



CLINICAL STUDY OF LIVER ABSCESS AND ITS MANAGEMENT

General Surgery

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ABSTRACT

INTRODUCTION: An abscess is a collection of pus within the body tissue¹. Liver abscesses are the most common type of visceral abscesses. The liver abscess entity is an old disease known since Hippocrates's time (460-377 BC)². Amebiasis's earliest report is probably the Sanskrit document Brigusamhita, written about 3000 BCE, referring to bloody mucoid diarrhea³. Liver abscess, particularly with an amoebic infestation, is more common in tropical countries like India because of poor sanitation.

MATERIALS AND METHODS: Patients with liver abscess diagnosed clinically or ultrasonographically and patients with evolving, liquefied & ruptured stage with or without peritonitis, attending the GENERAL SURGERY OPD of Alluri Sitarama Raju Academy of Medical Sciences were included in our study between July 2019 and December 2020. A prospective study was done in 100 patients.

RESULTS: The liver abscess was predominantly seen in male gender (89%) with highest incidence in 31-40 years. The most common symptom was found to be abdominal pain and fever. Strong correlation was seen with alcohol consumption. Enterococcus was the most common organism cultured in our study (34.2%). Ultrasonography was accurate and cost effective for diagnosis. Percutaneous aspiration under antibiotic coverage was found to be efficient method of treatment.

CONCLUSION: Liver abscess is a common condition in India. India has the second- highest incidence of liver abscess in the world. Liver abscess usually presents as a solitary abscess, most commonly in the right lobe of the liver. Ultrasound-Guided Percutaneous Aspiration & Pig Tail Catheter drainage procedure is a safe and effective liver abscess management method.

KEYWORDS

INTRODUCTION:

An abscess is a collection of pus within the body tissue(1). It contains white blood cells, dead tissue, bacteria.

Liver abscesses are the most common type of visceral abscesses; in a report of 540 cases of intra-abdominal abscesses, pyogenic liver abscesses accounted for 48 percent of visceral abscesses and 13 percent of intra-abdominal abscesses(4). Liver abscess, particularly with an amoebic infestation, is more common in tropical countries like India because of poor sanitation.

Surgical drainage had been the standard of care until the introduction of minimal invasive drainage in the mid-1970s. In recent years, with the development of imaging techniques like ultrasonography, CT scan, and fluoroscopy, image-guided percutaneous drainage has been extensively used to treat liver abscesses. Success rates ranging from 70% to 100%.

Although needle aspiration of liver abscess is more comfortable, less expensive, the critical reason for unsuccessful needle aspiration is its inability to remove the pus completely. In contrast to needle aspiration, percutaneous placement of an indwelling catheter provides continuous drainage; hence, the problem of incomplete evacuation and re-accumulation is not associated with catheter drainage, thereby accounting for higher success rates.

AIMS AND OBJECTIVES:

AIM: To study the clinical profile and management techniques in patients with liver abscess.

OBJECTIVES:

1. To determine the Etiology in patients with liver abscess.
2. To study the clinical profile, laboratory profile and management in patients with liver abscess.
3. To find the relationship between various predictors (Laboratory investigations, hospital stay, pleural effusion) complicating liver abscess according to management.
4. To find the correlation between etiology and different types of

liver abscess.

5. To find the correlation between clinical features and different types of liver abscess.
6. To assess various complications in patients with liver abscesses.

INCLUSION CRITERIA:

1. Patients with liver abscess diagnosed clinically or ultrasonographically
2. Patients with evolving, liquefied & ruptured stage with or without peritonitis.

EXCLUSION CRITERIA:

1. Age less than 18 years.
2. Traumatic liver abscess.
3. Abdominal or biliary surgery antecedents
4. Abdominal neoplasia antecedents.
5. Congenital cysts
6. Patients who did not give consent for the study.

A Prospective study was done in 100 patients with liver abscess following the above criteria.

The Following parameters were recorded:

From history-age, sex, religion, duration of illness, addiction to alcohol, and medical history of diabetes mellitus.

