



ORIGINAL RESEARCH PAPER

General Surgery

PRESENTATION OF LIVER ABSCESS IN A TERTIARY HOSPITAL- AN OBSERVATIONAL ANALYSIS

KEY WORDS: Amoebic liver abscess, Liver abscess, Lobes of liver, Pyogenic liver abscess.

Naveen Gupta

Surgical Specialist, Composite Hospital, BSF, Tekanpur, Gwalior

Shilpi Gupta*

Medical Officer, Gajra Raja Medical College, Gwalior *Corresponding Author

ABSTRACT

Background: Liver abscess is demarcated as collection of purulent material in liver parenchyma which can be due to bacterial, parasitic, fungal, or mixed infection. It is a common condition across the globe.

Objective- To study the clinical profile, microbiological aetiology, investigation profile and treatment consequences in patients with liver abscess.

Methods: A retrospective study was conducted from January 2018 to December 2018 on 100 consecutive liver abscess patients at Composite Hospital, BSF, Tekanpur, Madhya Pradesh, India. Medical records were analysed for clinical features, examination findings, laboratory investigations, radiological tests, microbiological analysis and treatment modalities. Descriptive statistics were used.

Results: The mean age of patients was 42.55 years. Majority were male alcoholics. The abscesses were commonly in right lobe (85%) and solitary (62%). Abscesses were predominantly amoebic in 75%. Mortality was 3.5% with all death reported in surgical group. The most common abnormality noted was raised alkaline phosphatase (ALP) in 90%, followed by TLC in 75% cases. Urea and Creatinine were the least raised investigation with only 18% in cases. SGOT, SGPT were high in half of the cases. This explains the reason that in alcoholics its ALP which is most important laboratory investigation as per present study.

Conclusions: Amoebic liver abscess is more common than pyogenic liver abscess. Frequently occurs in young alcoholic males. Most common bestowing feature is pain abdomen followed by fever. Most common sign include tender hepatomegaly. Ultrasound abdomen is useful not only in diagnosis and intervention but also in the follow up of the condition and to evaluate resolution.

Introduction-

Liver abscess is defined as collection of purulent material in liver parenchyma which can be due to bacterial, parasitic, fungal, or mixed infection. It is a public condition across the globe.¹In developing countries liver abscesses are common; most outcomes from parasitic infections, such as amoebic and (less commonly) other protozoal and helminthic organisms. In developed countries parasitic liver abscesses are fewer. In the Western world, bacterial abscesses are more mutual, representing a complication of an infection elsewhere.² Around 10 % of the world's population is infected with entamoeba, the majority with non-invasive Entamoeba dispar. Amoebiasis consequences from infection with E. histolytica and is the third most common origin of death from parasitic disease. Invasive colitis and liver abscesses are sevenfold more common among men than among women; this difference has been accredited to an inequality in complement-mediated killing.³Patients with amoebic liver abscesses have a past of travel to (or origination from) an endemic area. Patients without a history of travel to an endemic area often have related immunosuppression, such as HIV infection, malnutrition, chronic infection, or chronic steroid use. Co morbid conditions accompanying with pyogenic abscess are cirrhosis, diabetes, chronic renal failure, and a history of malignant disease. The mortality for all patients with amoebic liver abscess is about 5% but when the abscess ruptures, mortality ranges from 6% to 50%.^{4,5}The rationale behind this study is to evaluate the clinical profile, the microbiological aetiology and management outcomes in patients diagnosed with liver abscess through record-based data.

Materials and Methods-

Study Design- Retrospective record-based study

Study Settings- Department of Surgery, Composite Hospital, BSF, Tekanpur

Study Duration- 1 year from January 2018 to December 2018

Sampling Technique- Consecutive sampling technique

Study Population- 100 consecutive patients of liver abscess admitted during the study period.

Sample size- 100 patients of liver abscess who were chosen consecutively.

Inclusion Criteria-

All patients with pyogenic, amoebic and post traumatic liver abscess of either sex aged 18 years and above.

