PRTOZOAL FOOD BORNE DISEASES

- Toxoplasma
- Cryptosporidium
- Entamoeba
- Giardia

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Toxoplasma:-

A single-celled parasite called *Toxoplasma gondii* causes a disease known as toxoplasmosis. While the parasite is found throughout the world, more than 60 million people in the United States may be infected with the *Toxoplasma* parasite. Of those who are infected, very few have symptoms because a healthy person's immune system usually keeps the parasite from causing illness. However, pregnant women and individuals who have compromised immune systems should be cautious; for them, a *Toxoplasma* infection could cause serious health problems.

A *Toxoplasma* infection occurs by:

- Eating undercooked, contaminated meat (especially pork, lamb, and venison).
- Accidental ingestion of undercooked, contaminated meat after handling it and not washing hands thoroughly (*Toxoplasma* cannot be absorbed through intact skin).
- Eating food that was contaminated by knives, utensils, cutting boards and other foods that have had contact with raw, contaminated meat.
- Drinking water contaminated with *Toxoplasma gondii*.
- Accidentally swallowing the parasite through contact with cat feces that contain *Toxoplasma*. This might happen by
    1. cleaning a cat's litter box when the cat has shed *Toxoplasma* in its feces
    2. touching or ingesting anything that has come into contact with cat feces that contain *Toxoplasma*
    3. accidentally ingesting contaminated soil (e.g., not washing hands after gardening or eating unwashed fruits or vegetables from a garden)
- Mother-to-child (congenital) transmission.
- Receiving an infected organ transplant or infected blood via transfusion, though this is rare.

Symptoms of the infection vary.

- Most people who become infected with *Toxoplasma gondii* are not aware of it.
- Some people who have toxoplasmosis may feel as if they have the "flu" with swollen lymph glands or muscle aches and pains that last for a month or more.

- Severe toxoplasmosis, causing damage to the brain, eyes, or other organs, can develop from an acute *Toxoplasma* infection or one that had occurred earlier in life and is now reactivated. Severe cases are more likely in individuals who have weak immune systems, though occasionally, even persons with healthy immune systems may experience eye damage from toxoplasmosis.
- Signs and symptoms of ocular toxoplasmosis can include reduced vision, blurred vision, pain (often with bright light), redness of the eye, and sometimes tearing. Ophthalmologists sometimes prescribe medicine to treat active disease. Whether or not medication is recommended depends on the size of the eye lesion, the location, and the characteristics of the lesion (acute active, versus chronic not progressing). An ophthalmologist will provide the best care for ocular toxoplasmosis.
- Most infants who are infected while still in the womb have no symptoms at birth, but they may develop symptoms later in life. A small percentage of infected newborns have serious eye or brain damage at birth.

People who are most likely to develop severe toxoplasmosis include:

- Infants born to mothers who are newly infected with *Toxoplasma gondii* during or just before pregnancy.
- Persons with severely weakened immune systems, such as individuals with AIDS, those taking certain types of chemotherapy, and those who have recently received an organ transplant.

If you are planning to become pregnant, your health care provider may test you for *Toxoplasma gondii*. If the test is positive it means you have already been infected sometime in your life. There usually is little need to worry about passing the infection to your baby. If the test is negative, take necessary precautions to avoid infection.

If you are already pregnant, you and your health care provider should discuss your risk for toxoplasmosis. Your health care provider may order a blood sample for testing.

If you have a weakened immune system, ask your doctor about having your blood tested for *Toxoplasma*. If your test is positive, your doctor can tell you if and when you need to take medicine to prevent the infection from reactivating. If your test is negative, it means you need to take precautions to avoid infection.

If you suspect that you may have toxoplasmosis, talk to your health care provider. Your provider may order one or more varieties of blood tests specific for toxoplasmosis. The results from the different tests can help your provider determine if you have a *Toxoplasma gondii* infection and whether it is a recent (acute) infection.

Once a diagnosis of toxoplasmosis is confirmed, you and your health care provider can discuss whether treatment is necessary. In an otherwise healthy person who is not pregnant, treatment usually is not needed. If symptoms occur, they typically go away within a few weeks to months. For pregnant women or persons who have weakened immune systems, medications are available to treat toxoplasmosis.

prevent toxoplasmosis

There are several general sanitation and food safety steps you can take to reduce your chances of becoming infected with *Toxoplasma gondii*.

Cook food to safe temperatures. A food thermometer should be used to measure the internal temperature of cooked meat. Do not sample meat until it is cooked. USDA recommends the following for meat preparation.

Cook to at least 145° F (63° C) as measured with a food thermometer placed in the thickest part of the meat, then allow the meat to rest* for three minutes before carving or consuming.

Cook to at least 160° F (71° C); ground meats do not require a rest* time.

Cook to at least 165° F (74° C), and for whole poultry allow the meat to rest* for three minutes before carving or consuming.

