CLINICAL PROFILE AND MANAGEMENT OF PATIENTS OF AMOEBIC LIVER ABSCESS IN A TERTIARY CARE CENTRE

Medicine

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ABSTRACT

Introduction: Amoebiasis is caused by the protozoan *Entamoeba histolytica*. Most infections are asymptomatic; clinical manifestations include amoebic dysentery and extra intestinal disease. Amoebic liver abscess is the most common extraintestinal manifestation of amoebiasis. Amoebae establish hepatic infection by ascending the portal venous system.

Aim: To study various aspects of Amoebic Liver Abscess like demographic profiles, clinical presentations, association with intestinal disease, radiological and laboratory findings, treatment modalities and complications.

Materials and Methods: A hospital based prospective observational study was performed in the Department of Internal Medicine, Command Hospital (Eastern Command), Kolkata, from Jan 2018 to Jun 2019. All confirmed cases of amoebic liver abscess above the age of 18 years admitted in Command Hospital (EC) were included in this study. The patient were then subsequently followed up for 01 year with USG abdomen every 03 monthly.

Results: Total 40 patients of Amoebic Liver Abscess with age more than 18 year were enrolled in the study. The age ranged from 26 to 70 years (mean age 46.2 year). Male patients were dominated over female. 80.0 % were from rural background. About 55% patients were addicted to alcohol & 25.0 % were known diabetics at presentation. In all, 07 (17.5%) patients with abscess size of 6 cm to 10 cm (Vol > 300 cc) were treated by needle aspiration and drug therapy. Remaining 17(42.5%) patients with abscess size more than 10 cm were treated with pigtail drainage and drug.

Conclusion: There is significant advantage of pigtail drainage with drug treatment over needle aspiration with drug and only with drug treatment in terms of decrease in lesion size and early recovery.

KEYWORDS

Amoebic Liver Abscess , Clinical Profile, Management

INTRODUCTION

Liver is the most common organ which is prone to development of abscess, contributing about 48% of all visceral abscess and 13% of all intra-abdominal abscess. Liver abscess fall broadly into two categories- amoebic and pyogenic. Pyogenic Liver Abscess (PLA) is more common in developed world, while Amoebic Liver Abscess (ALA) is more common in developing world.

ALA is the commonest extra intestinal manifestation of amoebiasis which arises due to spread of *Entamoeba histolytica* from the large bowel to the liver via the portal vein. *Entamoeba histolytica* infects 10% of world population, out of which 10% develop invasive amoebiasis and 1-10% of them develop ALA. Most of the infected persons reside in tropical and subtropical countries like tropical Asia, Africa, Mexico, Central and South America.

In developing countries, amoebiasis is more common due to poor sanitary conditions and lower socioeconomic status. Other predisposing factors for ALA are alcoholism, homosexuality and individuals with AIDS or immunosuppression. In developed countries, amoebic liver abscess is rare and is found almost exclusively in travellers and immigrants.

ALA presents itself more commonly with fever and right upper quadrant pain. There may be uncommon manifestations due to rupture of abscess in neighbouring cavities like pleura, pericardium and peritoneum, compression of tubular structures in hepatic hilum and distant embolic dissemination. Ultrasonography is the method of choice for diagnosis of liver abscess. ALA should be further confirmed by microscopic examination of pus for amoebic trophozoites and detection of serum anti-amoebic IgG antibody by Enzyme Linked Immunosorbent Assay (ELISA). Although, the presence of amoebic trophozoites in aspirated pus is confirmatory for ALA, it is not a sensitive method of diagnosis. So, detection of serum anti-amoebic antibody is the most frequently used for its diagnosis. Early diagnosis and treatment of ALA is essential as it results in low morbidity and mortality.

This study will be carried out to look for various aspects of ALA like demographic profile, clinical presentations, association with intestinal disease, radiological and laboratory findings, treatment modalities and complications.

Aims

To study various aspects of Amoebic Liver Abscess like demographic profiles, clinical presentations, radiological and laboratory findings, treatment modalities and complications.

MATERIALS AND METHODS

1. STUDY DESIGN:

Study Area: Department of Internal Medicine, Command Hospital (Eastern Command), Kolkata.

Study Period: The study was conducted from Jan 2018 to Jun 2019.

Study Population: The study was carried out on all confirmed cases of Amoebic liver abscess admitted in Command Hospital (EC). Informed consent was taken from all the patients.

Sample Size: All consecutive patients admitted during the study period. A total of 40 patients were included during the study period.

