



CLINICAL PRESENTATION AND OUTCOME OF LIVER ABSCESES

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ABSTRACT **Introduction:** Liver abscess is a burning problem of tropical countries and remains a formidable diagnostic and therapeutic problem. If left untreated, the disease invariably runs a lethal course. No differentiation can be made between pyogenic and amoebic liver abscess on the basis of clinical features, laboratory findings and radiological features. This study was designed to analyze the diagnosis, management and outcome of patients admitted with liver abscess. An attempt has been made to assess the outcome of using the total leucocyte count at presentation as a criterion for deciding the choice of antibiotics. **Materials & Methods:** A prospective observational study was conducted. Detailed history & examination of patients were recorded on a proforma. Blood sample was taken for routine investigations, liver function test, PT/INR, blood culture and serological testing for Entamoeba histolytica antibodies. The location, number, and size of the abscess or abscesses were noted. A single abscess of more than 3 cm in diameter, or, multiple abscesses where the largest was more than 3 cm in diameter, was aspirated under ultra-sonographic guidance. The pus was sent for microbiology for wet mount examination of E histolytica and culture sensitivity for bacteria. Thirty volunteers who were age and sex matched were used as controls for serological testing for E histolytica. For management, patients having a TLC of more than 12000/mm³ were treated with IV Vancomycin and IV meropenem covering Staphylococcus aureus or Gram-negative organisms respectively, along with IV metronidazole. If no organism was cultured the antibiotics were given for 7 days. Patients having TLC of less than 12000/mm³ were treated as amoebic liver abscess and given IV Metronidazole 750 mg every 8 hourly or oral metronidazole 800 mg every 8 hourly for 10 days, depending on whether he could tolerate oral drugs. Patients were monitored for response. **Results:** Ninety percent of patients had abdominal pain, fever & loss of appetite at the time of presentation. >70% had abdominal tenderness & hepatomegaly. >80% patients had raised TLC & 76% had raised bilirubin levels. Eighty percent of patients with raised TLC responded well to IV antibiotics and IV metronidazole, while 20% required percutaneous drainage. In the group with normal TLC, 60% responded to metronidazole alone, with 40% necessitating additional antibiotics or percutaneous drainage. Patients were called for follow up after 7 days and 30 days of discharge. Two patients required readmission during follow-up. They were managed using antibiotics and pigtail drainage. 1 patient died in ICU due to acute MI.

KEYWORDS : Liver Abscess, Pigtail Catheter, Jaundice

INTRODUCTION

Liver abscess is a burning problem of tropical countries and remains a formidable diagnostic and therapeutic problem. If left untreated, the disease invariably runs a lethal course. The management of this disease varies considerably from surgeon to surgeon.

In majority of the cases, the underlying cause of pyogenic liver abscess (PLA) could not be identified (cryptogenic) (1), however, most common diseases associated with PLA are Biliary Tract Diseases (Cholelithiasis, Obstructing tumors, Congenital Biliary Tree Anomalies etc.), Portal Vein seeding (Appendicitis, Diverticulitis) or Inflammatory Intestinal Diseases (2). Amoebic liver abscess (ALA) is the most frequent extraintestinal manifestation of E histolytica infection (3).

No differentiation between them can be made on the basis of clinical features, laboratory findings and radiological features (4–7). In regions where amoebiasis is very prevalent, positive serology does not carry diagnostic usefulness as seropositivity may reflect prior invasive intestinal infection.

Published reports on pyogenic liver abscesses have found the leucocyte counts >10,000 in almost 70% of the patients (8,9). Causative organisms from blood cultures have low yield varying widely from 1.5% to 50% (9–11). Yield from pus aspirates reported in published literature varied from 15% to 80% (1,11–13).

This study was designed to analyze the diagnosis, management and outcome of a patients admitted with liver abscess. An attempt has been made to see the outcome, if the total leucocyte count at presentation is used as a criterion to decide the choice of antibiotics.

MATERIALS & METHODS

This is a prospective observational study conducted in one of the units of the Department of Surgery of UCMS & GTB Hospital from September 2022 to February 2024. Thirty cases of liver abscess were enrolled for study.

All consecutive patients admitted to the unit with clinical suspicion of liver abscess, where the diagnosis of liver abscess was confirmed by

ultra-sonographic examination.

Detailed history & examination of patients were recorded on a proforma. Blood sample was taken for routine investigations, liver function test, PT/INR, blood culture and serological testing for Entamoeba histolytica antibodies. The location, number, and size of the abscess or abscesses were noted. A single abscess of more than 3 cm in diameter, or, multiple abscesses where the largest was more than 3 cm in diameter, was aspirated under ultra-sonographic guidance. The color and consistency of pus was noted. The pus was sent for microbiology for wet mount examination of E histolytica and culture for bacteria and amoeba and Antibiotic sensitivity testing in case of bacteria. Chest X ray was done to look for pleural effusion. Thirty volunteers who were age and sex matched were used as controls for serological testing for E histolytica.

