

Giant hepatic amebic abscess in South Florida: a case report

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Nicolette Celia

Doctor of Medicine

Institution: American University of Antigua (AUA) - College of Medicine

Address: 7150 W, 20th Ave, Suite, 615, Hialeah, FL, 33016

E-mail: amit.sastry@steward.org

Issac Noel Sanchez de la Cruz

Doctor of Medicine

Institution: American University of Antigua (AUA) - College of Medicine

Address: 7150 W, 20th Ave, Suite, 615, Hialeah, FL, 33016

E-mail: amit.sastry@steward.org

Amit Sastry

Doctor of Medicine

Institution: Steward Medical Group

Address: 7150 W, 20th Ave, Suite, 615, Hialeah, FL, 33016

E-mail: amit.sastry@steward.org

ABSTRACT

Giant amebic liver abscesses are infrequent, and ever rarer in US hospitals. Herein, we describe a case presentation of a giant hepatic amebic abscess almost two years after endemic travel to Central America.

Keywords: *Entamoeba histolytica*, *E. histolytica*, amebic liver abscess, ALA, South Florida.

1 BACKGROUND

Entamoeba histolytica (*E. histolytica*) is a common parasitic infection typically found in endemic tropical and subtropical areas such as Central and South America (Wuerz et al., 2012). On average, it causes 35-50 million symptomatic infections and 100,000 deaths worldwide annually (WHO/PAHO/UNESCO, 1997). However, the exact number of infections per year is unknown because 90% of cases do not present with symptomatic colonization of the gastrointestinal tract (Papavramidis et al., 2008; Chou & Austin, 2021).

E. histolytica infection occurs through a fecal-oral cystic ingestion seen in endemic areas as a result of poor sanitation (Wuerz et al., 2012). Once cysts reach the intestines, the parasites excystate to produce trophozoites which then adhere to the intestinal walls via the galactose/N-acetyl-D-galactosamine (Gal/GalNAc) adherence lectin (Ralston & Petri, 2011; Wuerz et al., 2012). The infection can then either remain intra-intestinal or progress to extraintestinal colonization. If the trophozoites

invade enterocytes, then they are able to migrate to the portal circulation and seed other organs (Maregna et al., 2019). The liver is the most common organ for extra-intestinal *E. histolytica* infections to disseminate to with occurrence rates of <1%. Here in the liver, *E. histolytica* produces an abscess through eliciting an inflammatory reaction that causes hepatocytes to necrose yielding an Amebic liver abscess (ALA) (Wuerz et al., 2012).

Though ALAs are the most common extra-intestinal presentation, they have the ability to become very large and mimic other diseases if left untreated (Marenga et al., 2019). Typically, a liver abscess between the parameters of 4-12 cm is predictive for an ALA, however ALAs can exceed the upper parameter of 12 cm and continue growing if presenting late in the disease course or left untreated (Tharmaratnam et al., 2020). This runs the risk of a more difficult diagnosis and further complications such as abscess rupture, pleural effusion from drainage complications, and death (Papavramidis et al., 2008).

This case is interesting because it reports a 14.4 cm gigantic amebic abscess in a female patient in South Florida whose most recent tropical travel was 23 months prior to symptom presentation.

