

## Case Report

# A case report of pulmonary amoebiasis with *Entamoeba histolytica* diagnosed in western Romania

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### Abstract

**Background:** Among parasitic diseases, amoebiasis is the third most frequent cause of mortality after malaria and schistosomiasis. Pulmonary amoebiasis, the second most common extraintestinal manifestation of infection, occurs in 2%-3% of patients with invasive amoebiasis. The present clinical report aims to present a single case of a rare diagnosed parasitic disease in Romania and to emphasize the difficulties encountered while attempting to establish the correct diagnosis and to completely cure the patient.

**Methodology:** Retrospective analysis of all medical records of a patient hospitalized at Victor Babes Hospital of Infectious Diseases in Timisoara, Romania, and diagnosed with pulmonary amoebiasis.

**Results and Conclusions:** The disease debuted in 1996 with intestinal symptomatology and was not diagnosed at that time. Thus evolution continued for another five years ending with the invasion of the lung. Differential diagnosis with a bacterial abscess, tuberculous abscess, and neoplastic disease were considered. A routine microscopic examination of the sputum finally clarified the diagnosis during a second hospitalization pointing out the importance of collaboration between the infectious disease clinicians and parasitologists.

**Key Words:** invasive amoebiasis; pulmonary involvement; Romania; microscopy; multidisciplinary approach

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### Introduction

Among parasitic diseases, amoebiasis is the third most frequent cause of mortality after malaria and schistosomiasis [1]. According to the World Health Organization (WHO) more than 100,000 deaths are annually reported [2]. *Entamoeba histolytica*, an amoebic protozoan parasite, is the most invasive of the *Entamoeba* group [3]. The taxonomy of the parasite has changed in the last two decades: two species morphologically identical but genetically different were separated (*E. histolytica*, the pathogenic species and *E. dispar*, the non pathogenic one) [3]. The life cycle of the protozoan includes an infective cyst and an invasive trophozoite form and infection occurs due to fecal-oral mechanism through water or food contaminated with feces [3]. Clinically, disease presentation ranges from asymptomatic colonization (about 90% of cases) to colitis and/or liver abscess (40-50 million cases) [1,3].

Pulmonary amoebiasis, the second most common extraintestinal pattern of infection, is frequently associated with amoebic liver abscesses [1,4]. It occurs

in 2%-3% of patients with invasive amoebiasis [1]. The primary form of pulmonary amoebiasis, caused by amoebae reaching the respiratory tract by direct embolism from the intestinal tract, is considered to be rare [5]. The main factors contributing to the development of pulmonary amoebiasis are poor socioeconomic conditions, malnutrition, and chronic alcoholism [6]. Developing countries are the most affected by the disease [3]. The largest burden caused by *E. histolytica* infection includes Central and South America (about 1 million cases and 1,216 deaths were reported in Mexico from 1987 to 1988), Africa, and the Indian subcontinent [3].

Although it is considered a tropical disease, the first amoebiasis case was diagnosed in 1875 in St. Petersburg (Russia), near the Arctic Circle [7]. The first North American report was recorded in 1890 by Sir William Osler, who described the case of a young physician from Baltimore who presented dysentery [3]. In 1993, 2,970 cases of amoebiasis were diagnosed in the USA [3]. Microscopy is a very useful diagnosis

method, especially in developing countries, although worldwide other more advanced methods such as antigen detection, polymerase chain reaction (PCR), or serology are used [3].

Romania is the largest southeastern European country, with approximately 23 million inhabitants. The first Romanian autochthonous case of amoebic hepatic abscess with pulmonary complications was reported in 1976 [8]. Another case of invasive amoebiasis with digestive, hepatic, and urinary complications was recently (2006) diagnosed and managed [9].

The present clinical report aims to present a single case diagnosed with a rare parasitic disease in Romania and to emphasize the difficulties encountered while attempting to establish the correct diagnosis and to completely cure the patient. In order to present this case, all the medical records of the patient have been retrospectively analyzed. The patient was hospitalized at Victor Babes Hospital of Infectious Diseases, in Timisoara, Romania. Timisoara is the capital of Timis, the most important and extensive of the western Romanian counties, situated at the border with Serbia and Hungary.

