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Case report

Patient with myelodysplastic neoplasm and giant amoebic liver abscess imported from Italy complicated by intestinal obstruction: a case report and review of the literature

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ABSTRACT. Infection with *Entamoeba histolytica* is widespread and cosmopolitan, but is particularly common in hot zone countries in areas with poor sanitary and hygienic conditions, a lack of access to safe drinking water, and non-compliance with food hygiene. Currently, no cases of indigenous *E. histolytica* infections have been registered in Poland; only cases imported from areas with a hot climate zone have been reported. So far, no severe extraintestinal amoebiasis has been diagnosed in Poland in people returning from the Mediterranean area. We report an unusual case of concomitant large liver abscess complicated by small bowel obstruction in an Italian immigrant with chronic myelodysplastic leukaemia who had been in Poland for 10 years. The patient did not present with clinical symptoms of colitis like diarrhoea. The patient had not travelled outside Europe and had never been in tropical areas. The clinical course of the infection, the results of imaging, laboratory, serological and parasitological tests, and the therapeutic methods used are discussed in detail. Attention is drawn to the need to consider amoebiasis and its dangerous complications in the differential diagnosis of abdominal pain and pathological space-occupying lesions in the liver of unknown etiology in people returning from travel to the Mediterranean climate.

Keywords: *Entamoeba histolytica*, amoebiasis, amoebic liver abscess, imaging, sequelae, intestinal obstruction, Italy

Introduction

Amoebiasis is a severe parasitic disease caused by a pathogenic protozoan *Entamoeba histolytica* which develops only in humans. The parasite spreads easily among humans via the faecal-oral route. The protozoan parasitizes in the human large intestine (intestinal amoebiasis), but can also cause metastatic "abscesses" in the liver, lungs or brain, and can even cause skin lesions (extraintestinal amoebiasis) [1].

Entamoeba histolytica is cosmopolitan throughout the world, but the highest prevalence is observed in tropical and subtropical areas with modest sanitary and hygienic conditions, primarily in Africa, South Asia, Central and South America and the Middle East. It is estimated that the disease affects approximately 40 to 50 million people each year. The infection causes around 40,000 to 100,000 deaths annually, making it one of the top parasitic causes of mortality worldwide [2].

Because the non-pathogenic *Entamoeba dispar*, an essential species of the *E. histolytica* sensu lato complex, is approximately ten times more common in humans than *E. histolytica*, it is important to emphasize the necessity of more accurate molecular identification of the protozoan found by routine coproscopic examination, particularly in cases of mild or asymptomatic course of infection. Currently, only non-pathogenic *E. dispar* is present

in Poland, and *E. histolytica* infections are found only as imported cases from tropical countries or acquired through direct contact with immigrants from Latin America (especially Mexico), India or Africa. The morphologically identical non-human pathogenic *Entamoeba moshkovskii* is isolated from sewage-contaminated water bodies worldwide [3].

Populations at risk constitute local inhabitants in areas with poor sanitation, immunocompromised individuals, and travellers to endemic regions. Particular risks of *E. histolytica* infection are travel to hot zone countries and non-compliance with tropical hygiene rules, e.g. eating local food, fresh unwashed tropical fruit and vegetables, raw fruit and vegetable salads, drinking unboiled water, using ice cubes in drinks, drinking fresh fruit juices and cocktails, brushing teeth in tap water, using unsanitary toilets. Infection with the parasite cysts can also be acquired through dirty hands, banknotes and other everyday objects and through accidental contact with an asymptomatic carrier (cook, waiter, street vendor). In contrast, trophozoites can be contracted through the application of inadequately sterilised medical equipment used for endoscopy or colonic lavage [3].

The incubation period of the disease ranges from seven days to several months. The clinical picture of acute intestinal disease is dominated by multiple bowel movements with the addition of blood and mucus (amoebic dysentery), painful urge to stool, diffuse or cramping abdominal pain, flatulence, nausea and symptoms of malaise. The mucosa of the large intestine can then show characteristic bottle-shaped ulcerations with undermined margins, which usually occur in the rectum, sigmoid colon, caecum and colon. The disease often follows a chronic course with periods of exacerbation and remission, and clinical symptoms resolve slowly. *E. histolytica* infection can also be asymptomatic or subclinical and has a tendency to self-regression, and asymptomatic carriers of protozoan cysts may represent a significant source of infection for the environment. In patients with a compromised immune system function, the disease progresses rapidly with intensive bloody diarrhoea, toxic colitis, and peritonitis with symptoms of acute abdomen syndrome [1].

Complications of acute intestinal amebiasis include amoebic appendicitis, granulomatous tumours of the large intestine (amoeboma), hepatitis, narrowing of the lumen or segmental thickening of the intestinal mucosa resembling a bowel malignancy, and perforation of the large intestine leading to amoebic peritonitis [1].

