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A STUDY OF OUTCOME MEASURES OF VARIOUS MODALITIES OF TREATMENT IN PATIENTS WITH LIVER ABSCESS

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ABSTRACT

Aims and Objectives: To determine the outcome measures of various modalities of treatment in patients with liver abscess based on the etiology and clinical presentation **Materials and Methods:** Demographic profile, clinical examination and investigations are done and data will be collected in the study. Data will be analysed including age, gender, vital signs, symptoms, clinical findings, ultrasound findings. Later patients will divide into pyogenic and amoebic liver abscess on one side ruptured, unruptured on the other side. Initially all the uncomplicated patients are started on Intravenous antibiotics. If they are responding antibiotics are continued if they are not responding they are assessed by 1. Continue to be febrile > 48-72hrs, abscess >6cm size, clinical and ultrasonic features of impending perforation transcutaneous drainage is carried out. The patients will be assessed for the outcome of above-mentioned treatment modalities in terms of clinical examination and investigations like complete blood count, LFT, PT/INR and review ultrasound findings. Open drainage is carried out for patients with 1. Thick pus which cannot be aspirated, 2. Patients with multiple liver abscess, 3. Abscess in left lobe and 4. Ruptured abscess. **Results and Conclusion:** Treatment of the liver abscess are chosen according to the presentation, ultrasound volume of the abscess cavity and laboratory parameters. Small abscess which are <100cc can be managed by the local antibiotics and conservative management <200cc abscess cavity collections were managed by the transcutaneous aspiration and antibiotics. The abscess cavity ranging from 500-1000cc (Abscess should be treated by percutaneous pigtail catheter insertion. Abscess which are ruptured to peritoneal cavity are managed by open surgical drainage. The outcomes of the treatments are measured by review ultrasound, decrease in the total counts, albumin levels, and also the normalizing values of the total and direct bilirubin.

KEYWORDS

transcutaneous drainage; pigtail catheter insertion; open surgical drainage; pyogenic and amoebic liver abscess; Ruptured and unruptured liver abscess

INTRODUCTION

Liver abscess is a common condition in India. It is associated with significant mortality and morbidity. Abscess develops in the liver for various reasons, but is broadly classified into amoebic and pyogenic liver abscess. Pyogenic liver abscess is largely a disease of people from age 20-30yrs, while amoebic liver abscess is most common in tropical developing countries.

Although amoebic liver abscess responds well to the medical treatment, few complications like rupture into the peritoneal cavity, pleural cavity or pericardium must direct the surgeons for the surgical interventions for the patient. In case of pyogenic liver abscess if we use conservative management with antibiotics, prognosis of all the cases is fatal, recently percutaneous drainage is being used to remove the collections and avoid possible complications from the same1. With easy access to the advanced imaging technique, these conditions are diagnosed fairly early if clinically suspected. Therefore, the clinical suspicion is very much important in managing liver abscess. The rupture of the abscess is more common in amoebic liver abscess.

Ruptured liver abscess has presented with varied features like pleural empyema, subdiaphragmatic abscess, parietal wall abscess (abdominal wall abscess) retroperitoneal abscess, pericardial abscess, spontaneous gas forming pyogenic liver abscess which mimics the pneumoperitoneum caused by hallow viscous perforation. All these conditions require immediate exploration to stabilize the patient. Percutaneous drainage for pyogenic liver abscess has become the treatment of choice, but there are few contra indications for this which needs surgical intervention like presence of ascites, coagulopathy and proximity of vital structures. Whereas the amoebic liver abscess is treated with antibiotic coverage and luminicidal medications/ agents without any surgical intervention because of risk of hypersensitivity reactions if there is spillage of abscess contents to the surrounding area[1]. And the management also depends whether the abscess cavity is ruptured or unruptured.

METHODOLOGY

This is the hospital-based study done from February 2021 to august 2022 in the hospitals attached to BMCRI. After approval from the ethics committee patients fulfilling the inclusion criteria will be enrolled for the study after obtaining the written informed consent.

