Section: General Medicine

Original Research Article

STUDY OF CLINICAL PRESENTATION, DIAGNOSIS AND VARIOUS TREATMENT MODALITIES OF LIVER ABSCESS

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ABSTRACT

Background: Liver abscesses are mainly caused by parasitic or bacterial infection and are an important cause of hospitalization. The pathophysiology of abscess is different depending on the etiology and requires different strategies for diagnosis and management. **Materials and Methods:** Out of 150, 96 (64%) had amoebic liver abscesses and 54 (36%) had pyogenic liver abscesses. Blood examinations were CBP, LFT, X-ray of the abdomen (CT/MRI if required), and USG to study the extent of spread of the abscess. Initially treated with suitable antibiotics, needle aspiration + antibiotic therapy, surgical approach + antibiotics laparoscopic drainage + antibiotics. **Result:** Clinical manifestations of pyogenic or amoebic had more or less the same manifestations. The USG study had 39 pyogenic infections in the right lobe and 78 amoebic abscesses in the right lobe. In left 6 pyogenic and 6 amoebic abscesses. Both lobes had 9 amoebic and 9 pyogenic abscesses, pleural effusions 36 in pyogenic and 66 in amoebic, and Ascites 9 in pyogenic and 30 in amoebic. The majority of both abscesses were treated with antibiotics. **Conclusion:** Liver abscesses are more common in males with alcohol consumption. Successful management of liver abscess aspiration, catheter drainage can prevent the mortality of liver abscess patients.

INTRODUCTION

An encapsulated collection of suppurated material within the liver is termed a liver abscess, which may be caused by a bacterial, parasitic, or fungal infection. Most liver abscesses are due to bacterial infections, which can be gram-positive cocci, gram-negative bacilli, or amoebic organisms, and are known as pyogenic liver abscesses.[1] Various fungi can also lead to abscess formation in immunocompromised patients.[2] According to classification, there are three types of liver abscess: infectious, malignant, and iatrogenic.[3]

Antibiotics are sufficient to manage patients with size of abscess less than 3 to 4 cm. Metronidazole should be part of the regimen prescribed initially for anaerobic cover and cover amoebic organisms.[4] An abscess more than 5cm requires pigtail catheter drainage in most cases. It is a better procedure with a high success rate than a single-time aspiration, especially in abscesses > 5cm. Hence an attempt is made to classify the liver abscesses and treat them according to their modalities.

MATERIALS AND METHODS

150 (one hundred and fifty) patients admitted at Deccan college of Medicalsciences Hospital, Kanchan Bagh, Hyderabad, Telangana-500058, were studied.

Inclusion Criteria

Patients with a history and diagnostic features suggestive of liver abscess and its complications, aged 18 to 60 years, of both male and female. The patients who gave their consent in writing for the study were selected.

Exclusion Criteria

Liver diseases like alcoholic hepatitis, viral hepatitis, and malignancy of liver diseases. Liver disease not detected on examination or radiologically. The patient who was not willing to undergo specific investigations like USG, CT, or MRI and aspiration of the abscess was excluded from the study.

Method: Out of 150, 96 (64%) had amoebic liver abscess and 54 (36%) had pyogenic liver abscess. Every liver abscess was done with the help of clinical examination and x-ray and was confirmed by ultrasonography (USG). In some patientsCT/MRI was used for various treatment modalities for liver

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abscesses, depending on multiple factors. Such as site of abscess, size of abscess, pyogenic or amoebic, single or multiple, specific criteria were made for modality of treatment to be used.

According to specific criteria, (1) conservative, (2) percutaneous ultrasound-guided needle aspiration, (3) ultrasound-guided pigtail catheter drainage, and (4) laparoscopic drainage of liver abscess are used for treatment. Indications for conservative management.

