

Study of Liver Abscess - Its Etiology and Treatment**Haricharan Guguloth¹, Neetu Charan Guguloth², Venkata Nripesh Guguloth³**¹Professor, Department of General Medicine, Dr. Patnum Mahender Reddy, Institute of Medical Sciences Chevella, Ranga Reddy (district), Telanaga, India²Post-graduate 2nd Year, Department of General Surgery, SVS Medical College and Hospital, Mahabubnagar (district), Telangana, India³MBS IIIrd Year, AIIMS, New Delhi, India

Received: 01-04-2026 / Revised: 15-05-2026 / Accepted: 21-06-2026

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Conflict of interest: Nil

Abstract**Background:** Although there are introductions of newer antibiotics and the latest radiological techniques, liver abscess etiology and treatment remain a challenge to clinicians, because liver is the largest metabolic center of the body; little variation in liver functions leads to derangements of body function.**Method:** 80 adult patients suspected of liver abscess were confirmed by hematological and biochemical studies. Ultrasonography of the abdomen was also carried out. The abscess was treated with antibiotics, percutaneous needle aspiration (PNA), percutaneous catheter drainage (PCD), and surgery, which was also carried out in the condition where the abscess could not be drained due to thick viscous debris.**Results:** There were elevations in biochemical and hematological parameters concerned with liver functions; 26 (32.5%) Gram-negative, 14 (17.5%) amoebic bacilli, and 40 (50%) streptococci were observed. The types of treatment were 12 (15%) antibiotics alone, 35 (43.5%) antibiotics with PNA, 9 (11.2%) antibiotics with PCD, 14 (17.5%) surgery including PCD/PNA, and 10 (12.5%) surgery alone.**Conclusion:** It is ultimately proved that surgery was the effective treatment in severe disease of liver abscess.**Keywords:** Amoebic, Antibiotics, Percutaneous catheter drainage (PCD), Percutaneous needle aspiration (PNA), Pyogenic.**DOI:** 10.25258/ijcpr.18.7.122

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Introduction

A liver abscess was first described in early 460-377 BC by Hippocrates, but it still poses great challenges for physicians and surgeons due to its wide variety of clinical manifestations and difficulty in diagnosis because a liver abscess is quite prevalent in patients with poor hygienic and illiterate patients with significant morbidity and mortality, apart from the invention of newer antibiotics and advancement in radiological techniques [1].

India, being a tropical country, harbours around 400 million people with *Entamoeba histolytica*, which is the main cause of amoebic liver abscesses [2]. Species *Enterococci* and *Pseudomonas* species are also involved in liver abscess pyogenic liver abscess is on the verge of being common liver abscess. Major cause of pyogenic abscess is biliary tract diseases [3].

In alcoholics, diabetics and immunocompromised patients, there is an increased trend of liver abscess. In the general portal, traumatic and cryptogenic

hepatic abscess are solitary and large, while biliary and arterial abscess are multiple and small [4]. As the liver is a large metabolic centre, it impairs the whole body's activities.

Hence an attempt is made to evaluate the liver abscess, its etiology and treatment.

Material and Method

80 (eighty) adult patients aged between 20 and 60 years visiting to Dr. Patnum Mahender Reddy, Institute of Medical Sciences Chevella, Ranga Reddy (district), Telangana, were studied.

Inclusion Criteria: The patients having the signs and symptoms of LA such as abdominal tenderness, hepatomegaly, jaundice, and consolidation of liver mild abscess with confusion state were included in the study.

Exclusion Criteria: The patients having malignancy and immunocompromised patients are excluded from the study.

Method: past history and socio-economic status of every patient was recorded. Suspected LA was confirmed by hematological, biochemical LFT, serum culture, and abdominal ultrasonography. Percutaneous needle aspiration (PNA), percutaneous catheter drainage (PCD), and surgery were done in patients who did not respond to antibiotics. The duration of the study was from September 2024 to March 2026.

Statistical Analysis: Clinical manifestations, signs, and symptoms of different patients were classified with percentages; hematological and biochemical findings and isolated bacilli types of treatment given to different patients were also classified with percentages. The ratio of males and females was 2:1.