For management, the total leucocyte counts (TLC), at presentation, was used as the guiding criteria. Patients having a TLC of more than 12000/mm³ were treated with IV Vancomycin and IV meropenem covering Staphylococcus aureus or Gram-negative organisms respectively, along with IV metronidazole. If no organism was cultured the antibiotics were given for 7 days. Patients having TLC of less than 12000/mm³ were treated as amoebic liver abscess and given IV Metronidazole 750 mg every 8 hourly or oral metronidazole 800 mg every 8 hourly for 10 days, depending on whether he could tolerate oral drugs.

Patients were monitored for response. The highest temperature of the day was noted. Acceptance of oral feeds and the return of appetite was recorded. The TLC was monitored every alternate day. In case patient showed no response by day 5 a rescue procedure was carried out. In the amoebic group antibiotics were started. A pig-tail drainage was done in either group.

Patient was discharged when the temperature was normal for 48 hours and he/she was taking normal diet. Those with initially raised TLC should have the TLC to come within normal range. Patients were called for follow up after 7 days and 30 days of discharge. If there was recurrence of fever, pain abdomen or loss of appetite, the patient was readmitted. A pigtail catheter was put in the residual abscess.

RESULTS

In our study age distribution ranged from 18 to 65 years, with a mean age of 45 years. The male-to-female ratio was 6.5:1. Notably 76% of patients had a history of chronic alcohol abuse. Additionally, 10% were known diabetics, 10% had pulmonary tuberculosis, and one patient reported asthma.

Clinical features of the patients were as following (chart 1-2)

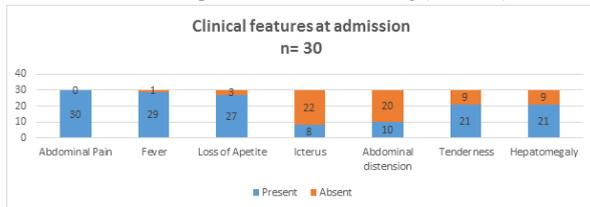


Chart 1

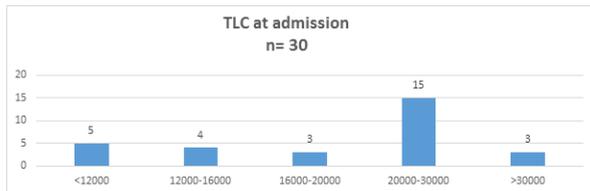


Chart 2

Elevated bilirubin levels were noted in 76%, with 7 patients exceeding 3 mg/dl and 1 patient >8 mg/dl. Ninety percent exhibited raised serum alkaline phosphatase levels, 76% had low albumin levels, and 33.3% were found to be anemic. Seventy percent of cases had a single cavity of abscess, predominantly located in the right lobe (81%), while 77% of multiple abscess cases displayed distribution in both lobes. In only 4 patients' abscess was localized to left lobe. Two-thirds of the single abscesses had a volume exceeding 200 mL, and all multiple cavities were less than 500 mL.

On aspiration, 53% had an anchovy sauce-like appearance, and 47% had a creamy appearance. All blood cultures were sterile. Only one patient showed growth on pus culture. It showed the growth of *Citrobacter freundii* which was found to be sensitive to piperacillin and tazobactam. Patients were treated with iv antibiotics as per the protocol. In case patient showed no response by day 5, a rescue procedure was carried out. Response to treatment was as per chart 3.

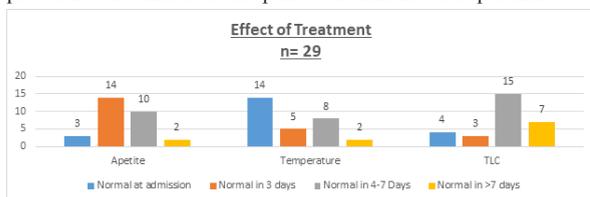


Chart 3

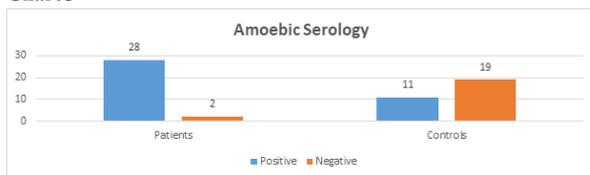


Chart 4

Eighty percent of patients with raised TLC responded well to IV antibiotics and IV metronidazole, while 20% required percutaneous drainage. In the group with normal TLC, 60% responded to metronidazole alone, with 40% necessitating additional antibiotics or percutaneous drainage. Patients were called for follow up after 7 days and 30 days of discharge. Two patients required readmission during follow-up. They were managed using antibiotics and pigtail drainage. 1 patient died in ICU due to acute MI.

