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Clinical profile and management of amoebic liver abscess: A prospective study of 100 cases

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Abstract

Amoebic liver abscess (ALA) is the commonest extra-intestinal manifestation of amoebic infection. Unfortunately, there is confusion among medical community regarding management of amoebic liver abscess.

Aims: To assess outcome of patients with uncomplicated ALA treated using conservative approach.

Methodology: Prospective, observational study was carried out over period of 2 year. Amoebic liver abscess was diagnosed on clinical, ultra sonographic, and serological features. All patients were treated with metronidazole. The indication for ultrasound guided aspiration of abscess was failure to improve clinically within 48 - 72 hours. Complications and outcome of patients were noted.

Results: 80 (80%) patients were managed conservatively and 20 (20%) patients were managed by aspiration. 32% in 31-40 years of age group. 93% were male. We found the study participants who required intervention as a line of management had more deranged liver functions and that to found statistically significant.

Conclusion: Conservative medical management of amoebic liver abscess is safe and effective.

Keywords: Amoebic liver abscess, aspiration, therapeutic, prospective, metronidazole

Introduction

Amoebiasis is the infection of the human gastrointestinal tract by *E. histolytica*, a parasite that is capable of invading the intestinal mucosa and spreading to other organs, mainly the liver [1, 2]. Amoebic liver abscess (ALA) should be excluded in all patients presenting with right-sided upper abdominal pain or right lower thoracic pain, with or without fever [3]. If diagnosed early, ALA is readily treatable and its mortality is negligible. When left untreated, it may lead to life-threatening complications such as rupture into the peritoneal, pleural, or pericardial cavity. The emphasis is thus on early diagnosis and treatment, in the form of conservative or interventional measures.

Management of uncomplicated ALA involves medical treatment with oral or intravenous metronidazole with or without percutaneous aspiration. This treatment leads to fibrous capsule formation around the abscess, thereby preventing abscess extension and subsequent rupture [4, 5]. If untreated the abscess enlarges, with a risk of rupture into contiguous structures [4, 6, 7, 8], which is the main reason management algorithms have been developed to aspirate those abscesses perceived to be at increased risk of rupture. The disadvantages of percutaneous aspiration are its invasiveness and predisposition to secondary infection. We contend that most abscesses will resolve on medical treatment without the need to resort to aspiration and that aspiration should be restricted to patients who fail to improve on medical management for 48 - 72 hours. We undertook this prospective study to evaluate the safety and efficacy of this approach.

Materials and Method

The study analyzed all 100 patients of ALAs presenting to tertiary care centre over a period of 24 months from Oct 2006 to Oct 2008. Patient with classic triad of right upper quadrant pain, hepatomegaly and low-grade fever were included in the study after confirming by a positive enzyme-linked immunosorbent assay (ELISA) and ultrasonographic (USG) evidence of liver abscess. Hemoglobin, Complete blood count, liver function tests, Prothrombin time, renal function test, ELISA, stool routine/microscopy were routinely done. If intervention was done, then pus SCAST was sent. The site, size, volume, consistency and proximity to liver capsule of abscess were noted.

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Patients who were managed conservatively were given intravenous antibiotics which were converted to oral for 21 days. Indications for ultrasound-guided percutaneous aspiration were clinical deterioration, failure of clinical improvement (persistent pain) within 48 - 72 hours or suspicion of a secondarily infected abscess. Indications for sonography guided percutaneous catheter drainage (pigtailing) were thick abscess which cannot be aspirated by needle or impending rupture of the abscess. Pigtail was kept for 5-8 days and removed when drainage was less than 10 ml in 24 hours. The complications and the outcome of the patients were noted. After discharge, the patients were called for follow up every week to check abscess cavity. Approval from the Institutional Ethics Committee was obtained prior to the commencement of the study. An informed written consent for the study participation was obtained from each patient.

Data recorded were entered in a Microsoft Office Excel Sheet and analyzed using the SPSS version 16.0 (IBM).

Results

Table 1 illustrates that, ALA characteristically occurs in adults and only rarely appears in children. In our study ALA occurs most commonly i.e. 32% in 31-40 years of age group with mean age of 39.66+/- 11.26. 93% were male suggestive of male predominant disease. The commonest symptom that brings the patient to hospital was dull aching right hypochondriac pain followed by intermittent fever. Only 26% patients had palpable liver.

Table 2 depicts that in the present study we compare the study subjects as groups who were managed conservatively as group 1 and who required intervention as group 2. We found the study participants who required intervention as a line of management had more deranged liver functions and that to found statistically significant.

