RESEARCH ARTICLE

AMOEBC LIVER ABDOMINAL AND GENDER DIFFERENCES

ABSTRACT
The study was undertaken to elucidate the clinical profile and to find out the results of Ultrasound guided aspiration of liver abscess in the Department of General Surgery, Baqai Medical University Hospital Nazimabad Karachi, from April 2007 to April 2012. 60 cases were included in the study, which were diagnosed to have amoebic liver abscess with 96.5% male and 3.5% female patients. The diagnosis was based on persistent fever, pain in right upper abdomen with pointing tenderness over liver, serodiagnosis, ultrasound evidence of liver abscess and CT scan in selected cases. Those having abscess larger than 5 cm subjected to percutaneous transhepatic ultrasound guided aspiration of liver abscess and the abscess size and resolution was monitored. Parental antibiotic cover for 4 to 6 weeks was provided to all patients. Fever was the most frequent symptom as diagnosed in 57 (94%) patients, followed by pain in right upper abdomen in 54 (90%) patients and diarrhea in 6 (10%) patients, anorexia and weight loss in 18 (30%) patients. 11 (18.3%) patients had hepatomegaly, 8 (13.5%) showed deranged LFTs and 9 (15%) patients had right sided pleural effusion. Out of total cases, 54 (90%) patients had right lobe abscess, 2 (3.3%) patients had left lobe abscess and three (5%) patients had multiloculated right lobe abscess. One (1.6%) patient had multiple abscess in both lobes of liver. Serology test for Entamoeba histolytica was positive in all patients Ultrasound guided needle aspiration employed in 38 (63.5%) patients and 22 (36.5%) patients were managed conservatively. In 8 (13.3%) patient’s second attempt of aspiration employed. In one (1.5%) patient right chest drain was passed. Patient with amoebic liver abscess with fever and pain in right upper abdomen were noted. Our study showed amoebic liver abscess had seven times higher incidence in male than in female.

Keywords: Amoebic liver abscess, antibiotics, ultrasound guided aspiration, gender difference, sex hormones.

1. INTRODUCTION
The amoebic liver abscesses are quite common and in 10% of those harboring the Entamoeba histolytica develop significant invasive disease. It produces a spectrum of clinical syndromes ranging from dysentery to abscesses of the liver, lung or brain. The liver abscess is the most common complication1,2,3. Other two species, E. dispar and E. moshkovskii are noninvasive. Amoebae are carried to the liver through portal venous system that causes liver abscess.3,4 Rarely amoeba pass through hepatic sinusoids into systemic circulation and produces abscesses in the lungs and brain3,4. The latent period between the intestinal infection and hepatic amoebiasis has not been explained3,4.

The developing countries in the tropics carry high incidence due to inadequate sanitation and crowding. Worldwide 40 million people develop amoebic colitis and extra intestinal abscess resulting in 40000 deaths annually.4 In complicated cases, the mortality is as high as 20%.4,5 Invasive amoebiasis affects predominantly men6.

2. METHODS
This study was conducted on 60 patients of amoebic liver abscess, in the Department of Surgery, Baqai Medical University Hospital Nazimabad, Karachi.
from April 2007 to April 2012.

2.1. Exclusion Criteria
i. Serology negative for *Entamoeba histolytica*.
ii. Leaking liver abscess with ascites and pelvic abscess.
iii. Left lobe abscess with pericardial effusion.
iv. Liver abscess adjacent to portahepatis.
v. Liver abscess in children.

2.2. Inclusion Criteria
i. All amoebic liver abscess.
ii. Pleural effusions associated with liver abscess.

The details of patients are reported in Table 1. Diagnosis was based on thorough clinical assessment and supported by investigations such as complete blood counts, liver function tests, coagulation profile, urea, electrolytes, serology, ultrasound of abdomen, X-ray chest (carried out in all patients) and CT scan of chest and abdomen (employed in selected patients). Antibiotics were given for 4 to 6 weeks in order to treat and prevent recurrence of the abscess or septicemia. After aspiration, the abscess size and resolution was monitored with ultrasound. Associated diseases were also recorded. The patients were examined daily. Improvement in pain, fever, anorexia, and improvement of LFTs were considered criteria for successful treatment. The patients were followed for 6 months on monthly basis.

