

Original Research Article

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Clinicopathological study on presentation, diagnosis and management of liver abscess in Bhopal region

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ABSTRACT

Background: This prospective observational study is carried out to study cases of liver abscess and to determine demographic profile, spectrum of clinical presentations, aetiology, laboratory investigations. The objective of the study was to evaluate efficacy of Ultrasonographic (radiological) studies in determining the aetiology and in differentiating from other liver pathologies which may change the treatment outcome, bacteriological and serological characteristics, to study the influence of alcohol, diabetics and immunocompromised diseases (esp. HIV) leading to increased incidence of liver abscess and to evaluate efficacy, recurrence rate, complications, morbidity and mortality, duration of hospital stay associated with different management Strategies.

Methods: This prospective observational study was carried out in Department of Surgery, Gandhi Medical College Bhopal and Associated Hamidia Hospital, Bhopal between July 2015 to October 2016.

Results: Amoebic abscess (74%) is more common than pyogenic abscess (26%). Amoebic abscess is common in the age group of 31-50 years (73%), pyogenic in the age group of 51-70 years (73.1%). Male preponderance is found in case of amoebic liver abscess (90.5%). Right lobe involvement in common. Right upper quadrant pain, tenderness and fever are the most common clinical features. Alcoholism is most common risk factor (71.6%) and diabetes mellitus has strong association with pyogenic liver abscess (15.4%). *E coli* (19.2%) and *klebsiella* (11.5%) are the most common organisms cultured. Medical therapy is more useful in case of amoebic liver abscess (58.1%) while catheter drainage is more useful in case of pyogenic liver abscess (61.5%). Pleuropulmonary complications are much more common and complications rate is more common among pyogenic group.

Conclusions: In our study, alcohol was found to be the most common predisposing factor for liver abscesses (68%), this underpin the finding of other studies. Amoebic liver abscess is a medically treated common infection prevailing in unhygienic condition, affecting people mostly between 30-40 years of age whereas pyogenic liver abscess patient commonly falls between 50-70 years age group. Both liver abscesses show a male preponderance. The present study also corroborates the catheter drainage procedure as a superior modality in treating pyogenic liver abscess.

Keywords: Amoebic, Catheter drainage, Liver abscess, Pyogenic

INTRODUCTION

Liver abscess was first described in early 460-377 B.C. by Hippocrates, but it still poses great challenges for the treating doctor due to its wide variety of clinical presentation and difficulty in diagnosis. (Especially in

tropical countries due to poor hygiene and illiteracy) with significant morbidity and mortality, though the introduction of the newer antibiotics and advancements in radiology has great impact on the outcome. India being a tropical country harbors around 400 million people with *Entamoeba histolytica* which is the cause for amoebic liver abscess thus it is of immense importance.

Hepatic abscess is classified as those of bacterial origin and caused by *Entamoeba histolytica*. Pyogenic liver abscess is on the verge of rise. Major cause for the pyogenic abscess is biliary tract diseases. In alcoholics, diabetics and immuno-compromised individual there is increasing trend of the disease. It is of grave importance as these subsets of patients also have more complications, morbidity and mortality. In general, portal, traumatic, and cryptogenic hepatic abscesses are solitary and large, while biliary and arterial abscesses are multiple and small.

Escherichia coli, *Klebsiella* species, *enterococci*, and *Pseudomonas* species are the most common aerobic organisms cultured in recent series, whereas *Bacteroides* species, anaerobic *streptococci*, and *Fusobacterium* species are the most common anaerobes.¹⁻³ *Klebsiella pneumonia* is extremely prevalent in liver abscesses in Asian countries as well as in predominantly Asian population in the western world for unclear reasons.⁴ *Mycobacterium tuberculosis* is a common infecting organism in the acquired immune deficiency syndrome. Confirmation of pyogenic liver abscess involves aspiration of the abscess as well as positive blood cultures.⁴ Amoebic serology is both a highly sensitive and specific test in identifying patients with amoebic infection, thus aiding in differentiation between pyogenic and amoebic hepatic abscess.⁵⁻⁷

METHODS

This prospective observational study was carried out in Department of Surgery, Gandhi Medical College and Associated Hamidia Hospital, Bhopal, Madhya Pradesh, India from July 2015 to October 2016.

Inclusion criteria

- All adult patients of both sexes of liver abscess diagnosed clinically, and/or ultrasonographically
- All cases of bacterial and parasitic liver abscess
- All cases in evolving, liquefied and ruptured stage with or without peritonitis
- All cases of diagnosed liver abscess being referred to Hamidia hospital.

