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A STUDY BETWEEN PERCUTANEOUS ASPIRATION AND PIGTAIL DRAINAGE IN 70 CASES OF LIVER ABSCESS

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Abstract

Introduction: *Liver abscesses, 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 (USG) and CT-scan resulted in introduction of radiological guided aspiration and drainage of intra-abdominal abscesses as many cases are refractory to medical therapy.* ***Aims and Objectives:*** *To evaluate demographic profile, etiology, clinical presentation and its management.* ***Materials and Methods:*** *Study size and period: 70 cases, May 2017-18 Study conducted at: V.S.G.H, Ahmedabad Needle aspiration Guidelines: abscess size >5 cm or>65ccvolume. Pig Tail Catheter Drainage Guidelines: abscess size >8 cm or >120 cc volume. USG done: on Day 1, 3, 7, 30. Patients above 18yearsand willing for long follow-up were included in study.Regular follow up with USG on every visit of patient was done.* ***Results:*** *The mean hospital stays of Percutaneous aspiration (2.8 days) was less as compared to pigtail drainage (4.6 days) and hence the patient compliance is more in aspiration. But for the complete resolution of abscess cavity especially for large abscesses pigtail drainage offers better advantage than percutaneous needle aspirations provided the cavity is adequately liquefied.* ***Conclusion:*** *Percutaneous needle aspiration is minimally invasive and readily acceptable but not useful in large abscess. And Pigtail catheter drainage of abscess under USG guidance is better, safe and effective in larger abscesses but required longer hospital stay. As there is no significant difference in cavity resolution rate, Both Procedures could be used with equal efficacy in properly selected cases.*

Keyword: *Liver, Abscess, Percutaneous Aspiration, Pigtail Drainage*

INTRODUCTION

-Liver abscesses, both amoebic and pyogenic, continue to be an important cause of morbidity and mortality in tropical countries including India.
- The advances in radiology, resulted in introduction of radiological guided aspiration and drainage of intra-abdominal abscesses .
-The primary mode of treatment of amoebic abscess is medical, but refractory cases and in patients with pyogenic liver abscesses, aspiration and/or PIGTAIL drainage have been the traditional mode of treatment.
-Success rate of needle aspiration is 60-100% and with pig-tail catheter it is 100%. Above studies have prompted us to study the subject.[1]

MATERIALS AND METHODS

-Study size and period: 70 cases, May 2017-18
-Study conducted at: V.S.G.H, Ahmedabad
-Needle Aspiration Guidelines: -abscess size >5 cm or>65cc volume.
-Pig Tail Catheter Drainage Guidelines: abscess size >8 cm or >120 cc volume.
-Patient had ultrasonography (USG) done at the time of admission and the treatment procedure to be followed was decided based on USG findings.

PROCEDURE

-All patients were started with Inj. Ceftriaxone 1gm IV 12 hrly and Inj.Metronidazole 1000 mg IV 8 hrly.
-USG done: on Day 1(on day of admission), 3, 7,15, 30 and when required.

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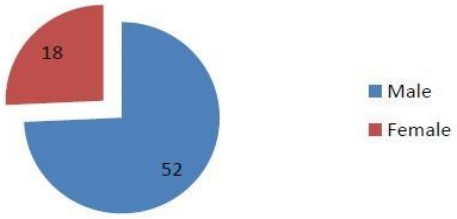
- Patients above 18years and willing for long follow-up were included in study. Regular follow up with USG on every visit of patient was done. -Patients were examined daily for clinical improvement, Laboratory and radiological workup was done as required during admission and then after discharge in follow up OPD visits.
-Cure was defined as improvement clinically with subsidence of fever, and local signs, symptoms, decrease in WBC count and follow-up USG showed reduction in size < 3 cm in diameter and no evidence of relapses. -Pigtail catheter was removed when on follow-up USG of the patient, residual liver abscess was found less than 5 cm and non-liquefied in a symptomless patient.

OBSERVATION: - 1. Gender distribution of cases included in study.

- male- 52(74.2%)
- female-18(25.8%)



2. Age distribution of the cases: -

- -Age of the patients included in this study varied from 18 years onwards.
- The highest incidence was noted in the age group of 40-50 years (30%)
- with a mean age of 46.08 years which coincides with findings in other studies

Study	Age group	Mean Age
Rajak et al[1]	2-72 yr	35
Antonio Giorgio et al[42]	16-86 yr	45.3
Present study	21-80 yr	46.08

3. Symptoms associated with liver abscess: -

Symptoms	No of pts (frequency)	Percentage (n=70)
Abdominal Pain	70	100%
Fever	62	88.5%
Nausea	48	68.5%
Vomiting	34	48.5%
Jaundice	16	22.8%
Diarrhoea	28	40%

