

Study of Minimal Invasive Surgical Procedure of Liver Abscesses in Western Uttar Pradesh - A Hospital Based Study

S C Sharma,
Sameer Jain¹,
S P Sinha², S K Jain³,
Akanksha Singh⁴

(MS General Surgery) Assistant Prof. Dept of Surgery, TMMC&RC, Moradabad, ¹(MS General Surgery) Assistant Prof. Dept of Surgery, TMMC&RC, Moradabad, ²(MS General Surgery) Prof & Head Dept of Surgery, TMMC&RC, Moradabad, ³(MS Anatomy) Professor Anatomy, Dept of Anatomy TMMC&RC, Moradabad, ⁴Intern Dept of Surgery. TMMC&RC, Moradabad

Corresponding Author: Dr. S K Jain (MS Anatomy) Professor Anatomy, Dept of Anatomy, TMMC&RC, Moradabad +91-9997168754. E-mail: drskjain2005@rediffmail.com

Abstract

Introduction: Liver is a vital organ of the body, anatomically situated mostly in right hypochondrium with small extension into left hypochondrium also. Liver is the organ subjected to systemic infections by various microorganisms. Pyogenic and amoebic liver abscess are the two common types of hepatic abscess. Pyogenic liver abscess are less common than amoebic liver abscess. Right lobe of the liver is most commonly involved in both types of abscesses. Radio-imaging techniques like US and CT are the modalities of choice for investigation purposes. Treatment modalities of these abscesses, first emphasizes on medical treatment, but if it is unsuccessful then only the surgical intervention should be taken up.

Aims & Objectives: The aim of this study is to use that modality of treatment for hepatic abscesses which are successful, economical and reduces the hospital stay of patients.

Methods: 62 patients belonging to different socio-economic status, age range from (18-70 yrs) were included in this study. All routine investigations like haemogram, culture/sensitivity, pathological tests were done. Later on diagnosis was confirmed by US and CT scan. Patients were treated keeping them under treatment of three groups (vide infra).

Results: Based on the size of cyst and type of abscess different modalities of treatment were applied. Hospital stay of patients varied from single day to three to four days or even more for 10 days in which laprotomy was tried for management.

Conclusion: We concluded the study with the fact, that draining the abscess under US guidance is the best minimal invasive method of treatment, which on one hand is economical to patients and also reduces the hospital stay, so that proper medical care to other admitted patients is imparted.

Keywords: Laprotomy, Minimal Invasive, Hepatomegaly, Abscess

INTRODUCTION

The two most common hepatic abscesses are pyogenic and amoebic liver abscesses. Amoebic abscesses is more common in developing countries like India, whereas pyogenic is more common in western countries.¹ Pyogenic liver abscess can be single or multiple. The right lobe is more than two times effected as compared to left while in 5% cases both lobes of liver are involved.² Amoebic liver abscess occurs in population where *Entamoeba histolytica* is endemic³ and it affects right lobe in 80% of cases. Hepatic abscesses develop insidiously with fever, sweats, weight loss and no local signs other than painless or slightly tender hepatomegaly. In other

patients it presents with abrupt onset of fever, nausea, vomiting, severe abdominal pain and polymorphonucleosis. Whereas pyogenic liver abscess does not show gender difference, amoebic abscess is approximately 10 times more common in male sex as compared to females. Computed tomography (CT), and ultrasound are the imaging studies of choice. After medical treatment fails like metronidazole, Cephalosporin in pyogenic liver abscess and Diloxanide furoate in amoebic liver abscess we should go surgical intervention. Ultrasonographic guided drainage and percutaneous aspiration can be tried in small abscesses, but catheter drainage should also be taken into consideration. In case of abscess rupture open surgery is indicated. Most

patients with pyogenic liver abscess and those with very large amoebic abscesses, may not recover with antibiotics alone and need drainage guided by ultrasonography or CT. Percutaneous aspiration can be carried out for small abscesses although catheter drainage has become the standard of care. Larger abscesses may also need catheter drainage which is also CT- or ultrasound-guided. Drainage should also be carried out if there is impending rupture.

MATERIAL AND METHODS

Out of all patients admitted in the department of Surgery TMMC&RC and associated Hospital from (September 2012 to October 2013), 62 patients were found to have liver abscess in a period of 12 months. Age of patients ranged between 18 to 70 years and out of that 32% were in 25-36 years age group and 68% were above that age group. Males were 74%. Three patients had previous history of abdominal surgery. Routine investigations were done including haemogram, liver function tests, blood sugar, HIV, hepatitis B, X-ray chest and abdomen. Diagnosis was confirmed by ultrasonographic scanning and computerized tomography.

Patients not responding to the medical treatment were put on surgical intervention as soon as possible and study was conducted in three groups.

Group 1: Included in this group the patients in whom aspiration of liver abscesses was done under ultrasound guidance and in these patients about 50cc of pus was aspirated.

Group 2: In this group we included those patients in whom moderate to large amount of pus filled abscesses were found and a minimal invasive surgery was done under ultrasound guidance.

Group 3: In this group were included those patients who had large pus filled cavities and were drained by laparotomy through right subcostal incision. Pus evacuated in all patients was sent for bacteriological examination and for culture and sensitivity.

Post operative antibiotics and IV fluids were given in all groups of patients.

Treatment modalities used

Group 1: Analgesics, Antibiotic Metronidazole

Group 2: P/C Aspiration, Analgesics, Antibiotic, Metronidazole

Group 3: Irrigation with Saline with Metronidazole, Analgesics Antibiotic

Group 4: Laprotomy.

