Section: General Surgery

Original Research Article

A STUDY ON THE DIAGNOSTIC EVALUATION OF LIVER ABSCESS AND ITS MEDICAL AND SURGICAL MANAGEMENT

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ABSTRACT

Background: A liver abscess is a small collection of pus inside the liver parenchyma that is usually brought on by parasite, bacterial, or fungal infections. The aetiology comprises infections that enter through the biliary tree, hepatic vein, portal vein, or directly spread from nearby abdominal illnesses. Pyogenic and amebic liver abscesses are the two subtypes of liver abscesses that are typically distinguished. Usually, patients arrive with rigors, fever, and stomach ache, Bloating, nausea, anorexia, weight loss, exhaustion, and jaundice are other symptoms. Upon examination, patients will have soreness in the right upper quadrant. Antibiotics are the mainstay of treatment. Third-generation cephalosporin/quinolones, IV metronidazole, β-lactam antibiotics, and aminoglycosides are effective medications for draining the abscess. Though occasionally drainage techniques such percutaneous catheter drainage or needle aspiration are used. In addition to causing major issues, liver abscesses can possibly be fatal if treatment is not received.

Materials and Methods: The hospital based observational study was carried out at Government Medical College Jagdalpur, Chhattisgarh for a period of one year. Included all diagnosed cases of liver abscess. Data on demographics, clinical features, etiology, And management was gathered, and outcomes like hospital stay, complications, and recovery were examined. SPSS was used for statistical analysis.

Results: Out of 30 individuals, 8 were female and 22 were male. Thirty percent had stool examinations, ninety-five percent had blood cultures, two percent had abdominal CT scans, seventy percent had ultrasounds, and eighty percent had amebic serology. Conservative care was employed in 53.33% of cases, followed by USG aspiration (16.66%), and exploratory laprotomy (13.33%).

Conclusion: Liver abscesses require timely diagnosis through imaging and lab tests for effective management. Early diagnosis, proper medical management, and timely surgical intervention ensure better patient outcomes.

Keywords: Liver abscess; Hepatic abscess; percutaneous drainage.

INTRODUCTION

Hippocrates originally recorded liver abscesses around 400 BCE, but the causes, detection techniques, and therapeutic approaches were initially detailed in the 20th century. Rare but potentially fatal side effects of bacterial, fungal, protozoal, and worm infections are liver abscesses. Their likelihood is increased by the patient's age and concomitant conditions (malnutrition, cirrhosis, and diabetes). People with hereditary or acquired immunodeficiency syndrome, immunosuppressive treatments, or chemotherapy who are immunocompromised are more susceptible to liver abscesses brought on by fungus and opportunistic microbes. Abscesses can be divided into four primary categories based on their etiology: abscess that is 1) bacterial, 2) protozoal, 3) parasitic, and 4) fungal.[1] Around the world, it is a common condition. Three-fourths of cases in rich nations are pyogenic, while

roughly two-thirds of cases in developing countries have an amoebic origin. The third most frequent cause of parasite disease-related deaths at the moment is amoebiasis. In tropical nations like India, the illness is endemic because of overcrowding and unsanitary conditions. Of all cases of amoebiasis, 3–9% is caused by amoebic liver abscess (ALA).[2]

Entamoeba histolytica, a common parasite in low-resource countries with more precarious hygienic-healthcare conditions, is the cause of Amebic LA, a distinct clinical entity. However, it is also found in developed countries in patients who have consumed parasite-contaminated food, travelers, and immigrants who have come into contact with people from this low-resource settings.[3]

Over the past few decades, the etiology of liver abscesses has evolved. Acute appendicitis was the most frequent cause in the past, but as surgical techniques and antibiotic treatments has developed throughout time, its prevalence as the main cause of abscesses has declined. On the other hand, appendicitis is no longer the primary cause of hepatic abscess due to the rising Incidence of cholelithiasis and biliary tract disease, which can trigger ascending portal sepsis.