Observation and Results

Table 1: Clinical manifestations of patients having liver abscess – 64 (80%) had abdominal pain, 64 (80%) had fever, 60 (75%) had nausea and vomiting, 8 (10%) had jaundice, 40 (50%) had night sweats, 36 (45%) had weight loss, 24 (30%) had diarrhea, and 28 (35%) had chest symptoms including shortness of breathing, cough, and chest pain.

Table 2:

Clinical signs of patients with liver abscess – 64 (80%) had fever, 64 (80%) had abdominal tenderness, 24 (30%) had hepatomegaly, 8 (10%) had jaundice, 23 (28.7%) had consolidation, 4 (5%) had mild abscess, and 4 (5%) had confused state.

Table 3: Biochemical and hematological study of patients with liver abscess

- 45 (56.2%) had alanine amino transferase (ALT) (U/I) was ranged between 45 and 46, 35 (43.7%) had range between 47 and 48

- In AST (U/I) study – 32 (40%) had 40–41 and 48 (60%) had 42–43 range
- In ALP (U/I) study – 55 (68%) had 70–471 and 25 (31.2%) had 472–473
- In serum bilirubin study – 50 (62.5%) had 11–12(mm/I) and 30 (37.5%) had 13–14 5.
- In Hb% (gm/dl) study – 45 (56.2%) had 11.4 and 35 (43.7%) had 11.6
- In WBC count study – 47 (58.7%) had 17.2–17.3 and 33 (41.2%) had 17.4–17.5
- In neutrophils – 40 (50%) had 14.45–14.46 and 40 (50%) had 14.47–14.48.

Table 4:

Study of bacilli is located in the patients with liver abscess.

- Gram-negative bacilli: 26 (32.5%) were observed, 12 (15%) had *Escherichia coli*, 4 (5%) had *Pseudomonas spp.*, 2 (2.5%) had *Klebsiella ozaenae*, 2 (2.5%) had *Morganella morganii*, and 8 (10%) had *califormis*
- In anaerobic bacilli: 14 (17.5%) were observed among them – 8 (10%) had *Bacteroides spp.*, and 6 (7.5%) had *Fusobacterium spp.*
- In streptococci study: 40 (50%) were observed – 20 (25%) had streptococci, 4 (5%) had *Enterococcus*, 7 (8.7%) had *Streptococcus pneumonia*, and 3 (3.7%) had *Staphylococcus aureus*.

Table 5:

Types of treatment given to the patients with liver abscess: 12 (15%) were treated with antibiotic alone, 35 (43.5%) were treated with antibiotic PNA, 9 (11.2%) antibiotic with PCD, 14 (17.5%) surgery including PCD/ DNA, and 10 (12.5%) treated with surgery alone.

Table 1: Clinical manifestations of the patients with liver abscess (No. of patients: 80)

Sl. No	Clinical manifestations	No. of patients	Percentage (%)
1	Abdominal pain	64	80
2	Fever	64	80
3	Nausea and vomiting	60	75
4	Jaundice	8	10
5	Night sweats	40	50
6	Weight loss	36	45
7	Diarrhea	24	30
8	Chest symptoms (shortness of breath cough chest pain)	28	35

