

A PROSPECTIVE STUDY ON INCIDENCE, AETIOPATHOGENESIS, CLINICAL PRESENTATION, MANAGEMENT AND PROGNOSIS OF LIVER ABSCESS

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ABSTRACT

BACKGROUND

Liver abscess continues to be a major diagnostic and therapeutic challenge to the medical fraternity. It is a life-threatening and a potentially serious condition if left untreated. Therefore, it is very important for prompt diagnosis and appropriate management at the earliest. This study was conducted to assess the incidence, aetiology, clinical presentation, management and prognosis of liver abscess in patients attending a tertiary care referral hospital.

MATERIALS AND METHODS

This study was conducted in Madurai Medical College Hospital, Madurai, from March 2015 to August 2016. The study population consists of patients admitted in General Surgery Wards of Madurai Medical College and Hospital, Madurai, with features suggestive of liver abscess.

RESULTS

Liver abscess was more commonly seen in the age group of 41-50 years. Male predominance 97.9% was seen in liver abscess. Nearly, two thirds of cases of liver abscess had a history of alcohol intake. Majority of liver abscess were amoebic and nearly 10% were pyogenic. *Escherichia coli* was the commonest organism causing pyogenic liver abscess. Abdominal pain was the commonest symptom of liver abscess followed by abdominal distension and fever. Right hypochondrial tenderness and intercostal tenderness were the common clinical signs in liver abscess. There was a predominant involvement of the right lobe of the liver. Percutaneous aspiration of abscess with antiamoebic and antibiotics forms the mainstay of treatment. Percutaneous catheter drainage is method of choice in failed aspiration and laparoscopic drainage or laparotomy and drainage is indicated in ruptured liver abscess.

CONCLUSION

Liver abscess was more commonly seen in the age group of 41-50 years. Male predominance 97.9% was seen in liver abscess. Nearly, two-thirds of cases of liver abscess had a history of alcohol intake. Majority of liver abscess were amoebic and nearly 10% were pyogenic. *Escherichia coli* was the commonest organism causing pyogenic liver abscess. Abdominal pain was the commonest symptom of liver abscess followed by abdominal distension and fever. Right hypochondrial tenderness and intercostal tenderness were the common clinical signs in liver abscess.

KEYWORDS

Laparoscopic Drainage, Pyogenic Liver Abscess, *Escherichia Coli*.

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BACKGROUND

Liver abscess continues to be a major diagnostic and therapeutic challenge to the medical fraternity. It is a life-threatening and a potentially serious condition if left untreated. Therefore, it is very important for prompt diagnosis and appropriate management at the earliest.

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The two common types of liver abscess encountered are amoebic liver abscess and pyogenic liver abscess. Amoebiasis is a common infestation in developing countries due to poor sanitary facilities. It affects about 10% of the population all over the world. Amoebic liver abscess is the commonest extraintestinal manifestation of amoebiasis. It affects about 3-9% of victims. India is an endemic zone for amoebic liver abscess. It may present as acute abdomen requiring emergency laparotomy. Spontaneous intraperitoneal rupture, extra and retroperitoneal rupture and intrathoracic rupture are frequently seen in liver abscess. Delay in diagnosis may lead to rupture of liver abscess, which may increase the morbidity as well as mortality.¹



Pyogenic liver abscess is not an uncommon entity. It is a relatively rare complication of intra-abdominal infection or biliary tract infection. It is usually polymicrobial in nature due to the ascending route of infection from the gastrointestinal tract.²

The overlapping of symptoms between amoebic and pyogenic liver abscess makes early clinical differentiation difficult.

This study was conducted to assess the incidence, aetiology, clinical presentation, management and prognosis of liver abscess in patients attending a tertiary referral hospital.

Aim of the Study

The aim of this prospective study is to-

1. Study the incidence and aetiology of liver abscess.
2. Evaluate the clinical features of liver abscess.
3. Evaluate the management and prognosis in liver abscess.

MATERIALS AND METHODS

This study was conducted in Madurai Medical College Hospital, Madurai, from March 2015 to August 2016.

Case Selection- The study population consists of patients admitted in General Surgery Wards of Madurai Medical College and Hospital, Madurai, with features suggestive of liver abscess.

Inclusion Criteria

Patients admitted in General Surgery Wards of Madurai Medical College and Hospital, Madurai, confirmed to be of liver abscess.

Exclusion Criteria

1. Hydatid cyst of liver.
2. Solid masses of the liver.
3. Primary and secondary malignancy of liver. A total of 99 cases satisfying the inclusion criteria were recruited in the study.

Mode of Evaluation

An extensive and thorough history taking clinical examination.

Routine blood investigations.

Chest x-ray, PA view.

X-ray abdomen, AP view.