*According to USDA, “A ‘rest time’ is the amount of time the product remains at the final temperature, after it has been removed from a grill, oven, or other heat source. During the three minutes after meat is removed from the heat source, its temperature remains constant or continues to rise, which destroys pathogens.”

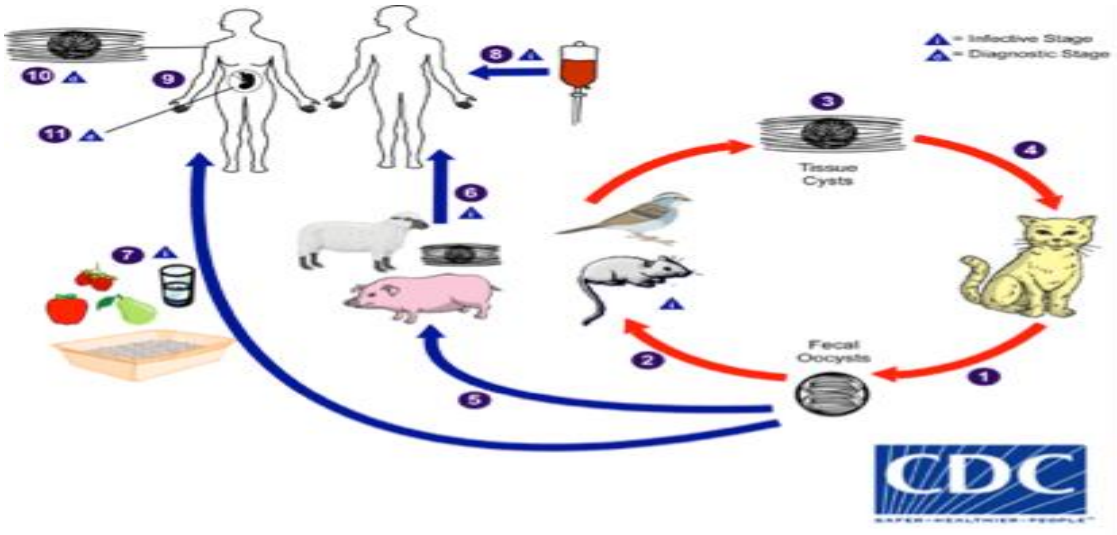
- Freeze meat for several days at sub-zero (0° F) temperatures before cooking to greatly reduce chance of infection.
- Peel or wash fruits and vegetables thoroughly before eating.
- Do not eat raw or undercooked oysters, mussels, or clams (these may be contaminated with *Toxoplasma* that has washed into sea water).
- Do not drink unpasteurized goat's milk.
- Wash cutting boards, dishes, counters, utensils, and hands with hot soapy water after contact with raw meat, poultry, seafood, or unwashed fruits or vegetables.
- Wear gloves when gardening and during any contact with soil or sand because it might be contaminated with cat feces that contain *Toxoplasma*. Wash hands with soap and water after gardening or contact with soil or sand.
- Teach children the importance of washing hands to prevent infection.

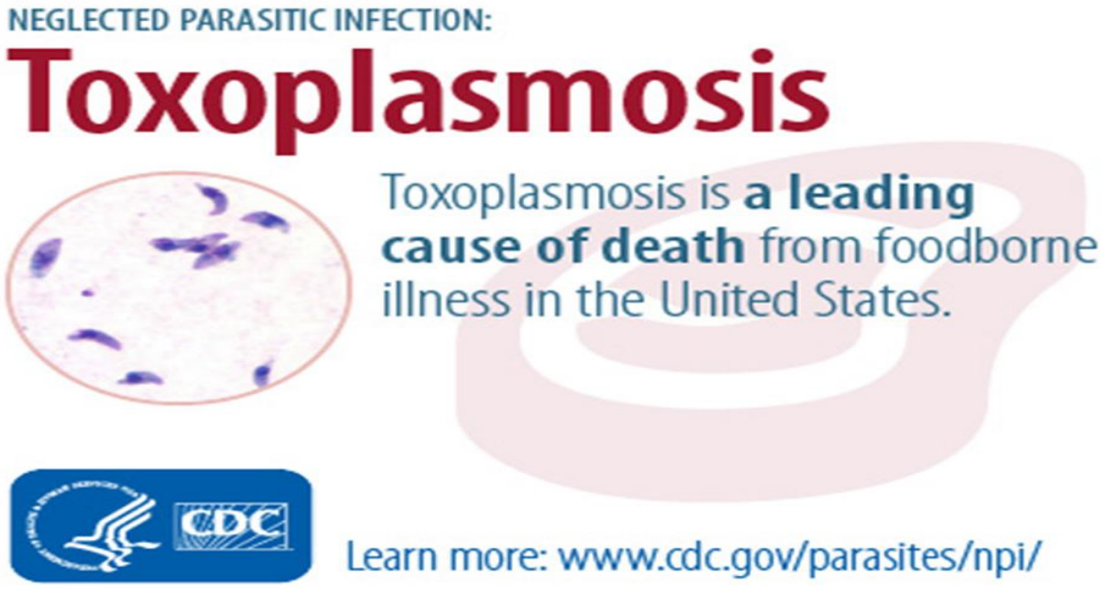
Yes, you may keep your cat if you are a person at risk for a severe infection (e.g., you have a weakened immune system or are pregnant); however, there are several safety precautions to avoid being exposed to *Toxoplasma gondii* :