Inclusion Criteria

Patients willing to give consent, those who are aged >18 years, amoebic and pyogenic liver abscess, type2 diabetes mellitus, radiological signs suggestive of liver abscess.

Demographic profile, clinical examination and investigations are done and data will be collected in the study. Data will be analyzed including age, gender, vital signs, symptoms, clinical findings and USG findings. Later patients will be divided into pyogenic and amoebic liver abscess on one side, ruptured and unruptured on the other side. Initially all the uncomplicated patients are started on IV antibiotics. If they are responding to antibiotics are continued, if they are not responding they are assessed by 1. Continue to be febrile > 48-72hrs, abscess >6cm size (corresponds to abscess collection of >500cc), clinical and ultrasonic features of impending perforation transcutaneous drainage is carried out. The patients will be assessed for the outcome of above-mentioned treatment modalities in terms of clinical examination and investigations like complete blood count, LFT, PT/INR and review USG findings. Open drainage is carried out for patients with 1. Thick pus which cannot be aspirated, 2. Patients with multiple liver abscess, 3. Abscess in left lobe and 4. Ruptured abscess.

Statistical Analysis

Sample size estimation: Based on the previous study conducted by Najmuddin shabbir et al[2] by considering the combined treatment (drug therapy and USG guided needle aspiration) for liver abscess which is 83%, the sample size is calculated and rounded off to 60.

Mean age distribution				
N	Minimum	Maximum	Mean	SD
60	18	73	42.97	14.995

Mean age distribution in liver abscess patients is 42.97 with standard deviation of 14.9 (42.9+/-14.9).

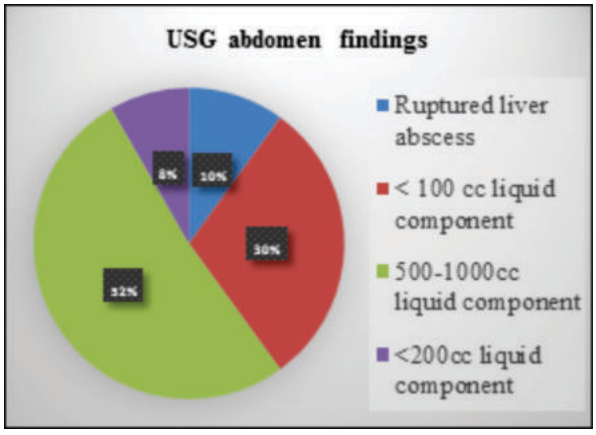
Total count before intervention				
N	Minimum	Maximum	Mean	SD
60	10000	18000	14466.67	2174.324

This table shows the total leucocytes counts of the patients before intervention. The mean of the leucocyte counts was 14466.67 (+/-2174).

Preintervention albumin levels		
	Frequency	Percent
<2.5	23	38.3
>3	37	61.7
Total	60	100

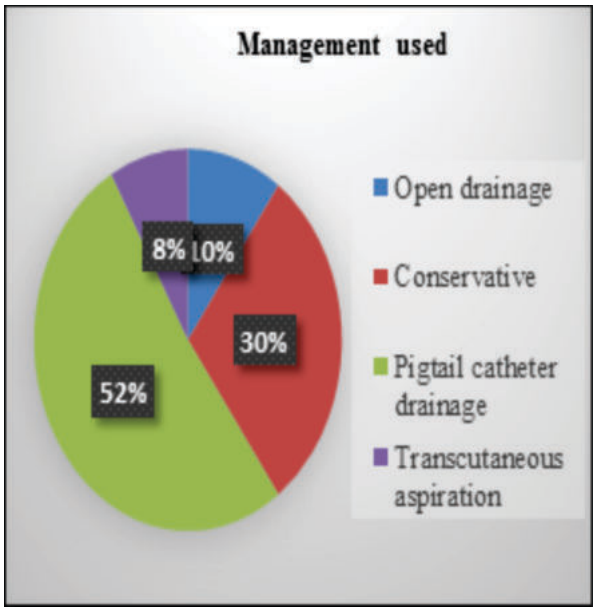
23 patients (38.3%) had albumin levels <2.5 before intervention and remaining 37 patients (61.7%) had normal albumin levels

About 33.3% (20 patients) had clinical apparent jaundice during the presentation. And elevated bilirubin on laboratory investigations.



