

## Research Article

# Role of alcoholism in liver abscess

C. Stalin Raja\*, P. Karthick

Department of General Surgery, Chennai Medical College Hospital and Research Centre, Irungalur, Trichy-621105, Tamil Nadu, India

**Received:** 16 July 2014

**Accepted:** 9 August 2014

**\*Correspondence:**

Dr. C. Stalin Raja,

E-mail: stalinthangs2@gmail.com

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** This retrospective study was conducted on 108 patients to find the role of alcoholism in liver abscess.

**Methods:** The present study was undertaken on patients both male and female admitted in surgical wards of Chennai medical college & hospital. 108 patients were taken up for the study from the surgical wards of the hospital over a period of 1½ year i.e., from January 2013 to June 2014.

**Results:** The disease usually affects the males in the age group 25-55 years, alcoholism is found to be the chief predisposing factor. Following alcoholism, poor economic status & malnutrition also plays a vital role as predisposing factors in the formation of liver abscess. Among alcoholism also, consuming locally prepared alcohol plays a vital role, but the reason is still been unknown. Though Alcoholism is a predisposing factor, it has no role in the aetiology and the liver function tests also did not show much alteration. Improvement in radio diagnosis helps not only in diagnosis but also in the management. In complicated liver abscesses, the most common complication was found to be pleuropulmonary, followed by peritoneal and pericardial. With abscess remaining confined to the liver the case fatality rate is nil. Even in complicated cases, the case fatality rate is low. Comparison of the results of our study with various studies which are done all over the world are found be coinciding.

**Conclusion:** From our study it was undoubtedly proved that alcoholism, mainly consuming locally prepared alcohol plays a major role as a predisposing factor for the formation of liver abscesses that is both amoebic as well as pyogenic liver abscess because of the adverse effects of alcohol over the Liver. It is also proven that Alcoholism is never an etiological factor for the formation of liver abscess.

**Keywords:** Liver abscess, Alcoholism

### INTRODUCTION

An association between liver disease and heavy alcohol consumption was recognized more than 200 years ago.<sup>1</sup> Long-term heavy alcohol use is the most prevalent single cause of illness and death from liver disease in the United States.<sup>2</sup>

The liver is particularly susceptible to alcohol-related injury because it is the primary site of alcohol metabolism. As alcohol is broken down in the liver, a number of potentially dangerous by-products are generated, such as acetaldehyde and highly reactive

molecules called free radicals. Perhaps more so than alcohol itself, these products contribute to alcohol-induced liver damage.

The liver is one of the largest organs in the body; it has not only considerable reserves but also the ability to regenerate itself. Consequently, symptoms of liver damage may not appear until damage to the organ is quite extensive. Epidemiological studies suggest that a threshold dose of alcohol must be consumed for serious liver injury to become apparent.<sup>3</sup> For men, this dose amounts to 600 kilograms (kg) taken chronically over many years, an intake that can be achieved by consuming

approximately 72 ounces (oz) of beer, 1 litre of wine, or 8 oz distilled spirits (i.e., 5-6 standard drinks) daily for 20 years. For women, the threshold dose is one-fourth to one-half that amount. In this article, the phrase "heavy drinking" refers to this daily intake. Heavy long-term alcohol consumption clearly plays a major role in the development of alcohol-related liver damage. Yet, no more than one-half of heavy drinkers develop alcoholic hepatitis or cirrhosis.<sup>4</sup>

This finding suggests that other factors - heredity, environment, or both - interact to influence the course of liver disease. This article examines some types of liver injury and their potential mechanisms, discusses factors that may place people at increased risk for such injury, and provides a brief description of different treatment approaches.

## **METHODS**

The present study was undertaken on patients both male and female admitted in surgical wards of Chennai medical college & hospital.

108 patients were taken up for the study from the surgical wards of the Hospital over a period of 1½ year i.e., from January 2013 to June 2014.

Patients were selected based on the following diagnosis criteria.

### **Diagnostic criteria**

1. Tender enlarged liver
2. Suggestive haematological findings
3. Suggestive radiological findings
4. Demonstration of pus either by aspiration or by rupture into adjacent viscus or serous cavity.
5. USG abdomen showing abscess cavity.

Patients were classified into alcoholics & non-alcoholic's according to the history and again they are classified into complicated & uncomplicated liver abscess.

- Uncomplicated liver abscess: Abscess confined to the liver.
- Complicated liver abscess: If liver abscess ruptured into other viscera or into the peritoneal cavity.

