

AMEBIASIS (Amebic Dysentery)

✓ DISEASE AND EPIDEMIOLOGY

Clinical Description:

Infections can be intestinal, extraintestinal, or both. Most cases are intestinal and are asymptomatic. Symptoms, when they occur, are multiple and varied, ranging from mild abdominal discomfort and diarrhea (often with blood and mucus) alternating with periods of remission or constipation, to severe illness with fever, chills, and significant bloody or mucoid diarrhea (“amebic dysentery”).

Causative Agent:

Entamoeba histolytica is a protozoan parasite that should not be confused with *Entamoeba hartmanni*, *Entamoeba coli*, or other intestinal protozoa that do not cause amebiasis. The trophozoite is the metabolically active form (which causes symptoms), but it is not as infectious as the cyst form because it cannot survive in the environment or transit through the acidic stomach. Under some conditions, these environmentally resistant cysts form in the lower intestine and are infectious. Thus, infected persons can shed both trophozoites and cysts in stool.

Differential Diagnosis:

Amebic colitis may be confused with inflammatory bowel diseases such as ulcerative colitis. Amebiasis should be ruled out when treating Crohn’s disease; corticosteroids will worsen amebiasis.

Laboratory identification:

Testing for *Entamoeba histolytica* is available at large reference labs. The most common tests are microscopy (to identify cysts and trophozoites in a stool sample), serology, and histopathology in tissue samples. For best sensitivity, collect three separate stool samples. The clinician must distinguish *E. histolytica* from *E. dispar*, which is morphologically identical but does not cause disease. If a laboratory reports results as *E. histolytica/E. dispar*, the lab was unable to differentiate between the two species.

USL: PH: The Unified State Laboratory: Public Health does not perform testing for *Entamoeba histolytica*.

Treatment:

Active agents include tinidazole, iodoquinol, and paromomycin for intestinal colonization. For invasive disease, treatment can include metronidazole (followed by a luminal amebicide such as diloxanide furoate, clefamide, etofamide, paromomycin, and teclozan) or tinidazole.

Case fatality:

Some extraintestinal manifestations, while rare, can have associated mortality.

Reservoir:

Humans, primarily chronic or asymptomatic carriers, are the reservoir for amebiasis.

Transmission:

This parasite is transmitted fecal-orally by ingestion of cysts. Transmission can happen via contaminated food or water or through person-to-person spread, particularly among preschool children, within households, and through certain types of sexual contact (e.g., oral-anal contact).

Susceptibility:

All people are susceptible. Susceptibility to reinfection has occurred but is rare.

Incubation period:

The incubation period is commonly from 1–4 weeks, but it can vary from a few days to several months or years.

Period of communicability:

The disease is communicable for as long as the infected person excretes *E. histolytica* cysts, which can continue for years. Asymptomatically infected persons tend to excrete a much higher proportion of cysts, and hence, are more likely to transmit the infection than persons who are acutely ill and who tend to excrete trophozoites.

Epidemiology:

Amebiasis has a worldwide distribution but is rare in children under the age of five. Prevalence is higher in areas with poor sanitation (such as parts of the tropics), in institutions for the developmentally disabled, and among men who have sex with men. The estimated prevalence in the U.S. is 4%.

PUBLIC HEALTH CONTROL MEASURES

Public health responsibility:

- Investigate all suspect cases of disease and fill out and submit appropriate disease investigation forms.
 - Cases without appropriate travel history will require additional investigation.
- Provide education to the general public, clinicians, and first responders regarding disease transmission and prevention
- Identify clusters or outbreaks of this disease and determine the source.
- Identify cases and sources to prevent further transmission.

Prevention:

Personal Preventive Measures/Education

To prevent future exposures, recommend that individuals:

- Always wash their hands thoroughly with soap and water before eating or preparing food, after using the toilet, and after changing diapers.

- Wash the child's hands as well as their own hands after changing a child's diapers.
- In a daycare setting, dispose of diapers in a closed-lid garbage can.
- Wash their hands thoroughly and frequently when ill with diarrhea or when caring for someone with diarrhea. Hands should be scrubbed for at least 15–20 seconds after cleaning the bathroom, after using the toilet or helping someone use the toilet, after changing diapers, before handling food, and before eating.
- Discuss transmission risks that may result from oral-anal sexual contact. Latex barrier protection (e.g., dental dam) may prevent the spread of amebiasis to a case's sexual partners and may prevent exposure to and transmission of other fecal-oral pathogens.
- If uncertain about the water supply the following procedures will purify drinking water from amebic cysts:
 - Boil water for at least 1 minute (up to 10 minutes depending upon altitude);
 - Add iodine (12.5 ml of a saturated aqueous solution of iodine crystals per liter/quart of water);
 - Use water purification tablets (1 tablet tetraglycine hydroperiodide per liter/quart of water allowing for a contact time of 10-30 minutes (depending upon water temperature – longer time for cold water) before drinking the water;
 - Use a portable filter with less than 1.0 micrometer pore size;
 - Chlorination may not be effective and should not be used.