In our study ultrasound abdomen was initial and primary modality of the investigation for the diagnosis of the liver abscess. 6 patients (8%) had ruptured liver abscess, 18 patient (30%) had <200cc collection which was predominantly liquid component, 5 patient (8%) had <100cc collection which was also predominantly liquid component. 31 patients (52%) had collection of about 500-1000cc.

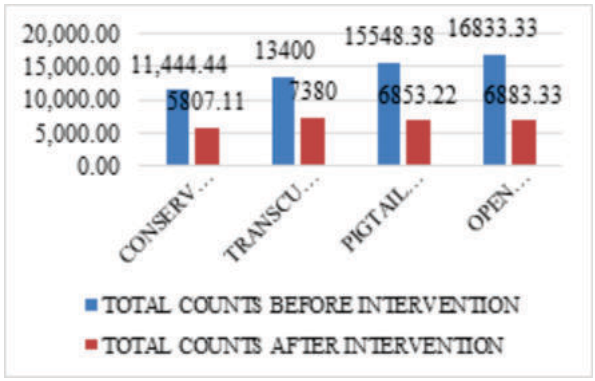
Elevated TB/DB (Jaundice)		
	Frequency	Percent
Absent	40	66.7
Present	20	33.3
Total	60	100



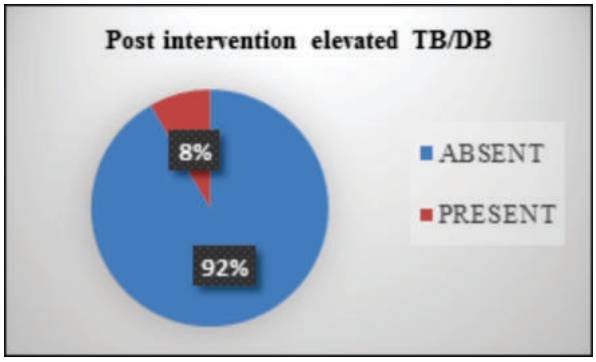
According to our study open drainage was done for 6(8%) ruptured liver abscess cases, conservative management with antibiotics and analgesics was done 18 (30%) liver abscess cases which were < 100cc in quantity, transcutaneous aspiration was done for 5(8%) abscess cases which were <200cc, and pig tail catheter insertion was done for 31 (53%) patients of liver abscess which were measuring 500-1000cc in quantity.

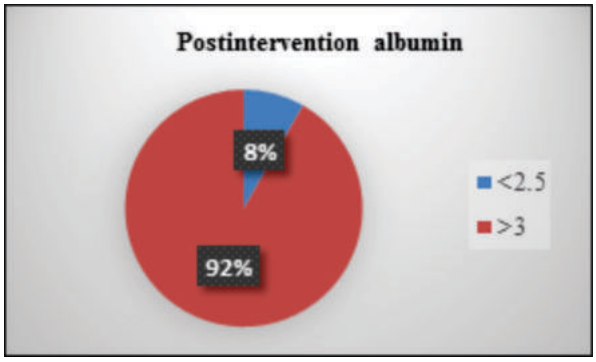
Abscess rupture status and management				
	Ruptured	Unruptured	Total	P-value
Open drainage	6	0	6	< 0.0001*
Managed conservatively	0	18	18	
Pigtail catheter drainage	0	31	31	
Transcutaneous aspiration	1	4	4	
Total	7	53	60	

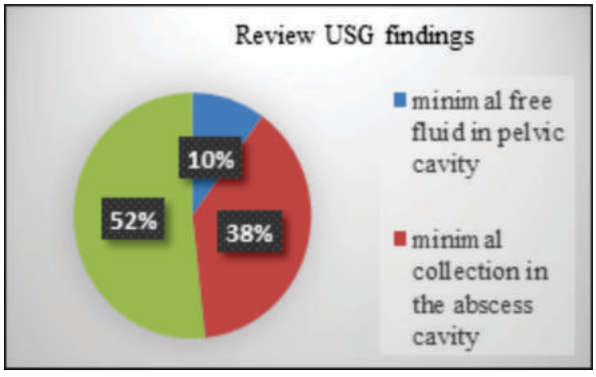
One patient among the ruptured liver abscess was in subhepatic region and hence we did transcutaneous aspiration following which all the comparable parameters showed significant difference (p value <0.0001). Rest all the ruptured abscess cases were managed by open drainage.



