

# A Study of Clinical Presentation and Outcomes of Management of Complicated Liver Abscess Patients in Tertiary Care Center

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## Abstract

**Background:** Liver abscess is the second largest prevalent disease in developing countries like India due to poor sanitation, overcrowding and low socio-economic status. Liver abscess is of two types amoebic and pyogenic. There has been significant changes observed in treatment and diagnosis according to the type of abscess. **Objective:** The objective of the present study was to evaluate the various clinical presentations and to study the different treatment modalities of Liver Abscess. **Subjects and Methods:** A cross sectional observational study is conducted over a period of 18 months From January 2020 to June 2021 in TMMC and RC, Moradabad in the department of general surgery. All the patients presenting in the hospital and falling in the inclusion criteria are examined, investigations are done, and treatment modalities noted. **Results:** Out of 71 patients, 23 patients presented with pleural effusion and 26 with anorexia. In 46 patients pigtail catheterization was done and showed significant reduction on USG of abscess cavity size while 4 patients were surgically explored for ruptured liver abscess. **Conclusion:** Pigtail catheterization is the mainstay treatment with less number of days of hospital stay and maximum patients presented with anorexia and pleural effusion as their presenting clinical features.

**Keywords:** Liver Abscess, Pigtail catheterization, Amoebic.

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## Introduction

Of all the visceral abscesses, liver accounts for 48%.<sup>[1]</sup> When purulent substance collects in the liver parenchyma as a result of bacterial, parasite, fungal, or combination infections, it is called liver abscess. It is prevalent in India, accounting for the second largest prevalence, owing to insufficient sanitation, overcrowding and malnutrition.<sup>[2]</sup> Liver abscess which is pyogenic has a worldwide projected prevalence of 1.2 - 2.4 every 100000 person years and a prevalence of roughly 3.6 per 100000 in the United States, which has been increasing.<sup>[3]</sup> Generally classified as pyogenic liver abscess or amoebic liver abscess, with the majority of abscesses that are amoebic, occurring in impoverished nations and the majority of abscesses that are pyogenic, occurring in industrialized nations.<sup>[4]</sup> Numerous bacteria have been implicated in the pathogenesis of pyogenic liver abscess, however available data on the relationships between bacteriological species and clinical appearance, radiological features and prediction are few.

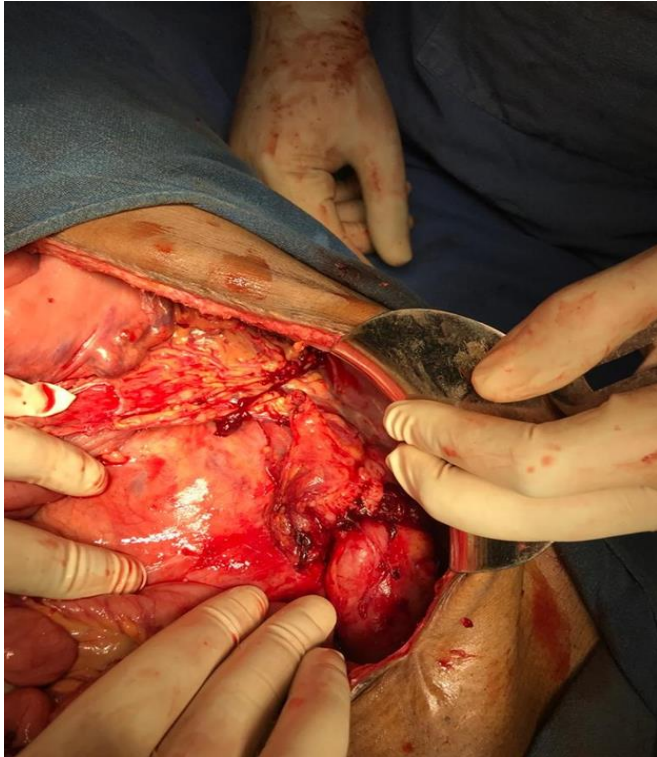
The protozoan parasite *Entamoeba histolytica* is also a recognized nonbacterial root of liver abscess.<sup>[5]</sup>



