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Research Article

TO DETERMINE THE DIAGNOSIS AND TREATMENT OF LIVER ABSCESS

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Abstract:

***Aim:** To analyze the diagnosis, treatment, predisposing factors and treatment outcomes in patients with liver abscess.*

***Study design:** A prospective cross-sectional study.*

***Place and duration:** In the Department of Surgery Unit II and the Pathology Jinnah Hospital Lahore for one-year duration from April 2019 to April 2020.*

***Methodology:** A total of 55 patients with liver abscess, 44 men and 11 women, aged 18 to 65 years, with an average age of 35 years. Diagnoses were based on fever, anorexia, malaise, abdominal pain, hepatomegaly, leukocytosis, elevated ESR, elevated liver enzymes, and ultrasound features of liver abscess. All patients were given parenteral antibiotics. People with a single abscess larger than 5 cm underwent percutaneous transhepatic drainage under ultrasound guidance and the size of the abscess and its resolution were monitored. In case of improvement, antibiotics were given for 4 to 6 weeks. Patients who did not respond to the above treatment had complications and were selected for surgical drainage.*

***Results:** Out of 55 patients, 43 had single and 12 multiple abscesses, 37 patients had an abscess of the right lobe, 6 patients had an abscess of the left lobe, and the remaining 12 patients had multiple abscesses involving both lobes of the liver. Concomitant diseases were observed in 15 patients and 3 patients were opium addicted. The most common symptom was fever, followed by abdominal pain, liver enlargement, and weight loss. 31 (51%) bacteriological cultures were positive for aspirated pus. The most common organism was E. coli. In 15 patients, the serological test for entamoeba histolytica was positive. Polymicrobial infection detected in 9 cases. In 12 patients with an abscess smaller than 5 cm, only antibiotic therapy was effective, 2 patients did not respond and were aspirated. US guided percutaneous needle aspiration (PNA) performed in 31 patients (60%), 20 of whom required repeated aspiration and 11 required surgical drainage. Seven patients died from various causes. Three patients had a recurrence of the liver abscess; wound infection occurred in 5 patients. In 34 patients it was defined as cryptogenic. Fifteen cases were diagnosed as amoebic.*

***Conclusion:** Needle aspiration is an easy, fast, safe and effective method of treating liver abscess. Surgery should be limited to those cases where needle aspiration does not cure the disease, abscess rupture, concomitant pathology, or multiple abscesses.*

***Keywords:** liver abscess, antibiotics, percutaneous needle aspiration, ultrasound conduction, surgical drainage.*

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INTRODUCTION:

A liver abscess remains a major diagnostic and therapeutic challenge, despite improved diagnosis and progress in treatment. It has been described since the time of the hypocrites. In 1938, Ochsner's classic review announced surgical drainage as the ultimate therapy. While the incidence of liver abscess during the antibiotic era was constant, there has been a change in age distribution and incidence. Early reports saw a peak in the third and fourth decades of life, while many recent series record the transition to the seventh and eighth decades of life. This apparent change is believed to be related to a decline in the importance of appendicitis as an etiological factor in cancer and a complex, debilitating disease that contributes to liver abscesses in the older age groups. Pitt assessed the factors influencing mortality from purulent liver abscess, which was more common in the older age group.⁴ Infections entering the liver via the bile duct were consistently the largest cause of purulent abscess. Infections within organs drained by the portal circulation are etiologically secondary. Complicated appendicitis, pancreatitis, diffuse peritonitis, and intraperitoneal abscess associated with diverticulitis are consistently reported etiological events. Another recognized, though rare, cause of a liver abscess is the spread of bacteria through the arterial circulation. However, in many patients, the etiology of liver abscess remains unclear (cryptogenic), even after all extensive clinical and pathological studies. Historically, this unit has been associated with high mortality rates. treatment of liver abscess for 42 years. Similar results were previously shown by Farges and Rintoul in 1996. Koneru and Seeto share the same views on the treatment of purulent liver abscess. The current study was designed to analyze the diagnosis, management, predisposing factors, and treatment outcomes of patients with local liver abscess.

