

Amebiasis



Case Definition

One of the following:

- demonstration of cysts of *Entamoeba spp.* in stool;
- demonstration of trophozoites of *Entamoeba histolytica* in stool or in tissue (ulcer scraping or biopsy);
- illness clinically compatible with extra-intestinal amebiasis, accompanied by positive serologic tests for *E. histolytica*.

Reporting Requirements

- All positive laboratory tests for *Entamoeba spp.* are reportable by laboratory.
- All cases are reportable by attending health care professional.

Clinical Presentation/Natural History

- Often asymptomatic, but may become clinically important under certain circumstances.
- Clinical intestinal disease: Varies from acute dysentery with bloody mucoid stools and constitutional symptoms (amebic dysentery), to mild abdominal discomfort with diarrhea containing blood or mucus, alternating with periods of constipation or remission. Other symptoms include chronic abdominal pain and irregular bowel pattern, amebic granulomata (ameboma) in the wall of the large intestine, and ulceration of the skin (usually in the perianal region). Penile lesions may occur in men after insertive anal intercourse.
- Extraintestinal disease: Dissemination via the bloodstream may occur, producing abscesses of the liver or, less commonly, of the lung or brain. This may occur years after infection.

Etiology

An infection with the protozoan parasite, *Entamoeba histolytica*, which exists in two forms: the hardy, infective cyst and the more fragile, potentially pathogenic trophozoite. The parasite may act as a commensal or invade the tissues, giving rise to intestinal or extra-intestinal disease. The Cadham Provincial Laboratory (CPL) does not distinguish pathogenic *Entamoeba histolytica* cysts from non-pathogenic *Entamoeba dispar* cysts.

Epidemiology

Reservoir: Humans are the reservoir, usually a chronically ill or asymptomatic cyst passer. The source is usually water or food contaminated with the feces of infected humans.

Transmission: Person-to-person (fecal-oral ingestion of amebic cysts) through fecal contamination of food or drink, unwashed hands of a foodhandler, fresh vegetables contaminated by human excrement (e.g., washed with sewage-polluted water), or sexual exposure involving anal contact. Flies may also act as vectors of cyst-laden feces.

Occurrence:

General: Worldwide. Invasive amebiasis is mainly a disease of young adults. Amebiasis is rare under five years of age. Published prevalence rates of cyst passage, usually based only on the morphology of the cysts, vary according to geographic area. In general, rates are higher in areas with poor sanitation (such as parts of the tropics), in mental institutions and among men who have sex with men. In areas with good sanitation, amebic infections tend to cluster in households and institutions. The proportion of cyst passers who have clinical disease is usually low.

Manitoba: A large number of cases in Manitoba are imported from developing countries. There were 213 cases in Manitoba from 1995 to 1999. In 1999, the rate of amebiasis was 3.5/100,000.

Incubation Period: Variable from a few days to several months or years; commonly two to four weeks.

Susceptibility and Resistance: Susceptibility is general; those harbouring *E. dispar* do not develop disease. Susceptibility to re-infection has been demonstrated but is probably rare.

Period of Communicability: During the period of passing cysts of *E. histolytica*. Untreated persons may be intermittently infectious for years, as long as they pass cysts. Persons with acute amebic dysentery represent a low risk to others because they do not pass cysts during this phase, and the trophozoites which are shed are very fragile and not infectious.

Diagnosis

Diagnosis is made by microscopic demonstration of trophozoites or cysts in fresh or preserved fecal specimens, smears of aspirates or scrapings obtained by proctoscopy, aspirates of abscesses, or sections of tissue. The presence of trophozoites containing red blood clots indicates invasive amebiasis. Stool antigen-detection tests have recently become available in Manitoba, but they do not distinguish pathogenic from nonpathogenic organisms, and are only performed under exceptional circumstances. Reference laboratory services may be required.

Serologic tests are available as adjuncts in diagnosing extra-intestinal amebiasis, such as liver abscess, where stool examination is often negative. Serology is not consistently reliable. Scintillography, ultrasonography and CAT scanning are helpful in revealing the presence and location of an amebic liver abscess, and can be considered diagnostic when associated with a specific antibody response to *E. histolytica*.

Key Investigations

- History of international travel (especially to areas with inadequate water/sewage) or to recreational/rural areas within Manitoba/Canada.
- History of inadequate water supply, sewage disposal, or hygiene.
- History of institutionalization.

Control

Management of Cases:

- For hospitalized patients, enteric precautions in the handling of feces and contaminated clothing and bed linen.
- Exclusion of persons infected with *E. histolytica* from food handling and from direct care of hospitalized and institutionalized patients for duration of antimicrobial therapy.
- Thorough handwashing after defecation.

Treatment:

- Adults: Metronidazole 750 mg tid for 10 days given in conjunction with iodoquinol 650 mg tid for 20 days.
- Children: Metronidazole 35-40 mg/kg/24 hours in conjunction with iodoquinol 40 mg/kg/24 hours in four divided doses for seven to 10 days.
- Metronidazole is generally contraindicated in the first trimester of pregnancy. Use later in pregnancy may be acceptable. Consultation with an infectious disease consultant is recommended. Metronidazole is not contraindicated during lactation, but if a single, two gram dose is used (as in the treatment of trichomoniasis), it is recommended that breastfeeding be discontinued for 12 to 24 hours to allow excretion of the drug.
- If a patient with a liver abscess continues to be febrile after 72 hours of therapy with metronidazole, nonsurgical aspiration may be indicated. Occasionally, abscesses may require

surgical aspiration if there is a risk of rupture or the abscess continues to enlarge despite therapy.

Management of Contacts:

- Microscopic examination of feces of household members and other suspected contacts.
- Thorough hand-washing.
- Symptomatic carriers should be treated the same as cases; asymptomatic carriers may be treated with iodoquinol, or paromomycin.

Management of Outbreaks:

- Reference laboratory confirmation of *E. histolytica* versus *E. dispar* if diagnosis by cysts only.
- Epidemiologic investigation to determine source of infection and mode of transmission.
- If a common vehicle is indicated, such as water or food, appropriate measures should be taken to correct the situation.
- Use of antimicrobial prophylaxis is not advised for amebiasis outbreak management.

Preventive Measures:

- Sanitary disposal of human feces.
- Protect public water supplies from fecal contamination. Sand filtration of water removes nearly all cysts, and diatomaceous earth filters remove them completely. Chlorination of water, as generally practiced in municipal water treatment, does not always kill cysts.

- Small quantities of water (as in canteens) are best treated with prescribed concentrations of iodine, either liquid or as water purification tablets. A contact period of at least 10 minutes (30 minutes if cold) should be allowed to elapse before drinking the water. Portable filters with less than 1.0 mm pore sizes are effective. Water of undetermined quality can be made safe by boiling for one minute.
- Health agencies supervise the sanitary practices of people preparing and serving food in public eating places and the general cleanliness of the premises involved. Routine examination of food handlers as a control measure is impractical.
- Disinfectant dips for fruits and vegetables are of unproven value in preventing transmission of *E. histolytica*. Thorough washing with potable water and keeping fruits and vegetables dry may help; cysts are killed by desiccation, by temperatures above 50°C (122°F) and by irradiation.
- Control of flies.
- Education for the general public in personal hygiene, particularly in sanitary disposal of feces, and in hand-washing after defecation and before preparing or eating food.
- Disseminate information regarding the risks involved in eating uncleaned or uncooked fruits and vegetables, and in drinking water of questionable purity.
- Education for high-risk groups to avoid sexual practices that may permit fecal-oral transmission.