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A Comparative Study between Pyogenic and Amoebic Liver Abscess

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ABSTRACT

Background: Rationale of this study is to explore the differences between clinical presentation and laboratory findings for pyogenic and amoebic liver abscess. By conducting this study we shall be able to suggest possible improvements in the management plan of these disorders. **Aims and Objectives:** 1.To compare the clinical ,biochemical, radiological parameters of patients with pyogenic liver abscess (PLA) and with amebic liver abscess (ALA) , that may help improve diagnosis and treatment for this disease. 2. To study the different modalities of treatment adopted for different type of abscess. **Methods:** we have done a observational study done in the Department of General Surgery of Nil Ratan Sircar Medical College and Hospital Kolkata over a period of 18 months (from January 2018 to July 2019). 50 patients were nominated with implication of inclusion and exclusion criterion. **Results:** Amoebic liver abscess found to be predominant(70%) with ALA affecting 68.7% patients in the age group of 20- 40 years, while 66.7% patients of PLA falls in the age group of >50 years with Male: Female ratio 6:1. Travel to or residence in endemic area is more consistent with ALA. Fever and abdominal pain are the cardinal symptoms of liver abscess. **Conclusion:** ALA found to be solitary affecting right lobe of liver while PLA is multiple affecting both lobes of liver. Rise of prothrombin time is more consistent with ALA whereas rise of ALP is more consistent with PLA.

Keywords: Amoebic liver abscess, pyogenic liver abscess, Comparison, Prothrombin time, alkaline phosphatase.

INTRODUCTION

Liver abscesses have been recorded for centuries, in 1883; amoebae were first described as a cause of liver abscesses by Koch. In 1938, the largest series of pyogenic and amoebic liver abscesses in the literature for the first time was published,[1] and despite refinement in diagnostic and therapeutic modalities , liver abscess remains a serious condition with a high morbidity and mortality rate.[2,3] The signs and symptoms of amoebic liver abscess are often relatively non-specific, and resemble those associated with pyogenic liver abscesses or other febrile diseases.[4-7]

AIMS AND OBJECTIVES

1. To compare the clinical, biochemical, radiological parameters of patients with pyogenic liver abscess (PLA) and with amebic liver abscess (ALA), that may help improve diagnosis and treatment for this disease.
2. To study different modalities of treatment adopted for different type of abscess.

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MATERIALS AND METHODS

Study Area: Indoor ward, Department of Surgery, NRS Medical College & Hospital, Kolkata.
Study Population: Patients admitted with liver abscess in all the units, Department of Surgery, NRS Medical College & Hospital, Kolkata.
Study Duration: January 2018- July 2019
Sample Size: 50 patients
Study Design: Observational study
Parameters to be studied:

- **Demographic Parameters:** Age, Sex, Residence in or Travel to end emic area.
- **Clinical Parameters:** Symptoms (Abdominal Pain, Chest Pain, Fever, Jaundice, Diarrhoea, Anorexia), Signs (Hepatomegaly, Pleural effusion, Intercostal tenderness)
- **Pathological Parameters:** Haematology, Liver function test, Serology, Culture and sensitivity of pus aspirated from liver abscess.
- **Radiological Parameters:** Ultrasonography, CT Scanning.
- **Study Tools:**
  - History.
  - Clinical examination.
  - Laboratory findings.
  - Radiological methods.
  - Culture Report of Pus.

Study technique:
Patients admitted with history and clinical suspicion of liver abscess was examined thoroughly, which

included general survey and abdominal and systemic examination.

Inclusion criteria:
Patients with history and diagnostic features suggestive of liver abscess and its complications of age group 15 to 60 years.

Exclusion criteria:

- Liver diseases like alcoholic hepatitis, viral hepatitis other than liver diseases.
- Liver abscess not detected on examination or radiologically.
- Patients who are not willing for specific investigations like USG, CT and aspiration of the abscess.