Study Type: Prospective observational study.

2. INCLUSION CRITERIA:

- All confirmed cases of Amoebic liver abscess, 18 yrs or above admitted in Command Hospital (EC), Kolkata.

3. EXCLUSION CRITERIA

- Hydatid cyst of liver, solid masses of liver, primary and secondary malignancies of liver.
- Pyogenic liver abscess.
- Age less than 18 yrs.

4. STATISTICAL ANALYSIS

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS 24.0. and Graph Pad Prism version 5. Data had been summarized as mean and standard deviation for numerical variables and count and percentages for categorical variables.

RESULTS AND ANALYSIS

We found that total of 40 clinically and ultrasonographically probable cases of amoebic liver abscess were included in the study, confirmed on the basis of positive serum IgG ELISA for *E. histolytica*. These 40 patients were further investigated and described underneath. The age of the study subjects ranged between 26 years to 70 years, with the mean age being 46.2 years. The age group 41-60 years comprised the maximum cases (60.0%). The ratio of male to female was 19:1. About

55.0% patients had a history of alcoholism and 25.0 % were diabetic.80.0% of the patient were from rural background.

We showed total 30 patients (75.0%) presented with acute signs and symptoms (within 14 days), (4/40) 10.0% patients had sub-acute (within 15-30 days), while (6/40) 15.0% patients had chronic presentations (> 30 days).Fever 40 (100.0%) and upper abdominal pain 36 (90.0%) were the most common symptoms. Hepatomegaly (>14 cm liver span) was seen in 28 (70.0%) cases. Jaundice and ascites were seen in 04(10.0%) and 02(5.0%) of cases respectively. Pleural effusion was the commonest complication seen in 12(30.0%) of cases.

Our study showed that the right lobe was involved in 30 (75.0%) cases, left lobe in 8 (20.0%) cases and both the lobes were involved in 2 (5.0%) cases. Most of the abscess 34 (85.0%) were solitary in nature and out of which right lobe was involved in 65.0% cases. Volume of abscess ranged between 9.64 cc and as much as 1317.12 cc with the mean volume as 511.26cc. Volume less than 300 cc was seen in 16 cases (40.0%) and more than 300 cc was seen in 24 cases (60.0%). Size of the lesion < 6.0 cm seen in 6(15.0%), 6-10 cm in 17(42.5%) and > 10.0 cm in 17(42.5%) of cases. Pleural effusion was the major complications found in 30.0 % of patients in this study.

We found anemia and leukocytosis were the most common hematological findings seen in 30(75.0%) cases. Increased Alkaline Phosphatase (ALP) was seen in 40.0% cases. Amoebic serology (IgG) was done in all the patients and was found to be positive in 38 (95.0%) of the cases(in other 02 cases negative result was probably due to testing within 07 days of presentation).10/40(25.0%) of cases had raised bilirubin level out of which 4/40(10.0%) also had prolonged Prothrombin time. Raised ALT and AST were seen in 12(30.0%) and 24(60.0%) of the patients. Hypoalbuminaemia was seen in 26(65.0%) cases, 10/40(25%) marked Hypoalbuminaemia (Serum Alb < 2.5mg/dL), 16/40(40%) mild Hypoalbuminaemia (Serum Alb: 2.5-3.5mg/dL).

We showed that the Ultrasonographically, the size of abscess was in the range of 2.5 cm to 14 cm. About 16(40.0%) patients had abscess size volume less than 300cc and were treated by drug therapy only (800 mg metronidazole three times in a day). In all, 07 (17.5%) patients with abscess size of 6 cm to 10 cm (Vol> 300 cc) were treated by needle aspiration and drug therapy. Remaining 17(42.5%) patients with abscess size more than 10 cm were treated with pigtail drainage and drug.

Our study showed that the cases were followed up with serial USG abdomen at 03month, 06 month and after 01 year. There was significant decrease in mean size of the lesion observed after 12 months ,71.65% in pigtail drainage with drug vs 67.0 % in Needle aspiration with drug vs 43.02 % in only drug group with corresponding decrease in mean volume as 97.02% ,94.29% & 71.9% respectively (pValue <0.001)

DISCUSSION

Liver is the most common organ which is prone to development of abscess, contributing about 48% of all visceral abscess and 13% of all intra-abdominal abscess. Liver abscess fall broadly into two categories- amoebic and pyogenic. Pyogenic Liver Abscess (PLA) is more common in developed world, while Amoebic Liver Abscess (ALA) is more common in developing world.