1. Abscess size less than / or equal to 5 cm
2. Right lobe abscess
3. Abscess responding to Antibiotics within 72 hours

- ❖ All patients of amoebic liver abscess were given antibiotics as under Inj. Metronidazole TID IV for seven to fourteen days and followed by oral antibiotics.
- ❖ Tab ciprofloxacin 500mg BD, Metronidazole 400mg TID.
- ❖ All patients of pyogenic liver abscess were given antibiotics as under.
- ❖ Inj. ceftriaxone 1gm BD IV for seven days
- ❖ Inj. Metronidazole 500mg TIDIV for seven to fourteen days and followed by orally tab metronidazole, 400 mg TID.

After discharge oral Metronidazole was continued for 2-3 weeks depending on the regression.

Indication for aspiration of abscess

1. Lack of improvement with subsidence of symptoms and signs in 72 hours.
2. Abscess size more than 5cm
3. Large left lobe abscess
4. Multiple liver abscess

Laparoscopic drainage of liver abscess – Laparoscopic drainage of liver abscess can be done if any of the following criteriais present in the patients.

1. Abscess that are not amenable to percutaneous drainage secondary to location.
2. Coexistence of intra-abdominal disease that require operative management
3. Concomitant biliary/ intra-abdominal disease
4. Failure of percutaneous aspiration
5. Failure of percutaneous drainage

Open surgical drainage: It is done due to the rupture of liver abscess in peritoneal cavity where typical transperitoneal approach is used.

Abdomen opened with vertical midline incision

All pus aspirated warm saline was given. Hemostasis confirmed. Abdominal drain no. 32 kept secured closed in layers; Review USG done for each patient on post-Operative day.Drain tube was removed when output becomes minimal.

Indication for indwelling pigtail drainage of liver abscess: -

1. Liver abscess size more than 10 cms.
2. Liver abscess not responding to repeated USG guided aspiration.
3. Communicating abscess or irregular cavities where dependent drainage of each abscess individually was not possible.
4. Thick / viscous pus content of the cavity which was not amenable for aspiration.

Duration of study was fromMarch 2024 to April 2025.

Statistical Analysis: Clinical features of both pyogenic and amoebic abscesses were classified with percentages. USG findings of both liver abscesses were noted. The number of abscesses in hepatic lobes (single or multiple) was classified with percentages, and various treatment modalities and mortalities were carried out in SPSS software. The ratio of male and female was 3:1.

RESULTS

[Table 1] Clinical Manifestation in liver abscess

- Types of abscess: pyogenic 54 (100%) pain abdomen, 96 (100%) in Amoebicabscess
- Fever: 30 (55.5%) in pyogenic, 51 (53.1%) in amoebic abscess
- Nausea and Vomiting: 9 (16.6%) in pyogenic, 30 (31.2%) in Amoebic abscess.
- Malaise: 21 (38.8%) in pyogenic, 21 (21.8%) in Amoebic abscess.
- Anorexia: 27 (50%) in pyogenic, 39 (40.6%) in Amoebic abscess.
- Loss of weight: 33 (61%) in pyogenic, 48 (50%) in Amoebic abscess.
- Chills: 21 (38.8%) in pyogenic, 21 (21.8%) in Amoebic abscess.
- Diarrhea: 9 (16.6%) in pyogenic, 9 (9.3%) in Amoebic abscess.

[Table 2] Study of USG findings in hepatic abscess

- 39 right lobe, 6 left lobe, 9 bothlobes, 36 pleural effusion, 9 ascites in pyogenic ascites.
- 78 right lobe, 9 left lobe, 9 both lobes, 66 pleural effusion, 30 asciteswere observed in Amoebic abscess.

[Table 3] Number of Abscesses in hepatic lobes

- 84 (56%) single, 12 (8%) multiple pyogenic abscess
- 24 (16%) single abscess, 30 (20%) multiple abscess Amoebic abscess

[Table 4] Study of various treatment and mortality

- In pyogenic abscess patients study 21 patients treated with antibiotic alone, 33 with Needle aspiration + antibiotic and zero mortality.
- In Amoebic abscess patients: 54 treated with antibiotic alone, 36 with needle aspiration and antibiotic, 6 with surgical + antibiotic and zeromortality.