International Travel

Travelers to developing countries should:

- Drink only bottled water, carbonated water, and canned or bottled sodas. Boiling water for one minute will kill parasites, bacteria, or viruses that may be present, including *E. histolytica*. However, *E. histolytica* is not killed by low doses of chlorine or iodine; do not rely on chemical water purification tablets (such as halide tablets) to prevent amebiasis.
- Cook food thoroughly to kill parasites, bacteria, or viruses that may be present.
- Not eat fruit that has already been peeled or cut, or raw vegetables that may be contaminated.
- Drink only pasteurized milk or dairy products. Avoid eating unpasteurized dairy products or drinking raw milk. They can be contaminated with unclean water.

Chemoprophylaxis:

None.

Vaccine:

None.

Isolation and quarantine requirements:

Isolation: Food handlers with amebiasis must be excluded from work until chemotherapy has been completed, regardless of symptoms.

NOTE: A food handler is any person directly preparing or handling food. This can include a patient care or childcare provider.

Hospital: Body substance precautions. If patients have diarrhea, gloves should be worn for contact with the patient and the immediate patient environment.

Quarantine: Contacts who have diarrhea and are food handlers should be considered the same as a case and should be handled in the same fashion. No restrictions otherwise.

NOTE: In certain circumstances, cases, ill contacts, and/or asymptomatic contacts who are food handlers may be required to have negative stool samples prior to returning to work. The local health department will decide which cases and/or contacts will need negative stool samples prior to returning to work and whether 1 or 2 negative samples is necessary. If a case or contact has been treated with an antimicrobial agent, the stool specimen should not be collected until at least 48 hours after cessation of therapy. If 2 negative stool samples are determined to be necessary they should be taken at least 24 hours apart.

✓ CASE INVESTIGATION

Reporting:

All cases of *E. histolytica* should be reported to public health.

Case definition:

Amebiasis (1990)

Clinical description

Infection by *Entamoeba histolytic* may be either intestinal or extraintestinal. Intestinal infection may result in an illness of variable severity ranging from mild, chronic diarrhea to fulminant dysentery. Extraintestinal infections may either be symptomatic or asymptomatic and may occur with either abscess (e.g., hepatic abscess) or radiographic findings consistent with extraintestinal infection.

Laboratory criteria

Confirmed intestinal amebiasis: Demonstration of cysts or trophozoites of *E. histolytica* in stool.

OR

Demonstration of *E. histolytica* trophozoites in tissue biopsy or ulcer scrapings by culture or histopathology.

Confirmed symptomatic extraintestinal amebiasis: Demonstration of specific antibody against *E. histolytica* as measured by indirect hemagglutination or other reliable immunodiagnostic test [EIA].

OR

Demonstration of *E. histolytica* trophozoites in extraintestinal tissue.

Confirmed asymptomatic extraintestinal amebiasis: Demonstration of *E. histolytica* trophozoites in extraintestinal tissue.

Case classification

Confirmed intestinal amebiasis: A case that has a clinically compatible illness and that is laboratory confirmed using a method listed in the confirmed criteria.

Confirmed symptomatic extraintestinal amebiasis: A case that presents either abscess (e.g., hepatic, brain, splenic, etc.) or radiographic findings consistent with extraintestinal infection that also has a demonstration of specific antibody against *E. histolytica* as measured by indirect hemagglutination or other reliable immunodiagnostic test (e.g., enzyme-linked immunosorbent assay).

Confirmed asymptomatic extraintestinal amebiasis: A case that has a demonstration of *E. histolytica* trophozoites in extraintestinal tissue.

