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ORIGINAL RESEARCH

Assessment of prognosis, complications and outcome in patients with liver abscess

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ABSTRACT

Background: Liver abscesses remain a significant clinical challenge due to high morbidity and mortality. Liver abscess are associated with mortality of up to 20% and are categorized into various types based on aetiology, of which amoebic (ALA) and pyogenic (PLA) liver abscess are major types. The objective is to evaluate and assess the outcomes and complications of liver abscess (LA). **Methods:** A total of 300 patients were enrolled in the study. All patients with suspicion of having liver abscess were confirmed on Imaging and included as present study population. Authors studied mainly presentation, role of conservative treatment, Aspiration, pigtail catheter, Outcome, and post procedural complications. **Results:** Majority of them were male (92%). The common complications were pleural effusion (in both type of abscess), ruptured abscess (more in PLA), colitis and typhilitis respectively. Prolonged hospital stay was found in pyogenic liver abscess as compared to amoebic liver abscess patients. Mortality rate was higher in pyogenic as compared to amoebic liver abscess. **Conclusions:** Prolonged hospital stay, abscess rupture and mortality rates were higher in Pyogenic Liver abscess. This emphasizes the importance of early diagnosis and tailored management strategies, including the effective use of antibiotics and percutaneous interventions such as catheter drainage in PLA.

Keywords: Amoebic liver abscess, pyogenic liver abscess, Complications, Outcomes

INTRODUCTION

Liver abscess (LA) or hepatic abscess (HA) was originally documented during the time of Hippocrates, which was approximately 400 B.C. [1]. An encapsulated collection of suppurative material within the liver's parenchyma is known as a liver abscess (LA). Most LAs in western countries have bacterial infections, which are caused by microorganisms invading and multiplying after entering through blood vessels or the biliary system [2]. Despite being rare, liver abscesses need to be detected and treated very once since untreated patients have a significant chance of dying [3]. With an annual incidence rate of about 2.3 cases per 100,000 people, males are more affected than females [4]. Pyogenic liver abscess (PLA), caused by bacterial infections, and amoebic liver abscess (ALA), caused by Entamoeba histolytica, are the two primary forms of liver abscesses. The frequency of liver abscess has increased recently, largely because risk factors like alcohol use, poor hygiene, diabetes mellitus, and immunosuppression are becoming more common [5]. Pyogenic liver abscesses are primarily caused by Escherichia coli, Klebsiella pneumoniae, and a number of Streptococcus species. Biliary or gastrointestinal infections are often the cause of these abscesses [6]. However, poor sanitation and the fecal-oral transmission of Entamoeba histolytica are associated with amoebic liver abscess in endemic regions such as India and other tropical countries [7]. The mortality rate for PLA patients ranges from 2% to 8% [8], while the mortality rate for ALA patients varies from 2% to 15% [9]. Although management tactics have been transformed by developments in diagnostic imaging, interventional radiology, and antimicrobial medicines, significant variation in treatment practices and results still exists [10]. Reducing problems like abscess rupture and systemic inflammatory responses requires early diagnosis, which is aided by imaging techniques like computed tomography and ultrasonography [11]. Depending on the abscess's size, location, and patient stability, management plans usually involve antibiotic treatment and percutaneous procedures such catheter drainage or needle aspiration. Higher risks of complications and death are associated with bilobar appearances and large abscesses (>10 cm) [12].

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AIM

To ascertain the results of patients receiving treatment in the surgical wards for liver abscesses and to evaluate the general prognosis of liver abscess patients.

MATERIAL AND METHODS

The present study a prospective cohort study which was start from September 2022 to December 2023 in Department of Surgery, Shyam Shah Medical College and Sanjay Gandhi Hospital Rewa M.P. Patients admitted in surgery ward with clinical features of liver abscess both diagnosed and undiagnosed with detailed laboratory and radiological evidence, its etiology, history, treatment modalities, complications and outcome of the disease will be analyzed in this study.

For each patient, a detailed history, clinical examination and laboratory profiles of the patient were recorded.

The outcome of the study was defined based on a two-week follow up¬ of patients treated for liver abscess in the surgical ward.

The assessment tool that was used for defining the outcome as cured or not cured was Ultrasonography.

Parameters being use for the assessment of patients-

Biochemical

- TLC **:** <11000 – 0, >11000 – 1
- Liver enzymes (SGOT, SGPT): <40 IU – 0, >40 IU – 1

Clinical

- Age- <40years-0, >40years-1
- Right hypochondriac tenderness: Absent = 0, Present = 1
- Guarding: Absent = 0, Present = 1
- Alcohol- Yes – 1, No- 0

