

# Pleuropulmonary Amebiasis: A Rare Case

## Plöropulmoner Amebiyaz: Nadir Görülen Bir Olgu

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**ABSTRACT** Pleuropulmonary amebiasis is prevalent in tropic and subtropic countries, but it may occur sporadically in developing countries. This is rare and commonly presents with amebic colitis or liver abscess. When pleuropulmonary amebiasis develops symptomatology may sometimes be too complicated causing difficulty and delay in diagnosis. We here, present a case of pleuropulmonary amebiasis in a 73 year old male.

**Key Words:** Amebiasis; lung diseases, parasitic

**ÖZET** Plöropulmoner amebiyaz, tropik ve subtropik ülkelerde görülmekle birlikte gelişmiş ülkelerde de sporadik olarak rastlanabilir. Nadir görülür, genellikle amebik kolit ya da karaciğer absesine eşlik eder. Hastalığa bağlı semptomlar farklılıkları nedeniyle tanıda zorluğa ve gecikmeye neden olurlar. Bu yazıda, karaciğer sirozu ve plöropulmoner amebiyaza sahip 73 yaşındaki erkek olgu sunuldu.

**Anahtar Kelimeler:** Amebiyaz; akciğer hastalıkları, parazitik

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**A**mong parasitic diseases, amebiasis is the third among most frequent causes of mortality, after malaria and schistosomiasis.<sup>1</sup> Pleuropulmonary amebiasis is a rare complication of *Entamoeba histolytica* infection, and disease occurs typically in endemic regions, including Central and South America, Africa and the Indian subcontinent.<sup>1</sup>

Low socioeconomic conditions, malnutrition, chronic alcoholism, and atrial septal defect with left to right shunt are contributing factors in development of pleuropulmonary amebiasis.<sup>2</sup>

By presenting a pleurapulmonary amebiasis case, we aimed to emphasize that *Entamoeba histolytica* can cause diseases in different regions extraintestinally, and it should be included in the differential diagnosis of especially treatment unresponsive pneumonia cases.

### CASE REPORT

A 73 year-old male who has been followed with diagnosis of hepatic cirrhosis due to HCV was admitted to the Department of Respiratory Diseases

with complaints of dyspnea, fever, cough, and dull pain at the right lower thorax region for nearly fifteen days. Abdominal pain and diarrhea were not observed.

On physical examination, his temperature was 38,5 °C, blood pressure was 110/70 mmHg. Pulse rate was 120/min., and he was both dyspneic, and orthopneic. Breathing sounds were diminished at the lower base of right hemithorax. Examination results after resting were normal.

Blood tests revealed white blood cell count of 18,500/mm<sup>3</sup>, hematocrit value of 29%, erythrocyte sedimentation rate of 120 mm/h, alanine aminotransferase= 45IU/lt, aspartat aminotransferase= 74 IU/lt, total protein= 5,5 g/dl, albumin= 1,9 g/dl. At the time of diagnosis of abscess and parapneumonic effusion, ampicillin+sulbactam (4 g/day) for 7 days and clindamycin 4 g/day were given, but patient's condition was not improved and symptoms were not recovered.

Three repeated sputum smears were negative for acid-fast bacilli revealing normal sputum flora. His chest X-ray showed air-fluid levels and pleural effusion on the right middle zone (Figure 1). Computed tomography showed abscess formation and pleural effusion (Figure 2A and 2B). Abdominal ultrasonography was compatible with hepatic

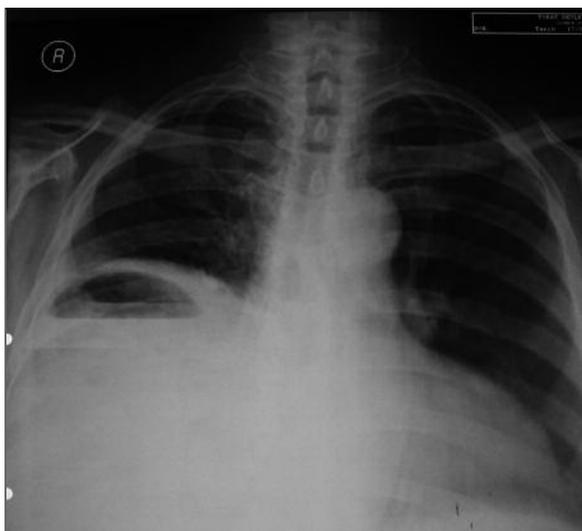


FIGURE 1: Chest roentgenogram shows abscess formation on the right middle zone.

