Bahrain Medical Bulletin, Volume 17, Number 4, December 1995

AMOEBIC LIVER ABSCESS. A PROSPECTIVE STUDY OF 200 CASES IN A RURAL REFERRAL HOSPITAL IN SOUTH INDIA

Ananthakrishnan Ramani* Rama Ramani** P G Shivananda***

This prospective study was carried out on 200 patients with clinically, ultrasonographically and serologically confirmed amoebic liver abscess (ALA). All patients were evaluated clinically and by ultrasound on admission and day 15 and subsequently after 3 and 6 months. The majority were young or middle aged males (93%) belonging to the lower socio-economic group. Sixty four percent gave history of alcohol consumption of locally fermented brands. The common clinical manifestations were right upper quadrant pain (92%). None of the liver function tests were diagnostic though alkaline phosphatase was elevated in 69.5% of patients. Ultrasonography was useful in diagnosis and guiding needle aspiration. The size of the abscess varied from 2cm to 15cm in diameter. Seventy one (35.5%) patients underwent ultrasound guided needle aspiration, 10 required surgical drainage and the rest antiamebic drugs alone. Initial response was better in aspirated group ($p < 0.05$) but resolution of abscess (by ultrasound) after 6 months was similar. There were no complication of the procedure and no deaths. Needle aspiration combined with chemotherapy represents a successful therapeutic approach in the management of ALA. Despite successful therapy, 61 of our 200 patients had residual abscess cavity on ultrasound examination even after 6 months demonstrating that complete resolution of ALA is slow. Bahrain Med Bull 1995;17(4):

Infestations with the protozoan Entamoeba histolytica are worldwide in distribution but more common throughout the tropical and sub-tropical areas. It is a major problem in India1[2]. Amoebic liver abscess (ALA) is the most frequent extra intestinal complication. Poor hygiene, contaminated drinking water, malnutrition, hepatic dysfunction, low host resistance, alcohol intake, delayed or inadequate treatment are all responsible for the disease in the lower socio-economic group.

---

* Professor, Department of Medicine
** Assistant Professor, Department of Microbiology
*** Professor, Department of Microbiology

Division of Infectious Diseases
Department of Medicine (A-49)
Albany Medical College, Albany, U.S.A.

This retrospective study was carried out on 200 consecutive patients of ALA admitted to a rural referral hospital in South India. Our experience is presented in this article.

METHODS

Two hundred consecutive patients suffering from ALA admitted to the Kasturba Medical College Hospital, Manipal from January 1989 to December 1991 were included in the study. All the patients were subjected to a thorough clinical examination after obtaining a detailed history. The diagnosis was based on standard accepted criteria[3]. All the patients had positive serological results from Entamoeba histolytica (1:400 or more by enzyme linked immunosorbent assay) and one or more lesions in the liver with characteristic features of ALA on ultrasound examination[4].

RESULTS

The age of the patients varied from 17 to 80 years. The peak incidence was in the third and fourth decades of life accounting for 59% of total case studies (Table 1).

Table 1
Age and sex distribution of patients with ALA

Age (years)	Males	Females	Total
<20	14	1	15
21-30	62	5	67
31-40	47	4	51
41-50	28	2	30
>50	35	2	37
Total	186	14	200

ALA occurred predominantly in males (93%). A history of previous intestinal amebiasis was present in only six patients. 128 (64%) patients consumed alcohol mostly liquor prepared locally. Such patients had large abscesses and poor general health. Pain in the abdomen (92%) and fever (88%) were the most common symptoms at presentation and tender hepatomegaly (94%) and intercostal tenderness (91%) were the most common signs (Table 2).

Table 2
Presenting manifestations of patients with ALA

Symptoms	Number of Patients		Signs	Number of Patients	
	No	%		No	%
Abdominal pain	184	92.0	Hepatomegaly	188	94.0
Fever	176	88.0	Intercostal tenderness	182	91.0
Anorexia	83	41.5	Icterus	33	16.5
Nausea	76	38.0	Respiratory Signs	20	10.0
Jaundice	35	17.5	Acute abdomen	13	6.5
Diarrhea	6	3.0	Ascites	2	1.0
Cough with Expectoration	7	4.0			

Icterus was observed in 33 (16.5%) patients and 20 (10%) patients had signs of pneumonia or pleural effusion at presentation. Thirteen (6.5%) patients presented with features of acute abdomen with signs of localized peritonitis.

