



COMPARATIVE STUDY OF THERAPEUTIC EFFICACY OF CONSERVATIVE MANAGEMENT AND ULTRASOUND GUIDED PIGTAIL DRAINAGE OF AMOEBIC LIVER ABSCESS

General Surgery

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ABSTRACT

Liver abscess is a common condition in India which is associated with high morbidity and mortality. ALA is the most common extra intestinal site of infection but occurs in only less than 1% of *E. histolytica* infections. The mortality rate has been estimated to be around 0.2-2.0% in adults and up to 26% in children. There are many options in managing amoebic liver abscess such as medical management, percutaneous or open surgical drainage. Until now there have been no studies which have compared the therapeutic efficacy between pigtail drainage and conservative management in medium-sized (5 to 10 cm). Nor is there any prospective study aimed at identifying parameters for instituting medical management versus drainage procedure for abscesses measuring between 5.0 and 10.0 cm. The aim of this paper is to compare the efficacy of conservative medical management to ultrasound-guided pigtail drainage and establish objective criteria for the management of such abscesses. This is a prospective study of 100 cases of amoebic liver abscess (ALA) of medium size (5 to 10cm) presenting to the Surgical Emergency and Surgical Outpatient Department of SMIMER Hospital from the period January 2018 to March 2019. All patients included were diagnosed as having an amoebic liver abscess (ALA) based on a history of anorexia, malaise, fever and pain abdomen with or without a preceding history of diarrhea and findings of tender hepatomegaly, intercostal tenderness, leukocytosis amoebic serology (ELISA) and ultrasound evidence of amoebic liver abscess. Patients were randomly allocated into two groups by double-blinded secret envelop method. Group I patients consisted of 50 patients who were treated with anti-amoebic (metronidazole 750 mg tid/IV 500mg 6 hourly) and antibiotic (ciprofloxacin 500 mg bd) drugs. Group II patients also consisted of 50 patients who were treated by ultrasound-guided indwelling pigtail catheter drainage in addition to anti-amoebic (metronidazole) and antibiotic (ciprofloxacin) drugs. Improvement in pain, fever, anorexia and clinical signs of hepatomegaly, pulse rate, respiratory rate, and USG abdomen within 72 hours of an institution of therapy was considered as criteria for continuing that particular modality of treatment. At three to five days, patients' outcome was assessed and if they did not respond to the first modality of treatment, the patient was subjected to the second modality of treatment, i.e. conservative converted to pigtail insertion and patients with pigtail insertion for drainage. A comparison was made between clinical signs and investigations to assess the patients. It was found all patients of Study Group II (pigtail drainage) had earlier improvement of all parameters of response to than patients in Study Group I (conservative management) this response was significant. Another significant finding of this study was abscesses of size >10cm should be aspirated or drained. This study showed that the abscesses of size between 6.0 cm to 10.0 cm should be taken up for pigtail catheter drainage at presentation as the time of resolution and improvement in clinical and investigative parameters were more rapid in Group II as compared to Study Group I with almost no complications associated with pigtail insertion. For abscesses >10 cm and in those ALA associated with complications insertion of pigtail was beneficial. Abscesses less than 6.0 cm could be managed with medical treatment alone.

KEYWORDS

Amoebic liver abscess, Conservative management, Pig-tail aspiration

1. INTRODUCTION

Amoebic Liver Abscess (ALA) is a common affliction worldwide where approximately 40-50 million people are infected annually with amoebic abscesses.²

Risk Factors for ALA are³

- Alcoholism
- Malignancy
- HIV infection
- Malnutrition
- Corticosteroid use
- Disorders of cell mediated immunity
- Homosexual activity
- Recent travel to a tropical region

Prevalence of infection is higher in endemic areas with 5-10%.⁴ Colonic amebiasis is the most common cause of ALA and ALA is the most common extra intestinal site of infection but occurs in only less than 1% of *E. histolytica* infections.⁴ ALAs are more common in men (87%) with chronic alcoholism seen in 58%.⁵ Patients commonly affected are between 20 to 40 years of age with significant morbidity. The mortality rate of ALA has been estimated to be around 0.2-2.0% in adults and up to 26% in children.⁶ The patients in spite of any treatment have a prolonged course of treatment and recovery.

The options in managing amoebic liver abscess are medical and percutaneous or open surgical drainage. Uncomplicated amoebic liver abscess has been managed conservatively with amoebicidal and antibiotic drugs. However, ultrasound guided pigtail catheter drainage has been advocated more recently. There are different views and protocols for the management of this disease.