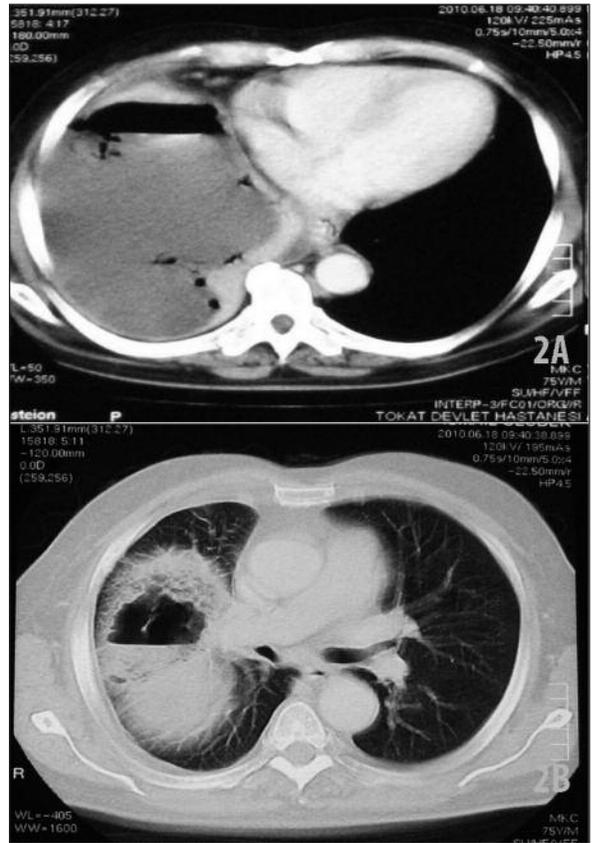


FIGURE 2: A) CT shows pleural effusion on mediastinal window. B) Abscess formation detected on parenchymal window.

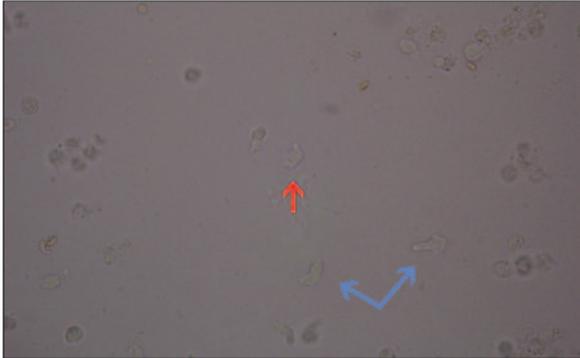
cirrhosis showing heterogenous parenchymal changes. Thoracentesis revealed “chocolate-colored” pus, which was strongly suggestive of an amebic infestation (Figure 3). Prompt direct examination of pus revealed motile trophozoites of *Entamoeba histolytica* (Figure 4). After the chest tube insertion, approximately 2000 ml of pus was drained, and intravenous metronidazole (2 g/day) and ceftazidime (2 g/day) were started; because the patient had not recovered empyema.

Supportive medical therapy was also provided for hepatic cirrhosis. Any intrabronchial impact or lesion was ruled by fiberoptic bronchoscopy.

After 15 days administration of these medical treatment patient did well and his chest roentgenogram had improved (Figure 5). Patient was discharged on the 16<sup>th</sup> day. On control examination relaps of infection was not observed.



**FIGURE 3:** "Chocolate -colored" pus which is characteristic for amebiasis. (See for colored form <http://akcigerarsivi.turkiyeklinikleri.com/>)



**FIGURE 4:** Direct microscopic examination of pus; red arrow points pseudo-pot formation, blue arrows point motile trophozoites. (See for colored form <http://akcigerarsivi.turkiyeklinikleri.com/>)



**FIGURE 5:** Chest roentgenogram after medical management and chest drainage

## DISCUSSION

By reporting the successive treatment of a rarely encountered case of pleurapulmonary amebiasis, it is emphasized that it should be included in the differential diagnosis of, especially, treatment unre-

sponsive pneumonia cases. In this report it is underlined that direct microscopic examinations of pleural effusion or abscess materials are also required in diagnosing amebiasis in addition to clinical course of the disease and radiological imaging examinations.

