MANAGEMENT OF RUPTURED AMOEBIC LIVER ABSCESS: 22-YEARS EXPERIENCE

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Background: Amoebiasis affects approximately 10% of the population all over the world. Amoebic liver abscess (ALA) is the commonest complication of amoebiasis affecting 3–9% victims. It is an ancient disease as Hippocrates notified large hepatic abscesses likely to be amoebic abscesses. Objective of this study was to see the efficacy of conservative treatment in the management of ruptured amoebic liver abscess. **Methods:** Record of 1,083 patients of amoebic liver abscess, who were treated and managed at Liaquat University Hospital between January 1986 and December 2007, was reviewed retrospectively. Amongst these, 36 (3.32%) patients, found to have intra-peritoneal rupture of the liver abscess were included in this study. The record of these patients was reviewed. The patients were divided into group A and B depending upon the mode of treatment employed. Group A included 16 (44.44%) patients in whom exploratory laparotomy was performed while group B included 20 (55.55%) patients who were treated conservatively. **Results:** Group A consisted of 16 (44.4%) patients who underwent laparotomy for acute peritonitis due to non-availability of ultrasound in the initial period of the study. In group B, all twenty patients were treated conservatively after a diagnosis of ruptured amoebic liver abscess made by ultrasound guided percutaneous aspiration of pus. These patients were treated with ultrasound guided aspiration of pus with placement of peritoneal drain under local anaesthesia. Six patients in group A died compared to one patient in group B. the overall mortality of ruptured amoebic liver abscess was 19.4%. It was higher in patients treated surgically (37.5%) compared to patients who were treated conservatively (5%). **Conclusion:** Conservative treatment is an effective modality of treatment for ruptured liver abscess with minimum mortality and mortality if diagnosis is made early.

Keywords: Amoebic liver abscess, intra-peritoneal rupture, exploratory laparotomy, conservative treatment, mortality and morbidity

INTRODUCTION

Amoebiasis affects approximately ten per cent of the population all over the world.[1] Amoebic liver abscess (ALA) is the commonest complication of amoebiasis affecting 3–9% victims.[2] It is an ancient disease as Hippocrates notified large hepatic abscesses likely to be amoebic abscesses.[3] Third world countries including Pakistan and India are considered to be endemic zones for amoebic liver abscess.[4–6] Spontaneous intra-peritoneal rupture is a life threatening complication of ALA with a reported frequency of 2.7–17%.[7,8] Extra-peritoneal rupture including retroperitoneal rupture[9] and intra-thoracic rupture have also been reported. Ruptured ALA may prove to be fatal if left untreated with a significant mortality ranging up to 75%.[10–12] Ultrasonography and CT have changed the outlook of patients with liver abscess by making the diagnosis much easier than it used to be in the past.[13] Despite tremendous improvements in the diagnostic accuracy, delayed diagnosis leading to late treatment of rupture of amoebic liver abscesses continue to occur with catastrophic results.

There is a concomitant improvement in the treatment modalities; unnecessary laparotomies and surgical drainage is replaced by accurate and targeted percutaneous drainage under ultrasound guidance.[13–15] Laparoscopy, both for drainage of the amoebic liver abscess and management of its intraperitoneal rupture is a recent advancement and is increasingly being done successfully in many centres.[16]

This study was conducted to assess the role of early diagnosis of ruptured amoebic liver abscess and its conservative management and to compare it with operative treatment.

MATERIAL AND PATIENTS

Hospital record of one thousand and eighty three patients of amoebic liver abscess who were treated at Liaquat University Hospital between January 1986 and December 2007 was retrieved and reviewed retrospectively. The record of thirty six (3.36%) patients, who presented with intra-peritoneal rupture of amoebic liver abscess, was evaluated. The record of these patients was analysed in terms of diagnosis, mode of treatment, duration of hospital stay and outcome. Based on the treatment employed, the patients were divided into groups A and B. Group-A included 16 (44.4%) patients who had undergone exploratory laparotomy while Group-B included 20 (55.5%) patients who were managed conservatively. The variables studied were collected on a proforma and the statistical analysis done on SPSS version 11.

Exploratory laparotomy was performed in 16 patients (Group-A) in whom the diagnosis of ruptured

liver abscess could not be established on clinical grounds as the facility of ultrasound was not available in the first decade of this study from 1986 to 1995. Most of these patients presented late in the course of their illness and were found to have generalised peritonitis on admission. These patients were explored as cases of acute abdomen. In all these cases, the diagnosis of ruptured liver abscess was established at laparotomy; the abdominal cavity was thoroughly cleaned and a drain was usually placed for about a week. All patients received anti-amoebic therapy and antibiotics postoperatively. In 20 patients (Group-B) a diagnosis of ruptured liver abscess was made based on ultrasonological findings and were treated conservatively by percutaneous drainage of the abscess under ultrasound guidance along with intravenous meteronidazole and broad spectrum antibiotics together with placement of a drainage tube in six cases.

RESULTS

Thirty-six patients with ruptured amoebic liver abscess, 29 (80.6%) males and 7 (19.4%) females with intraperitoneal rupture of liver abscess with a mean age of 35.81 years were included as study participants. The common presenting included fever (100%), earthy complexion (90%), varying intensity of abdominal pain (90%), malaise and anorexia (44.4%).The results of various laboratory investigations are depicted in Table-1**.** The associated co-morbidities are shown in Table-2**.** Ultrasound, performed in twenty (55.5%) patients revealed twelve abscesses in the right and six in the left lobe of liver; two abscesses involved both lobes. Escherichia Coli (3 cases) and staphylococcus (1 case) were isolated indicating a possible secondary infection of the abscess. Intravenous metronidazole infusion and third generation cephalosporins were given to all the 36 patients. Sixteen patients (Group-A) were submitted for laparotomy due to failure to diagnose ruptured liver abscess. Amongst these, 6 (16.66%) patients died of fulminant septicemia. Twenty patients in Group-B were treated conservatively. In this group, 19 patients recovered uneventfully and follow up ultrasound revealed complete resolution of the abscess cavities within two months of discharge from the hospital. One patient in Group B died due to uncontrolled septicemia. Breakup of treatment modalities offered is shown in Table-3. The duration of hospital stay in both groups was statistically significant (p<0001) as shown in Table-4.

