

# MANAGEMENT OF HEPATIC ABSCESSSES

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**ABSTRACT** - Amebic and pyogenic hepatic abscesses, without treatment, commonly lead to a fatal outcome. Even with surgical or percutaneous drainage and antibiotic therapy, the mortality rate is high. In this study we reviewed our experience with liver abscess to determined new trends in treatment. Twenty-one cases of liver abscess were identified from 1995 to 1999. The majority of liver abscesses were caused by infections in the biliary tract and amebiasis and were treated by percutaneous or surgical drainage associated with broad-spectrum parenteral antibiotic. Four patients died for an overall mortality rate of 19.0% and 0% for patients with amebic abscess. The author concluded that liver abscess is still a disease with significant mortality. Early diagnosis and prompt treatment are necessary to further improve our results of management.

**HEADINGS** - Liver abscess. Pyogenic abscess. Amebic abscess.

## INTRODUCTION

The advent of highly accurate diagnostic hepatic imaging techniques had profound impact on the diagnosis of liver abscess<sup>(4, 12, 17)</sup>. Although liver abscess was once regarded as an almost uniformly fatal disease, advances in antimicrobial chemotherapy and in therapeutic modalities have altered the prognosis for patients with this problem. Identification of risk factors and high-risk subgroups could be a basis for more specific treatment and perhaps lead to improved patient outcome. Nowadays the most common etiologic factor in the pathogenesis of pyogenic hepatic abscess is biliary tract disease accounting for approximately 30 per cent of all instances in several recent series. The amebic abscess now accounts for a relatively small number of cases in the developed countries but has enormous importance in our country, mostly in the northwest and north, where incidence is almost endemic. It occurs where there is an appreciable human population, most frequently in warmer climates. This accounts for the differences in geographical distribution<sup>(10, 13, 16)</sup>.

The differentiation of amebic and pyogenic abscesses can present a challenge. Moreover, debate continues regarding the appropriateness of nonoperative and operative therapy<sup>(5, 7, 18, 24, 27, 31)</sup>.

The present study aims to analyze our experience in managing those patients with pyogenic and amebic liver abscess and to assess new trends in treatment.

## MATERIAL AND METHODS

The records of all patients treated for hepatic abscess at Hospital President Dutra, Federal University of Maranhão, São Luiz, MA, Brazil, from March 1995 to July 1999 were reviewed. Twenty-one patients had hepatic abscess confirmed from abscess material harvested at surgical exploration or needle aspiration associated with roentgenographically demonstrable intrahepatic cavity.

Pathogenesis, signs and symptoms, laboratory data, diagnostic test, treatment, pathology, bacteriology, complications, and outcome were analyzed. When percutaneous transhepatic drainage was used in the treatment of patients with liver abscess, either computed tomographic scan or ultrasound guidance was used to place an 8F to 14F catheter. Percutaneous drainage was performed in patients who had no signs of concurrent intra-abdominal infection, who had an accessible abscess cavity, and who represented a major operative risk for exploratory laparotomy. Hospital mortality was defined as death within the same hospital admission. All patients were followed up at the outpatient clinic of the same institution after discharge.

## RESULTS

There were 13 men (61.9%) and 8 women (38.1%) and the average age was 45.2 years. Twelve of the 21 liver abscess (57.1%) were pyogenic and 9 (42.9%) were amebic abscesses.

Work accomplished in the Hospital President Dutra, Federal University of Maranhão, São Luiz.

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There were 10 single abscesses (47.6%) and 11 (52.4%) multiple abscesses. The liver abscesses was located in the right lobe in 12 cases (57.1%), the left lobe in 3 cases (14.3%), and both lobes in 6 cases (28.6%). The pathogenesis of the liver abscess is summarized in Table 1.

**TABLE 1 - Pathogenesis of liver abscesses**

<b>Etiology</b>	<b>n</b>	<b>%</b>
Biliary	4	19.0
Gastrointestinal by way of portal drainage	2	9.5
Hepatocellular carcinoma	1	4.8
Sepsis	1	4.8
Cryptogenic	4	19.0
Amoebic	9	42.9

*Escherichia coli*, *Klebsiella* and *Streptococcus* were the most common organisms found in pyogenic abscesses (83.3%). Others frequent organisms were *Enterococcus* and *Staphylococcus* (41.7%).