The review of literature reveals that the smaller amoebic liver abscesses, (multiple or single) can be treated conservatively. Larger amoebic liver abscesses with or without complications (pre-rupture, rupture, pressure effects) require intervention in the form of either closed or open drainage. However, there is no clear cut consensus for the management of uncomplicated symptomatic medium sized ALA with treatment modalities ranging from drugs alone to needle aspiration to pigtail catheter drainage. The present study is an effort to establish objective criteria for management of such abscesses and compare the efficacy between medical management and pigtail drainage in medium sized (5-10 cm) ALA.

2. MATERIALS AND METHODS

This is a prospective study of 100 cases of amoebic liver abscess (ALA) of medium size (5 to 10 cm) presenting to the Surgical Emergency and Surgical Outpatient Department of SMIMER Hospital from the period January 2018 to March 2019. All patients included were diagnosed as having an amoebic liver abscess (ALA) based on the history of anorexia, malaise, fever and pain abdomen with or without a preceding history of diarrhea and findings of tender hepatomegaly, intercostal tenderness, leukocytosis amoebic serology (ELISA) and ultrasound evidence of amoebic liver abscess.

Patients were randomly allocated into two groups by double blinded secret envelop method. Group I patients consisted of 50 patients who were treated with anti-amoebic (metronidazole 750 mg tid/IV 500mg 6 hourly) and antibiotic (Tab Ciprofloxacin 500 mg bd) drugs. Group II patients also consisted of 50 patients who were treated by ultrasound guided indwelling pigtail catheter drainage in addition to anti-amoebic (metronidazole) and antibiotic (ciprofloxacin) drugs.

Improvement in pain, fever, anorexia and clinical signs of hepatomegaly, pulse rate, respiratory rate and USG abdomen within 72 hours of the institution of therapy was considered as criteria for continuing that particular modality of treatment. At three to five days, patients' outcome was assessed and if they did not respond to the first modality of treatment, the patient was subjected to the second modality of treatment, i.e. conservative converted to pigtail insertion and patients with pigtail insertion for drainage. A comparison was made between clinical signs and investigations to assess the patients

2.1 Inclusion criteria

- Patients with amoebic liver abscess, USG for Liver abscess with ELISA positive and] with the size of abscess of not more than 10cm.
- Age group: 15 to 60 years
- Presence of liquefied abscess

2.2 Exclusion criteria

- Impending rupture
- Ruptured abscess
- Co-morbidities such as diabetes, jaundice, ascites,
- <15 years & >60years
- Deranged PT/INR ->1.5
- Organized liver abscess
- Caudate lobe abscess

All patients in the study group were subjected to:

- (a) A complete general medical and physical examination
- (b) Complete Haemogram with ESR
- (c) Liver function test.
- (d) CRP
- (e) Amoebic serology test (ELISA).
- (f) Prothrombin time.
- (g) PT/INR & BT/CT
- (h) Ultrasound Abdomen.
- (i) Chest X-ray.
- (j) Microscopic examination, culture and gram staining of aspirated pus.
- (k) Air cavigram will be done in Group II patients.
- (l) Microscopic examination of stool for cyst
- (m) Blood culture

The patients were examined daily for clinical improvement. Improvement in pain, fever, anorexia and clinical signs such as hepatomegaly, pulse, respiratory rate and USG abdomen within 72hours of the institution of therapy was considered as criteria for continuing that particular modality of treatment.

Patients of both groups were started on medical management by giving them anti-amoebic (Tab/IV Metronidazole 400mg/100ml QID) and antibiotic (Tab/IV Ciprofloxacin 500 mg / 100 ml 12 hourly) drugs.

2.3 Outcome to be assessed by

- (a) Abdominal pain as quantified.
- (b) Fever (normal temperature: 98.4F) / Pulse / Respiratory rate
- (c) Anorexia
- (d) Liver tenderness.
- (e) Resolution of amoebic liver abscess ultra sonographically
- (f) Resolution of the amoebic liver abscess by air cavigram.
- (g) Length of hospital stay.
- (h) Any complication.

Improvement in pain, fever, anorexia and clinical signs of hepatomegaly, pulse rate, respiratory rate and USG abdomen within 72 hours of the institution of therapy was considered as criteria for continuing that particular modality of treatment. If not improving then the patient is shifted from the group I to Group II.

2.4 Statistical Analysis

Chi-square test / Fischer test would be employed to compare improvement in various parameters between the two groups.