Ultrasound abdomen, CT scan abdomen (in selected cases).

Culture and sensitivity of the aspirate and the findings were entered in the proforma as shown in Appendix II.

Statistical Analysis

Proportions (%) of various outcome measures of interest of liver abscess were arrived and tabulated.

RESULTS

Age Group	Number of Patients	Percentage
30-40 years	16	16.16
41-50 years	48	48.48
51-60 years	20	20.20
>60 years	15	15.15

Table 1. Age Incidence of Liver Abscess

Sex	Number of Patients	Percentage
Male	97	97.97
Female	2	2.02

Table 2. Sex Distribution of Liver Abscess Cases

History of Alcohol Intake	No. of Patients	%
Amoebic	58	95
Pyogenic	3	5

Table 3. History of Alcohol Intake in Liver Abscess

Clinical Symptoms	No. of Patients	%
Abdominal pain	99	100
Fever	57	57.57
Abdominal distension	51	51.51
Dysentery	16	16.16

Table 4. Symptoms among Cases of Liver Abscess

Clinical Signs	No. of Patients	%
Right hypochondrial tenderness	99	100
Intercostal tenderness	99	100
Hepatomegaly	49	49.49
Jaundice	25	25.25
Epigastric mass	12	12.12

Table 5. Clinical Signs of Liver Abscess Cases

Presentation	No. of Patients	%
Right lobe	70	70.7
Ruptured abscess	21	21.21
Left lobe	8	8.08
Multiple abscess	5	5.05

Table 6. Lobe Involvement and Number of Abscess

Presentation	Number of Patients	Percentage
Amoebic	90	90.9
Pyogenic	9	9.09

Table 7. Aetiology of Liver Abscess

Treatment	No. of Patients	%
Single aspiration	30	30.3
Percutaneous catheter drainage	25	25.25
Laparotomy and drainage	22	22.22
Multiple aspiration	19	19.19
Conservative management	3	3.03

Table 8. Mode of Treatment of Liver Abscess

DISCUSSION

Liver abscess continues to be one of the common liver disorders even in the era of improved sanitation and personal hygiene as well as availability of wide range of antimicrobials and antibiotics. This study explores the aetiology, clinical presentation and modalities of management of liver abscess cases as seen in a tertiary care referral institution.

Age- In our study, out of 99 cases, there were patients ranging from lowest age of 30 years and highest age of 70 years. In the age group from 30-40 years, 16 (16.16%) cases were seen. In the age group 41-50 years, there were 48 (48.48%) cases. In the age group 51-60 years, there were 20 (20.20%) cases. In the age group more than 60 years, 15 (15.15%) cases (Table 1).

Most of the liver abscess cases (48.8%) in our study were in the age group of 41-50 years. Ahsan I et al in their study have found this age group similar for pyogenic abscess in their study. Abdullah A A et al in their study on amoebic liver abscess have found that amoebic liver abscess is more common in the age group of 20-45 years and differ from our study.³

Sex- In our study, out of 99 cases, majority of cases 97 (97.97%) were males and only 2 cases (2.02%) were females (Table 2). We have observed male preponderance (97.97%) in our study, which concurs with the observation by Sharma N et al, Ahsan I et al, Goh K L et al and Tan J A et al.^{4,5,6} Male predominance is due to different lifestyles of men and women of our country with males going out for work consume contaminated water and unhygienic food from street vendors and roadside hotels whereas women are mostly housebound.

History of Alcohol Intake- In our study of 99 cases, history of alcohol intake was found in 61 cases. Of these cases, amoebic abscess were 58 (95%) and pyogenic abscess were 3 (5%) (Table 3).

In our study, about 61 (62%) patients with liver abscess had history of alcohol intake of which 58 (95%) cases were amoebic abscess and 3 (5%) cases were pyogenic abscess. Sharma N et al noted history of alcohol consumption in (46.5%) of patients and Seeto R K et al noted it in (84%) of patients in their study, respectively. Alcohol being an immunosuppressant impairs Kupffer cell function and suppresses cell mediated and humoral immunity against Entamoeba histolytica.^{4,7}

Aetiology- In our study, 90 (90.09%) cases were amoebic abscess and 9 (9.09%) cases were pyogenic abscess in aetiology (Table 7).

In our study, about 91% were amoebic abscesses and 9% were pyogenic abscesses. Escherichia coli was the cause for 9% of patients with pyogenic abscess in our study. Escherichia coli and Klebsiella pneumoniae were the leading causes of pyogenic liver abscess observed in various studies.^{2,8,5,9,10} Streptococcus milleri too was reported by

Pang T CY et al.⁹ Polymicrobial aetiology was noted by Wang JH et al.²

Clinical Symptoms- All the cases of liver abscess presented with abdominal pain. 51 (51.51%) cases had abdominal distension, 57 (57.57%) cases presented with fever and 16 (16.16%) cases had dysentery (Table 4).

