

Case reports

A CASE OF MULTIPLE AMOEBIC LIVER ABSCESES: CLINICAL IMPROVEMENT AFTER PERCUTANEOUS ASPIRATION

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ABSTRACT

Amoebic liver abscesses are by far the most common extra-intestinal manifestation of invasive amoebiasis. The classical clinical picture consists of fever, right upper quadrant pain and hepatomegaly. Ultrasound and serology make an early diagnosis possible. Amoebic liver abscesses usually appear singly and are normally situated in the right lobe of the liver.

This case report refers to a white Belgian woman, living in an endemic area for amoebiasis, presenting with 25 amoebic liver abscesses, who did not improve clinically despite appropriate anti-amoebic therapy, is described. Only percutaneous drainage of the larger abscesses led to clinical recovery. Amoebic abscess

aspiration and evacuation under ultrasonographic guidance is of limited risk, but in experienced hands may enhance clinical recovery, particularly in patients with large abscesses not responding to conservative medical treatment. Aspiration of large abscesses (> 5 cm) is rarely necessary but should be considered if there is no clinical improvement after 3 days of nitroimidazole treatment with amoebicides.

INTRODUCTION

Worldwide, approximately 40 million people suffer annually from invasive *Entamoeba histolytica* infection, resulting in a case fatality rate of approximately 1/1000 (1), with the vast majority of infections occurring in developing countries due to poorer socio-economic conditions and sanitation levels. In developed countries invasive amoebiasis (amoebic dysentery or amoebic liver abscess) is usually seen in migrants from and travellers to endemic countries.

The diagnosis of an amoebic carrier state based on stool microscopy unfortunately makes no distinction between the much more frequent but non-pathogenic *E. dispar* and the potentially invasive *E. histolytica* strains, and may have contributed to the gross overestimation of asymptomatic carriers in the past (2-4).

The classical clinical picture of amoebic liver abscess consists of fever, right upper quadrant pain and hepatomegaly. Seventy percent of patients with liver amoebiasis have a single abscess, mainly situated in the right lobe of the liver, but multiple abscesses are not exceptional. The following case report describes a patient with multiple large liver amoebic abscesses who

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only improved clinically after percutaneous aspiration of the largest abscesses.

CASE REPORT

A 33-year-old Belgian woman was transferred to our hospital with a 7-day history of fever, abdominal pain and diarrhoea. She had been resident in the Democratic Republic of Congo for several years. Her past medical history was unremarkable.

On admission, she looked ill and pale. Her temperature was 40.2°C. There was marked tenderness over the right upper quadrant and the liver was enlarged (4 centimetres below the costal margin).

Laboratory tests showed moderate anaemia (haemoglobin: 9.2 g/dl (normal values: 12-15 g/dl)); hyper-leucocytosis (white blood cell count: 20,200 cells/mm³ (4.3-10 cells/mm³) with 85% neutrophils); hypo-albuminaemia (albumin: 1.8g/dl (3.5-5.2 g/dl)); hyponatraemia (sodium: 126 mmol/l (136-146 mmol/l)); a raised lactic dehydrogenase (LDH: 1647 U/l (313-618 U/l)); a raised aspartate aminotransferase (AST: 106 U/l (5-40 U/l)); a raised alanine aminotransferase (ALT: 92 U/l (7-56 U/l)); a raised alkaline phosphatase (238 U/l (36-95 U/l)); a raised γ -glutamyl transpeptidase (γ GT: 128 U/l (11-29 U/l)) and a markedly elevated C-reactive protein (CRP: 27.3 mg/dl (<3 mg/dl)). Serologic testing for *E. histolytica* using an Immunofluorescent antibody assay (IFAT) with fixated *E. histolytica* trophozoites (obtained from axenic culture as antigen) was positive (1/1600). Blood cultures did not grow any organism. Stool microscopy did not reveal ova, parasites or leucocytes. Ultrasound of the abdomen revealed multiple abscesses, although the sonography had been negative a week previously in another hospital. A CT scan of the abdomen showed 25 hypoechogenic areas scattered throughout the liver (Figure 1). There was a bilateral pleural effusion with a compression atelectasis of the inferior lobe of the right lung.