In all cases a detailed history is recorded according to the proforma with particular reference to the antecedent dysentery, diarrhoea, jaundice, alcoholism and previous illness.

In patients with alcoholic history, they are thoroughly enquired about the duration of the habit, frequency, amount of alcohol consumed and brand.

A detailed clinical examination of all the systems including the symptomatology is recorded.

Pleuro pulmonary complications were suspected, when the patients presented with pleuritic pain in right lower chest, referred pain in the right shoulder, non-productive cough, breathlessness and rarely haemoptysis or production of necrotic debris in patients with hepatobronchial fistula. Along with the history, clinical signs of elevated hemi diaphragm, effusion, consolidation etc. were looked for.

Peritoneal complications were suspected when patients had abdominal pain increased, fever, tender abdomen, shifting dullness along with associated signs and symptoms of liver abscess.

Pericardial complications was suspected when patients had clinical features suggestive of liver abscess particularly a left lobe abscess presenting with substernal pain, slow onset, breathlessness as in gradual myocardial compression or sudden breathlessness with clinical features of shock due to pericardial tamponade.

### **Blood investigations**

Liver function tests, complete haemogram, serum total proteins, albumin and globulin, prothrombin time, blood urea, serum creatinine, screening for HbSAg, HIV and HCV.

### **Urine**

Urine examinations are routinely done for salts, bile pigments, urobilinogen, albumin and sugar.

### **Radiology**

- Chest X-Ray postero anterior view was taken and if inconclusive a lateral chest x-ray was taken particularly when a rupture of the liver abscess into the pleura/lung was suspected.
- Many cases were confirmed by ultra sound.

## **RESULTS**

1. 108 cases of liver abscesses were studied, out of which 102 patients are alcoholic. Of these 102 peoples 86 peoples had the habit of taking every day.
2. In total cases, uncomplicated cases are 98 and complicated cases are 10. Among the uncomplicated cases, 92 patients are alcoholics and 6 are non-alcoholics. Among complicated cases, all the 10 are alcoholics.
3. Out of the 108 patients 106 were male and 2 were female.

4. Uncomplicated liver abscess

- Amoebic liver abscesses - 94
- Pyogenic liver abscess - 4

Clinical profile of uncomplicated liver abscess (98 patients)

Table 1: Age: uncomplicated liver abscess.

| Age (years) | No. of patients | Alcoholics | Non-alcoholics |
|-------------|-----------------|------------|----------------|
| 15-25 years | 9               | 07 (78%)   | 02 (22%)       |
| 26-35 years | 23              | 23 (100%)  | 00 (0%)        |
| 36-45 years | 33              | 32 (97%)   | 01 (3%)        |
| 46-55 years | 19              | 18 (95%)   | 01 (5%)        |
| 56-65 years | 14              | 12 (86%)   | 02 (14%)       |

Table 2: Sex: uncomplicated liver abscess.

| Sex     | No. of patients | Alcoholics | Non-alcoholics |
|---------|-----------------|------------|----------------|
| Males   | 96              | 92 (96%)   | 04 (4%)        |
| Females | 02              | 00 (0%)    | 02 (100%)      |

Table 3: Economic status: uncomplicated liver abscess.

| Status       | No. of patients | Alcoholics | Non-alcoholics |
|--------------|-----------------|------------|----------------|
| Poor         | 94              | 90 (96%)   | 04 (4%)        |
| Middle class | 04              | 02 (50%)   | 02 (50%)       |

Table 4: Nourishment: uncomplicated liver abscess.

|                     | No. of patients | Alcoholics | Non-alcoholics |
|---------------------|-----------------|------------|----------------|
| Malnourished (60)   | 58              | 53 (91%)   | 05 (9%)        |
| Well nourished (40) | 40              | 39 (98%)   | 01 (2%)        |

Table 5: Immunocompromised: uncomplicated liver abscess.

|                              | No. of patients | Alcoholics | Non-alcoholics |
|------------------------------|-----------------|------------|----------------|
| Malignancy / corticosteroids | 0               | 0          | 0              |

Table 6: Season: uncomplicated liver abscess.

|        | No. of patients | Alcoholics | Non-alcoholics |
|--------|-----------------|------------|----------------|
| Summer | 69              | 66 (96%)   | 03 (4%)        |
| Rainy  | 24              | 22 (92%)   | 02 (8%)        |
| Winter | 05              | 04 (80%)   | 01 (20%)       |

Table 7: Alcoholic: uncomplicated liver abscess.