Microbiological

- Etiology based on pus culture and sensitivity: Amoebic-0, Pyogenic-1

Radiological

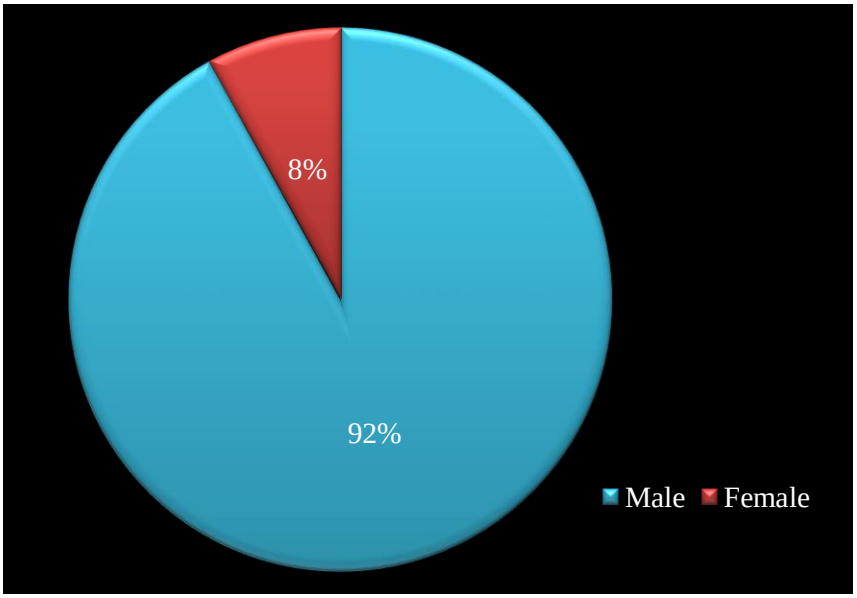
- Number of abscesses as diagnosed on USG: Single = 0, Multiple = 1
- Volume: <150cc – 0, >150cc – 1

STATISTICAL ANALYSIS

Data were collected and managed on an excel work sheet. Data were calculated by using appropriate statistical tests.

RESULTS

A total of 300 patients with liver abscesses were analyzed in the present study. Majority of them were male (92%).



Graph 1: Distribution of patients according to their gender

The common complications were pleural effusion (45 in PLA & 42 in ALA), ruptured abscess (19 in PLA & 9 in ALA), colitis and typhilitis 25 & 12 had ALA respectively and 1 each had PLA. Ascites 05 had amoebic liver abscess and 19 had pyogenic liver abscess

Table 1: Association of complication of the patients with the type of abscess

Complications	Amoebic Liver Abscess	Pyogenic Liver Abscess
Ascites	05	19
Pleural effusion	42	45
Rupture	09	19

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Colitis	25	1
Typhilitis	12	1
None	135	36
Others	7	11

There were 14 (4.6%) mortalities for the entire duration of the study. Amongst the 48 patients with a total score ranging from 7 to 9, 12 (25%) patients died, 36 (75%) developed complications. Amongst the 186 patients with a total score ranging from 4 to 6, 2 (1.07%) patients were dead and 78 (41.93%) patients developed complications. Only 9 patients (13.63%) out of 66 with total score ranging from 0-3 had developed complications and none of them died.

Table 2: Complications v/s mortality with total score

Total score	No of Patients	Complications	Mortality
0 to 3	66	9 (13.63%)	-
4 to 6	186	78 (41.93%)	2 (1.07%)
7 to 9	48	36 (75.0%)	12 (25.0%)

Prolonged hospital stay was found in pyogenic liver abscess as compared to amoebic liver abscess patients. The association was found to be highly statistically significant ($p<0.05$).

Table 3: Association of hospital stay of the patients with the type of abscess

Hospital Stay	Amoebic Liver Abscess (%)	Pyogenic Liver Abscess (%)	P-value
1-7 days	164 (76.63%)	37 (43.02%)	0.001
8-14 days	45 (21.02%)	32 (37.20%)	
15-21 days	05 (2.33%)	12 (13.95%)	
>21 days	-	05 (5.81%)	

Table 4: Total score versus Type of abscess

Type of abscess	Total Score		
	0 to 3	4 to 6	7 to 9
Amoebic (n=214)	62 (28.97%)	142 (66.35%)	10 (4.67%)
Pyogenic (n=86)	4(4.65%)	44(51.16%)	38(44.18%)

Mortality rate was significantly higher (13 out of 14) in pyogenic liver abscess as compared to (01 out of 14) amoebic liver abscess group.

Table 5: Association of mortality of the patients with the type of abscess

MORTALITY	ALIVE	DEAD
Amoebic liver abscess (n=214)	213 (99.53%)	01 (0.47)
Pyogenic liver abscess (n=86)	73 (84.88%)	13 (15.12)

DISCUSSION

In our study the majority of the liver abscess patients were male, which is similar to the study conducted by Jayakar SR, et al [13] and Alobaidi M, et al [14].

Pleural effusion was the most common complication among both amoebic liver abscess and pyogenic liver abscess in the current study, in agreement with the Dumic et al [15].

In the present study intra peritoneal rupture of liver abscesses was more common in pyogenic as compared to amoebic, our finding comparable with the Errey AK, et al [16].

According to Sharma MP, et al [17], mortality rate in their study was 0-18 % and in our study one case (1.25%) had the end result of mortality due to liver abscess after intra-peritoneal rupture.

We have found that prolonged hospital stay was significantly higher in pyogenic liver abscess cases as compared to amoebic liver abscesses cases, our results correlates with the *Sreeramulu PN* et al [18] and Barshak MB, et al [19].

MA Abusedera et al [20] in his study showed that >50% Size reduction was achieved between 5□17 days with mean of 10.4. In our study was even more significant because even >71% size reduction can be achieved between 5-21 days with mean value of 7.11.

Our results showed that total score were significantly higher in pyogenic liver abscess then amoebic liver abscess, in accordance with the Kottareddygari VS, et al [21].

Mortality rate was significantly higher among pyogenic liver abscess group as compared to amoebic liver abscess group in this research, consistent finding reported by I Brnawi H, et al [22] and Gupta A, et al [23].

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CONCLUSION

We have concluded that prolonged hospital stay, abscess rupture and mortality rates were higher in PLA as compared to ALA. Pleural effusion was common complication in both ALA and PLA. However, the emergence of antimicrobial resistance in PLAs underscores the need for robust antimicrobial stewardship. Improved public health measures, including better sanitation and access to clean water, are essential to reduce the prevalence of ALAs

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