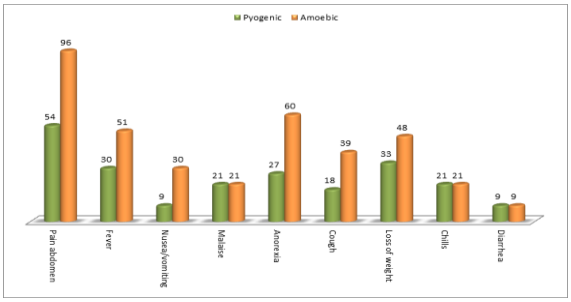

Figure 1: Clinical manifestation in liver abscess

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Table 1: Clinical manifestation in liver abscess. (N-150)

Type of Abscess	Pyogenic		Amoebic	
	Total cases	Percentage (%)	Total cases	Percentage (%)
Pain abdomen	54	100	96	100
Fever	30	55.5	51	53.12
Nusea/vomiting	9	16.6	30	31.25
Malaise	21	38.8	21	21.8
Anorexia	27	50	60	62.5
Cough	18	33.3	39	40.6
Loss of weight	33	61.1	48	50
Chills	21	38.8	21	21.8
Diarrhea	9	16.67	9	9.3

Table 2: USG Findings in Hepatic Abscess.

Abscess	Rt. lobe	Lt. lobe	Both lobes	Plural effusion	Ascites
Pyogenic	39	6	9	36	9
Amoebic	78	9	9	66	30

Table 3: Number of Abscesses in hepatic

Abscess	Single		Multiple	
	Total cases	Percentage (%)	Total cases	Percentage (%)
Pyogenic	84	56%	12	8%
Amoebic	24	16%	30	20%

Table 4: Study of various treatment and mortality

Treatment Modality Abscess	Antibiotic alone		Needle Aspiration+ Antibiotic		Surgical+ Antibiotic		Laparoscopic drainage of pus + Antibiotics	
	Total Patients treated	Mortality	Total Patients treated	Mortality	Total Patients treated	Mortality	Total Patients treated	Mortality
Pyogenic Abscess	21	0	33	0	0	0	0	0
Amoebic Abscess	54	0	36	0	6	0	0	0

