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Prospective study of clinical profile and various modalities of treatment in management of liver abscess

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Abstract
Background: Hippocrates described about liver abscess in 460-377 B.C. Liver abscess is term for a collection of purulent material in liver parenchyma, which is due to bacterial, fungal, parasitic or mixed infection.
Aims and Objectives: To study the clinical profile of patients of liver abscess, causative factors, various treatment modalities and morbidity, mortality, prognosis associated with liver abscess.
Material and Methods: Prospective Observational Study conducted in Department of General Surgery, Dr. V M G M C, and Solapur from Sep 2016 to Aug 2018. The sample size was 50 liver abscess cases.
Results and Observations: In total, of 50 patients, according to age showed that maximum 36% of patients were from age group 21-30 years with male involvement was 72%. Maximum patients presented with fever with chills 68%. Alcoholic is the risk factor which constitute 68% with amoebic liver abscess is more common. Right lobe of liver involve more than left lobe. Percutaneous Aspiration + Antibiotics was most used treatment modality 36%.
Conclusion: Young male with age group 21-30 year more commonly affected. Fever with chills presented by most number of liver abscess, chronic Alcohol intake is a definitive risk factor, percutaneous needle aspiration + Antibiotics is preferred in patients with single abscess of size >5 cm situated in superficial segments.

Keywords: Liver abscess, alcohol, percutaneous aspiration

Introduction
Hippocrates described about liver abscess in 460-377 B.C., still it remains challenging situation because of its highly variable presentation, leading to diagnostic difficulties. A tropical country like India has 400 million people harboring E. histolytica that causes amoebic liver abscess. Among the developing countries worldwide, India has 2nd highest incidence of liver abscess [1]. Liver abscess is term for collection of purulent material in liver parenchyma which is due to bacterial, fungal, parasitic or mixed infection. Among all, pyogenic abscesses accounts for four fifth of liver abscess in developed countries, whereas amoebic liver abscess accounts for two third of liver abscess in developing country. Amoebiasis is presently the third most common cause of death from parasitic disease. The condition is endemic in India because of overcrowding and poor sanitary condition. 3-9% of all cases of amoebiasis produce liver abscess. Primary prevention by improving sanitation, health education, early diagnosis and prompt treatment may result in lowering mortality / morbidity associated with the disease [2]. Early treatment with open surgical drainage alone had a limited success rate. Efforts to treat both liver abscess and colonic infestation improved the success rate [1]. Liver abscess are associated with mortality of up to 20% and are categorized into various types based on etiology, of which amoebic (ALA) and pyogenic (PLA) liver abscess are major types. Several studies from rural areas of Central and South America, India, and the tropical areas of Asia and Africa have found a prevalence rate as high as 55%. Global incidence of pyogenic liver abscess (PLA) is around 1.1-2.3 per 100,000 person-years [3]. The concept of present study was to evaluate the changing trends in clinical profile, microbiological etiology and management outcome of patients diagnosed with liver abscess.

Aims and Objectives
1. To study the clinical profile of patients of liver abscess.
2. To study the causative factors of liver abscess.

3. To study the various treatment modalities (conservative/aspiration/pigtail catheterization/open surgical drainage)

Material and Methods

Type of study: Prospective Observational Study.

Study approval: Prior to commencement of this study - Ethical Committee of Dr V.M Government Medical College, Solapur had approved the study protocol.

Place of study: Department of General Surgery, Dr. V.M Government Medical College, Solapur.

Period of study: Duration from Sep 2016 to Aug 2018.

Sample size: 50 cases.

Inclusion criteria: were all cases of liver abscess diagnosed clinically and/or ultrasonographically; all cases of bacterial and parasitic liver abscess; all cases in evolving, liquefied & ruptured stage with or without peritonitis.

Exclusion criteria: were patients of age group below 12 years; pregnant females; immunocompromised, chronic steroid dependent patients and Patients on chemotherapy.

Results and Observations

The distribution of total 50 patients, according to age showed that maximum 18 *i.e*. 36% of patients were from age group 21-30 years, followed by age group 31-40 14 *i.e*. 28% and minimum were from age group 61-70 was 01 *i.e*. 02%. The difference was statistically significant (p<0.05).

Table 1: Distribution of patients according to age

Age Group	Number of patients	Total (%)
12-20	03	06%
21-30	18	36%
31-40	14	28%
41-50	08	16%
51-60	06	12%
61-70	01	02%
Total	50	100%

The Chi^2 value is 14.2. The p-value is 0.00668. The result is significant at p<0.05.