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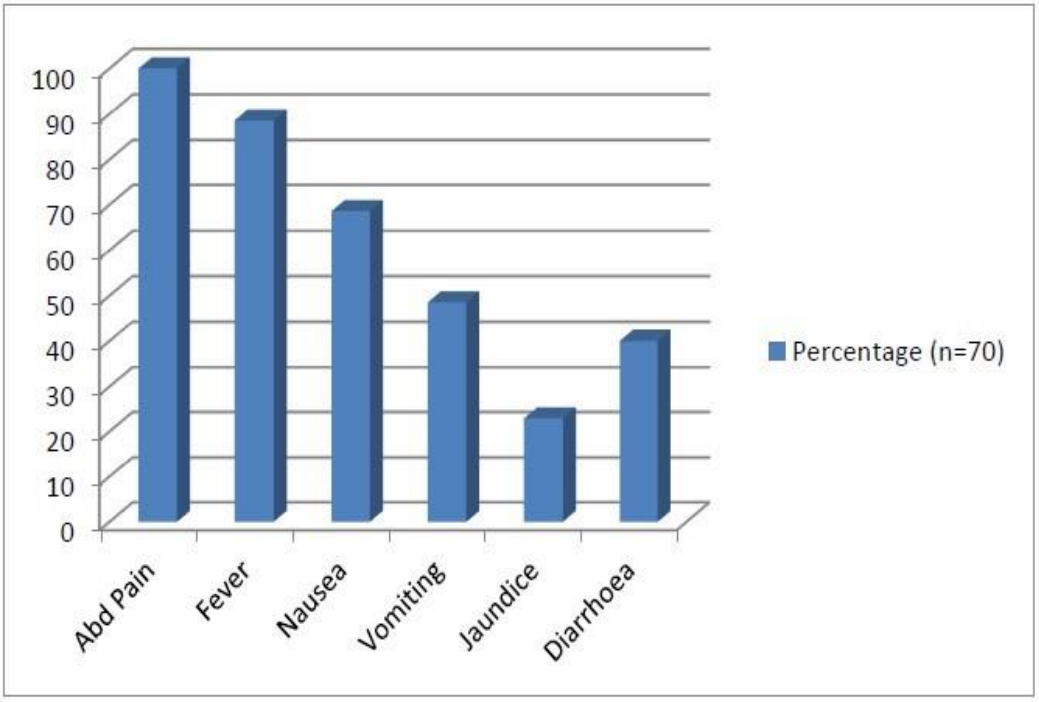
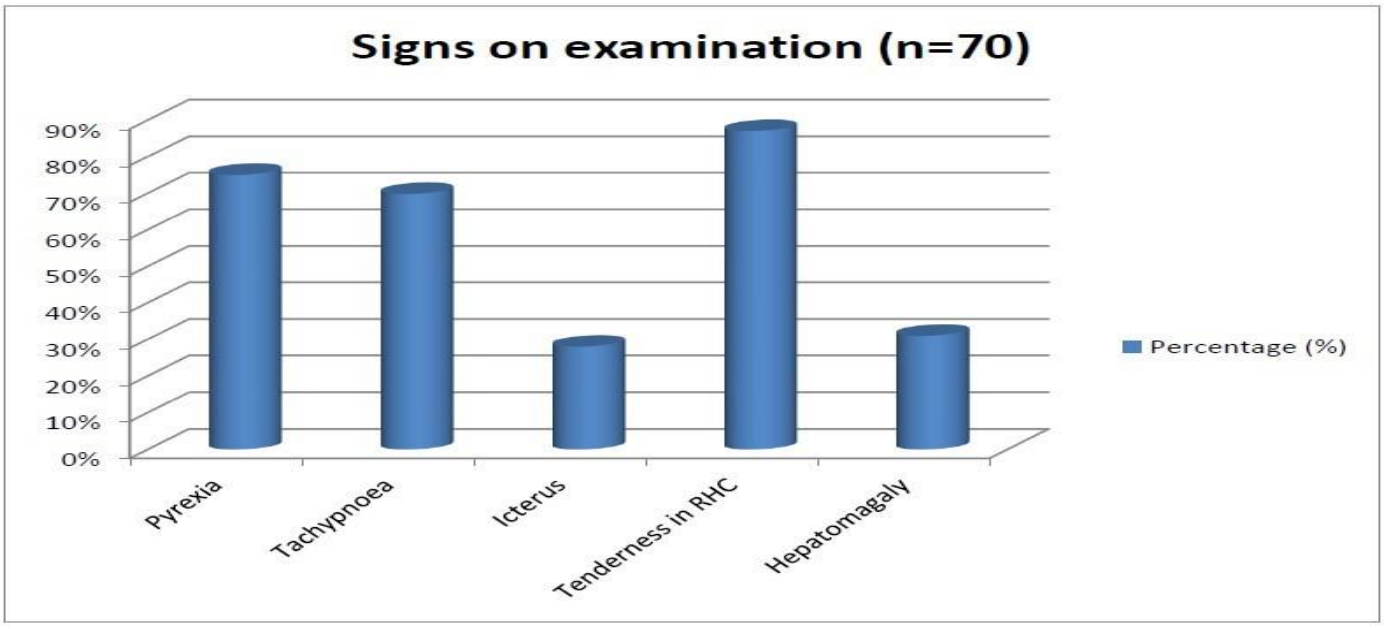


