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Surgery

A COMPARATIVE STUDY OF VARIOUS MODALITIES OF TREATMENT OF LIVER ABSCESS

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ABSTRACT

OBJECTIVE: To study the various clinical presentations and to compare the effectiveness and outcome of various treatment modalities in liver abscess.

METHODS: This was a hospital based prospective study done over 54 patients

RESULTS: Out of 54 selected cases, 47 cases are having amoebic liver abscess and 7 patients are having pyogenic liver abscess. Amoebic liver abscess is commonly seen in the age group between 30-50 years and the pyogenic liver abscess in the age group more than 60 years. In amoebic liver abscess males are commonly affected than the females (8.4: 1) whereas in pyogenic liver abscess there is equal distribution. 48 patients had right lobe abscess 5 patients had left lobe abscess. In amoebic liver abscess 85.7% patients are having abdominal pain and in pyogenic liver abscess fever is seen all the patients. The abscess size < 5cm are treated by drugs and size >5cm are treated by ultrasound guided aspiration, percutaneous catheter drainage, laparoscopic drainage method, anyone can be opted with drugs. The duration of hospital stay is 4 days in laparoscopic drainage method, 5 days in percutaneous catheter drainage, 7-10 days in needle aspiration method. There is a 100% recovery rate in patients treated with laparoscopic method and 80% recovery rate in patients treated with percutaneous drainage and needle aspiration method.

CONCLUSION: In case of abscess size is less than 5 cm drugs alone are enough. If the abscess size is more than 5 cm and large abscess without complications treatment options may be carried out with procedures and drugs. The best procedure is laparoscopic drainage method. But if the abscess has ruptured with peritonitis, open surgical method is best option. In multiple abscesses both laparoscopic method and open surgical methods can be tried. To minimise the hospital stay laparoscopic drainage method is the best method.

KEYWORDS : Liver abscess, laparoscopic drainage, percutaneous drainage, needle aspiration

INTRODUCTION

Liver abscess is an infectious space occupying lesion in the liver. These are the most common type of visceral abscesses, because liver is subjected to numerous viral, bacterial, parasitic infections through portal circulation. Major types of liver abscess are amoebic liver abscess and pyogenic liver abscess based on etiology.

Amoebic liver abscess is common in tropical and subtropical regions so called Tropical liver abscess[1,2]. It is caused by Entamoeba histolytica infestation. 3-9% of amoebiasis patients may develop amoebic liver abscess. It affects younger individuals when compared to pyogenic liver abscess. The amoebic liver abscess has male preponderance but the pyogenic liver abscess has equal sex incidence[3].

The liver abscess may be parasitic, bacterial, fungal or tuberculous in origin. Right lobe the liver is commonly affected due large volume and major blood supply. About 90% of the right lobe abscesses are solitary and about only 10% of the left lobe abscesses are solitary.

Pyogenic liver abscess is caused by bacteria. The infective foci arise from biliary tract, portal circulation, haematogenous via hepatic artery, direct extension from intra-abdominal regions and trauma[4,5]. Of these biliary pathology is the most common cause.

In amoebic liver abscess the most common symptom is abdominal pain. In pyogenic liver abscess fever is the most frequent symptom. Large abscesses are seen mainly in the amoebic liver abscess.

Ultrasonography is the main modality to diagnose the liver abscess. CT scan abdomen can detect even less than 0.5 cm abscess. Serological tests are confirmatory to diagnose amoebic liver abscess while pus culture and sensitivity confirms pyogenic etiology.

The main mode of treatment in amoebic liver abscess is medical management. In pyogenic liver abscess the main treatment should be drainage method and antimicrobials.

Liver abscess treated by following methods:

1. Drugs alone
2. USG Guided needle aspiration with drugs
3. Percutaneous catheter drainage
4. Laparoscopic drainage
5. Open surgical drainage.

In this study 54 randomly selected cases are taken up and mainly focused on the age distribution, sex ratio, type of the liver abscess, site of the liver abscess, symptoms, signs, size of the abscess, number of the abscess.