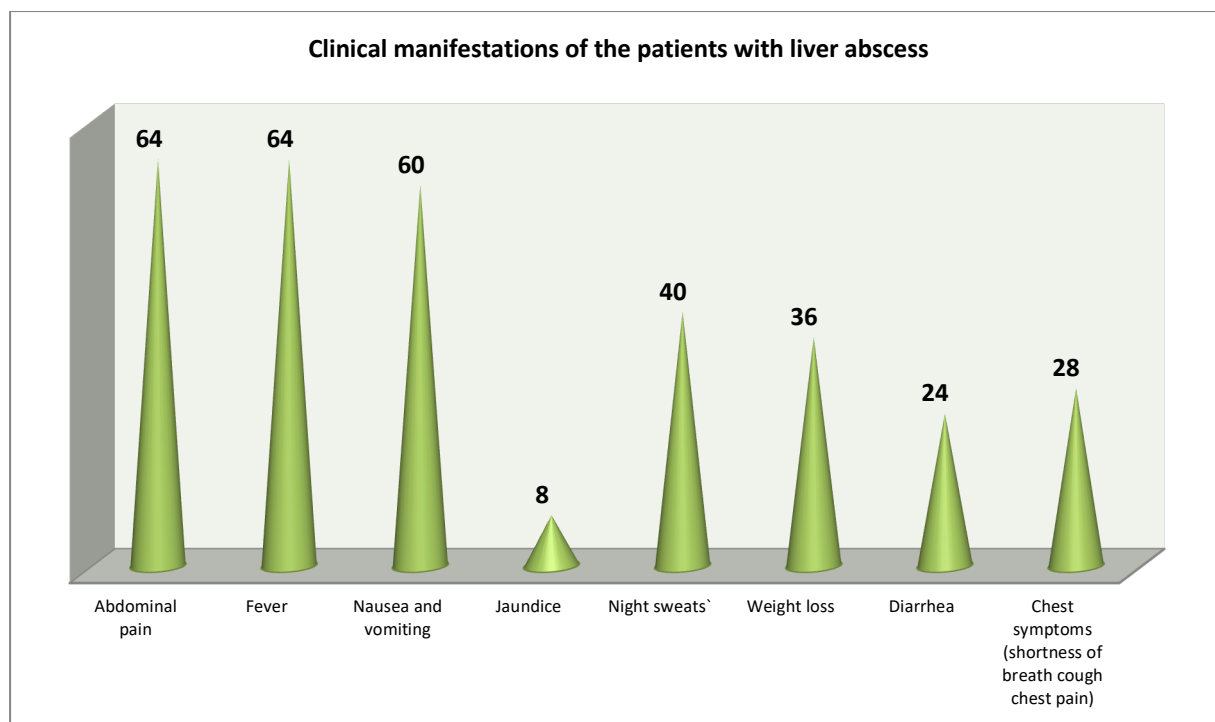


Figure 1: Clinical manifestations of the patients with liver abscess

Table 2: Clinical signs of the patients with liver abscess (No. of patients: 80)

Sl. No	Clinical signs	No. of patients	Percentage (%)
1	Fever >37.5	64	80
2	Abdominal tenderness	64	80
3	Hepatomegaly	24	30
4	Jaundice	8	10
5	Consolidation	23	28.7
6	Mild abscess	4	5
7	Confused state	4	5

