

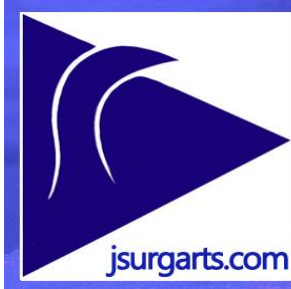
## PAPER DETAILS

TITLE: A clinical study of liver abscess in patients attending the surgical department. A single center experience.

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### Clinical Practice Study

## A clinical study of liver abscess in patients attending the surgical department. A single center experience.

### Cerrahi kliniğine gelen hastalarda karaciğer apsesinin klinik analizi. Tek merkez deneyimi.

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#### ABSTRACT

Liver abscess is a condition that is seen by surgeons all over the world. The patients present to the surgical department with features of right hypocondrial pain, fever and jaundice. Investigations such as ultrasound of the abdomen and CT scan of the abdomen are extremely useful in diagnosing a case of liver abscess. The two main causes of liver abscess are amoebic and pyogenic liver abscess. Occasionally a liver abscess may also occur due to fungal infection. Treatment modalities include the use of drugs such as metronidazole for amoebic liver abscess, as well as needle aspiration and pigtail catheter drainage when required. This was a prospective study was carried out from August 2015 to July 2018, for a period of three years. The study was conducted at SRM Medical College Hospital and Research Center, Kattankulathur, Tamil Nadu, India. Investigations such as complete blood count (CBC), chest x-ray, x-ray abdomen, ultrasound of the abdomen and CECT of the abdomen were done. A total of 57 patients were studied and the results obtained were analysed.

**Keywords:** Amoebic liver abscess, pyogenic liver abscess, metronidazole, needle aspiration.

#### ÖZET

Karaciğer apsesi, tüm dünyadaki cerrahlar tarafından karşılaşılan bir durumdur. Hastalar sağ hipokondriyal ağrı, ateş ve sarılık özellikleri ile cerrahi bölümüne başvururlar. Karın ultrasonu ve karın BT taraması gibi araştırmalar karaciğer apsesi teşhisinde son derece yararlıdır. Karaciğer apsesinin iki ana nedeni amipli ve piyojenik karaciğer apsesidir. Bazen mantar enfeksiyonu nedeniyle de karaciğer apsesi oluşabilir. Tedavi yöntemleri arasında amipli karaciğer apsesi için metronidazol gibi ilaçların yanı sıra iğne aspirasyonu ve gerektiğinde pigtail kateter drenajı yer alır. Prospektif çalışmamızda Ağustos 2015'ten Temmuz 2018'e kadar üç yıllık bir süre boyunca kliniğimize gelen hastalar değerlendirmeye alındı. Çalışma SRM Medical College Hastanesi ve Araştırma Merkezi, Kattankulathur, Tamil Nadu, Hindistan'da gerçekleştirildi. Tam kan sayımı (CBC), göğüs röntgeni, karın röntgeni, karın ultrasonu ve karın CECT gibi incelemeler yapıldı. Toplam 57 hasta incelendi ve elde edilen sonuçları analiz edildi.

**Anahtar kelimeler:** Amibik karaciğer apsesi, piyojenik karaciğer apsesi, metronidazol, iğne ile aspirasyon.

#### INTRODUCTION

Liver abscess is a condition that is seen by surgeons all over the world. The patients present to the surgical department with complaints of abdominal pain which is more over the right hypochondrium. The

patient may also have fever and jaundice as well. A detailed history must be collected and a thorough clinical examination must be done. Investigations such as complete blood count (CBC), chest x-ray, x-ray

**Table 1:** Age group of patients who had liver abscess, n=57.

Age (Years)	Patients (n)	Percentage %
30-40	8	14.0
41-50	18	31.57
51-60	21	36.84
61-70	7	12.28
71-80	3	5.26

abdomen and ultrasound of the abdomen must be done.

