TAJ June 2005; Volume 18 Number 1

ISSN 1019-8555
The Journal of
Teachers Association
RMC, Rajshahi

Original Article

Pyogenic Liver Abscess and Indigenous Alcohol

Q T Islam[1], A R M S Ekram[2], M I Ahmed[3], M A Alim[4], M A Ahad[4], M A Haque[5], M R Uddin[5], A S M S Ali[6], Md. Azizul Haque[7]

Abstract

Seventy four patients of pyogenic liver abscess prospectively evaluated by clinical, haematological, microbiological and sonographic methods. The main objective of this study was to find out correlation between intake of indigenous alcohol and to identify class population affected. Most of the affected patients of pyogenic liver abscess are lower and middle class male and who are farmer with mean age 37±11.7 years. Our study reveals '59 (80%) cases consume that alcohol, among them 56 (95%) patients took locally prepared alcohol (TARI). Organism recovered from pyogenic liver abscess vary considerably. Escherichia coli has been the organism most commonly isolated in our study. 57 cases were treated with ciprofloxacin and sonographic guided needle aspiration. Ciprofloxacin still remains as the drug of choice for this disease and recovery was excellent. So the study reveals that indigenous alcohol is associated with the development of pyogenic liver abscess.

TAJ 2005; 18(1): 21-24

Introduction

The liver is the organ most subject to the development of abscess. Liver abscess made up to 13% of the total number of abscess or 48% of all visceral abscesses [1]. Pyogenic liver abscess may be single or multiple. Most single abscess are located in the right lobe. Most abscess of portal vein origin are single where as those of biliary tract origin often multiple [2]. Although in a tropical context pyogenic liver abscess is far less common than invasive amoebiasis, pyogenic abscess is a serious disease with morbidity and mortality even when managed in experienced hand. Over the past 30 years there has been a marked change in the aetiology of pyogenic liver abscess. Abscess secondary to biliary disease particularly malignant have continued to increase. Immunosuppressive state has increased the number due to opportunistic infection. Portal pyemia may follow pelvic or gastrointestinal infection resulting in portal pyelophlebitis or septic emboli. It can follow appendicitis, empyema of the gall bladder, diverticulitis, regional enteritis, Yersina ileitis, perforated gastric or colonic ulcer, leaking anastomoses, pancreatitis or infected haemorrhoids. Diabetic may develop a liver abscess with gas forming organism (klebsiella).

[1] Associate Professor, Department of Medicine, Rajshahi Medical College, Rajshahi.
[2] Professor, Department of Medicine, Rajshahi Medical College, Rajshahi.
[3] Professor, Department of Microbiology, Rajshahi Medical College, Rajshahi.
[4] Assistant Professor, Department of Gastroenterology, Rajshahi Medical College, Rajshahi.
[5] Indoor Medical Officer, Department of Medicine, Rajshahi Medical College Hospital, Rajshahi.
[6] M Phil (Pharmacology) student, Rajshahi Medical College, Rajshahi.
[7] Resident Physician (General), Rajshahi Medical College Hospital, Rajshahi.

Commonest infectious agent are gram negative Escherichia coli, Streptococcus

faecalis, Klebsiella and Proteus vulgaris. Streptococcus milleri is a very common cause, Klebsiella pneumoniae, Pseudomonas and Clostridium welchii may also be found. Prognosis is better for a unilocular abscess in right lobe, where survival is 90%. Outcome for multiple abscess especially if biliary origin is very poor [3].

Materials and methods

It is a prospective study in which total seventy four consecutive cases of pyogenic liver abscess were taken from admitted patient in Rajshahi Medical College Hospital from a period of July 2002 to June 2003. The inclusion criteria of the cases were clinical finding consistent with pyogenic liver abscess with confirmation by ultrasonogram of hepatobiliary system and aspiration of liver abscess and study.

Aspirated specimen was sent to microbiology department of Rajshahi Medical College, where wet preparation, gram stain and culture of aspirates were done. Patients with amoebic liver abscess and patients having other space occupying liver disease were excluded from this study.

We have defined social class as following parameter, lower class → monthly income < Tk. 3000 middle class → monthly income Tk. 3001-10,000, monthly income > Tk. 10,000 was considered as upper class.