The commonest clinical presentation observed in our study was abdominal pain, which was found in 100% of cases. This was followed by abdominal distension and fever in about half of the cases. The incidence of dysentery in our study was 16.16%. This is similar to the observations made by Bukhari A J et al, Abdullah A A, Kebede A et al, Sharma N et al and Seeto K R et al.^{11,3,12,4,7} The low incidence of dysentery compared to other symptoms is due to invasive form of amoebiasis causing amoebic liver abscess and pyogenic liver abscess occurs mainly due to biliary aetiology.

Clinical Signs- In our study, all liver abscess cases, presented with right hypochondrial pain and intercostal tenderness. 49.49% cases presented with hepatomegaly, 25 (25.25%) cases were found to have jaundice and 12 (12.12%) cases had epigastric mass (Table 5).

On examination, all cases in our study had right hypochondrial tenderness and intercostal tenderness. Hepatomegaly was noted in about half of the cases and jaundice was present in about one fourth of cases. The earlier studies by Abdullah A A and Kebde et al^{3,12} were concurrent with the findings of our study. In addition, mass in the epigastric region was noted in 12.12% of patients in our study.

Presentation- In our study, out of 99 cases, 70 (70.7%) cases presented with right lobe abscess, 8 (8.08%) cases with left lobe abscess, 5 (5.05%) cases presented with multiple abscess and 21 (21.21%) cases were found to be ruptured abscess at initial presentation (Table 6).

The most commonly involved region of the liver in our study was the right lobe in about 71% of cases, which is in accordance with the findings observed by Khan R A et al, Kebede A et al, Sharma N et al and Qazi A R et al^{3,12,4,10} in their studies. The reason why right lobe of the liver is more prone to develop abscess than the left lobe is due to greater volume of blood going to right side than the left lobe.¹⁸ About 5% of patients presented with multiple abscesses and all were amoebic in our study contrary to the observations made by Sharma N et al, Ahsan I et al, Alvarez JA et al and Goh K L et al^{4,13,5} where multiple abscesses were predominantly pyogenic. Bukhari A J et al reported predominantly (83%) solitary abscess in their study, which was similar to about 80% in our study.¹¹ Twenty one percentage of patients presented with ruptured abscess all of which were peritoneal rupture, which was in accordance with the observations by Hayat A S et al, Memon A S et al, Perez C I et al.^{14,15} Elevation of right hemidiaphragm was noted in 31% of patients and right-sided pleural effusion was noted in 21% of patients in our study.

Treatment- In our study, out of 99 cases, 30 (30.3%) cases were treated with single aspiration, 25 (25.25%) cases by percutaneous catheter drainage, 22 (22.22%) cases underwent laparotomy and drainage, 19 (19.09%) cases were treated by multiple aspiration and 3 (3.03%) cases by conservative line of management (Table 8). Most of the liver abscess cases were managed surgically in our study. About 30% of cases were treated by single aspiration and 20% of cases by multiple aspirations. Percutaneous catheter drainage was the mode of treatment in 25% of cases. 22% of cases needed laparotomy and drainage all of which were ruptured abscesses. 3% of patients in whom the abscess size was less than 5 centimetres were managed conservatively. Zerem E et al reported needle aspiration either single or multiple was successful in 67% of patients and percutaneous catheter drainage was successful in 100% of patients. A similar observation was made by Qazi A R et al, McGarr P L et al and Ramanian et al.^{10,16,17}

Co-Existent HIV Infection- About 3 (3.03%) of patients had coexistent HIV infection in our study and all of them were males with amoebic liver abscess.

Mortality- There was 1 (1.01%) death in our study. A male patient aged 70 years who underwent laparotomy and drainage for ruptured amoebic liver abscess.

CONCLUSION

Liver abscess was more commonly seen in the age group of 41-50 years.

Male predominance 97.9% was seen in liver abscess. Nearly, two thirds of cases of liver abscess had a history of alcohol intake. Majority of liver abscess were amoebic and nearly 10% were pyogenic. *Escherichia coli* was the commonest organism causing pyogenic liver abscess. Abdominal pain was the commonest symptom of liver abscess followed by abdominal distension and fever. Right hypochondrial tenderness and intercostal tenderness were the common clinical signs in liver abscess.

There was a predominant involvement of the right lobe of the liver. Percutaneous aspiration of abscess with antiamoebic and antibiotics forms the mainstay of treatment.

Percutaneous catheter drainage is method of choice in failed aspiration and laparoscopic drainage or laparotomy and drainage is indicated in ruptured liver abscess.

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