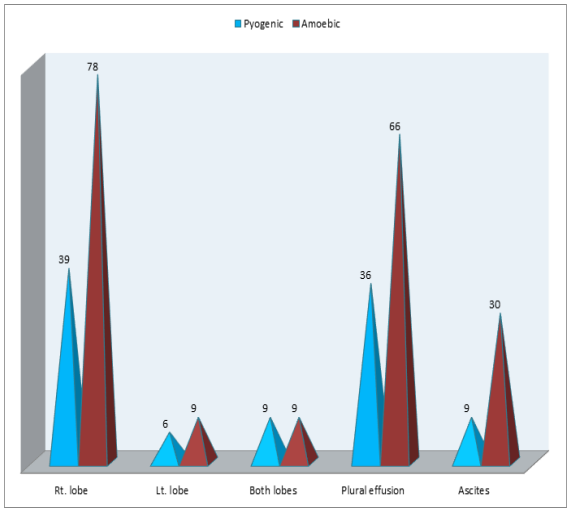

Figure 2: USG Findings in Hepatic Abscess

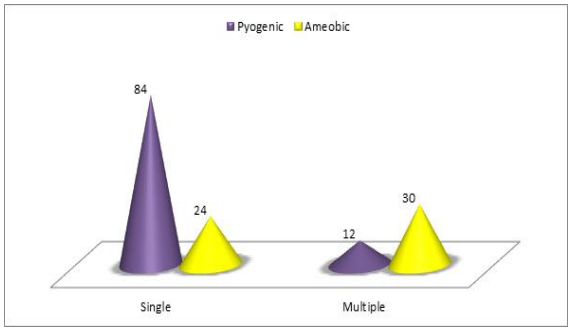

Figure 3: Number of Abscesses in hepatic

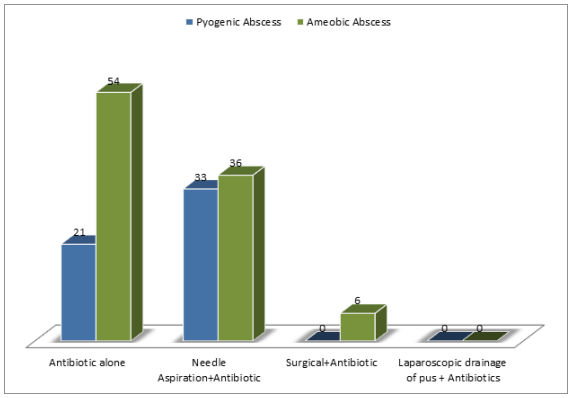

Figure 4: Study of various treatment and mortality

DISCUSSION

Present study of clinical presentation, diagnosis, and various treatment modalities of liver abscess patients of the Telangana population. The clinical manifestations of both pyogenic and amoebic abscesses have more or less the same manifestations [Table 1]. The USG study of liver abscess Pyogenic abscess has 39 right lobes, 6 left lobes, 9 both lobes, 36 pleural effusions, and 9 ascites, while amoebic liver abscess has 78 right lobes, 9 left lobes, 9 both lobes, 66 pleural effusions, and 30 ascites [Table 2]. In the study of abscesses in hepatic lobes, pyogenic, 84 (56%) were single, and 12 (8%) were multiple abscess. In amoebic abscess, 24 (16%) are single and

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30 (20%) are multiple abscesses [Table 3]. The study of various treatments and mortality, 21 patients were treated with antibiotics alone, and 33 were treated with needle aspiration + antibiotics for pyogenic abscess. In amoebic abscess, 54 patients were treated with antibiotics alone, 36 with needle aspiration, and 6 with a surgical approach + antibiotics, with zero mortality. These findings are more or less in agreement with previous studies.[5-7]

Infections gain access either through hematogenous spread or through continuous spread by blunt or penetrating trauma.[8] Intra-abdominal infections are prone to spread to the liver, as in appendicitis and diverticulitis. Organisms are seeded via the portal vessels, and the liver is the first organ encountered by these organisms. About 40 to 50% of liver abscesses in today's scenario are due to calculi strictures or malignancy.[9] Infection spread to liver parenchyma following the development of ascending cholangitis. Escherichia coli, the most common organism causing liver abscess previously. Now it is replaced by Klebsiella pneumonia. This organism is also consistent with the cases of liver abscess in the present study. The other organisms that cause liver abscesses are streptococcus species, enterococcus, and anaerobes. Such as Bacteroides and Pepto streptococcus, and other gram-negative organisms. In extra intestinal amoebiasis, trophozoites breach the mucosa of the colon and reach the liver via portal circulation.[10] The majority of patients with amoebic liver abscess have no gastrointestinal symptoms. Stool microscopy for cysts and trophozoites is also negative in most cases. Trans arterial embolization (TAE) and radio wave frequency ablation (RFA) lead to necrosis of the parenchyma, thus leading to increased risk of abscess formation.[11] The patients with cirrhosis of the liver are 15.4 times at higher risk of liver abscess development. Prolonged usage of proton pump inhibitors (PPIs) increases the gastric pH and weakens the host's natural defenses, making them more prone to developing liver abscesses. However, the dosage-response relationship is still not well established.[12]

CONCLUSION

In the present study, it is realized that the liver abscess was predominantly treated by surgical intervention with suitable antibiotics, but lately medical management with antibiotics and the availability of interventional radiology have drastically changed the management paradigm. A liver abscess can usually be managed relatively efficiently with antibiotics and percutaneous drainage, but a late approach to medical aid may cause fatal complications and lead to mortality.

Limitation of study: Owing to remote location of research Centre, small number of patients lack of latest techniques we have limited finding and results.

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