In 95.2 per cent of cases (20 patients) the presenting symptoms were fever and chills. Abdominal pain and tenderness, anorexia, weight loss, and nausea and vomiting were also frequent present. Hepatomegaly and jaundice were noted in 14.3 per cent (three patients) and 9.5 per cent (two patients) of cases, respectively.

The hepatic abscesses were treated by one of three methods: 1) antibiotic alone, 2) percutaneous drainage, 3) surgical drainage (Table 2). All patients were treated with broad-spectrum parenteral antibiotics during the course of their disease.

Before sensitive tests for bacteria, a parenteral first-generation cephalosporin and an aminoglycoside were given empirically; metronidazole was also given to combat a possible coexisting anaerobes and ameba.

**TABLE 2 - Treatment of liver abscess**

<b>Drainage</b>	<b>n</b>	<b>%</b>
None	2	9.5
Percutaneous	8	38.1
Surgical	11	52.4

Two selected high-risk patients with multiple abscesses were treated with antibiotics alone, without drainage. In one elderly man who survived, the etiology of the abscess was not known; an elderly woman with diabetes, and multiple abscesses secondary to cholangitis, died.

Eight patients (38.1%) were treated by percutaneous drainage. One of these patients

eventually required operative intervention to treat the underlying source of the abscess. This patient died 1 month later. Eleven patients (52.4%) were drained operatively. In these patients, operative correction of the source of the abscess and treatment of associated intra-abdominal disorders was necessary. Two of these 11 patients died.

Complications were high in the percutaneous and surgical groups. Three of eight patients who were drained percutaneously and 4 of the 11 patients who were drained surgically had complications. Recurrent sepsis, pneumonia, pleural effusion, abdominal wound infection, and postoperative abscess were complications observed in these patients. The mean hospital stay for percutaneously drained group was 32 days, compared with 21 days for the patients in the surgically drained group. Four patients died for an overall mortality rate of 19.0%.

## DISCUSSION

The diagnosis of hepatic abscess is frequently delayed due to of a lack of specific signs and symptoms. Abdominal pain, hepatomegaly, and liver tenderness are often subtle so the physician does not consider the correct diagnosis. This observation increases the mortality rates. Imaging techniques such as ultrasound and computer tomography (CT) made the differential diagnosis easier but sometimes it is impossible to rule out primary or metastatic hepatic tumors<sup>(2, 3, 8, 9, 32)</sup>.

Over the last years there have been some changes in the pathophysiology of the liver abscess, which could explain the relatively constant mortality rate. Fifty years ago, the most common etiology of the pyogenic liver abscess was originated from a gastrointestinal source. Nowadays the most common source is the biliary tract. Cryptogenic abscesses continue to account for 15 to 20 per cent of cases in most series<sup>(9, 11, 12, 13, 15, 19, 32)</sup>. In our series, 19.0 per cent of the liver abscesses had an unknown etiology.

The two main types of treatment for liver abscess are surgical or percutaneous drainage, each of which has specific advantages. Percutaneous drainage is relatively safe and avoids an anesthesia and a major operation in patients who are usually quite sick. The disadvantages of percutaneous drainage are that it does not treat the underlying cause of the problem, and highly viscous fluid may not drain well<sup>(1, 2, 6, 19, 20)</sup>.

The advantages of surgical drainage are the ability to identify and appropriately treat an associated intra-abdominal suppurative process, which was necessary in some patients in this study. Drawbacks of operative drainage include the risk of anesthesia, potential difficulty in localizing small deep abscesses, and the complications of the operative procedure itself. Reoperation is occasionally necessary with each therapy<sup>(6, 21, 22, 25)</sup>.

Treatment options in uncomplicated amebic liver abscess include drugs, closed aspiration, percutaneous drainage, and surgical drainage. While most authorities agree that all patients should be treated with amebicidal agents, controversy persists as to the choice of medication and the need for aspiration or surgical drainage. Metronidazole has the advantages of being highly effective, less toxic, and able to treat both intestinal and extraintestinal amebiasis<sup>(23, 24, 28, 31)</sup>. In our series, metronidazole was used in both amebic and pyogenic intrahepatic abscesses.