Blood-borne spread of the parasite leads to the formation of bacteriologically sterile space-occupying lesions called “abscesses” located in internal tissues and organs (ALA). Amoebic liver “abscess” forms as a result of liquefying necrosis of liver tissue and is filled with a thick milk chocolate-coloured content. It presents with high fever, chills, lack of appetite, weight loss and severe pain in the right subcostal region associated with stretching of the liver capsule [4]. On palpation, the liver is enlarged and painful. The peripheral blood then shows high leucocytosis and anaemia, and slight eosinophilia. If left untreated, the liver “abscess” may enlarge to a significant size, with the risk of rupture into the peritoneal, pleural or pericardial cavity. Occasionally, the abscess forms fistulas to the skin surface. The formation of an amoebic ”abscess” in the liver is usually a secondary process to colitis and appears several weeks - months after the onset of bloody diarrhoea. In very rare exceptional situations hepatic lesions can appear many years after a primary infection [5]. In the course of extraintestinal amoebiasis the protozoan is often no longer present in stool samples, so negative coprological test results, such as microscopic analysis and the identification of specific coproantigens or parasite DNA do not rule out the possibility of an amoebic liver ”abscess”.

In acute amoebic colitis, nitroimidazole derivatives (metronidazole, tinidazole, ornidazole) and diloxanide, iodoquinol or paromomycin are used for the eradication of parasite cysts. Nitazoxanide shows efficacy in destroying both trophozoites and cysts. ”Abscesses” of internal organs require combined treatment with intravenous infusion of metronidazole in combination with tetracyclines and chloroquine. In large amoebic “abscesses” of the liver, percutaneous drainage or open surgery is used [6,7]. Severe intestinal infections and extra-intestinal locations of the parasite require hospital treatment.

We report an unusual case of simultaneous occurrence of a large liver “abscess” and a complication of small bowel obstruction in an Italian immigrant with chronic myelodysplastic leukaemia who had resided in Poland for 10 years. The patient had not travelled outside Europe and had never been in tropical areas. The clinical course of the infection, the results of imaging, laboratory, serological and parasitological tests, and the

principles of therapeutic management are discussed in detail. The descriptions available in the literature of *E. histolytica* infections reported in Italians and immigrants from tropical hyperendemic areas residing in Italy are analysed. Attention was drawn to the need to consider amoebiasis and its dangerous complications in the differential diagnosis of abdominal pain and pathological changes in the liver in people returning from travel to the Mediterranean area.

Case report

We present a case of a 74-year-old heterosexual patient from Italy who was referred to the clinical hospital for further investigation and management of a pathological lesion detected in the liver following imaging techniques of the abdomen. The patient was originally from Tuscany and had worked in the railways for many years, having daily contact with passengers coming from different geographical areas, but had never travelled outside Europe. Because of his oncological history related to the chronic haematological malignancy, the primary suspicion was of a malignant nature of the liver changes; therefore, the patient was urgently referred to the university departments of gastroenterology and surgery for medical consultations. The patient has been previously diagnosed in Italy with myelodysplastic syndrome with multilineage dysplasia (MDS-MLD) of a medium risk. Due to poor haematological parameters, the patient was then disqualified from surgical endoscopic decompression of the liver cyst at that time. His medical history was further complicated by severe cardiovascular and nephrological burdens: hypertension, atherosclerosis of the abdominal aorta, transplantation of a biological aortic valve prosthesis due to bicuspid regurgitation, heart failure, prosthesis-supplied aneurysm of the ascending aorta and chronic renal failure. During his stay in Poland, the patient presented a 10-year-history of a liver cystic lesion which showed progressive enlargement during ultrasound follow-ups. In 2019 irregular cystic structures were identified in the liver, with the largest measuring approximately 15 cm, resulting in bile duct obstruction with subsequent cholestasis. The patient was then referred to a local centre for liver disease towards further evaluation and treatment but did not comply.

The next abdominal ultrasound (USG) performed in August 2023 revealed anechogenic lesions (the largest 134 mm in a diameter) along with dilated bile ducts. Subsequent USG examination performed in November 2023, showed hepatomegaly, dilated bile ducts, a low-echogenic large structure, approximately 130 mm in size with echogenic formations protruding inside, dilating and flattening the branches of the portal vein and shaping the hepatic veins, and an anechogenic lesion measuring 33 mm in a diameter. A contrast-enhanced computed tomography (CT) of the abdomen was then performed with suspicion of liver tumour. The scan revealed a smooth-wall lesion measuring 12.5 cm in a diameter filled with fluid of increased density, compressing the bile ducts. Because of the hypodense structure, a suspicion of a parasitic origin of the liver cyst was raised. In out-patient department, the Enzyme-linked ImmunoSorbent Assay (ELISA) for specific IgG antibody against *Echinococcus granulosus* turned out positive and has been responsible for a false diagnosis of cystic echinococcosis.

At the beginning of 2024 the patient was admitted to the Department of Tropical and Parasitic Diseases after presenting with alarming symptoms: jaundice, high fever, intensive abdominal pain, aggravated by breathing and moving around, pale stools, and dark urine. Chełmoński's sign was positive on physical examination.