Exclusion Criteria-

Patients with age less than 18 years, abscess near large vascular structures in liver, malignant disease of hepatobiliary system and those pregnant were excluded.

Consent type- Written informed consent

Ethical Approval- Received from hospital committee

Methodology-

The data was collected on a predesigned schedule and the medical records were reviewed with respect to history of presenting complaint and duration, risk factors for liver abscess, systemic examination findings, blood investigations and imaging studies and the treatment protocol followed. According to the hospital antibiotic policy patients were empirically started on intravenous ciprofloxacin 500mg q12hrly and intravenous metronidazole 500mg q8hrly until pus culture and sensitivity reports were available.

Statistical Analysis-

Data will be consolidated and entered a Microsoft Excel spreadsheet and then transferred to Epi info version (7.1.3.0. centre for disease control and prevention, Atlanta, Georgia, USA, 2013) software for analysis. Frequency tables are in the form of percentages.

Results-

Table 1- Clinical Profile of the study cases

Parameters		Number	%
Symptoms	Pain Abdomen	95	95
	Fever	80	80
	Vomiting	65	65
	Anorexia	60	60
	Diarrhoea	25	25
Signs	Hepatomegaly	96	96
	Pallor	56	56
	Icterus	39	39
	Ascites	10	10
	Pleural Effusion	18	18
	Peritonitis	3	3
Risk Factors	Alcoholic	90	90
	Morbid condition	20	20

The mean age of patients was 42.55 years (range 22 - 64). Male to female ratio was 7.33:1. Most common presenting complaint was pain abdomen in 95% (n = 95), with mean duration of 5.6 days followed by fever in 80% (n = 80). Most common finding on per abdomen examination was hepatomegaly in 96% (n = 96). In our study 90% (n = 90) patients were alcoholic and 20% (n = 20) patients were having morbid conditions having diabetes, hypertension.

Table 2- Laboratory Profile of the study cases

Laboratory Investigation	Cut off Range	N (%)
Hemoglobin	Low	34 (34)
TLC	High	75(75)
SGOT	High	50 (50)
SGPT	High	48 (48)
ALP	High	90 (90)
Urea	High	18 (18)
Creatinine	High	18 (18)

Table 2 summarises the laboratory profile of study cases. The most common abnormality noted was raised alkaline phosphatase (ALP) in 90%, followed by TLC in 75% cases. Urea and Creatinine were the least raised investigation with only 18% in cases. SGOT, SGPT were high in half of the cases. This explains the reason that in alcoholics its ALP which is most important laboratory investigation as per present study.

Table 3- Bacterial Isolates and Microbiological Profile in study cases

Bacterial Isolates	Number	%
E.coli	10	10
Kleibisella	8	8
Staphylococcus	3	3
Pseudomonas	1	1
Appearance		
Anchovy Sauce Pus	83	83
Culture positive for pus	20	20

As per table 3 the microbiological profile of pus has been summarised, the most common organism isolated was E. coli seen in 10% of cases followed by Kleibisella. The pus with anchovy sauce appearance and negative culture after 48 hours of aerobic incubation was presumed to be of amoebic origin.

Discussion-

Liver abscess is common in tropical regions like the Indian subcontinent. The common etiological agents for liver abscess are E. histolytica (amoebic), bacterial (pyogenic), mycobacterium tuberculosis and various fungi. Out of them, amoebic liver abscess is largely a disease of developing countries like India. The liver is the organ subject to the growth of most abscesses in abdomen. Young patients with an amoebic liver abscess are more probable than older patients to present in the acute phase with projecting symptoms of <10 days' duration. Most patients are febrile and have right-upper quadrant pain, which may be dull or pleuritic in nature and may radiate to the shoulder. Point tenderness over the liver and right-sided pleural effusion are common. Jaundice is rare. Although the initial site of infection is the colon, fewer than one-third of patients with an amoebic abscess have active diarrhoea.²