RESULTS

Comparison of demographic parameters:
Age: 68.7% patients of ALA falls in the age group of 20- 40 years, while 66.7% patients of PLA falls in the age group of >50 years.
Sex: 85.7% male is affected from ALA 14.3% female is affected from ALA Male:Female ratio is 6:1.
Residence in or Travel to Endemic Area: In 31.4% cases of ALA, history of residence in or travel to endemic area is present.

Comparison of Clinical Parameters

a. Comparison of Personal History.
Alcohol Intake: 85.7% cases of ALA found out to be alcoholics whereas 53.3% cases of PLA found out to be same.
Smoking: 54.3% cases of ALA are smokers and 33.3% cases of PLA are smokers.
Diabetes: 20% cases of ALA and 40% cases of PLA have diabetes.
Blood Transfusion or IV Drug Abuse: 13.3% cases of PLA have history of IV drug abuse. While no cases of ALA reported such history.

b. Comparison of Presenting Features:

Parameters Analyzed	ALA (35 CASES)		PLA (15 CASES)	
	Number	Percent	Number	Percent
Fever	28	80.0	14	93.3
Abdominal Pain	31	88.6	15	100.0
Anorexia& Wt. loss	27	77.1	04	26.7
Nausea & vomiting	08	22.9	05	33.3
Diarrhea	03	8.6	03	20.0
Cough & Chest Pain	05	14.3	03	20.0
Pruritus	09	25.7	09	60.0
Jaundice	10	28.6	09	60.0
Rt Hypochondrial & Rt intercostal tenderness	29	82.9	14	93.3
Hepatomegaly	26	74.3	09	60.0
Ascites	04	11.4	04	26.7
Rt. Upper quadrant mass	04	11.4	04	26.7
Pleural Effusion	05	14.3	03	20.0

Comparison of Biochemical Findings:

Parameters analyzed	ALA (35 CASES)		PLA (15 CASES)	
	Number	Percent	Number	Percent
Leukocytosis	26	74.3	15	100.0
Raised ALP	21	60.0	14	93.3
Raised INR	17	48.6	05	33.3
Raised Total Bilirubin	10	28.6	09	60.0
Raised SGPT	17	48.5	12	80.0
Raised SGOT	16	45.8	13	86.7

Comparison of Radiological Findings:

Parameters analyzed		ALA (35 CASES)		PLA (15 CASES)	
		Number	Percent	Number	Percent
Number	Single	27	77.1	09	60
	Multiple	08	22.9	06	40
Location	Right Lobe	28	80.0	09	60.0
	Left Lobe	06	17.1	01	6.7
	Both Lobe	01	2.9	05	33.3

Treatment Modalities offered to Patients:

Treatment Options		PLA (35 CASES)		ALA (15 CASES)	
		Number	Percent	Number	Percent
Conservative Management		15	42.9	07	46.7
Percutaneous Drainage	Left Lobe Lesion	02	5.7	01	6.6
	Size of Lesion more than 5 cm	14	40.0	06	40.0
	Failure of Conservative Management	03	8.6	01	6.7
Surgical Drainage		01	2.8	00	00

DISCUSSION

After comparing various parameters between patients of PLA and ALA first and then comparing the results with different studies following points for discussion were reached:

1. **Residence in or Travel to Endemic Area:** In 31.4% cases of ALA, history of residence in or travel to endemic area is present. Knobloch J et al,[8] 1983 found in his study 35% of travellers spent fewer than six weeks in an endemic area before developing ALA.
2. **Alcohol Intake:** 85.7% cases of ALA found out to be alcoholics whereas 53.3% cases of PLA found out to be same. Overall 76% cases of liver abscess are alcoholics. Menon AR et al,[9] 2015 showed in his study, 91.1% cases of ALA were alcoholics 54.5% cases of PLA were alcoholic. Overall 80% cases of liver abscess were alcoholics.
3. **Diabetes:** 20% cases of ALA and 40% cases of PLA have diabetes. Dharmendra Tiwari et al,[10] 2015 showed in his study, 20.5% cases of ALA and 50% cases of PLA had diabetes.
4. **Fever:** In this study, Fever is present in 80% patients with amoebic liver abscess, and 93.3% patients with pyogenic liver abscess. AK Jha et al,[11] 2015 found fever to be present in 80% patient with ALA and 100% patient with PLA.
5. **Abdominal Pain:** Abdominal pain is present in 88.6% patient with ALA and 100% patient with PLA. Menon AR et al,[9] 2015 showed abdominal pain to be present in 88.2% patients of ALA and 100% patients of PLA.
6. **Anorexia and Wt. Loss:** This study shows presence of anorexia and weight loss in 77.1% patients of ALA and 26.7% patients of PLA. Jha AK et al,[11] 2015 found anorexia and weight loss in 62.7% patients of ALA and 20% patients of PLA.
7. **Jaundice:** Jaundice is present in 28.5% cases of ALA and 60% cases of PLA. Bhatti et al,[2] 2014, showed presence of jaundice in 24.1% cases of ALA and 65.9% cases of PLA.
8. **Hepatomegaly:** Hepatomegaly is present in 74.3% cases of ALA and 60% cases of PLA. Lodhi, S. et al,[8] 2004 showed presence of Hepatomegaly in 74% cases of ALA and 67% cases of PLA.
9. **Pleural Effusion:** 14.3% cases of ALA show pleural effusion whereas 20% cases of PLA shows pleural effusion. Jain V et al,[13] 2017 showed presence of pleural effusion in 11.6% cases of ALA and 14.2% cases of PLA.
10. **Raised ALP:** Raised ALP found in 60% cases of ALA and 93.3% cases of PLA. The study of Jha AK et al,[11] 2015 showed rise in ALP in 62.7% cases of ALA and 93.3% cases of PLA. According to Branum et al,[14] 1990 and Gyorffy EJ et al,[15] 1987 An elevated alkaline phosphatase (ALP) level is observed in 95-100% of patients of PLA.
11. **Raised INR:** Raised INR found in 48.6% patients of ALA and 33.3% patients of PLA. Jha AK et al,[11] 2015 showed presence of raised INR in 43.6% patients of ALA and 26.6% patients of PLA.
12. **Number of Lesion:** Single Lesion is present in 77.1% cases of ALA, Single lesion is present in 72% cases of liver abscess. Multiple Lesion is present in 40% cases of PLA. According to Katzenstein et al,[16] 1982, ALA is single 80% of the time. The study of Cosme A et al,[17] 2010 showed single lesion in 76.9% cases of ALA . And multiple lesion in 44.4% cases of PLA
13. **Location of Lesion:** 80% cases of ALA located in Right Lobe. 60% cases of PLA located in Right Lobe.74% cases of Liver Abscess located in Right Lobe. 33.3% cases of PLA located in Both Lobe. This study of Channanna C et al,[18] 2014 revealed that 90% cases of liver abscess was present in right lobe of liver. This study, Lodhi, S. et al,[12] 2004 revealed 73% cases of ALA located in Right Lobe. 57% cases of PLA located in Right Lobe. 27% cases of PLA located in Both Lobe.

CONCLUSION

In this study on 50 patients, Amoebic Liver Abscess found out to be predominant (70%). Fever and abdominal pain are the cardinal symptoms of liver abscess. Amoebic abscess affects young adults (20-40 years). Residence in or travel to endemic area, alcoholism is related to it. Anorexia, weight loss are common symptoms. Radiologically it is commonly solitary affecting right lobe of liver. Pyogenic abscess affects elders (>50 years). IV drug abuse or blood transfusion, diabetes is related to it. Cough, chest pain, pruritus, jaundice are common symptoms.it is more often multiple affecting both lobes of liver. In liver function test parameters that need special mentioning are serum Alkaline Phosphatase and Prothrombin Time. Although both can increase in liver abscess a rise of PT has been seen more constantly in ALA. Whereas a rise in ALP is more commonly associated with PLA. Treatment modalities in offer- conservative, per-cutaneous drainage and open drainage.

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