Table 2: Distribution of patients according to gender

Gender	No of patients	Percentage
Male	36	72%
Female	14	28%

The Chi^2 value is 9.68. The p-value is 0.00186. The result is significant at $p < 0.05$.

Table 3: Distribution of Signs among the liver abscess patients

Sign	Number of patients	Percentage
Fever	34	68%
Icterus	06	12%
Pallor	08	16%
Hepatomegaly	04	08%
Abdominal tenderness	31	62%
Dyspnea	05	10%

Patients will have overlapping symptoms, so percentages don't add up to 100%.

In present study of 50 liver abscess cases there are 26 (52%) cases of amoebic liver abscess (ALA) and 24 (48%) cases of pyogenic liver abscess (PLA). Of these, 34 (68%) are alcoholic and 16 (32%) are non-alcoholic.

Table 4: Distribution of cases by type of abscess

Etiology	Alcoholic	Non-Alcoholic	Total
Amoebic liver abscess (ALA)	20	06	26
Pyogenic liver abscess (PLA)	14	10	24
Total	34	16	50

Analysis on the basis of size of liver abscess in present study showed that maximum number of patients had size 5-10 cm 22 *i.e*. 44% and minimum of size < 5 cm 10 *i.e*. 20%.

Table 5: Analysis on the basis of size and treatment modality

Size	Numbers	Percentage	Treatment modality
< 5 cm	10	20%	Antibiotics alone
5-10 cm	22	44%	Antibiotics + PNA
> 10 cm	18	36%	Antibiotics + PCD

Table 6: Analysis on the basis of location of liver abscess

Location	Right	30	60%
	Left	14	28%
	Caudate/Quadrate	06	12%

P-value is 0.1573- Not significant

On the basis of the efficacy of modalities of treatment among liver abscess patients it was found that most number of failure cases 4 were among percutaneous needle aspiration which were further cured by pigtail catheterization and 01 failure from antibiotic coverage which was cured by percutaneous aspiration. Out of 6 operated patients, 4 were cured and 2 succumbed to death.

Table 7 (A): Distribution of modalities of treatment among patients

Treatment	Number of patients	Percentage
Antibiotic coverage only (Conservative)	09	18
Percutaneous Aspiration + Antibiotics	18	36
Pigtail catheter +Antibiotics	12	24
Surgical Approach by laparotomy /laparoscopy	06	12
Antibiotic failure followed by needle aspiration	01	02
PNA failure followed by PCD	04	08
PCD failure followed by surgical approach	00	00

The Chi^2 value is 11. The p-value is .02656. The result is significant at p<.05.

Table 7 (B): Efficacy of modalities of treatment among patients

Treatment modalities	Number of patients	Failure	Further modality done	Cured/death
Antibiotic coverage	10	01	Percutaneous Aspiration	cured
Percutaneous Aspiration	22	04	Pigtail catheter	cured
Pigtail catheter	12	00	----	cured
Surgical Approach	06	00	----	04 cured & 02 death

Present study of 50 cases of liver abscess, it was concluded that complications occurred in only 07 cases of which most number of times ruptured abscess in peritoneal cavity happened mostly, *i.e*. 05 (10%). In rest 2 cases ruptured abscess in pleural cavity and death occurred in 02 from ruptured abscess in peritoneal cavity.