METHODOLOGY:

This study was conducted on 55 patients with liver abscess at the Department of Surgery II and the Pathology Jinnah Hospital Lahore for one-year duration from April 2019 to April 2020. Of these 55 patients, 44 were male and 11 were female, ranged in age from 18 to 65, mean age 35 (Table I), and symptoms ranged from 14 to 25 days. Diagnoses were based on fever, anorexia, malaise, abdominal pain, hepatomegaly, leukocytosis,

elevated ESR, elevated liver enzymes, and ultrasound features of liver abscess. Concomitant diseases and symptom duration were also recorded. Imaging techniques included chest x-rays, ultrasound and computed tomography. Blood cultures and abscess pus sent for cultures to identify causative organisms. All patients were treated with parenteral antibiotics. Most patients with a single abscess larger than 5 cm underwent percutaneous transhepatic drainage under ultrasound guidance. Following drainage, the size and resolution of the abscess was monitored by ultrasound. When the patient's condition improved, antibiotics were given for 4 to 6 weeks to prevent recurrence of the abscess or sepsis. Patients who have not responded to these treatments include those who have had a complication of peritonitis due to abscess rupture or difficulty in percutaneous drainage or associated abdominal disease, but this has changed in recent decades as a result of improved imaging methods and nutritional and nutritional support. therapeutic treatment of critically ill patients. Prompt diagnosis is essential for the proper treatment of this condition. Sonography is a rapidly available imaging method that can be performed at bedside, even in unstable patients. It can assist in evaluating patients for a septic outbreak and provide the necessary guidance for a working diagnosis while offering guidance on diagnostic interventions such as fine needle aspiration or insertion of drains. The advent of modern diagnostic imaging techniques has allowed for the precise localization of the abscess and the development of image-guided percutaneous needle aspiration (PNA) and abscess drainage, reducing mortality to more acceptable levels. However, mortality rates of 10-40% are still reported as it shows. Huang in his work describing the changing trend of operational drainage. Patients were examined daily for clinical improvement. Pain relief, fever, anorexia, and hepatomegaly were considered criteria for successful treatment. The mean length of stay in hospital was recorded for each patient. Patients were followed for 6 months every month.

RESULTS:

Of the 55 patients in this study, 43 had a single one and 12 had multiple abscesses. 37 patients had an abscess in the right lobe, 6 in the left lobe, and the remaining 12 patients had multiple abscesses in both lobes of the liver (Table I).

Table I. Demographic Data

Patients Details (n=55)	No. (%)
Sex	
Male	
Female	
Age, mean, (range) years	44 (80.0)
Abscess	11 (20.0)
Single	35 (18-65)
Multiple	43 (78.2)
Site of lesion	12 (21.8)
Right Lobe	37 (67.3)
Left Lobe	6 (10.9)
Both Lobes (Multiple Abscess)	12 (21.8)

Coexisting diseases were observed in 15 patients, the most common were appendicitis, peritonitis and cholangitis. Two patients had diabetes, 3 had pulmonary Kock, and 3 were opium addicted. The most common symptom was fever, followed by abdominal pain, liver enlargement, weight loss, and jaundice (Table II).

Table II. Clinical Features

Sign & Symptoms	No.	(%)
Fever	45	81
Abdominal pain	40	72
Hepatomegaly	20	36
Weight loss	18	32
Jaundice	6	10
Peritonitis	5	9
Pleural effusion	2	3

Organism Isolated	No.	(%)
Escherichia Coli	14	45.2
Klebsiella	4	12.9
Staphylococcus Aureus	3	9.7
Pseudomonas Aeruginosa	1	3.2
Polymicrobial (Mixed)	9	29.0
Total	31	100

In 31 patients (51%), bacteriological culture was positive in aspirated pus (Table III). E. coli was the most frequently isolated organism, followed by Klebsiella, Staphylococcus Aureus and Pseudomonas. In 15 patients, the serological test for Entamoeba Histolytica was positive.