The application of the technique of percutaneous catheter drainage with CT or ultrasonic guidance should be the first choice of therapy since the patient had not indication for abdominal exploration. Most of the early cases should be selected for percutaneous drainage route<sup>(1, 14, 23, 26, 30, 33)</sup>. In this study, percutaneous drainage was performed in eight patients with one recurrence, which underwent to surgical treatment.

Since most patients with amebic abscess respond to drug therapy with therapeutic needle aspiration, open surgical drainage has generally reserved for patients with complications. The largest experience with surgical drainage, however, comes from Malaysia where BALASEGARAM<sup>(3)</sup> has reported that he has operated on 85% of his 317 patients. For this author, the indications for surgery include: rupture or impending rupture, failure to respond to medical therapy, and inadequacy of aspiration of the left lobe. BALASEGARAM reported only 6 (2%) deaths among 269 surgically managed patients. In addition to having broad indications for surgery, he has also had an aggressive surgical approach including formal hepatic resection.

The appropriate antibiotic regimen for treatment of pyogenic abscess should be based on knowledge of spectrum of organisms likely to be isolated. Two-thirds of these patients will harbor gram-negative

aerobes with *Escherichia coli*, *Klebsiella* and *Proteus* species being isolated most often. Anaerobes are found in nearly 30% of patients<sup>(25, 27, 29)</sup>.

Since many pyogenic abscesses will harbor multiple organisms, broad-spectrum antibiotic coverage is indicated until specific bacteria have been isolated and sensitivities are known. Various possible combinations are available and each of these needs to provide a broad-spectrum against gram-negative aerobes, and anaerobes including *Bacteroides fragilis*. Metronidazole has the additional advantage of providing treatment for *Entamoeba histolytica* and should be included in the initial antibiotic regimen. The exact length of antibiotic therapy should be individualized. Patients with multiple biliary abscesses should probably receive at least 4 or 6 weeks of antibiotic therapy<sup>(23, 24, 25, 26)</sup>.

Mortality rates for patients with multiple hepatic abscesses continue to be quite high. Reasons for high mortality among these patients include failure to consider the diagnosis, failure to detect small, intrahepatic abscesses, ineffective surgical drainage, failure to control the source of infection, and an associated end-stage malignancy<sup>(15, 19, 26)</sup>. Mortality is also affected by such factors as advanced age, the patient's immune status, and the presence of polymicrobial bacteremia. In comparison, the prognosis for a patient with a solitary abscess is quite good. In these patients, deaths generally occurs only when there is failure to establish a diagnosis and achieve adequate drainage. For amebic abscesses, overall mortality rates should approach 0%<sup>(15, 29, 30)</sup>. In our series, the overall mortality rate was 19.0% and 0% for patients with amebic abscesses. The review of the literature and our own experience encourage the management of hepatic abscess primarily by percutaneous catheter drainage considering that the contraindications are not present. In instances where the percutaneous route fails, surgery can always be performed.

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**RESUMO** - O abscesso hepático piogênico ou amebiano sem tratamento leva comumente ao óbito. Mesmo com a drenagem percutânea ou cirúrgica e tratamento com antimicrobianos, a mortalidade continua elevada. Neste estudo, revisamos nossa experiência com pacientes portadores de abscesso hepático para determinar tendências no tratamento. No período de 1995 a 1999, 21 pacientes portadores de abscesso hepático foram identificados e tratados. A maioria dos abscessos hepáticos foi devida a infecções da árvore biliar e amebíase e tratado por drenagem percutânea ou cirúrgica associada à antibioticoterapia de largo espectro. A mortalidade total foi de 19.0% (quatro pacientes) e 0% para abscesso amebiano. Os autores concluem que o abscesso hepático ainda é doença com significativa mortalidade e que o diagnóstico precoce e o tratamento imediato são condições necessárias para melhorar os resultados no manuseio destes pacientes.

**DESCRITORES** - Abscesso hepático. Abscesso piogênico. Abscesso amebiano.

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