International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

***IJAMSCR |Volume 3 | Issue 2 | April-June- 2015***
**www.ijamscr.com**

***Research article*** ***Medical research***

# Clinical and etiological profile of patients with liver abscess

**M.Rama Devi[1], M.S.Sridhar [2], Shankar Reddy Dudala[3]**

[1]*Assistant Professor, Department of General Medicine, Sri Venkateswara Medical College, Tirupati, Andhra Pradesh, India.*

[2]*Professor, Department of General Medicine, Sri Venkateswara Medical College, Tirupati,India.*

[3]*Assistant Professor, Department of Community Medicine, Sri Venkateswara Medical College, Tirupati*

***Corresponding author: M.Rama Devi**

## ABSTRACT

Hepatic abscess is the most common extra intestinal manifestation of amoebiasis. The incidence of liver abscess among cases of intestinal amoebiasis varies from 3-17%. **Objective:** To study the clinical features and etiological factors of patients with Liver abscess. It is a prospective Hospital based study. Patients admitted to medical wards between the period August 2008 and August 2010 in SVRR Government General Hospital, SV Medical College, Tirupati, were selected for the study. **Conclusion:** Liver abscess is most commonly seen in 40years to 60 years age group with Male to female ratio of 13 to 1.Ethanol consumption and lower socio-economic status are important predisposing factors. Abdominal pain and fever are the common presenting features. Common clinical findings are intercostal tenderness and hepatomegaly.

**Keywords:** Liver abscess; Pyogenic abscess, amoebic abscess.

## INTRODUCTION

Liver is the organ most subjected to the development of abscesses. Liver abscess remains a formidable diagnostic and therapeutic problem, but significant strides in the management have occurred over the past few decades.

Hepatic abscess is the most common extra intestinal manifestation of amoebiasis. The pyogenic liver abscess is a distinct clinico- pathological entity, usually associated with systemic manifestations of toxemia and clinical signs of the disease in the right upper quadrant of the abdomen, which is becoming more common now a days.

Liver abscess made up to13% of the total number of abscess or 48% of visceral abscess.[1] The incidence of liver abscess among cases of intestinal amoebiasis varies from 3-17%[2]. Liver abscess can occur at any age group. Pyogenic liver abscess is more common between 40-60 years age group, where as the Amoebic abscess is more common between 20-50 years age group.[3] Amoebic abscess are 10 times more frequent in adults than children. Cases of amoebic liver abscess are reported in 2 months old infants also.[4] Both amoebic and pyogenic liver abscesses are more common in males than females. In amoebic abscess, the male: female ratio is "9 to 10:1" where as in pyogenic abscess, the male: female ratio is "2:1.About 85-90% of male patients are suffering with this diseases.[5]

Malnutrition appears to be a predisposing cause for the formation of both pyogenic and amoebic liver abscesses. So, these are more common in low socioeconomic group of population[4].

Alcohol has been incriminated as a potent predisposing cause in the etiology of liver abscess. Chronic hepatic congestion produced by alcohol is supposed to favour the colonization of amoebae & other microorganisms[6,7]. Diabetes, biliary tract diseases, abdominal surgeries in the past, immuno compromised states and malignancies are associated with increased incidence in the development of liver abscess.

**Objective:** To study the clinical features and etiological factors of patients with Liver abscess.

## MATERIALS AND METHODS

It is a prospective Hospital based study.

### Inclusion Criteria

1. Patients admitted to medical wards between the period August 2008 and August 2010 in SVRR Government General Hospital, SV Medical College, Tirupati, were selected for the study.
2. Patients with clinical features suggestive of liver abscess and with positive ultrasonographic features of abscess were included in this study.

### Exclusion Criteria

**1.** Patients below 13 years of age were excluded from the study.

**2.** Patients with clinical features suggestive of liver abscess and with negative ultrasonographic features of abscess were excluded from this study.

For all the patients included in the study, a detailed history along with risk factors like alcoholism, socioeconomic status, immune status, previous history of abdominal pathology and dysentry was taken.

All these patients were subjected to ultrasound abdomen. Based on ultra sonographic findings these cases were divided into two groups – single abscess and multiple abscess group. Both these groups were subjected to hematological, biochemical, radiological and microbiological investigations.