|           | Number of patients | Percentage |
|-----------|--------------------|------------|
| Alcoholic | 92 out of 98       | 94         |
| Males     | 90 out of 96       | 94         |
| Females   | 00                 | 0          |

Table 8: Presenting symptoms (Uncomplicated liver abscess).

| Duration of symptoms | No. of patients | Alcoholics | Non-alcoholics |
|----------------------|-----------------|------------|----------------|
| 0-2 weeks            | 10              | 05 (50%)   | 05 (50%)       |
| 2-4 weeks            | 54              | 53 (98%)   | 01 (2%)        |
| 4-12 weeks           | 34              | 34 (100%)  | 00 (0%)        |
| >12 weeks            | 0               | 00 (0%)    | 00 (0%)        |

Table 9: Symptoms: uncomplicated liver abscess.

| Symptom                            | No. of patients | Alcoholics | Non-alcoholics |
|------------------------------------|-----------------|------------|----------------|
| Fever                              | 90              | 90 (98%)   | 00 (0%)        |
| Loss of appetite                   | 65              | 63 (68%)   | 02 (33%)       |
| Loss of weight                     | 20              | 20 (22%)   | 00 (0%)        |
| Abdominal pain                     | 98              | 92 (100%)  | 06 (100%)      |
| Site Rt. hypo-chondrium            | 98              | 92 (100%)  | 06 (100%)      |
| Rt. hypo-chondrium and epigastrium | 10              | 09 (10%)   | 01 (17%)       |
| Character dull aching or pricking  | 98              | 92 (100%)  | 06 (100%)      |
| Referred pain                      | 37              | 37 (40%)   | 00 (0%)        |
| Nausea                             | 35              | 34 (37%)   | 01 (17%)       |
| Vomiting                           | 05              | 05 (5%)    | 00 (0%)        |
| Diarrhoea, dysentery               | 10              | 09 (10%)   | 01 (17%)       |
| Cough                              | 12              | 11 (12%)   | 01 (17%)       |
| Breathlessness                     | 00              | 00         | 00             |

Table 10: Signs: uncomplicated liver abscess.

| Signs              | No. of patients | Alcoholics | Non-alcoholics |
|--------------------|-----------------|------------|----------------|
| Pallor             | 60              | 58 (63%)   | 02 (33%)       |
| Liver enlargement  | 70              | 69 (75%)   | 01 (17%)       |
| Hepatic tenderness | 76              | 75 (82%)   | 01 (17%)       |
| Lung findings      | 08              | 08 (9%)    | 00 (0%)        |
| Jaundice           | 05              | 05 (5%)    | 00 (0%)        |

Table 11: Complicated liver abscess.

| Number of patients (Total No. of patients: 10) | Percentage |
|--|------------|
| 10   | 9          |

**Types of abscesses**

1. Amoebic liver abscesses - 10
2. Pyogenic liver abscess - 0

**Table 12: Types of complications - complicated liver abscess.**

|                           | Number of patients | Percentage |
|---------------------------|--------------------|------------|
| Pulmonary                 | 03                 | 30         |
| Pericardial               | 01                 | 10         |
| Mixed pericardial pleural | 01                 | 10         |
| Pleuro peritoneal         | 02                 | 20         |
| Isolated peritoneal       | 03                 | 30         |

**Clinical profile of complicated liver abscess (10 patients)**

**Table 13: Alcoholic - complicated liver abscess.**

|           | Number of patients | Percentage |
|-----------|--------------------|------------|
| Alcoholic | 10                 | 100        |
| Males     | 10                 | 100        |
| Females   | 00                 | Nil        |

**Table 14: Age: complicated liver abscess.**

| Age (years) | Number of patients | Percentage |
|-------------|--------------------|------------|
| 15-25 years | 01                 | 10         |
| 26-35 years | 01                 | 10         |
| 36-45 years | 02                 | 20         |
| 46-55 years | 04                 | 40         |
| 56-65 years | 02                 | 20         |

**Table 15: Sex: complicated liver abscess.**

| Sex     | Number of patients | Percentage |
|---------|--------------------|------------|
| Males   | 10                 | 100        |
| Females | 00                 | Nil        |

**Table 16: Economic status: complicated liver abscess.**

| Status       | Number of patients | Percentage |
|--------------|--------------------|------------|
| Poor         | 08                 | 80         |
| Middle class | 02                 | 20         |