Comparison between Total leucocyte counts before and after intervention







By seeing the above statistics, we can see the decrease in trends of TB, DB and normalizing levels of albumin.

DISCUSSION

According to the study by shabbir m et al the age distribution of 15years to 75year and mean age was 40 years, similarly in our study the age distribution was 18years to 73 years and the mean age was 42.9(+/-14.9).

A retrospective study on large group of 566 patients done by Lodhi S et al which was published in the European journal of tropical medicine and the international health showed that male gender was predominantly affected in the liver abscess cases20. In our study also

49 patients among 60 patients were male and only 11 patients were female.[3]

T kumanan et al conducted a study on to see the correlation between the liver abscess and the alcohol consumption, in patients who consumes alcohol they have decreased immune response to the infection and also the initial response to any infection. Alcohol also causes suppression of the kuffer cells in the liver which has a important role in clearing the organism. In our study also the alcoholics are most commonly affected, 36 patients out of 60 patients were alcoholic.[4]

Hong Xia-hu et al in their study on 606 patients of community acquired pyogenic liver abscess, showed that 67% of patients in their study had right lobe as the predominant lobe involved22. In our study also 56 patients out of 60 patients had 72.[5]

In our study we started the patients on iv antibiotics irrespective of clinical presentation, after this patient are divided into pyogenic and amoebic liver abscess on one side and on the other side patients were divided into ruptured and unruptured liver abscess. Among the unruptured liver abscess cases based on the ultrasound findings, total counts, albumin levels, and presence of jaundice, were managed either by the conservative approach or by the transcutaneous aspiration or by the pigtail catheter drainage. 18 cases were managed conservatively out of which 8 cases were pyogenic liver abscess and 10 cases were amoebic liver abscess. Total of 31 patients were managed with percutaneous pigtail catheter insertion and out of which 26 cases are pyogenic liver abscess and 5 cases were amoebic liver abscess. Transcutaneous aspiration was done only for pyogenic liver abscess. Among ruptured liver abscess 4 cases were pyogenic abscess and 2 cases were amoebic liver abscess which were managed by open surgical drainage. With the above modalities of management there was significant difference in the management of liver abscess cases ('p' value <0.012).

Predominant right lobe involvement and only 4 patients had involvement of left lobe of the liver.

CONCLUSION

There are various modalities of treatment in liver abscess cases. But choosing the modality of the treatment is the basic knowledge we should all know.

From our study we can conclude that pyogenic liver abscess is most common, involving predominantly the right lobe of the liver attributing the portal circulation. Before intervention routine laboratory investigations like total counts, albumin levels, Total bilirubin/direct bilirubin and ultrasound abdomen are useful tools for the diagnosis and are also tools to choose the modality of the treatment. These tools are also helpful in post intervention follow up of the patients and to assess the effectiveness of the treatment used.

So, from this study we can understand that the treatment of the liver abscess is chosen according to the presentation, ultrasound volume of the abscess cavity and laboratory parameters. Small abscess which are <100cc can be managed by the local antibiotics and conservative management. <200cc abscess cavity collections were managed by the transcutaneous aspiration and antibiotics. The abscess cavity ranging from 500-1000cc (6cm cavity) should be treated by percutaneous pigtail catheter insertion. Abscess which are ruptured to peritoneal cavity are managed by open surgical drainage. The outcomes of the treatments are measured by review ultrasound, decrease in the total counts, albumin levels, and also the normalizing values of the total and direct bilirubin

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