A careful comprehensive history and thorough physical examination were done in every patient and recorded in data collection sheet. All patients were subjected to following investigation: Complete blood count, ESR, S. bilirubin, SGPT, Ultrasonogram of Hepatobiliary system, Ultrasonoguided needle aspiration of liver abscess for microbiological study and culture. ELISA for EH was not done as facility is not available.

Results

Out of 74 cases of pyogenic liver abscess 64 (86%) were male and 10 (14%) were female with M:F ratio of 6.4:1. Mean age was 37± 11.7 years. 90% patient was from lower and middle class, 10% from upper class. Among them 55 (74%) cases were farmer, 12 (16%) cases were shopkeeper and 07 (10%) were business man. 59 (80%) cases consumed alcohol for a duration of 6 months to 8 years. Types of alcohol consumed were, 56 (95%) locally prepared (TARI), of them prepared from fermented rice 28 (50%), palm juice 19 (34%), from shoots of unknown herbs 09 (16%). 5% consumed branded alcohol, shown in Table-I.

Table-I: Types & source of alcohol consumed (n=59)

Type	**No. of patients**
1. Indigenous alcohol	56 (95%)
Source :	
Fermented rice	28 (50%)
Palm Juice	19 (34%)
Shoots of unknown herbs	09 (16%)
2. Brand alcohol	03 (5%)

All patients presented with upper abdominal pain, fever, weight loss, enlarged liver. Symptoms and signs of the patients are shown in table-II.

Table-II: Frequency distribution of symptoms and signs (n=74).

Symptoms	**No. of patients**
Upper abdominal pain	74 (100%)
Fever	74 (100%)
Weight loss	74 (100%)
Vomiting	50 (68%)
Anorexia	61 (82%)
Signs	**No. of patients**
Enlarged liver	74 (100%)
Temperature > 100^0 F	74 (100%)
Oedema	13 (18%)
Anaemia	21 (28%)
Jaundice	06 (10%)

Ultrasonography of hepatobiliary system revealed single abscess in 57 patients (77%) and multiple abscess in 17 patients (23%). Ultrasonographic evaluation of liver abscess is shown in table-III.

Table-III : Ultrasonographic evaluation of Hepato-biliary system : (n=74)

Size of abscess	No. of patients
1. Single Abscess :	57 (77%)
< 5 cm	12 (21%)
5-10 cm	31 (54%)
> 10 cm	14 (25%)
2. Multiple abscesses	17 (23%)
< 5 cm	11(65%)
5-10 cm	05 (29%)
> 10 cm	01 (06%)

Haematological profile were found to be (mean) Hb%-58%, TC-13356 (100%), ESR-58 mm/1st hour, increased S. bilirubin was in 09 (12%) cases and increased SGPT in 22 (30%) cases. Aspiration was done in 30 cases, wet preparation of aspirates were totally nil for Trophozoite of E. histolytica. Results of aspirate of liver abscess are listed in Table-IV.

Table-IV: Finding of liver aspirate (n=30).

Organism	No. of patients
1. Wet preparation:	
Trophozoite of E. histolytica	Nil
2. Gram stain :	
Gram positive cocci	07
Gram negative cocci	17
No organism	06
3. Culture of aspirate :	
Escherichia coli	17
Staph. aureus	04
No growth	09

Ultrasonoguided therapeutic aspiration of liver abscess done in 57 cases. In 29 cases the amount of aspirate was between 100 ml to 300 ml, which is shown table-V.

Table-V: Aspiration of liver abscess (n=57)

Amount of pus	No. of patients
< 100 ml	17
100-300 ml	29
300-500 ml	07
> 500 ml	04

45 patients were treated with intravenous ciprofloxacin, 29 patients were treated with intravenous ciprofloxacin and metronidazole, 04 cases were treated with intravenous gentamycin only for 07 days. No death was recorded due to liver abscess except one who died of decompensation of chronic liver diseases.

Fig: Ultrasonography of liver abscess

Discussion

Gastrointestinal infections are very common in our country. Pyogenic liver abscess is the second common hepatobiliary diseases of Rajshahi Medical College Hospital. Low socioeconomic condition, poor sanitary status, inadequate health education, easily available indigenous alcohol are responsible for increased incidence of liver abscess. Sufferers are mostly young male who are from lower and middle class people. But on the contrary population based study of epidemiology and the risk factor for pyogenic liver abscess mentioned increased incidence of pyogenic liver abscess in advanced age [9]. Chronic and excessive alcohol ingestion is one of the major causes of liver disease in the western world. Classically alcoholic liver injury comprises three major forms, fatty liver, alcoholic hepatitis and cirrhosis [4]. Study on alcohol consumption clarifying hepatic iron load and the risk of amoebic liver abscess mentioned that most amoebic liver abscess cases occur in alcohol drinker [8]. But our study reveals that maximum (95%) patients of pyogenic liver abscess are indigenous alcohol drinker for a period of 6 months to 8 years.