Exclusion criteria

- Patients with liver abscess associated with trauma or malignancy
- Patients of liver abscess with age <13 years.

Patient data collection and evaluation

- Patient data will be collected from all patients attending HAMIDIA Hospital General medicine and General Surgery OPD, casualty and inpatient department, irrespective of their gender/ background /socio economic status. The patients will be evaluated and followed up according to protocol.

- Detailed history of patient will be entered in proforma
- Complete haemogram, LFT, Prothrombin time, stool for ova, cyst, serology for amoebic antigen will be sent immediately on presentation
- Preliminary ultrasound of abdomen and pelvis will be done on the same day of presentation
- Patient will be put on conservative line of management
- Patient will be followed up daily clinically and LFT and USG Abdomen will be repeated on the 3rd day if patient symptomatically not relieved
- Repeat Ultrasound / CT / MRI abdomen and pelvis will be done immediately if patient condition does not improve/worsens or after 3-4 days as a routine as a prognostic factor
- If the patient develops any of the complications like ruptured liver abscess into any of the serosal cavity, patient will be immediately take up for surgery
- Patient will be informed about any surgical procedure and consent will be taken.

Patient data collected regarding

Age, gender, complaints, past-surgical history, past history of liver abscess, history of alcoholism, diabetes, any immunodeficiency states, any history of biliary tract disorder, history of amoebic dysentery, jaundice will be taken. Patient will be examined in detail. If the patient is referred from elsewhere the details of the same will be considered at the time of admission. Blood investigations and X-rays and other radiological modalities performed will be added. Complications if developed will be assessed in detail. Management of the same and the further complications will be followed up.

Follow up of patients

Patients will be followed up for a period of 6 months once in 2 weeks for first 2 months then on a monthly basis, after discharge, for recurrent attacks or development of complications and to monitor the efficacy of the treatment given.

RESULTS

Amoebic abscess (74%) is more common than pyogenic abscess (26%). Amoebic abscess is common in the age group of 31-50 years (73%), pyogenic in the age group of 51-70 years (73.1%). Male preponderance is found in case of amoebic liver abscess (90.5%).

Table 1: Distributions of patients.

Abscess	Frequency	%
Amoebic	74	74.0%
Pyogenic	26	26.0%
Total	100	100%

Amoebic abscess is more common than pyogenic abscess

Right lobe involvement is common. Right upper quadrant pain, tenderness and fever are the most common clinical features. Alcoholism is most common risk factor (71.6%) and diabetes mellitus has strong association with pyogenic liver abscess (15.4%). *E. coli* (19.2%) and *klebsiella* (11.5%) are the most common organisms

cultured. Medical therapy is more useful in case of amoebic liver abscess (58.1%) while catheter drainage is more useful in case of pyogenic liver abscess (61.5%). Pleuropulmonary complications are much more common and complications rate is more common among pyogenic group.

Table 2: Comparison of age wise distribution between amoebic and pyogenic.

Age groups	Abscess				P value	
	Amoebic		Pyogenic			
	Frequency	Percentage	Frequency	Percentage		
13-30 years	18	24.3%	2	7.7%		
31-50 years	54	73.0%	4	15.4%		
51-70 years	1	1.4%	19	73.1%	<0.001*	
>70 years	1	1.4%	1	3.8%		
Total	74	100%	26	100%		
Mean±SD	36.30±10.61		54.42±13.05		<0.001*	

Amoebic abscess is common in the age group of 31-50 years, pyogenic in the age group of 51-70 years.

Table 3: Comparison of sex wise distribution between amoebic and pyogenic.

Sex	Abscess				P value	
	Amoebic		Pyogenic			
	Frequency	Percentage	Frequency	Percentage		
Female	7	9.5%	10	38.5%		
Male	67	90.5%	16	61.5%	0.001*	
Total	74	100%	26	100%		

Male preponderance is found in case of amoebic liver abscess.

Table 4: Anatomic distribution of the abscess.

Anatomic distribution	Abscess				P value	
	Amoebic		Pyogenic			
	Frequency	Percentage	Frequency	Percentage		
Multiple	16	21.6%	10	38.5%		
Solitary	58	78.4%	16	61.5%	0.092	
Total	74	100%	26	100%		

Solitary lesions are more common.

Table 5: Anatomic distribution of the abscess lobe wise.

Anatomic distribution 2	Abscess				P value	
	Amoebic		Pyogenic			
	Frequency	Percentage	Frequency	Percentage		
Bilateral	7	9.5%	2	7.7%		
Left lobe	10	13.5%	4	15.4%		
Right lobe	57	77.0%	20	76.9%	0.944	
Total	74	100%	26	100%		

Right lobe involvement is common.

