

A Case Series and Literature Review Provide Updates on the Amoebiasis Epidemic around the World

Mohammad Akhoundi*

Parasitology-Mycology Department, Avicenne Hospital, AP-HP, Paris 13 University Bobigny, France

Abstract

The protozoan *Entamoeba histolytica* is the source of the intestine and tissue parasite infection known as amoebiasis. Little is known about the epidemiology and unique geographic distribution of the numerous clinical types of amoebiasis in the world, despite their major medical importance and widespread distribution [1]. In this study, we present a case series of amoebiasis cases that were referred to the Avicenne Hospital in Bobigny, France, between 2010 and 2022, followed by a review of the published literature to explore various amoebiasis clinico-pathology and to update the current epidemiological situation of this parasitosis globally.

15 patients with amoebiasis in all were identified, with an average age of 48.5 at the time of infection. Patients that were mainly impacted were men (78%). The majority of cases were discovered after visiting endemic areas like Mali, India, Nepal, Algeria, Cameroon, or Congo. Hepatic amoebiasis was present in every patient undergoing processing [2-4]. In every case, an amoebic abscess was found, with an average diameter of 6.3 cm. Seven of these patients (46.7%) benefited from drainage as a result of a danger of abscess rupture or superinfection. We were able to update the key epidemiological and clinical events that have contributed to the present global expansion using a compilation of findings drawn from 390 scientific papers via seven major a global illustration map showing the current distribution of identified amoebiasis foci in each geographical ecozone of Asia, Europe, Africa, the Americas, and Australia, as well as an epidemiological overview of amoebiasis. Although amoebiasis is not known to be endemic in Metropolitan France, the most common clinical presentation seen among the 15 individuals we assessed was an amoebic liver abscess. Before arriving in France, the majority of infected patients had a history of travel to or residence in endemic countries.

Introduction

Entamoeba histolytica Schaudinn, 1903 is a single-celled parasite that causes the intestinal ailment known as amoebiasis. There are at least eight species of the genus *Entamoeba* that may live in the human intestine (*E. bangladeshi*, *E. coli*, *E. dispar*, *E. gingivalis*, *E. hartmanni*, *E. histolytica*, *E. moshkovskii*, and *E. polecki*). *E. histolytica* is the only one of them that is harmful to humans and has a substantial risk of morbidity and mortality. Ingestion of water or food contaminated with faeces harbouring *E. histolytica* cysts is the primary method of infection transmission [5-9]. The cysts can endure suitable aquatic environments for a number of months and are resistant to disinfection. The infection seems to be more common in men, despite equal exposure of men and women to *E. histolytica* infection.

A wide range of clinical characteristics characterise amoebiasis, from asymptomatic infection to extraintestinal amoebiasis or abscess. Only 1% of infected people acquire the invasive form of the disease, while 90% of infected people are asymptomatic carriers. Amoebiasis can appear in two primary clinical types, extraintestinal and intestinal, depending on how it presents clinically. The most prevalent disease, intestinal amoebiasis, is brought on by an invasion of the mucosa, which typically happens in the cecum or ascending colon. Amoebic dysentery symptoms range from stomach pain to ulcerative colitis with mucus and blood. Amoebiasis extraintestinal encompasses a variety of illnesses depending on the organ that is affected. The most prevalent types of extraintestinal amoebiasis are, in order, hepatic and pulmonary amoebiasis [10-15]. Although many of the symptoms common to various clinical forms, such as fever, appetite loss, and nausea, are shared by all of them, some clinical symptoms are unique to each clinical type. However, if amoebiasis is not treated, it can be fatal.

Metronidazole, tiliquinol, and tilbroquinoia combination of luminal and tissue amoebicides—were administered to each patient in the current trial. The first is the most frequently prescribed drug

for amoebiasis, while the second is frequently given to asymptomatic patients to kill luminal amoeba or clean the intestine. Two years after the initial amoebic abscess, one of our patients who was a resident of France experienced another one. It appears he had not acquired intetrix in the ALA's premiere episode. This demonstrates the significance of using luminal and tissue amoebicides in combination therapy to get rid of any intestinal colonisation by *E. histolytica* and subsequently stop any recurrence that might happen more severely. Relapse of ALA is thought to affect just 0.004% of ALA patients annually, and it typically affects individuals who live in or travel to endemic areas.

