

AMOEBIASIS

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OBJECTIVES

At the end of this session each student will be able to:

1. Define amoebiasis.
2. Describe the epidemiology of amoebiasis.
3. Describe the cause of amoebiasis.
4. Describe the pathophysiology of amoebiasis.
5. Describe the clinical features of amoebiasis.
6. Describe the complications of amoebiasis.
7. Describe the differential diagnoses of amoebiasis.
8. Investigate patients with amoebiasis.
9. Treat patients with amoebiasis.
10. Describe the prognosis of patients with amoebiasis.
11. Describe the preventive measures to amoebiasis.

Definition

- Amoebiasis is an infestation caused by the protozoal organism, *Entamoeba histolytica*.

Epidemiology

- **Prevalence:**

The prevalence of amoebic colitis and amoebic liver abscess is estimated to be 10% of the world population.

- It is as high as 50% in areas of central and south America, Africa and Asia.

Epidemiology

Individuals at risk of amoebiasis:

- Travellers to endemic regions.
- Recent immigrants from endemic regions.
- Homosexual males.
- Immunocompromised persons.
- Institutionalized individuals.

Epidemiology

Age:

Younger children appear to be at higher risk.

Sex:

- Amoebic liver abscess is 7-12 times more common in men than in women.
- Amoebic colitis affects both sexes equally.

Epidemiology

Transmission:

Common:

- Food-borne exposure; especially when food handlers are shedding cysts or food is cultivated in faeces-contaminated soil, fertilizer or water.

Uncommon:

- Contaminated water.
- Ano-oral sexual practices.
- Direct rectal inoculation through colonic irrigation devices.

Cause

- *Entamoeba histolytica*.
- It is a pseudopod-forming, non-flagellated protozoa that exerts a lytic effect on tissues, a characteristic for which the organism named.

Pathophysiology

- Ingestion of the amoebic cyst is followed by excystation in the small bowel and trophozoites colonization of the colon.
- Upon colonization of the colonic mucosa, the trophozoites may encyst and be excreted in faeces or it may invade the intestinal mucosal barrier, thereby gaining access to the circulation, resulting in the involvement of the liver, lung and other sites.

Pathophysiology

- ❑ The host cells are then killed via the induction of apoptosis.
- ❑ Factors that may influence infestations (Whether the infestation to result into colonization or invasion) are:
 - Interaction with bacterial flora.
 - Host genetic susceptibility.
 - Malnutrition.
 - Sex.
 - Age.
 - Immunocompetence.

Clinical features

A. History:

- Asymptomatic intestinal amoebic infestation occurs in 90-99% of infected individuals.

I. Amoebic colitis:

- Abdominal pain.
- Stools are bloody, mucoid and loose.
- Fever (uncommon).
- Weight loss.
- Symptoms of volume depletion e.g. orthostasis.

II. Amoebic liver abscess

- Fever.
- Right hypochondrial pain.
- Weight loss.
- History of amoebic dysentery within the previous year may be present.
- History of alcohol abuse is common, but how this condition may contribute to the development of a liver abscess still unclear.

III. Pleuropulmonary amoebiasis

It is caused by the rupture of a superior right upper lobe liver abscess with erosion through the diaphragm.

Manifestations:

- Rigid abdomen.
- Cough.
- Pleuritic chest pain.
- Difficult in breathing.
- Occasional necrotic sputum production.

History

IV. Intrapertitoneal rupture of amoebic liver abscess (2-7%).

V. Cerebral amoebiasis: (rare)

- Abrupt onset of mental status change.
- Focal neurological deficit.

VI. Amoeboma (uncommon).

VII. Rectovaginal fistulae (uncommon).

VIII. Fulminant or necrotizing colitis

It is the most serious but uncommon.

Predisposing factors:

- Poor nutrition.
- Pregnancy.
- Corticosteroid use.
- Very young age.

Physical examination

I. **Amoebic colitis:**

- Fever.
- Weight loss.
- Diffuse abdominal tenderness.
- Fulminant colitis:
 - Abdominal pain.
 - Abdominal distension.
 - Rebound tenderness.

Amoebic liver abscess

- Right upper quadrant abdominal tenderness.
- Fever.
- Weight loss.
- Hepatomegaly.
- Jaundice.