2 CASE REPORT

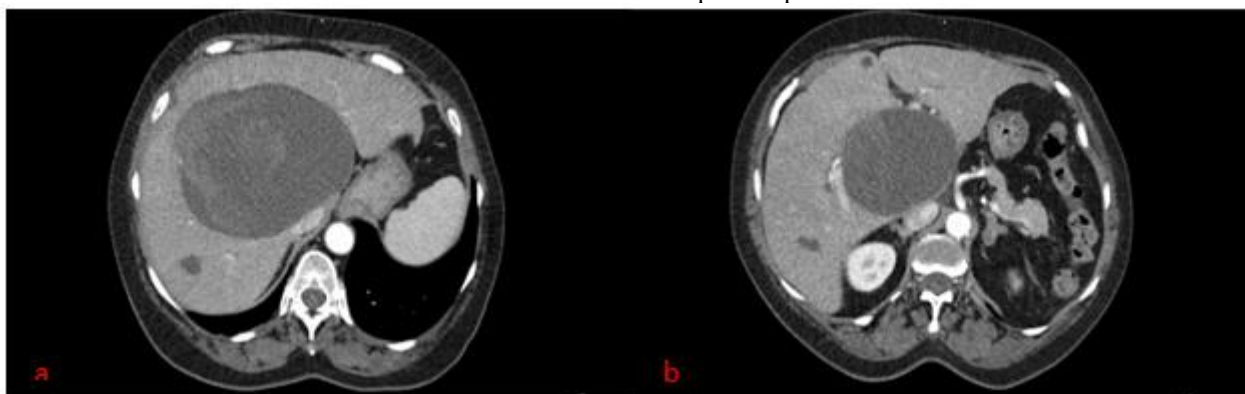
An 81-year-old Hispanic female presented to the emergency room with bloating and dyspepsia for 5 days. She reported a discomfort localized in the RUQ radiating to the right axilla. The concomitant symptoms were bilious vomiting and fevers ranging from 99.7 to 102.2° F. She had no remarkable past medical history. Furthermore, her travel history revealed a relevant trip to Nicaragua 23 months prior to her ailment, on the final weeks of December 2019. In her aforementioned trip, she spent 8 days in Managua, 4 days in Puerto Cabeza, and posteriorly, 2 days in Panama. While in Puerto Cabeza, she ate all her meals, which consisted of raw vegetables, rice, and diverse meats at local restaurants.

Her serum biochemistry revealed a total bilirubin level of 3.7mg/dL, leukocytosis of 19×10^9 /L, and anemia with a Hgb of 10.7g/dL. Upon suspicion of a hepatic pathology, magnetic resonance imaging (MRI) demonstrated a 14 x 11 cm fluid collection occupying the right hemi liver without communication to the biliary tree. At this point the differential of a pyogenic liver abscess or amebic liver abscess were more reasonable than the previous differentials involving biliary cystadenoma or biliary cystadenocarcinoma. Computerized tomography (CT) guided drainage was performed where 600 mL of brownish, mildly malodorous fluid was aspirated and biopsied.

The aspirate cytology revealed abundant small round organisms with features of trophozoites, consistent with *E. Histolytica* abscess. The patient had been receiving intravenous piperacillin and tazobactam, which was discontinued and replaced with metronidazole for the remainder of her admission. This drainage was initially quite effective with amelioration of fevers and leukocytosis.

Repeat cross sectional imaging performed 7 days later demonstrated the abscess size had decreased of about 50% from a previous measurement of 14.4 x 12.8 cm to 8.6 x 7.1 cm. Given the size of the abscess, the decision was made to perform a laparoscopic marsupialization of the collection given its size and likely thick loculations. During the laparoscopy, no signs of extrahepatic disease were apparent. Laparoscopic liver ultrasound revealed a normal left lateral sector and attenuated liver parenchyma with pockets of hypoechoic material in segment 8. A hepatotomy was made in this area and the capsule was resected here. 50 mL of brown purulent material was expressed. The patient tolerated the surgery well and was discharged on hospital day 35, postoperative day 10. Two weeks later, she was also seen in the outpatient clinic and was recovering uneventfully.

Figure 1: Hypodense area with debris represents the echinococcal cyst. a. More cephalad near the inferior vena cava b. Caudal view towards the porta hepatis



3 DISCUSSION

Though ALAs are common worldwide, they are less widespread in the United States due to higher rates of sanitation and clean water. However, they are still prevalent in people with unhealthy lifestyles, with poor hygiene, or with travel to endemic areas (Marenga et al., 2019). Additionally, ALAs typically present measuring between 4-12 cm in diameter, with a median diameter of 8 cm (Tharmaratnam et al., 2020). Cordel et al. (2013), defines large amebic abscess as an abscess greater than 6.9cm. ALAs also usually present within 28 weeks (6.4 months) of endemic travel (Wuerz et al., 2012). Therefore, the findings of a 14.4 cm ALA in an 81-year-old female patient with 23 months of prior travel history was unusual to find in the United States. With the diameter of the abscess being much greater than the reported median, there was also reason to believe that this was a late presenting ALA.