Given that amoebiasis frequently affects travellers, everyone who travels may be at risk. *Entamoeba histolytica* is the second most common parasite disease in the world and travellers to unhygienic regions are at the biggest risk. In spite of this significance, it is regarded as a neglected illness. In some endemic places, there is a major shortage of information or incorrect information regarding the incidence of different clinical manifestations globally. Despite the fact that amoebiasis may be found anywhere in the world, it primarily affects poor people, especially when Poor hygiene is present. Additionally, the

***Corresponding author:** Mohammad Akhoundi, Parasitology-Mycology Department, Avicenne Hospital, AP-HP, Paris 13 University Bobigny, France, Email: makhdi@yahoo.com

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lack of diagnostic laboratory facilities in these areas leads to serious illnesses that necessitate hospitalisation. Despite advancements in amoebiasis diagnostic techniques, some endemic places find it difficult to distinguish between different clinical manifestations and the causative parasites (*E. histolytica* versus *E. dispar*)

Subjective Heading

A wide range of clinical characteristics characterise amoebiasis, from asymptomatic infection to extraintestinal amoebiasis or abscess. Only 1% of infected people acquire the invasive form of the disease, while 90% of infected people are asymptomatic carriers. Amoebiasis can appear in two primary clinical types, extraintestinal and intestinal, depending on how it presents clinically. The most prevalent disease, intestinal amoebiasis, is brought on by an invasion of the mucosa, which typically happens in the cecum or ascending colon. Amoebic dysentery symptoms range from stomach pain to ulcerative colitis with mucus and blood. Amoebiasis Depending on the affected organ, extraintestinal illnesses can take many different forms. The most prevalent types of extraintestinal amoebiasis are, in order, hepatic and pulmonary amoebiasis. Although many of the symptoms common to various clinical forms, such as fever, appetite loss, and nausea, are shared by all of them, some clinical symptoms are unique to each clinical type. However, if neglected, amoebiasis can be lethal.

The majority of amoebiasis laboratory diagnostic procedures are based on parasitological (such as microscopy or culture), serological (such as enzyme-linked immunosorbent assay (ELISA), indirect hemagglutination (IHA), or molecular methods. While serology is not totally trustworthy, microscopic examination of the parasite in stool, bodily fluid, or tissue isolate is still regarded as the "gold standard" in diagnosis. The stool test is typically not sensitive against extraintestinal amoebiasis effective serological techniques. Polymerase Chain Reaction (PCR)-based approaches have received more sensitive treatment in recent years [9]. The proper diagnosis of intestinal and extraintestinal amoebiasis has also benefited from the use of imaging techniques as radiography, computed tomography (CT), magnetic resonance imaging (MRI), and ultrasonography.

In addition to serological and parasitological tests, PCR-based techniques are trustworthy approaches for making a precise diagnosis of harmful agents. Another efficient diagnostic technique is computed tomography (CT), which provides additional evidence for the precise location of the abscess, assessment of its size and depth, measurement of the thickness of the capsule, and the relationship between the abscess and the cerebral ventricular system. This knowledge is crucial for enabling early diagnosis by the professionals. We were able to identify amoebiasis in all 15 patients in the current study who had an amoebic abscess that was an average size of 6 cm. As suitable medical therapies, surgical and percutaneous drainage are typically not advised due to the danger of bacterial reinfection, spillage, or parietal amoebiasis. Nevertheless, 7 out of 15 processed patients required a percutaneous drainage because of an extended-size abscess, an impending rupture, or a failure to respond to treatment.

Discussion

Due to the lack of proper sanitary facilities and health education in endemic nations, amoebiasis is still a serious health concern. Therefore, research on the prevalence of amoebiasis is crucial to identifying the population most at risk. Furthermore, depending on the endemic region, the morbidity caused by various clinical manifestations of amoebiasis varies. For instance, ALA is the most prevalent invasive type in South Africa, whereas intestinal form is more common in

Egypt. The majority of ALA cases in Europe are caused by visitors from Europe who are in endemic areas.

Though amoebiasis is not known to be endemic in the Metropolitan France, isolated instances of locally acquired illnesses have been documented. According to the research, patients from Africa or Asia accounted for up to 90% of imported cases between 2002 and 2006. On the other hand, due to limitations in the microscopically discriminative diagnosis of *E. histolytica* (as a pathogenic species) and other non-pathogenic species like *E. dispar*, the prevalence of amoebiasis is frequently overstated. This issue has recently been rectified by PCR-based methods, enabling more precise estimations of the prevalence of each *Entamoeba* species.

