

Image Guided Management of Various Liver Abscess.

Vikas Agrawal¹, Garima Sarawgi², Boni Krishna Chaitanya³, Sumit Dahiya³, Sai Bharat Sunkara⁴

¹Associate Professor, Hi-Tech Medical College & Hospital, Bhubaneswar.

²Senior Resident, General Surgery, Hi-Tech Medical College & Hospital, Bhubaneswar.

³PGT 3rd Year, General Surgery, Hi-Tech Medical College & Hospital, Bhubaneswar.

⁴PGT 2nd Year, General Surgery, Hi-Tech Medical College & Hospital, Bhubaneswar.

Received: November 2017

Accepted: December 2017

Copyright: © the author(s), publisher. It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Amoebic liver abscess is an important cause of inflammatory space occupying lesion of liver in the tropics. The primary aim of our study is to study the clinical presentations, investigations, diagnosis and management of amoebic liver abscess. **Methods:** All patients diagnosed with liver abscess in Hi-Tech Medical and hospital, Bhubaneswar, Odisha, over a period of two years from September 2014 to September 2016. After obtaining clearance and approval from the institutional ethical committee, detailed history of all patients is taken with thorough clinical examination; required investigations were done and entered into a proforma during their stay and follow up. Therapeutic aspiration reserved for the following cases where: Size of abscess is more than 5 cm in diameter (125ml). When pain and fever persist for more than 3 to 5 days after starting Antiamoebic therapy. Four clinical variables-abdominal pain, fever, anorexia, and hepatomegaly-were assessed on daily basis. Finally, The patients were asked to visit for reassessment once a month for 3 months. **Results:** A total of 30 patients of amoebic liver abscess were included and studied during the time period. Out of 30 patients of liver abscess, 14 patients gave history of alcohol consumption, comprising 47% of the study population. than 5 cms were treated conservatively. In Patients treated by percutaneous aspiration, 12 were having cavities ranging 11-25 cms and 5 with cavities ranging 6-10 cms. 60% of patients were treated by ultrasound guided percutaneous aspiration and 40% of patients were treated by conservative management. **Conclusion:** Ultrasonography helps in early diagnosis and reducing morbidity and mortality. It also confirms the site, size and number of amoebic liver abscess and knowing the prognosis.

Keywords: Amoebic Liver Abscess, Infection, Ultrasonography.

INTRODUCTION

Amoebic liver abscess is an important cause of inflammatory space occupying lesion of liver in the tropics,^[1] like India. India being a tropical country and large number of unclean food and alcohol consumption add up to the risk. Decreased immunity secondary to intake of cytotoxic drugs, diabetes mellitus, and HIV infection etc. Further increases susceptibility to liver abscess.^[2]

Amoebic liver abscess is a serious problem in India. Management of this disease includes anti amoebic drugs, percutaneous aspiration in cases like (secondary infection, fever and pain persisting for more than 3 to 5 days, if rupture is suspected) and occasionally catheter drainage in case of failure of repeated aspiration. In India, however most of the patients present with large abscess cavities and toxic features needing frequent aspiration of the abscess.

The review of literature reveals that the smaller Amoebic liver abscesses (multiple or single) can be treated conservatively.^[3] Larger Amoebic liver abscesses or amoebic liver abscess with complications (rupture, jaundice, etc.) require intervention in the form of either percutaneous aspiration, closed or open drainage. Regarding conservative treatment there are no studies indicating drawbacks of prolonged conservative treatment and there are no studies which shows efficacy of needle aspiration in such cases. Further there are no studies which show complications and need of reaspiration in patients who have been treated with radiologically guided percutaneous aspiration as an initial line of management. Hence this study is conducted to know the immediate and late effect of, metronidazole alone and a regimen comprising needle aspiration and metronidazole.

Aims and Objectives

- To study the clinical presentations, investigations, diagnosis and management of amoebic liver abscess.
- To compare the efficacy and study norms in establishing a protocol for choosing different options of treatment for amoebic liver abscess.

Name & Address of Corresponding Author

Dr. Garima Sarawgi
Senior Resident,
General Surgery,
Hi-Tech Medical College & Hospital,
Bhubaneswar
Odisha.

MATERIALS AND METHODS

Source of Data

All patients diagnosed with liver abscess in Hi-Tech Medical and hospital, Bhubaneswar, Odisha, over a period of two years from September 2014 to September 2016.