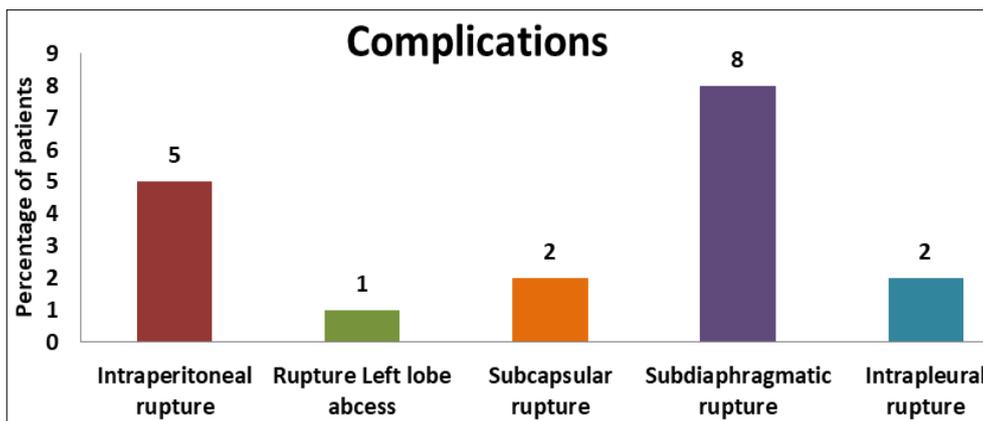


Fig 1: Complications of amoebic liver abscess

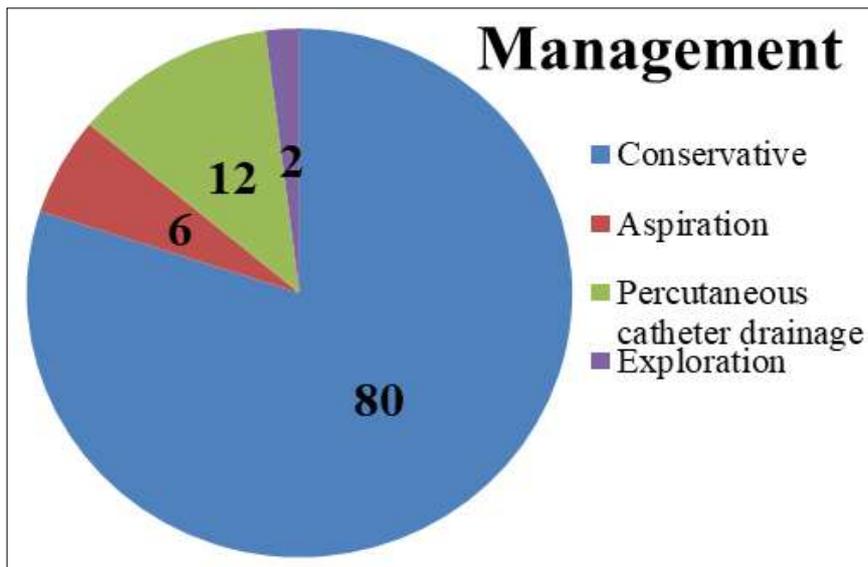


Fig 2: Mode of Management

Fig. 1 shows that There were 5% patients (five cases) of intraoperative rupture of amoebic liver abscess, 2% (2 cases) had intrapleural rupture, 1% (one case) had rupture of left lobe abscess, 2% (two cases) had subcapsular rupture of right lobe, 8% (eight cases) had subdiaphragmatic rupture while the remaining had no complications.

Fig 2 depicts that in our study, 80 (80%) patients were managed conservatively and 20 (20%) patients were managed by

aspiration. Out of these 6 (6%) patients were managed by sonography guided aspiration of liver abscess, 12 (12%) patients were managed by sonography guided percutaneous catheter drainage of liver abscess, and only 2 (2%) patients were managed by exploratory laparotomy. Only 4 study subjects expired during management because of intraoperative and subdiaphragmatic abscess rupture. We had 100% follow-up until 8 weeks of discharge. All patients were well at that time.