Clinical features- symptoms (abdominal pain, fever, jaundice, diarrhoea, anorexia, cough, and others). Signs (right upper quadrant pain, intercostal tenderness, hepatomegaly, jaundice, chest infections, and others).

Complete haemogram, RFT, LFT, Prothrombin time, Serology for amoebic antigen were sent immediately on presentation.

Radiology- chest X-ray, abdominal X-ray, ultrasound abdomen (nature of the abscess- single or multiple, the lobe involved and size of the abscess) Culture from the aspirate.

Patient was put on conservative line of management.

Patient was followed up daily clinically and LFT & USG Abdomen was repeated on the 3rd day if patient symptomatically not relieved.

Repeat Ultrasound / CT / MRI Abdomen & pelvis will be done immediately if patient condition does not improve/worsens or after 3-4 days as a routine.

If the patient develops any of the complications like rupture in to any of the serosal cavity, patient was immediately taken up for surgery (Laparotomy drainage or Laparoscopic drainage).

Pus was sent for Gram's stain and culture and sensitivity.

Anaerobic cultures were not done as the facility was not available in our hospital.

Blood cultures were not routinely performed in all cases.

Patient was informed about any surgical procedure and consent taken.

RESULTS:

Age and sex distribution:

The age of the patients was included in this study varied from 19-75 years. The mean age was 47 years. The highest incidence was noted in the age group of 31-40 years (25.0%) and 51-60 years (25%) 89% of patients were male, and 11% were female.

Fig 1: PIE CHART SHOWING AGE

DISTRIBUTION OF PATIENTS



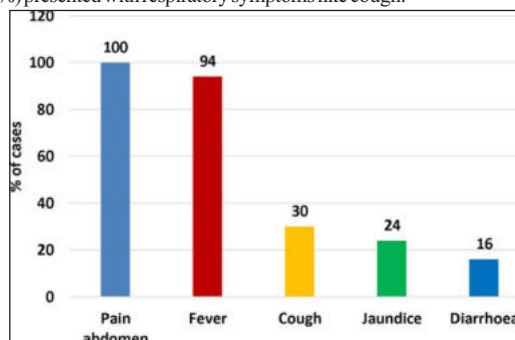
■ 19 - 20 Yrs ■ 21 - 30 Yrs ■ 31 - 40 Yrs
■ 41 - 50 Yrs ■ 51 - 60 Yrs ■ > 60 Yrs

Table 2: GENDER DISTRIBUTION OF PATIENTS

Gender	No. of patients	%
Male	89	89%
Female	11	11%
Total	100	100%

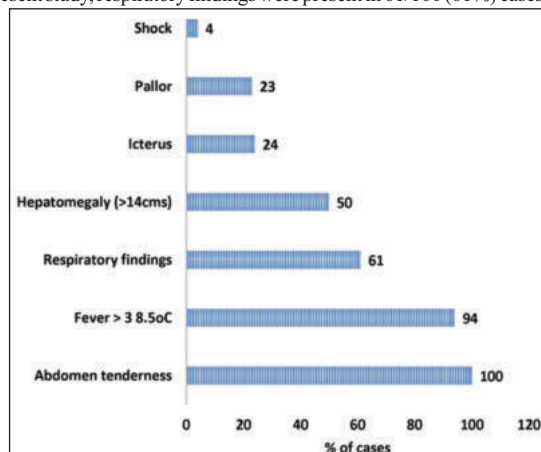
Symptoms:

Abdominal pain was present in all cases (100.0% of patients). Fever was the most consistent symptom occurring in 94/100 (94%). Diarrhea occurring in 16/100 (16%), jaundice was present in 24% (24/100) of patients. 30 patients (30%) presented with respiratory symptoms like cough.