In this study the patients with abscess size more than 5 cm are treated with needle aspiration, percutaneous drainage, laparoscopic drainage methods. These patients are studied under following criteria

- 50% reduction of the abscess cavity
- Duration of hospital stay
- Secondary procedure done
- Complications
- Recovery rate are compared.

AIM OF THE STUDY

1. To compare the effectiveness and outcome of various treatment modalities in liver abscess management
2. To study the various clinical presentations and their significance in diagnosing liver abscess
3. To find out how to reduce the hospital stay by choosing treatment options

MATERIALS AND METHODS

54 cases of Liver abscess admitted in government Rajaji hospital, Madurai between September 2010 and September 2012 was taken into the study.

All patients were thoroughly examined and case sheets were written in same set pattern to facilitate later comparison and written consent was obtained from all the patients for our study.

All of them are investigated with ultrasonogram treatment proceeded and pus culture and sensitivity were done and were diagnosed either as pyogenic or amoebic liver abscess.

The following aspects are studied:

- Age
- Sex
- Type of the abscess
- Site of the abscess
- Symptoms

- Signs
- Treatment modalities
- 50% Reduction of the abscess cavity
- Duration of hospital stay
- Secondary procedure done
- Complications
- Recovery rate

54 patients were selected and divided into five groups based on size of the abscess (i.e. Group I, II, III, IV, V)

Group I was treated with drugs alone
Group II was treated with ultrasound guided needle aspiration along with drugs. Maximum of two times repeated aspiration was done
Group III was treated with percutaneous catheter drainage (closed tube drainage) along with drugs
Group IV was treated with laparoscopic drainage along with drugs
Group V was treated with open surgical method along with drugs

- Of these groups Group I patients are belongs to the abscess cavity of size less than 5 cm. They are treated with drugs alone.
- Group II, Group III, Group IV patients are belonging to the abscess cavity of size more than 5 cm and large abscesses.
- Group V patients are belonging to multiple abscesses, ruptured abscess with peritonitis.

RESULTS

Table-1: Type of Liver Abscess

Type	No of cases	Percentage
Pyogenic	7	13.0
Amoebic	47	87.0
Total	54	100
P value	< 0.001 Significant	

TABLE -2: Age Distribution

Age in years	No of cases	Pyogenic	Amoebic
< 30	6	0	6
31 – 40	26	1	25
41 – 50	11	1	10
51 – 60	7	2	5
> 60	4	3	1
Total	54	7	47
		P = < 0.001 Significant	

Table-3: Sex Ratio

	Male	Female	M: F	P value
ALA (47)	42	5	8.4: 1	<0.001 Significant
PLA (7)	4	3	1.3: 1	
Total	46	8		

Table-4: Site of Liver abscess

Site	Pyogenic	Amoebic	Total
Right	5	43	48
Left	1	4	5
Both lobes	1	0	1
P value < 0.001 significant			

Table-5: Symptoms

Symptoms	Amoebic (47)	%	Pyogenic (7)	%
Fever	39	82.9	7	100
Abdominal pain	44	93.6	6	85.7
Vomiting	25	53.1	4	57.1
Diarrhoea	12	25.5	2	28.5

Table-6: Signs

	Amoebic (47)	%	Pyogenic (7)	%
Tenderness	42	89.3	5	71.4
Jaundice	3	6.3	1	14.3
Hepatomegaly	36	76.5	4	57.1