### Table 1. Patients details and their clinical assessment.

<table>
<thead>
<tr>
<th>Patients detail</th>
<th>Investigation</th>
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<tbody>
<tr>
<td>Male</td>
<td>Serodiagnosis 60 (100%)</td>
</tr>
<tr>
<td>Female</td>
<td>Leukocytosis 52 (86.5%)</td>
</tr>
<tr>
<td>Mean age 16 to 80</td>
<td>Low hemoglobin 14 (23.5%)</td>
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<tr>
<td>Mean age 80 years</td>
<td>Deranged LFT 8(13.5%)</td>
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</table>

### Clinical Features

<table>
<thead>
<tr>
<th>Clinical Features</th>
<th>Ultrasound Examination &amp; Chest Examination</th>
</tr>
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<tbody>
<tr>
<td>Fever</td>
<td>Right lobe abscess 54 (90%)</td>
</tr>
<tr>
<td>Abdominal Pain</td>
<td>Left lobe abscess 2 (3.3%)</td>
</tr>
<tr>
<td>Anorexia weight loss</td>
<td>Multiloculated Rt Lobe 3 (5%)</td>
</tr>
<tr>
<td>Hepatomegaly</td>
<td>Multiple abscess 1 (1.0%)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Pleural effusion 9 (15%)</td>
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4. DISCUSSION

The study showed 94% of patients had fever which was prolonged or intermittent and rarely associated with rigor or sweating. 90% of patients had pain in the liver area with point tenderness, may be referred to shoulder, aggravated by coughing or deep breathing and increase at night3,4,7. In 90% cases that had right lobe liver abscess, which is consistent with other study8. In this study, 3.5% of patients had left liver abscess, whereas in some other studies the incidence of left liver abscess is on higher side8,9.

In the present study, 63.5% patients underwent ultrasound guided aspiration in abscess larger than 5 cm, 36.5% patients treated conservatively in abscess less than 5 cm and multiple bilateral liver abscess.10,11 The serology test was positive in 100% cases of amoebic liver abscess, consistent with other studies8,11,12. In 13.5% patients second attempt of aspiration carried out in giant amoebic liver abscess and in multiloculated liver abscess9,11,12. In this study, 86.5% were male and 13.5% were female, mean age was the 4th-5th decade of life (Table 1) consistent with documented study11,12. Similarly fever, pain right upper abdomen, hepatomegaly (18.5%), pleural effusion (15%) weight
loss (30%), anemia (23%) and jaundice (13.5%) were consistence with other studies conducted at different parts of the World\textsuperscript{13,14}.

The jaundice in amoebic liver abscess is due to biovascular fistula resulting from hepatic necrosis leading damage to bile ducts and hepatic veins.\textsuperscript{15} The hepatomegaly was associated with large size liver abscess and giant liver abscess rarely present with bilateral pleural effusion and Cullen’s sign\textsuperscript{17,18}. Pleural effusion was sterile, blood stained and resolve after resolution of liver abscess and in one patient right chest drain was passed\textsuperscript{3,18}. 10% of amoebic abscess was associated with active diarrhea\textsuperscript{3,14,16}. Splenomegaly is not the feature of amoebiasis.\textsuperscript{3}

In an Italian study, the success rate of percutaneous aspiration or drainage is up to 97% as we also had similar result\textsuperscript{19,20}. It is documented that the imaging-guided percutaneous aspiration when performed in conjunction with long term antibiotic coverage, showed good long-term outcome with minimal complications\textsuperscript{21,22}.

Abdominal ultrasound and CT scans are the most useful diagnostic tests, providing accurate information regarding the presence, size, number, and location of abscesses within the liver\textsuperscript{22,23}. These imaging studies cannot distinguish amoebic and pyogenic abscess\textsuperscript{22,23}. Stool examination for organism antigen is not highly sensitive; at least three stool specimens are required and the antigen test is positive only in 40% of cases\textsuperscript{3,4}. Serologic tests for anti-amoebic antibodies are positive in almost 100% of cases\textsuperscript{3,4,24}.

Metronidazole is the drug of choice. All amoebic liver abscess were managed with metronidazole 500 mg intravenously every six hour with third generation cephalosporin or ciprofloxacin for minimum 10 days\textsuperscript{4,6,25}. Amoebic liver abscess is curative and recurs rarely\textsuperscript{5}. Age, debilitating disease, marked alteration in liver functions, gross abscess formation and duration of symptoms have adverse influence on survival\textsuperscript{21,22}.

Recently various studies discussed hypothesis regarding sex difference. Women are more resilient to some liver disease due to difference in nuclear receptor regulated metabolic pathway\textsuperscript{26}. Dehydroepiandrosterone decreases while cortisole increases in vitro growth and viability of *Entamoeba histolytica*\textsuperscript{27}. Sex steroid effects on immune cells and directly upon parasite growth and viability\textsuperscript{27}. In female liver, NRs exhibit cross talk with more liver protective potential than NRs in male liver\textsuperscript{28}. Sex associated hormones and X-chromosome linked factor also affect compliment mediated killing of parasite by male and female\textsuperscript{29}.

## 5. CONCLUSION

Patients with amoebic liver abscess showed prolonged fever and pain in right upper abdomen, weight loss, diarrhea, and jaundice. Needle aspiration is an easy, rapid safe and effective method of treatment of amoebic liver abscess. It was noticed that there is gender difference. It is documented, amoebic liver abscess has 7-10 higher incidences in male than in female despite an equal sex distribution of non invasive colonic amoebic disease among adult. The higher proportion of men may be due to sex-associated hormones or factors liked to the X-chromosomes.

## REFERENCES


