ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 10 | October - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CLINICAL STUDY OF PATIENTS WITH LIVER ABSCESS AT A TERTIARY CARE CENTER

General Surgery

Sandeep Dabade* Associate professor, Rajiv Gandhi Medical, College, Thane. *Corresponding Author

Abhijeet Kharche Postgraduate resident, Rajiv Gandhi Medical College, Thane.

Deepak Pawar Associate professor, Rajiv Gandhi Medical, College, Thane.

ABSTRACT

This study was conducted to evaluate etiology, clinical features, risk factors, imaging findings, bacteriologic profile, treatment, and outcome in patients presenting with liver abscesses. A prospective study of 53 patients (49 males and 4 females) with liver abscesses, that were hospitalized between April 2021 and March 2022 at our institute. The most significant clinical features of liver abscesses were upper abdominal pain with high-grade fever, icterus and hepatomegaly. Of the 53 cases, 16 had amebic abscess with Anchovy sauce-colored pus and 37 had pyogenic liver abscesses. All patients who had received intravenous antibiotic therapy (cephalosporin or fluoroquinolones in combination with metronidazole), showed a good response to this regime. Among the pyogenic liver abscess of 37 cases, 7 cases were treated conservatively with antimicrobials alone; 20 cases were treated with percutaneous needle aspiration; 8 cases were treated with percutaneous drainage; and 2 cases underwent laparotomy and drainage for ruptured liver abscess.

KEYWORDS

Liver Abscess, Amebic, Pyogenic, Percutaneous drainage, percutanous aspiration.

INTRODUCTION:

Liver abscess is common disease in India.There are two types of liver abscesses- amebic and pyogenic. Amebic liver absces is caused by Entamoeba Histolytica, while pyogenic liver abscesses are caused by other bacterias. The World Health Organization reported that Entamoeba Histolytica causes approximately 50 million cases and 100,000 deaths annually. [2]

Liver is exposed to portal venous bacterial load on a regular basis and clears the bacterial load without problem in the usual circumstances. The development of hepatic abscess occurs, when the inoculum bacterias regardless of route of exposure exceeds the livers ability to clear it. Fever with chills and pain abdomen are most common presenting symptoms, but there is a broad array of non specific symptoms like night sweating, malaise, anorexia, nausea and vomiting.[1]

In last few years, there is a change in trend in etiology and treating these abscesses more conservatively and by less traumatic methods compared to open surgical procedures. The primary mode of treatment of amoebic liver abscess is medical therapy. However, 15% of amoebic abscesses may be refractory to medical therapy. In such patients and in patients with pyogenic liver abscesses, surgical drainage has been the traditional mode of treatment. In recent years, imaging guided percutaneous drainage using catheters has been increasingly used to treat liver abscesses with reported success rates ranging from 70-100%. Also few studies have shown therapeutic needle aspiration to be a simpler, safe and less costly mode of treatment, but needs repeated aspiration, with more failure rates. The success rate of the procedure and expertise in managing these pathologies are the factors which should be considered in selecting the choice of therapy.

Through this study, it is aimed to develop management protocol for patients with liver abscess in our setting. Liver abscess remains a major diagnostic and therapeutic challenge, despite advances in diagnostic and new strategies for treatment. With diagnostic methods, including USG or CT, has not only made the diagnosis more certain, but also has introduced new range of treatment options. Though every abscesses should be treated on its individual merits, there is a need to define indications to adopt particular method of treatment, so as to reduce morbidity, avoid mortality, make the treatment safe, affordable and to achieve a highest cure rate. There is need for the study to evaluate different modes of presentation, risk factors, diagnostic problem associated and effectiveness of USG guided percutaneous aspiration and surgery.

Donovan A J et al, Department of Surgery, Los Angeles, Country University of Southern California Medical Centre 1991, studied about diagnosis of liver abscess (pyogenic or amoebic). USG is the diagnostic modality of choice and will detect almost 100% of abscess. If drainage of pyogenic liver abscess is required; the preferable technique is with USG /CT guided percutaneous aspiration. [2]

Yeoh Kg et al- National University Hospital, Singapore, reviewed 41 cases from 1994 to 1998, 27 (67%) pyogenic, 6 (15%) amoebic, 2 (5%) tuberculosis, 6 (15%) intermediate. Percutaneous needle aspiration was performed for 85% of pyogenic abscess and surgery was necessary in only two cases, because of complications.[3] They found that percutaneous aspiration of liver abscess, not only helps to confirm the diagnosis, but also to uncover clinically unsuspected conditions like malignancy and tuberculosis which may mimic liver abscess.