- Ensure the cat litter box is changed daily. The *Toxoplasma* parasite does not become infectious until 1 to 5 days after it is shed in a cat's feces.
- If you are pregnant or immunocompromised:
    1. Avoid changing cat litter if possible. If no one else can perform the task, wear disposable gloves and wash your hands with soap and water afterwards.
    2. Keep cats indoors.
    3. Do not adopt or handle stray cats, especially kittens. Do not get a new cat while you are pregnant.
- Feed cats only canned or dried commercial food or well-cooked table food, not raw or undercooked meats.
- Keep your outdoor sandboxes covered.

No, cats only spread *Toxoplasma* in their feces for a few weeks following infection with the parasite. Like humans, cats rarely have symptoms when infected, so most people do not know if their cat has been infected.

The *Toxoplasma* shedding in feces will go away on its own; therefore it does not help to have your cat or your cat's feces tested for *Toxoplasma*

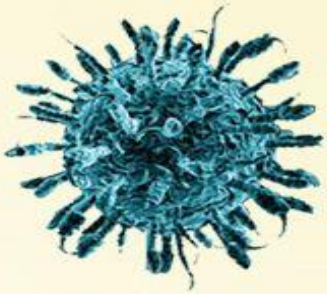




Cryptosporidium :-

Diseases and Conditions

Cryptosporidium infection



Cryptosporidium infection (cryptosporidiosis) is an illness caused by tiny cryptosporidium parasites. When cryptosporidia (krip-toe-spoe-RID-e-uh) enter your body, they travel to your small intestine and then burrow into the walls of your intestines. Later, cryptosporidia are shed in your feces.

Symptoms

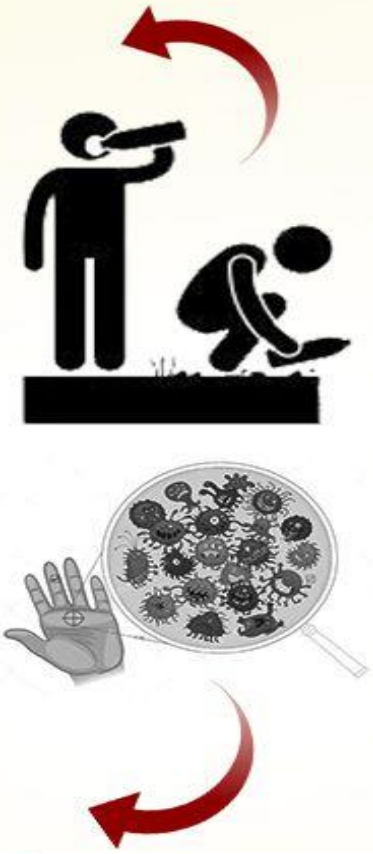
- Watery diarrhea
- Lack of appetite
- Stomach cramps or pain
- Nausea
- Dehydration
- Weight loss
- Fever
- Vomiting

Causes

These parasites then travel to your intestinal tract, where they settle into the walls of your intestines. Eventually, more cells are produced and shed in massive quantities into your feces, where they are highly contagious.

You can become infected with cryptosporidia by touching anything that has come in contact with contaminated feces. Methods of infection include:

- **Drinking contaminated water** that contains cryptosporidium parasites
- **Swimming in contaminated water** that contains cryptosporidium parasites and accidentally swallowing some of it
- **Eating uncooked, contaminated food** that contains cryptosporidia
- **Touching your hand to your mouth** if your hand has been in contact with a contaminated surface or object
- **Having close contact with other infected people or animals** — especially their feces — which can allow the parasite to be transmitted from your hands to your mouth



Risk factors

People who are at increased risk of developing cryptosporidiosis include:

- Those who are exposed to contaminated water
- Children, particularly those wearing diapers, who attend child care centers
- Parents of infected children
- Child care workers
- Animal handlers
- Those who engage in oral-to-anal sexual activity
- International travelers, especially those traveling to developing countries
- Backpackers, hikers and campers who drink untreated, unfiltered water
- Swimmers who swallow water in pools, lakes and rivers
- People who drink water from shallow, unprotected wells

Prevention

Cryptosporidium infection is contagious, so take precautions to avoid spreading the parasite to other people. There's no vaccine that can prevent a cryptosporidium infection.

All preventive methods aim to reduce or prevent the transmission of the cryptosporidium germs that are shed in human and animal feces. Precautions are especially important for people with compromised immune systems. Follow these suggestions:

- Practice good hygiene.
- Thoroughly wash
- Purify drinking water
- Limit swimming activities
- Avoid fecal exposure
- Handle newborn farm and domestic animals with care.