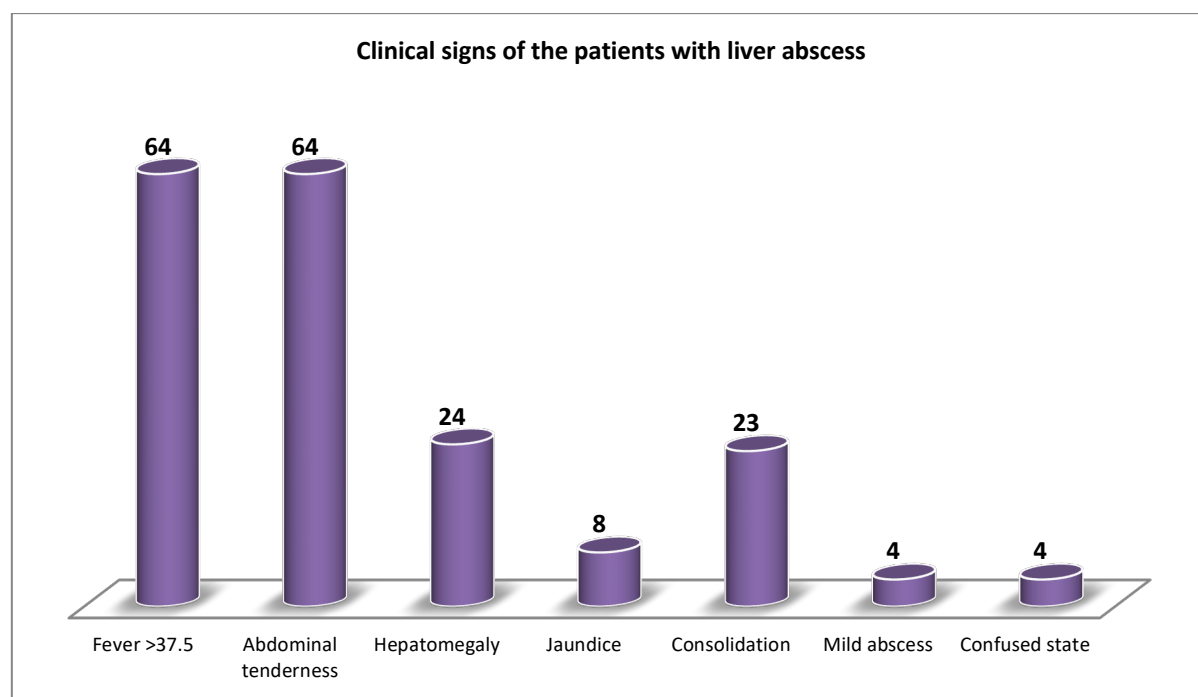


Figure 2: Clinical signs of the patients with liver abscess

Table 3: Biochemical and hematological study of the patients with liver abscess (No. of patients: 80)

Sl. No	Test Carried out	Range of findings	No. of patients	Percentage (%)
1	ALT (U/I) Alanine amino transferase	45-46 47-48	45 35	56.2 43.7
2	AST (U/I) Alanine amino transferase	40-41 42-43	32 48	40 60
3	ALP (U/I) Alanine amino transferase	470-471 472-473	55 25	68.7 31.2
4	Serum bilirubin (mmo/I)	11-12 13-14	50 30	62.5 37.5
5	Hb% (gm/dl)	11.4 11.6	45 35	56.2 43.7
6	WBC (White blood count $\times 10^9/I$)	17.2 to 17.3 17.4 to 17.5	47 33	58.7 41.2
7	Neutrophils ($\times 10^9/I$)	14.45 to 14.46 14.47 to 14.48	40 40	50 50