DISCUSSION

In spite of considerable attempts to differentiate Amoebic liver abscess (ALA) from pyogenic liver abscess (PLA), no reliable characteristics to differentiate them could be found in published literature. In the absence of consensus guidelines, patients with liver abscesses were

investigated and managed at the discretion of the attending physician. In this study we have used total leucocyte count (TLC) at presentation as a criterion to decide the choice of antibiotics.

In 16 patients (53%), the pus aspirated was having an anchovy sauce appearance. In the other 14 patients, the pus was creamy in color. According to research done by Manson et al, the presence of pus in anchovy sauce appearance is considered pathognomonic for amoebic liver abscess (14). Barbour et al discovered in their study that the most valuable characteristic of aspirated fluid from an amoebic abscess is not its color but rather the lack of a foul odor. A foul odor suggests the existence of a bacterial infection, which could be a secondary complication in an amoebic abscess (7). Madhumita Mukhopadhyay et al. confirmed diagnosis of ALA by the recovery of typical "anchovy" sauce on needle aspiration or surgical decompression in 64 patients (88.89%) (15). JK Dhaked et al diagnosed ALA with one criterion that was pus characteristics (anchovy sauce appearance) on gross examination (16). Khanna et al find in his study on amoebic liver abscess that "anchovy sauce" pus was obtained from 23 of the 73 aspirated patients; the rest of the aspirated samples were either white or grey in color (17).

Twenty eight of the thirty patients (93%) had positive amoebic serology (IgG). When the test was done in the control group, eleven patients out of thirty (37%) had positive amoebic serology. Saroj Kumari et al done a prospective study on title named 'Rising Trends of Sero-Prevalence of Human Amoebiasis in a Tertiary Care Hospital' at DMC, Laheriasarai, Bihar. She found that 82/137 (59.85%) were positive for amoebic liver abscess cases, 2/12 (16.66%) were positive in suspected amoebiasis group, 5/17 (29.41%) were positive in non-amoebic hepatic disorder group, 7/38 (18.42%) were positive in other parasitic disorders, and 2/96 (2.08%) were positive in presumed healthy controls (18). S. Lodhi et al observed in his study that in regions where amoebiasis is very prevalent, positive serology does not carry the same diagnostic usefulness as it is in non-endemic regions. Seropositivity may reflect prior invasive intestinal infection (4).

Using the criteria of response to fever, TLC and improvement in appetite, twenty three out of 30 patients (77%) had a favorable response without any intervention. Out of which 20 were from group with TLC >12,000/cubic mm and 3 patients were from group with TLC <12,000/cubic mm.

Seven patients (23%) required rescue treatment. Five patients were from group with TLC >12,000/cubic mm. In all of these patients, percutaneous drainage was required. Two patients were from group with TLC <12,000/cubic mm. Rescue procedure in the form of addition of antibiotics was required in one patient and percutaneous drainage was required in the other patient. Additionally, two patients, one from the group with TLC >12,000/cubic mm and the other from group with TLC <12,000/cubic mm required a rescue procedure upon readmission.

In the study conducted by Jindal et al., it was observed that 80% of patients with pyogenic liver abscess (PLA) necessitated percutaneous intervention, while 20% exhibited a positive response solely to antibiotic treatment (19). Rahimian et al. reported in their research that the predominant primary treatment modality for PLA was percutaneous drainage, implemented in 44 patients (55.7%). Surgical intervention was opted for in twenty cases (25.3%), and medical treatment was administered in fourteen cases (17.7%) (20). Mangukiya et al. found in their study that 32% of patients responded well to intravenous antibiotic therapy, specifically a combination of cephalosporin or fluoroquinolones with metronidazole and aminoglycoside (1). Similarly, Jaiswal et al. reported that in their study, 46% of PLA patients responded positively to antibiotics alone, as observed in six out of thirteen cases (21).

CONCLUSION

In endemic countries like India, it is very difficult to differentiate between PLA & ALA by clinical, radiological or pathological means. Serological positivity against entamoeba is also very high. Differentiating based on pus color, pus culture or blood culture is also not reliable.

However, with the advancement in antibiotic therapy, >75% of patients can now be treated with broad spectrum antibiotics.

So, all patients diagnosed with liver abscess should be started on broad

spectrum antibiotics & intervention should be considered only for vitally unstable patients or patients not responding to antibiotic therapy.

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