Table 1: Clinical profile of subjects

Characteristics		No. of Subjects
Age in years (Mean+/- SD)		39.66+/- 11.26
Sex	Male	93 (3)
	Female	7 (7)
	Total	100
Symptomatology	Dull aching right chondriac pain	93
	Intermittent fever	77
	Nausea and vomiting	14
	Loose motions	6
	Dry cough	12
	Total	100
Signs	Hepatomegaly	26
	Elevated right dome of diaphragm	10
	Mild to moderate pleural effusion	12
	Icterus	9
	Total	100

Table 2: Comparison between modes of management

Characteristic	Variables	Group 1 (n=80)	Group 2 (n=20)	P value
Age in Years (Mean + SD)		38.8+/- 11.43	43.10+/- 10.05	0.13
Sex	Male	74	19	P=1
	Female	6	1	
	Total	80	20	100
Investigation (Mean+/-SD)	Haemoglobin	11.02+/- 1.67	11+/- 1.45	0.96
	TLC	11783.75+/- 3914.32	13905+/- 5327.93	0.04
	T. Bilirubin	1.40+/-1.41	2.23+/- 2.33	0.04
	SGOT	35.04+/- 17.39	66.05+/- 126.24	0.03
	SGPT	35.48+/-11.55	43.35+/-15.37	0.01
	PT	15.11+/- 1.38	15.15+/- 1.18	0.9
	ALP	337.65+/- 193.79	434.85+/- 196.67	0.04

Discussion

The study shows that 80% of patients presenting with uncomplicated ALA can successfully be treated on pharmacotherapy alone. Only 20% of patients that presented with ALA ultimately required intervention. This is similar to the study conducted by S Kale *et al.* [9] in his study on Outcomes of a conservative approach to management in amoebic liver abscess where they found 81.67% patients can be treated by pharmacotherapy alone and only 18.33% patients required an intervention. Independent variables that were significantly associated with patients who underwent intervention were deranged liver function tests i.e. total bilirubin, SGOT, SGPT, alkaline phosphatase. There are several hypotheses regarding how large abscesses lead to derangement in liver function, external compression of biliary apparatus, pressure on surrounding parenchyma, hepatic necrosis at the margins of the abscess, and vascular or biliary invasion [10, 11, 12].

The commonest age group affected in our study was between 3rd and 4th decade of life which is comparable with standard results. [13] There was preponderance among the male population in our study. Although men and women develop amoebic dysentery in equal numbers, 90% of amoebic liver abscesses develop in males. The gender differences may be as a result of differences in iron availability and storage [14].

Reddy and Thangevelli [15] explained that the female menstrual cycle by preventing hepatic congestion, makes the organ less susceptible to abscess formation. Chronic alcoholics are at an increased risk for development of amoebic liver abscess.

Routine aspiration of liver abscess is not indicated for diagnostic or therapeutic purpose [16] which is also proven in our study. (80% patients were managed conservatively).

Anti-amoebic therapy alone is as effective as routine needle aspiration combined with anti-amoebic therapy in the treatment

of patients with uncomplicated amoebic liver abscess [17, 18]. Adams and MacLeod [19] used both metronidazole and aspiration, with good results.

In his series of 192 ALAs, Luvuno [4] in 1988 showed that the majority of ALAs healed without aspiration.

In 1989 De la Rey Nel *et al.* [5] tried to establish which patients were unlikely to heal without aspiration. They suggested failure to improve within 48 - 72 hours, abscesses causing marked tenderness or severe pain, large abscesses ($p > 10$ cm), superficial abscesses, marked elevation of the diaphragm, left lobe abscesses adjacent to the diaphragm and negative AGDT as possible sufficient indications for aspiration.

With early diagnosis and treatment the mortality of uncomplicated ALA is less than 1% [6, 20].

The mortality rate in the present study was 0%. Mortality rates for rupture into the peritoneum, chest and pericardium are 17 - 75%, [19, 21] 6 - 36% [19, 22] and 30% [19] respectively. The mortality rate for intraperitoneal rupture in this series was 22.22%.

The present study shows that aspiration can be confined to a small number of people who do not improve on treatment. We agree with Frey *et al.* [7] that aspiration of ALA should be limited to patients in whom pyogenic infection or secondary infection of an ALA cannot be ruled out or those in whom treatment over 48 hours with metronidazole has failed. Evidence that percutaneous aspiration or surgical drainage speeds resolution of ALA is lacking, but can be explained by comparison of treatments of abscesses of comparable size.

Conclusion

Medical management alone is effective for over 80% of patients with uncomplicated ALA. We have shown that lack of clinical improvement after 48 hours is the major criterion for aspiration,

which should be ultrasound-guided. This approach is safe and can be complemented by catheter drainage in selected cases, sparing patients the unnecessary morbidity of laparotomy.

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