Laboratory studies showed a neutrophilic leukocytosis and elevated sedimentation rate in 123 and 120 patients respectively. A normocytic normochromic or microcytic anaemica was seen in 87 (43.5%) patients. Though the transaminase level (ALT and AST) was elevated in only 64 (32%) patients, the serum alkaline phosphatase level was elevated in 139 (69.5%) patients (Table 3).

Table 3
Laboratory finding in patients with ALA

	Number of Patients	Percentage
Leukocytosis	123	61.5
Elevated ESR	120	60.0
Hb < 10gm %	87	43.5
S. bilirubin > 1.0mg/dl	33	16.5
Elevated AST, ALT	64	32.0
Elevated Alk. Phosphatase	139	69.5

An ultrasound scan was done in all patients and in 174 (87%) patients an abscess was found in the right lobe, whereas in 20 (10%) patients the left lobe was involved. In 5 (2.5%) patients both lobes were involved (Table 4). The abscesses varied in size from 2 cm to 15 cm in diameter.

Table 4
Ultrasonographic findings in patients with ALA

Findings	Patients	Percentage
Hepatomegaly	188	94.0
Situation of abscess		
Right lobe	174	87.0
Left lobe	20	10.0
Both lobes	5	2.5
Number of abscesses		
Single	153	76.5
Multiple	47	23.5
Size of abscess		
< 6cm	107	53.5
> 6cm	93	46.5

Antiamebic drugs (metronidazole and chloroquine) alone were given to 119 (59.9%) patients, 71 (35.5%) underwent percutaneous ultrasound guided needle aspiration in addition to drugs, and 10 (5%) patients required surgical drainage. Aspiration of the abscess was carried out under strict aseptic conditions. Aspiration was done in those with large abscesses (> 6 cm diameter), high fever, and toxemia, no response to drug therapy and for confirmation of diagnosis especially in those with abscesses in uncommon sites. Surgical drainage was performed in ten cases, the indications for which include failure to respond to conservative treatment (2 patients), expanding abscess (2 patients) and complication (6 patients). In one case the abscess had perforated through the anterior abdominal wall; 4 had ruptured into the pleural space and one into both the pericardium and the peritoneum.

The patients were evaluated clinically and by ultrasound on admission, on the following 15th day and subsequently at one, three and six months. There was a rapid clinical response in the aspirated group, especially in patients with an abscess more than 6 cm in diameter. In 17 (8.5%) patients the temperature settled to near normal levels after aspiration. Ultrasound after 15 days of initiation of treatment showed significant ($p < 0.05$) improvement in the group treated with aspiration but resolution of the abscess was similar after six months. There were no complications in any of the 71 patients subjected to aspiration and subsequently none needed surgical drainage. Although all the

patients were asymptomatic after six months, ultrasound examination showed that 61 (30.5%) patients still had a residual abscess cavity.

DISCUSSION

Amoebic liver abscess is widely prevalent in the Indian subcontinent[5,6,7]. In this study, the most common age affected was the 20-40 year old group and the male to female ratio was 13:3:1. Similar results have been obtained by other workers[1,5]. There was a strong association with alcohol intake in 64% of the patients. Alcohol is believed to be one of the predisposing factors in the pathogenesis with statistics showing a more than five-fold incidence of ALA among drinkers[1]. History of alcoholism was found in 20-30% of cases by Kini and Mammi[6]. Hai et al found a history of alcohol consumption in 85% of patients with ALA. Joshi et al[8] found a higher mortality rate in those consuming large quantities of alcohol. We found that alcoholics had larger abscesses, greater frequency of complications and delayed resolution of abscesses. Alcohol acts in several ways; a) Hepatic damage by the alcohol predisposes to organ invasion. An amoebistatic substance produced by the normal liver is depressed in alcoholics[9]. b) Habitual drinkers often neglect food and malnutrition resulting in lowering body resistance and suppress liver function[1]. c) Liquor prepared locally with no regard for asepsis has a large population of amoebae in it[1]. d) Alcoholics have poor hygiene which fits with the mode of infection, i.e. Teco-oral. e) Immunity in chronic alcoholics is depressed.