Entamoeba :-

Description

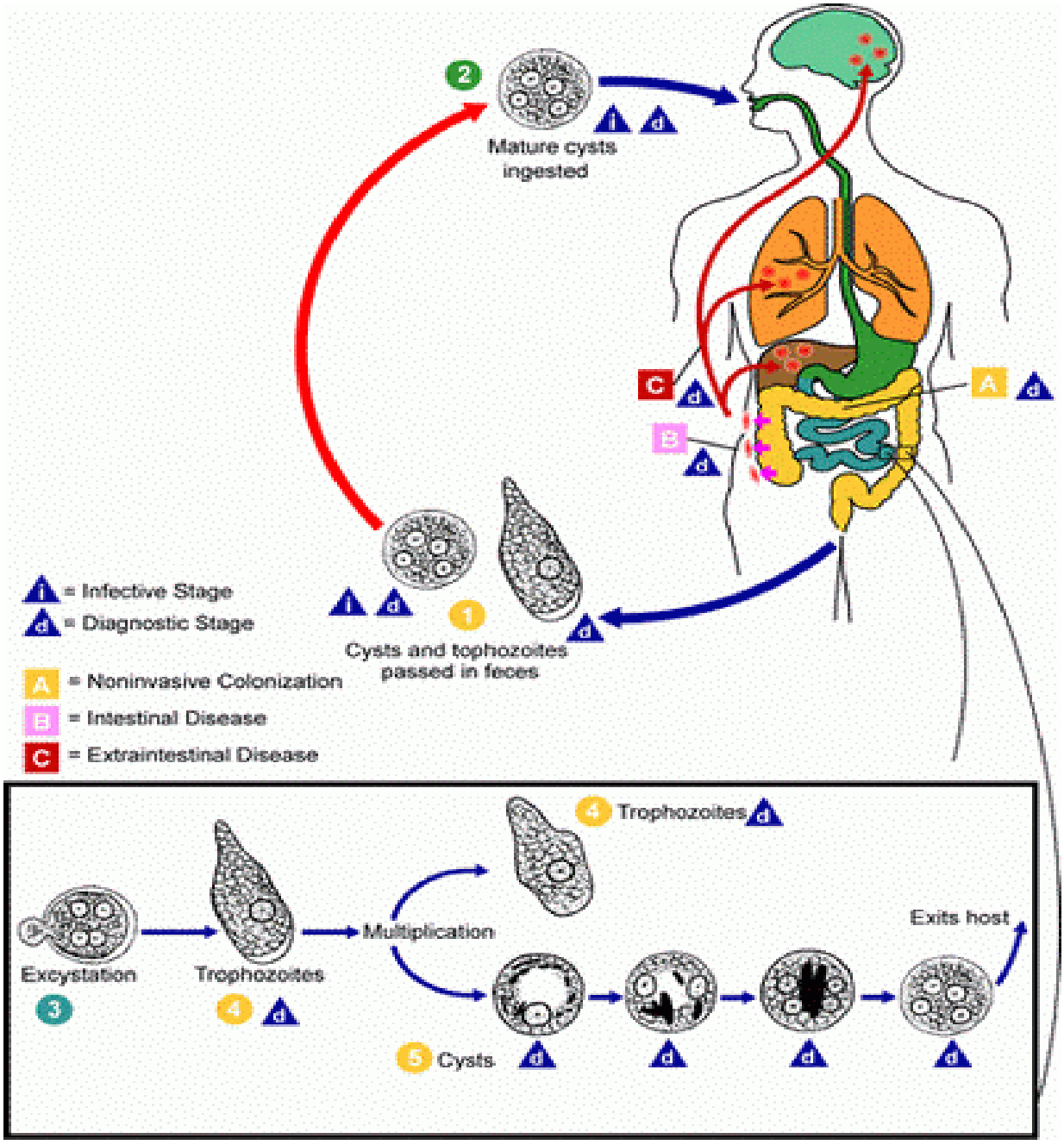
- Amoebiasis is an infection of small intestine, which is caused by a protozoan called Entamoeba histolytica. It is simply called – Amoebic dysentery. This is usually contracted by ingesting water or food contaminated by amoebic cysts. Amoebic abscesses may form in the liver , lungs , and brain and elsewhere in the body.
- Amoebae are parasites that can be very easily found in contaminated food or drink. They enter the body through the mouth when the contaminated food or drink is swallowed. The amoebae are then able to move through the digestive system and take up residence in the intestine and cause infections like amoebiasis.

Amoebiasis and Amoeba

There are several different species of amoeba, but the most dangerous, such as Entamoeba histolytica, live predominantly in tropical areas. People living in rural areas or persons traveling in such areas are at highest risk of developing this disease, which occurs when something infected with the parasite is eaten or swallowed.

