



A STUDY ON LIVER ABSCESS - AN ANALYSIS OF ETIOLOGY, PRESENTATION AND MANAGEMENT

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ABSTRACT

The objective of this study is to determine the cause, presentation, diagnostic method, management and outcome of liver abscess in patient admitted in our hospital. Liver abscess is common in the tropical region 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. **Objective:** To study the clinical profile, microbiological aetiologies, and management outcomes in patients with liver abscess. **Material and methods:** A retrospective study was conducted from August 2014 to July 2015, on 44 liver abscess patients at LLRM Medical College, Meerut. History, examination, laboratory and radiological investigation with modalities of management were recorded. **Results:** Most of the patients in our study were in the age group of 21-40 years. Out of 44 patients 34 (77%) were male and 10 (23%) were female. Majority of them were from lower socioeconomic class and alcoholic (73% in male). The abscesses were predominantly in right lobe (73%) and solitary (52%). Out of 44 patients, 5 (11%) patients responded to drug therapy alone. Minimally invasive technique (Percutaneous needle aspiration and pigtail drainage) were successful in 38 (86%) patients. Surgical intervention for rupture in 1 (2%) patients. Mortality was 2% only in surgical patient. **Conclusions:** The commonest presentation was young male, alcoholic of low socioeconomic class having right lobe solitary liver abscess. Appropriate use of minimally invasive drainage techniques reduces mortality.

KEYWORDS: Amoebic liver abscess, *Entamoeba histolytica*, Pyogenic abscess of liver, Percutaneous needle aspiration (PNA), Percutaneous catheter drainage.

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 common condition across the globe. Out of total incidence of Liver abscess, approximately two-thirds of cases in developing countries are of amoebic aetiology and three-fourths of cases in developed countries are pyogenic.^[6]

Amoebic liver abscess and pyogenic abscess are common clinical problems in India and other tropical countries.^[1,2] Liver abscess can be single or multiple. The right lobe is more than two times affected as compared to left while in 5% cases both lobes of liver are involved.

Amoebic liver abscess occurs in population where *Entamoeba histolytica* is endemic and it affects right lobe in 80% of cases.

Hepatic abscesses develop insidiously with fever, sweats, weight loss and no local signs other than painless or slightly tender hepatomegaly.

In few patients it presents with abrupt onset of fever, nausea, severe abdominal pain and polymorphonucleosis.

Whereas pyogenic liver abscess does not show gender difference, amoebic abscess is approximately 10 times more common in male sex as compared to females. Computed tomography (CT), and ultrasound are the imaging studies of choice.^[3]

These patients are treated with antibiotics along with percutaneous needle aspiration (PNA) or percutaneous catheter drainage (PCD) surgical drainage being used only in patients who fail to respond to such treatment.^[4,5]

AIMS AND OBJECTIVE

The aim of the study is to determine the demographic profile, common clinical presentation and, identify the

etiological agent and to compare between different modalities of management.

MATERIALS AND METHODS

This study was conducted at LLRM Medical College Meerut, Department of General Surgery,. A total of 53 patients case sheets were reviewed and out of 53 cases 44 cases are taken into consideration for this study, remaining 9 case records are excluded because they do not fit into eligibility criteria - like discharged on the same day, no laboratory or ultrasound reports. The duration of study was 1 years from august 2014 to July 2015.

The clinical presentation at the time of admission, age of patient, general health of the patient, socioeconomic status, geographical status of the patient and radiological characteristics of liver abscess based on ultrasound findings, biochemical parameters, culture and sensitivity reports and type of intervention were taken into consideration.

Inclusion Criteria

To determine the demographic profile of the patients with liver abscess.

To find out common clinical presentation.

To identify the etiological factors of the disease

To compare different modalities of management.

Exclusion Criteria

Patients less than 20yrs of age, traumatic abscess, and infected tumour were excluded from the study.

RESULTS

During 12 months period from august 2014 to July 2015, 44 patients with the diagnosis of liver abscess fulfilled the criteria and were included in the retrospective study.

Most of the patients in our study were in the age group of 21-40 years (63%). Out of 44 patients 34 (77%) were male and 10(23%) were female.

