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Case Report

Amebic liver abscess

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Abstract

Amebic liver abscess (ALA) highly endemic in most developing tropical countries is being encountered more frequently in other geographical areas maybe secondary to increased travel to areas where the disease is endemic as well as in the homosexual population. We report a classical clinical case of ALA in a 44 years old man diagnosed by ultrasound and positive seroameba titers who responded to oral imidazoles.

Key words: Amebiasis, Liver abscess.

Introduction

Two distinct species of *Entamoeba* are now recognized: *Entamoeba histolytica* and *Entamoeba dispar*. *E. histolytica* is the cause of dysentery, colitis, and ALA, whereas *E. dispar* has clinically never been associated with disease.[1] Infection by *E. histolytica* is ubiquitous, but the highest endemic incidence is usually found in poor communities with inadequate sanitation. ALA is an important consideration in cases of space-occupying hepatic lesions. Although ALA is potentially fatal, with timely use of imaging techniques and potent amebicidal drugs, the prognosis is highly favorable.

Case report

A 44-year-old male experienced intermittent diarrhea with mucus and blood for one week, with fever of 39ºC, chills, nausea, vomiting and malaise. He also complained of right upper abdominal pain radiating to the right shoulder. The patient was treated with ciprofloxacin without any evident benefit, being referred to our institution.

On admission, physical examination revealed mild ascites and hepatomegaly 4 cm below the costal margin, with tenderness and pain to superficial palpation. No stigmas of cirrhosis were observed in physical examination.

The white blood cell count was 16,000/mL, with 80% polymorphonuclear leukocytes and 3% band cells. Liver enzymes revealed an alkaline phosphatase level of 132 U/Ml (normal 35 to 196 U/mL), alanine aminotransferase 103 U/mL (normal 10-56 U/mL), aspartate aminotransferase 144 U/mL (normal 10 to 40 U/mL), and bilirubin 2.8 mg/dL, with 1.9 of direct bilirubin. The ultrasound revealed an hipoechoic space-occupying lesion in the right lobe of 4.2 x 3.9 cm, round, with margins well defined *(Figure 1)*. Fecal leukocytes, ova, and parasites were negative on stool examination. Blood culture results were negative. Seroameba titers positive 1:512. The patient was given a full course of metronidazole, 750 mg tid for 14 days, and experienced relief of symptoms. Liver tests after three weeks were normal, and ultrasonography showed reduction in the size of lesion.

Discussion

About 10% of the world's population are infected with *E. histolytica*, making amebiasis the third most common cause of death from parasitic diseases. Areas of highest incidence are mostly in developing tropical countries. Highest endemicity occurs in communities with low socioeconomic status, inadequate sanitation, and overcrowding. Most individuals harboring the parasite are healthy carries who eliminate up to 1.5 x 10^9 cysts in their daily stools.[2]

While little is still known about the molecular epidemiology of ameba and the data are too fragmentary to make strong conclusions concerning populations of amebae which infect humans, the strains of *E. histolytica* that were isolated more than 30 years ago in Mexico, India and Bangladesh are likely identical in most aspects to the other *E. histolytica* strains from the all over the world.[3]

Entamoeba histolytica may be viewed as a cytotoxic effector cell, with an extraordinary capacity of killing various target cells and also a primitive actively phagocytozing eukariotic cell that uses bacteria as a major nutrient source. Initial steps in tissue invasion may be aided by the release of proteases from trophozoites, which are capable of degrading the extracellular matrix components such as fibronectin and laminin and activation of the host complement system. Once contact is made, ameba can lyse the target cell, using pore-forming molecules called amebapores, and possibly phospholipases.[4,5]

ALA may be found in all groups but is more frequent in males between the age of 20 and 40 years. Gender differences may be related to alcohol consumption.[6] Although the

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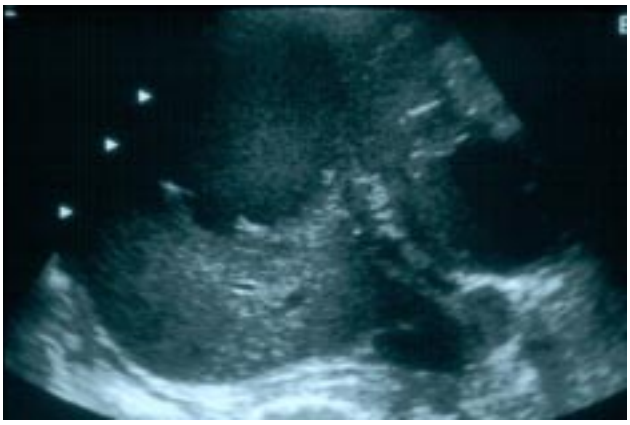