There are mainly two types of amoebiasis:-

- Intestinal Amoebiasis:- It is frequently asymptomatic and varies from fulminant dysentery with fever, chills, and bloody or mucoid diarrhea to mild abdominal discomfort with diarrhea containing blood or mucus alternating with periods of constipation or remission.
- Extraintestinal Amoebiasis:- It occurs when the parasite invades other organs such as liver, lung, brain or skin. The incubation period varies from a few days to several months or years (commonly 2-4 weeks)



Causes of Amoebiasis:

The main cause of amoebiasis is- single cell parasite called entamoeba histolytica. The parasite burrows into the wall of the intestine to cause small abscesses and ulcers . From there they enter the veins of the intestine and are carried to the liver .

Even though there is constant spread of infection, (within a family) some people are resistant to amoebiasis. Even if infected, they only act as a carrier to the disease and do not develop themselves. This shows that the ultimate cause of suffering is hidden than the exposed causative factor i.e. amoeba.

Some Possible Causes of Amoebiasis includes:-

- Eating or Drinking contaminated water or food is one of the primary cause of amoebiasis.
- Touching, and bringing to your mouth, cysts (eggs) picked up from surfaces that are contaminated with entamoeba histolytica.
- Eating a food on which mosquito had sat, after sitting on the stool of a person infected with entamoeba histolytica, may lead to amoebiasis.
- Eating vegetables and fruits which have been contaminated by the harmful bacteria, may cause amoebiasis.
- Eating Non-Veg foods (meat and intestines of animals – goat, pig, beef, etc.), may lead to the condition of amoebiasis.
- Even vegetables grown in soil contaminated by faeces can transmit the disease.
- As, amoebiasis is a highly contagious disease – so, it may be transmitted from one person to other through direct contact.
- Unhygienic Conditions and Poor Sanitation areas are more susceptible to amoebiasis.
- Amoebic dysentery can also be spread by anal sex or directly from person to person contact.

Risk factors

- Alcoholism
- Cancer
- Malnutrition
- Older or younger age
- Pregnancy
- Recent travel to a tropical region
- Use of corticosteroid medication to suppress the immune system

Signs and Symptoms

The symptoms are in two forms:

1. By burrowing the intestines and making ulcers, which bleed and cause anaemia or other diseases due to added infection
2. Absorbing the food from the host or letting out toxic substances in the intestines

Some important symptoms of amoebiasis includes:-

- Passing of more number of stools is one of the main symptom in amoebiasis. In this case, patient may pass about 10-12 stools during an acute episode. The presence of mucus is common in stools.
- Stools can sometimes also be accompanied with blood
- Usually symptoms start with diarrhea and pain in right hypochondrium.
- Jaundice.
- The other most common symptom is colic or pain in abdomen.
- It could be associated with a low-grade fever too.

- Sometimes allergic reactions can occur throughout the body, due to release of toxic substances or dead parasites inside the intestines.
- Loss of Weight and Stamina is encountered with person suffering from amoebiasis.
- Around one in ten people who are infected with amoebiasis become ill from the disease.
- Tenesmus, may occur during amoebiasis.
- Foul smelling stools.
- Loss of Appetite.
- There will be pain over the liver, when pressure is applied just under the ribs on the right side.
- Stomach Cramps.
- Amoebic liver abscesses can also present as pyrexia of unknown origin. The abscess can sometimes rupture into the pleural, peritoneal or pericardial cavities.
- You will feel weakness or tiredness, if you are suffering from amoebiasis.
- Pain in the right shoulder could occur in chronic condition.
- Nausea.

Pathophysiology of Amoebiasis

When cyst is swallowed, it passes through the stomach unharmed and shows no activity while in an acidic environment. When it reaches the alkaline medium of the intestine, the metacyst begins to move within the cyst wall, which rapidly weakens and tears. The quadrinucleate amoeba emerges and divides into amebulas that are swept down into the cecum. This is the first opportunity of the organism to colonize, and its success depends on one or more metacystic trophozoites making contact with the mucosa.Mature cyst in the large intestines leaves the host in great numbers (the host remains asymptomatic). The cyst can remain viable and infective in moist and cool environment for at least 12 days, and in water for 30 days. The cysts are resistant to levels of chlorine normally used for water purification. They are rapidly killed by purification, desiccation and temperatures below 5 and above 40 degrees.

The metacystic trophozoites of their progenies reach the cecum and those that come in contact with the oral mucosa penetrate or invade the epithelium by lytic digestion.

The trophozoites burrow deeper with tendency to spread laterally or continue the lysis of cells until they reach the sub-mucosa forming flash-shape ulcers. There may be several points of penetration.

From the primary site of invasion, secondary lesions maybe produced at the lower level of the large intestine.

Progenies of the initial colonies are squeezed out to the lower portion of the bowel and thus, have the opportunity to invade and produce additional ulcers. Eventually, the whole colon may be involved.