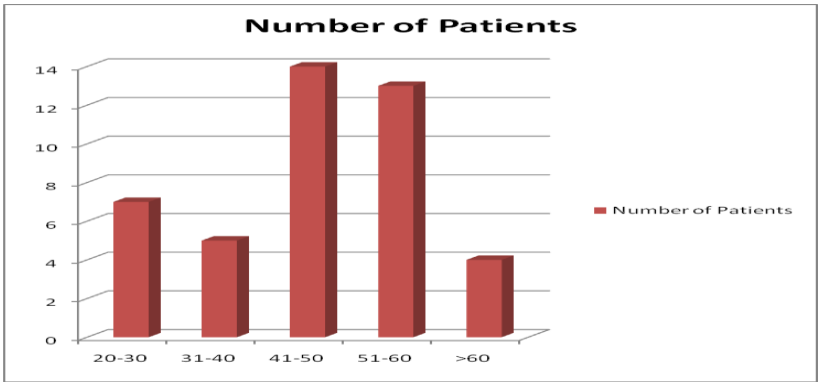
Amoebic liver abscess is diagnosed by using 'LAMONT & POOLER' criteria and pyogenic abscess is diagnosed by Cavitary lesion is seen in liver, demonstration of organisms in aspirate(Gram stain/Culture).,Patient not responding to anti amoebic therapy.

All the patients are treated with antiamoebic therapy and antibiotic therapy depending on the diagnosis. Therapeutic aspiration of abscess done if needed.

Patients were followed every 3 weeks following discharge from the hospital. Follow up period ranged between 6 months to 1 year.

## RESULTS

1. **Age distribution:** In our study age range was 25 –75 years with a mean age of 49.56 years. The most common age group affected with liver abscess was between 41-60 years (62.78%).




**2. Sex distribution:** There were 40 male patients (93 %) and 3 female patients (7 %). Male to female ratio was 13.3:1.

3. **Ethanol abuse:** 88.37% patients (38 cases) had history of consumption of ethanol. Most of the patients consumed more than 250 ml of locally brewed liquor thrice a week for more than 5 years.

**4. Socio economic status:-** 86 % (37 patients) belonged to lower socio economic status, 9.3 % (4 patients) were dependents, 4.65 % (2 persons) were employees.

**5. Symptoms at the time of presentation:**

**Table-2 : Clinical Features**

| S. NO | CLINICAL FEATURES | NO.OF CASES ( n=43 ) | PERCENTAGE |
|---|---|---|---|
| 1 | Onset-chronic | 31 | 72.09% |
| | Acute | 12 | 27.90% |
| 2 | Abdominal Pain | 42 | 97.6 % |
| 3 | Fever | 40 | 93 % |
| 4 | Cough | 11 | 25.5 % |
| 5 | Jaundice | 6 | 13.95 % |
| 6 | Weight loss | 5 | 11.6 % |
| 7 | Diarrhoea | 1 | 2.32 % |
| 8 | Vomiting | 11 | 25.5 % |
| 9 | Hiccough | 1 | 2.32 % |
| 10 | Right Intercostal tenderness | 41 | 95.3 % |
| 11 | Hepatomegaly | 33 | 76.74 % |
| 12 | Ascites | 5 | 11.6 % |
| 13 | Pleural effusion | 5 | 11.6 % |

**6. Number of abscess**

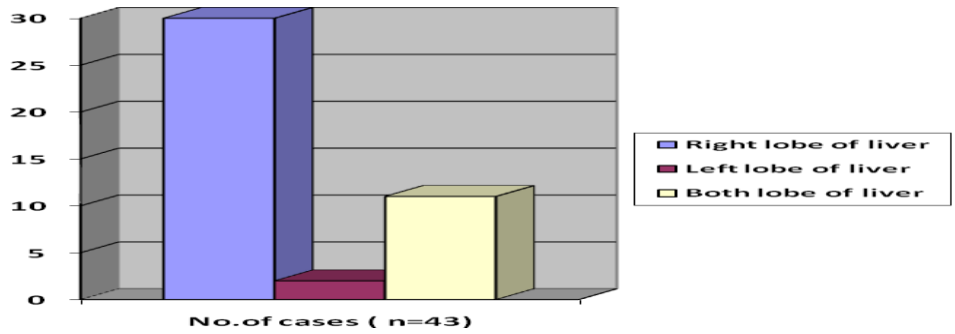
| S. No. | No. of abscess | No.of cases ( n=43 ) | Percentage |
|---|---|---|---|
| 1 | Single | 29 | 67.44% |
| 2 | Multiple | 14 | 32.56% |