Method of Collection of Data:-

- A. Sample Size: All patients diagnosed as amoebic liver abscess.
- B. Study Design: Prospective study
- C. Duration Of Study: September 2014 to September 2016
- D. Place of Study: Hi Tech Medical college and hospital Bhubaneswar Odisha.
- E. **Inclusion Criteria**
 - a) Age more than 18 years.
 - b) Patients of both sexes, with Amoebic liver abscess admitted to the surgical and medical wards.
- F. **Exclusion Criteria:**
 - Paediatric age group <18 years.
 - Liver abscess due to malignant cause.
 - Liver abscess due to Hydatid cyst of liver.
 - Multiple liver abscess.(>3 in number)

G. Methodology

After obtaining clearance and approval from the institutional ethical committee, patients fulfilling the inclusion/ exclusion criteria were included in the study, after obtaining informed consent.

Detailed history of all patients is taken with thorough clinical examination; required Investigations were done and entered into a proforma during their stay and follow up.

Patients with the following symptoms and signs and investigations:

- a. Pain
- b. Fever
- c. Vomiting
- d. Diarrhea
- e. Jaundice
- f. Abdominal tenderness
- g. Hepatomegaly
- h. Intercostal tenderness
- i. Radiological investigations (USG/CT) indicative of liver abscess

Demonstration of pus by percutaneous needle aspiration or serological tests (ELISA), suggestive of amoebic liver abscess were taken as patient with amoebic liver abscess.

After establishing diagnosis, Tab. Metronidazole 800mg TID or Inj. Metronidazole 750 mg IV TID treatment was initiated from day of admission. In case of secondary infection; antibiotics (Fluroquinolones or 3rd Generation cephalosporin's) were added in the treatment.

Therapeutic aspiration reserved for the following cases where: Size of abscess is more than 5 cm in diameter (125ml). When pain and fever persist for more than 3 to 5 days after starting Antiamoebic therapy. Amoebic serology is in-conclusive. If

Secondary infection. If any impending rupture was suspected.

Four clinical variables-abdominal pain, fever, anorexia, and hepatomegaly-were assessed on daily basis. Hematological (ESR, and total and differential counts) and biochemical studies (serum aspartate and alanine aminotransferase activities, and alkaline phosphatase activity) were carried out in all patients on first, fourth, and 10th day. A raised ESR rate of more than 30mm in 1st hour, total leukocyte count of $12.0 \times 10^9 /l$, serum alkaline phosphatase activity of more than 13 King Armstrong units and aspartate aminotransferase activity more than 40 U/l were considered abnormal and successful outcome was marked by a normalization of these variables.

Follow up: the patients were asked to visit for reassessment once a month for 3 months.

Each treatment modality studied separately for the proportion of patients with successful outcome under each category were calculated, Chi square test, Fishers, t test and ANOVA tests were applied.

Statistical Analysis

Descriptive statistical study.

Investigations Done

1. Routine Investigations:-

Complete hemogram, Bleeding time, Coagulation profile (Prothrombin time, Activated Partial Thromboplastin Time, International Normalized Ratio), Urine routine, Fasting blood sugar, Postprandial blood sugar, Blood urea, Serum creatinine, Erythrocyte sedimentation rate, ECG, Chest X-ray, USG abdomen and HIV & HBsAg, Liver function test, pus culture and sensitivity and stool examination.

2. Special Investigations

Anti amoebic antibody (ELISA), Hepatic imaging (Computerized Tomography) and indirect hemagglutination test.

RESULTS

A total of 30 patients of amoebic liver abscess were included and studied during the time period of September 2014 to September 2016 in Hi Tech Medical college and hospital , Bhubaneswar, Odisha. Following data were collected and analyzed.

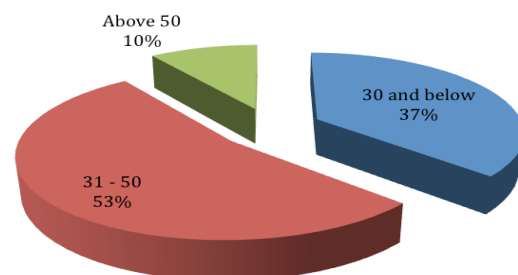


Chart 1: Age wise distribution of cases

As per the above table and chart, liver abscess was more common in the age group of 31-50 years. Mean age was 36.7years.

Sex Distribution

Table 1: Sex wise distribution of cases

Sex	No Of Cases	Percentage
Male	26	87
Female	4	13

Liver abscess were commonly found in Men (87%) than women (13%). Male to female ratio 15:1.

