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ORIGINAL ARTICLE

Epidemiology and prognostic factors of liver abscess complications in northeastern Mexico

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KEYWORDS
Epidemiology;
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Abstract
Background: Amoebic abscesses (AA) are the most common cause of hepatic abscesses (HA) in the world and pyogenic abscesses (PA) in the western world. Complications of HA are sepsis, empyema by direct extension or abscess rupture.
Objective: To determine the epidemiology and prognostic factors of complications in patients with hepatic abscess in northeastern Mexico.
Material and methods: Patients with diagnosis of hepatic abscess in the University Hospital ''Dr. José Eleuterio González'' between 2011 and 2015. The study has a retrospective design.
Results: A total of 150 patients were reviewed, the most common symptoms were abdominal pain and fever. The etiology was 74 pyogenic, 28 amoebic, and unidentified in 48 patients. The most common agent was *Klebsiella pneumoniae*. Conservative management was given to 16 (17.3%) cases. The mortality was 18 patients (12%). The prognostic variables of complication were abdominal pain, respiratory rate, ALT > 154 IU/L, hemoglobin less than 10 g/dL, presence of a perforated abscess, and performing a second procedure. Mortality and hospitalization increased in the presence of complications.
Discussion: A prevalence of 20% of diabetes mellitus was observed in our patients. Mortality of PA, when associated with *K. pneumoniae*, ranges from 6 to 17%.
Conclusions: The predominant etiology remains pyogenic despite being an endemic country for amoebiasis. In our study, because of lower morbidity and mortality rate, the first choice of treatment was puncture of the abscess.

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Background

Hepatic abscesses are not rare. Amoebic (AA) are the most common cause of hepatic abscesses worldwide. In the western world, pyogenic (PA) are more common.[1] A predisposing factor is diabetes mellitus, which has been linked to 15% of patients with PA.[2]

AA are caused when the trophozoite of the *Entamoeba histolytica* migrates to the liver via portal, destroying liver tissue. We can observe cellular waste instead of pus, with little to no inflammatory exudate. PA is a form of intra-abdominal pathology; between 30 and 40% are of a biliary origin, or secondary to appendicitis, diverticulitis, or inflammatory intestinal disease.

Its usual presentation includes fever, weight loss, and abdominal pain. PA is commonly polymicrobial. However, *Klebsiella pneumoniae*, *Escherichia coli* are often predominant.[3] Diagnosis is performed with imaging studies, such as ultrasound (US) or a CT scan. Injuries are usually located in the right lobe of the liver.[4] In the case of AA, it is confirmed with blood tests. Alkaline phosphatase usually increases in 90% of PA cases.

Treatment for AA is metronidazole for 5–10 days. In the case of PA, broad-spectrum antibiotics are recommended, with suggestive coverage for anaerobes. Not all hepatic abscesses must be drained, only the bigger ones with over 5 cm in diameter. Small abscesses are usually resolved with the administration of antibiotics. A liver abscess which is not drained will resolve over a longer period, thanks to antibiotics. Surgical intervention is necessary if treatment fails, or if there is a subjacent disease that requires surgical treatment.

Hepatic abscess complications include sepsis, empyema (as a direct extension or rupture of the abscess in the pleural cavity), or peritonitis (due to an abscess rupture, and pleuropericardial spillage). Pyogenic hepatic abscess has a poor diagnosis when it is multiple, or has a late diagnosis. Mortality rates before the new treatments were 77%.[5] Nowadays, mortality is 1–3%[6] in AA and 10% in PA.[3]

Objective

To determine the epidemiology and prognostic factors of complications in patients with hepatic abscesses in northern Mexico.

Materials and methods

We requested the charts of patients over 18 years old, diagnosed with hepatic abscess between 2011 and 2015, from the Statistics Department at the University Hospital ''Dr. José Eleuterio González''. The CIE-10 code used was K75.0. The study had a retrospective design. Exclusion criteria were the absence of a chart.

Multiple variables were determined, such as the patient's general data, personal pathological and non-pathological records, symptomatology, vital signs, laboratory tests, cultures, antibiotic therapy, treatment, and follow-up until discharge.

The diagnosis of liver abscess was based on the medical records, clinical profile, imaging studies, and laboratory results. It was considered amoebic when there was the presence of an indirect hemagglutination higher than 1:32. The rest were considered pyogenic.

For statistical analysis we divided the patients in a group with complications (NCG) either surgical or medical and the group without complications (CG).

Table 1 Most common symptomatology presented in patients with hepatic abscesses.

Symptom	Total *n* (%)
Abdominal pain	118 (78.6)
Fever and chills	102 (68)
Nausea and vomiting	72 (48)
Weight loss	32 (21.3)
Jaundice	22 (14.6)
Dyspnea and cough	20 (13.3)
Bad general state	20 (13.3)
Confusion	4 (2.6)

Results

Descriptive analysis

A total of 156 patients were obtained; 6 patients were eliminated due to a lack of clinical charts. Out of the 150 patients reviewed, 96 (64%) were men, and 54 (36%) were women, with a mean age of 47 years. Mean hospital stay was 43 days. Within their personal non-pathological history, a total of 58 (38.6%) were smokers, and 53 (34.6%) consumed alcohol chronically. Moreover, their personal pathological history included 30 (20%) patients with type 2 diabetes mellitus, 20 (13.3%) patients with systemic arterial hypertension, 6 (4%) patients with hepatitis B, 6 (4%) HIV positive patients, and 2 patients with hepatitis C (1.3%). Regarding their clinical symptoms, the most common are described in Table 1. Vital signs and lab work are described in Table 2.

In 130 patients, abscess samples were sent for cultures (Figure 1), while 20 patients were without a sample. Results showed a total of 58 positives and 72 negatives. Of the positives, 19 had *K. pneumoniae*, 16 had *E. coli*, 7 had *Enterococcus faecalis*, 4 had *Streptococcus agalactiae* and *Streptococcus sanguinis*, 4 had *Coagulase-negative staphylococcus*, 4 had *Morganella morganii*, and 4 had *Streptococcus* spp. A total of 30 hemocultures were performed, obtaining 8 positives and 22 negatives. Of the positives, 2 had *Staphylococcus*, 4 had *M. morganii*, and 2 had *E. faecalis*.

Regarding the imaging studies performed, US and CT scans were conducted in 44 patients, only US on 54 patients, and only TAC on 32 patients (Figure 1). Abscesses were located on the right side in 84 (56%) patients, on the left side in 40 (26%), and on both sides in 26 (17.3%). The number of reported abscesses was 1.27 ± 1.04. There was 1 abscess reported in 108 (72%) patients, 2 in 20 (13.3%), and 3 or more in 18 (12%). Average size was 3.96 cm $\pm$ 4.7; the largest reported size was 18 cm. There were 8 (5.4%) reported with a thickened abscess wall, 26 (17.3%) with edge highlighting,