## Case Report

The patient, M.P., a 55-year-old male retiree, originated from a Romanian western town. He was hospitalized three times at Victor Babes Hospital of Infectious Diseases in Timisoara. No travel history has been reported. The first 23-day hospitalization period was during November to December 1999. The patient presented at admission to hospital with the following symptoms: fever accompanied by shivers, profuse sweating, and abdominal pain in the left hypochondrium. The correct diagnosis had not been established at that time. The patient returned to hospital, for another 21 days during January to February 2000, describing new symptomatology including diarrhoea, and abdominal pain in the flank with irradiation in the right shoulder. From the patient's medical history it was known that he presented a dysenteric episode in 1996. Among the laboratory tests, the leukocyte value ranged within normal values (between 6,000 and 6,700 cells/mm<sup>3</sup>); the hematocrit was 38%; and the erythrocyte sedimentation rate (ESR) was elevated (58 mm at 1 hour and 81 mm at 2 hours). The stool examination was negative. Certain diagnosis was based on the microscopic examination of the sputum where *Entamoeba histolytica* trophozoites were found. Pulmonary, cutaneous (perianal skin ulcerations), and splenic involvements were found during the evolution

of the disease. The final diagnosis was extraintestinal amoebiasis with pulmonary amoebic abscesses. Treatment with systemic amoebicides was administered: Metronidazole 2.25 g daily (3 x 250 mg three times a day) for 8 days. After one year, during January to February 2001, the patient was hospitalized once again for 22 days because of recidivated pulmonary amoebiasis. This time he presented productive cough with mucous expectoration, asthenia, dyspnoea, fever, nausea, vomiting, headache and mucous diarrhoea. Laboratory routine tests ranged within normal limits: the leukocyte value was 8,200 cells/mm<sup>3</sup>; hematocrit was 37%; hemoglobin - 12.8 g/dl; ESR - 18 mm at 1 hour and 41 mm at 2 hours; and serum *glutamic pyruvic transaminase* (SGPT) was 12 U/L. *Entamoeba histolytica* trophozoites were found in the bronchial aspirate, but in the stool examination neither *Entamoeba histolytica* cysts nor trophozoites were present. Abdominal echography revealed hepatomegaly and the chest X-ray evidenced bilateral accentuated hilar markings and reticulonodular pulmonary opacities. The patient was treated again with Metronidazole - 2.25 g daily (3 x 250 mg three times a day) for 10 days and the clinical evolution improved significantly.

## Discussion

It has been reported that males are ten times more affected by amoebiasis than females [6]. Our 55-year-old male patient was at the time of his first hospitalization exactly the same age as the patient described in another recent Romanian case report with invasive amoebiasis (2006) [9], and close in age to other patients diagnosed with amoebiasis with pulmonary involvement described in two French reports from 2004 (56 years old) [10] and 2006 (48 years old) [4], and one Japanese report from 2004 (53 years old) [11]. Also, as in the French report from 2004 [10], our patient had not traveled in endemic regions. This fact proves that the parasite is present in Romania; thus the diagnosis should be suspected even in low endemic areas.

The disease debuted in 1996 with intestinal symptomatology (dysentery) and it was not diagnosed at that time. The evolution continued for another five years, ending with the invasion of the lung. Although pulmonary complications are usually secondary to a liver abscess, in our case the infection migrated directly from the intestine. Therefore, it was a primary pulmonary involvement. It is estimated that amoebic lung disease without liver involvement occurs in 14.3%

of all cases with lung involvement by amoeba [1]. No abscesses were found when the liver was examined by abdominal echography; only a hepatic enlargement was observed. Cutaneous lesions, very rarely observed as complications of amoebiasis, were present in this case and splenic lesions were also found. The almost normal values (only ESR, which is invariably elevated in amoebiasis, was helpful [6]) of the routine laboratory tests made ascertaining the correct diagnosis more difficult. It was only at the second hospitalization that the physicians linked the actual disease with a dysenteric acute episode registered four years before. The differential diagnosis with a bacterial abscess, tuberculous abscess, and neoplastic disease were considered. A routine microscopic examination of the sputum clarified the diagnosis, pointing out the importance of collaboration between the infectious disease clinicians and parasitologists.

A multidisciplinary approach could be the key to early diagnosis and excellent management in such cases of rare diseases [9]. The diagnosis could not be confirmed by advanced methods because these are not commonly applied in our country due to lack of adequate laboratory equipment and funding.

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