15 patients were processed as part of the current investigation. After the research conducted by and revealing 152 and 102 ALA cases, respectively, this is the third biggest series of ALA amoebiasis examined in Paris. Before arriving in France, the majority of the infected patients in this study had a history of travel to or residence in endemic locations. In agreement, travellers returning from endemic areas were documented in 14 ALA cases with liver abscesses, admitted in French hospitals between 2007 and 2011. Most disease cases among our examined patients, with an average age of 48.5 years, belonged to people in their middle years. This concurs with with previously documented cases of an increased risk of infection with age. Despite the fact that both sexes are equally affected by amoebiasis, males (78%) were far more likely than women to have the disease. The fact that immigrants tend to be men in the majority helps to explain this. Additionally, amoebic liver abscess is 7–12 times more prevalent in men than in women, with men 18–50 years old having the highest prevalence. Though hormonal impacts could be a factor the cause of this discrepancy is unknown. Our results support the idea that extraintestinal cases with hepatic amoebiasis infection were most likely infected several years earlier during their residence in or transit to endemic locations.

Due to doctors' lack of expertise in non-endemic areas or the general nature of the symptoms, the clinical diagnosis of amoebiasis can be challenging. Additionally, a large number of patients lack symptoms, which makes diagnosis challenging and may promote ongoing disease transmission. There are some clinical indicators that allow discriminating between the various clinical forms of amoebiasis, even though patients with amoebiasis typically have identical symptoms. Even though it can be challenging at times to differentiate between different amoebiasis types, we gave in a list of clinical signs and diagnostic techniques allowing an exact diagnosis of the disease.

Amoebiasis has been a problem for public health in Europe since it was first brought there from other endemic areas. Although intestinal amoebiasis was not common in central Europe (such as the Czech Republic), it may be underreported as the disease frequently goes undetected. The eradication of endemic intestinal amoebiasis in Spain has been made possible by advances in water infrastructure over the past century. But in this nation, where more and more instances of amoebiasis are being found in people who have no prior travel history to endemic areas, *E. histolytica* infection is developing as a disease. For instance, patients from Spain who had never left the Iberian Peninsula were linked to 23 occurrences of amoebic liver abscess.

Amoebiasis is endemic in Australia, especially in its northern regions, and it mostly affects indigenous people and, more lately, homosexuals. The high-risk group includes immigrants and travellers coming from endemic nations (such India or southeast Asia).

In a study conducted between January 2003 and June 2006 on 5921 stool samples that were sent to the metropolitan hospital in Sydney, 177 (3%) cases were infected by cysts and/or trophozoites that had a microscopically similar appearance to *E. histolytica*/dispar/moshkovskii. Five patients were discovered to be infected with *E. histolytica*, 63 with *E. dispar*, and 55 with *E. moshkovskii* using traditional PCR targeting 18S-rDNA. *E. histolytica* infection was widespread in urban areas despite *E. dispar* and *E. moshkovskii* infections being more than ten times more prevalent there. However, due to a lack of knowledge regarding.

In South America, amoebiasis is endemic, especially in Brazil, Ecuador, and Colombia. In 2004, 1% of cases from Aracaju city in Brazil were examined for intestinal amoebiasis caused by *E. histolytica*. Other Brazilian cities also found significant prevalences of *E. histolytica*/dispar, with rates of 13.4% in Rio de Janeiro [53], 14.3% in Fortaleza and 13.9% in Belo Horizonte. A PCR-based examination of 106 stool samples from the provinces of Esmeraldas and Pichincha in Ecuador demonstrated that every sample tested positive for the infection with *E. histolytica*/dispar [56]. Between 1987 and 1993, epidemiological research based on serology revealed that the majority of *E. histolytica*-infected patients had no symptoms. Nearly all (176 of 178 patients, or 98.9%) individuals in another epidemiologic study carried out in 2002 in the village of Borbn in the Esmeraldas region in northern Ecuador tested positive for intestinal parasites on direct microscopic tests.

Amoebiasis has become more prevalent in North American affluent nations as a result of increased immigration and travel from endemic regions. Information on amoebiasis-related morbidity and mortality was lacking in the USA. According to an analysis of death certificate data from 1990 to 2007 in the USA, 134 deaths—or at least 5 per year on average were recorded, predominantly among men. California reported 411 instances of intestinal amoebiasis caused by *E. histolytica* in 2007, with a frequency of just under 4%. Every year in Mexico, Intestinal amoebiasis was found to have an incidence rate of one to five thousand cases per 100,000 people from 1995 to 2000 and 1128.8 to 615.85 per 100,000 people from 2002 to 2006. Between 2000 and 2010 their National Epidemiological Surveillance System received over 8.8 million reports of amoebiasis. Amoebiasis is one of the top 20 leading causes of death in Mexico, according to an epidemiological study utilising PCR.