Table 1 - Age wise distribution in years

Age in years	21-40	41-60	>61
Number of patients	28 (63%)	14 (31%)	2 (4%)

Table- 6 Microbiology

Organism	E.Coli	Klebsilla	Staphylococcus	Other / sterile
percentage	44 (20 patients)	27 (12patients)	9 (4patients)	18 (8patients)

Intravenous antibiotics in form of cephalosporins or fluoroquinolones and metronidazole were given to all patients. 5 patients were treated successfully by this conservative management. All abscess in this group were less than 50cc or multiple small abscesses.

38 patients required minimal surgical interventions like PNA (all abscess between 50-200cc) and PCD (all abscess more than 200 cc) and 1 patients required laparotomy due to rupture of abscess in peritoneal cavity.

Abdominal pain was the most common presentation found in 36 patients (81%) followed by fever in 30 patients(68%), nausea and vomiting. jaundice was present in 3 patients (6%).

Table 2 - Symptomatology

Symptoms	Pain	Fever	Nausea, vomiting	Jaundice
No of patients	36 (81%)	30 (68%)	16 (36%)	3 (6%)

Alcohol addiction was common in males and cholelithiasis in female.

Table 3 - Alcoholism and cholelithiasis.

Males	34	Alcoholism in 25 (73%)
Females	10	Cholelithiasis in 3 (30%)

Majority of liver abscesses were found in right lobe of liver 72% and 9% of liver abscess was found in left lobe, and both lobes were involved in 20% of patients .

Table 4 - Anatomical location

Lobe affected	Right lobe	Left lobe	Both lobe
Percentage	72 (32 patients)	9 (4 patients)	20 (9 patients)

52% liver abscess was solitary in presentation; multiple abscesses were found in 48% cases.

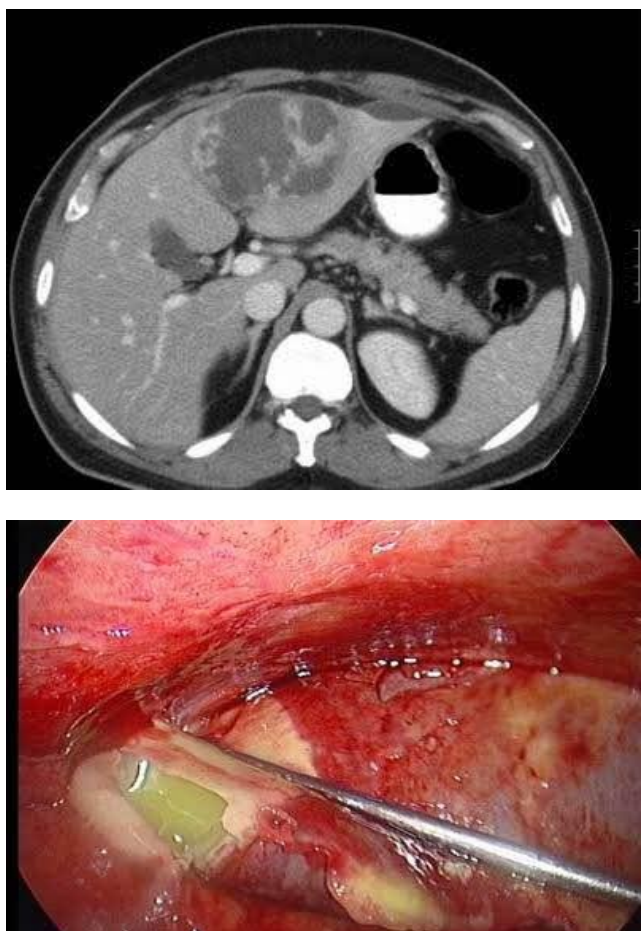
Table 5 - Number of abscesses

Number of abscesses	1	2	3	>3
Number of patients	23 (52%)	5 (11%)	10 (22.7%)	6 (13.6)

The Microbiological reports revealed 71% cases were positive for E. Coli & klebsiella.

Table - 7 Modalities of treatment

Treatment	Only medical	PNA AND PCD	Laparotomy
No. of patients	5 (11%)	38 (86%)	1 (2%)

Figure**DISCUSSION**

Liver abscess has been described since the time of Hippocrates (400 BC), with the first published review by Bright appearing in 1936. In 1938, Ochsner's classic review heralded surgical drainage as the definitive therapy; however, despite the more aggressive approach to treatment, the mortality remained at 60-80%.^[6]

The development of new radiologic techniques, the improvement in microbiologic identification, and the advancement of drainage techniques, as well as improved supportive care, have reduced mortality to 5-30%; yet, the prevalence of liver abscess has remained relatively unchanged. Untreated, this infection remains uniformly fatal.