A diagnosis of amoebic liver abscesses was made and intravenous ornidazole treatment (1 gram BID) was initiated. Despite ornidazole treatment for 10 days, the patient's clinical condition did not improve and the fever persisted. She was given additional treatment with metronidazole orally (750 mg tid) and diloxanide fuorate orally (500 mg tid) for ten days without marked clinical improvement. At that stage evacuation of a total of 7 abscesses was performed under ultrasound guidance, resulting in an impressive

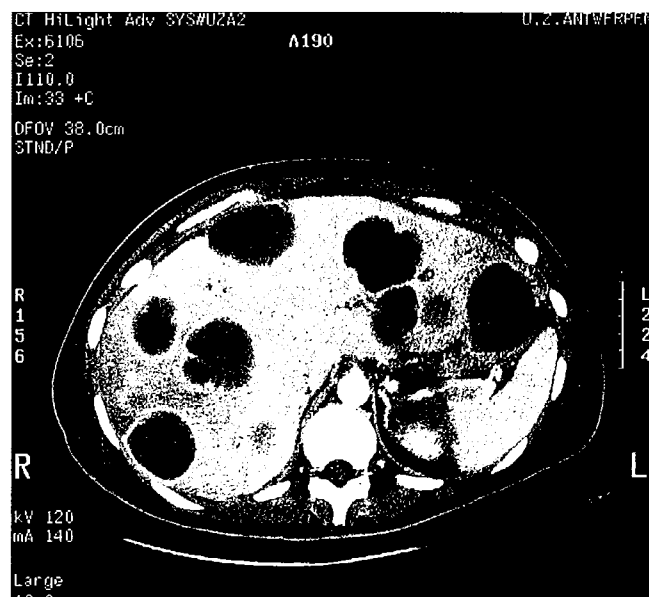


Fig. 1. Multiple amoebic liver abscesses

improvement in the patient's condition, leading to her discharge one week later. Aerobic and anaerobic bacterial culture of the abscess fluid was sterile. She remained asymptomatic during a follow-up period of six months, although ultrasound revealed sequelae of the multiple liver abscesses.

DISCUSSION

Infection with amoebic cysts usually occurs indirectly via contaminated food or water but can be transmitted through faeco-oral contact. Conditions that affect cell-mediated immunity, such as corticosteroid use, older age, pregnancy, malignancy and malnutrition may increase the risk of amoebiasis, resulting in invasive disease with liver involvement (5-7).

Fever of up to a few weeks' duration and right upper quadrant pain are the typical clinical manifestations of an amoebic liver abscess. Concurrent or a previous history of diarrhoea is present in less than one third of patients. For travellers returning from an endemic area, symptoms usually develop within 8 to 20 weeks (median 12 weeks) after their return from an endemic area, although a time lapse of up to 12 years has been reported (6,8).

Clinical examination of a patient with an amoebic liver abscess reveals hepatomegaly and liver tenderness in approximately 50 percent of cases (9). Jaundice occurs in less than 10 percent of patients (5).

Occasionally, depending on its localisation in the liver, an amoebic abscess may empty itself into the peritoneum causing peritonitis, into the pleural cavity causing empyema, into the pericardial cavity resulting in cardiac tamponade, or may perforate externally through the abdominal wall (10).

Although blood count and routine biochemical analysis contribute little to the final diagnosis, a marked leucocytosis without hypereosinophilia, a markedly elevated C-reactive protein or erythrocyte sedimentation rate and moderately elevated liver enzymes are usually present (11).

Faecal microscopy may be positive for amoebic cysts or trophozoites (*E. histolytica* or *dispar*) in only 18 percent of cases (12). Multiple techniques now exist to differentiate *E. histolytica* from the non-pathogenic *E. dispar*, based on the detection in stool of *E. histolytica*-specific antigen and DNA (polymerase chain reaction) (13).

Anti-amoebic serum antibodies are detectable in the vast majority of patients with amoebic liver abscess, i.e., in 70 to more than 90 percent at the time of presentation (4, 14). Serologic testing, however, may be negative for the first 7 days (11). Current serologic tests remain positive in patients for years after infection, making it difficult to distinguish recent from past infection in regions of the world where the seroprevalence is high.

Radiologic imaging (ultrasound, computerised axial tomography) of the liver is the preferred method for diagnosing a liver abscess, but the resulting images may not be specific enough to differentiate from pyogenic liver abscesses. The sonography can sometimes be negative for an abscess on admission or during the first week (15,16), as was seen in our patient. As the incubation time may be very long, the initially negative liver ultrasound and/or serology may present a diagnostic pitfall in the work-up of fever of undetermined origin of less than 1-2 week duration. Although amoebic abscess more often presents as a single lesion located in the right lobe, multiple lesions are seen in up to 50% of cases (17,18). Multiple amoebic abscesses evolve more rapidly and with a more severe clinical presentation.