The management of hepatic abscesses, has also changed dramatically. The most popular treatment for liver abscesses is percutaneous drainage (PD); however, not all abscesses respond well to PD, and occasionally surgical drainage (SD) is required.[4]

The right lobe receives the majority of its blood supply from the superior mesenteric vein; About 60% of abscesses are solitary and primarily located in the right lobe of the liver. In cases where multiple abscesses are present, the most likely type is pyogenic or mixed. Patients typically present with a persistent dull pain in the right upper quadrant of the abdomen, which may be referred to the right shoulder or scapular region, and they typically have fevers between 380 and 400 degrees Celsius.Recent developments in intensive care, interventional radiology, antibiotic therapy, and the widespread use of abdominal sonography and computed tomography Scanning has improved patient outcomes by enabling early diagnosis and treatment of liver abscesses.[5]

MATERIALS AND METHODS

It was a hospital based observational study conducted for a period of one year from March 2023 to April 2024 in the department of general surgery and general medicine at a government medical college and hospital. For this investigation, informed consent was obtained from each participant.

Every patient underwent a comprehensive clinical examination and history.In this investigation, all patients diagnosed with liver abscess were included.

To screen for a liver abscess, patients with the following symptoms were selected: jaundice, Right basal pleural and pulmonary pathology, history of continuous drunkenness and smoking, UpperRUQ abdominal pain, fever with chills, and painful hepatomegaly.

A comprehensive ultrasound scan of the abdomen was performed on patients who had additional symptoms, including weight loss, hiccoughs, right shoulder pain, diarrhea, nausea, vomiting, and distention of the abdomen.

This allowed for the visualization of nearly every area of the liver. All liver lesions suggestive of a liver abscess were thoroughly evaluated using the intercostal and subcostal planes. In the detailed morphology of the liver for abscess, the size of the liver as measured for hepatomegaly, the number of abscesses and their locations in relation to the liver's lobes and segmental anatomy, the size and volume of the abscess, and the heterogeneity of the abscess were all examined. It was examined. Chest Xray, blood and pus cultures, liver function test, viral markerserological testing upon presentation, abdominal computed tomography (CT), ultrasonography (USG), and hemogram, if necessary. Their clinical profile, etiological and microbiological factors, care, and outcome were assessed.

Inclusion criteria:

- All cases of liver abscess diagnosed clinically ultrasonographically
- Age group 18-75 years

Exclusion criteria:

- Patients having other pathologies in the liver other than liver abscess
- Clinical signs of peritonitis on presentation
- Pregnant patients
- Immunocompromised (HIV, HBsAg)

Statistical Analysis: The gathered information was put into a Microsoft Excel spreadsheet, which was then exported to the data editor of SPSS Version 20.0.

RESULTS

Table 1: sex distribution of study subjects

Sex	Number of subjects	Percentage
Males	22	73.33%
Females	08	26.66%
Total	30	100%

[Table 1] shows sex distribution of study subjects.

There were 22 male subjects and 8 female subjects out of 30.

Males are more than females in this study.

Table 2: types of liver abscess

Types of liver abscess	No of subjects	Percentage
Pyogenic	08	26.66%
Amebic	20	66.66%
Tubercular	01	3.33%
Fungal	01	3.33%

[Table 2] shows types of liver abscess. The percentages of pyrogenic, amebic, tubercular, and fungal liver abscesses were 26.66%, 66.66%, and 3.33%, respectively.

Table 3: signs and symptoms

Signs	Percentage
Hepatomegaly	30%
Splenomegaly	2%
Ictherus	20%

[Table 3] shows signs and symptoms of study subjects. Hepatomegaly 30%, splenomegaly 2% and ictherus of 20%.

Table 4

Symptoms	Percentage
Fever	96%
Jaundice	72%
Chills	45%
Vomiting	9%

Of the participants, 96% report having a fever, 72% report having jaundice, 45% report chills, and 9% report vomiting.

Table 5: diagnostic evaluation of liver abscess

Diagnostic evaluation of liver abscess	Percentage
Ultrasound	70%
Amebic serology	80%
stool examination	30%
Blood culture	95%
Ct scan abdomen	2%

[Table 5] shows diagnostic evaluation of liver abscess of study subjects.70% of the participants had ultrasounds, 80% had amebic serology, 30% had stool
examinations, 95% had blood cultures, and 2% had abdominal CT scans.