3.RESULT

- In both groups the maximum number (30%) of cases were in 41 to 50 years age group with a mean age in Group I is 39.08 years and 37.16 in Group II (p>0.05). The male to female ratio was 16:1 (Males 94%/Females 6%).
- Duration of symptoms at presentation was 15.2 days (Group I 13.4

days and 17 days in Group II) while alcohol intake was noted in 73% patients. Mean TLC at admission was 14798cells/mm³. Amoebic serology was positive in 90% of cases (88% in Group I and 90% in Group II).

- On USG solitary ALA was seen in 78% with 72% in the right lobe and 6% ALA were multiple. The mean max diameter in GRP I was 8.74 cms and 8.79 cms in Group II.
- The mean change in the size of abscess at 72 hrs. Was 0.49cms in group I and 1.17 cms in group II with a p-value of 0.00 and mean TLC value at 72 hrs. Was 10464/ mm³ in GRP I (p<0.001) which is significant.
- VAS at admission was 6.672 while VAS at 72 hrs in GRP I was 3.16; the mean change is 3.28 (p<0.001) while in Group II it was 5.84.
- 3 cases (12%) were shifted from GRP I to GRP II due to an increase in pain at 72 hrs, no decrease in TLC value and increase in size of ALA on USG.
- For GRP II air cavigram was done when the drain was nil where 14 cases had no residual fluid, 9 had minimal residual fluid while 5 had substantial residual fluid.
- No patient had any complication of Pig-tail insertion. 2 cases out of 28 had bile leak (7.14%) with a mean duration of the leak being 6 days.
- Mean duration of stay in GRP I was 7.84 days while in GRP II was 13.72 days (p<0.010)

4.DISCUSSION

- 100 cases of ALA were divided into 2 groups and compared the two modalities of treatment which is conservative management vs. USG guided pigtail drainage of ALA measuring between 6 cms to 10cms.
- Mean age of patients (38.17 yrs.) sex ratio (16:1) of this study was similar to other studies.^{7,8}
- Duration of stay of 13.4 and 17 days for the 2 groups was seen in this study but other studies have shown a great variance with an average of 10 days to 3weeks.^{9,10}
- The history of alcohol intake was positive in 73/100 patients while A positive history of alcoholism was obtained by Waringin. 67.5% of 40 cases, by Rogers in 54.5% of 44 cases. Excessive alcohol intake makes the liver more prone to developing ALA and is also responsible for the larger size of the abscess, greater frequency of complications and higher mortality.¹¹
- Alcohol lowers the body resistance, suppresses liver function and is accompanied by malnutrition, all factors making the person, especially of the lower socio-economic status, more prone to develop ALA.¹²
- The amoebic serology was positive in 90/100 cases of Case Group. A studying Central Vietnam had reported a 94.5% prevalence of anti-amoebic antibodies in cases of amoebic liver abscess.¹³ Hence ELISA is a good way to confirm the diagnosis.
- The mean TLC value at admission in the Case Group was 14798 cell/mm³. Lamount had suggested that a TLC of above 20000 cells/mm³ is indicative of secondary infection in an amoebic liver abscess or the presence of a pyogenic abscess.¹⁴
- In the present study, there were 72 cases (72%) of right lobe amoebic liver abscess, 6 cases (6%) of left lobe amoebic liver abscess and 22 cases (22%) were multiple amoebic liver abscess. Earlier studies had reported right lobe abscesses in 55% of cases of ALA, multiple abscesses were 27.7% and isolated left lobe abscess was 16.6%.¹⁵
- Although improvement of liver tenderness has been reported to be significantly faster in the aspiration group during the first 3 days where as all other parameters showed no differences between the two groups; this minor benefit was obviously not sufficient to justify routine needle aspiration and the study advocated drug management alone for uncomplicated amoebic liver abscess with a diameter up to 10cm located in right lobe.¹⁶
- Further, our study showed that the abscesses of size between 6.0 cm to 10.0 cm could be taken for pigtail catheter drainage at presentation as the time of resolution was more rapid in Group II as compared to Study Group I and There was statistically significant difference in the change in size of amoebic liver abscess at 72hrs between the two modalities of treatment.
- There had been reports that showed that only 30% of amoebic liver abscesses resolve completely within 6 months and that the abscess cavity may persist for as long as 2years.¹⁷

5.CONCLUSION

Our study clearly proves that there solution of uncomplicated solitary

right lobe amebic liver abscess measuring between 6.0 to 10.0 cm. was faster and earlier if the ALA was drained with a pigtail catheter than in patients who were managed conservatively. The study clearly indicates that uncomplicated abscesses measuring 6.0 to 10.0 cm are better treated with pigtail insertion under sonographic control. Other indications for pigtail insertion are abscesses measuring more than 10.0 cm and those ALA associated with complications. Abscesses less than 6.0 cm can be managed with medical treatment alone.

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