If the serology is negative, a diagnostic needle aspiration of the liver abscess has to be considered to rule out a pyogenic infection. Even when using a large bore needle (16 Gauge) this procedure is safe when guided by ultrasound (17,18). Aspiration of an amoebic liver abscess produces a viscous, often (but not always) chocolate-coloured, weakly odorous fluid consisting

predominantly of necrotic hepatocytes. *E. histolytica* trophozoites are present only in the walls at the periphery of the abscess, invading and destroying adjacent tissue, and are thus rarely seen on microscopy of pus (19).

Nitroimidazoles offer good tissue penetration and are currently still the treatment of choice for invasive amoebic disease. Treatment with metronidazole (750mg PO TID for 10 days) produces a cure rate of more than 90 percent (1). Administration of the metronidazole intravenously is preferred in very sick patients. If patients are slow to respond to metronidazole, or in case of a relapse following therapy, a prolonged course of metronidazole therapy should be considered. *E. histolytica* resistance to metronidazole has not been reported (20). Other nitroimidazoles with longer half-lives (tinidazole and ornidazole) are better tolerated and are reported as being at least as effective, producing cure rates of almost 100 percent with a three-day regimen, and over 94 percent even with only a single dose of 2 g (21-24). Bacterial co-infection of amoebic liver abscess has occasionally been reported and it is reasonable to add antibiotics to the treatment regimen in the absence of a prompt response to nitroimidazole therapy (14).

For invasive amoebiasis, treatment with a nitroimidazole compound is supplemented with the administration of a non-absorbed luminal amoebicidal agent to prevent a potential relapse. Paromomycin (500mg PO TID for ten days) has been proven superior to diloxanide furoate (500mg TID for ten days) in a recent study on asymptomatic *E. histolytica* carriers (25).

Therapeutic percutaneous ultrasound-guided needle aspiration of a liver abscess is rarely necessary, and certainly not in uncomplicated cases, even with a diameter of 5 cm or more. (26-28). Aspiration is mainly indicated in patients with large size abscesses and in those who fail to improve clinically after 48-72 hours (29). If there is imminent rupture into the adjacent cavities, a therapeutic aspiration should also be considered, although the spontaneous rupture rate is very low, even if a conservative medical management policy is followed (29-31). When fever and liver tenderness do not diminish following nitroimidazole treatment, aspiration and evacuation will relieve the pain by decompression of the liver capsule. Moreover, evacuating the acellular debris reduces the inflammatory reaction secondary to the resorption process and makes the fever subside more readily. Patients with large abscess cavities may benefit most from this procedure. Consecutive aspiration or continuous drainage are sometimes required to obtain clinical improvement (33-36).

Ultrasonographic monitoring of patients treated for amoebic liver abscesses has shown that resolution of lesions can take many months and that even a persistent cystic lesion is not unusual (37). There is no correlation between the ultrasonographic resolution of lesions and the clinical cure (38).

SAMENVATTING

Entamoeba histolytica veroorzaakt amoebenabcessen in de lever als meest frequente extra-intestinale pathologie. De patiënten melden zich met koorts, rechter hypochonderpijn en hepatomegalie. Echografie en serologie laten een vroegtijdige diagnose toe. Een amoebenabces is vaak solitair en gelegen in de rechter leverkwab.

Wij beschrijven een blanke Belgische vrouw, verblijvend in een voor amoebiase endemisch gebied, met 25 leverabcessen die ondanks verlengde medicamenteuze behandeling klinisch niet verbeterde. Enkel na percutane drainage van de grootste abcessen verbeterde haar gezondheidstoestand.

Aspiratie van leverabcessen onder echografische leiding is weinig risicohoudend in ervaren handen, en deze procedure kan een snelle klinische verbetering en abcesresorptie bewerkstelligen, vooral bij patiënten met grote leverabcessen die niet reageren op conservatieve medicamenteuze behandeling. Een therapeutische aspiratie en drainage dient overwogen te worden indien de patiënten geen klinische verbetering vertonen na 3 dagen medicamenteuze behandeling met nitroimidazoles en indien de diameter van leverabcessen groter dan 5 centimeter diameter is.

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