Complications

I. Amoebic colitis:

- Fulminant or necrotizing colitis.
- Toxic megacolon.
- Amoeboma.
- Rectovaginal fistulae.

II. Amoebic liver abscess:

- Intrathoracic or intraperitoneal rupture with or without secondary bacterial infection.
- Direct extension to pleura or pericardium.

III. Brain abscess.

Differential diagnoses

I. Amoebic liver abscess:

- Hepatocellular carcinoma.
- Pyogenic liver abscess.
- Abdominal abscess.
- Echinococcal cyst.
- Hepatitis.

Differential diagnoses

II. Amoebic colitis:

- *Campylobacter jejuni* infection.
- Inflammatory bowel disease.
- Arteriovenous malformation.
- *Escherichia coli* infection.
- Ischaemic colitis.
- Salmonellosis.
- Diverticulitis.
- Shigellosis.

Investigations

1. Microscopy:
 - Stool sample.
 - Amoebic liver abscess aspirate.
2. Antigen detection by using monoclonal antibodies specific for galactose lectin.
3. Serum anti-amoebic antibody test.
4. Polymerase chain reaction.
 - Stool sample.
 - Amoebic liver abscess aspirate.

Investigations

5. Ultrasound scans of the liver.

- Amoebic liver abscess appears as a homogenous hypoechoic round lesion.

6. Computed tomography scan: (with contrast)

- Amoebic liver abscess appear as a rounded, low-attenuation lesion with an enhancing ring.
- The abscess may be homogenous or septated with or without observable fluid levels.

Procedure

Colonoscopy:

Indications:

- Stool and serology negative results in a patient thought to have amoebic colitis.

Contraindication: Fulminant colitis.

Findings:

- Amoebic colitis: It may resemble that of inflammatory bowel disease, with a friable and diffusely ulcerated mucosa.
- An Amoeboma may be present in a form of annular lesions, which usually occurs in the caecum and ascending colon and usually indistinguishable from colonic carcinoma.

Medical treatment

Indications for admission:

- Severe colitis requiring intravenous volume replacement.
- Fulminant colitis that may require surgical intervention.
- Liver abscess of uncertain aetiology or not responding to antibiotic therapy.
- Suspected amoebic liver abscess rupture.

Asymptomatic patients

Luminal agents:

They are effective against trophozoites and cysts forms of *Entamoeba histolytica*.

- 1. Iodoquinol:** 650 mg PO TID for 20 days.
- 2. Paromomycin:** 25-35 mg/kg/ day PO in 3 divided doses for 7 days.
- 3. Diloxanide furoate:** 500 mg PO TID for 10 days.

Invasive diseases

Examples:

- Amoebic colitis.
- Amoebic liver abscess.

Drugs:

The drugs are effective against anaerobic bacteria and protozoa.

1. Metronidazole: 500-750 mg PO TID for 10 days. Or
2. Tinidazole:
 - **Intestinal amoebiasis:** 600 mg PO BID for 5 days.
 - **Alternative:** 2 g PO OD for 3 days with food.
 - **Amoebiasis liver abscess:** 2 g PO OD for 3-5 days with food.

NB: Plus luminal agents.

Surgical treatment

Indications:

- Perforation of viscus.
- Persistent abdominal distension and tenderness despite anti-amoebic therapy.

NB:

Surgical interventions for intrathoracic or intraperitoneal rupture of an amoebic liver abscess is rarely indicated, except in cases complicated by secondary bacterial infection.

Prognosis

- ❑ The prognosis of cure following treatment of invasive amoebiasis is good.
- ❑ Mortality:
 - Fulminant or necrotizing colitis: > 40%.
 - Amoebic colitis: 1.9-9.1%.

Prevention

- Eradicate food and water contamination through sanitation, hygiene and water treatment.

Water should be boiled and vegetables should be washed with a detergent soap and soaked in acetic acid or vinegar for 10-15 minutes before consumption.

- Avoid ano-oral sexual practice.
- Screen family members or close contacts of an index case.

Thank you for your attention

Reference

- Kavis K., Cantey J.R., and Sword Robert. Amoebiasis;
www.emedicine.com/med/topic116.htm
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