**7. Abscess number by age of the patient**

**Table- 3: Abscess number by age of the patient**

| Age in years | Single Liver Abscess (n=29) | Multiple Liver Abscess (n=14) |
|---|---|---|
| 20-40 | 10 | 3 |
| 41-60 | 16 | 10 |
| >61 | 3 | 1 |

**8 . Site of liver abscess**



### 9. Examination of Pus

**Table -4 : Microbiological results of aspirated pus:**

| S. No | Pus examination | No. of cases ( n=42 ) | Percentage |
|---|---|---|---|
| 1 | Gram staining: | | 26.2 % |
| | Gram positive cocci | 5 | |
| | Gram negative diplococci | 1 | |
| | Gram negative bacilli | 5 | |
| 2 | Culture : | | 12 % |
| | Klebsiella species: | 3 | |
| | E .coli species: | 1 | |
| | Coagulase positive Streptococci: | 1 | |
| 3 | Wet mount for Trophozoites | 1 | 2.38 % |

### 13. Etiological relation with number of abscess

| Sl. No. | Etiology | No. of abscess | No. of cases( n=42 ) | Percentage |
|---|---|---|---|---|
| 1 | Amoebic abscess | Single | 23 | 54.76 % |
| 2 | Amebic | Multiple | 2 | 4.76 % |
| 3 | Pyogenic abscess | Single | 5 | 11.90 % |
| 4 | Pyogenic abscess | Multiple | 11 | 26.19 % |
| 5 | Mixed infection | Single | 1 | 2.38 % |

### 14.Investigations

**Table 9: Investigation**

| S. No | Investigations | No. of cases | Percentage |
|---|---|---|---|
| 1 | Hb % - >10 | 23 | 53.4% |
| | - <10 | 20 | 46.6% |
| 2 | WBC >10,000cells/cu.mm | 12 | 27.9% |
| 3 | ESR raised | 38 | 88.3% |
| 4 | Decreased serum albumin ( <3 gm/dl ) | 15 | 34.89% |
| 5 | LFT Raised | 10 | 25.23 % |
| 6 | Serum bilurubin (>2mg/dl) | 8 | 18.6 % |
| 7 | X ray chest with pleural effusion | 5 | 11.6% |

### 15. Complications

Complications were seen in 9 patients (20.93 %).5 patients had subdiaphragmatic rupture of abscess, leading to broncho-pulmonary fistula in one case and pleural effusion in 3 cases. Another 2 patients had pleural effusion due to liver abscess. In one case, the abscess ruptured into peritoneal cavity leading to septate ascites. In one case of multiple liver abscesses, patient died due to hepatic encephalopathy or septicemia.

## DISCUSSION

Pyogenic abscess is common among elderly population and amoebic liver abscess is common in 30 to 50 years age group. But it should be noted that no age is exempt from this disease and cases have been seen in infants of 2 months of age[5] to 93 years[8]. There is a marked contrast in the age of incidence in comparison to a study done in the pre antibiotic era by Oschner et al[9] here the median age was third decade in the setting of intra-abdominal infections.

