Management of Liver Abscess in Riyadh Central Hospital

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ABSTRACT—Fifty one patients with liver abscess, pyogenic and amoebic, were treated at the Riyadh Central Hospital (RCH) in the period 1985-1988.

The main diagnostic aid was the ultrasound scan which detected abnormalities in 47 patients (96%). A definite diagnosis of liver abscess was made in 38 patients (77.5%). Thirty patients (58.8%) were treated by percutaneous drainage (PCD) under ultrasound control. There was no procedure associated complication, although there were two (6.5%) failures due to viscid pus. Nine patients (17.6%), which included two patients who had failed PCD, required surgery. Fourteen patients (27.5%) improved with medical treatment. Three patients, all of whom had PCD, died due to septicaemia and pre-existing medical illness, giving a mortality rate of 5.9% in the series.

We conclude that ultrasound scan ideally serves as the primary investigative procedure in cases of liver abscess, and the PCD under ultrasound guidance should be the initial drainage procedure for most liver abscesses.

The presentation of hepatic abscesses can be subtle and non specific. In an endemic area the symptoms of upper abdominal pain, malaise and fever may raise the suspicion of the presence of a liver abscess. But in areas where the condition is infrequently seen, one needs a high index of suspicion to diagnose it. The presence of a large expatriate population in our area, many coming from endemic areas, should alert surgeons and physicians practising here to be constantly aware of this possibility. Effective therapy can only be provided when the correct diagnosis is made. The consequences of a delay in diagnosis or missed diagnosis have been reported in the literature. Prognosis remains poor if diagnosis is delayed. Mortality can reach upto 100% in an undrained liver abscess.

Several reports have appeared recently on the efficacy of percutaneous drainage in the management of liver abscesses. We present this study with an aim to highlight the relative frequency, as well as the role of a modern imaging facility in the diagnosis of this problem. Our experience with percutaneous drainage (PCD) is also presented.

Material and Methods

The records of 51 patients, admitted to the Riyadh Central Hospital during 1985-1988 and diagnosed as liver abscess, were reviewed. Patients included in the study had liver abscess diagnosed by radiological examination and/or confirmed by the presence of pus within the liver at aspiration.
or surgical drainage. The data collected included the patient’s age, sex, nationality, presenting symptoms, past medical history, physical findings, and haematological, biochemical, microbiological, serological and radiological investigations. The type of treatment, its results and complications were also recorded. The data analysed formed the basis for this study.

Results

The study comprised 48 males (94.1%) and 3 females (5.9%). Forty patients (78%) were non-Saudis, 26 of whom came from the Indian sub-continent and the Far-east. The age ranged between 22-75 years with a mean age of 30.9 years. The average age for males was 30.35 years, and for the females 39.3 years. The majority of patients were in the third or fourth decades of life (TABLE I). Upper abdominal pain was the commonest (86%) presenting symptom followed by fever (68.6%). Past history of jaundice (14 patients) and dysentery (3 patients) was uncommon. The most common physical finding was upper abdominal tenderness (76.5%) followed by pyrexia (72.5%). Twenty seven patients (53%) had hepatomegaly. Seven patients (13.7%) presented with hypotension (systolic blood pressure 100mmHg). The other common symptoms and signs are presented in TABLE II.

Leucocytosis (WBC >11 x 10⁹/l) was recorded in 40 patients (78.4%). Liver function tests were abnormal in 36 patients (70.6%). E histolytica cyst was reported in the stool of two (6.4%) out of 30 patients. The indirect haemagglutination (IHA) test for amoebiasis was positive in 7 out of 12 patients subjected to this test. Ultrasonography was done on 49 patients (96%). In the two patients who did not have ultrasonographic examination the diagnosis of liver abscess was made on emergency surgery for acute abdomen in one patient, and on bronchoscopy for purulent expectoration in another. Ultrasonography (Fig. 1) detected abnormalities in 47 (96%) patients, but a definite diagnosis of liver abscess could be made in 38 patients (77.5%). The remaining eleven patients were submitted to further investigations of computerised tomography (CT) Scan (11 patients), isotope liver scan (2 patients) and Gallium scan (2 patients) to confirm the diagnosis of liver abscess. In these patients ultrasound scanning failed to distinguish liver abscess from liver tumour, hydatid cyst, biliary disease and haemangioma of the liver. Other investigations made in these patients were upper gastrointestinal tract

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<th>TABLE I — AGE DISTRIBUTION OF THE CASES OF LIVER ABSCESS</th>
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<td>Age in years</td>
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<td>20-30</td>
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<td>31-40</td>
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<th>TABLE II — PRESENTING SYMPTOMS &amp; SIGNS IN CASES OF LIVER ABSCESS</th>
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<td>Symptoms</td>
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<tr>
<td>Upper abdominal pain</td>
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<td>Fever</td>
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<td>Jaundice</td>
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<td>Right loin pain</td>
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<td>Right lower chest pain</td>
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<td>Past History of Jaundice</td>
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(GIT) endoscopy (2 patients), endoscopic retrograde cholangiopancreatography (ERCP) (3 patients), and sigmoidoscopy/colonoscopy (3 patients). Upper GIT endoscopy demonstrated gastrohepatic fistula in one patient. Chronic proctitis was noted in two patients on lower GIT examination. ERCP was done on patients who presented with features of cholangitis. None showed any evidence of common bile duct obstruction or stones. Two patients showed marked extrinsic compression of intrahepatic bile ducts. In one of these patients, the right intrahepatic duct was not visualised. Liver abscess was subsequently confirmed in these patients on percutaneous drainage. The third patient also showed mild compression of intrahepatic bile ducts due to liver abscess. This patient responded well to medical treatment.

