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Effectiveness of Various Treatment Modalities for Amoebic Liver Abscess

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Abstract: *The management of liver abscess has changed with significant reduction in mortality and morbidity after the advent of imaging modalities and antibiotics. The present study was conducted to study the effectiveness of various treatment modalities for amoebic liver abscess including the percutaneous catheter drainage procedure in these patients. We concluded that amoebic liver abscess need drainage either by single or multiple aspirations failing which percutaneous catheter drainage should be done.*
Keywords: *amoebiasis, aspiration, catheter drainage ,hepatomegaly, liver abscess,*

I. Introduction

Amoebic liver abscess is an important cause of morbidity and mortality in tropical countries.[1] The primary mode of treatment of amoebic abscess is medical; however many cases may be refractory to medical therapy. In such patients, aspiration has been the traditional mode of treatment. Operative drainage of amoebic liver abscess is required in complication of liver abscess. Operative drainage is associated with significant (10 to 47%) mortality and morbidity.[2] In recent years, USG guided percutaneous drainage has been increasingly used to treat liver abscess with reported success rates ranging from 70 to 100%.[2] Percutaneous placement of an indwelling catheter is the method most widely preferred to drain the large liver abscesses.[3] Also few studies have shown therapeutic needle aspiration to be a simpler and less costly mode of treatment, but needs repeated aspiration, with more failure rates. The present study was conducted to study the effectiveness of various treatment modalities for amoebic liver abscess including the percutaneous catheter drainage procedure in these patients.

II. Methods

The Present study was conducted in our institute during the period from January 2013 to December 2016. Thirty five patients admitted in a surgical ward with the diagnosis of amoebic liver abscess were included in the study. Patients with ruptured abscess were excluded from the study as they were subjected to exploratory laparotomy. After history and clinical examination, routine blood investigations were done. Serology examination was done to detect anti-amoebic antibodies by IHAand titre values >256 were considered to be positive for amoebic liver abscess. All the patients underwent USG and a diagnosis of amoebic liver abscess was made.

The patients were hospitalized and depending upon hydration status they were hydrated and started on parenteral metronidazole therapy. Patients not responding to parenteral antibiotics therapy within 72 hours were subjected to ultrasound guided aspiration if the abscess cavity was less than 5 cm in diameter and percutaneous catheter drainage for cavity more than 5 cm. Daily estimation of volume, colour and consistency of the drainage fluid was recorded. Catheter was kept in situ till the drain became less than 20 ml. Patients were followed up weekly for 1 month and monthly for next 3 months with ultrasonography. Treatment was considered successful if the patient improved clinically with relief of pain, fever and other symptoms and the imaging of liver showed resolution of the abscess.

III. Results

The age group of the study patients ranged from the 8-72 years. Highest incidence of age was found between 3rd - 6th decades with 65.7%. Youngest was 8 years old female and oldest 72 years male. In this study group 32 cases were male and 3 cases are female and sex incidence, ratio being, male: female was 10.6:1. The results are depicted in Table I.

Table I Age group of patients

Age Incidence	Frequency	Percent
<20	2	5.7
20-29 years	4	11.4
30-39 years	7	20
40-49 years	9	25.7

50-59 years	7	20
>=60 years	6	17.1
Total	35	100

In our study of 35 cases of liver abscess, 32 cases gave history of right upper quadrant dull aching pain associated with fever in 29 patients and chills in 15 patients. Vomiting was noted in 8 patients, loose stools in 2 patients and anorexia in 6 patients. On examination 3 (8.57%) patients have variable degrees of anaemia (Hb<10 gm/dl), jaundice in 12 cases, tender hepatomegaly in 16 (45.71%) cases along with the 33 (94.29%) cases had right upper quadrant tenderness and 20 patients had fever >102^0F. (Table II)

Table II		
Symptoms	No of Patients	Percentage
Pain right upper quadrant	32	91.43
Fever	29	82.86
Chills	15	42.86
Vomiting	8	22.86
Loose stools	2	5.71
Anoxeria	6	17.14

Table III		
Signs	No of Patients	Percentage
Pallor	3	8.57
Icterus	12	34.28
Tenderness	33	94.29
Hepatomegaly	16	45.71

Routine blood examinations and liver function tests were presented in Table III.

Table III. Routine blood investigations		
Investigations	No of Patients	Percentage
Anemia	3	8.57
Leucocytosis	31	88.6
Neutrophilia	23	65.7
High Creatinine	4	11.4
Hyponatremia	21	60
ESR	35	100

Table III Liver function tests		
Investigations	No of Patients	Percentage
Hypoalbuminemia	28	80
Elevated total Bilirubin	25	71.4
Elevated direct Bilirubin	22	62.9
Elevated alkaline phosphatase	29	82.9
Elevated SGOT(AST)	21	60
Elevated SGPT(ALT)	27	77.1

Radiological

Chest X ray

All patients were subjected to screening of chest with chest x-ray including upper abdomen. 16 (45.71%) cases had elevated or right dome of the diaphragm with restricted movements. The elevated right dome of the diaphragm was due to upper enlargement of liver, which occurs, in liver abscess. 16 (45.71%) cases had right sided pleural effusion. Cardiomegaly and involvement of pericardium was not seen in any of the cases.