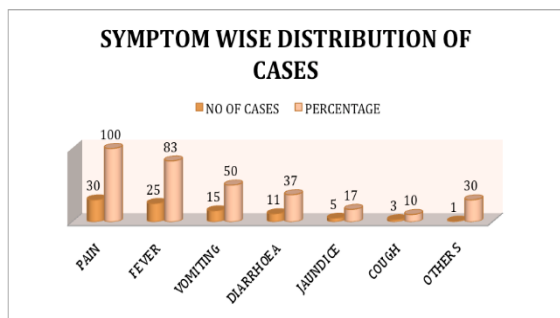


Chart 2: Symptoms wise distribution of cases.

Pain was the commonest symptom seen in all patients, followed by fever in 83% patients, vomiting in 50% cases, diarrhoea in 37% of patients, jaundice in 17% and cough in 10% patients.

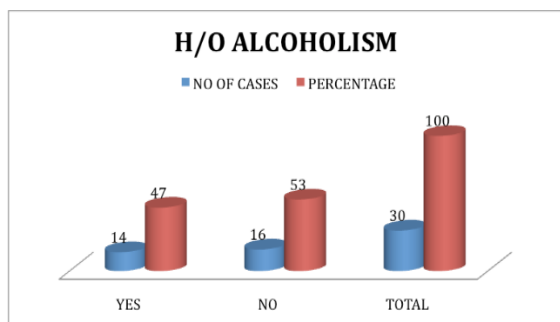


Chart 3: History of alcoholism

Out of 30 patients of liver abscess, 14 patients gave history of alcohol consumption, comprising 47% of the study population.

Table 2: Distribution according to duration of symptoms.

Duration In Days	No Of Cases	Percentage
0—4	7	23
5—9	18	60
>10	5	17
Total	30	100

The duration of symptoms varied from 4 days to 20 days. 18 patients (60%) presented during the time period of 5 to 9 days of onset of symptoms. The mean duration of symptoms is 7.5 days

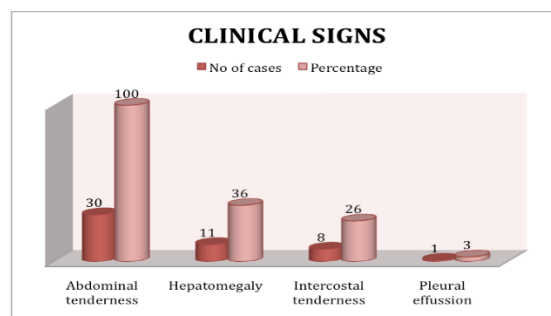


Chart 4: Clinical Signs.

Abdominal tenderness was the most common clinical sign seen in 30 (100%) of patients followed by hepatomegaly in 11 (36%), Intercostal tenderness in 8 (26%) and pleural effusion in one (3%) patient who had secondary infection.

Lobe of liver involvement—Most of the 21(70%) of patients had right lobe liver abscesses, 5(17%) Patients had abscesses in left lobe of liver and both lobes of liver in 4(13%) of patients

Number of abscess

22(73%) of patients had one abscess, 6(20%) had two abscesses and 2(7%) of patients had 3 abscesses.

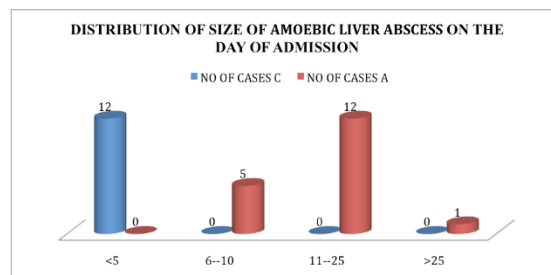


Chart 5: Distribution of size of amoebic liver abscess on day of admission.

All patients with amoebic abscess cavity size less than 5 cms were treated conservatively. In Patients treated by percutaneous aspiration, 12 were having cavities ranging 11-25 cms and 5 with cavities ranging 6-10 cms.

Treatment modality

60% of patients were treated by ultrasound guided percutaneous aspiration and 40% of patients were treated by conservative management.

Symptoms on day 4 of treatment

10 patients treated by conservative management showed improvement and two patients had no improvement in clinical and laboratory signs and symptoms. Out of 18 patients treated by ultrasound guided percutaneous aspiration 14 patients had improved symptomatically.