When the patient was admitted, a leukocyte smear showed that there were significant leukopenia (1.01×10^6/L) with neutropenia (0.34×10^6/L), lymphopenia (0.57×10^6/L), and thrombocytopenia (18.0×10^6/L). There was also anaemia with a low level of haemoglobin (7.3 g/dL), number of erytrocytes (3.21×10^9/L) and haematocrite (28.6%). The inflammatory markers were slightly elevated with C-reactive protein (CRP) of 44.8 mg/L (normal range < 5.0 mg/L), procalcitonin (PCT) of 0.88 ng/mL (normal range < 0.50 ng/mL), and erytrocyte sedimentation rate of 23 mm/h (normal range < 15.0 mm/h). The biochemical tests revealed a significant elevation in the concentration of alanine transaminase (ALT) with a result of 133 U/L (a normal range of 10 – 41 U/L), aspartate transferase (AST) at a level of 114 U/L (a normal range of 10 – 37 U/L), gamma-glutamyl transferase (GGT) at a level of 557 U/L (a normal range of 8 – 61 U/L), lactate dehydrogenase (LDH) with a result of 468 U/L (a normal range of 135 – 225 U/L), alkaline fosphatase at a concentration of 298 U/L (a normal range of 40 – 129 U/L) and hiperbilirubinemia at 20.75 mg/dL (a normal range < 1.20 mg/dL). There

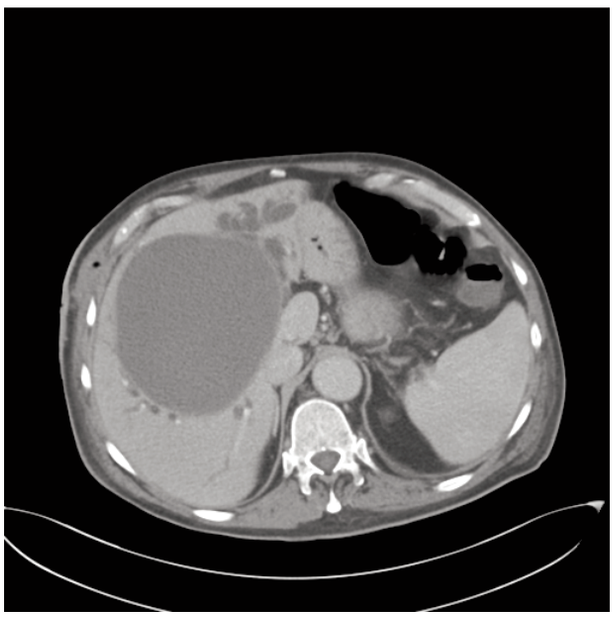

Figure 1. The large amoebic liver abscess measuring 130 × 115 × 150 mm in an immigrant from Italy is shown on an abdominal CT scan. Visible numerous small satellite lesions

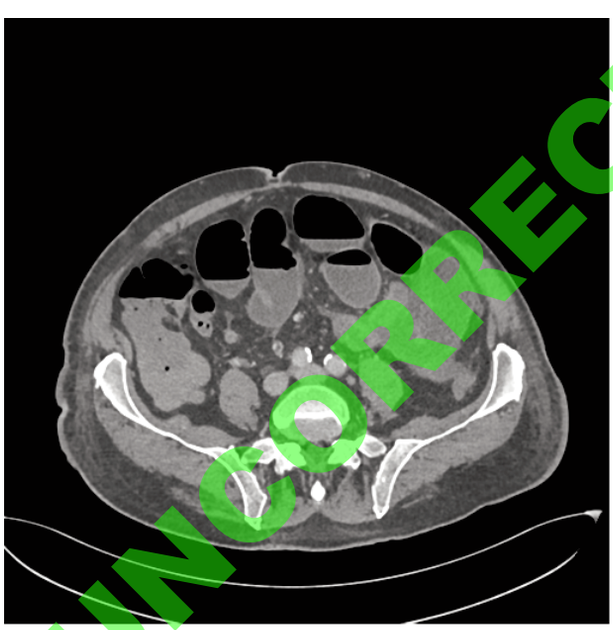

Figure 2. Imaging features of intestinal obstruction with distended small bowel loops and fluid levels revealed on an abdominal CT scan

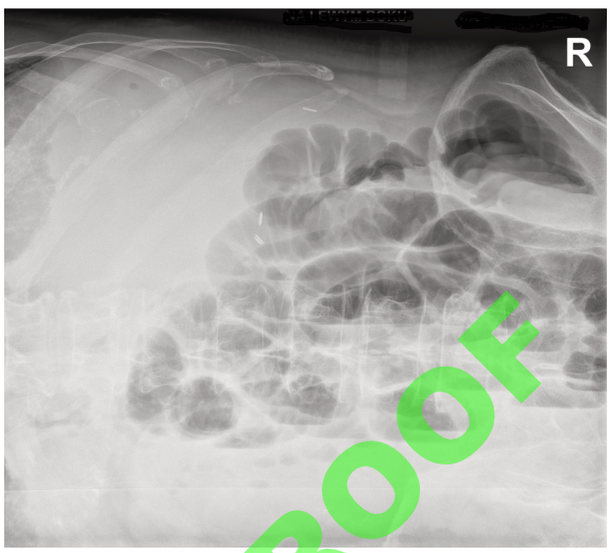

Figure 3. Numerous distended loops of the small intestine with horizontal fluid levels in the mid- and lower abdomen visible on an abdominal radiography