Many studies were shown similar age group distribution Hyo Min Yoo et al [10]Teh et al[11,] Navneet Sharma et al[12,] Viroj Wiwanitkit [13]

In this study there were 40 male patients (93.03%) and 3 female patients (6.97%). Male to female Ratio was 13.3:1 According to Virendra Singh et al,[14] the male to female ratio was 11:1. Similar results are observed in the study of Sharma et al [15] where male to female ratio was 9:1. In our study, incidence of liver abscess was found to be more common in patients consuming alcohol (88.37%); almost all of them had the habit of consuming indigeneous liquor. In the series of Islam et al,[7] 80% of patients consumed alcohol. In the study of Shyam Mathur et al [16] 70% of patients were alcoholics. Hai et al[6] have shown that consumption of indigenous alcohol is associated with amoebic liver abscess, higher incidence of liver abscess was seen in people belonging to lower socioeconomic status (86 %). Similar results were seen in study by Zahid khan et al[4] where 60 % belonged to lower socioeconomic group and Islam et al[7], where 74% belonged to this group.

The most common presenting symptom was abdominal pain (97.6 %), followed by fever (93%). Other less common symptoms were cough (25.5%), jaundice (11.6%), vomiting and weight loss (11.6%). Most common clinical finding was right intercostal tenderness (95.3%) and hepatomegaly (76.74%), followed by ascites and pleural effusion (11.6%). Similar observations were noted by Hyo Min Yoo et al[10,] A H Mohsen et al [17] , Navneet sharma et al [12] Aras A Abdullah et al [18] , Viroj Wiwanitkit et al [13,] Qurban Ali Bugti et al [19] , K V S Liew et al [20] , Huang et al [21,] Rehman alvi et al [22]

In the present study 69.76 % of abscess was in the right lobe of the liver, 25.6% in both lobes of liver and 4.65% of abscess in the left lobe of liver. Our results were comparable with other studies in literature like: AH.Mohsen et al [17] , Hyo Min Yoo et al [10] , Enver Zeren et al [23] , Navneeth sharma et al [12] , A Rehman Alvi et al[22] , Afzal Anees et al [24.] Gram staining was positive in 11 cases (26.2 %). Culture was positive in 5 of the 11 cases. Klebsiella was the most common organism isolated in our study. Wet mount film for trophozoites was positive in one case only. Prior antibiotic therapy and lack of anaerobic culture resulted in low culture positivity in our study. This is also described in the study by McDonald MI [25]

Klebsiella species was most commonly isolated in our study followed by E.coli and streptococci. Literature also shows that klebsiella is the leading cause of pyogenic abscess and is described as a globally emerging infectious disease by Herwig Cerwenka [26]. Klebsiella has also been found to be the most common pathogen in the aspirate in the literature. The trophozoites of E. Histolytica are usually present in the wall of the abscess. Hence it is not surprising that many authors report their total absence or very low incidence, on examination of the pus. In our study also we were able to visualize trophozoite in one case only.

Liver abscess were predominantly amoebic in aetiology in our study, followed by pyogenic and mixed infection. Various studies shows the similar reports like Mohan S et al [27] A H Mohsen et al [17] , Hyo Min Yoo et al 1970s [10] , Abdelouafi et al[28] , Teh LB et al [11]

In our series single liver abscess was most commonly seen in 67.44% of cases. Multiple liver abscess was seen in 32.56% of cases only. Amoebic liver abscess were predominantly single in nature (92%) in our study. Pyogenic liver abscess were predominantly multiple in nature (68.75%) in our study. Mixed infection was seen in ones case of single abscess. The various studies show that pyogenic abscess are either single in nature or equally single and multiple in nature. But in our study there is predominance of multiple abscess. Our Observations are comparable only to the series of Abdelouafi et al[28] and Teh et al[11] (63.6% of multiple abscesses were pyogenic).

In present study 46.6% patients were anaemic. The study of Mohsen et al[17] had 74% anemic patients, Hyo Min yoo et al[10] (23%), Qurban Ali Bugti et al [19](33%), Liew et al [20] (19%), and Huang et al[21] had 77% of anemic patients. The high number of anemic patients could have been due to chronic presentation of disease and also due to nutritional deficiency.

In present study WBC counts were raised in 27.9% of patients. But studies in literature show raised WBC counts in more number of patients, like Mohsen et al[17] (88%), Hyo Min Yoo et al [10] (83%), Qurban Ali Bugti et al [19](71%), Liew et al [20] (78%), and Huang et al [21] (75%). The low incidence of leucocytosis in present study is due to chronic presentation, malnutrition and more number of alcoholics who

might have folate deficiency. The raised WBC counts were mostly seen in acute presentations.