Table-1: Predisposing Factors For Pyogenic Liver Abscesses

Children	Adults
Chronic granulomatous disease	Diabetes mellitus
Complement deficiencies	Cirrhosis
Leukemia	Chronic pancreatitis
Malignancy	Peptic ulcer disease
Sickle cell anemia	Inflammatory bowel disease
Polycystic liver disease	Jaundice
Congenital hepatic fibrosis	Pyelonephritis
Post transplant liver failure	Malignancy
Necrotizing enterocolitis	Leukemia and lymphoma
Chemotherapy and steroid therapy	Chemotherapy and steroid therapy
Acquired immunodeficiency syndrome	Acquired immunodeficiency syndrome

Fig-1: CT Scan Demonstrating A Large Abscess In The Right Lobe Of Liver

MATERIALS AND METHODS:

It was a prospective study done between April 2021 to March 2022 on patients admitted to Rajiv Gandhi medical college and Chhatrapati Shivaji Maharaj hospital, Kalwa, Thane, Maharashtra. 53 patients were admitted, diagnosed and treated as cases of liver abscess.

A detailed history was taken from each of these patients and all of them were subjected to a thorough clinical examination. These patients were then subjected to investigations available within the hospital such as Hb, TLC, RBS, urea, creatinine, liver function tests (SGOT, SGPT, Serum bilirubin, ALP, serum albumin, total proteins, A:G ratio, Prothrombin time). Ultrasonography of abdomen was done in all cases. Serological tests for amebic liver abscess were not performed as the facilities were not available in our hospital. Chest X-ray was done in all cases. Pus was sent for Gram's stain and culture and sensitivity.
CT scan was not routinely done, as many patients were poor. Following diagnosis of liver abscess, depending on volume of abscess, patients were treated conservatively or ultrasound guided precutaneous needle aspiration. Those abscess with less than 50 cc collection were treated conservatively, and with >50cc, percutaneous needle aspiration was done with a 18G spinal needle using ultrasonography. Intravenous antibiotics were started and metronidazole at a dose of 40 mg/kg/day in divided doses for 14 days. If pus revealed growth of organism, then appropriate antibiotics were given in full course, follow-up was done, as long as patient stayed in hospital and also during subsequent visits. Patients were examined daily for clinical improvement. Improvement of pain, fever, anorexia, hepatomegaly were considered as a criterion for successful treatment. Laparotomy was considered in cases of suspected rupture of liver abscess with peritonitis.

Relapses were noted and repeat aspirations were performed when necessary. Cure was defined as improvement clinically with subsidence of fever, and local signs, symptoms, decrease in WBC count and ultrasonography showed reduction in size to < 3 cm in diameter.

Sample Size: 53 Patients

Inclusion Criteria:
1. Liver abscess in all the age group.
2. Liver abscess with or without complications

Exclusion Criteria: Liver abscess associated with malignancy.

RESULTS:
1) Age distribution: Most of the patients were between age group of 31 to 40 years. Youngest case age is 6 years. Oldest case age is 80 years.

Table 2: Distribution Of Patients Based On Age Incidence

Age group (in years)	No. Of cases	Percentage
0-10	1	1.88%
11-20	0	0
21-30	6	11.32%
31-40	14	26.41%
41-50	13	24.53%
51-60	13	24.53%
61 and above	6	11.32%

2) Sex distribution: Out of 53 cases, 49 were males and 04 were females. The ratio of male to female is approximately 10:1.

Table- 3: Distribution Of Patients Based On Sex Incidence

Sex	No. Of cases	Percentage
Male	49	92.45%
Female	4	7.55%

3) Symptoms: Abdomen pain was the commonest symptom observed in 52 out of 53 patients. Fever was next common symptom observed in 37 out of 53 patients. Cough was associated with 6 out of 53 patients.

Table – 4: Distribution Of Patients Based On Presenting Symptoms

Symptoms	No. Of cases	Percentage
Pain in abdomen	52	98.11%
Fever	37	69.81%
Cough	06	11.37%

4) Signs: Upper Abdomen tenderness was present in all cases. Fever was present in 37 out of 53 (69.81%) cases. Palpable enlarged liver (Hepatomegaly) was present in 16 out of 53 (30.18%) cases. Intercostal region tenderness was present in 6 out of 53 (11.32%) cases. Basal lung signs was present in 3 out of 53 (5.66%) cases. Icterus was present in 16 out of 53 (30.18%) cases. Ascites was present in 4 out of 53 (7.54%) cases.

