VOLUME-8, ISSUE-5, MAY-2019 • PRINT ISSN No. 2277 - 8160

Original Research Paper

General Surgery

LIVER ABSCESS - DIFFERENT MODALITIES OF TREATMENT AND ITS OUTCOME

Dr Anjani Kumar Anjan*

M.S., General Surgery, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand.
*Corresponding Author

Dr. Shital Malua

MBBS, DA, M.S, FICS , FMAS, FIAGES, Professor, Dept Of Surgery, Rajendra Institute Of Medical Sciences, Ranchi, Jharkhand.

ABSTRACT

Background: Liver abscesses, both amoebic and pyogenic, is an important cause of morbidity and mortality in our country. It is a common condition in tropical countries. The primary mode of treatment of amoebic liver abscess is medical ; however many cases may need different type of surgical management. In the present study of liver abscess of different etiology, the following treatment modalities such as aspiration, percutaneous catheter drainage, laparoscopic drainage and open surgical procedure have been studied.

Methods: A retrospective study was conducted from September 2007 to October 2008 on 50 liver abscess patients at Rajendra Institute of Medical sciences, Ranchi. Medical records were analysed for different modalities of treatment for amoebic liver abscess.

Results: The mean age of patients was 39 years. Most of them were male alcoholics. Solitary abscess was found in right lobe of liver in 80% of cases. Most common presentation was right upper quadrant pain and fever. Abscesses were mainly amoebic. Percutaneous needle aspiration was done in 30%, 41% underwent USG guided pig tail catheter drainage and 5% of patients underwent for surgical interventions for peritonitis following ruptured liver abscess. The overall mortality rate seen in amoebic liver abscess was 7% in our series.

Conclusions: Liver abscess is a very common condition in India and Amoebic liver abscess is more common than pyogenic liver abscess. More commonly occurs in young alcoholic males and most common presenting feature is right hypochondrial pain followed by fever. Most common sign include tender hepatomegaly. Ultrasound abdomen is the best method for diagnosis and intervention and in a few cases laparoscopic drainage or open surgical intervention required.

KEYWORDS : Liver abscess, Amoebic liver abscess, Ultrasound guided aspiration, Pig tail catheter drainage, Laparoscopic drainage.

INTRODUCTION

Liver abscess is defined as collection of purulent material in liver parenchyma which can be due to bacterial, parasitic, fungal, or mixed infection. It is a common condition across the globe.[1] In India, Liver abscess are common; mostly from parasitic infections, such as amoebic liver abscess. In developed countries parasitic liver abscesses are rare. In the Western world, bacterial abscesses are more common, representing a complication of an infection elsewhere.[2] The advances in radiology like ultrasonography and CT scan since last 30 years with interventional techniques has resulted in introduction of radiological guided aspiration and drainage of most of the intra-abdominal abscesses.[3] The primary mode of treatment of amoebic liver abscess is mainly medical; however many cases may be refractory to medical management. Bacterial infection may complicate some of amoebic liver abscess. In recent years, imaging guided percutaneous drainage has been increasingly used to treat liver abscess with reported success rates ranging from 70 to 100%, surgical intervention is typically unnecessary.[3]

In this study, authors were interested to know the effectiveness of different methods of treatment for amoebic liver abscess. Role of Pig tail catheter in continuous percutaneous drainage of liver abscess, aspiration as a treatment for liver abscess, laproscopic drainage of ruptured liver abscess, and open surgical treatment in a case of complicated ruptured amoebic liver abscess, those not responding to medical line of management.

METHODS

The present study was conducted in Rajendra institute of Medical sciences , Ranchi , during the period from September 2007 to October 2008. All 50 patients with the diagnosis of liver abscess were included in the study. Patients with ruptured liver abscess associated with complications were also included in the study. The medical records were reviewed with respect to history of presenting complaint and duration, risk factors for liver abscess, systemic examination findings, blood investigations and imaging studies (ultrasonography abdomen and Chest x-ray) and the treatment protocol followed . Detailed morphology of liver for abscess was examined with special attention to size of liver assessed for hepatomegaly, identification of number of abscess and their locations in relation to lobes/segmental anatomy of liver, contiguity of abscess to the liver capsule, size and volume of abscess and echogenecity of the abscess (hyperechoic, hypoechoic, anechoic).

After history, clinical examination, radiological and ultrasound abdomen investigations, a diagnosis of liver abscess made. All patients were hospitalized and started on parenteral antibiotics and metronidazole therapy. Patients who are not responding to medical management were put on different modalities of treatment such as ultrasound guided aspiration if the abscess cavity was less than 5cm in diameter and percutaneous pig tail catheter drainage if the abscess cavity more than 5cm. for ruptured liver abscess, laproscopic drainage of liver abscess done. In few cases of complicated liver abscess with empyma of gall bladder, laproscopic cholecystectomy with drainage of liver abscess done laparoscopically. Some cases of complicated ruptured liver abscess was associated with caecal gangrene, in which, open surgical procedure in the form of ileostomy and drainage of ruptured liver abscess done. Few case of ruptured liver abscess was not fit for anaesthesia, in which, we simply place drain a drain under local anaesthesia and managed conservatively.