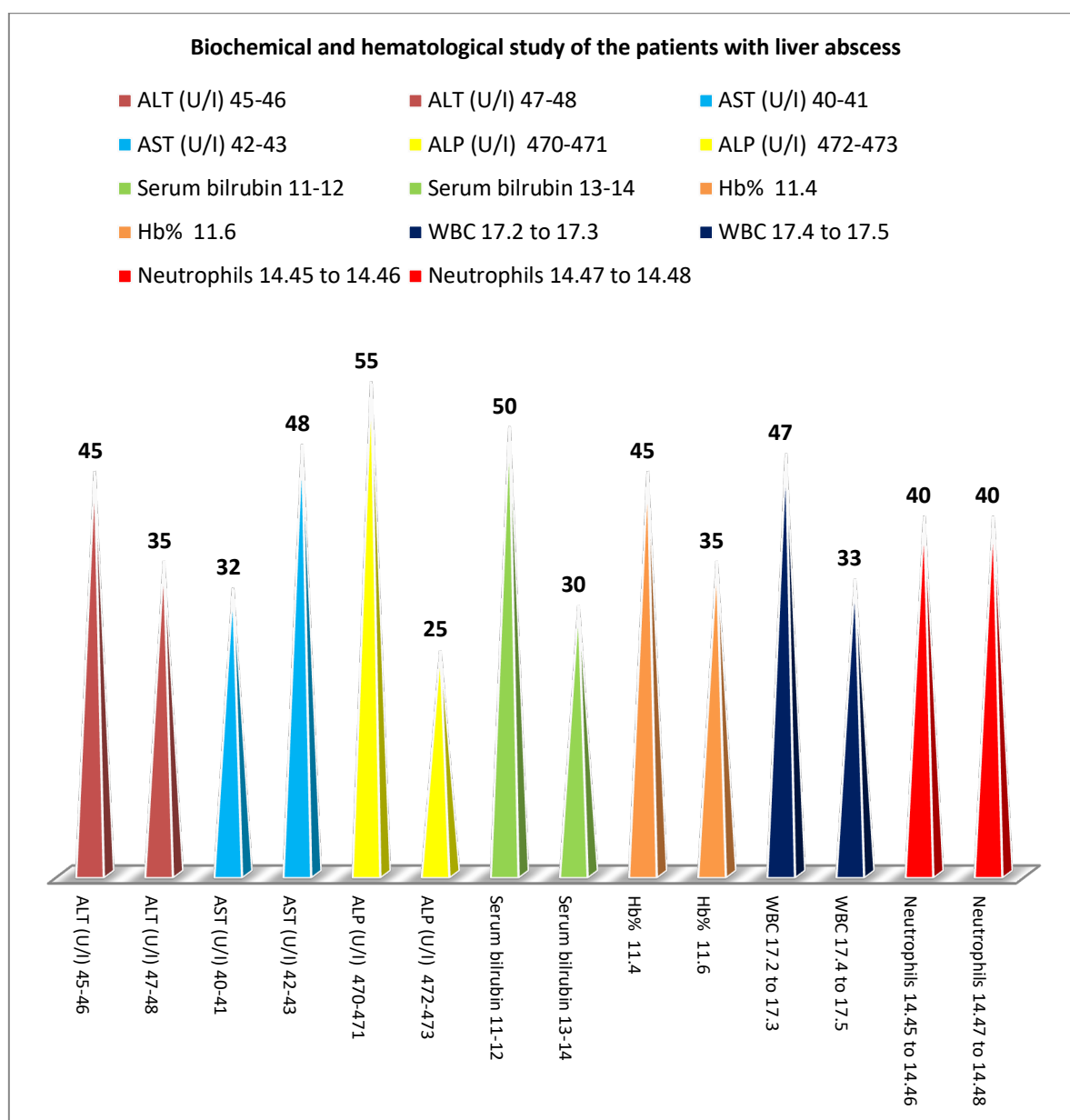
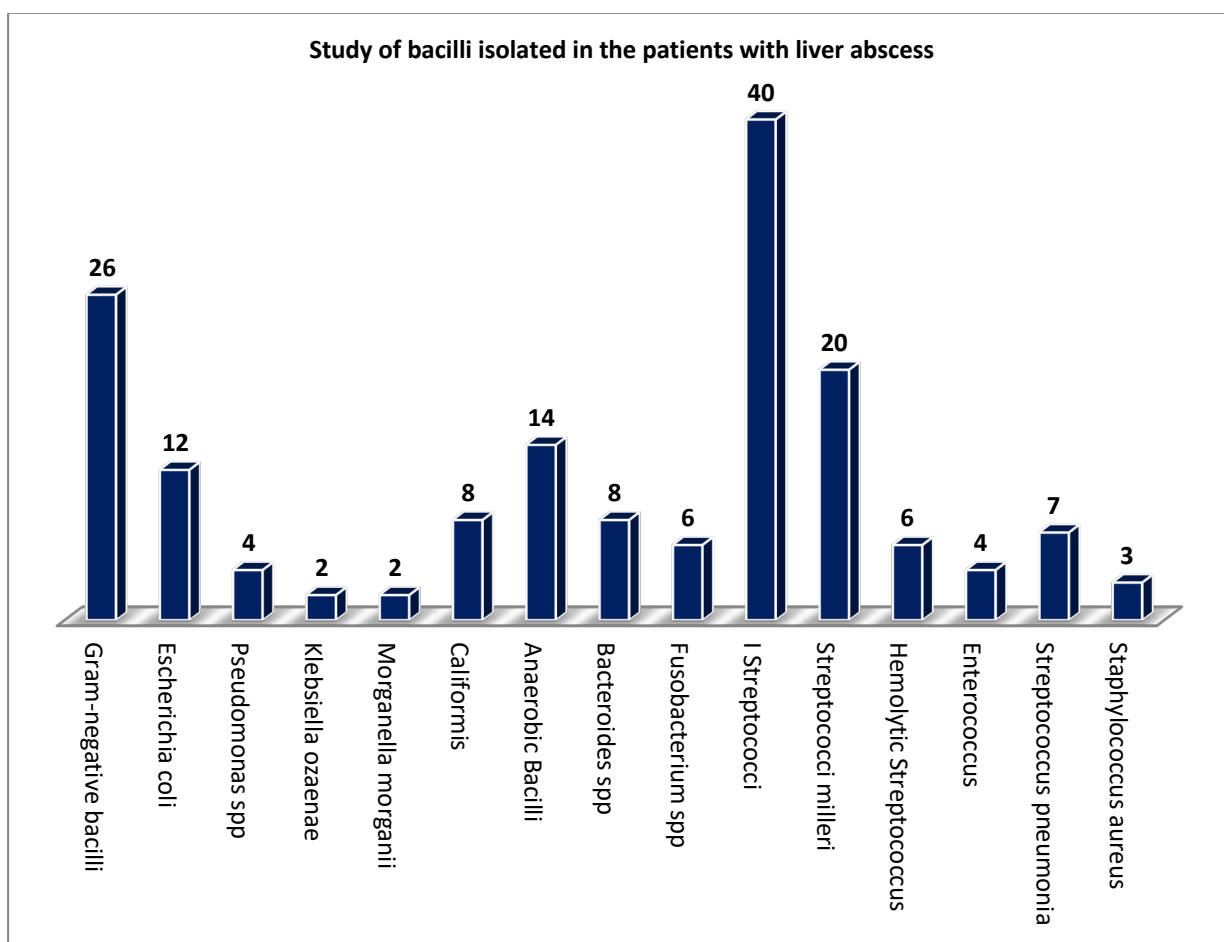
**Figure 3: Biochemical and hematological study of the patients with liver abscess**