According to research conducted in San Francisco between 1979 and 1994 on extraintestinal amoebiasis, there are 8.5 amoebic abscesses for every 100,000 hospital admissions. With a high seroprevalence of *E. histolytica* exceeding 42%, intestinal and extraintestinal amoebiasis have been significant infectious illnesses in Mexico, ranking fifth or sixth annually. Between 1995 and 2000, the mean incidence of ALA cases was 10 per 100,000 people. In 1997, this case rate increased to 39 cases per 100,000 people as a result of significant rains in the southeast. In a different retrospective study conducted on 50 patients in Mexico who had amoebic liver abscesses between November 2005 and November 2007, 48 of the abscesses fit the diagnostic criteria for amoebic liver abscess, while two were diagnosed as pyogenic liver abscesses. Poor sanitation, a lack of access to clean water, and unsanitary excrement disposal have all been identified as conditions that help spread *E. histolytica* in this nation.

Conclusion

Metropolitan The majority of infected patients are either imported

cases or travellers returning from endemic locations since France is not thought to be an endemic region for amoebiasis. The 15 individuals that were processed for this study shared a comparable condition, and the majority of them had visited or lived in endemic regions prior to moving to France. The clinical type with the highest frequency was amoebic liver abscess. We offered an overview of the epidemiology, clinics, diagnosis, and treatment of amoebiasis globally, along with information on the significance of various clinical types of amoebiasis, their criteria, and distinguishing signs or procedures in their accurate diagnosis. It is important and useful from an epidemiological perspective to keep up with information on the present distribution and dispersion of various clinical forms and how those links have evolved.

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Conflict of Interest

The authors declare that there are no conflict of interest.

References

1. Royer T L, Petri WA (2014) Waterborne parasite *Entamoeba batt ca tortorello* ml editors encyclopedia of food microbiology. Academic Press Oxford: 782-786.
2. Clark GA, Diamond LS (1999) Ribosomal RNA genes of "pathogenic" and "nonpathogenic" *Entamoeba histolytica* are distinct. *Mol Biochem Parasitol* 49: 297-302.
3. Ximénez C, Morán P, Rojas L (2009) Gómez Reassessment of the epidemiology of amoebiasis: state of the art *Infect. Genet Evol* 9: 1023-1032.
4. Stanley SL Amoebiasis *Lancet*. 36: 1025-1034.
5. Anuar TS, Al-Mekhlafi HM, Abdul MK (2012) Molecular epidemiology of amoebiasis in Malaysia: highlighting the different risk factors of *Entamoeba histolytica* and *Entamoeba dispar* infections among Orang Asli communities. *Int J Parasitol* 42: 1165-1175.
6. Bernin H, Marggraff C, Jacobs T, Brattig N (2014) Immune markers characteristic for asymptotically infected and diseased *Entamoeba histolytica* individuals and their relation to sex. *BMC Infect Dis*:14.
7. Espinosa M, Cantellano A (2000) Martínez-Palomo Pathogenesis of intestinal amoebiasis: from molecules to disease. *Clin Microbiol Rev* 13: 318-331.
8. Saidin S, Othman N, Noordin R (2009) Update on laboratory diagnosis of amoebiasis. *Eur J Clin Microbiol Infect Dis* 38: 15-38.
9. Tanyuksel M, Petri WA (2018) Laboratory diagnosis of amoebiasis. *Clin Microbiol Rev* 16: 713-729.
10. Shenoy VP, Vishwanath S, Indira B (2010) Hepato-pulmonary amoebiasis: a case report. *Braz J Infect Dis* 14: 372-373.
11. Ackers JP, Mirelman D (2006) Progress in research on *Entamoeba histolytica* pathogenesis. *Curr Opin Microbiol* 9: 367-373.
12. Fotedar R, Stark R, Beebe N, Marriott D (2007) Harkness Laboratory diagnostic techniques for *Entamoeba* species. *Clin Microbiol Rev* 20: 511-532.
13. Ghenghesh KS, Ghanghish K, BenDarif ET, Shembesh K (2016) Prevalence of *Entamoeba histolytica* *Giardia lamblia* and *Cryptosporidium*. *Spp in Libya Libyan J Med* 11: 32088.
14. Haque R, Mondal D, Duggal P, Kabir M (2006) *Entamoeba histolytica* infection in children and protection from subsequent amoebiasis. *Infect Immun* 74: 904-909.
15. Bernin H, Marggraff C, Jacobs T, Brattig N (2014) Immune markers characteristic for asymptotically infected and diseased *Entamoeba histolytica* individuals and their relation to sex. *BMC Infect Dis* 14.