In the present study mean age of patients was 42.55 years. Male to female ratio was 7.33:1. The age predisposition and gender alterations may be as a result of high alcohol intake by young male which inclines to amoebic liver abscess. In a prospective study by Makkar et al the liver iron was found to be significantly higher in patients with amoebic liver abscess, both alcoholic and non-alcoholic. Also, because of the regular menstrual blood loss, females in the reproductive age group are known to have lower iron stores. This low iron, which is unsuitable for the growth of E. histolytica, might act as a protective factor against the invasion of E. histolytica in such females.⁷ Most common symptoms of liver abscess are pain abdomen and fever which were present in 95% and 80% of our patients, respectively. Ghosh et al have reported fever as most common feature in 99% cases and Sharma et al have reported pain abdomen in 78% cases.^{2,8} pleural effusion in 35%

of cases. In a study by Ghosh et al cough was reported by 30% of cases and in Sharma et al it was reported by 3.5% of cases.^{2,8} Mukhyopadhyaya et al report pleuropulmonary involvement in 24% of cases.¹⁰ Manifestations include sterile effusions, contiguous spread from the liver and rupture into the pleural space. Sterile effusions and contiguous spread usually resolve with medical therapy.³

Icterus was reported in 20% of our patients. In earlier studies from India, it was reported in 45 - 50% of patients. The most common LFT abnormality is an elevated PT-INR.⁵ Mechanism of hyperbilirubinemia in amoebic liver abscess has been studied previously in many studies. Various mechanisms were suggested like pressure on biliary ducts at the porta hepatis especially by large abscess.¹¹ Sharma et al observed that jaundice occurs because of intrahepatic obstruction or associated hepatitis and is usually seen in large or multiple abscesses; abscess situated at porta hepatis is more likely to produce jaundice because of extra-hepatic obstruction.⁹

Conclusion-

Amoebic liver abscess is more common than pyogenic liver abscess. Frequently occurs in young alcoholic males. Most common bestowing feature is pain abdomen followed by fever. Most common sign is hepatomegaly. Ultrasound abdomen is useful not only in diagnosis and intervention but also in the follow up of the condition and to assess resolution.

Source of Funding- None

Conflict of Interest- None declared

REFERENCES-

1. Kemparaj T, Khan MR, Narayan S. Liver abscess presentation and management: a retrospective study. *Int Surg J* 2017; 4:550-4.
2. 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. *Journal Tropical Med.* 2014; 1:8.
3. Kumar V, Abbas AK, Aster JC. Liver, gall bladder and biliary tract. In Robbins basic pathology, 9th edition. Philadelphia: Elsevier Saunders. 2013:635.
4. Barshak MB, Kaper DL. Intraabdominal abscesses and infections. In Kasper DL, Jameson JL, Fauci AS, Longo DL, Hauser SL, Loscalzo J. Harrison's principles of internal medicine. 19th edition. New York: McGraw-Hill. 2015:850.
5. Dudeja V, Fong Y. The Liver. In Townsend CM, Evers BM, Beauchamp RD, Mattox KL. Sabiston textbook of Surgery. 20th edition. Philadelphia: Elsevier. 2016:1418-1481.
6. Amin AB, Patel RD, Doshi C, Bhuvra AV. A comparative study of different modalities of treatment of liver abscess. *IAIM.* 2015;2(4):11-6.
7. Makkar RP, Sachdev GK, Malhotra V. Alcohol consumption, hepatic iron load and the risk of amoebic liver abscess: a case-control study. *Internal Medicine.* 2003;42(8):644-9.
8. 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(1):21.
9. Cheng EY, Zarrinpar A, Geller DA, Goss JA, Busuttill RW. Liver. In Brunicaudi FC, Andersen K, Billiar TR, Dunn DL, Hunter JG, Matthews JB et al. Schwartz's Principles of Surgery. 10th edition. Mc Graw Hill. 2015:1263-1307.
10. Mukhopadhyay M, Saha AK, Sarkar A, Mukherjee S. Amoebic liver abscess: presentation and complications. *Indian J Surg.* 2010;72(1):37-41.
11. Kumar AS, Mishra A, Malhotra N, Alpama M. Hyperbilirubinemia in patients with amoebic liver abscess: a study of 75 cases. *J Gastroint Dig Syst.* 2013;3:138.