A series of study on analysis of risk factor of pyogenic liver abscess mentioned that biliary tract disease was the most frequently identified cause. The most common microorganism cultured was Klebsiella pneumoniae, the most common

concomitant disease was diabetes mellitus[6] but our study reveals that alcohol consumption is one of the most important risk factor for pyogenic liver abscess (PLA). On the contrary, an Indian study they have shown that consumption of indigenous alcohol is associated with amoebic liver abscess[11].

Locally prepared indigenous alcohol is being prepared possibly in a very unhygienic process, these may be the source of pyogenic organism of liver abscess. Possible route is portal transmission. Escherichia coli has been the organism most commonly isolated in our study. But in a study on recent changes of organism and treatment in PLA revealed that most common organism was Klebsiella pneumoniae[7]. 57 (69%) cases treated with ultrasonoguided needle aspiration and intravenous antibiotic, though both CT scan and ultrasonoguided percutaneous drainage of pyogenic liver abscess were safe and effective methods of treatment, because of simplicity of procedure, patient comfort and less expense, usa guided needle aspiration deserve to be considered as a first line drainage approach [8].

Ciprofloxacin remain the drug of choice for the treatment of pyogenic liver abscess in the majority of cases in our study. Another study by P k Roy et al. in our country also showed that the treatment response of PLA with oral or parenteral ciprofloxacin was excellent [10]. It is cheap and had good response though European studies preferred intravenous use of third generation cephalosporin or gentamycin in most patients[7, 8, 9.]

Conclusion

This study highlights the strong association of indigenous alcohol with pyogenic liver abscess. It is more common in the lower and middle class people of the society. Mortality is almost nil if it is diagnosed and treated early.

Recommendation

As a basis of evidence further study is needed to isolate pyogenic organism from indigenous alcohol consumed by the patient.

References

1. Dori F, zaleznik, Dennis L, Kasper, Intrabdominal infection and abscesses, Braunward Fauci, K, Hauser, Harrison's Principles of internal medicine Mc Graw Hill Inc; 2001; 829-34.
2. Iras, S goldman, infection of liver, Scott L. Friedman, Kenneth R, mc Quid, Current Diagnosis & treatment in gastroenterology MC graw Hill, Inc. 2004 582-4.
3. Sheilasherlock, J. Dooley, Disease of liver and billiary system, Black well published. Inc 2002: 495-8.
4. Mark E, Mailliard, Michael F, Sored, Alcoholic liver disease, Braunward Fauci K, Hauser, Harrison's principles of internal medicine, MC graw Hill Inc. 2001; 1752-3.
5. Makkar RP, Sachdev GK, Malhotra V. Alcoholic Consumption, Hepatic iron load and the risk of amoebic liver abscess, inten med. 2003 Aug 42 (8): 644-9.
6. Lec Kt, Wong SR, Sheen PC Pyogenic liver abscess; an audit of 10 years experience and analysis of risk factors. Dig. Surg. 2001; 18 (6) 459-65.
7. Nah BK, Kim YS, Moon HS; Recent changes of organism and treatment in pyogenic liver abscess. Taehan Kan Hakhoe chi 2003 Dec 9 (4): 275-83.
8. Zibari GB, Maguric S, Aultman DF, Pyogenic Liver abscess. Surg infect (Larchmt) 2000; 1 (1) : 15-21.
9. Kaplan GG. Gregson DB, Laupland KB population based study of epidemiology and the risk factor for pyogenic liver abscess; Clin gastroenterol Hepatol. 2004 Nov; 2 (11): 1032.
10. Roy PK, Rahman A S M A, Saha SK, Liver abscess: Clinical profile and therapeutic response. B J M 2000; 11: 28-30
11 Hai A A, Singh A, Mittal V K, Karan G C, Amoebic livers abscess. Int Surg. 1991; 76 (2): 81-3.

All Correspondence to:
Quazi Tarikul Islam
Associate Professor
Department of Medicine
Rajshahi Medical College, Rajshahi .