Figure 4. Dense and dark "chocolate-coloured" fluid obtained from percutaneous drainage, which is pathognomonic for liquefactive necrosis of the liver due to *E. histolytica* infection

was no hypereosinophilia or hypergammaglobulinaemia in the peripheral blood. The concentrations of serum proteins and albumins were decreased at values respectively of 6.09 g/dL (a normal range of 6.40 – 8.30 g/dL) and 3.277 g/dL (a normal range of 3.50 – 5.20 g/dL). The creatinine level was high of 1.39 mg/dL (a normal range of 0.70 – 1.20 mg/dL) with lower glomerular filtration rate (GFR) of 50.0 ml/min/1.73m^2 (a normal range of > 60 ml/min/1.73m^2) and a normal concentration of urea of 49 mg/dL (a normal range of 7 – 71 mg/dL). There were evident changes in coagulation parameters with a higher level of fibrinogen of 455.0 mg/dL, and shifted bleeding and clotting times: international normalized ratio (INR) of 1.31 (a normal range of 0.86 – 1.14), prothrombine time of 14.2 s (a normal range of 9.4 – 12.5), and prothrombine index of 77.0% (a normal range of 87 – 116%).

The ELISA test showed the presence of specific IgG antibody against *Entamoeba histolytica* at a concentration of 12.060 U (a positive result > 11 U). In our university laboratory, immunoenzymatic test for *E. granulosus* has been negative and excluded the previous suspicion of hydatid disease proposed in an out-patient department.

The contrast computed tomography (CT) scan demonstrated compressed bile ducts within a thick-walled cyst measuring 130 × 115 × 150 mm. The cyst was densely filled and contained a small gas bubble measuring 2 mm. It was situated in the liver hilum and the perihilar regions of all segments. The large liver abscess was surrounded by peripheral, numerous small hypodense cystic lesions measuring from 12 to 31 mm. Branches of the portal vein were compressed and dilated (Fig. 1). Independently, small bowel loops were distended with fluid levels showing features of subileus (Fig. 2). Abdominal radiography performed in the left lateral position with horizontal beam of radiation revealed numerous distended loops of the small intestine, 30 – 40 mm wide, with fluid levels in the mid- and lower abdomen (Fig. 3). Suspicions of a parasitic cyst or bacterial abscess complicated by intestinal obstruction were raised. Percutaneous drainage was performed in the surgical department and over 1.5 litres of dense, chocolate-coloured fluid were drained (Fig. 4). There were no more trophozoites or cysts of *Entamoeba* spp. in repeated microscopic stool examinations.

Based on imaging and serological findings, as well as a clinical presentation, the final diagnosis of amoebic liver abscess (ALA) was finally made. An additional diagnostic challenge was posed by the previous ultrasound image and the first positive result of IgG antibodies against *Echinococcus*, which could suggest hydatid disease. Due to MDS, leukocytosis with eosinophilia – typical for most of parasitic infections, were not observed in the patient.

Combined 2-week antiparasitic treatment with metronidazole (500 mg IV tid), chloroquine phosphate (300 mg base PO bid), and doxycycline (100 mg IV bid), together with antispasmodics, prokinetics, blood transfusions, hydration, antipyretics and anti-inflammatory drugs was implemented resulting in visible improvement in the patient's general condition. Because of co-occurring chronic medical conditions, the patient was not qualified for an invasive surgical intervention. Due to the patient's older age, the family requested discharge from our hospital and took the patient to Italy for further extended medical care and clinical observation.

Discussion

Amoebiasis is rare in non-endemic areas, and is mainly seen in immigrants and people returning from international travels. Consequently, the travel epidemiological history is crucial in suspecting the diagnosis because of its clinical picture, which can mimic ulcerative colitis, Crohn's disease, and colorectal cancers.

Although amoebic liver "abscess" is not commonly diagnosed, it has become more common in industrialized countries in recent years, with an increasing incidence linked to immigration or travel to hyperendemic regions. While generally considered sporadic, recent observations highlight clustered autochthonous cases in specific locations of the Mediterranean area such as Tuscany in Italy, and the potential for life-threatening condition and severe complications even in non-endemic regions of the world. Cases of ALA in individuals without a history of travel to endemic areas or evident risk factors are being reported in Italy, suggesting a local transmission or prolonged asymptomatic infections. Recent observations from a small village of Tuscany in Central Italy, documented three autochthonous ALA cases within a short period of time between October and November 2023 in a specific area, indicating a potential local cluster. In one of them, a severe course of the disease with necrotising colitis, profound anaemia and pleural effusion has been diagnosed. As in our case, an abdominal CT scan demonstrated the presence of a central hepatic cavity compatible with hydatid cyst, but negative serology finally excluded the imaging suspicion of cystic echinococcosis [8]. The described case of our patient originating from the same region of Tuscany is another strong documentation of a local outbreak of infection in this specific geographical area.