Distribution of size of amoebic liver abscess on 4th day of admission and reduction of size of cavity.

Patients treated by percutaneous aspiration showed marked decrease in size of abscess cavity, as 6 patients were having cavities less than 5 cms and 11 patients in the range of 6-10 cms. Only one patient not improved.

Symptoms on day 10 of treatment

All patients treated either by conservative or percutaneous aspiration showed statistically significant (p < 0.001) symptomatic improvement, except one case with secondary infection in aspiration group.

Distribution of size of amoebic liver abscess on 10th day of admission and reduction of size of cavity.

All patients treated either by conservative or percutaneous aspiration showed statistically significant (p < 0.001) regression in size of amoebic liver abscess cavity, except one case with secondary infection in aspiration group.

Distribution of LFT on 4th and 10th day of treatment

There is statistically significant (p < 0.00) improvement in liver function tests in all patients except one patient with secondary infection both on day 4 and day 10th of treatment.

Distribution of pus & culture sensitivity and serology

One patient was positive for pus culture and sensitivity and 30 patients were positive for anti amoebic antibody.

Duration of stay in the hospital

In our study duration of hospital stay is more in case of percutaneous aspiration as compared to conservative management, because of retained pigtail catheter for drainage; for longer duration.

Complications at the time of admission

In our study only one patient with secondary infection mentioned above (Klebseilla Pneumoniae and Escherichia coli) had complication of abscess rupture into pleural and peritoneal cavity.

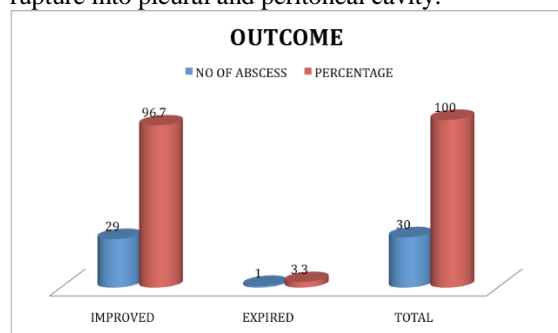


Chart 6: Outcome.

One patient expired in our study due to complications and remaining patients were recovered from the illness.

DISCUSSION

Worldwide, amoebic liver abscess is the third most common parasitic cause of death. Global incidence of infection is 12% and 50% of asymptomatic people may harbour amoebae in tropical and subtropical regions. The incidence is ten times more common in adults than in children, males are affected 3 to 10 times more commonly than females.^[4,5] A study conducted by Wells, Christopher D. et al showed that Amoebic liver abscess is the most common extra intestinal manifestation of infection with Entamoeba histolytica, and it is associated with significant morbidity and mortality.^[6] Hence early diagnosis and treatment of the illness can prevent the complication and sequelae.

The clinical presentations, diagnosis and management of amoebic liver abscess by conservative management in one group of 12 patients and another group of 18 patients by ultrasound guided percutaneous aspiration are discussed.

In the present study the common age group was found between 31-50 years comprising 16 (53.3%) cases. A comparison is listed below.

Table 3: Age incidence of liver abscess in different studies.

Authors	Age group	Percentage
Moshra et al 92	30-40	82%
Turrill & Burnham 93	20-24	92%
Barbour & Juniper 94	21-50	84%
Aptekar and Sood	31-50	64%
Raghavan et al	25-50	50.7%
Present study	31-50	53.3%

In our study 30 patients were included, 26 were males constituting 87% of the study population. In the present study the male to female ratio was 6:1. The increased ratio may be due to the fact the patients in our study belonged to the lower socioeconomic status and alcohol intake in the patients.

Table 4: Sex Incidence of Liver Abscess In Different Studies.

Authors	Male (%)	Female (%)	Male: Female
Debakey & Oshner[15]	93.4	6.6%	13:1
Habibullah et al[95]	91.8	8.2%	11:1
Galen et al[96]	85	15%	5:1
Turrill et al[93]	86	14%	6:1
Katzenstein et al[97]	85	15%	5:1
Present study	87%	13%	6:1

In present study out of 30 patients who had amoebic liver abscess, 26 were males (87%). The results of the present study are comparable with the study done other authors.