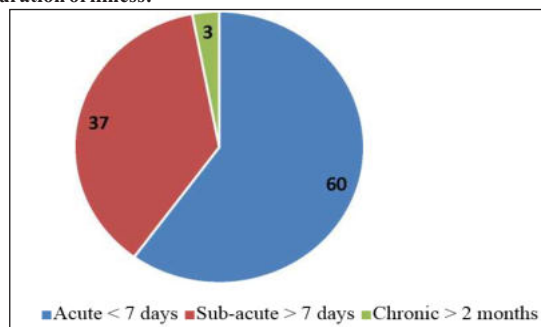


Signs:

Fever defined as temperature $> 38.5^{\circ}\text{C}$ (101°F) was present in 94.0% (94/100) of the cases. Abdominal tenderness was elicited in the right hypochondrium and some cases in epigastrium in all 100 cases. Hepatomegaly, defined as liver span $> 14\text{ cm}$, was seen in 50/100 (50%) cases. Icterus was observed in 24/100 (24%) of cases clinically. 23/100 (23.0%) had pallor on general examination, while 04/100 (4%) presented with shock and features of shock. Respiratory findings included right pleural effusion, basal consolidation, and basal crepitations. In the present study, respiratory findings were present in 61/100 (61%) cases.



Duration of illness:



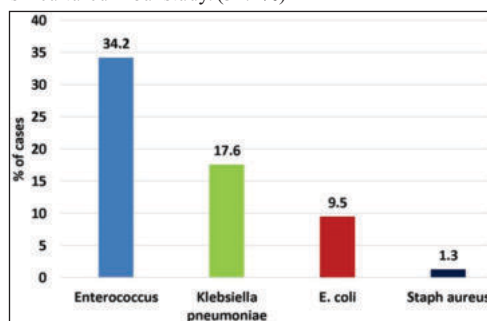
Alcoholism in liver abscess:

84% of the patients are Alcoholics (Neera /toddy/Arrack) with 95%CI (75.58- 89.90), which is statistically significant. Out of that, 79 cases were male (94.3%) cases with 95% CI (86.06 - 96.87), which is statistically significant, and one case was a female case

Lab investigations:

72% of the patients had WBC > 11000 with 95%CI (62.51-79.86). Anaemia ($\text{Hb} < 10\text{ gm/dl}$) were found in (23/100) 23.0% of the cases. Mean Hb in this study group was 11.46 gm/dl. The Hb% of the patients ranged from 6.4-17.0 gm%. Leucocytosis ($> 11,000/\text{cumm}$) was found in (72/100) 72.0% of cases. Mean WBC count was 14,770 c/cumm and it ranged from 5000-42,400 c/cumm. 29/100 (29%) were found to be diabetic with RBS $> 200\text{mg/dl}$. The mean RBS was 120 mg/dl and ranged from 60-390 mg/dl; raised urea ($> 45\text{ mg/dl}$) was found in 21/100 (21%) of the cases. Mean urea levels in cases was 33mg/dl, and it ranged from 18-82 mg/dl, and Serum Creatinine ($> 1.2\text{ mg/dl}$) was seen in 16% of cases.

In pus culture sensitivity, Enterococcus was the most common organism cultured in our study. (34.2%)

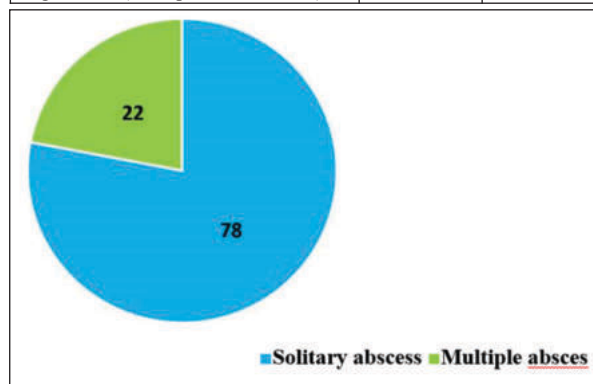


USg findings:

Solitary Abscess was observed in 78/100 (78.0%) cases, while multiple abscesses were noted in 22/100 (22.0%) of the patients. Isolated right lobe abscesses were seen in 74/100 (74.0%) cases, and left lobe abscesses were seen in 4/100 (04%) of patients. Both lobe involvement was seen in 04/100 (04.0%) of cases.

Multiple right lobe liver abscesses in 18 cases (18%). No. of patients with single Abscess <200cc were 26/100 (26%), and > 200 cc were 74/100 (74%).