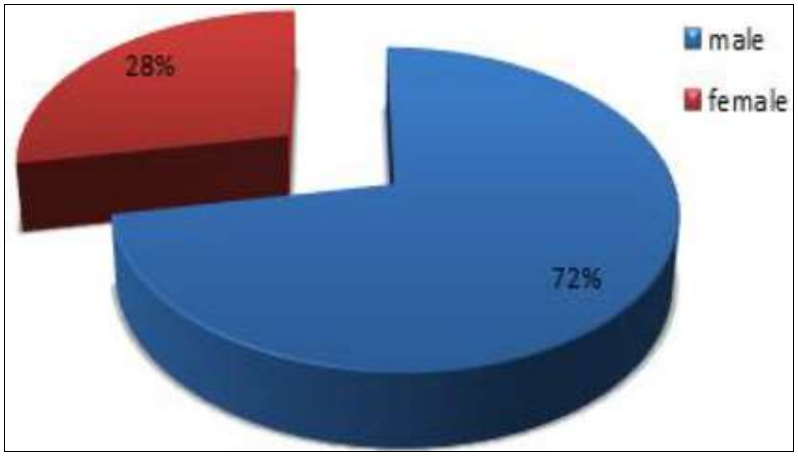

Fig 1: Distribution of liver abscess cases with respect to gender

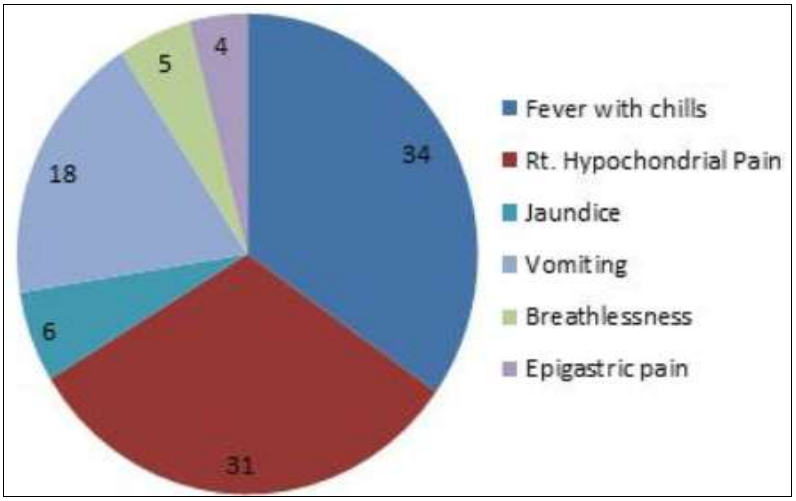

Fig 2: Distribution of Symptoms among the liver abscess patients

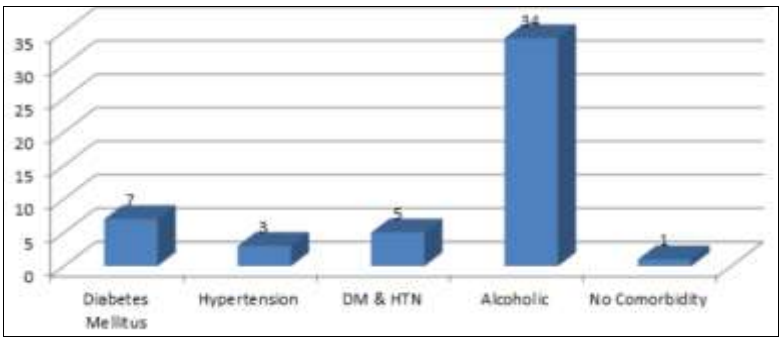

Fig 3: Showing risk Factors in liver abscess patients

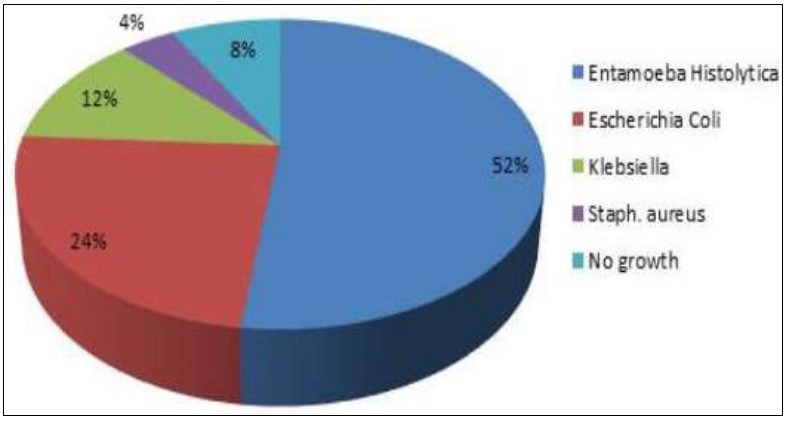

Fig 4: Analysis on the basis of organism isolated

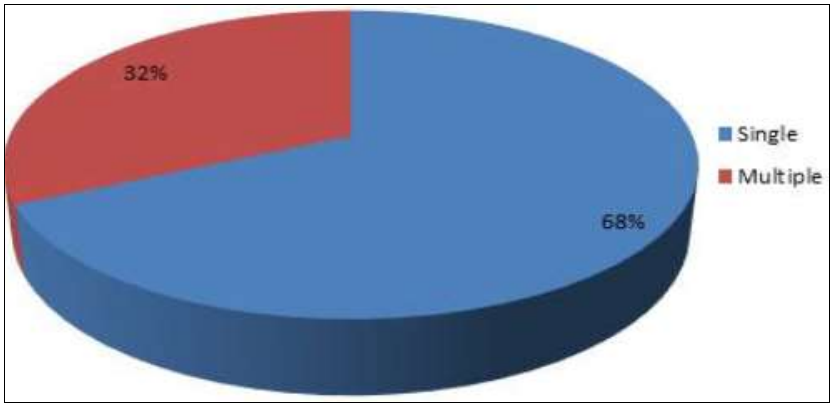

Fig 5: Analysis on the basis of number of liver abscess

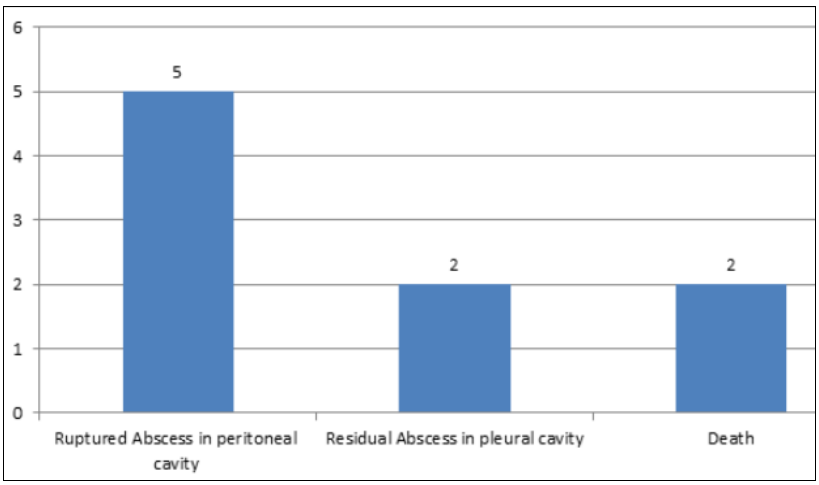

Fig 6: Analysis of Complications among liver abscess patients

Figure 1 shows that male involvement was 72% and that of female were 28%. The difference was statistically significant ($p < 0.05$). In relation to distribution of symptoms among patients in present study it was found that maximum patients presented with fever with chills 34 *i.e*. 68% Patients had overlapping symptoms so the numbers don't add up to sample size 50. In present study it was found that maximum patients presented with fever with chills 34 *i.e*. 68%.

Discussion

Maximum patients *i.e*. 36% were from age group 21-30 years, similar to present study Abhay TS *et al*. [3], Jha AK *et al*. [4]. In opposite to present study Shanthi PS *et al*. [1], commonest age group for liver abscess was 41-50 yrs. (31.66%). Male involvement was 72%, Similar to present study Abhay TS *et al*. [3] males predominated over females, Jha AK *et al*. [4] males 90.22%, Shanthi PS *et al*. [1] males 85%. In present study maximum patients presented with fever 68%, in a study by Maheswari *et al*. [2] abdominal tenderness 100%, Pal N *et al*. [5] study observed that abdominal tenderness was most common sign.

In present study, 52% cases of amoebic liver abscess *i.e* >50%, similar result were observed by Narwade NK *et al*. [6] 78% cases were diagnosed as amoebic liver abscess, Malik P *et al*. [7] 94% of the cases were diagnosed to have an amoebic liver abscess, Dr. Sharmila SK *et al*. [8], 74% suffered from amebic liver abscess.