Thirty patients (59%) were treated by percutaneous catheter drainage under ultrasound guidance. Twenty-five patients (83%) improved after percutaneous drainage. Two patients (6.6%) in whom drainage was inadequate due to viscid pus were later subjected to surgical drainage. Three patients, having adequate percutaneous drainage, died of septicaemia, uncontrolled diabetes, renal failure, liver failure and supra ventricular tachycardia. These were all the deaths in the series, giving a mortality of 5.9%.

Nine patients (17.6%), which included the 2 patients with failed percutaneous drainage, had surgical drainage. Other reasons for surgical drainage were presentation as acute abdomen (1 patient), associated gastrophatic fistula (1 patient), bronchohepatic fistula (1 patient), pericardial effusion (1 patient), and biliary disease (2 patients). In one patient the reason for surgical drainage was not obvious. Fourteen patients were treated medically. Reasons for deciding on medical treatment were mild symptoms, small size abscess, clinical and radiological impression of "amoebic hepatitis" and good response to metronidazole while awaiting various investigations.

Microbiological examination of the aspirate was available in 31 patients. Bacteria were cultured from the pus of eight patients (25.8%). Organisms grown were E coli (2 patients), Klebsiella (3 patients), and Staphylococcus (3 patients). E histolytica in pus was present in one patient. No result was available on 6 patients. Patients with negative cultures from pus were considered to have amoebic liver abscess, and were treated successfully with metronidazole.

The majority of medically treated patients were considered to have amoebic abscess on the basis that amoebic abscess is common in the country of their origin, absence of any underlying intra-abdominal pathology such as biliary disease, and a good response to metronidazole.

**Discussion**

Patients in this study were predominantly young males with a male: female ratio of 16:1. This is in marked contrast to the figures reported from studies done in Western countries. The reason for this difference may be the presence of a large expatriate population of mainly young male workers in addition to the nature of liver abscesses. Amebic liver abscess affects predominantly males in younger age groups. A male/female ratio of 10:1 or greater has been reported in patients with amoebic liver abscess. This ratio is more nearly equal in those with pyogenic abscesses reflecting the fact that most pyogenic abscesses are secondary to biliary disease.

A diagnosis of amoebic liver abscess cannot be made with certainty unless one recovers E histolytica from aspirated pus. In our group, E histolytica could be isolated from pus in one patient and from the stool in 3 patients. Other
studies as well, report a poor recovery of *E histolytica* from pus and stool. Bacteria were isolated in eight patients (25.8%) in this study. This figure is also very close to those in other reported studies. It is possible that in some of these patients, we may have failed to isolate the causative organism. But we believe that in the majority, the sterile pus was due to the abscess being amoebic in nature. Aspiration of anchovy-paste material containing no bacteria is considered to be pathognomonic of amoebic abscess even if no amoeba are demonstrated. However, in many cases the colour of bacteriologically sterile aspirate is creamy, white, yellow or green. In addition to sterile pus, the majority of these patients were from endemic areas for amoebiasis further supporting the diagnosis of amoebic liver abscess. Serological tests e.g. IHA or enzyme linked immunosorbent assay (ELISA) for amoebiasis which has a sensitivity of 94%-95% would have been more helpful in establishing a definite diagnosis. The IHA test was done on 12 patients, seven yielding positive results. This test was not available in the earlier part of this study.

Gerzof et al. in a recent review has demonstrated that modern investigating techniques such as ultrasonography and CT scan have markedly increased the diagnostic accuracy, which in turn has improved the mortality and morbidity. This has been further confirmed by Farges et al. in their study. In the present study, ultrasound was able to detect abnormalities in the liver in 96% of the patients, and a definite diagnosis of liver abscess could be made in 77.5%. With the addition of CT scan, diagnosis can be reached in all patients. Although the technetium isotope liver scan was done on two patients, it was felt that the investigation was not very useful. A ‘cold area’ on isotope scans fails to distinguish between a solid liver mass or a cystic lesion.

Although drainage of liver abscesses remains the standard treatment, medical treatment with antibiotics achieved a good result in 14 patients (27.7%). Other studies have also reported success with medical treatment in treating amoebic and pyogenic abscesses. Good results with percutaneous aspiration without ultrasound guidance or CT control have been reported. The availability of ultrasound and CT scan has made it possible to locate abscesses and to introduce a drainage catheter percutaneously as well as to monitor the progress of the abscess cavity. Good results have been reported when this technique was used. In our group, thirty patients (59%) were treated with percutaneous drainage under ultrasound guidance. There was no procedure-associated complication, but two patients’ (6.6%) abscesses were inadequately drained due to viscid pus. Significantly higher failure rates (upto 36%) have been reported in the literature. Percutaneous drainage has been tried with good results in multiseptate abscesses. Such abscesses usually have communications with each other and can be drained by a single catheter.

Three patients (5.9%), all of whom had percutaneous drainage, died in this study. Although adequate drainage was achieved, all died due to an associated medical illness.

We conclude that percutaneous drainage of liver abscess is safe, and achieves effective drainage in the majority of patients. Surgery should be reserved for patients with viscid pus where adequate drainage may not be achieved by this method, or where patients have associated pathology which will require surgery.

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**References:**

7. Attar B, Levendoglie H and Cusay N S: CT-guided percutaneous aspiration and catheter drainage of pyo-


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