USG findings	No. of cases	%
Solitary Abscess	18	85.7%
Right lobe abscess	17	80.9%
Left lobe abscess	1	4.8%
Multiple abscesses	3	14.3%
Both lobe abscess	1	4.8%
Right Lobe (Multiple liver abscess)	2	9.5%



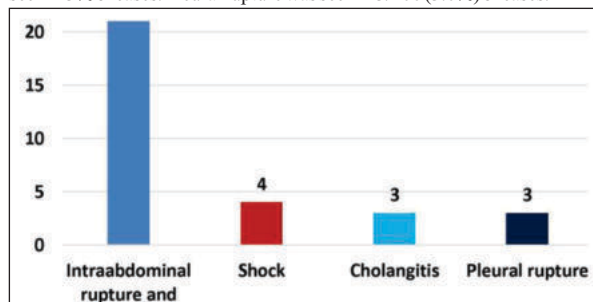
Treatment : Of the 100 cases of liver abscesses included in this study, 26 patients (26.0%) who had Abscesses less than 200 cc or multiple small abscesses involving both lobes were managed conservatively. 74/100 (74%) who had Abscess > 200 cc or left lobe abscesses were subjected to Intervention. Out of 74 cases, 49 cases underwent percutaneous aspiration under antibiotic coverage, with a 95% CI (39.42 - 58.65), which is significant.

Four cases underwent Pigtail catheter drainage under USG guided as the abscess cavity was big and not completely liquefied (In our study, size of the abscess cavity was >10cms). Twelve cases underwent Laparotomy procedure, and 9 cases underwent laparoscopic drainage for ruptured liver abscess cases (21.0%), and three patients required ICD insertion.

Treatment	No. of patients	%	%
Antibiotic coverage only (Conservative)	26	26%	18.40-35.37
ASP (Percutaneous Aspiration under Antibiotic Coverage)	49	49%	39.42-58.65
Laparoscopy Drainage	9	9%	4.81-16.23
Laparotomy & Procedure	12	12%	7.00-19.81
Pig Tail Catheter	4	4%	1.57-9.84
Thoracoscopy + Diagnostic laparoscopy	1	1%	0.2-5.45
ICD Insertion	3	3%	1.03-8.45

Complications:

The various complications in the 100 cases of liver abscesses were analyzed. Intra-abdominal rupture with peritonitis was seen in 21/100 (21.0%) of patients. Features of shock in 4 patients (4%), cholangitis were seen in 3% of cases. Pleural rupture was seen in 3/100 (3.0%) of cases.

**CONCLUSION:**

Liver abscess is a common condition in India. India has the second-highest incidence of liver abscess in the world.

- Liver abscesses occur most commonly between 30-60 years of age
- Most of the cases have an acute presentation
- Males were affected more than females.
- Pain abdomen is the most common symptom present in all 100 cases.
- Fever is the most consistently occurring symptom
- Alcohol consumption was the single most important predisposing factor of liver abscesses.
- Alkaline phosphatase is most consistently elevated among all Liver Function Tests.
- Raised WBC count, Alkaline phosphatase level, Diabetes, Hypoalbuminemia, and prolonged PT were considered the predictive factors of complicated (Ruptured) liver abscess in the study.
- Liver abscess usually presents as a solitary abscess, most commonly in the right lobe of the liver.
- Enterococcus was the most common organism isolated in pyogenic liver abscess.
- Multiple small abscesses and solitary abscesses of volume < 200 cc can be managed successfully on conservative antimicrobial therapy alone, but the recurrence rate was high.
- Ultrasound-Guided Percutaneous Aspiration & Pig Tail Catheter drainage procedure is a safe and effective liver abscess management method.
- Laparotomy and Drainage or Laparoscopy drainage remains the standard of care in ruptured liver abscess into the peritoneal cavity in this study, as we had no recurrence and mortality associated with it.
- Cryptogenic was the most common etiology in Amoebic liver abscess as well as in Pyogenic liver abscess.
- Peritoneal rupture was the most common complication associated with liver abscess.

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