ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 01 | January - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

COMPARISON BETWEEN PERCUTANEOUS PIGTAIL CATHETER DRAINAGE AND MALECOT CATHETER DRAINAGE IN MANAGEMENT OF LIVER ABSCESS

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ABSTRACT

Background- Liver abscess, both amoebic and pyogenic, continue to be an important cause of morbidity and mortality in tropical countries. India has the 2nd most burden of liver abscess amongst all other countries. The advances in radiology like ultrasonography and CT scan since last 30 years including imaging and interventional techniques resulted in introduction of radiological guided drainage of intra-abdominal abscess. Although the primary mode of treatment of amoebic liver abscesses is medical. 15% cases may be refractory to medical therapy and abscesses larger than 5 cm and secondary bacterial infection may complicate up to 20% of amoebic liver abscesses. In recent years, image guided percutaneous drainage has been increasingly used to treat liver abscess with reported success rates ranging from 70-100%. **Aims and Objectives-** To compare between pigtail and malecot catheter drainage in management of liver abscess. Materials & Mathod- A prospective randomized study was carried out at Dept. Of General Surgery, Medical College Baroda & SSG Hospital during the period from May 2019 to November 202l. Patients had USG at the time of admission . 58 cases of solitary liquefied liver abscess >5 cm in maximum dimension (as labelled by radiologist) were studied. Patients were randomly allocated to treatment group using envelope system using sealed opaque envelopes. Pigtail and Malecot catheter were inserted in randomised patients according to standard technique. **Results and Conclusion-** This study compares the effectiveness of malecot catheter and pigtail catheter in drainage of liver abscess. Average duration of the number of days for clinical improvement with pigtail catheter is 3.28 days and with malecot catheter is 1.96 days. Average duration of number of days with catheter in situ with pigtail catheter is 7.69 days and with malecot catheter is 6.19 days. Complication rate seen with pigtail catheter is 15.62% and that with malecot catheter is 3.84%. Average duration of the hospital stay with pigtail catheter is 11.75 days and with malecot catheter is 9.76 days. There was no significant difference in days for clinical improvement, complication rate, duration of hospital stay.

KEYWORDS

Liver abscess, Ultrasonography, Pigtail and Malecot catheter.

INTRODUCTION

Liver abscess,both amoebic and pyogenic, continue to be an important cause of morbidity and mortality in tropical countries. India has the 2nd mostburden of liver abscess amongst all other countries. The advances in radiology like ultrasonography and CT scan since last 30 years including imaging and interventional techniques resulted in introduction of radiological guided drainage of intra-abdominal abscess.[1]

Although the primary mode of treatment of amoebic liver abscesses is medical. 15% cases may be refractory to medical therapy and abscesses larger than 5 cm and secondary bacterial infection may complicate up to 20% of amoebic liver abscesses and hence, drainage may be required in many patients with amoebic liver abscesses. Operative drainage is associated with significant (10-47%) mortality and morbidity. In recent years, image guided percutaneous drainage has been increasingly used to treat liver abscess with reported success rates ranging from 70-100%. Surgical intervention is limited to very few cases. Percutaneous needle aspiration was associated with 60% success rates whereas percutaneous catheter drainage had success rates of 100%.

In the present practice, detailed morphology of liver by radiology and ultrasound abdominal scan for abscess is examined. After thorough examination patients are hospitalized and are given antibiotic therapy. Patients not responding to parenteral antibiotics therapy within 48-72 hours, are subjected to ultrasound guided aspiration if the abscess cavity is less than 5 cm in diameter and percutaneous catheter drainage for cavity more than 5 cm..

The present study is intended to evaluate USG guided percutaneous catheter drainage using pigtail catheter and malecot catheter, assess its response.

AIMS OF STUDY-

To compare between pigtail and malecot catheter drainage in management of liver abscess in respect of followings-

1.Time for total resolution/reduction of abscess cavity at 15 days, 1 month and 3 months.
2.Clinical improvement.
3.No. of days catheter in situ.
4.Complication rates.
5.Duration of Hospital stay.

MATERIALS & MATHOD-

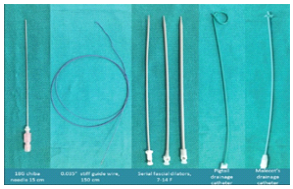
Inclusion criteria- Liquefied and aspirable liver abscesses >5 cm diameter requiring drainage

Exclusion criteria-

1.Liver abscess <5 cm diameter.
2.Pregnant patient
3.Age < 18 years.
4.HIV patients.
5.Altered coagulation profile.
6.Multiple, ruptured, partially liquefied and aspirable, non aspirable liver abscesses.