RESULTS

Table 1: Treatment modality of patients ranging 18-25 yrs

Age group	18-25 yrs		
Number of patients	14		
Size of cavity	CS<2 cm 5 pt	CS>2 cm 8 pt	CS>5cm 1 pt
Treatment Group-1	Treated by group-1		
Treatment Group-2		Treated by group-2	
Treatment Group-3			
Treatment Group-4			Treated by group-4
Result	4 pts treated by group-1 with one day hospital stay and 1 pt didn't respond to group-1 treatment and treated by group-2 treatment with hospital stay 3 days	6 pts treated by group-2 with hospital stay 3 days. 2 pts didn't respond group-2, treated by group 3 with hospital stay 4 days.	Successful t/t by laprotomy with hospital stay 10 days

Table 2: Treatment modality of patients ranging 25-35 yrs

Age group	25-35 yrs		
Number of patients	37		
Size of cavity	CS<2cm 11pts	CS>2cm 14pts	CS>5cm 12pts
Treatment Group-1	Treated by group-1		
Treatment Group-2	Treated by group-2	Treated by group-2	
Treatment Group-3		Treated by group-3	Treated by group-3
Treatment Group-4			Treated by group-4
Result	8 pts t/t by group-1 with hospital stay 1 day. 3 pts had no response by group-1 t/t . Treated by group-2.	11 pts successful t/t by group-2with hospital stat 3 days 3 pts unsuccessful t/t by group-2 treated by group-3. Hospital stay 4 days	8 pts respond to t/t by group-3t/t with hospital stay 4 days 4 pts didn't respond by group-3 t/t by group-4with hospital stay 10 days

Table 3: Treatment modality of patients ranging 35-70 yrs

Age group	35-70 yrs		
Number of patients	11		
Size of cavity	CS<2cm 3pts	CS>2cm4pts	CS>5cm 4pts
Treatment Group-1	Treated by group-1		
Treatment Group-2	Treated by group-2	Treated by group-2	
Treatment Group-3		Treated by group-3	Treated by group-3
Treatment Group-4			Treated by group-4
Result	No pt responded to group-1 t/t with hospital stay of one day while 2 pts t/t by group-2 with hospital stay for 3 days	1 pt responded to group-2 with hospital stay of 3 days, while 3 pts did not respond to t/t by group-2 and treated by group-3 with hospital stay of 4 days	2 pts respond by group-3 with hospital stay of 4 days, while 2 pts did not respond to group-3 t/t and treated by group-4 t/t (surgical t/t- Laprotomy) with hospital stay of 10 days

The average recovery period was very short in Group I, where as in moderate to large abscesses it was two to four days. Patients with simple aspiration were discharged from the hospital on next day in satisfactory condition, while in others with pig tail drainage maximum of four days was the stay. Recovery period in contrast to the patients who underwent laparotomy for drainage, was about 10 days.

Overall result is shown in table-4.

Table 4: Patient response to different treatment modalities

Age group	t/t by Group I	t/t by group II	t/t by group III/IV
18-25 years	04	09	01
25-35 years	08	25	04
35-70 years	00	08	03
Total no of pts	12	42	08

DISCUSSION

Liver abscesses are life-threatening with mortality rate as high as 80 to 90% if left untreated.⁴

In earlier times when antibiotics were not available open surgical drainage was the treatment of choice.⁵

Treatment by aspiration followed by antibiotics was described by⁶ and recently in last few years percutaneous drainage under US has largely replaced surgical drainage.^{7,8}

PYOGENIC LIVER ABSCESS

In half of the cases no identifiable cause of pyogenic liver abscess cannot be ascertained.⁹⁻¹¹ With US initially the abscess is hyperechoic but with maturation it becomes hypoechoic. Computed tomography is more specific and sensitive than US.¹² Staphylococcus and Streptococcus being the commonest but abscesses originating from intra-abdominal infection, however, usually contain aerobic gram negative rods especially *E coli*. Treatment of PLA should individualize. The choice of antibiotic should cover most of common microorganisms cultured from liver abscess. This therapy should consist of a combination of aminoglycosides either with metronidazol or clindamycin or beta -lactam antibiotic. Antibiotic therapy should alone be reserved only for patients in good clinical condition and those who have solitary abscess lesser than 2 cm in diameter, patients must receive antibiotic for 4-6 weeks. "Source control" is essential in surgical treatment of P LA. In recent series Bertel et al, (1996)¹³ have reported an overall 87% and Herman et al (1997)¹⁴ 91.5% success rate in percutaneous surgical drainage.^{3,8}

Although there are various reports comparing these modalities in the treatment of liver abscess, there are no prospective randomized studies comparing different treatment modalities.

Gerzof et al, 1985¹⁵ compared the medical treatment, percutaneous and surgical drainage in the retrospective study reporting better result with surgical drainage in total of 26 patients.

AMEBIC LIVER ABSCESS

US findings are good for radiological evaluation of amebic liver abscess which shows peripheral rim with homogeneity.^{16,17}

The first line of treatment in Amoebic liver abscesses is Metronidazole. The size of abscesses is important factor in determining the response of drug. PCD and Catheter drainage offer other modalities of treatment as in Pyogenic abscesses. Metranidazol is given 750 mg 3 times a day for 7-10 days.

Surgical open drainage is indicated only in those patients with complicated Amoebic abscesses e.g. secondary infection or peritonitis with large Pyogenic and Amoebic Liver abscesses.

CONCLUSION

This study revealed that draining the abscesses under ultrasound guidance either by simple aspiration or with pig tail drainage or with any other drainage tube is best surgical minimally invasive method of treatment. It not only reduces the sufferings of patients, hospital stay but also is economical to poor patients as compared to laparotomy or any other major surgical procedure. Thus authors recommends ultrasonic guided aspiration of liver abscesses as far as possible in expert hands of surgeon and ultrasonologist.

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