The most common symptom was abdominal pain, and hepatomegaly the most common sign as reported by other workers1[5,6,10,11]. We found intercostal tenderness in 91% of patients, a reliable sign, not as frequently reported in earlier studies[1,11]. It is a valuable clinical sign of ALA. Incidence of jaundice varied from 1% to 17% in different studies[1,6,11,12]. We found icterus in 33 (16.5%) patients. Liver transaminase (AST and ALT) levels were elevated in 64 (32%) patients and serum alkaline phosphatase was elevated in 139 (69.5%) patients. Elevated alkaline phosphatase levels have also been reported by several workers[13,14,15].

Ultrasound provides valuable high precision information on the location, size and number of ALAS as well as detection of established and possible imminent complications. We used ultrasound (in addition to above) in guiding diagnostic and therapeutic aspiration. We found that needle aspiration combined with chemotherapy represents a successful therapeutic approach in the treatment of ALA. Serological tests, such as Eliza and IFAT, though highly reliable in the diagnosis of extra-intestinal amebiasis, are not available in most hospitals in India and needle aspiration provides an economic and safe alternative.

Even after six months, 61 (30.5%) patients had a residual abscess cavity on ultrasound examination. It has been shown that complete resolution of ALA may take years[2,15]. This is important in the differential diagnosis of space-occupying lesions in the liver, especially in those areas with a high incidence of ALA and hepatocellular carcinoma.

Although a large amount of liver tissue appears to be destroyed, the residual liver damage is clinically, biochemically and microscopically minimal. The liver has a great power of near-complete regeneration provided ALA is treated timely and adequately.

CONCLUSION

Amoebic liver abscess (ALA) is the most common extra-intestinal complication of amebiasis in India affecting in young and middle aged men of socio-economic

status, who consumed alcohol. Early diagnosis and prompt treatment results in improved survival and lower morbidity.

REFERENCES

1. Hai AA, Singh A, Miltal VJ, et al. Amoebic liver abscess. Review of 220 cases. Int Surg 1991;76:81-3.

2. Sharma MP, Rai RR, Acharya SK, et al. Needle aspiration of amoebic liver abscess. Br Med J 1989;299:1308-9.

3. World Health Organization Expert Committee. Amebiasis. WHO Tech Rep Ser 1969;42:1052.

4. Missalek W. Ultrasonography in the diagnosis of amoebic liver abscess and its complication. Tropical Doctor 1992;22:59-64.

5. Mehta AJ, Vakil BJ. A clinical study of 158 cases of amoebic liver abscess. Ind J Med Sci 1970;74:478-80.

6. Kini PM, Mammi MKI. Hepatic amebiasis in Kerala. J Ind Med Assoc 1970;55:7-9.

7. Ganesan TK, Palani PM. Amoebic liver abscess. J Ind Med Assoc 1971;548:108-10.

8. Joshi VR, Kapoor OP, Purohit AV, et al. Jaundice in amoebic abscess of liver. J Assoc Phy India 1972;20:761-4.

9. De Bakey ME, Jordan GL. Hepatic abscess, both intra and extrahepatic. Surg Clin North Am 1977;57:325-34.

10. Basile JA, Klein SR, Worthen NJ, et al. Amoebic liver abscess: The surgeon's role in management. Am J Surg 1983;146:67-71.

11. Abuabara SF, Barrett JA, Hau T, et al. Amoebic liver abscess. Arch Surg 1982;117:239-44.

12. Thompsen Jr JE, Glasser AJ. Amoebic abscess of the liver. Diagnostic features. J Clin Gastroenterol 1986;8:550-4.

13. Gupta RK, Amoebic liver abscess: A report of 100 cases. Int Surg 1984;69:261-4.

14. Thamlikitkul V, Yamwong P. Liver abscess: A clinical study of 222 patients. J Med Assoc Thai 1990;73:264-8.

15. Gibney EJ. Amoebic liver abscess. Br J Surg 1990;77:843-4.