In the Medical University in Bari (Southern Italy) three cases with multiple ALA have been documented on the basis of elevated antibody titre for *E. histolytica* in immunofluorescence assay and the presence of the parasite antigen in stool samples and "abscess" aspirates. In the clinical picture, fever with chills, abdominal pain, weight loss, and hepatomegaly were observed. Laboratory findings revealed leukocytosis with neutrophilia. Two cases

were complicated by pleural effusion; one of them indicated an autochthonous infection [9].

In other regions of Italy, like Campania and Lazio, several cases of ALA have been reported. A clinical study from Naples (region of Campania) documented 68 ALA cases in 56 patients over nearly three decades, with a notable increase in cases among immigrants from endemic areas. All the patients have been treated with percutaneous drainage under US guidance and oral therapy with metronidazole. Two immigrants without immunosuppression experienced neurological symptoms with rapid deterioration and died due to brain "abscesses", highlighting the potential severity of the diseases even in non-endemic regions [10]. Another case from Rome (region of Lazio) involved a 59-year-old man who developed a giant liver "abscess" after ingesting non-potable water during several trips to tropical areas, which took place many years before hospitalization. The patient suffered from dyspnea and acute abdominal pain in the right upper quadrant [11].

More recently, a 2024 report from Brescia described a similar Italian patient who developed both acute amoebic colitis and an extraintestinal liver "abscess" without a clear source of infection. The patient had no recent travel history, reported no oral-anal sexual contact, and received no corticosteroids or immunosuppressive drugs. This case underscores that ALA can occur in individuals without a history of international travel, though such instances remain rare [12]. Direct contact with asymptomatic carriers of *E. histolytica* cysts could be a potential risk factor. In a recent study, a new autochthonous case of intestinal amoebiasis with bloody diarrhea, abdominal pain, and significant weight loss has been diagnosed in Italy. The patient was immunocompetent with no evident risk factors and an unknown source of infection. The diagnosis has been difficult, and inflammatory bowel disease has been previously suspected on the basis of colonoscopy, resulting in the administration of mesalazine and prednisone without any benefit. The final identification of domestic amoebic colitis has been done on the basis of positive ELISA *E. histolytica*-specific IgG from a serum sample and a detection of the *E. histolytica/E. dispar* cysts in a microscopic stool examination [13].

Borro et al. [14] described another rare case of a massive ALA in an Italian resident without a history of international travel but working as a longshoreman. The patient presented with complaints of irregular fever lasting 2 weeks, abdominal pain and anaemia, neutrophilic leukocytosis, and elevated inflammatory markers in laboratory analyses. The CT scan of the abdomen showed an enlarged left lobe due to the presence of the large abscess cavity along with trombosis of the left portal vein. Ultrasound-guided percutaneous drainage revealed "anchovy sauce" ("chocolate syrup") pus pathognomonic for liquefactive necrosis of the liver characteristic of *E. histolytica* infection. The indirect haemagglutination test for the detection of IgG-specific antibodies to *E. histolytica* was positive. The study indicates the existence of significant risk factors for amoebiasis among employees of seaports, airports, and border crossings, who may be considered a risk group particularly susceptible to the infection.

Our patient described in the paper similarly worked in the railway industry in Italy for several decades and had similar direct contact with travellers of different nationalities, which increases the chance of encountering many patients with intestinal amoebiasis as well as asymptomatic carriers from different parts of the world. Toilets on long-distance trains may be a key source of infection with this parasite. Co-existing immunosuppression related to chronic haematological disorder evidently predisposed to successive spreading of the parasite from the large intestine to liver.

In another epidemiological study, among 77 mentally retarded male patients residing in a psychiatric institution located in northern Italy, *Entamoeba* spp. cysts have been microscopically diagnosed in 26 cases (33.7%). Most patients were asymptomatic, but in 7 of them (26.9%) mild diarrhoea or irregular bowel habits have been observed. More detailed isoenzymatic analysis finally confirmed *E. histolytica* infection in all the examined individuals [15].

Fu et al. [16] described an extremely rare and fatal case of extraintestinal disseminated amoebiasis of multiple internal organs located in the pulmonary pleura, brain, and urinary system. The patient was referred to the University Hospital in Zunyi (China) because of fever, fatigue, chest tightness, and shortness of breath with a high suspicion of pulmonary tuberculosis. Typical active motile trophozoites of *E. histolytica* have been detected in pleural effusion, cerebrospinal fluid, and urine samples and finally confirmed by subsequent PCR testing. Despite the implementation of anti-parasitic

treatment with metronidazole, the patient developed aggressive generalised amoebiasis with psychiatric complications, vomiting, and disturbances of consciousness, and he died 1 month after admission.