Table 6: management of liver abscess

Management	Males	Females	Total no of subjects	Percentage
Conservative management	12	04	16	53.33%
Pigtail catheterization	04	01	05	16.66%
Usg aspiration	03	02	05	16.66%
Exploratory laprotomy	03	01	04	13.33%

[Table 6] shows management of liver abscess.
53.33% of cases used conservative care, 16.66% involved pigtail catheterization,
16.66% underwent USG aspiration, and 13.33% of exploratory laprotomy.

DISCUSSION

In a tropical nation like India, liver abscess is a significant clinical issue. Pyogenic and amoebic liver abscesses, the two most prevalent kinds, are challenging to.
They differ clinically and necessitate more research and/or invasive techniques to confirm the diagnosis; this is required since they have distinct treatment approaches. There have been increased reports of amoebic liver abscesses at younger ages. Although pyogenic liver abscesses have been seen to be more prevalent in the Western population in people over 60, the majority of liver abscesses have been attributed to cryptogenic causes in conjunction with biliary obstruction and co morbidities.[6]
Gramnegative bacteria were commonly identified etiologically in a study, with E. coli accounting for 17 cases, followed by Klebsiella in 11 cases, Pseudomonas in 4 cases, Acinetobacter and Staphylococcus in 4 patients each, Enterococcus in 3 patients, and Citrobacter in 1 patient. Only three patients had blood cultures that came back positive. The findings supported our investigation, which found that the majority of the organisms isolated were Gram-negative bacteria. Three instances had

Candida isolated from cultures, while fifteen cases had pus that tested positive for AFB. Amoebic serology was positive in 73% of instances, and 71% of patients had pus that looked like anchovy sauce after it was drained from the abscess.[7]

Oral metronidazole or tinidazole for 10 or 5 days, respectively, is the cornerstone of treatment for ALA. Following this, any remaining digestive tract cysts are treated for five to ten days with a luminal drug, such as paromomycin. The majority of ALA instances can be resolved with pharmacological intervention, but those who don't improve with medication should be drained. Individuals with secondary bacterial infections (either de novo or due to drainage) and those at high risk of ALA rupture are among the individuals for whom drainage is necessary.[8]

In general, quick drainage is needed to resolve LA greater than 5 cm. It can be done in two ways: percutaneous drainage and surgical drainage, both of which should be viewed as complementary.

Because it is less intrusive, has less side effects than surgery, is generally successful, and is well-tolerated by the patient, percutaneous draining is the first-choice method. Under local anesthesia, it enables the aspiration of the abscess material to isolate the infection-causing bacteria and the placement of drainage tubes for a quicker event resolution. In order to assess the efficacy of the treatment and, if necessary, explore alternative options, an ultrasound should be conducted within 48 to 72 hours.[9]

The most effective imaging modality for diagnosing amebic HA is sonography, which can show a single lesion or multiple abscesses; in 80% of cases, HA occurs in the right lobe, although the volume and aspect vary depending on the stage of maturation; echoguided needle aspiration can reveal sterile "chocolate" pus, and should be used freely to rule out bacterial pyogenic abscesses; CT scan is a more sensitive test in the early stages, but does not seem to be superior to sonography in the later stages; treatment should be finished by local intestinal amebic eradication.[10]

CONCLUSION

Liver abscess remains a significant clinical condition requiring prompt diagnosis and appropriate management to prevent serious complications. Accurate diagnostic evaluation, primarily through imaging modalities like ultrasound and CT scan. Along with laboratory investigations, is essential for early identifications and classification of the abscess. Management strategies should be tailored based on the size, location, etiology and response to therapy. While small abscesses often respond well to medical treatment with targeted antibiotics, larger or refractory cases may require image guided percutaneous drainage or surgical intervention. A multidisciplinary approach, early intervention, and regular monitoring are key b to improving patient outcomes and reducing morbidity and mortality associated with liver abscesses.

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