ESR was raised in 88.3% of patients which is similar to the study by Teh et al[11] where it was elevated in 80% patients and Shyam Mathur et al where it was raised in 2/3rd of patients.

Hypoalbuminemia was seen in 34.89% of patients. The study of Hyo Min yoo et al [10] had 55% and Chih-Jen Huang et al[21] had 71% with decreased albumin levels.

LFT was raised in 25.23% and bilirubin was raised in 18.6% of cases. Our results were comparable to the studies in literature. LFT was raised commonly in spyogenic liver abscess. LFT ` and bilirubin are one of the predictors of poor prognosis.

In our study complications were seen in 20.93 % cases. Most common complication was pulmonary (pleural effusion in 5 patients and broncho pulmonary fistula in 1 patient) accounting for 13.6 %. Sub diaphragmatic rupture was seen in 5 patients (11.6 %).

In the study by Hyo Min Yoo et al [10] complications were pulmonary in 56 %, sub diaphragmatic rupture in 6 % and peritoneal rupture in 7 %. The higher incidence of pulmonary complications could be due to larger series. Mcgarr PL et al [29] reported 2 % incidence and Akgun Y et al 30 had 7 % incidence of peritoneal rupture which were comparable to our study.

Mortality rate was 2.33 % in present study. It was a case of multiple small liver abscess who presented with toxaemia and later died due to hepatic encephalopathy or septicaemia. Mortality rates in literature were 10% in Zahid khan et al [4], 4.7% in Qurban Ali Bugti et al [19], 5.8% in Navneet Sharma et al [12],11% in Hyo Min Yoo et al[10], and 16.5% in Chi-Jen Yang et al[31] The higher mortality rates were associated with pyogenic liver abscess.

### 12. Limitations of the studs

Data regarding treatment before visiting our hospital were not completely available. Serological tests for E.Histolytica were not done due to lack of facilities. Anaerobic culture for isolation of organisms was not done due to unavailability of anaerobic culture media.

## CONCLUSION

Liver abscess is most commonly seen in 40years to 60 years age group with Male to female ratio of 13 to 1.Ethanol consumption and lower socio-economic status are important predisposing factors. Abdominal pain and fever are the common presenting features. Common clinical findings are intercostal tenderness and hepatomegaly. Amoebic liver abscess are more common than pyogenic abscess. Solitary abscess are more commonly amoebic and multiple abscess are commonly pyogenic. Isolation and staining of the organisms play an important role to differentiate amoebic from pyogenic. Klebsiella pneumonia is the emerging pathogen in the etiology of pyogenic liver abscess.

## BIBLIOGRAPHY

[1] Fauci, Braunwald, Kasper, Hauser. Intra abdominal infections and abscesses. In: Miriam J. Baron, Dennis L. Kasper. Harissons Principles of Internal Medicine. 17th ed. New York: McGraw Hill Medical;2008.807-813.

[2] Lamont N, Pooler N.R. Hepatic amoebiasis – a study of 250 cases. Quart J Med.1958;27:389.

[3] Engenir Schiff, Michael F Sorrel Willis C. Maddrey. Liver abscesses. In: David Kershenobich, Marco A.Olivera-Martinez. Schiffs Diseases of the liver. 10th ed. Lippincott Williams & Wilkins; 2007.1352-58.

[4] Zahid kahn, Sher Rehman, Habib bakhtyar,et al. Outcome of surgical management of liver abscess. J.Med.Sci.(peshawer, print). 2009 July;17(2):62-66.

[5] Joan Scragg. Amoebic liver abscess in African children. Arch dis child. 1960 Apr; 35(180):171-176..

[6] Hai A A, Singh A, Mittal V K, Karan G C. Amoebic liver abscess. Int Surg. 1991; 76(2): 81-3.

[7] Q T Islam, A R M S Ekram, M I Ahmed et al. Pyogenic liver abscess and indigenous alcohol. TAJ. 2005 June;18(1):21-24.

[8] Yu-Hang Yeh, Yu-Chia Lin et al. Pyogenic liver abscess in the elderly. International Journal of Gerontology. 2009 Dec;3(4):204-208.