Late presenting ALAs can lead to further complications for patients. The unnoticed growth of the abscess can lead to mass effect, rupture, and peritoneal spread (Wuerz et al., 2012). This makes attempts at removal more difficult. IV Metronidazole is the typical course of treatment, but in abscesses greater than 5 cm, needle aspiration and/or catheter drainage is typically warranted for faster clinical

relief and shorter antibiotic duration (Tharmaratnam et al., 2020). Needle aspiration or catheter drainage is not without its own complications, especially in this case of a posterior liver abscess. Image guided aspiration, particularly when the window necessitates penetration of the pleura, can lead to contamination of the pleural space (Marenga et al., 2019). Thus, laparoscopic guided drainage should be entertained when managing hepatic abscesses involving the right posterior sector.

This case represents an unusual presentation of *E. histolytica* based hepatic abscess. The classic description of an amebic aspirate is of 'grey and thick anchovy paste' consistency, rather than the dark brown color and a mild odor. The authors believe the fluid conglomerate could have been from a bilirubin contaminate due to the patient's history of a cholecystectomy, the size, and location of the abscess. However, this was later ruled out and *E. histolytica* was the primary differential once the cytology report confirmed solely the presence of trophozoites in the aspirate.

E. histolytica spreads via fecal oral transmission; it is found predominately in middle aged male patients with an increased susceptibility in men who have sex with men, patients with recent endemic travel or immigration, and patients who are immunosuppressed (Chou & Austin, 2021; Wuerz et al., 2012). Patients with ALAs typically present with nonspecific symptoms such as right upper quadrant pain and high-grade fevers. Laboratory findings are usually significant for leukocytosis with no eosinophilia, hypoalbuminemia, hyperbilirubinemia, and mild iron deficiency anemia (Seeto & Rockey, 1999; Wuerz et al., 2012). These clinical findings are similar to those found in our patient however, with our patient being an 81-year-old postmenopausal heterosexual female, she is different from the traditional presentation. It can be postulated that the patient's postmenopausal state in accordance with her endemic travels led the patient to being more susceptible to this ALA infection, despite not being the classic candidate.

Though 80% of ALAs typically develop within 2-4 weeks of foreign travel, ALAs can also take years to develop (Jackson-Akers et al., 2021; Wuerz et al., 2012). With the patient's prior travel history to Nicaragua and Panama 23 months ago, concern for a parasitic infection not typically seen in the United States was due to the history of eating mostly local cuisine where there was regard for poor sanitation. Even though this was our patient's last visit to Central America, there is suspicion she could have been infected during a previous travel occasion due to *E. histolytica*'s long incubation period in some patients. Incubation periods for *E. Histolytica* can range from 1 day up to 14 years after return from an endemic area. In some instances, cases of *E. histolytica* go undiagnosed due to patients neglecting their symptoms or having limited access to healthcare (Cordel et al., 2013).

Laparoscopic abscess unroofing and drainage was performed for the prevention of abscess recurrence. Laparoscopically, the abscess was visualized with multiple septations, and some residual fluid was evacuated. Given the thickness of the fluid and the aforementioned loculations, the authors

recommended laparoscopic guided drainage for hepatic abscesses larger than 5 cm for definitive management. Large amoebic abscesses can take upwards of 7.5 months to disappear so the persistence of lesions should not alarm physicians if the patient is free of symptoms during follow up (Cordel et al., 2013). The risks and benefits of surgical intervention in large ALAs should be weighed if the patient is improving yet the abscess has stopped shrinking.

Even though *E. histolytica* is rare in the United States, it does account for at least 5 deaths per year and is typically seen in patients with history of travel to Mexico, the Caribbean Islands, and Central and South America (Chou & Austin, 2021). Modernization of transport and increased immigration are causing the incidence of *E. histolytica* infections to increase in the United States, including South Florida (Papavramidis et al., 2008; Seeto & Rockey, 1999). South Florida is unique not only for its proximity to the above endemic locations, but also because it is a tropical area (Papavramidis et al., 2008; Wuerz et al., 2012). South Florida is a favorable destination for immigrants from tropical locations, and social ties to native countries promote frequent travel between these areas. Therefore, *E. histolytica* should be considered as a differential when evaluating a patient for a liver abscess, especially in South Florida.

4 CONCLUSION

The presentation of a large 14 cm amoebic liver abscess in a South Florida hospital after almost two years of travel to Central America is unusual. The importance of obtaining a detailed history and broad differential diagnoses are essential. The case represents an interesting case that can be didactic in the management of giant amoebic liver abscesses.

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