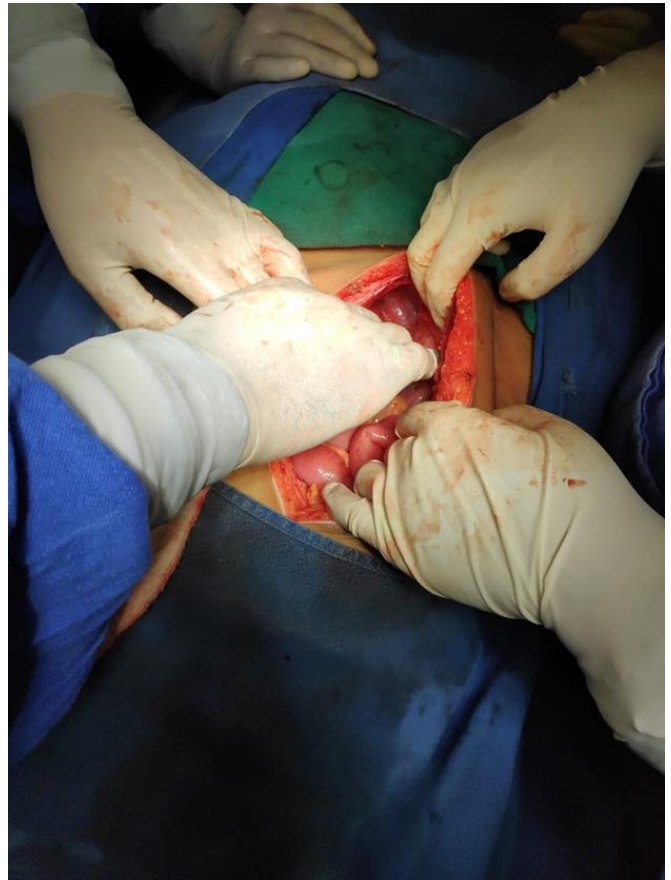
**Image 1:** showing on table patient before exploratory laparotomy.

Antibiotics and supportive care are the standard treatments

for liver abscess. Needle aspiration can be used as an adjunctive therapy and has been advocated for routine usage in the treatment of simple liver abscess in certain study. It has been hypothesized that needle aspiration can increase antibiotic response, shorten hospital stay and lower overall treatment costs.<sup>[6,7,8]</sup> While ultrasound guided needle aspiration is a very safe treatment, it is an intrusive technique that requires the passage of a large diameter needle into a highly vascular organ, which might result in bleeding.<sup>[9,10,11,12]</sup>



**Image 2: showing intra operative pus in peritoneal cavity.**



**Image 3: showing peritoneal lavage being done for ruptured abscess cavity.**

Whereas amoebic liver abscess is the utmost frequent kind of abscess in the developing world's tropical regions, pyogenic abscess is more prevalent in affluent nations.<sup>[13,14]</sup> The high prevalence of amoebic liver abscess is a result of starvation, poor personal cleanliness, insufficient sanitary conditions and overpopulation.<sup>[15]</sup> Microorganisms may infect the liver via the portal circulation, systemic circulation, adjacent organs or biliary stasis caused by bile duct blockage in the event of pyogenic abscess. In 50% of instances with pyogenic abscess, there is no clear predisposing source of infection. Because the symptoms of amoebic and pyogenic liver abscesses overlap, early clinical classification is difficult, jeopardizing proper care.<sup>[14]</sup>



**Image 4: showing abscess cavity after peritoneal lavage.**

## Subjects and Methods

A cross sectional observational study is conducted over a period of 18 months in TMMC and RC, Moradabad in the department of general surgery.

All the patients presenting in the hospital and falling in the inclusion criteria are examined, investigations are done, and treatment modalities noted.

### Sample size:

$$n = [(Z_{\alpha/2})^2 \times P(100-P)]/E^2 = (2.58)^2 \times 87.5(100-87.5)/10^2 = 71$$

### Inclusion Criteria

- All patients suspected of liver abscess on the basis of history and clinical assessment which will be confirmed by USG and laboratory work up.
- Patient more than 18 years of age.