Table 4: Study of bacilli isolated in the patients with liver abscess (No. of patients: 80)

Sl. No.	Name of Bacilli	No. of patients	Percentage (%)
(a) 1	Gram-negative bacilli	26	32.5
2	Escherichia coli	12	15
3	Pseudomonas spp	4	5
4	Klebsiella ozaenae	2	2.5
5	Morganella morganii	2	2.5
6	Califormis	8	10
(b) 1	Anaerobic Bacilli	14	17.5
2	Bacteroides spp	8	10
3	Fusobacterium spp	6	7.5
(c) 1	I Streptococci	40	50
2	Streptococci milleri	20	25
3	Hemolytic Streptococcus	6	7.5
4	Enterococcus	4	5
5	Streptococcus pneumonia	7	8.7
6	Staphylococcus aureus	3	3.7

**Figure 4: Study of bacilli isolated in the patients with liver abscess****Table 5: Types of treatment given to the patients with liver abscess (No. of patients: 80)**

Sl. No	Methods of treatment	No. of patients	Percentage (%)
1	Antibiotics alone	12	15
2	Antibiotics	35	43.5
	PNA PCD	9	11.2
3	Surgery (including PCD/PNA)	14	17.5
4	Surgery alone	10	12.5

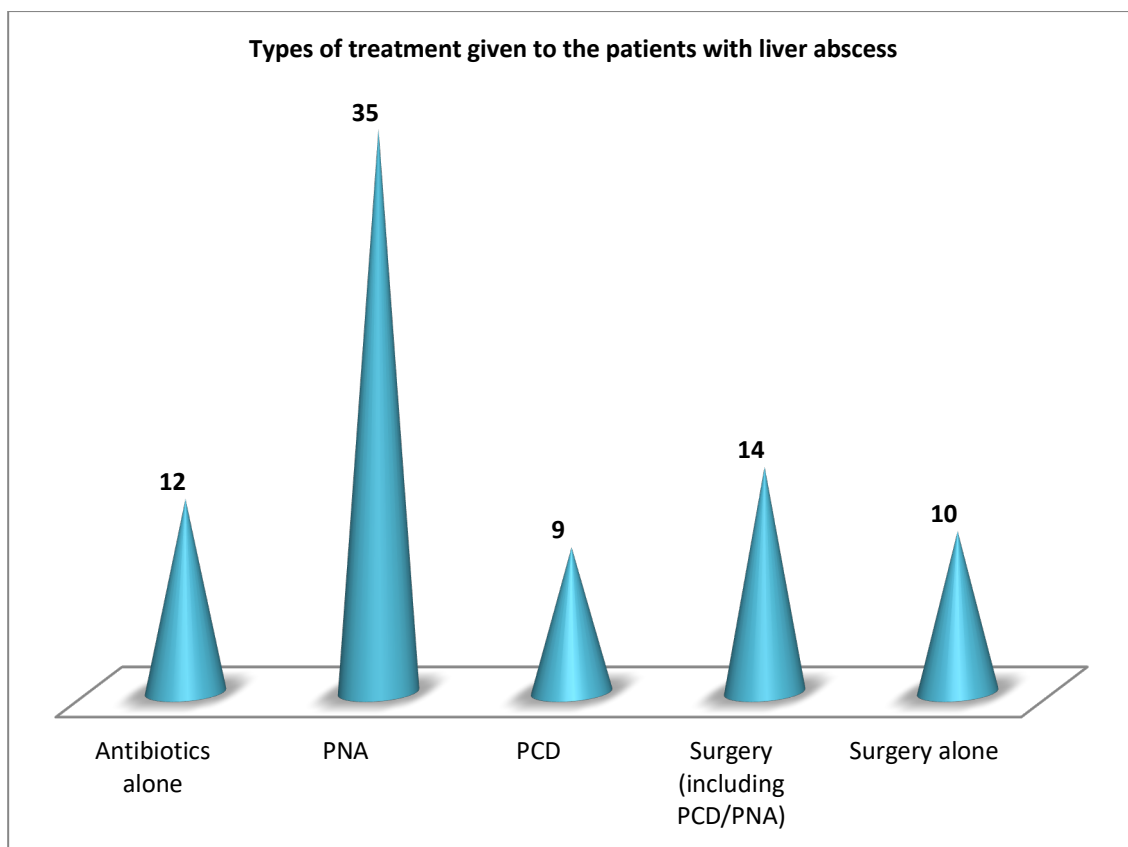


Figure 5: Types of treatment given to the patients with liver abscess

Discussion

In the present study of liver abscess. Its etiology and treatment in Telangana population. The highest clinical manifestations were 64 (80%) abdominal pain and fever, followed by 60 (75%) nausea and vomiting, followed by 40 (50%) night sweats, 36 (45%) weight loss, 8 (10%) jaundice, 24 (30%) diarrhea, and 28 (35%) chest symptoms (Table 1).

Clinical signs include 64 (80%) having >37.50 fever and abdominal tenderness, 24 (30%) hepatomegaly, 23 (28.7%) consolidation, 4 (5%) mild abscess and confused state (Table 2). Elevated biochemical and hematological parameters (Table 3): 26 (32.5%) gram-negative bacilli, 14 (17.5%) anaerobic bacilli, and 40 (50%) streptococci (Table 4). The types of treatment were 12 (15%) antibiotics alone, 35 (43.5%) PNA, 9 (11.2%) PNA and antibiotics, 14 (17.5%) including surgery, and 10 (12.5%) surgery alone. These findings are more or less in agreement with previous studies [5,6,7].

In LA, the most common underlying pathophysiological mechanism was infection spread through the hepatic portal vein or biliary spread, and cryptogenic etiology was also reported (8). On the other hand, atrophic gastritis associated with loss of peptic acid production is most common in elderly patients and results in changes in bowel bacterial flora. Hence, the loss of gastric acid may, therefore, increase the risk for contracting bacterial