E. histolytica has been demonstrated in practically every soft organ of the body.

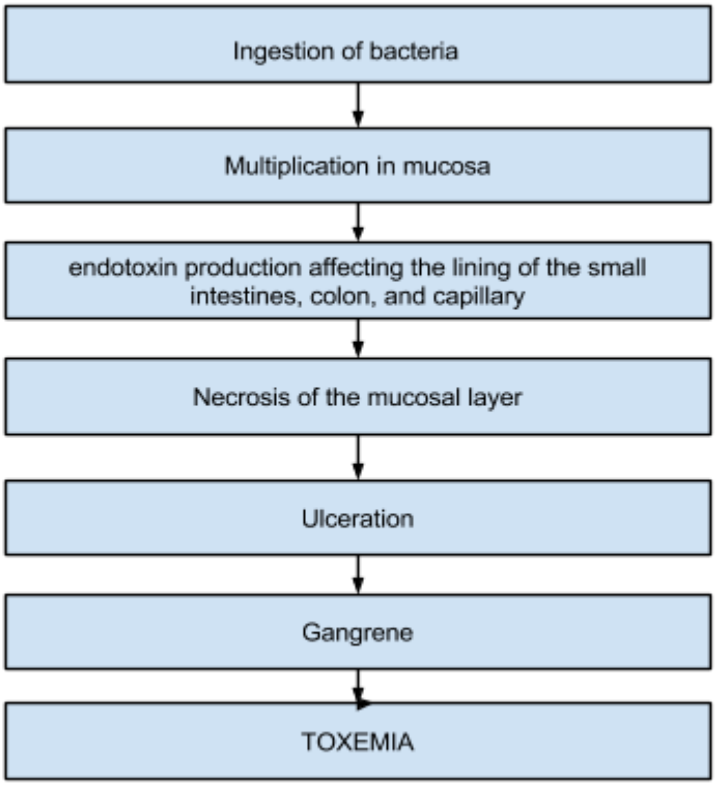
Trophozoites which reach the muscularis mucosa frequently erode the lymphatics or walls of the mesenteric venules in the floor of the ulcers, and are carried to the intrahepatic portal vein.

If thrombi occur in the small branches of the portal veins, the trophozoites in thrombi cause lytic necrosis on the wall of the vessels and digest a pathway into the lobules.

The colonies increase in size and develop into abscess.

- A typical liver abscess develops and consists of:
- Central zone necrosis
- Median zone of stoma only
- An outer zone of normal tissue newly invaded by amoeba. Most amoebic abscess of the liver are in the right lobe.

Next to the liver, the organ which is the frequent site of extra-intestinal amoebiasis is the lungs. This commonly develops as an extension of the hepatic abscess.



Etiologic Agent

Enatamoeba Histolytica

- Prevalent in unsanitary areas
- Common in warm climate
- Acquired by swallowing
- Cysts survives a few days outside of the body
- Cyst passes to the large intestine and hatch into trophozoites. It passes into the mesenteric veins, to the portal vein, to the liver, thereby forming amoebic liver abscess.
- Entamoeba Histolytica has two developmental stages:
  1. Trophozoites/vegetative form
     - Trophozoites are facultative parasites that may invade the tissues or may be found in the parasitized tissues and liquid colonic contents.
  2. Cyst
     - Cyst is passed out with formed or semi-formed stools and are resistant to environmental conditions.
     - This is considered as the infective stage in the cycle of E. histolytica

Source: Human Excreta
Incubation Period: The incubation period in severe infection is three days. In subacute and chronic form it lasts for several months. In average cases the incubation period varies from three to four weeks
Period of Communicability: The microorganism is communicable for the entire duration of the illness.
Modes of Transmission:

1. The disease can be passed from one person to another through fecal-oral transmission.
2. The disease can be transmitted through direct contact, through sexual contact by orogenital, oroanal, and proctogenital sexual activity.
3. Through indirect contact, the disease can infect humans by ingestion of food especially uncooked leafy vegetables or foods contaminated with fecal materials containing E. histolytica cysts.

Food or drinks maybe contaminated by cyst through pollution of water supplies, exposure to flies, use of night soil for fertilizing vegetables, and through unhygienic practices of food handlers.

Diagnosis of Amoebiasis / Amoebic Dysentery

- Stool examination – Microscopic examination for identifying demonstrable E.H cysts or trophozoites in stool samples is the most confirmative method for diagnosis. Trophozoites survive only for a few hours, so the diagnosis mostly goes with the presence of cysts. But fresh warm faeces always show trophozoites. The cysts are identified by their spherical nature with chromatin bars and nucleus. They are noticed as brownish eggs when stained with iodine.

- Biopsy also can point out E.H cysts or trophozoites.
- Culture of the stool also can guide us for diagnosis.
- Blood tests may suggest infection which may be indicated as leucocytosis (increased level of white blood cells), also it can indicate whether any damage to the liver has occurred or not.
- Ultrasound scan – it should be performed when a liver abscess is suspected

Medical Management

- Metronidazole (Flagyl) 800mg TID X 5 days
- Tetracyline 250 mg every 6 hours
- Ampicillin, quinolones sulfadiazine
- Streptomycin SO4, Chloramphenicol
- Lost fluid and electrolytes should be replaced

Several antibiotics are available to treat amoebiasis. Treatment must be prescribed by a physician. You will be treated with only one antibiotic if your E. histolytica infection has not made you sick. You probably will be treated with two antibiotics (first one and then the other) if your infection has made you sick.

