

Clinico-Radiological Correlation in Amoebic Liver Abscess

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ABSTRACT

Background: Amoebiasis creates an important global burden in the tropical and subtropical areas, affecting approximately 12% of the world's population at any time. A high index of suspicion, a thorough history and clinical examination followed by an ultrasound screening of the abdomen is necessary for timely diagnosis and prompt initiation of antiamoebic drugs to prevent occurrence of complications.

Materials & Methods: A Prospective time bound study done on 70 patients admitted in the medical wards in Mahatma Gandhi Hospital, Jaipur, from May 2015 to June 2017. A detailed history, thorough physical examination, Laboratory tests were done in all cases. USG was used to establish a Space occupying lesion in the liver and Entamoeba Histolytica serology was done to confirm the etiology. Serology positive patients with visible SOL on ultrasound were included in this study.

Results: The study showed that the mean age of patient's was 42.86 years and male to female ratio was 10.66:1. Presenting complaints were vomiting (65/70, 92.85%), followed by pain abdomen (64/70, 91.42%) and radiologically, majority of patients had a solitary abscess cavity (63/70, 90%) whereas 7 (10%) patients had multiple abscess cavities in the liver.

Conclusion: Amoebiasis is endemic in India, due to tropical climate, poor sanitary conditions, and a lower socioeconomic status among rural inhabitants. However the diagnosis of amoebic liver abscess is sometimes difficult and a proper history, clinical examination, and Ultrasound screening are of utmost importance since its clinical manifestations are highly variable.

Key Words: Amoebiasis, Liver, ALA, Ultrasonography.

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INTRODUCTION

Amoebiasis is an infection with an intestinal protozoan *Entamoebahistolytica* having both intestinal and extra-intestinal manifestations. More than 85% of infections are asymptomatic and the remaining 10% produce a clinical spectrum ranging from dysentery to abscesses of liver (ALA) or other organs.¹ Amoebiasis creates an important global burden in the tropical and subtropical areas, affecting approximately 12% of the world's population at any time.² Often starting with non-specific complaints, ALA must be excluded in all patients presenting with right lower thoracic pain or right upper quadrant abdominal pain, with or without fever.³ According to WHO, amoebiasis is prevalent up to 50% of general population in all developing countries. It has varied clinical presentations and complications.⁴

ALA have a male preponderance, are mostly single and more commonly found in the right lobe of liver. The incidence of ALA in a person who has not resided in or travelled to an endemic area should increase the suspicion of immune deficiency.⁵ ALA typically has a short history of about two weeks with symptoms including

Right Upper quadrant abdomen pain, fever, malaise, myalgias. Also in untreated patients or in patients whose treatment is delayed, complications like Septicemia, rupture of abscess cavity into pleura pericardium and abdomen, bleed in lower Gastrointestinal (GI) Tract and perforation of the intestine may be seen.⁶

Ultrasound screening is an important diagnostic tool in the bedside assessment of patient presenting with fever and upper quadrant abdominal pain. On Radiology, they can sometimes be difficult to differentiate from other Space occupying lesions of the Liver. They tend to be round or oval and be variable in size although most are around 2-6 cm in diameter. An enhancing wall is present in most cases. Other described features include, an incomplete rim of edema, the margin of the abscess tends to be smooth in around 60% of cases and nodular in around 40%, internal septations: present in around 30% of cases, focal intrahepatic biliary dilatation peripheral to an abscess may also be seen.

A high index of suspicion, a thorough history and clinical examination followed by an ultrasound screening of the abdomen is necessary for timely diagnosis and prompt initiation of antiamoebic drugs to prevent occurrence of complications.

MATERIALS & METHODS

A Prospective time bound study done on 70 patients admitted in the medical wards in Mahatma Gandhi Hospital, Jaipur, from May 2015 to June 2017.

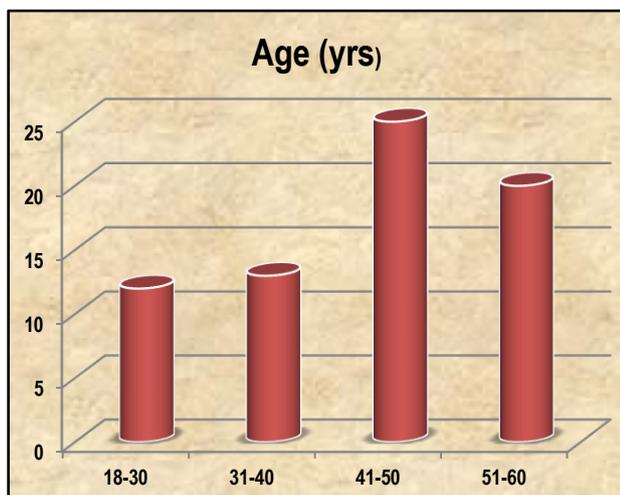
A detailed history, thorough physical examination, Laboratory tests were done in all cases. USG was used to establish a Space occupying lesion in the liver and Entamoeba Histolytica serology was done to confirm the etiology. Serology positive patients with visible SOL were included in this study.