Figure 1. Hipoechoic space occupying lesion in right lobe of 4.2 x 3.9 cm.

signs and symptoms can vary according to the severity of the illness, there are some typical characteristics of this condition: the onset is abrupt with fever between 38 to 40ºC, accompanying chills and profuse sweating specially in the afternoon and at night. Almost all patients complain of intense and constant pain in the right upper abdominal quadrant, radiating to the scapular region and right shoulder. If the ALA is in the left lobe, pain is felt in the epigastrium and may radiate to the left shoulder.

The size of the abscess varies considerably, from pinpoint lesions to extremely large masses. In autopsy, the average size of these abscesses ranges from 5 to 15 cm. They are localized preferentially in the right lobe (35%) and multiple abscesses (16%) are being identified. These variants may have a worse outcome than the classical solitary right lobe abscess.[7]

It is important to know that although all cases of hepatic amebiasis must presumably have began with an intestinal infection, trophozoites or cysts can be demonstrated in the stools very rarely as it was in the present case.

Most patients (more than 90%) have leukocytosis. Alkaline phsophatase is elevated in nearly half of the patients and is one the most reliable biochemical indicators of ALA. Anti-amebic serum antibodies are present in more than 90%. Serology may be negative during the first week after onset; titers reach a peak by the second or third month, decreasing to lower but still detectable levels by nine months. Although a variety of test is available, indirect hemagglutination (IHA) and enzyme-linked immunoabsorbent assay (ELISA) are the most used. IHA is the most sensitive and specific method, with 85 to 95% of patients testing positive. A cut-off value of 1:512 is considered diagnostic. A commercially available test, which detects circulating *E. histolytica* Gal/GalNAc lectin antigen is now available, which is positive in almost all patients which ALA tested prior to treatment, and becomes negative two weeks after the beginning of anti-amebic treatment.[8]

Imaging ultrasonography is the first choice diagnostic study. It is cost-effective as compared with CT scan. A space -occupying lesion is seen in 75 to 95% of patients. By ultrasonography, the space -occupying lesion tends to be round or oval with well defined margins and with the lack of prominent peripheral echoes. The lesions are primarily hipoechoic.[9]

The patient responded very well to metronidazole that is the drug of choice in the treatment of uncomplicated ALA. The recommended oral dosage is 1 gr orally b.i.d for 10 to 15 days in adults and 30 to 50 mg/kg/d for 10 days in three divided doses for children, when it is used intravenously, 500 mg every 6 hours for adults and 7.5 mg/kg every 6 hours for children during 10 days. Other nitroimidazoles are also effective as tissue amebecide; these include mainly tinidazole, ornidazole, at a dose of 2 gr orally daily for 10 days.[10]

Percutaneous aspiration used mostly as a diagnosis tool may occasionally help to accelerate recovery associated with medical treatment. This procedure should only be attempted if the clinician suspects that there is a great risk of rupture or when response to drugs has been slow or when an association with pyogenic infection is suspected.[11] The surgical drainage of an uncomplicated ALA is rarely, if ever, indicated. Surgical intervention may be necessary for complications of liver abscesses, including rupture into intra-abdominal and/or thoracic surrounding organs.

Future directions include ongoing studies on development of a vaccine to prevent amebiasis in high risk populations. The *E. histolytica* Gal/GalNAc is a particularly attractive vaccine candidate for several reasons: it is an antigenically conserved surface molecule is distinct isolates of *E. histolytica* , it is the major antigen recognized by humoral system, it plays a key role in adherence of the parasite to host cells, and stimulates proliferation of amebicidal immune peripheral lymphocytes and production of protective cytokines.[12]

Oral vaccination with attenuated *Salmonella typhymurium* expressing a serine rich *E. histolytica* protein (SREHP), represents a potential candidate vaccine against amebiasis suitable for testing in humans.[13]

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