In another HIV-infected male patient from China, multiple huge lesions in the liver and pleural effusion on the right side due to *E. histolytica* have been diagnosed. The differential diagnosis has been difficult in that case. Similarly, the patient has been suspected of tuberculosis because of shortness of breath, fever, and decreased blood oxygen saturation. The patient underwent liver tumour resection surgery due to suspected malignancy, but histopathological examination has not shown neoplasmatic cells. A detection of DNA of the protozoa in thoracic and liver drainage samples as well as histopathological slides from liver lesions has been crucial for a final identification of the parasite [17]. Nested PCR with sequencing technique has been very helpful in a diagnosis of ALA in another interesting Chinese patient admitted to the University Hospital because of a high fever of 40°C, abdominal pain, diarrhoea, nausea, vomiting, and jaundice. The small subunit ribosomal RNA gene of *E. histolytica* has been documented in aspirated fluid from liver abscess [18].

Epidemiological suspicions related to foreign travel greatly help in the diagnosis of ALA. Portunato et al. [19] described an interesting case of an Italian immunocompetent man with a history of a 3-month journey to Venezuela 10 years earlier, with a large ALA diagnosed on the basis of a FilmArray gastrointestinal multiplex PCR panel performed on liver drainage fluid.

In the clinical study from Rome describing 9 confirmed cases of ALA from the Department of Infectious Diseases, all the patients acquired the infection in tropical countries [20]. According to a wide epidemiological study in the University Hospital in Rome from 2006 to 2008, intestinal infection with *E. histolytica* has been diagnosed in only 10 of 4,695 patients with Italian nationality and only in one of 656 non-Italians [21].

In a large copromicroscopic survey for intestinal protozoa and helminths in 514 immigrants from Naples (southern Italy), who came from 38 countries in Eastern Europe, South America, Asia, and Africa, cysts of *E. histolytica/E.dispar/ E.moshkovskii* have been detected in 61 patients (11.9%) by using FLOTAC or the ethyl acetate concentration techniques [22]. A similar parasitological study from Campania (region of southern Italy) involving 2537 patients has shown *E. histolytica* infection in 5.0% of immigrants and only in 1.1% of current natives examined in 2009-2010 and 0.4% in a historical group of natives observed during the period of 1996-1997 when immigration in the area was sporadic [23].

Barlaam et al. [24] have detected *Entamoeba* spp. by using microscopy and conventional PCR technique in samples of local raspberries, fresh ready-to-eat mixed salads belonging to different industrial brands of Italy, as well as in blueberries imported from Peru and blackberries from Mexico offered in supermarkets located in the provinces of Bari and Foggia (a region of Apulia) in Italy.

Another study from Belgium reported a 50-year-old HIV-positive patient with 3 liver lesions suspected at first of necrotic liver metastases from colorectal cancer. Colonoscopy showed irregularly shaped, ulcerating lesions with oedema at the caecum and ascending colon, mass-like thickening of the caecal wall together with sharply defined hypodense lesions with surrounding oedema and peripheral rim enhancement. Multiple trophozoites of *E. histolytica* with characteristic erythrophagocytosis have been found in biopsies from the colon and aspiration fluids from liver lesions [25].

Giant amoebic liver abscess is usually responsible for a fatal clinical prognosis. Early diagnosis and prompt initiation of effective anti-parasitic treatment are crucial to prevent severe complications and death of a patient. Sng and Chavatte [26] described a severe case of gigantic amoebic liver abscess in a young 24-year-old woman from Indonesia who presented with high fever, tachycardia, abdominal pain, hypotension, anaemia, lethargy, and hepatomegaly. A contrast-enhanced computed tomography scan of her abdomen revealed a very large cystic lesion in the right lobe of the liver measuring 21.7 cm with rim enhancement and multiple peripheral septations. Because of size and morphology, a clinical suspicion of hydatid disease has been proposed, but a final confirmation of *E. histolytica* infection has been done on the basis of a positive PCR result from a liver aspirate.

Intestinal amoebiasis is diagnosed based on the finding of a haematophagous large protozoan form in the faeces containing phagocytosed erythrocytes. The examination requires extensive laboratory experience. A smear of fresh faeces taken during diarrhoea or after administration of laxatives is used for a standard microscopic analysis. In routine

microscopic analysis, two types of wet mounts should be performed: in physiological saline to observe the characteristic movement of active trophozoites, and iodine-stained preparations to observe internal structures of the parasite (nuclei, chromidial bars, glycogen, vacuoles). In microscopic preparations, especially from thicker stool, very characteristic protozoan cysts are present, but the final differential diagnosis between pathogenic *E. histolytica* and non-pathogenic *E. dispar* is then impossible. The result of a direct smear viewed immediately after passing stools may be confirmed in preparations fixed and stained with trichrome dye or haematoxylin for scientific purposes, but such techniques are quite laborious and not obligatory for a final identification of the pathogen. Purple Charcot-Leyden crystals can often be observed in wet and stained preparations. The use of molecular biology techniques (PCR) or immunodiagnostic methods detecting specific antigens (so-called coproantigens) in faeces, e.g. galactose lectin (adhesin) of *E. histolytica*, is a valuable complementary method. In cases of non-dysentery amoebiasis with the absence of trophozoites containing phagocytosed erythrocytes, molecular or immunological diagnosis for the detection of *E. histolytica* sensu stricto - specific antygen is essential. The amoebic colitis can also be detected in colonic biopsy specimens or in material taken from ulcers during rectoscopy. The protozoan is not usually demonstrated in the contents taken from the inside of an "abscess". However, *E. histolytica* trophozoites can be found in a biopsy precisely taken from the wall of the "abscess" under ultrasound guidance [3].