All the patients in the study were from lower socio economic status. It is well known that amoebiasis is common in slum dwellers due to bad sanitation, poverty, ignorance and their poor nutritional status. Alcohol is believed to be one of the predisposing factors in the pathogenesis with statistics showing a more than five-fold incidence of ALA among drinkers 98.47% of patients were alcoholic in present study. History of alcoholism was found in 20-30% of cases by Kini and Mammi.^[13] Hai et al found a history of alcohol consumption in 85% of patients with ALA.^[14] Joshi et al found a higher mortality rate in those consuming large quantities of alcohol.^[15]

The commonest clinical feature was pain abdomen in our study. Pain was a complaint in all the cases in this study (100%) it was present in right hypochondriac area of abdomen. The nature of the pain was dull aching in majority of the patients and sharp stabbing nature in few patients. The incidence of pain in various studies is compared with the present study in following table.

Table 5: Incidence of pain in various studies

Authors	Percentage
Kapoor et al	100
Madangopal et al	86
Debakay & Oschner[15]	88.6
Mehta & vakil[101]	87.4
Katzenstein et al[97]	88
Present study	100

Fever was the next common symptom present in 25 cases (83%) in present series. In the majority of cases fever was of low grade and continuous. In 20(66%) patients belonging to both conservative and percutaneous aspiration groups fever had subsided by day 4th of treatment. One case with secondary bacterial infection had persistent fever. The incidence of fever in the literature and the present study is compared in the following table.

Table 6: Incidence of fever in various studies.

Authors	Percentage
Debakay & Oscher[15]	87.0
Mehta & Vakill[101]	90.0
Galen et al[96]	94.0
Present study	83.0

In the present study 11 cases (37%) had history of diarrhoea in past week. This finding is comparable with other studies. But there is wide variation in reported studies. Craig has enumerated the findings of various authors. He states that 60-90 % give previous history of diarrhoea/ dysentery. Raghavan et al recorded 9.8% of the 193 cases with diarrhoea symptoms.^[17] Barbour & Juniper in the study of 33 cases could record history of accompanying dysentery in 50% of cases.^[9]

Jaundice was seen in 5 (17%) of cases. Majority of them belonging to aspiration group, Sharma et al detected jaundice in 30% of the patients.

36% (11) of patients in our study were having hepatomegaly. Madangopal series 33, hepatomegaly was noted in 86% of the patient, Kapoor study showed 100%, Ramachandran et al, 11 detected 70.5% to have hepatomegaly.

In our study inter costal tenderness was noted in 8 cases (26%). Mehta & vakil^[10] reported 19% of their cases had Intercostal tenderness, whereas Barbour & Juniper found in 71.2% of their cases.^[9]

In the present study one case (3.3%) with secondary bacterial infection had pleural effusion, which was very minimal in quantity. Raghavan et al reported pleural effusion in 19 cases (15.5%), consolidation of the right lung base in 45 of 126 cases studied.^[17] Chuttani et al studied 135 cases, and manifestations of right basal plueropulmonary involvement were found in 27 patients (20%). Involvement of pleura manifested as dry pleurisy in 5 cases, pleurisy with effusion in 17 cases and bursting of liver abscess into pleura into 2 cases. Lung involvement resulted in collapse in 2 cases, consolidation in 3 cases and bursting of liver abscess into lung in 2 cases.

In the present study, the mean duration of symptoms at presentation in the conservative group was 7.5 days. While the mean duration of symptoms in percutaneous aspiration group was 7 days. Statistically no significant difference was found between the two groups. In our study duration of symptoms varied from 7 days to 2 months, when compared to other studies mentioned as further:- Studies in literature have reported the shortest duration was one day and the average was from ten days to two weeks in acute group; in the chronic group, the longest duration was three years and the average from three to six months. In other cases, the duration of illness prior to presentation has been reported to be from one day to three years with a median of one to eight weeks.^[18]

Another study has reported that the duration of illness prior to presentation varied from eight days with a range of three days to four and a half months.^[19] Other authors reported the duration of symptoms to vary from 4 days to 12 weeks but majority of patients had presented within two weeks of symptoms.^[20] The average duration of symptoms has also been reported to be 2 ½ months (range 8 days to 9 months)^[10], which is at variance with another report that the average duration of presentation was 2 to 12 weeks.^[15] The present average duration of symptoms in our study is , therefore, same as reported in earlier studies.

In our study 18 (60%) patients had elevated WBC counts. Leucocytosis was found to be raised in the range of 4600-19000 cells/ cu mm. mean counts were 8238 and Standard Deviation was 4007. This is one of the parameters in assessing the improvement after initiation of the drug therapy. Various workers reported leucocytosis in liver abscess as follows.