In present study, maximum number of patients had size 5-10 cm *i.e*., 44%. Similarly Amin AB *et al*. [9], found that Mean abscess size in the aspiration group was 6.87 cm and that in Per cutaneous drainage was 11.5 cm. Kumar SK *et al*. [10], 15.4% patients had abscess size < 6 cm and were treated by drug therapy, size of 6 cm-10 cm were treated by needle aspiration and drug therapy. Remaining 56.4% patients with abscess size more than 10 cm, were treated with pigtail drainage and drug.

In our study 60% cases belongs to right lobe of liver, similar to present study Narwade NK *et al*. [6] right lobe liver abscess 94%, Shanthi PS *et al*. [1] study found that right lobe was involved in 78.33% of cases. On the basis of distribution of modalities of treatment underwent for liver abscess, Percutaneous Aspiration + Antibiotics was done in maximum number of cases 36%, similar to present study Maheswari *et al*. [2], 40% had to be treated with pigtail catheterization, Shanthi PS *et al*. [1] 51.66% were treated by USG guided aspiration, Sharadseth *et al*. [11] Needle aspiration was required in 50% patients, Tejas NH *et al*. [12] maximum patients treated with closed aspiration.

Conclusion

Male patient in the age group of 21-30 years most commonly affected. Fever with chills presented by most number of liver abscess cases, chronic Alcohol intake is a definitive risk factor for development of liver abscess, most commonly involve right lobe of liver and ameobic type of liver abscess is more common. Percutaneous needle aspiration is preferred in patients with single abscess of size more than 5 cm situated into superficial segments. Laparotomy and drainage were done in patients with ruptured or impeding rupture abscess. Conservative management with antibiotics was also useful in very small single cavity abscess.

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