Serological tests for the detection of specific antibodies against *E. histolytica* in peripheral blood by the ELISA immunoenzymatic technique or by immunoblotting (Western-blotting) are only applicable in the generalised, extraintestinal form of infection, as in the described case of the liver "abscess" [1,3].

Thus, it seems advisable to include regions of southern Europe and other areas of the Mediterranean basin as endemic locations for *E. histolytica*. Compliance with rules of tropical and personal hygiene, keeping sanitation facilities clean, protecting food and water from contamination by the faeces of infected people and access by insects that can transmit the developmental forms of the parasite play an important role in the control of amoebiasis in hyperendemic areas.

Conclusions

Extraintestinal *E. histolytica* infection should always be considered in the differential diagnosis in patients returning from tropical and subtropical areas with symptoms of abdominal pain and fever and the presence of space-occupying lesions in the liver. Severe complications of intestinal amoebiasis are not only observed in hyperendemic regions of the tropics but also in the Mediterranean area. The diagnosis and treatment of complicated cases of amoebiasis should be carried out in reference centres with well-documented practical experience in this field.

References

[1] Mach T., Wroczyńska A. 2024. Choroby pierwotniakowe. Pełzakowica. In: Interna Szczeklika 2024. (Ed. P. Gajewski). Medycyna Praktyczna, Kraków: 2480–2485 (in Polish).

[2] Nasrallah J., Akhoundi M., Haouchine D., Marteau A., Mantelet S., Wind Ph., Benamouzig R., Bouchaud O., Dhote R., Izri A. 2022. Updates on the worldwide burden of amoebiasis: A case series and literature review. *Journal of Infection and Public Health* 15(10): 1134–1141. doi:10.1016/j.jiph.2022.08.013

[3] Paul M. 2023. Parazytologia szczegółowa. *Entamoeba histolytica* i pełzaki niechorobotwórcze. In: Mikrobiologia lekarska vol. 2. (Eds. M. Bulanda, A. Pietrzyk, M. Wróblewska). Wydawnictwo Lekarskie PZWL, Warszawa: 149–153 (in Polish).

[4] Wuerz T., Kane J.B., Boggild A.K., Krajden S., Keystone J.S., Fuksa M., Kain K.C., Warren R., Kempston J., Anderson J. 2012. A review of amoebic liver abscess for clinicians in a nonendemic setting. *Canadian Journal of Gastroenterology* 26(10): 729–733. doi:10.1155/2012/852835

[5] Nespola B., Betz V., Brunet J., Gagnard J.Ch., Krummel Y., Hansmann Y., Hannedouche T., Christmann D., Pfaff A.W., Filisetti D., Pesson B., Abou-Bacar A., Candolfi E. 2015. First case of amebic liver abscess 22 years after the first occurrence. *Parasite* 22: 20. doi:10.1051/parasite/2015020

[6] Chavez-Tapia N.C., Hernandez-Calleros J., Tellez-Avila F.I., Torre A., Uribe M. 2009. Image-guided percutaneous procedure plus metronidazole versus metronidazole alone for uncomplicated amoebic liver abscess. *Cochrane Database of Systematic Reviews* 21(1): CD004886. doi:10.1002/14651858.CD004886.pub2

[7] Shaikh Z., Khan M.H., Qamar R. 1989. Clinical profile of 100 cases of liver abscess. *Journal of the Pakistan Medical Association* 39(10): 256–259.

[8] Maisetta G., Moneta S., Tuvo B., Giordano C., Petrocelli P. A., Tincani G., Campani D., Ghinolfi D., Falcone M., Bruschi F., Lupetti A. 2025. Three autochthonous cases of amoebic liver abscess clustered in a small village of Tuscany (Central Italy), a non-endemic area. *Pathogens* 14(7): 609. doi:10.3390/pathogens14070609

[9] Fumarola L., Francavilla A., Palasciano N., Ialongo P., Pastore G., Sforza E., Rizzo C., Di Marzo L., Monno R. 2007. Amebic liver abscess: report of three cases. *Parassitologia* 49(1–2): 49–53.

[10] Giorgio A., Esposito V., Farella N., Di Sarno A., Liorre G., De Stefano M., Giorgio V., De Stefano G. 2009. Amebic liver abscesses: a new epidemiological trend in a non-endemic area? *In Vivo* 23(6): 1027–1030.