A contrast enhanced CT (CECT) of the abdomen will also be very useful. Liver abscess may be of certain types such as amoebic liver abscess and pyogenic liver abscess. Occasionally a liver abscess may also occur due to fungal infection. The treatment of a liver abscess depends on the aetiology as to whether it is an amoebic liver abscess or pyogenic liver abscess. Drugs such as metronidazole are very useful in cases of amoebic liver abscess. However, sometimes, aspiration of the abscess cavity may be required. The aspiration can be done using image guided techniques and if required a pigtail catheter can be placed inside the abscess cavity for continuous drainage. The pus that is drained should also be sent for culture and sensitivity. Surgical open drainage of the abscess is only occasionally indicated such as, if the abscess ruptures into the peritoneal cavity and if there are features of peritonitis. At times like these an exploratory laparotomy and open drainage will be needed. Our study deals with amoebic and pyogenic liver abscess in patients who presented to the surgical department at our hospital.

### MATERIAL and METHOD

This was a prospective study carried out from August 2015 to July 2018, for a period of three years. The study was conducted at SRM Medical College Hospital and Research Center, Kattankulathur, Tamil Nadu, India. A detailed history was collected and a thorough clinical examination was done. Investigations such as complete blood count (CBC), chest x-ray, x-ray abdomen, ultrasound of the abdomen and CECT of the abdomen were done. A total of 57 patients were studied and the results obtained were tabulated. The statistics were analysed using SPSS package 16.0. Ethical clearance was obtained from the institutional ethics committee.

### RESULTS

From the results, it is seen that in our study, liver abscess was most common between the age group of 51 to 60 years (36.84%). 40 patients (70.17%) had history of chronic alcohol intake (Table 1-7). Right hypochondrial pain (84.21%) was the most common clinical feature with which the patients presented to the surgical department and many of these patients also had fever (78.94%).

**Table 2:** Alcohol intake in patients with liver abscess, n=57.

Group	Patients (n)	Percentage %
Alcohol intake present	40	70.17
No alcohol intake	17	29.82

**Table 3:** Clinical features of the patients with liver abscess.

Clinical feature	Patients (n)	Percentage %
Right hypochondrial pain	48	84.21
Fever	45	78.94
Jaundice	21	36.84
Hepatomegaly	5	8.77

**Table 4:** Location of the liver abscess, n=57.

Location	Patients (n)	Percentage-%
Right lobe	38	66.66
Left lobe	19	33.33

**Table 5:** Number of liver abscess, n=57.

No. of abscess	Patients (n)	Percentage-%
Solitary	45	78.94
Multiple	12	21.05

**Table 6:** Type of liver abscess, n=57.

Type	Patients (n)	Percentage-%
Amoebic	37	64.91
Pyogenic	20	35.08

**Table 7:** Mode of treatment for patients with liver abscess, n=57.

Mode of treatment	Patients (n)	Percentage %
Conservative management with antibiotics	12	21.05
Aspiration	15	26.31
Pigtail drainage	26	45.61
Open surgery	4	7.01

The liver abscess was found to occur more in the right lobe of the liver (66.66%) and a majority of these were a solitary abscess (78.94%). Most of the abscess that we encountered in our study was found to be amoebic liver abscess (64.91%). Pigtail drainage of the abscess cavity was the most common procedure done and it was performed in 26 patients (45.61%).

Serology for antibodies to *E. histolytica* is a useful adjunctive test for invasive amoebiasis. ELISA for the demonstration of anti-amoebic antibodies in titres greater than 1:400 is considered strong evidence of amoebic liver abscess. However, for diagnostic purposes, titres >250 are considered positive. In our study, there were 37 patients (64.91%) whose titres were >250 and were diagnosed as amoebic liver abscess and in the remaining 20 patients (35.08%) the titres were negative and were considered as pyogenic liver abscess.