**Table 17: Nourishment: complicated liver abscess.**

|                | Number of patients | Percentage |
|----------------|--------------------|------------|
| Malnourished   | 08                 | 80         |
| Well nourished | 02                 | 20         |

**Table 18: Immunocompromised: complicated liver abscess.**

|                              | Number of patients | Percentage |
|------------------------------|--------------------|------------|
| Malignancy / corticosteroids | 0                  | 0          |

**Table 19: Season: complicated liver abscess.**

|        | Number of patients | Percentage |
|--------|--------------------|------------|
| Summer | 08                 | 80         |
| Rainy  | 02                 | 20         |
| Winter | 00                 | Nil        |

**Table 20: Presenting symptoms (Before getting complicated).**

| Duration of symptoms | Number of patients | Percentage |
|----------------------|--------------------|------------|
| 0-2 weeks            | 01                 | 10         |
| 2-4 weeks            | 02                 | 20         |
| 4-12 weeks           | 06                 | 60         |
| >12 weeks            | 01                 | 10         |

**Table 21: Signs: (Before getting complicated).**

| Signs              | Number of patients | Percentage |
|--------------------|--------------------|------------|
| Pallor             | 08                 | 80         |
| Liver enlargement  | 10                 | 100        |
| Hepatic tenderness | 10                 | 100        |
| Lung findings      | 06                 | 60         |
| Peritoneal signs   | 05                 | 50         |

**Table 22: Symptoms (before getting complicated).**

| Symptom                           | Number of patients | Percentage |
|-----------------------------------|--------------------|------------|
| Fever                             | 08                 | 80         |
| Loss of appetite                  | 10                 | 100        |
| Loss of weight                    | 10                 | 100        |
| Abdominal pain                    | 10                 | 100        |
| Site Rt. hypochondrium            | 10                 | 100        |
| Rt. hypochondrium and epigastrium | 02                 | 20         |
| Character dull aching or pricking | 10                 | 100        |
| Referred pain                     | 07                 | 70         |
| Nausea                            | 06                 | 60         |
| Vomiting                          | 00                 | 00         |
| Diarrhoea, dysentery              | 01                 | 10         |
| Cough                             | 08                 | 80         |
| Breathlessness                    | 06                 | 60         |
| Chest Pain                        | 03                 | 30         |
| Jaundice                          | 01                 | 10         |

**Table 23: Blood investigations: (Before getting complicated).**

| Investigations                | Number of patients | Percentage |
|-------------------------------|--------------------|------------|
| Hb <12 gm                     | 08                 | 80         |
| WBC >10000/cu.mm              | 08                 | 80         |
| Increased alkaline phosphates | 02                 | 20         |
| Increased bilirubin           | 03                 | 30         |
| Increased ESR                 | 08                 | 80         |

**Pulmonary complications**

In complicated liver abscesses the most common complications was found to be pleuro pulmonary.

- One patient had pericardial involvement along with pleural involvement
- Two of the patients had liver abscess ruptured into the pleura and peritoneum.

**Table 24: Pulmonary complications.**

| Pattern of involvement | No. of patients |
|------------------------|-----------------|
| Empyema                | 3               |
| Lung abscess           | 1               |
| Serous effusion        | 2               |

**Table 25: Symptoms: pulmonary complications.**

| Signs                    | Number of patients | Percentage |
|--------------------------|--------------------|------------|
| Fever                    | 04                 | 66.6       |
| Pain right side of chest | 06                 | 100        |
| Pain Rt. hypochondrium   | 06                 | 100        |
| Right shoulder pain      | 04                 | 66.6       |
| Cough                    | 04                 | 66.6       |
| Expectoration            | 01                 | 16.6       |
| Breathlessness           | 06                 | 100        |

**Physical findings**

**Table 26: Physical findings.**

| Physical findings                  | No. of patients |
|------------------------------------|-----------------|
| Hepatomegaly                       | 6               |
| Tender liver                       | 6               |
| Dullness right lower lobe          | 2               |
| Decreased breath sounds right base | 4               |
| Pleural Rub                        | 2               |
| Crepitations right base            | 2               |

**Empyema**

Three patients had rupture of liver abscess into the pleura causing empyema, they complained of severe chest pain,

right hypochondrial pain, breathlessness and cough associated with high grade fever. Intercostal tube drainage along with metronidazole 400 mg TID was given for 15 days. Patients improved with the above treatment.



**Figure 1: Showing ICD in left pleural space.**

**Peritoneal complications**

In our study 5 cases presented with peritoneal complications, three patients had only peritoneal involvement and other two had associated pleural effusion.