The intestinal protozoan parasite *Entamoeba histolytica* is the causative agent of human amebiasis. The disease is transmitted by ingestion of food and water containing cysts of the parasite. Entamoeba infection is 10 times more common in adult males than in adult females and occurs most frequently in the third and fourth decades of life.<sup>2,3</sup>

The life cycle of the protozoan includes an infective cyst and an invasive trophozoite form. Trophozoite form may invade intestine forming intestinal disease or may spread through the bloodstream to extraintestinal sites forming extraintestinal disease.<sup>4</sup> Extraintestinal form frequently manifests itself as liver abscess.<sup>2,5</sup>

The second most common affected organ is lung and infection is generally associated with amoebic liver abscess. Primary pleuropulmonary form is considered to be rare but may also occur by haematogenous, lymphatic route or inhalation of dust containing cysts and aspiration of cysts or trophozoites of *E. histolytica*.<sup>2</sup>

The common localization for pleuropulmonary amebiasis is the right hemithorax related to abscess in the right lobe of the liver. Left lobe abscesses lead to left-sided pleuropulmonary complications, which may lead to the risk of rupture into the pericardium. Liver abscess perforation through diaphragm into the pleural space leading empyema seems to be the route for reaching pleura. Thus, invading the lung parenchyma the perforation causes abscess formation. Bronchohepatic fistula and pulmonary consolidation may also occur. As observed in our case, abdominal ultrasonography may be normal. Radiologic features of amebiasis include elevation of diaphragm, variable amounts of pleural effusion, pulmonary infiltrates, pulmonary consolidation or abscess formation.<sup>6</sup> Pleural effusion and abscess formation were observed in this case.

Clinical course may vary, pleural invasion is a rare manifestation occurring in 2-3% of patients with invasive disease.<sup>2</sup> Pneumonia, lung abscess, pleural effusion, empyema, hepatobronchial fistulization, pulmonary embolism, Superior Vena Cava syndrome with multiple organ abscesses have been reported.<sup>7</sup> Bloody diarrhea may associate with pleuropulmonary amebiasis.<sup>1</sup> Cough and pleuric chest pain are the most common complaints. Hemoptysis is uncommon in amebiasis, but if observed, it requires differential diagnosis in areas especially where tuberculosis is endemic.<sup>4</sup> There were coughing and chest pain in this case, which has been followed up with diagnosis of pneumonia. There were not any symptoms related to gastrointestinal amebiasis.

Similar to our case, "chocolate-colored" or "anchovy sauce" pus from a pleural or abscess puncture fluid is thought to be highly characteristic of amebic abscess.<sup>4</sup> Abscess and empyema samples should be examined by immediate microscopy or be kept warm to preserve the motility of trophozoites until appropriate examination.<sup>8</sup> As in our case, diagnosis of pleuropulmonary amebiasis may be obtained by the immediate direct examination of pus, and detection of motile trophozoites of *E. histolytica*, but it is rarely possible. Sputum examination may also show motile trophozoites in some of cases.<sup>7</sup>

Based upon detection of antibodies in sera, several highly sensitive and specific serological tests have been developed to detect antibody response in patients with invasive amebiasis. Anti-

amebic antibodies can be detected by Indirect Hemagglutination Antibody test (IHA), Enzyme-linked Immunosorbent Assay (ELISA), Indirect Fluorescent Antibody Test (IFAT). Serum IHA is nearly 100% sensitive for infection with *E. histolytica*.<sup>2</sup> Recently detection of Entamoeba DNA in pus or sputum by Polymerase Chain Reaction (PCR) may be the most sensitive and specific method.<sup>2,9</sup> We didn't use these methods (ELISA and PCR) for diagnosis in our case.

Differential diagnosis of pleuropulmonary amebiasis includes pulmonary tuberculosis, empyema, neoplastic disease and pyogenic lung abscess. The manifestation of tuberculosis may produce similar symptoms like pulmonary amebiasis.

Metronidazole provides good penetration into the pleural space, and its cure rate is 95% when it is given for 5-10 days.<sup>6</sup>

Protozoa infection should, thus, be suspected in case of a pleuropulmonary infection, in which several types of antibiotics are proven to be ineffective.<sup>2</sup> Pleuropulmonary lesions at the right lower lung zone with unknown etiology should arouse the suspicion of pleuropulmonary amebiasis, especially in developing countries.<sup>10</sup>

Once diagnosed, initiation of appropriate medical treatment and, if empyema exists, immediate chest drainage are sufficient for most cases. However, if chest drainage fails, open surgical intervention may be required to prevent patient from recurrence or fatal outcomes.

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