Statistical Analysis

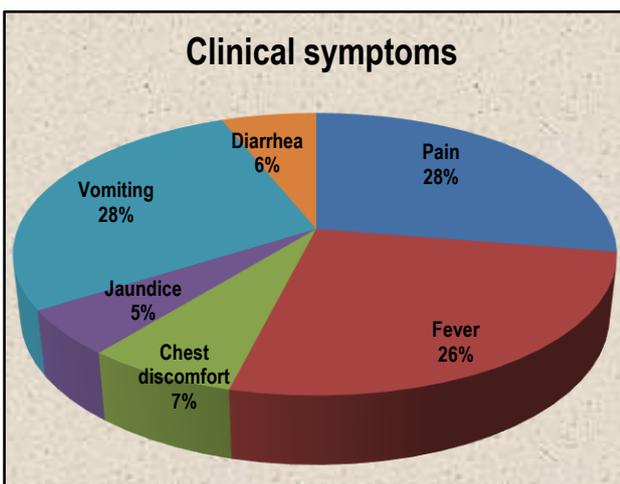
The chi-square test is applied for all parameters with degree of freedom (df) of '1' and 'P' value as 0.05 ($p = 0.05$) and the level of significance as $\chi^2 > 3.84$.

Table 1: Age group wise distribution of cases

Age group (yrs)	Number	Percentage
18-30	12	17.14%
31-40	13	18.57%
41-50	25	35.71%
51-60	20	28.57%
Total	70	100%



Graph 1: Age wise distribution



Graph 2: Clinical Presentation in ALA

Table 2: Clinical symptoms of cases

Symptoms	Number	Percentage
Pain	64	91.42%
Fever	61	87.14%
Chest discomfort	16	22.85%
Jaundice	12	17.14%
Vomiting	65	92.85%
Diarrhea	14	20%

Table 3: Complication

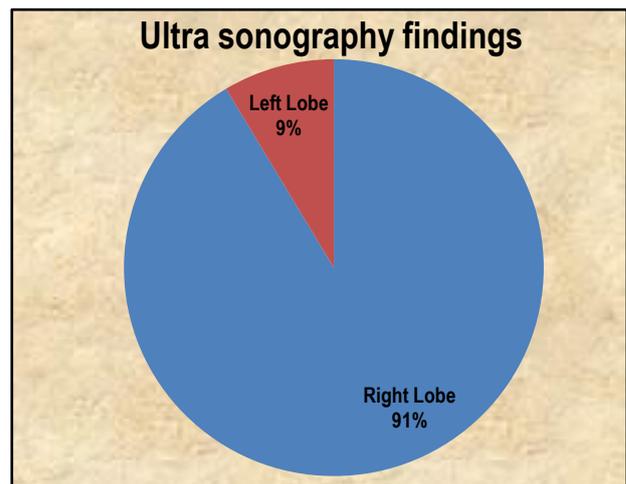
Complication	Number	Percentage
Sepsis	14	20%
Pleural Effusion	11	15.71%
Intestinal Perforation	5	7.14%
Rupture into Pleura	3	4.28%
Bleed PR	2	2.85%
Rupture in to pericardium	1	1.41%
Nil	34	48.57%
Total	70	100%

Table 4: Biochemical analysis of patients

Biochemical analysis	Mean	SD
WBC	12.45	4.665
Serum Urea	35.81	19.13
Serum Creatinine	1.170	0.422
Serum bilirubin	1.346	1.260
SGOT	57.30	32.36
SGPT	67.66	37.09
Hb.	11.30	1.78
ESR	67.66	22.12
ALP	405.6	257
Total Protein	5.620	0.63
Serum Albumin	2.88	0.5
PT	12.95	2.02
INR	1.37	0.254

Table 5: Abscess cavity of patients

Abscess cavity	Number	Percentage
Solitary	63	90%
Multiple	7	10%
Total	70	100%



Graph 3: Ultra-sonographic finding in liver abscess

Table 6: Ultra-sonographic finding in liver abscess

Ultrasonography	Number	Percentage %
Right Lobe	64	91.42
Left Lobe	6	8.57
Total	70	100

OBSERVATIONS & RESULTS

The study showed that the mean age of patients was 42.86 years (table 1), majority of cases belonged to rural areas (67/70, 95.71%) and male to female ratio was 10.66:1 (figure 1).