All were managed surgically with external tube drainage to the patients with additional pleural involvement.



**Figure 2: Showing the ruptured liver abscess on laparotomy.**

**Pericardial effusion**

In our study two patients were found to have pericardial effusion. One patient had isolated pericardial effusion and the other patient had Pleuro pericardial effusion. In the patient with isolated pericardial effusion, Liver abscess ruptured suddenly leading to shock, severe breathlessness and death of the patient.

The patient who had Pleuro pericardial involvement underwent Pericardiocentesis. Fluid was serous and metronidazole was given for 21 days, patient improved with the above treatment.



**Table 27: Mode of treatment.**

| Modes of management          | Alcoholics | Non-alcoholics |
|------------------------------|------------|----------------|
| Medical management           | 28         | 5              |
| Ultrasound guided aspiration | 30         | 1              |
| Pig tail catheter insertion  | 38         | 0              |
| Laparotomy                   | 5          | 0              |

**Table 28: Hospital stay.**

| Hospital stay in No. of days | Alcoholics | Non-alcoholics |
|------------------------------|------------|----------------|
| 1-5 days                     | 0          | 2              |
| 6-10 days                    | 22         | 3              |
| 11-15 days                   | 44         | 1              |
| 16-20 days                   | 34         | 0              |
| >21 days                     | 7          | 0              |

## DISCUSSION

In this study 108 patients diagnosed as liver abscess (amoebic and pyogenic) are included. All patients are enquired about their intake of alcohol. Amount of intake, duration of the habit, frequency of consuming and quality of alcohol consumed are also enquired.

All the patients were screened for HBV & HCV, and all the above mentioned investigations were done to all the patients. So the result of this study shows that, among those who developed liver abscess, 102 were alcoholics. Out of those 102 patients 86 were having habit of frequent intake of locally prepared alcohol and every day.

In this period of study only 2 female patients were found to be suffering from Liver abscess. Among 108 patients, 10 patients developed complications such as rupture of the liver abscess into peritoneal, pleural cavities or pericardium. All the 10 patients who developed complications were chronic alcoholics. Among the uncomplicated cases, 94% are alcoholic.

In uncomplicated cases highest incidence was found to be 36-45 years followed by 26-35 years in which alcoholics are 96 and 100% respectively. In our study, 102 cases (94%) were of low socio-economic group of which 96% are alcoholics. Among uncomplicated patients, 60% were malnourished & in complicated cases 80% were malnourished.

So from the above study, it was found that

1. The causative organism varies
2. Vast age group of patients are involved
3. Mostly male sex is involved
4. 70% are malnourished

5. 94% are from poor socioeconomic status

The most striking feature found in this study was that 94% of uncomplicated cases and 100% of complicated cases had history of alcohol intake.

In our study incidence of liver abscess in both complicated and uncomplicated liver abscess is high in males, 98% in uncomplicated and 100% in complicated patients, probably because of the greater exposure of males to contaminated food and water due to their active life and an increased incidence of alcohol consumption among them. Due to the consumption of adulterated alcohol which is harmful to the liver and due to nutritional deficiencies in alcoholics, the invasive capacity of *Entamoeba histolytica* is enhanced, thus leading to a higher incidence of amoebic liver abscess in alcoholics. It can also be conducted that duration and quality of alcohol consumed also plays an important role in the higher incidence of liver abscess from this study.

The duration of symptoms are also found to be long in alcoholics when compared to non-alcoholics in both complicated and uncomplicated groups.

In our study, the symptoms like fever, loss of weight, referred pain, and vomiting are seen only in alcoholics, and symptoms like loss of appetite, abdominal pain, nausea and diarrhoea are found to more common among alcoholics.

It is also seen that signs of pallor, Hepatomegaly, Hepatic tenderness, Jaundice were more pronounced in alcoholics when compared to non-alcoholics.

It is also seen that large sized liver abscess are seen mostly in the alcoholics who is proven by ultrasound.

Most of the non-alcoholic patients in our study have responded well to medical management, whereas most of the alcoholic patients required some form of invasive procedures such as aspiration, pigtail catheter insertion etc.

It is also found that, hospital stay is also less in non-alcoholics when compared to alcoholics.

So from this, alcoholism is found to be most important predisposing factor for causation of Liver abscess comparing to any other predisposing factors.

Already a number of studies had been carried out in this aspect & proved that alcoholism is a major predisposing factor for both amoebic & pyogenic liver abscess.