infections and phylogenetic LA. Antibiotics as a sole therapy are used for small multiple abscess. Recommended duration of antibiotic therapy was variable, 2–4 weeks. Antibiotics were usually given parentally and continued until clinical improvement [9].

Delay in the presentation may lead to the formation of more viscous pus and septation, which might compromise the effectiveness of PCD and PNA. Many times, it was very difficult to trace the location of an abscess for inexperienced surgeons, but repeated needle aspiration was needed for successful treatment. PCD was more effective than the PNA because of more viscous pus. Abscess with multiloculation could be easily drained by blunt finger dissection and completely evacuated flushing of the cavities after the removal of pus and debris.

Moreover, atrophic gastritis associated with loss of peptic acid production resulted in to changes in bowel bacterial flora; loss of gastric acid may, therefore, increase the risk for contracting bacterial infection and PA of the liver [10].

Recommended duration of antibiotic therapy is variable, up to 2–4 weeks. A broad-spectrum antibiotic with gram-positive and gram-negative coverage was commonly used. Delay in the presentation may lead to the formation of more viscous pus and septations, which need to be

aspirated by PNA or PCD, which proved a successful treatment [11]. In severe cases, a surgical approach was the ultimate effective treatment.

Summary and Conclusion: The present comparative study of various treatment modalities in liver abscess in different age groups and both sexes. As antibiotics were the first line of treatment followed by antibiotics with PNA/PDA, surgery proved an effective treatment, but this study demands further pathophysiological, microbiological, genetic, immunological, nutritional, and biochemical study because the exact pathogenesis of liver is still unclear.

Limitation of study: Owing to remote location of study, small number of patients and lack of latest techniques, we have limited findings and results. This research work was approved by the ethical committee of Dr. Patnum Mahender Reddy, Institute of Medical Sciences Chevella, Ranga Reddy (district), and Telangana.

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