### Exclusion Criteria

- Patients with malignancy.
- Immuno-compromised patients.
- Pregnant and lactating females.
- Who do not want to enroll in the study.

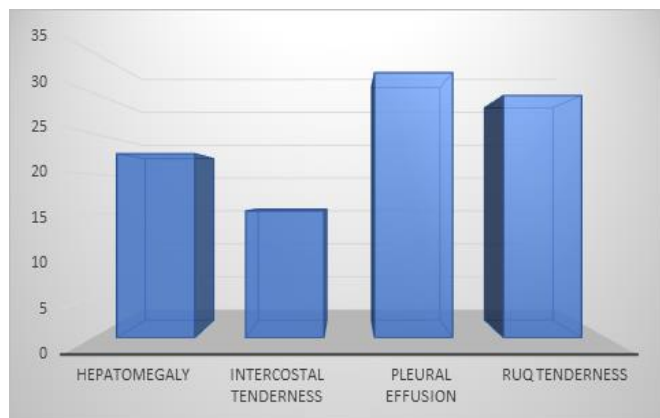
### Statistical Analysis

For the present study statistical calculation been done with help of SPSS (statistical package for social sciences) Version 23 and Microsoft Excel 2016. To find out the distribution amongst variables frequency distribution. Mean values, standard deviation and percentage were calculated. Further to find out association Chi Square test was performed. Significant level was fixed at the below .05level.

## Results

**Table 1: Showing the distribution of signs**

Signs	Frequency	Percent
Hepatomegaly	16	22.5
Intercostal Tenderness	11	15.5
Pleural Effusion	23	32.4
Ruq Tenderness	21	29.6
Total	71	100.0

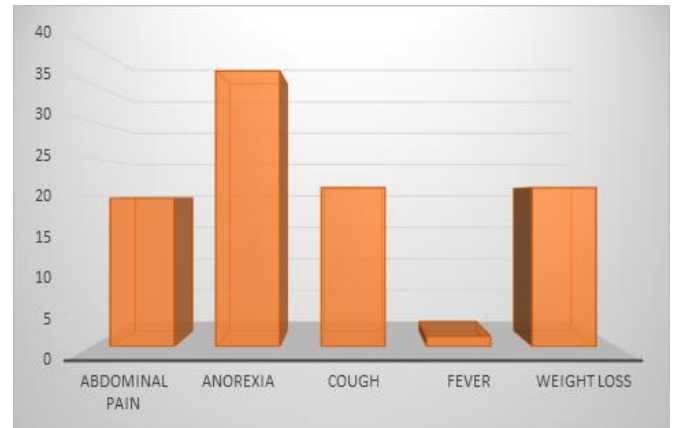


**Figure 1: Distribution of Signs**

The above [Table and Figure] shows the distribution of signs where highest percentage been observed in pleural effusion category.

**Table 2: Showing the Distribution of Symptoms**

Symptoms	Frequency	Percent
Abdominal Pain	14	19.7
Anorexia	26	36.6
Cough	15	21.1
Fever	1	1.4
Weight Loss	15	21.1
Total	71	100.0

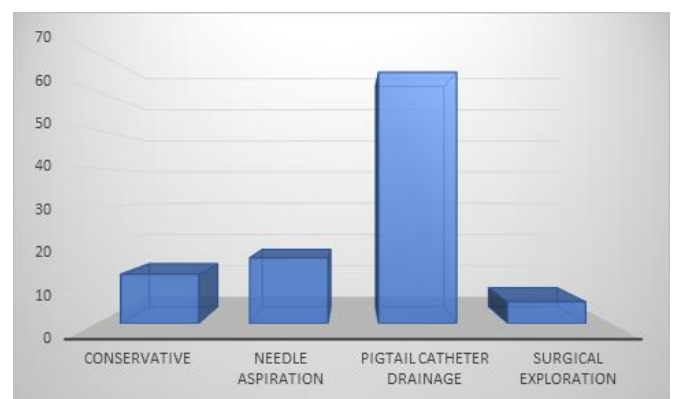


**Figure 2: Distribution of symptoms**

The above [Table and Figure] shows the distribution of symptoms where the highest percentage of cases been observed to have anorexia