Ultrasound abdomen

In the present study, the size of abscess was determined by long axis measurement and varied from 2×2 to 12×11cm. Volume of abscess was also measured, the smallest was 12 cc and the largest was 1100 cc. In the present study, 22 cases (62.9%) had solitary abscess and 13 (37.1%) cases showed multiple abscesses involving both lobes and also many abscesses in same lobe. Out of 13 cases of multiple abscesses, both lobe involment was in 3 cases and 2 abscesses found in same lobe either right or left in 9 cases and 3 abscesses in one lobe seen in 1 case. Mean volume drained after insertion of pigtail equal to 246.92 cc. Mean volume draining during the hospital stay on the 1st day is 171.67cc, 2nd day is 84.17 cc, 3rd day 52.22 cc and 4th day 37.50 cc

Management

35 cases of liver abscess were directed with conservative management, aspiration and pigtail insertion. Out of which 14 (40%) cases were treated with antibiotics alone, 8 (22.86%) cases were treated with antibiotics and aspiration, 13 (37.14%) cases were subjected to catheter drainage yielding varying quantities of pus from 150 ml to 1100cc, depending on the size of the abscess. All patients showed good response and proceeded towards resolution. There were no major complications noted either due to aspiration or due to catheter drainage

Table – IV , The site and number of abscess							
	Site				Number		
	Right	Left	Both	Total	Solitary	Multiple	Total
Conservative	11	1	2	14	9	5	14
Aspiration	6	1	1	8	4	4	8
Catheter drainage	12	1	0	13	9	4	13
Total	29	3	3	35	22	13	35
	82.86%	8.57%	8.57%	100&	62.86%	37.14	100%

Table – V , The volume of abscess and the mode of treatment								
Volume of abscess	Conservative (N=14)		Aspiration (N=8)		Catheter drainage (N=13)		Total (N=35)	
	N	%	N	%	N	%	N	%
<100cc	10	71.43	1	12.5	2	15.38	13	37.14
100-200cc	4	28.57	3	37.5	4	30.78	11	31.43
>200cc	0	0.0	4	50.0	7	53.84	11	31.43

IV. Discussion

The management of liver abscess has changed with significant reduction in mortality and morbidity after the advent of imaging modalities and antibiotics. Percutaneous placement of indwelling catheter provides continuous drainage, hence the problem of incomplete evacuation and re-accumulation are not associated with catheter drainage and this method achieved good success rate as reported in earlier studies. In the present study, the participation of patients with different sex ratio are similar to the previous studies indicating males are more prone to liver abscesses compared to females.[2,4-6] Pain in abdominal associated with fever were the most common symptom observed in our study and is comparable with the study of Rajak et al.[2] The common signs in most of the patients observed was right upper quadrant tenderness in 32 (91.43%) cases and fever >102^0F in 20 patients. The abscess characteristics like site of abscess, location of abscess, no of abscesses was comparable with the same study and other standard studies

On routine blood investigations it was observed that all 35 (100%) patients had shown elevated ESR, hyponatremia in 21 (60%), right sided pleural effusion in 16, polymorphonuclear leucocytosis in 31 (88.6%) and neutrophilia in 23 (65.7%) patients. Bleeding time and clotting time were normal in all the patients. Prothrombin time and INR deranged in 7 (20%) patients. Patients with deranged INR were treated with a stat dose of vitamin K 30 mg i.v. and then transfusion of fresh frozen plasma. Liver function tests were performed in the present study to estimate the levels of liver enzymes that acts as indicators of liver function. Results revealed that the levels of alkaline phosphatase was raised in 29 patients, total bilirubin in 25 (71.4%) showing and lowered albumin in 28 (80%) of patients.ELISA for the demonstration of anti-amoebic antibody in titres greater than 1:400 is considered strong evidence of amoebic liver abscess. But for diagnostic purposes titres >250 are considered positive.In the present study, 22 cases (62.9%) had solitary abscess and 13 (37.1%) cases showed multiple abscesses in comparison with other studies of Tiwari et al (67.2% solitary and 32.8% multiple), Sharma et al (79% solitary and 21% multiple liver abscesses).[4,7] In our study the symptoms, number, location and causes of abscesses were evaluated and they are comparable with the studies of Rajak et al and Tiwari et al.[2,4] The mean duration of drainage in our study was 8 days, as compared to Rajak, et al (7 days), Sonnenberg (4 days) and Jaipal Singh et al (4.5 days). [2,5,8] In our study there were no complications noted during in both aspiration and percutaneous drainage. Only in percutaneous drainage group, local wound infection was noted in 1 case which were treated with daily dressings with betadine and saline

V. Conclusion

In summary amoebic liver abscess patient with acute presentation admitted in a surgical ward, the pain is the most common presentation. Thirty two patients out of thirty five patients (91.42%) pain abdomen was the most common symptom. Right lobe is more commonly involved than left lobe. Alkaline phosphatase is the enzyme most consistently elevated among all liver function. Percutaneous needle aspiration and percutaneous catheter drainage are more effective than conservative medical management in treatment of liver abscess; however size of liver abscess also influence the outcome. We conclude that amoebic liver abscess need drainage either by single or multiple aspirations failing which percutaneous catheter drainage should be done.

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