## DISCUSSION

Patients with liver abscess present to the surgical department with various complaints such as right hypochondrial pain, fever and jaundice. Mohsen et al also showed that fever may occur in both amoebic and pyogenic liver abscess (1). In the study done by Tiwari et al (2), 81% of patients had fever and in the study done by Rajak et al (3), 92% of patients had fever. In our study, 84.21% of patients with liver abscess had fever. Sometimes, patients with a liver abscess may also present with dysentery and this was shown in the study done by Abullah et al (4). It is important to differentiate an amoebic liver abscess from a pyogenic liver abscess and this importance has been shown in the studies done by Ahsan et al (5) and Goh et al (6). In our study, 64.91% of patients had an amoebic liver abscess and 35.08% of patients had a pyogenic liver abscess. Investigations such as ultrasound and CT of the abdomen are very useful in determining whether the abscess cavity is solitary or multiple and also in which lobe the cavity is present in. In our study, 78.94% of patients had a solitary abscess in the liver and in 66.66% of patients the abscess was located in the right lobe of the liver. Bukhari et al showed in their study that 83% of liver abscess were solitary (7).

Chou et al. also showed in their study that, 71.01% patients had a solitary liver abscess and 28.98% patients had multiple liver abscess (8). In the study done by Tiwari et al (2), 67.2% of patients had a solitary liver abscess and 32.8% of patients had multiple liver abscess. In the study done by Rajak et al (3), 80% of patients had a solitary liver abscess and 20% of patients had multiple liver abscess. The predominance of liver abscess in the right lobe was also shown in the studies done by Makkar et al (9), Khan et al (10) and Qazi et al (11). Drugs such as metronidazole are very useful in treating patients with amoebic liver abscess. However, sometimes patients will require needle aspiration or pig tail catheter for continuous drainage. Powell et al showed in their study the effectiveness of using metronidazole in treating patients with amoebic liver abscess (12). When aspiration is required, it is better to do it under ultrasound guidance so that the abscess cavity can be visualised and then the pus can be aspirated out. The pus that is aspirated must be sent for culture. The organism that is grown must be noted and the patient must be treated accordingly. Pang et al (13) and Wang et al (14) in their studies demonstrated different organisms that were grown from different patients with liver abscess. Ramani et al (15) showed the need for percutaneous aspiration in their study and Giorgio et al (16) also showed in their study that sometimes there may be a need for repeated aspirations to be done in cases of liver abscess. Most of our patients had drainage of the liver abscess with a pigtail catheter and a few of the patients only needed needle aspiration to drain the pus. Zerem et al (17) and McGarr et al (18) also showed in their studies that needle aspiration and percutaneous drainage are extremely useful modalities of treatment in cases of liver abscess.

**Table 8:** Comparison of clinical features of liver abscess between our study and other studies

Clinical feature	Tiwari et al (2)	Rajak et al (3)	Our study
Right hypochondrial pain	98.3%	100%	84.21%
Jaundice	38%	12%	36.84%
Fever	81%	92%	78.94%

**Table 9:** Comparison of number of liver abscess between our study and other studies.

Liver abscess	Tiwari et al. (2)	Rajak et al. (3)	Chou et al. (8)	Bukhari et al. (7)	Our study
Solitary, %	67.2	80	71.01	83	78.94
Multiple, %	32.8	20	28.98	17	21.05

**Table 10:** Comparison of the type of liver abscess between our study and other studies.

Type of liver abscess	Tiwari et al. (2)	Rajak et al. (3)	Our study
Amoebic	75.9	80	64.91
Pyogenic	24.1	20	35.08

It is also important to know some of the complications that a liver abscess can cause and one such important complication is the thoracic complication of a liver abscess and this was shown in the study done by Perez et al (19). So, it is very important to diagnose a patient with a liver abscess as early so that the treatment can be started as early as possible.

### Conclusion

From our study, it is seen that liver abscess are more commonly found on the right lobe of the liver (66.66%) and are usually solitary abscess cavities (78.94%). In our study, amoebic liver abscess (64.91%) was more commonly found than the pyogenic liver abscess (35.08%). Our study shows that, when a patient presents with features suggestive of a liver abscess, investigations must be done at the earliest and the liver abscess must be identified and treatment must be started as early as possible.

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