Classification Table:

Criteria for defining cases of amebiasis

Criterion	Confirmed Intestinal	Confirmed Extraintestinal	Confirmed Extraintestinal
<i>Clinical Evidence</i>			
Diarrhea	N		
Radiographic findings		O	
Abscess		O	
<i>Laboratory Evidence</i>			
Demonstration of cysts or trophozoites of <i>E. histolytica</i> in stool [O&P]	O		
Demonstration of <i>E. histolytica</i> trophozoites in tissue biopsy or ulcer scrapings by culture or histopathology	O		
Demonstration of <i>E. histolytica</i> trophozoites in extraintestinal tissue			S
Demonstration of specific antibody against <i>E. histolytica</i> as measured by indirect hemagglutination or other reliable immunodiagnostic test [ELISA]		N	

Notes:

S = This criterion alone is Sufficient to report a case.

N = All "N" criteria in the same column are Necessary to classify a case.

O = At least one of these "O" (Optional) criteria in each category (e.g., clinical evidence and laboratory evidence) in the same column—is required to classify a case.

Comment

Asymptomatic intestinal carriage of *E. histolytica* should not be reported. Among asymptomatic persons, a positive serologic test does not necessarily indicate extraintestinal amebiasis.

Case Investigation Process:

- Food handlers should be excluded from work until diarrhea has resolved. Negative stool specimens may also be required.
- The source of the exposure should be identified.

Outbreaks:

This is a disease that generally is imported into Utah. Therefore, all cases must be carefully screened to determine if the case was acquired locally. Any two locally-acquired cases in a 60 day period will be considered an outbreak. Investigate to determine the source of infection and the mode of transmission. A common vehicle (e.g., water, food, or association with a daycare center) should be sought, and applicable preventive or control measures should be instituted (e.g., removing implicated food items from the environment). Control of person-to-person transmission requires special emphasis on personal cleanliness and sanitary disposal of feces.

Identification of case contacts and management:

Neonatal Infection/ Maternal Infant Transmission

When neonate is less than 1 month of age, please use the following data entry procedure.

UTNEDSS/ Trisano Data Entry

- The mother is the case-patient, or “parent” CMR
 - Enter mother’s medical record number in parent CMR
 - Enter mother’s symptoms in the parent CMR
 - Enter mother’s exposure history in parent CMR
 - Add attachments and lab report(s) for mother on parent CMR.
- Neonate is entered as a contact of the mother
 - Enter neonate medical record number as a contact of the mother
 - Enter neonate symptoms as a contact of the mother
 - Enter neonate exposure as a contact of the mother
 - Add attachments and lab report(s) for neonate as a contact of the mother
- Neonate may be promoted to own CMR as appropriate
- When searching UTNEDSS/ Trisano for name of mother or neonate, both CMRs should come up in search results

Daycare

Since amebiasis may be transmitted from person to person through fecal-oral transmission, it is important to follow up on cases of amebiasis in a daycare setting carefully. General recommendations include:

- Children with amebiasis who have diarrhea should be excluded until their diarrhea is gone.

- Children with amebiasis who do not have diarrhea and who are otherwise not ill may remain in the program if special precautions are taken, or they may be excluded.
- Since most staff in childcare programs are considered food handlers, those with *E. histolytica* in their stools (symptomatic or not) can remain on site, but they must not prepare food or feed children until their diarrhea has resolved. Negative stool specimens may be required.

School

Since amebiasis may be transmitted from person to person through fecal-oral transmission, it is important to follow up on cases of amebiasis in a school setting carefully. General recommendations include:

- Students or staff with amebiasis who have diarrhea should be excluded until their diarrhea is gone.
- Students or staff who do not handle food but have amebiasis with no diarrhea or mild diarrhea and are not otherwise sick may remain in school if special precautions are taken.
- Students or staff who handle food and have *E. histolytica* infection (symptomatic or not) must not prepare food until their diarrhea is gone. Negative stool specimens may be required.

Community Residential Programs

Actions taken in response to a case of amebiasis in a community residential program will depend on the type of program and the level of functioning of the residents.

In long-term care facilities, residents with *E. histolytica* should be placed on body substance precautions until their symptoms subside. Staff members with *E. histolytica* infection who provide direct patient care (e.g., feed patients, give mouth or denture care, or give medications) are considered food handlers and should be treated as such. In addition, staff members with *E. histolytica* infection who are not considered food handlers should not work until their diarrhea is gone.

In residential facilities for the developmentally disabled, staff and clients with amebiasis must refrain from handling or preparing food for other residents until their diarrhea has subsided. Negative stool specimens may be required. In addition, staff members with *E. histolytica* infection who are not food handlers should not work until their diarrhea is gone.

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