Table – 5: Distrbution Of Patients Based On Presenting Clinical Signs

Signs	No. Of cases	Percentage
Abdomen tenderness	53	100%
Febrile	37	69.98%
Hepatomegaly	16	30.18%
Intercostal tenderness	06	11.32%
Basal lung signs	03	5.66%
Icterus	16	30.18%
Ascitis	04	7.5%

5) Risk factors:

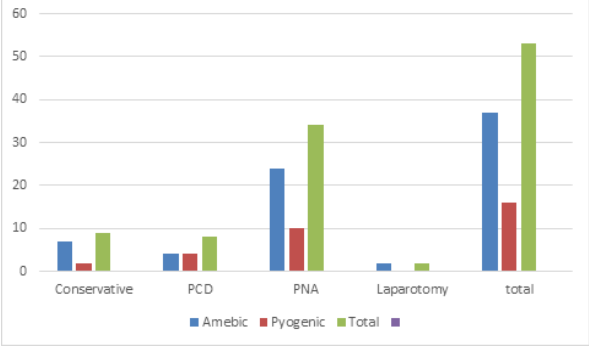
Table –6: Distribution Of Risk Factors Amongst The Patients

Risk factors	Frequency	Percentage
Alcoholism	17	32.07%
Smokers	12	5.66%
Diabetes mellitus	3	5.66%
Tuberculosis	2	3.77%
HIV	1	1.88%
HBsAg	5	9.43%
Post abdominal surgery	2	3.77%

6) Pathological organisms:
Of the 53 cases, 37 (69.81%) had amebic abscess with Anchovy sauce colored pus and 16 (30.19%) had pyogenic liver abscesses (PLA). Amebic abscesses were bacteriologically sterile. Among cases with 16 PLA cases, pus culture showed growth in 16 cases; *Escherichia coli* in four cases, *Klebsiella* spp. in four, *Staphylococcus aureus* in five cases, *Proteus* in two cases and *Streptococcus* in one case.

7) Abdominal sonography:
Abdomen Ultrasonography was done in all cases. It showed evidence of abscess/ abscesses in liver in all the 53 cases. Right lobe involvement was seen in 42 cases (79.24%) and left lobe involvement in 6 cases (11.32%), and both right and left lobes were involved in 5 cases (9.43%).

8) Management:
Out of 53 cases, 37 cases had Amebic abscess; 7 cases treated conservatively with antimicrobials alone; 4 cases were treated with percutaneous drainage; 24 cases were treated with percutaneous needle aspiration; and 2 cases under went laparotomy and drainage for ruptured liver abscesses., Among 16 cases who had Pyogenic abscess; 2 cases treated conservatively and 10 with percutaneous needle aspiration and 4 with percutaneous drainage.



Graph-1: Management of cases of liver abscess

9) Complications: 2 patients had rupture of liver abscess requiring surgery. 9 patients developed right plueral effusion.

Table -7: Analysis Of Complications

Complications	No. Of cases	Percentage
Rupture into peritoneal cavity	2	3.77%
Pleural effusion	9	16.98%
Death	1	1.88%
Relapse	8	15.09%
Total	19	35.84%

10) Follow up: After discharge, the patients were followed up clinically and by ultrasonography in the outpatient clinic; at the end of

one month. Out of 53 cases, 45 (amebic 36 and pyogenic 9) cases responded and remaining 8 cases (1 amebic and 7 pyogenic) relapsed; on follow up; 1 Amebic and 2 Pyogenic were treated with repeat percutaneous drainage and antibiotic regime; 4 pyogenic treated conservatively; remained 1 pyogenic abscess case lost to follow up and died after three months.

DISCUSSION:

As per findings of our study, liver abscess is most commonly seen 31-40 age group. Males were affected more than females.

In our study, abdomen pain was a major symptom in 98.11% (n=52) cases. Pain was present in the upper abdomen. The nature of the pain was dull aching, in majority of the patients. In a study by Sukhjeet Singh et al [4], pain in abdomen was seen in 93% patients. In our study, fever was present in 69.81% cases (n=37). Ochsner et al and Norman et al [1,5] showed that clinical features of pain abdomen was the most consistently occurring symptom, fever was the next most frequent symptom.