5. Signs on clinical examination:-

Signs on examination	Frequency (n=70)	Percentage (%)
Pyrexia	53	75%
Tachypnoea	49	69.8%
Icterus	20	28%
Tenderness in RHC	61	87%
Hepatomagaly	22	31%



6. Laboratory investigations: -

- Anemia (Hb<10 gm/dl) was found in 31.4% (22 patients) of the cases.
- Leucocytosis (> 10,000c/mm3) was found in 88.5% (62) of cases.
- Hyperbilirubinemia with serum Total bilirubin > 1.2 gm/dl was found in 57.2% (40 patients) of the cases in this study. Elevated Bilirubin was found in more no. of patients in our study which can be clinically correlated to the no of patients having jaundice.
- The liver function test which was most consistently raised was alkalinephosphatase was found to be raised in
- 61.5% (43 patients) of cases in this study. • Elevated prothrombin time was seen in 30% (21 patients) of cases. S. Urea was raised in 61.5% while S. Creatinine was altered in 32.9% of cases.

6. Radiological investigations:• Findings on chest X-ray(CXR)[3]:

Findings on CXR	Frequency (n=70)	Percentage (%)
CP angle blunting (unilateral -R)	18	25.7%
CP angle blunting (bilateral – R+L)	5	7.1%
Elevation of Right dome of diaphragm	51	72.8%

*Findings on Ultrasonography(USG): -

- Majority of the patients (67.1%) has single abscess while only a small amount of patients (5.7%) were found having more than 3 abscess cavities.
- Similarly, 64.2% of patients were found having abscess cavity size ranging from 5-8cm with only 7.3% abscess exceeding 10cm in size.
- 58 patients (82.8%) had abscess over the Right lobe of liver whereas 9 patients (12.8%) had over the left lobe and 3 patients (4.4%) had abscess in bilateral lobes.[1,6,10]

Residual Volume(size)	Frequency
<5 cm	38
5-8 cm	12
>8 cm	0
Total	50

7. Per-cutaneous needle aspiration(n=50): -

Volume aspirated	Frequency (n1=50)
<50	9
50-150	29
>150	12
Total	50

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- 50 underwent per-cutaneous aspiration with 16gauge spinal metallic needle.
- The volume of pus aspirated from the respective segment, residual volume, total number of aspirations and follow up USG after 15 days were noted along with the mean interval of stay of admission.
- In the present study we can observe that 29/50 patients had volume aspirated between range of 50-150cc, which correlates to the high no of patients with residual size of liver abscess of less than 5 cm (38/50) after single aspiration.
- After single aspiration patients with residual size>5 cm were kept on anti-biotic management and on liquefaction reaspiration was done as and when required.
- Thus 17 patients had to undergo aspiration twice or thrice and 1 patient out of 50 had undergone aspiration 4 times.
  - The average duration of stay in patients of percutaneous needle aspiration is 2.8days.
- Per-cutaneous Pigtail catheterization. (n2= 20):-
- On insertion of pigtail catheter in a patient of liver abscess the daily output is monitored every 24hrly and the character of the pus is noted.
- Follow up USG of the abscess is done to confirm the position of the catheter and repositioned if required and residual size noted after 1 week.

Pigtail output /24hrs	<50	50-100	>100
Day 1	2	15	3
Day 2	6	13	1
Day 3	10	9	1
Day 4	13	6	1
Day 5	17	3	0

Residual Volume (size)	Frequency (n_2= 20)
<5	14
5-8	6
>8	0
Total	20

The frequency of daily catheter output is as follows: • The average duration of stay in patients of per-cutaneous pigtail catheterization is 4.6days.

- 9. Etiology: -
- Most of the culture reports showed no growth (46%) followed by Escherichia Coli being the most common cultured organism at 32%.
- Based on the aspirate and culture reports 60% were diagnosed to be Pyogenic liver abscess, Anchovy Sauce aspirate along with history of diarrhoea showed 24% cases to be Amoebic liver abscess.
- Mortality rate in our study cannot be commented much upon due to the limited amount of the cases.

CONCLUSION

- Advances of interventional radiology have influenced management of liver abscess.
- In case of liver abscess, percutaneous needle aspiration under USG guidance is minimally invasive and readily acceptable to most of the patients and easy to perform and without any complications. Less medical or nursing care is required with shorter hospital stay and negligible morbidity and no mortality. Only disadvantage is in very large abscesses (>8cm) repeated aspirations are required and in cases of thick and loculated collection it may fail. Though it can be used as initial line of management.1 - Pigtail catheter drainage of abscess under USG guidance is better in larger abscesses which are partially liquefied or with thick pus. It is safe effective and minimally invasive

procedure with less morbidity and no mortality. The disadvantage is that the patient had longer duration of hospital stay. This technique also requires expertise and is costlier than percutaneous aspiration.1

- There is no significant difference in cavity resolution rate, so both procedures could be used with equal efficacy in properly selected cases.

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