Study Design-

This was a prospective randomized study conducted at tertiary care hospital in Vadodara (S.S.G. Hospital). 58 cases of solitary liquefied liver abscess >5 cm in maximum dimension (as labelled by radiologist) were studied. Written informed consent was taken for the surgical procedure & randomly allocated using envelope system. Pigtail and Malecot catheter were inserted in randomised patients according to standard technique. Coagulation profile was checked in all patients before the procedure. Injectable atropine 0.5mg i.m was given half hour before the procedure.



Post procedural observations-

1.Clinical improvement (pain,fever,vomiting)-
2.Wbc count(in those with previously raised counts-done when patient was symptomatically improved)-
3.No. of days catheter in situ (criteria for removal of catheter -<20 ml catheter output for 3 consecutive days)-
4.Volume of abscess drained-
5.Culture and Sensitivity-
6.Hospital stay-
7.Time for total resolution/reduction of abscess cavity

Patients were assessed daily till the day of discharge for clinical improvement and usg abdomen was done at 15 days, 1 month, 2 month and 3 month to look for reduction of cavity size.

RESULTS

Residual size < 5cm (max. dia)	Patients who underwent pigtail drainage(n=27)	Patients who underwent malecot drainage (n=25)	p-value
15th day	6(22.2%)	4(16%)	0.574
1 month	13(48.14%)	13(52%)	0.783
3 months	23(85.18%)	25(100%)	0.047
Type of intervention	Avg. number of days for clinical improvement	p-value	
Pigtail	3.28 days	0.1017	
Malecot	1.96 days		
Type of intervention	Avg. number of days for catheter days in situ	p-value	
Pigtail	7.69 days	0.2	
Malecot	6.19 days		

Procedure	Number of patients with complication	Total number of patients	Percentage (%)	p-value
malecot drainage	1	26	3.84%	0.146
pigtail drainage	5	32	15.62%	
Type of intervention	Avg. duration of hospital stay	p-value		
Pigtail	11.75 days	0.23		
Malecot	9.76 days			

DISCUSSION

In present study, 46 patients (79.3%) were males and rest 12 patients (20.7%) were females with male:female ratio 3.8 : 1 which coincides with Rajak et al1 & Shyammathur et al6 studies.In the present study, mean age presenting with liver abscess was 50.14 years.

The findings of signs in the present study was similar to that found in Rajak et al1 & Mangukiya et al5studies with respect to abdominal tenderness, icterus, hepatomegaly but the incidence of pyrexia was slightly lower in the present study. The results of Laboratory investigations like Leukocytosis (>10,000), Total bilirubin (>1.2 gm/dl)in the present study was in line with most of other studies by Yooet al, ,mangukiya et al 5, Yeoh et al.

On the 15th day, reduction in the size of abscess cavity to <5cm was seen in 6 cases (22.2%) in pigtail group and 4 cases (16%) in malecot group. There was no significant difference in outcome at 15th day (p-value =0.574). After 1 month, reduction in the size of abscess cavity to <5cm was seen in 13 cases (48.14%) in pigtail group and 13 cases (52%) in malecot group. There was no significant difference in outcome at 1 month (p-value =0.783). After 3 months, reduction in the size of abscess cavity to <5cm was seen in 23 cases (48.14%) in pigtail group and 25 cases (52%) in malecot group. There was significant difference in outcome after 3 months. (p-value =0.047). The reduction size of cavity to <3cm as stated by Kapadia et al4 was found to be 100% after follow up of 3 months which is consistent with our study.

Average duration of the number of days for clinical improvement with pigtail catheter is 3.28 days and with malecot catheter is 1.96 days. There was no significant difference in days for clinical improvement (p-value=0.1017). Average duration of number of days with catheter in situ with pigtail catheter is 7.69 days and with malecot catheter is 6.19 days which was comparable to Rajak et al1 study. There was no significant difference in days with catheter in situ (p-value=0.2). Complication rate seen with pigtail catheter is 15.62% and that with malecot catheter is 3.84%. there was no significant difference in complication rates.(p-value=0.14) The complication rates in this study were lower compared to Kapadia et al 4study. Average duration of the hospital stay with pigtail catheter is 11.75 days and with malecot catheter is 9.76 days. There was no significant difference in duration of hospital stay. (p-value=0.23).

CONCLUSIONS

Percutaneous catheter drainage has become the treatment of choice in most patients in liver abscess and has proven to be the most suitable method for abscesses >5cm. It is safe, effective, and minimally invasive procedure with less morbidity and no mortality. There was no significant difference in days for clinical improvement, comlication rates, & duration of hospital stay between pigtail catheter & malecot catheter.

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