DISCUSSION

Liver abscess is common in tropical regions like the Indian subcontinent. The common etiological agents for liver abscess are E. histolytica (amoebic), bacterial (pyogenic), mycobacterium tuberculosis and various fungi. Out of them, amoebic liver abscess is largely a disease of developing countries like India.[1] The liver is the organ subject to the development of most abscesses in abdomen.

Organisms recovered from liver abscesses vary with the source. In liver infections arising from the biliary tree, enteric gram-negative aerobic bacilli and enterococci are common isolates. In contrast, in

liver abscesses arising from pelvic and other intraperitoneal sources, a mixed flora including both aerobic and anaerobic species is common; B. fragilis is the species most frequently isolated. With hematogenous spread of infection usually only a single organism is encountered; this species may be S. aureus or a streptococcal species such as one in the Streptococcus milleri group.[4]

Young patients with an amoebic liver abscess are more likely than older patients to present in the acute phase with prominent symptoms of <10 days' duration. Most patients are febrile and have right-upper quadrant pain, which may be dull or pleuritic in nature and may radiate to the shoulder. Point tenderness over the liver and rightsided pleural effusion are common. Jaundice is rare. Although the initial site of infection is the colon, fewer than one-third of patients with an amoebic abscess have active diarrhoea.[4]

In our study amoebic liver abscess was reported in 80% of cases. Most of the cases had solitary abscess in right lobe of liver (80%). Mukhopadhyay et al in a prospective study reported liver abscesses involving right lobe in 85.53% of cases.[5] The predilection of liver abscess for right lobe is because of streaming effect in portal circulation. It receives most of blood draining from right colon, the primary site of intestinal amoebiasis.[1] In our study, 80% cases reported right side abscess segment VII being most common. Mean age of patients was 39 years. Male to female ratio was 9:1. The age predisposition and gender differences may be as a result of high alcohol intake by young male which predisposes to amoebic liver abscess. In a prospective study by Makkar et al the liver iron was found to be significantly higher in patients with amoebic liver abscess, both alcoholic and non-alcoholic. The higher liver iron in alcoholic amoebic liver abscess cases was presumably due to regular alcohol use. Also, because of the regular menstrual blood loss, females in the reproductive age group are known to have lower iron stores. This low iron, which is unsuitable for the growth of E. histolytica, might act as a protective factor against the invasion of E. histolytica in such females.[6]

Most common symptoms of liver abscess are pain abdomen and fever which were present in 94% and 86% of our patients, respectively. Ghosh et al have reported fever as most common feature in 99% cases and Sharma et al have reported pain abdomen in 78% cases.1,8 Cough was reported in 39 % and pleural effusion in 35 % of cases. In a study by Ghosh et al cough was reported by 30% of cases and in Sharma et al it was reported by 3.5% of cases.1,8 Mukhyopadhya et al report pleuropulmonary involvement in 24% of cases.6 Pleuropulmonary involvement which is reported in 20 - 30% of patients, is the most frequent complication of amoebic liver abscess. Manifestations include sterile effusions, contiguous spread from the liver and rupture into the pleural space. Sterile effusions and contiguous spread usually resolve with medical therapy.3 Amoebic peritonitis is considered to be the second most common complication of amoebic liver abscess. Mukhyopadhya et al reported an incidence of 26.39% of peritonitis in their study.[5] However in our study incidence was found to be 5%. The size of the abscess appears to be the most important risk factor for rupture, and the overall incidence of rupture ranges from 3% to 17%.[7]

Icterus was reported in 18% of our patients. In earlier studies from India, it was reported in 45 - 50% of patients. But after advent of good antimicrobial therapy, it has become less common.[1] Mild abnormalities of LFT results, including albumin, PT-INR, ALP, AST, and bilirubin levels, are typical. The most common LFT abnormality is an elevated PT-INR.[7] Mechanism of hyperbilirubinemia in amoebic liver abscess has been studied previously in many studies. Various mechanisms were suggested like pressure on biliary ducts at the porta hepatis especially by large abscess.[8] Sharma et at observed that jaundice occurs because of intrahepatic obstruction or associated hepatitis and is usually seen in large or multiple abscesses; abscess situated at porta hepatis is more likely to produce jaundice because of extra-hepatic obstruction.[9] Ultrasound and CT scanning of the abdomen are both very sensitive but nonspecific for the detection of amoebic abscesses.[5] Ultrasonography, though observer dependent, is widely accepted as a first time technique for imaging focal hepatic lesions including liver abscesses. This is attributable to its low cost, greater availability and high accuracy. It is useful not only in diagnosis and intervention but also in the follow up of the condition and to assess resolution.[6]