Patients had clinical signs of upper abdominal tenderness, icterus, hepatomegaly of variable severity.

In our study, alcoholism was found to be the risk factor. 32% patients in our study consumed alcohol. Thus it can be inferred from this study that alcoholism is the common predisposing risk factor in patient with liver abscess. Smoking and diabetis was associated in some cases.

Of the 53 cases, 37 (69.81%) had amebic abscess with Anchovy sauce / chocolate colored pus and 16 (30.19%) had pyogenic liver abscesses (PLA). Among cases with 16 PLA cases, pus culture showed growth in 16 cases; *Escherichia coli* in four cases, *Klebsiella* spp. in four, *Staphylococcus aureus* in five cases, *Proteus* in two cases and *Streptococcus* in one case. In Sukhjeet Singh et al, [4] Amebic liver abscesses were encountered more frequently (58%) compared to pyogenic (23%), amebic abscesses with secondary bacterial infection (7%) and abscesses of indeterminate etiology. The most frequently isolated bacteria on pus culture was *Escherichia coli* (44%) closely followed by *Klebsiella* species (33%).

On ultrasound abdomen, Solitary abscess was seen in 38/53 (71.69%) of cases. Multiple abscesses were seen in 15/53 (28.30%) cases. Right lobe involvement exclusively was seen in 42/53 (79.24%) and isolated left lobe involvement was seen in 6/53 (11.32%) of cases. Both lobe involvement was seen in 5/53 (9.43%) of cases.

Out of 53 cases, 37 cases had Amebic abscess (69.81%); 7 cases treated conservatively with antimicrobials alone; 4 cases were treated with percutaneus catheter drainage; 24 cases were treated with percutaneous needle aspiration; and 2 cases underwent laparotomy and drainage for ruptured liver abscesses., Among 16 cases had Pyogenic abscess (30.19%); 2 cases treated conservatively and 10 with percutaneous needle aspiration and 4 with percutaneus catheter drainage.

Morbidity / complications encountered in our series. The abscess ruptured 2 cases who were treated by laparotomy. Pleural effusion was seen 9 cases, which were treated with appropriate antibiotics, death occurred in 1 patient and 8 relapsed cases were treated again.

CONCLUSION:

Liver abscess is a disease common among the lower socio-economic group. The age incidence is age group 31-60 years. Male to female ratio is 10:1. Amebic abscess were encountered more frequently (69.81%) compared to pyogenic (30.19%) etiology. The common clinical features included pain in right upper abdomen, fever, icterus and hepatomegaly. Lab investigations revealed leukocytosis (71.69%), elevated alkaline phosphatase (56.60%), hyperbilirubinemia, hypoalbuminemia and anemia in most cases. Chest X-Ray may show evidence of right sided pleural effusion in 16.98% cases.

Right lobe of liver is commonly involved than left lobe. Solitary abscess dominate the picture in most cases. Amoebic abscess were bacteriologically sterile. Liver abscess cases respond better to ultrasound guided needle aspiration or percutaneous cather drainage followed by therapy with appropriate antibiotic. Laparotomy is needed only in patients with ruptured liver abscess.

REFERENCES:

1. Alton Ochsner, Michael DeBakey, Samuel Murray, (1938), Pyogenic abscess of the liver: II. An analysis of forty-seven cases with review of the literature. The American Journal of Surgery, 40(1), 292-319. https://doi.org/10.1016/S0002-9610(38)90618-X.
2. Donovan AJ, Yellin AE, Ralls PW, (1991) Hepatic abscess. World J Surg. Mar-Apr;15(2):162-9. doi: 10.1007/BF01659049. PMID: 2031354.
3. K G Yeoh, I Yap, S T Wong, A Wee, R Guan, J Y Kang,(1997) Tropical liver abscess, *Postgraduate Medical Journal*, Volume 73, Issue 856, February 1997, Pages 89–92, https://doi.org/10.1136/pgmj.73.856.89
4. Sukhjeet Singh et al. (2013). *Annals of Gastroenterology (2013),26 (4): 332-339*
5. Norman DC, Yoshikawa TT.(1984) Intraabdominal infection: diagnosis and treatment in the elderly patient. Gerontology.1984;30(5):327-38. doi: 10.1159/000212652.