Table-1: Laboratory findings (n=36)

Laboratory findings	Number of cases (%)
White blood cell count > 10×10^9/L	30 (83.3%)
Total bilirubin > 18 µmol/L	3 (8.3%)
Alkaline phosphatase > 145 U/L	5 (13.9%)
γ-glutamyl transferase	3 (8.3%)

Table-2: Co-morbidities

Co-morbidity	Frequency	(%)
Diabetes Mellitus (DM)	2	5.6
Hypertension	1	2.8
DM+HTN*	3	8.3
IHD**	1	2.8
COPD***	2	5.6
Total	9	25.0

*Hypertension, **Ischaemic heart disease, ***Chronic obstructive pulmonary disease

Table-3: Treatment modalities

Treatment offered	Frequency	(%)
Antiamoebicidals, Antibiotics and aspiration	14	38.9
Antiamoebicidals, Antibiotics, aspiration and intubation	6	16.7
Antiamoebicidals, Antibiotics and laparotomy	16	44.4
Total	36	100

Table-4: Hospital stay of both groups

	Duration of stay					
Treatment Modality	2–4 Day	4–8 Day	Up to 2 weeks	Up to 4 weeks	Total	*p*
Antiamoebicidals, antibiotic, aspiration	5	8	1		14	<0.0001*
Antiamoebicidals, antibiotic, aspiration, intubation		4	2	6	12	
Antiamoebicidals, antibiotics, laparotomy			10	6	16	
Total	5	12	13	6	36	

*highly significant

DISCUSSION

Before the era of ultrasonography most of the patients with ruptured ALA were diagnosed at exploratory laparotomy.[17] The emerging technology in the field of radiology has increased the number of percutaneous needle aspirations compared to the surgical drainage procedures.[18,19] Controversies in the management of ruptured ALA still exist. Traditionally, patients have been managed surgically. The clinical picture is usually non-specific and most cases undergo exploratory laparotomy. Surgical drainage is increasingly been reserved for cases where percutaneous aspiration is considered unsuitable.[20] Recent introduction of laparoscopic drainage is considered a better option than laparotomy and has gained a worldwide acceptance.[16,21]

Ultrasound is a very sensitive diagnostic tool for both liver abscess and its intra-peritoneal rupture [22–24]; a channel from the intra-hepatic abscess or presence of coexisting hepatic and peritoneal abscess supporting the diagnosis[25]. Ultrasound is safe, economical and easily available with sensitivity as high as 92–97%.[26,27] The combination of ultrasound findings, a high degree of

suspicion, clinical features and aspirate analysis both for gross appearance (anchovy sauce) and microscopy helps diagnose majority of patients with ruptured ALA preoperatively[28–30] and thus prevents unnecessary laparotomy in majority of cases. Suspicion of a ruptured ALA as a cause of acute abdomen is relatively high in countries like Pakistan unlike the west where the parasite is not endemic.[31] In our series, the diagnosis of ruptured ALA abscess could not be established in 16 patients due to non-availability of ultrasound during the first decade of this study. With the advent of this diagnostic modality in the later half the study period, almost all patients were correctly diagnosed and hence were spared of surgery with excellent results.

The optimum treatment of ruptured liver abscess is still under debate and a number of surgeons advocate operative treatment as the best modality of treatment with a very low mortality. Lamont and Pooler[32] report no mortality in their five case series. Paul[33] reported fifty per cent survival in 16 cases. Singh *et al*[34] reported a decrease in mortality from 80% in the conservative group to 14% in those treated surgically for ruptured ALA. Others favour conservative management citing low morbidity and mortality rates. Sarda *et al* have reported 50% mortality in patients treated surgically for ruptured ALA compared to no deaths in patients treated conservatively.[35] Use of metronidazole has brought a remarkable improvement in the outcome and a similar improvement is reported by the use of Chloroquine.[36] The mortality in our series is significantly high in patients who were treated surgically (16.6%) compared to mortality in conservatively treated patients (5%). There was a rapid and smooth recovery in patients treated conservatively with a statistically significant overall hospital stay ($p<0.001$) compared to the patients treated operatively. The average hospital stay in the former group was 6.5 days compared to 13 days in the later group. This is consistent with the results of other studies.[37]

The intraperitoneal rupture of amoebic liver abscess has a very high mortality[38–45], especially if the diagnosis is delayed. However, since the last decade, the availability of potent antibiotics and improvements in imaging technique, including wide spread availability of ultrasound together with sonographically guided percutaneous drainage has resulted in mortality rates between 10 and 25%.[43–45] The mortality rate in our series was 19.9%, with all but one deaths occurring in patients who underwent surgery. In our experience, morbidity and mortality rate was reduced where an early diagnosis was made and a timely conservative management was started.

CONCLUSION

We conclude that early diagnosis of ruptured ALA with a high degree of suspicion and prompt ultrasonic evaluation, treatment with parentral anti-amoebicidals and percutaneous aspiration with or without placement of a drain is the most effective treatment for ruptured ALA with very low morbidity and mortality.

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