[9] De Bakey M.E, Ochsner. Hepatic amoebiasis: A 20 year experience and analysis of 263 cases. Surg Gynecol Obstet. 1951;92:209-31.
[10] Hyo Min Yoo, Won Ho Kim et al. The Changing Pattern of Liver Abscess during the past 20 years. Yonsei Medical Journal.1993;34 (4) :340-351.
[11] Teh LB, Ng HS , Kwok KC et al. Liver Abscess-A clinical Study. Ann Acad Med Singapore. 1986 Apr; 15 (2): 176-81.
[12] Navneeth Sharma, Aman Sharma, Subhash Varma et al. Amoebic liver abscess in the medical emergency of a north Indian hospital. BMC research. 2010, 3:21doi:10.11.86/1756-0500-3-21, online at: http://www.biomedcentral.com
[13] Viroj Wiwanitkit. A note on clinical presentations of amoebic liver abscess:an over view from 62 Thai patients. B M C Family Practice. 2002;3:13.
[14] Virendra Singh, Ashish Balla, Navneeth Sharma et al. Pathophysiology of jaundice. Am. J. Trop. Med. Hyg. 2008; 78 (4):556-559.
[15] MP Sharma, Vineet Ahuja. Amoebic Liver Abscess. JIACM. 2003;4(2):107-111.
[16] Shyam Mathur, RS Gehlot. Clinical Profile of amoebic liver Abscess. JIACM. 2002;3(4):367-73.
[17] A. H.Mohsen S.T.Green,et al. Liver Abscess in adults:Ten years' experience in a U K centre. Q J M. 2002; 95(12):797-802
[18] Aras A. Abdullah. Clinical analysis of Amoebic Liver Abscess in Sulaimany governorate. I J G E. 2005; 1(5):64-67.
[19] Qurban Ali Bugti, Mohammad A Baloch. Pyogenic liver abscess: Demographic, Clinical, Radiological and Bacteriological characteristics and management strategies. Gomal Journal of Medical Sciences. 2005 Jan-June; 3(1) :10-14.
[20] K V S Liew, T C Lau et al. Pyogenic Liver abscess: A Tropical Centre's experience in Management with Review of current literature. Singapore Med J. 2000; 41 (10):489-492.
[21] Chih-Jen Huang, G.J, Pitt H.A. Pyogenic hepatic abscess. Changing trends over 42 years. Ann Surg. 1996;223:600-609.
[22] A Rehman Alvi, Farrukh Rizvi, Syed Faraz Karim et al. Amoebic liver abscess: experience in a South Asian country. Tropical Doctor. 2010; 40(1) : 39-40.
[23] Enver Zeren ,Amir Hadzic. Sonographically Guided Percutaneous Catheter Drainage Versus Needle Aspiration in the management of Pyogenic Liver Abscess. Am. J .R. 2007;189:138-142.
[24] Afzal Anees, M .A.Khan, M.I.Zea .et al. Amoebic Liver Abscess:The Evolving Concepts of Management. Journal of Tropical Medicine.2008; 5(1).
[25] Mc Donald, Gallis H A et al. Single and multiple pyogenic liver abscesses: Natural history, diagnosis and treatment. Medicine. 1997;63:291-302.
[26] Herwig Cerwenka. Pyogenic liver abscess: Differences in etiology and treatment in Southeast and Central Europe. World J Gastroenterol. 2010 May28;16(20):2458-2462
[27] Mohan S, Talwar N,et al. Liver Abscess:A clinico pathological analysis of 82 cases. Int Surg. 2006 Jul-Aug; 91(4):228-233.
[28] Abdelouafi A, Ousehal A. Ultrasonography in the diagnosis of liver abscess. Ann Radiol. 1993;36 (4):286-292.
[29] Mc Garr, PL,Madiba TE.et al. Amoebic Liver Abscess-Results of a conservative management policy. S Afr Med J. 2003 Feb;93(2):132-136.
[30] Akgun Y, Tacyildiz IH et al. Amoebic liver abscess: changing trends over 20 years. World J Surg. 1999 Jan; 23(1):102-106.