Nursing Management

1. Observe isolation and enteric precaution2.Provide health education:
   - Boil water for drinking or use purified water;
   - Avoid washing food from open drum or pail;
   - Cover leftover food;
   - Wash hands after defecation or before eating; and
   - Avoid ground vegetables (lettuce, carrots, and the like).
2. Proper collection of stool specimen
   - Never give paraffin or any oil preparation for at least 48 hours prior to collectionof specimen.
   - Instruct patient to avoid mixing urine with stools.
   - If whole stool cannot be sent to laboratory, select as much portion as possiblecontaining blood and mucus.
   - Send specimen immediately to the laboratory; stool that is not fresh is nearlyuseless for examination
   - Label specimen properly.
3. Skin care
   - Cleanliness, freedom from wrinkles on the sheet will be helpful with all the usual precautionary measures against pressure sores.
4. Mouth care
5. Provide optimum comfort.
   - Patient should be kept warm. Dysenteric patient should never be allowed to feel,even for a moment.
6. Diet
   - During the acute stage, fluids should be forced.

- In the beginning of an attack, cereal and strained meat broths without fat should be given.
- Chicken and fish maybe added when convalescence is established.
- Bland diet without cellulose or bulk-producing food should be maintained for along time.

Common Nursing Diagnosis

- Altered nutrition: Less than body requirement
- Alteration in bowel elimination
- High risk for infection
- Anxiety
- Altered body temperature

Methods of Prevention

1. Health education
2. Sanitary disposal of feces
3. Protect, chlorinate, and purify drinking water
4. Observe scrupulous cleanliness in food preparation and food handling
5. Detection and treatment of carriersf.Fly control (they can serve as vector)

Nursing Care Plan

Common nursing diagnosis

- Acute pain
- Deficient fluid volume
- Diarrhea
- Fatigue
- Hyperthermia
- Imbalanced nutrition: Less than body requirements
- Impaired skin integrity
- Risk for infection

Nursing outcomes:

- The patient will express feelings of comfort and relief from pain.
- The patient's electrolyte levels will stay within normal range.
- The patient's elimination pattern will return to normal.
- The patient will report an increased energy level.
- The patient will remain afebrile.
- The patient will experience no further weight loss.
- The patient will avoid skin breakdown or infection.
- The patient will experience no further signs or symptoms of infection.

Nursing Interventions

- Pain Management:

    - Rationale: Alleviation of pain or a reduction in pain to a level of comfort that is acceptable to the patient
- Analgesic Administration:
    - Rationale: Use of pharmacologic agents to reduce or eliminate pain
- Environmental Management:
    - Rationale: Comfort: Manipulation of the patient's surroundings for promotion of optimal comfort
- Fluid Management:
    - Rationale: Promotion of fluid balance and prevention of complications resulting from abnormal or undesired fluid levels
- Hypovolemia Management:
    - Rationale: Reduction in extracellular and/or intracellular fluid volume and prevention of complications in a patient who is fluid overloaded
- Shock Management: Volume:
    - Rationale: Promotion of adequate tissue perfusion for a patient with severely compromised intravascular volume.
- Diarrhea Management:
    - Rationale: Management and alleviation of diarrhea
- Fluid Monitoring:
    - Rationale: Collection and analysis of patient data to regulate fluid balance
- Perineal Care:
    - Rationale: Maintenance of perineal skin integrity and relief of perineal discomfort
- Energy Management:
    - Rationale: Regulating energy use to treat or prevent fatigue and optimize function
- Exercise Promotion:
    - Rationale: Facilitation of regular physical exercise to maintain or advance to a higher level of fitness and health
- Temperature Regulation:
    - Rationale: Attaining and/or maintaining body temperature within a normal range.
- Fever Treatment:
    - Rationale: Management of a patient with hyperpyrexia caused by nonenvironmental factors.
- Nutrition Management:
    - Rationale: Assisting with or providing a balanced dietary intake of foods and fluids
- Weight Gain Assistance:
    - Rationale: Facilitating gain of body weight
- Eating Disorders Management:
    - Rationale: Prevention and treatment of severe diet restrictions and over exercising or binging and purging of foods and fluids
- Pressure Ulcer Care:

    - Rationale: Facilitation of healing in pressure ulcers
- Infection Protection:
    - Rationale: Prevention and early detection of infection in a patient at risk
- Infection Control:
    - Rationale: Minimizing the acquisition and transmission of infectious agents
- Surveillance:
    - Rationale: Purposeful and ongoing acquisition, interpretation, and synthesis of patient data for clinical decision making

Patient Teaching discharge and Home Health Guidance for Patient with Amoebiasis

- Teach the patient about amebicide therapy, including precautions he should take and adverse effects of the medication
- Encourage the patient to return for follow-up appointments at scheduled intervals.
- Teach the patient and his family how to handle infectious material and about the need for careful hand washing.
- Advise travellers to endemic areas and campers to boil untreated or contaminated water to prevent the disease.