In a study conducted by Islam et al in Rajshahi reveals 80% cases with pyogenic liver abscess consume alcohol & among them 95% patients had the habit of taking locally prepared alcohol (TARI).<sup>5</sup>

In a study conducted by Kini & Mammi on the patients with Liver Abscess, history of alcoholism was found in 20-30% of cases.<sup>6</sup>

In another study done over liver abscess, Joshi et al. found a higher mortality rate in those consuming large quantity of alcohol.<sup>7</sup> In a study conducted on liver abscess by Ananthkrishnan Ramani et al. revealed that 64% of patients had the habit of consuming alcohol.<sup>8</sup>

In a study conducted by Ravinder PS. Makkar et al. it found that the higher incidence of ALA in alcoholic livers is possibly due to their higher iron content.<sup>9</sup>

In a retrospective study involving all consecutive patients admitted to the liver unit of Bir hospital from April 13, 2008 to October 16, 2008, it was found that, the most important predisposing factor for Liver abscess is the consumption of alcohol.<sup>10</sup>

In our study also 95% of patients with liver abscess are giving a history of consuming alcohol. Among them 86% are giving the history of consuming locally prepared alcohol, which is found to be correlating with the above studies. So from this study it is undoubtedly proved that alcoholism is the major predisposing factor for the liver abscess followed by the poor socio economic status & malnutrition.

This study also highlights the role of locally prepared alcohol in predisposing liver abscess. It is also found that alcoholics had larger abscesses, greater frequency of complications and delayed resolution of abscesses. Though alcoholism is not a causative factor for Liver abscess, it stays the main predisposing factor for the complications of Liver abscess which is also proved by this study. 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 the liver abscess is treated timely and adequately and by bringing out the patients from the habit of alcoholism. Because of the recent development in the field of radiology, it becomes more susceptible to treat the Liver abscesses more non-invasively.

So from this study again it is proved that higher incidence of liver abscess is seen in the Alcoholics when comparing with non-alcoholics.

So all the results of above studies are found to be coinciding with the results of our study in proving the role of alcoholism in liver abscess.

## ACKNOWLEDGEMENTS

We would like to acknowledge patients to participate in our research study.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Smart RG, Mann RE. Alcohol and the epidemiology of liver cirrhosis. *Alcohol Health Res World.* 1992;16(3):217-22.
2. National Center for Health Statistics. Health, United States, 1993. In: NCHS, eds. DHHS Pub. No. (PHS) 94-1232. Hyattsville, MD: NCH; 1994a: 97.
3. Mezey E, Kilman CJ, Diehl AM, Mitchell MC, Herlong HF. Alcohol and dietary intake in the development of chronic pancreatitis and liver disease in alcoholism. *Am J Clin Nutr.* 1988;48:148-51.
4. French, SW, Nash J, Shitabata P, Kachi K, Hara C, Chedid A, et al. Pathology of alcoholic liver disease. VA Cooperative Study Group. *Seminars Liver Dis.* 1993;13:154-69.
5. Islam QT, Ekram ARMS, Ahmed MI, Alim MA, Ahad MA, Haque MA, et al. Pyogenic liver abscess and indigenous alcohol. *TAJ.* 2005;18(1):21-4.
6. Kini PM, Mammi MKI. Hepatic Amoebiasis in Kerala. *J Ind Med Assoc.* 1970;55:7-9.
7. Joshi VR, Kapoor OP, Purohit AV, Nathawani AN, Lele RD. Jaundice in amoebic abscess of the liver. *J Assoc Physicians India.* 1972 Oct;20(10):761-7.
8. Ananthkrishnan Ramani, Rama Ramani, P. G. Shivananda. Amoebic liver abscess. A prospective study of 200 cases in a rural referral hospital in South India. *Bahrain Med Bull.* 1995 Dec;17(4):1-5.
9. Ravinder PS. Makkar, Gopal Kr. Sachdev, Veena Malhotra. Alcohol consumption, hepatic iron load and the risk of amoebic liver abscess: a case-control study. *Intern Med.* 2003;42:644-9.
10. Mishra AK, Shrestha P, Bista NR, Bhurtel P, Bhattarai S, Thakali K, et al. Pattern of liver diseases. *J Nepal Health Res Counc.* 2009 Apr;7(14):14-8.

DOI: 10.5455/2320-6012.ijrms20141113

**Cite this article as:** Stalin Raja C, Karthick P. Role of alcoholism in liver abscess. *Int J Res Med Sci* 2014;2:1313-9.