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The mean age of patients in our study was 46.20 years which was in accordance with Indian studies, Ghosh et al, Sharma et al , Mukhopadhyay et al and Jain V et al who reported it to be 41, 40.5, 43.64 and 41.8years, respectively.²⁻⁵

As far as sex predisposition was concerned, after recruiting 40 consecutive patients, only 02 patients were female. Indian data show predominant male involvement; Sharma et al, Mukhopadhyay et al and Ghosh et al reported male to female ratio to be 7:1 ,11:1 and 14.38:1

respectively.²⁻⁴

Various theories have been postulated to explain this gender difference but the exact reason is still not known. Researchers have tried to explain the alcohol consumption in men, hormonal influences in premenopausal women⁶ protective effect of iron deficiency anaemia among menstruating women,⁷ as some of the reasons for males being affected more than females.

In present study alcohol consumption was seen as a major risk factor as 55.0% patients of ALA were exposed to it. Jain V et al & Ghosh et al had 58.4 % & 72% alcoholic patients in their study respectively.^{2,5} Alcohol suppresses function of Kupffer cells (specialized macrophage) in liver which has important role in clearing amoeba. Moreover, invasive amoebiasis appears to be dependent on the availability of free iron. A high content of iron in the diet, often obtained from the country liquor in habitual drinkers predisposes to invasive amoebiasis, as does a diet rich in carbohydrate.⁸

Low iron levels in females belonging to low socioeconomic families, have inhibitory effect to *Entamoeba histolytica* growth.⁹

Singh R et al also found that intervention combined with anti-amoebic therapy hasten the recovery.¹⁰ He did a prospective randomized comparative study of 60 patients, presented in outpatient and emergency department at Dr Ram Manohar Lohia Hospital ,Delhi, randomized equally into two groups, percutaneous needle aspiration and pigtail catheter drainage. The effectiveness of either treatment was measured in terms of duration of hospital stay, days to achieve clinical improvement, 50% reduction in abscess cavity size and total/near total resolution of abscess cavity. Independent t-test was used to analyze these parameters.

The success rate was significantly better in catheter drainage group (P=0.006). The patients in pigtail catheter drainage group showed earlier clinical improvement (P=0.039) and 50% decrease in abscess cavity volume (P=0.000) as compared to those who underwent percutaneous needle aspiration.

Most of the patients in this study presented with uncomplicated liver abscess. Complicated cases and patients with large abscesses were immediately managed by percutaneous intervention. So, no mortality was seen in this study.

CONCLUSION

- In endemic countries, ALA should always be diagnosis of exclusion particularly in a male patient of low socioeconomic status presenting with abdominal pain, fever and hepatomegaly.
- Right lobe is involved in most of the cases.
- Although, primary focus of infection in ALA is intestine, few cases present themselves with active intestinal infection.
- Immediate proper management must be done to prevent morbidity and mortality.
- There is significant advantage of pigtail drainage with drug treatment over needle aspiration with drug and only with drug treatment in terms of decrease in lesion size and it hastens the recovery.

Table: Socio-demographic profile of patients with ALA

Variables	Number (n=40)	Percentage (%)
Age Groups (in years)		
21-30	02	5.0
31-40	10	25.0
41-50	12	30
51-60	12	30
60-70	04	10
Sex		
Male	38	95
Female	02	05
Education Status		
Till primary school	14	35.0
Till higher secondary	24	60.0
Graduate	02	5.0
Occupation		
Salaried	26	65.0
Self-employed	12	30.0
Unemployed	02	5.0

Residence		
Rural	32	80.0
Urban	08	20.0
Risk Factors		
Alcohol	18	45.0
Alcohol + Diabetes	04	10.0
Diabetes	06	15.0
Nil	12	30.0

Table: Symptoms, signs and complications ALA

Variables	Number (n=40)	Percentage (%)
Duration		
1 week	8	20.0
2 weeks	22	55.0
3 weeks	4	10.0
> 3 weeks	6	15.0
Symptoms		
Only Fever	04	10.0
Fever + Upper abdominal pain	36	90.0
Nausea/Vomiting	04	10.0
Anorexia	36	90.0
Diarrhoea	0	0
Cough	04	10.0
Signs		
Fever (>38 °C)	40	100.0
Abdominal Tenderness	40	100.0
Hepatomegaly	28	70.0
Jaundice	4	10.0
Ascites	02	5.0
Complications		
Pleural Effusion	12	30.0
Peritonitis	0	0

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