Table-7: Treatment modalities

Groups	No of cases
Group I	9
II	14
III	12
IV	16
V	3
Total	54

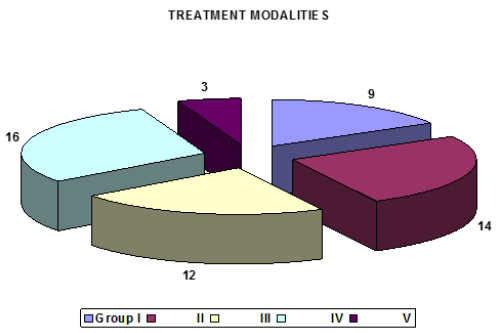

Table-8: 50% Reduction of Abscess Cavity

	Group II	Group III	Group IV	P value
24 hours	0	1	7	0.032 Significant
3 days	0	6	8	0.045 Significant
7 days	8	3	1	
10 – 15 days	6	2	0	0.050 Significant
Total	14	12	16	

Table-9: Duration of Hospital stay

	4 days	5 days	7 days	10 days
Group II (14)	2	4	4	4
Group III (12)	2	7	2	1
Group IV (16)	12	4	0	0
P value	0.042			

Table-10: Secondary procedure Done

Procedure	Group II (14)	Group III (12)	Group IV (16)	P value
Yes	8	1	0	0.008 Significant
No				

Table-11: Complications

Complications	Group II (14)	Group III (12)	Group IV (16)	P value
Infection	1	5	0	0.027 Significant
Haemorrhage	1	1	0	
Ruptures	0	1	0	

Table-12: Recovery Rate

Recovery	100%	80%	Worsened
Group II (14)	3	11	0
Group III (12)	3	9	0
Group IV (16)	15	1	0
P value	0.044	0.019	

SUMMARY

- In the 54 selected cases 47 cases are having amoebic liver abscess and 7 patients are having pyogenic liver abscess.
- Amoebic liver abscess is commonly seen in the age group between 30-50 years and the pyogenic liver abscess commonly seen in the age group more than 60 years.
- In amoebic liver abscess males are commonly affected than the females (8.4: 1). In pyogenic liver abscess there is equal distribution with slight difference (1.3: 1)
- All the patients included in the study are belonging to low socioeconomic groups.
- Right lobe abscess in 48 patients, left lobe abscess in 5 patients, both lobes abscess in one patient.
- In amoebic liver abscess 85.7% patients are having abdominal pain. It is higher than pyogenic liver abscess. Fever is seen all the patients of pyogenic liver abscess. In both types half of the patients and one third of the patients having vomiting and diarrhoea.
- Tenderness and hepatomegaly is common in amoebic liver abscess and jaundice is common in pyogenic liver abscess patients.
- < 5cm abscess the treatment is drugs alone. Metronidazole for amoebic abscess and antimicrobials for pyogenic abscess.
- >5cm abscess ultrasound guided aspiration, percutaneous catheter drainage, laparoscopic drainage method, anyone can be opted with drugs.
- In case of rupture and multiple abscess open surgical method is ideal.
- In laparoscopic drainage method 50% reduction of the abscess cavity seen in most of the patients with in a day in percutaneous

method within 3 days in needle aspiration up to a week some patients require 10-15 days.
- The duration of hospital stay is 4 days in laparoscopic drainage method, 5 days in percutaneous catheter drainage, 7-10 days in needle aspiration method.
- No secondary procedure needed in laparoscopic method. Two third of the patients required secondary procedure in ultrasound guided needle aspiration.
- No complication occurred in laparoscopic method. Infection rate is high in percutaneous catheter drainage and open surgical method.
- 100% recovery rate is higher in patients treated with laparoscopic method. 80% recovery rate is higher in patients treated with percutaneous drainage and needle aspiration method.

CONCLUSION

- In case of abscess size is less than 5 cm drugs alone are enough
- If the abscess size is more than 5 cm and large abscess without complications any one of the following method of treatment options may be carried out

1. Ultrasound guided needle aspiration with drugs
2. Percutaneous catheter drainage method drugs
3. Laparoscopic drainage method with drugs

Among these the best option is laparoscopic drainage method.
- If the abscess has ruptured with peritonitis, open surgical method is best option. In multiple abscesses both laparoscopic method and open surgical methods can be tried. To minimise the hospital stay laparoscopic drainage method is the best method.

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