As per the latest guidelines, 30% of patients underwent for USG guided percutaneous drainage and 41% underwent USG guided pig tail catheter drainage with intravenous third generation cephalosporin and intravenous metronidazole injections were used mainly. 5% of patients underwent for surgical interventions for peritonitis following ruptured liver abscess alone or with complicated ruptured liver abscess in the form of laparoscopic drainage of liver abscess, intraperitoneal drain placement under local anaesthesia or laparotomy with ileostomy and drainage of ruptured liver abscess. Overall mortalitf liver abscess, intraperitoneal drain placement under local anaesthesia or laparotomy with ileostomy and drainage of ruptured liver abscess. The overall mortality rate seen in amoebic liver abscess was 7% in our series. The overall mortality rate seen in amoebic liver abscess from various series ranges from 2-15%.[9] The most recent series from Memorial Sloan Kettering Cancer Centre (MSKCC) has reported a 3% mortality. The presence of malignant disease, factors associated with malignant disease (e.g., jaundice, markedly elevated LFT results) and signs of sepsis appear to be consistent markers of poor prognosis.[7]

CONCLUSION

Liver abscess is a very common condition in India. Amoebic liver abscess is more common than pyogenic liver abscess. India has 2nd highest incidence of liver abscess in the world. Liver abscess occurs more commonly in young alcoholic males between 30-60 years of age. Most of the cases had acute presentation in the form of pain abdomen associated with fever. Most common etiological factors for causation of liver abscess was alcohol consumption. Most common sign was tender hepatomegaly. Alkaline phosphatase is the enzyme most commonly and consistently elevated among all liver function. Ultrasound abdomen is the best method for diagnosis and intervention and in a few cases laparoscopic drainage or open surgical intervention required. Percutaneous needle aspiration and percutaneous catheter drainage are more effective than conservative medical management in the treatment of liver abscess.

RESULTS

Total of 50 patients with liver abscess were studied and analysed. The mean age of patients was 39 years. Male to female ratio was 9:1. Most common presenting symptom was right hypochondrial pain 94% followed by fever in 86%. Most common finding on per abdomen examination was tender hepatomegaly in 95%.In our study 85% patients were alcoholic In the laboratory investigations, the most common abnormality noted was raised alkaline phosphatase. Total bilirubin was raised in 30% of the patients.

On USG abdomen , a solitary liver abscess in the right lobe of liver was found in 80% of cases. However five patients had multiple liver abscesses in both lobe of liver. Two patients had liver abscess with empyema of gall bladder. Two patients had rupture of liver abscess with caecal perforation. Four patients had rupture of liver abscess mainly solitary right lobe liver abscess Patients were treated according to hospital protocol. Out of 50 patients, 4 patients presented with features of peritonitis secondary to ruptured liver abscess or caecal perforation. For these patients, laparoscopic drainage of ruptured liver abscess & for caecal perforation with ruptured liver abscess, open surgical procedure in the form of right hemicolectomy with ileostomy and drainage done. All patients were put on intravenous ceftrioxone and metronidazole. 20% patients responded well to conservative treatment while 10% patients failed to respond to treatment and abscesses were aspirated USG guided in a single sitting. 30% patients underwent for USG guided pig tail drainage and another 10% patients underwent for USG guided percutaneous needle aspiration for more than one time.

After USG guided aspiration of pus, it was sent for culture and sensitivity for gram staining and ZN staining for AFB. Anchovy sauce pus with negative culture after 48 hours of aerobic incubation was considered to be of amoebic origin.

REFERENCES

1. Ghosh S, Sharma S, Gadpayle AK, Gupta HK, Mahajan RK, Sahoo R, et al. Clinical, laboratory, and management profile in patients of liver abscess from northern India. Journal Tropical Med. 2014;1:8.
2. Kumar V, Abbas AK, Aster JC. Liver, gall bladder and biliary tract. In Robbins basic pathology. 9th edition. Philadelphia: Elsevier Saunders. 2013:635.
3. Rajak CL, Gupta S, Jain S, Chawla Y, Gulati M, Suri S. Percutaneous treatment of liver abscesses: needle aspiration versus catheter drainage. AJR Am J Roentgenol. 1998;170(4):1035-9
4. Barshak MB, Kaper DL. Intraabdomial abcesses and infections. In Kasper DL, Jameson JL, Fauci AS, Longo DL, Hauser SL, Loscalzo J. Harrison's principles of internal medicine. 19th edition. New York: McGraw-Hill. 2015:850.
5. Mukhopadhyay M, Saha AK, Sarkar A, Mukherjee S. Amoebic liver abscess: presentation and complications. Indian J Surg. 2010;72(1):37-41.
6. Makkar RP, Sachdev GK, Malhotra V. Alcohol consumption, hepatic iron load and the risk of amoebic liver abscess: a case-control study. Internal Medicine. 2003;42(8):644-9.
7. Dudeja V, Fong Y. The Liver. In Townsend CM, Evers BM, Beauchamp RD, Mattox KL. Sabiston textbook of Surgery. 20th edition. Philadelphia: Elsevier. 2016:1418-1481
8. Kumar AS, Mishra A, Malhotra N, Alpana M. Hyperbilirubinemia in patients with amoebic liver abscess: a study of 75 cases. J Gastroint Dig Syst. 2013;3:138.
9. Sharma N, Sharma A, Varma S, Lal A, Singh V. Amoebic liver abscess in the medical emergency of a North Indian hospital. BMC Research Notes. 2010;3(1):21.