majority of the patients had stomach pain and a fever (100%) when they arrived (56.4 percent). This is in line with the findings of another study, which found that abdominal pain and fever were the most common symptoms. The most prevalent symptom is abdominal discomfort in the right hypochondrium, followed by hepatomegaly in 49.09 percent of patients.^[13] Half of the patients had hepatomegaly, and one-fourth had jaundice, according to our findings. Our findings were supported by previous studies by Abdullah et al and Kebede et al.^[14] The right lobe of the liver is the most usually implicated region of the liver, accounting for around 69.09 percent of cases, according to our research. This conclusion is in line with the findings of other researchers.^[15] The creation of liver abscesses is more common in the right lobe of the liver than in the left lobe, according to research. The explanation for this appears to be that the right side of the lobe receives more blood flow than the left.^[16] The majority of liver abscess cases in our study were surgically treated. In 29.09 percent of the instances, a single aspiration was employed, while in 20.0 percent of the cases, several aspirations were used. Percutaneous catheter drainage was employed as a therapeutic strategy in 25.5 percent of cases. A laparotomy and drainage were required in 21.8 percent of the burst abscesses. Only 3.6 percent of patients with abscesses under 5 cm were treated conservatively. Single or multiple aspirations were successful in 67 percent of patients, according to Zerem and colleagues' research, while percutaneous catheter drainage was beneficial in all patients.^[17] Other investigations came to similar conclusions.^[18]

Conclusion

Finally, those between the ages of 40 and 49 were more likely to develop a liver abscess. Males outweighed girls by 98.2 percent in the liver abscess. Two-thirds of liver abscess cases had a history of alcohol consumption. ALA was more common, with only 3.6 percent of cases being pyogenic. PLA was caused by the most frequent bacterium, *Escherichia coli*. In unsuccessful aspiration instances, we used percutaneous catheter drainage, whereas in ruptured abscesses, laparotomy and drainage were recommended.

References

1. Heneghan HM, Healy NA, Martin ST, et al. Modern management of pyogenic hepatic abscess: a case series and review of the literature. *BMC Res Notes*. 2011;4:80. doi:10.1186/1756-0500-4-80
2. KhimG, Em S, Mo S, Townell N. Liver abscess: diagnostic and management issues found in the low resource setting. *Br Med Bull*. 2019;132(1):45-52. doi:10.1093/bmb/ldz032
3. 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):96-9.
4. SerrainoC, 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(19):e0628. doi: 10.1097/MD.00000000000010628.
5. Kurland JE, Brann OS. Pyogenic and amoebic liver abscesses. *Curr Gastroenterol Rep*. 2004;6:273-9.

6. BranumGD, Tyson GS, Branum MA, Meyers WC. Hepatic abscess. Changes in etiology, diagnosis, and management. *Ann Surg.* 1990;212(6):655-662. doi:10.1097/00000658-199012000-00002
7. LübbertC, Wiegand J, Karlas T. Therapy of Liver Abscesses. *Viszeralmedizin.* 2014;30(5):334-41. doi: 10.1159/000366579.
8. ValloisD, Epelboin L, Touafek F, et al. Amebic liver abscess diagnosed by polymerase chain reaction in 14 returning travelers. *Am J Trop Med Hyg.* 2012;87(6):1041-1045. doi:10.4269/ajtmh.2012.12-0366
9. Mukhopadhyay M, Saha AK, Sarkar A, Mukherjee S. Amoebic liver abscess: presentation and complications. *Indian J Surg.* 2010;72(1):37-41. doi: 10.1007/s12262-010-0007-6.
10. 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. doi: 10.1186/1756-0500-3-21.
11. MakkarRPS, 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.
12. Pang TC, Fung T, Samra J, Hugh TJ, Smith RC. Pyogenic liver abscess: an audit of 10 years' experience. *World J Gastroenterol.* 2011;17(12):1622-1630. doi:10.3748/wjg.v17.i12.1622
13. 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.
14. Kebede A, Kassa E, Ashenafi S, Woldemichael T, Polderman AM, Petros B. Amoebic liver abscess: A 20-year retrospective analysis at TikurAnbessa Hospital, Ethiopia. *Ethi J Health Development.* 2004;18(3):199-202.
15. Qazi AR, Naqvi S, Solangi RA. Liver abscess: diagnosis and treatment. *Pak J Surg.* 2008;24:203-6.
16. MuthukumarasamyH, Ramakrishnan R. Liver abscess-anatomical correlation. *Anatomica Karnataka* 2011;5:81-6.
17. ZeremE, 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.
18. 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.

Copyright:© the author(s), 2022. It is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits authors to retain ownership of the copyright for their content, and allow anyone to download, reuse, reprint, modify, distribute and/or copy the content as long as the original authors and source are cite.

How to cite this article: Gupta A, Mishra MK, Nagpal SS, Kumar A. Evaluation of Clinical Presentation, Management and Prognosis of Liver Abscess in a Tertiary Care Hospital. *Acad. J Surg.* 2022;4(2):45-48.

DOI: dx.doi.org/10.47008/ajs/2021.4.2.10

Source of Support: Nil, **Conflict of Interest:** None declared