- a) Adams & Macleod -77%

b) Katzenstein found leucocytosis in 63 cases of 67 cases studied.

Anaemia is one of the common findings accompanying liver abscess. Haemoglobin of less than 12gms was found in 5 cases (17%) in this study.

The serum bilirubin was raised ($>1\text{mg/dl}$) in 7 cases (23%) of the present study. 5.8% of patients treated conservatively and aspiration (16.2%), respectively had raised serum bilirubin. M.P. Sharma et al found 50.4% patients to have raised bilirubin.^[20]

Serum transaminases ($>40\text{IU}$) were raised in 15 (50%) patients in this study. Serum transaminases was raised in 50% of cases in Katzenstein et al series, and in 33 cases 97 (41.2%) of Nanda & Tandon series with which the present study can be compared.

Out of 30 cases of amoebic liver abscess in the present study none of cases had *Entamoeba histolytica* cysts in the stools. DeBaKey & Oschner^[15] found *Entamoeba histolytica* trophozoites in 15.4 % of cases. Yadav et al found in 20% of cases whereas Chaves found trophozoites in 7.8% of the cases.^[19]

In our study Amoebic serology (anti amoebic antibody) was positive in all 30 patients Kraoul compared the capability of rapid enzyme immuno assay (EIA) to detect Anti amoebic antibodies during hepatic amebiasis with those of indirect haemagglutination and latex agglutination. Enzyme immuno assay of 143 patient's sera yielded a specificity, a sensitivity, and positive and negative predictive values of 100, 93, 100, and 97.1, respectively. This test could thus be considered another valuable tool for the diagnosis of hepatic amebiasis.^[21] A study in central Vietnam had reported a 94.5% prevalence of anti-amoebic antibodies in cases of amoebic liver abscess.^[22] Another study had reported 77% cases of liver abscess to be positive for amoebic serology.^[23] In another study, 79 out of 82 patients (96.3%) of amoebic liver abscess were reported to be positive for amoebic serology. Up to 10% of the patients with acute amoebic liver abscess may have negative serological findings. Asymptomatic carriers of *E. histolytica* are also known to develop antibodies, thus serological tests are helpful in assessing the risk of invasive amoebas in asymptomatic cyst passers in an endemic area.

In the present study Most of the of patients 21 (70%) had right lobe amoebic liver abscesses; 5 (17%) patients had abscesses in Left lobe and both lobes of liver involved in 4 (13%) of the patients. 22(73%) out of 30(100%) patients had one abscess; 6(20%) had two abscesses. 2 (7%) patients had 3 abscesses.

Galen et al in their studies showed that the majority of the amoebic liver abscesses were solitary.^[11] Our study was consistent with their study.

Amoebic liver abscesses were studied by Navneet Sharma et al in 86 indoor cases in a North Indian hospital. Their findings in the ultrasound showed

65% of rightlobe abscesses, left lobe being 13% and multiple abscesses in 22%. The mean diameter of abscess cavity in a conservative group was 2.75cms (range: 1.0 to 5.0 cm). The mean diameter of abscess cavity in percutaneous aspiration was 11.67cms (range : >5.0 to 25.0 cm). Other studies had reported the mean largest abscess diameter as 7.0cm.



Ultrasound Showing Multiple Abscess

In the present study elevation of right hemi diaphragm was found in 11 patients (36%) and one (3.3%) patient with minimal pleural effusion on right side. Similar findings have been reported by the various workers. In Ramachandran et al, 3.6% were found to have pleural effusion. Singh & Srivastava found 84% having positive results. Habibullah et al 60% of cases^[10] and Chaves found positive results in 60% of the cases^[19].

In our study 12 (40%) patients were treated conservatively and 18 (60%) patients were treated by percutaneous aspiration and conservative management.



Ultrasound of Liver Abscess with Aspiration Needle in the centre of Cavity.

In our study, liver abscess aspiration was done in 20 patients (66.6%) because 2 patients of conservative group didn't respond. The amount of pus drained, varied from 50 to 300 ml. The colour of the pus, which was aspirated from the liver, was anchovy sauce in colour. In one patient it was reddish green that had secondary bacterial infection. Manson- Bahr expresses that the mere presence of anchovy sauce signifies positive diagnosis of amoebic liver abscess. If the abscess is connected with the biliary tree then the aspirate becomes greenish.

