



## ROLE OF ULTRASOUND-GUIDED NEEDLE ASPIRATION OF AMOEBIC LIVER ABSCESS IN TERTIARY HEALTH CENTRE

### Surgery

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### ABSTRACT

This prospective study was carried out on 200 patients with clinically, ultrasonographically and serologically confirmed amoebic liver abscess. The role of ultrasound-guided needle aspiration in addition to medications was evaluated compared to drug treatment alone. Both the groups were monitored clinically and sonographically for up to 6 months after diagnosis. The initial response (after 15 days) was better in the aspirated group ( $P < 0.05$ ) but resolution of abscess after 6 months were similar. There was a more rapid clinical response in the aspirated group, particularly in those with larger ( $> 6$  cm) abscesses and there were no complications. Percutaneous ultrasound-guided needle aspiration is a safe diagnostic and therapeutic approach which enhances clinical recovery, accelerates resolution, especially in large abscesses, and prevents complications.

### KEYWORDS

#### Introduction

Amoebic liver abscess is a common problem in India. It represents the most common non-enteric complication of amoebic infection. Early diagnosis and prompt treatment of an amoebic liver abscess results in low morbidity and mortality, whereas late diagnosis is associated with higher incidence of complications and a relatively high fatality rate.<sup>1</sup> The use of ultrasound for diagnosis and guiding the aspiration needle has reduced the incidence of patients requiring laparotomy. Recently the role of percutaneous aspiration in the management of amoebic liver abscess has been doubted.<sup>2</sup> Only a few controlled trials of needle aspiration have been carried out.<sup>3-4</sup> The present study was undertaken to evaluate the role of ultrasound-guided needle aspiration in the treatment of amoebic liver abscess.

#### Materials and methods

Two hundred patients with amoebic liver abscess admitted to the Sarojini Naidu Medical College, Agra from January 2018 to July 2018 were included in the study. All patients were subjected to a thorough clinical examination. Diagnosis was based on standard criteria.<sup>5</sup> All patients had positive serological results for *Entamoeba histolytica* (1:400 or more by enzyme-linked immunosorbent assay) and one or more lesions in the liver with characteristic features of amoebic liver abscess on ultrasound examination.<sup>6</sup> Patients were evaluated clinically and by ultrasound on admission, on the 15th day and subsequently after 1, 3 and 6 months to determine the role of ultrasound guided needle aspiration in the management. Aspiration of the abscess was carried out under strict aseptic conditions on admission to the hospital. Aspiration was done in those with large abscesses ( $> 6$  cm diameter), high fever, toxemia, no response to drug therapy and, for confirmation of diagnosis, especially in those with abscess in uncommon sites. Surgical drainage was performed in 10 cases, who were in the non-aspiration group and were not included for analysis. Indications included failure to respond to conservative treatment (two patients), expanding abscess (two patients) and complications (six patients). In one case the abscess had perforated through the anterior abdominal wall, four had ruptured into the pleural space and one into pericardium and peritoneum.

#### Results

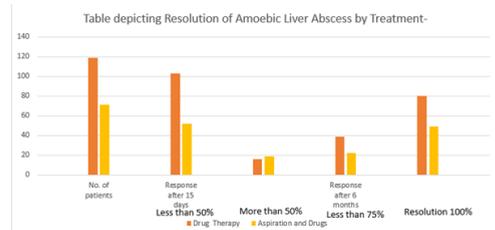
Out of the 200 cases, abscesses were detected in the right lobe of the liver in 174 cases (87%) and in the left lobe in 20 (10%) cases, and in six patients (3%) abscesses were present in both the lobes. A single abscess was detected in 163 patients (81.5%) whereas multiple abscesses were detected in 37 patients (18.5%). The size of the abscess varied: the smallest being 2 cm in diameter and the largest 15 cm. In 107 patients (53.5%) the abscess cavity was less than 6 cm and in 93 patients (46.5%) it was more than 6 cm. One hundred and nineteen patients (59.5%) received anti-amoebic drugs alone (metronidazole and chloroquine), 71 (35.5%) underwent percutaneous ultrasound-guided needle aspiration in addition to drugs and 10 (5%) patients required surgical drainage. Response to therapy in terms of ultrasound

resolution of abscess cavity is shown in Table I. There was a more rapid clinical response in the aspirated group than in the non-aspirated group, especially for patients with abscess more than 6 cm in diameter. In 17 patients (23.94%) the temperature settled to near normal levels on aspiration. Ultrasound examination after 15 days of initiation of treatment showed significant ( $P < 0.05$ ) improvement in the group treated with aspiration. There were no complications of the procedure in any of the 71 patients subjected to aspiration and none needed surgical drainage subsequently. Patients were discharged relatively earlier in the aspirated group.

**Table I** Resolution of amoebic liver abscess with treatment

Mode of therapy	No. of patients	Response after 15 days Resolution		Response after 6 months Resolution	
		< 50%	> 50%	< 75%	100%
Drug therapy alone	119	103 (86.55)	16 (13.45)	39 (32.77)	80 (67.23)
Aspiration and drugs	71	52 (73.24)	19* (26.76)	22 (30.99)	49 (69.01)

\* $P < 0.05$ . The  $P$  value refers to a significant difference between aspirated and non-aspirated group after 15 days. Resolution refers to reduction in diameter of abscess cavity as determined by ultrasound. Figures in parentheses represent percentage.



#### Discussion

Amoebic liver abscess is fairly common in India whereas pyogenic abscesses are relatively rare. Amoebic abscess may mimic or coexist with other surgical conditions.<sup>7</sup> Prompt diagnosis is necessary to initiate therapy and to avoid potentially fatal complications. Ultrasound-guided needle aspiration meets these requirements admirably. Our study shows that needle aspiration combined with chemotherapy represents a successful therapeutic approach in the management.

The advantages of needle aspirations observed were:

- (1) rapid clinical response especially in those with larger lesions ( $> 6$  cm in diameter);
- (2) ultrasound guided needle aspiration of abscesses in uncommon sites;
- (3) prevent rupture of left lobe abscess which is more liable to rupture than right lobe abscess;
- (4) quicker defervescence,

and relief of pain and tenderness, and shorter hospital stay. In addition needle aspiration helps in confirmation of diagnosis especially when serological tests are not available or negative. In those with smaller abscesses and clinical well-being drug treatment alone would suffice. Though the initial response to aspiration is good (26.76% vs 13.45%), the resolution of abscess cavity after 6 months is similar (69.0% vs 67.2%). It has been shown that complete resolution of amoebic liver abscess may take years and that pyogenic abscess resolve more rapidly.<sup>8</sup> The study by Sharma et al.<sup>2</sup> excluded patients with an abscess in the left lobe, multiple liver abscesses and impending rupture, all of which may require needle aspiration. Indications for aspiration have been suggested and the role of serological confirmation in those managed without aspiration stressed.<sup>9</sup> In India, serological tests for confirmation are not available in most hospitals, and therefore needle aspiration provides an economical and safe alternative. In conclusion, though needle aspiration is not indicated in all cases of amoebic liver abscess, it offers a safe, economical diagnostic and therapeutic approach, enhances clinical recovery, accelerates resolution, especially in those with large abscesses, and prevents complications.

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