Table III. Micro-organisms Isolated on Culture

Mode of Treatment	No.	(%)
Antibiotic therapy alone	10	18
PNA with antibiotic therapy	31	60
Surgical drainage with antibiotic therapy	14	22
Total	55	100

In 9 cases a polymicrobial infection with liver abscess was diagnosed. 12 patients with an abscess smaller than 5 cm, only antibiotic therapy was effective, and among these 2 patients, no response was observed and aspiration occurred. Ultrasound-guided PNA was performed in 31 patients (60%), 20 of them required repeated aspiration. 11 patients required surgical drainage due to PNA failure, related pathologies such as appendicitis perforation, multiple liver abscess, and peritonitis due to rupture of liver abscess. Regarding the outcome, a total of 7 patients died from various causes including bleeding during surgery, peritonitis, sepsis etc. Three patients experienced recurrent liver abscess and wound infection, which occurred in 5 patients. In 34 patients, the cause of the liver abscess was not clear and was therefore classified as cryptogenic. Fifteen cases were diagnosed as of amoebic origin.

DISCUSSION:

Liver abscess is a relatively rare disease. The development of new radiological techniques, improved microbiological identification and the development of drainage techniques, as well as improved supportive care have increased patient survival, but the incidence of the disease remains relatively unchanged, and an untreated infection remains equally fatal. Historically, multiple abscesses have been reported more frequently than single abscesses, and the most common side of multiple abscesses is either the lobe or the right lobe. This study detects more single than multiple abscesses, most of them located in the right lobe, and these findings are consistent with other studies conducted in different parts of the world. The reason why the right lobe is more prone to developing an abscess than the left lobe is likely because the greater volume of blood that goes to the right side other than the left lobe. Bacteriological analysis found *E. coli* the most common organism, the same finding was noted by other workers. Before and in 1970 Surgical drainage was considered the treatment of choice for liver abscess. However, this view has changed over the years and the PNA has proved to be as effective as open surgery. Contrary to the upward shift in age in previous reports, the mean age in this study was 4 decades of age. In the case of infections in the abdominal cavity (appendix), the PNA procedure with antibiotics for the treatment of liver abscess was acceptable. It has been documented that percutaneous aspiration or drainage under imaging guidance in combination with long-term antibiotic treatment has good long-term results with minimal complications. This was demonstrated by Sang in 2008, and also by Ahsan from Karachi. Mohsen³⁴ from the UK showed the same results earlier in 2002. In the case of multiple abscesses, this therapeutic approach may not be satisfactory, therefore surgical intervention should be considered during treatment. Large abscesses that are large enough to be detected by currently available diagnostic tests hardly ever respond to antibiotic therapy alone. Mortality from liver abscess is influenced by many factors, untrained macroscopic abscess formation is often fatal, while multiple reservoirs, especially those associated with biliary obstruction or bacteremia, have a similar mortality rate. Age, generally debilitating

diseases, and marked changes in liver function all have a negative impact on survival. On the other hand, chronic lazy single collections are successful when properly recognized and quickly emptied. Overall, in this study, ultrasound guided PNA has proved to be extremely effective as an initial treatment and appears to be more effective than surgery in achieving desired results and reducing mortality. Only 11 patients had surgery as an initial procedure. The type of treatment chosen depended on several factors (the size of the liver abscess, the physician / radiologist's decision as concomitant diseases). All operated patients had several factors, such as acute abdomen and failure of other treatments.

CONCLUSION:

Needle aspiration is an easy, fast, safe and effective method of treating a liver abscess. Surgery should be limited to those cases where needle aspiration does not cure the disease, abscess rupture, concomitant pathology, or multiple abscesses.

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