DISCUSSION

Liver abscess is a common entity to encounter in the surgical and medical OPD and emergency, because of its

wide area of presentation it poses a challenge to the treating doctor. Liver abscess are classified mainly of bacterial origin or amoebic origin. Amoebic liver abscess is mainly a disease of developing countries like India.

In the present study, also 74% of our patients were of amoebic liver abscess and rest were pyogenic, and anatomically it mainly involves right lobe of liver with solitary lesions. These findings are consistent with the previous reports on amoebic liver abscess by Sharma et al and Mukopadhyay et al and various other studies.⁸⁻¹² Most of the patients of amoebic liver abscess were in the age group of 30-50 years and of pyogenic liver abscess falls in 50-70 years age group which is reported in various studies also.^{10,13,14}

Males are affected more than females in the ratio of 9.5:1 in case of amoebic liver abscess while in pyogenic liver abscess the male to female ratio is 1.6:1 which has been globally observed.¹⁵

Around 68% of study subjects had history of alcoholism thus it came out to be major predisposing factor for the liver abscess. Alcohol has been identified as a major predisposing factor in the pathogenesis of ALA. Hai et al. in his study reported that 85% of his study subjects had history of alcoholism and also concluded that there is a fivefold incidence of ALA among alcoholics. Ramani et al., had reported alcoholism in 64% of their study subjects, similar findings have been reported by various other researchers.^{16,17}

Majority of the patients presents with the abdominal pain, fever and tenderness. In the present study, around 90% of the patients with amoebic liver abscess and 70% of patients with the pyogenic liver abscess have abdominal pain, 78% of the patients with amoebic liver abscess and 64% of patients with the pyogenic liver abscess have abdominal tenderness while fever is present in 92% and 88% of patients respectively. Similar findings are reported by various other studies.^{1,18,19,20-22}

In the laboratory investigations, Leucocytosis (TLC>11,000/cumm) is present in around 73% of our subjects, anemia (Hb <8 gram%) present in 72% of our subjects, more common in case of amoebic liver abscess, raised ALK PO4 (>120U) present in 75% of cases, raised Bilirubin (>1.5mg/dl) is present in 13% of subjects of which majority of cases were of pyogenic liver abscess, around 38% of the cases of pyogenic liver abscess patients have raised bilirubin while only 4% cases of amoebic liver abscess have the same in the present series, stool for cyst and trophozoites is present in around 14% subjects of amoebic liver abscess while indirect hemagglutination test positive in 95% of cases of the same, blood culture and pus culture is positive in around 55% and 70% of cases of pyogenic liver abscess respectively, *E. Coli* and *klebsiella* were the most common organisms cultured and of which *E. Coli* is more common than *klebsiella*. Most of the other studies also had observed the similar laboratory findings.²³⁻²⁶

In the present study pleuropulmonary complications were most common of which right side pleural effusion is most common, some cases of empyema also observed. Second

most feared complication in our study is septicemia and shock followed by sub hepatic collection and peritonitis.²⁷⁻³⁰

Among the treatment modality with the advancement in the radiology and easy availability of the ultrasound, guided aspiration and catheter drainage came out to be most favourable options mainly for pyogenic abscess and among them also catheter drainage is better than percutaneous aspiration. In the present study 50% of subjects undergo guided procedures of which 12 subjects had percutaneous aspiration and 38 objects had catheter drainage. Patients with catheter drainage had early recovery, less hospital stay and need not to undergo repeated procedure as in aspiration. 44% of our cases recovered with medical management of which most of the cases were of amoebic liver abscess and 6% of the cases undergone open surgical drainage and most cases were of pyogenic liver abscess.²⁵

In the present study mortality rate was 8%, these were the cases who undergone open surgical drainage and were in septicemia and shock. Mortality rate was more in case of pyogenic liver abscess (15%) as compared to that of amoebic liver abscess (5%) as the associated risk factors are also more common in case of pyogenic liver abscess.^{5,31,32}

CONCLUSION

In the present study, alcohol was found to be the most common predisposing factor for liver abscesses (68%), this underpins the finding of other studies. Amoebic liver abscess is a medically treated common infection prevailing in unhygienic condition, affecting people mostly between 30-40 years of age whereas pyogenic liver abscess patient commonly falls between 50-70 years age group. Both liver abscesses show a male preponderance. Present study also corroborates the catheter drainage procedure as a superior modality in treating pyogenic liver abscess.

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Ethical approval: The study was approved by the institutional ethics committee

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