Giardia:-

Giardia is a microscopic parasite that causes the diarrheal illness known as giardiasis. *Giardia* (also known as *Giardia intestinalis*, *Giardia lamblia*, or *Giardia duodenalis*) is found on surfaces or in soil, food, or water that has been contaminated with feces (poop) from infected humans or animals.

Giardia is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it tolerant to chlorine disinfection. While the parasite can be spread in different ways, water (drinking water and recreational water) is the most common mode of transmission.

Giardiasis is a diarrheal disease caused by the microscopic parasite *Giardia*. A parasite is an organism that feeds off of another to survive. Once a person or animal (for example, cats, dogs, cattle, deer, and beavers) has been infected with *Giardia*, the parasite lives in the intestines and is passed in feces (poop).

Once outside the body, *Giardia* can sometimes survive for weeks or months. *Giardia* can be found within every region of the U.S. and around the world.

Giardiasis can be spread by:

- Swallowing *Giardia* picked up from surfaces (such as bathroom handles, changing tables, diaper pails, or toys) that contain feces (poop) from an infected person or animal
- Drinking water or using ice made from water sources where *Giardia* may live (for example, untreated or improperly treated water from lakes, streams, or wells)
- Swallowing water while swimming or playing in water where *Giardia* may live, especially in lakes, rivers, springs, ponds, and streams
- Eating uncooked food that contains *Giardia* organisms
- Having contact with someone who is ill with giardiasis
- Traveling to countries where giardiasis is common

Anything that comes into contact with feces (poop) from infected humans or animals can become contaminated with the *Giardia* parasite. People become infected when they swallow the parasite. It is not possible to become infected through contact with blood.

symptoms of giardiasis

Giardia infection can cause a variety of intestinal symptoms, which include:

- Diarrhea
- Gas or flatulence
- Greasy stool that can float
- Stomach or abdominal cramps
- Upset stomach or nausea
- Dehydration

These symptoms may also lead to weight loss. Some people with *Giardia* infection have no symptoms at all.

Symptoms of giardiasis normally begin 1 to 3 weeks after becoming infected.

In otherwise healthy people, symptoms of giardiasis may last 2 to 6 weeks. Occasionally, symptoms last longer. Medications can help decrease the amount of time symptoms last.

Children in childcare settings, especially diaper-aged children are at risk for *Giardia* exposure.

Though giardiasis is commonly thought of as a camping or backpacking-related disease and is sometimes called "Beaver Fever," anyone can get giardiasis. People more likely to become infected include:

- Children in childcare settings, especially diaper-aged children
- Close contacts of people with giardiasis (for example, people living in the same household) or people who care for those sick with giardiasis

- People who drink water or use ice made from places where *Giardia* may live (for example, untreated or improperly treated water from lakes, streams, or wells)
- Backpackers, hikers, and campers who drink unsafe water or who do not practice good hygiene (for example, proper handwashing)
- People who swallow water while swimming and playing in recreational water where *Giardia* may live, especially in lakes, rivers, springs, ponds, and streams
- International travellers
- People exposed to human feces (poop) through sexual contact

Contact your healthcare provider.

giardiasis diagnosis

Your healthcare provider will ask you to submit stool (poop) samples to see if you are infected. Because testing for giardiasis can be difficult, you may be asked to submit several stool specimens collected over several days.

What is the treatment for giardiasis?

Many prescription drugs are available to treat giardiasis. Although the *Giardia* parasite can infect all people, infants and pregnant women may be more likely to experience dehydration from the diarrhea caused by giardiasis. To prevent dehydration, infants and pregnant women should drink a lot of fluids while ill. Dehydration can be life threatening for infants, so it is especially important that parents talk to their healthcare providers about treatment options for their infants.

My child does not have diarrhea, but was recently diagnosed as having a *Giardia* infection. My healthcare provider says treatment is not necessary. Is this correct?

Your child does not usually need treatment if he or she has no symptoms. However, there are a few exceptions. If your child does not have diarrhea, but does have other symptoms such as nausea or upset stomach, tiredness, weight loss, or a lack of hunger, you and your healthcare provider may need to think about treatment. The same is true if many family members are ill, or if a family member is pregnant and unable to take the most effective medications to treat *Giardia*. Contact your healthcare provider for specific treatment recommendations.

What can I do to prevent and control giardiasis?

To prevent and control infection with the *Giardia* parasite, it is important to:

- Practice good hygiene
- Avoid water (drinking or recreational) that may be contaminated
- Avoid eating food that may be contaminated
- Prevent contact and contamination with feces (poop) during sex

Can I get giardiasis from my pet?

- The risk of humans acquiring *Giardia* infection from dogs or cats is small. The exact type of *Giardia* that infects humans is usually not the same type that infects dogs and cats.