[11] Marenga G., Traficante S., Ragonici S., Vincenzi C., Rocchetti M., De Rito G., Fonsi G.B., Messineo D. 2019. Successful diagnosis of a longstanding giant amoebic liver abscess using contrast-enhanced ultrasonography (CEUS): a case report in a Western country. *The American Journal of Case Reports* 20: 493–498.doi:10.12659/AJCR.914378.

[12] De Francesco M.A., Villanacci V., Pasini M., Ciccarone A., Bertoni F., Gottardi F., Tomasoni L.R. 2024. Amoebic colitis and liver abscess: a rare case of autochthonous invasive infection due to *Entamoeba histolytica*. *Journal of Infection and Public Health* 17: 464–466. doi:10.1016/j.jiph.2023.12.027

[13] Corich L., Bramuzzo I., Perandin F., Treggiari D., Scarso S., Rigo S., Grosso S., Diamante P., Urbano M.T., Crapis M., Basaglia G., Avolio M. 2025. A new autochthonous case of amebiasis in Italy in a patient without risk factors: an alert for clinicians and laboratorians. *Le Infezioni in Medicina* 33(1): 125–129. doi:10.53854/liim-3301-12

[14] Borro M., Murdaca G., Greco M., Negrini S., Setti M. 2020. A rare hepatic mass in an Italian resident. *BMC Gastroenterology* 20: 1–4. doi:10.1186/s12876-020-01440-7

[15] Gatti S., Cevini C., Marchi L., Vovati S., Scaglia M. 1995. *Entamoeba histolytica* autochthonous isolates from mentally retarded Italian patients. *Parasitology Research* 81: 148–151.

[16] Fu B., Wang J., Fu X. 2022. A rare case of extraintestinal amebiasis. *BMC Infectious Diseases* 22(1): 364. doi:10.1186/s12879-022-07348-9

[17] Li X., Chen C., Tong L., Gao Q., Chen W., Zhou G., Tong Z., Wang W. 2023. The challenging path to diagnosing extraintestinal amoebiasis: a case report of an HIV-infected patient. *Infection and Drug Resistance* 16: 7569–7574. doi:10.2147/IDR.S442075

[18] He Y., Huang D., Yang Y. 2025. Amoebic liver abscess: diagnosis and management of a single case in Guangdong, China. *BMC Infectious Diseases* 25(1): 350. doi:10.1186/s12879-025-10623-0

[19] Portunato F., Bartalucci C., Vena A., Giacobbe D.R., Porcile E., Montanelli P., Piol N., Centanaro M., Andorno E., Bassetti M. 2024. Amoebic liver abscess: potential application of new diagnostic techniques for an old pathogen. *Infectious Diseases and Therapy* 13(3): 625–632. doi:10.1007/s40121-024-00934-1

[20] Spinazzola F., Zechini F. 1994. Amebic liver abscess: review of 9 cases. *European Review for Medical and Pharmacological Sciences* 16(1–2): 3–5 (in Italian).

[21] Masucci L., Graffeo R., Bani S., Bugli F., Boccia S., Nicolotti N., Fiori B., Fadda G., Spanu T. 2011. Intestinal parasites isolated in a large teaching hospital, Italy, 1 May 2006 to 31 December 2008. *Eurosurveillance* 16(24): 19891. doi:10.2807/ese.16.24.19891-en

[22]Gualdieri L., Rinaldi L., Petrullo L., Morgoglione M.E., Maurelli M.P., Musella V., Piemonte M., Caravano L., Coppola M.G., Cringoli G. 2011. Intestinal parasites in immigrants in the city of Naples (southern Italy). *Acta Tropica* 117(3): 196–201. doi:10.1016/j.actatropica.2010.12.003

[23] Belli A., Coppola M.G., Petrullo L., Lettieri G., Palumbo C., Dell'Isola C., Smeraglia R., Triassi M., Spada E., Amoroso P. 2014. The current spectrum and prevalence of intestinal parasitosis in Campania (region of southern Italy) and their relationship with migration from endemic countries. *International Journal of Infectious Diseases* 29: 42–47. doi:10.1016/j.ijid.2014.04.021

[24] Barlaam A., Sannella A.R., Ferrari N., Temesgen T.T., Rinaldi L., Normanno G., Cacciò S.M., Robertson L.J., Giangaspero A. 2022. Ready-to-eat salads and berry fruits purchased in Italy contaminated by *Cryptosporidium* spp., *Giardia duodenalis*, and *Entamoeba histolytica*. *International Journal of Food Microbiology* 370(2): 109634. doi:10.1016/j.ijfoodmicro.2022.109634

[25] Bronswijk M., Gool V. 2019. A case of amoebic colitis with amoeboma and simultaneous liver abscesses. A diagnosis by colonoscopy. *Acta Gastro-Enterologica Belgica* 82(4): 539–541.

[26] Sng E.C.Y., Chavatte J.M. 2025. An imported case of gigantic amoebic liver abscess in a 24-year-old woman in Singapore. *Case Reports in Infectious Diseases* 2025(1): 6230349. doi:10.1155/crdi/6230349

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