In our study the pus in 29 cases was sterile bacteriologically and trophozoites of *E. histolytica* were not demonstrated in any one of them. Barbour

and Juniper; in 33 cases of amoebic liver abscess, could find trophozoites in the pus of only 4 cases.^[9] 10 cases had trophozoites in the walls of the abscess cavity. Lamont & Wicks found *Entamoeba histolytica* in 11% of their cases.

In our study none of the cases of amoebic abscess; surgical drainage was employed. Out of 12 patients who were treated conservatively, 2 cases did not respond to conservative treatment, and ultrasound-guided aspiration was performed. Out of 18; 17 patients who were treated by percutaneous aspiration responded well to the treatment and one patient did not respond to aspiration and died due to complications of secondary infection, signs of right sided pleural effusion and rupture of abscess into pleural and peritoneal cavity and died on 25th day due to septicaemia. In 1984 Miedma and Dineen presented a series of 106 patients with pyogenic hepatic abscess and reported that despite easier diagnosis, the mortality rate remained high (53%).

In our study clinical, biochemical and ultrasound findings at the time of admission, on day 4th and on day 10th were considered to know the efficacy of conservative management and percutaneous aspiration of amoebic liver abscess. Out of 12 patients who were treated by conservative treatment 2 patients were converted to pigtail catheter drainage due to persistent fever, increased WBC count, deranged liver function tests even on day 4 of the treatment. All patients with the initial insertion of pigtail catheter improved and did not require change in the modality of treatment.

Allan van, Tsai HO et al mentioned, medical management for uncomplicated ALA is indicated if size of abscess is 5cm or less while the therapeutic aspiration has been done in ALA of size 7.5 cm (standard deviation-2.42cm). In more recent studies by Singh Jp et al, pigtail catheter insertion for management of ALA has been reported with resolution of ALA being reported to occur earlier.

There was statistically significant decrease in the size of cavity on the 4th day and 10th day of treatment in case of percutaneous aspiration as compared to patients who were treated by conservatively.

In one study by Kapadia et al, the pigtail drainage was reported to have marked resolution of liver abscess, when it was considered to be successful, ultrasound was suggestive of total resolution or reduction of size to <3cm¹¹⁶, complete resolution of liver abscess in 88% of cases within 4 months. But in this study the pigtail catheter drainage was done in abscess size >5cm¹¹⁶, and there was no comparison with patients of similar size treated by conservative management.

In one study by Sheeny TW et al, open surgical drainage or needle aspiration of pus or both in combination did not appear to shorten the resolution time of an ALA.

Rajak CL et al mentioned that the average time taken by pigtail catheter for reduction of the abscess cavity to 50% of its original size was 5 days. While the complete resolution of abscess cavity had been reported to be 8-26 weeks (mean=15 weeks).

Berry M et al study had reported complete resolution in only three out of 44 patients (6.8%) after medical therapy. When compared, our study revealed at 3 months of follow up of 18 patients out of 30 had complete resolution of cavity, in aspiration group 13 patients and in conservative group 5 patients.

In our study 11 patients had lost the follow up and one case died and in remaining cases cavity was completely resolved.

On the basis of ultrasound findings, when the size of abscess was found to be markedly decreased, pigtail catheter removal done. The period ranged from 10 to 45 days with the mean of 15.6 days.

Kapadia S and Sheen LS studies had reported that the pigtail was removed when the patient had become asymptomatic, pus drainage was less than 10 ml in 24 hours for 2 consecutive days and the sonogram showed a negligible cavity.

Thus our study clearly proves that the improvement in clinical and laboratory parameters in case of conservative treatment (where cavity size less than 5 cms and volume of 125cm³) on day 4th and day 10th was statistically significant; which is similar to percutaneous aspiration group. However the rate of decrease in size of the abscess cavity was lesser in the conservative group than in percutaneous aspiration group. The study clearly indicates that uncomplicated abscess measuring less than 5 cms (125cm³) are better treated by conservatively and cavities more than 5 cms (125cm³) are treated by ultrasound guided percutaneous aspiration.

CONCLUSION

Amoebic liver abscess is more commonly seen in young to middle aged males. Ultrasonography helps in early diagnosis and reducing morbidity and mortality. It also confirms the site, size and number of amoebic liver abscess and knowing the prognosis. Liver function tests help in knowing the effectiveness of the treatment and prognosis. Liver abscess less than 5cms are effectively treated by conservative management and abscess more than 5 cms by percutaneous aspiration. Resolution of abscess cavity is faster in patients treated by percutaneous aspiration as compared to conservative treatment, but duration of hospital stay is more in patients treated by percutaneous aspiration because of retained pigtail catheter for drainage for longer duration. Metronidazole is effective in all cases of amoebic liver abscess. No complications encountered in case of percutaneous pigtail catheterization. Mortality was encountered in one patient with secondary infection of amoebic liver

abscess who had both complication of rupture into peritoneal and pleural cavities.