**Table 3: Showing the Distribution of Treatment**

Treatment	Frequency	Percent
Conservative	9	12.7
Needle aspiration	12	16.9
Pigtail catheter drainage	46	64.8
Surgical exploration	4	5.6
Total	71	100.0

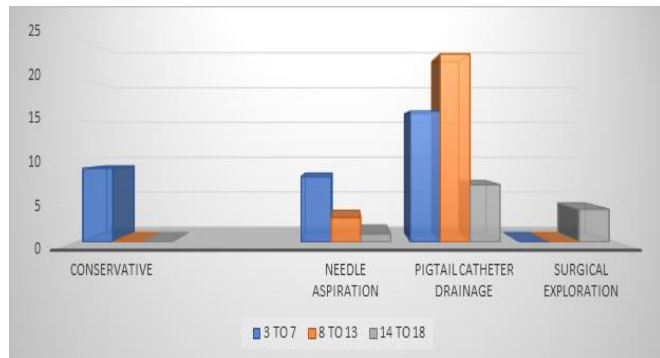


**Figure 3: Distribution of treatment**

The above [Table and Figure] shows the distribution of treatment where highest treatment percentage is pigtail catheter drainage.

**Table 4: Association between no of hospital days with treatment**

		No of hospital days			Total	Chi square value (p value)
		3-7	8-13	14-18		
Treatment	Conservative	9	0	0	9	35.72 (.000)
	Needle aspiration	8	3	1	12	
	Pigtail catheter drainage	16	23	7	46	
	Surgical exploration	0	0	4	4	
Total		33	26	12	71	



**Figure 4: Association between no of hospital days with treatment**

The above [Table and Figure] shows the association between no of hospital days with treatment where statistical significant relation been found to be present since calculated p value is less than .05 level.

### Discussion

In terms of distribution of signs where highest percentage been observed in pleural effusion category which is 32.4%, whereas study by Ghosh et al., showed pleural effusion as 30% which is more or less similar to this study findings.<sup>[16]</sup>

For the case of distribution of symptoms where the highest percentage of cases been observed to have anorexia but Ghosh et al., study in this line showed high prevalence of abdominal pain as sign. Cheema et al., Zafar et al., and Huang et al. informed instances with symptoms including fever, stomach discomfort and vomiting in larger prevalence which is not in conformity of this present study.<sup>[16,17,18,19]</sup>

For the cases related to treatment distribution, pigtail catheter drainage has the greatest treatment proportion. In this regard, Solomkin et al., indicated that antibiotic therapy and adequate drainage are the primary stays of treatment for liver abscess. Intravenous antibiotics are recommended as first-line therapy for complex intraabdominal infections by the American Society of Infectious Diseases.<sup>[20]</sup>

According to Rajak et al., Cai et al., and Lee et al., the size of the liver abscess is typically used to determine whether image guided needle aspiration, percutaneous catheter drainage, or surgical drainage should be performed, and these studies confirmed that catheter drainage was more effective than aspiration therapy in cases of liver abscesses.<sup>[21,22,23]</sup>

The distribution of no of hospital days where most of the cases fall in the range between 3-7 days category for the present study, Bansal et al., study in this dimension showed the hospital stay duration in average was 9.6 days which is more or less similar to this present study findings. Sharma et al., study in same dimension showed the mean hospital stay of patients was 13.4 days which is not in conformity of the present study.<sup>[24,25]</sup>

In terms of number of aspirations where highest percentage of cases fall under nil category for this present study. Singh et al., showed with his study, a 15% frequency of secondary contamination with bacteria after needle aspirations done repeatedly, however, Baek SY et al., Giorgio et al., Rajak et al., did not show this problem.<sup>[21,26,27,28]</sup>

With context to number of pigtail days, the present study found that maximum percentage of cases fall under nil category followed by 6-10 days category. Similar results been observed from the study conducted by Bansal et al. But Goel et al., study showed mean duration of pigtail drainage as 3.5 days.<sup>[24,29]</sup>

### Conclusion

Pigtail catheterization is the mainstay treatment with less number of days of hospital stay and maximum patients presented with anorexia and pleural effusion as their presenting clinical features.

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