Out of total incidence of Liver abscess, approximately two-thirds of cases in developing countries are of amoebic aetiology where as only 10% of cases in united state are of Amebic abscess due to *Entamoeba histolytica* and Pyogenic abscess, which is most often polymicrobial, accounts for 80% of hepatic abscess cases in the United States.^[6,7]

Amoebic liver abscess and pyogenic abscess are common clinical problems in India and other tropical countries.^[1,2]

Amebic liver abscess is the most frequent extraintestinal manifestation of *Entamoeba histolytica* infection. This infection is caused by the protozoa *E. histolytica*, which enter the portal venous system from the colon.

Polymicrobial involvement is common in pyogenic abscess, with *Escherichia coli* and *Klebsiella pneumoniae* being the two most frequently isolated pathogens (also in our study). Reports suggest that *K. pneumoniae* is an increasingly prominent cause.^[8]

USG findings are good for radiological evaluation of amoebic liver abscess which shows peripheral rim with homogeneity, but in pyogenic abscess computerized tomography is more specific and sensitive than USG.^[3]

An untreated hepatic abscess is nearly uniformly fatal as a result of complications that include sepsis, empyema, or peritonitis from rupture into the pleural or peritoneal spaces, and retroperitoneal extension. Treatment should include drainage, either percutaneous or surgical.

The treatment of pyogenic liver abscess should be individualized. Proper antibiotic treatment and adequate drainage is essential. The choice of treatment of pyogenic hepatic abscesses depends largely on the source and characteristics and the patient's underlying clinical condition. In general both antibiotic therapy and adequate drainage are required for the treatment of pyogenic liver abscesses in combination. Drainage has been accomplished either surgically; conventional open or laparoscopic, or percutaneously.^[9]

Antibiotic therapy alone should be reserved only for the patients in good clinical condition and those who has a solitary or micro abscesses smaller than 2 cm in diameter. The length of the antibiotic therapy should be individualized on the basis of the number of abscesses and the clinical response. Patients with multiple abscesses should receive antibiotics for 4-6 weeks.^[10,11]

Use the amebicidal drugs is the first line treatment of amoebic liver abscess. Metronidazole is the drug of choice. The size of the abscess is an important factor in determining the response to medical treatment. Percutaneous needle aspiration and/or catheter drainage are the other modalities of treatment. The treatment modalities are selected depending on the presence of complications. The first line treatment in uncomplicated amoebic abscess should be amebicidal drugs. Metronidazole is the drug of choice and has replaced the use of emetine and chloroquine. Metronidazole is effective against both the intestinal and hepatic phase. 750 mg three times a day for 7-10 days is recommended. Abscess smaller than 5 cm in diameter respond better to metronidazole treatment.

Although, PCD is a preferred method most widely used to drain liver abscesses, recent studies have shown PNA to be simpler, less costly, and equally effective.

Usually needle aspiration is preferred for smaller abscesses and catheter drainage is done in larger ones. But no clear cut guidelines have been laid.^[9,10,12]

Both these techniques have certain disadvantages. Multiple attempts of PNA needed for large abscesses are uncomfortable and perceived as more traumatic by patients. Also, during the period between two aspirations pus may get recollected.

In smaller abscesses, daily production of pus may be small, but a larger abscess produce larger quantity of pus, which needs to be drained continuously^[6,13,14] this obvious advantage over PNA, which may have accounted for quicker clinical recovery, lesser duration of parenteral antibiotic lesser failure rate among patients treated with PCD. On the other hand, placing a catheter needs more expertise followed by nursing care. Percutaneous needle aspiration and percutaneous catheter drainage are more effective than conservative medical management in treatment of liver abscess; however co-morbid conditions of patients and size of liver abscess also influence the outcome.^[13, 14,15,16]

CONCLUSION

Liver abscess is a common problem in tropical countries. India has 2nd highest incidence of liver abscess in world.

The commonest presentation was young male, alcoholic of low socioeconomic class having right lobe solitary liver abscess. Most of cases had an acute presentation and right lobe is most commonly affected. Males were affected more than females.

Pain in abdomen was the most common symptom followed by fever and nausea, vomiting. Percutaneous needle aspiration and percutaneous catheter drainage are more effective than conservative medical management in treatment of liver abscess; however co-morbid conditions of patients and size of liver abscess also influence the outcome.

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