REFERENCES

1. Choudhuri G, Rangan M et al. Amebic infections in humans. *Indian J Gastroentrol*. 2012 Jul; 31(4):153-62.
2. Mukhopadhyay M, Kumar AK, Sarkara, Mookherjee S. Amoebic liver abscess: presentation and complications. *Indian J Surg*. 2010 Feb; 72(1):37-41.
3. M.P.Sharma, S. Dasarathy, Narendra Verma et al. prognostic markers in amoebic Liver Abscess- A Prospective Study. *Am J Gastroentrol*, December 1996; 91:2584-89.
4. Thomas PG, Ravindra KV. Amoebiasis and parasitic infection. *Surgery of the liver and biliary tract*. Blumgart LH; vol II (4th ed): 935-945.
5. P.G.Thomas and N garg, Amebiasis and other parasitic infections: chapter 60; Leslie h. Blumgart, Jacques belghiti, William C. Chapman, Markus W. Bucher, Lucy E. Hann, Michael D. Angelica. Saunders/Elsevier, Philadelphia Fourth edition, 2007, 927-950.
6. Wells, Christopher D., Arguedas, Miguel: Amoebic Liver Abscess. *Southern Medical Journal* 2004; 97, 673-682.
7. Mishra D, Mohante KD. *Ind.J.Paediat*, 1960; 36: 481.
8. Turrill FL, Burnham IR. *Am J Surg* 1966 ; 111: 424.
9. Barbour GL, Juniper K Jr. A clinical comparison of amoebic and pyogenic abscesses of liver in 88 patients. *Am J Med* 1972; 53(3): 323-334.
10. Habibullah CM, Ramachandran RS, et al, *J.Ind.Med.Ass*, 1977, 69, 247.
11. Galen L., Kerrison Jr., *American Jou. MED.* Vol.53, 323-332. Sept. 1972.
12. Katzenstein D, Rickerson V, Braude Abraham : New concepts of amoebic liver abscess derived from hepatic imaging, serodiagnosis, and hepatic enzymes in 67 consecutive cases in San Diego. *Medicine* 1982; 61:237-46.
13. Hai AA, Singh A, Mital VJ, et al. Amoebic liver abscess. Review of 220 cases. *Int Surg* 1991; 76:81-3.
14. Kini PM, Mammi MKI. Hepatic amebiasis in Kerala. *J Ind Med Assoc* 1970; 55:7-9.
15. Joshi VR, Kapoor OP, Purohit AV, et al. Jaundice in amoebic abscess of liver. *J Assoc Phy India* 1972; 20:761-4.
16. Vakil BJ, Mehta A., *J.Trop.Med.Hyg* 1970, 73, 63.
17. Raghavan P, Kurian J et al, *J Ass.Phys. Ind.*, 1961, 9, 568.
18. Chavas FJ, Cruz I et al, *Am.J.Gastroent.*, 1977, 68, 134.
19. Chaves DCJZ, Gomes C, Domingues W, Da Silva EM, Veleso FT. Hepatic amoebiasis. Analysis of 56 cases *Amj Gastroenterol* 1977; 68: 134-40.
20. Sharma MP, Sarin Sk. Amoebic liver abscess in a north Indian hospital current trends . *Br J Clin Pract* 1987; 41: 789-93.
21. Salles MJ, Moraes AL, Salles CM. Hepatic amebiasis. *Braz J Infect Dis* 2003; 7: 1-20.
22. Shabot MJ, Patterson M. Amebic liver abscess: 1966-1976. *Dig Dis* 1978; 23:110-18.
23. Karaoull et al. Rapid enzyme immunoassay for diagnosis of hepatic amoebiasis. *Journal of clinical microbiology* 1997 Jun; 35(6):1530-2,

How to cite this article: Agarwal V, Sarawgi G, Chaitanya BK, Dahiya S, Sunkara SB. Image Guided Management of Various Liver Abscess. *Ann. Int. Med. Den. Res.* 2018; 4(1):SG55-SG62.

Source of Support: Nil, **Conflict of Interest:** None declared