The study showed that major Presenting complaints were vomiting (65/70, 92.85%), followed by pain abdomen (64/70, 91.42%), fever (61/70, 87.14%), chest discomfort (16/70, 22.85%), diarrhea (14/70, 20%) and jaundice (12/70, 17.14%) (table 2).

Out of 70, 34 patients had an uncomplicated course of illness, but 14 patients had sepsis followed by 11 patients that had pleural effusion, 5 patients had intestinal perforation and 3 patients had rupture into pleura (table 3).

The mean value of WBC, serum urea, serum Creatinine, serum bilirubin, SGOT, SGPT, Hb., ESR, Alkaline phosphatase, Total protein, serum albumin, PT & INR was 12.45, 35.81, 1.170, 1.346, 57.30, 67.66, 11.30, 67.66, 405.6, 5.620, 2.88, 12.95 and 1.37 respectively (table 4). Radiologically, majority of patients had a solitary abscess cavity (63/70, 90%) whereas 7 (10%) patients had multiple abscess cavities in the liver and right lobe was more affected as compared to left lobe (table 5,6).

DISCUSSION

Amoebiasis is endemic in India due to poor sanitary condition and a lower socioeconomic status. Amoebic liver abscess accounts for 3-9% of all cases of Amoebiasis.

Mean age in our series was 42.86 years, which was in accordance with Sharma et al.⁷ and Mukhopadhyay et al.⁸ who reported it to be 40.5 and 43.64 years, respectively. It is because ALA is the predominant aetiology in the Indian scenario, typically involving young alcoholics.

Our results showed that the majority of cases was rural area (67/70, 95.71%) and only 3 patients in urban. Male to female ratio was 10.66:1. Our results similar with Mukhopadhyay et al.⁸ M:F was 11:1. Moreover, Reddy and Thangavelu proposed that the female menstrual cycle prevents hepatic congestion and thus makes the organ less susceptible to abscess formation.⁹

Accordance to various authors Sharma et al.⁷ 1, Pang et al.¹⁰ 2:1 & Heneghan et al.¹¹ 1.22:1, male to female ratio was lower in our study. This study showed that ALA is less common in Females, particularly of the reproductive age group.

More common clinical symptoms of patients in our study was vomiting (65/70, 92.85%), followed by pain (64/70, 91.42%) and fever (61/70, 87.14%). The acute cases may present with moderate fever and rigors, while high fever with chills may be suggestive of secondary bacterial infection. Patients with chronic illness are more likely to present with more subtle symptoms like low grade fever and sweating. Abdominal pain is usually moderate and localized to right upper quadrant or right lower thoracic region. Radiation to right shoulder is also common. Epigastric pain is usually seen in left lobe abscess. Similar findings were suggested by Mushtak Talib Abbas et al (2014)¹² who found that the fever, abdominal pain and vomiting were the

commonest presenting features. Another study done by Hoffner RJ et al¹³ found most common complaint was fever (77%), followed by abdominal pain (72%).

Our study found that out of 70, 34 patients had no complication but 14 patients had sepsis followed by 11 patients had pleural effusion, 5 patients had intestinal perforation. Mechanisms of development of complications include development of a sympathetic serous effusion; rupture of a liver abscess into the chest cavity, leading to empyema; or a hematogenous spread, resulting in parenchymal infection. Pericardial involvement results following the rupture of an abscess of the left lobe of the liver. It is usually associated with very high mortality. Intra-peritoneal rupture occurs in 2-7% of patients. Left lobe abscesses are more likely to rupture because of their thin walled cavity and later clinical presentation.

Our findings were consistent with Yogesh Kushwaha et al (2016)¹⁴ found that Mean TLC – 13694, Bilirubin – 1.27 mg%. Serum Alkaline Phosphatase – 698 IU. Soumik Ghosh et al (2014)¹⁵ found ESR 31 mm in 1st hour, haemoglobin 9 gm/dL, TLC 37300/mL, urea 161 mg/dL, bilirubin 4.9 mg/dL, albumin 2.4 g/dL, SGOT 232 IU/L, SGPT 203 IU/L, ALP 1562 IU/L, and INR of 1.77.

CONCLUSION

Amoebiasis is endemic in India, due to tropical climate, poor sanitary conditions, and a lower socioeconomic status among rural inhabitants. ALA typically presents with a short history of about two weeks with symptoms including Right Upper quadrant abdomen pain, fever, malaise, myalgias.

However the diagnosis of amoebic liver abscess is sometimes difficult and a proper history, clinical examination, and Ultrasound screening are of utmost importance since its clinical manifestations are highly variable. Timely diagnosis and initiation of specific anti-amoebic therapy is important for treatment and prevention of complications.

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