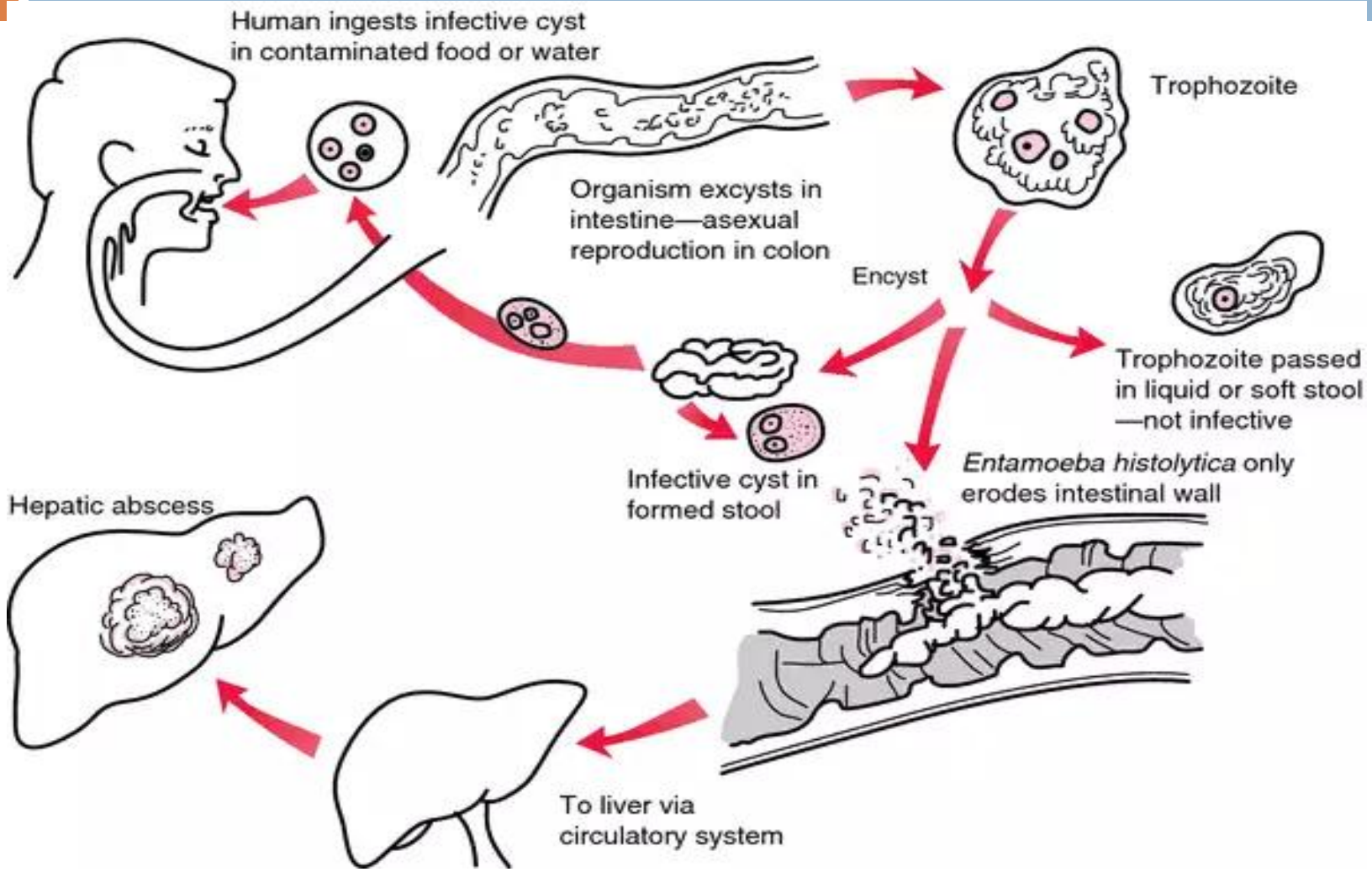
AMEBIASIS
(AMEBIC DYSENTERY)

Causal agent: ***Entamoeba histolytica***

Life cycle


Human ingests infective cyst
in contaminated food or water
Organism excysts in
intestine—asexual
reproduction in colon
Trophozoite
Encyst
Trophozoite passed
in liquid or soft stool
—not infective
Infective cyst in
formed stool
Entamoeba histolytica only
erodes intestinal wall
Hepatic abscess
To liver via
circulatory system

Epidemiology

- Prevalence of amebic infection varies with level of sanitation and generally higher in tropics and subtropics.

- *Worldwide prevalence is about 10% to 50%
- *Cyst passers are important source of infection

- The true estimated prevalence of E. histolytica is close to 1% worldwide.
- ***Entamoeba histolytica*** is the second leading cause of mortality due to parasitic disease in humans. (The first being malaria). Amebiasis is the cause of an estimated 50,000-100,000 deaths each year.

Transmission

- Cysts of E. histolytica are ingested in water or uncooked foods
- Use of human feces for soil fertilizer
- contamination of foodstuffs by flies.

Clinical symptoms

Asymptomatic infection

Symptomatic infection

Intestinal Amebiasis

Extraintestinal Amebiasis

Dysenteric

Non-Dysenteric colitis

Hepatic

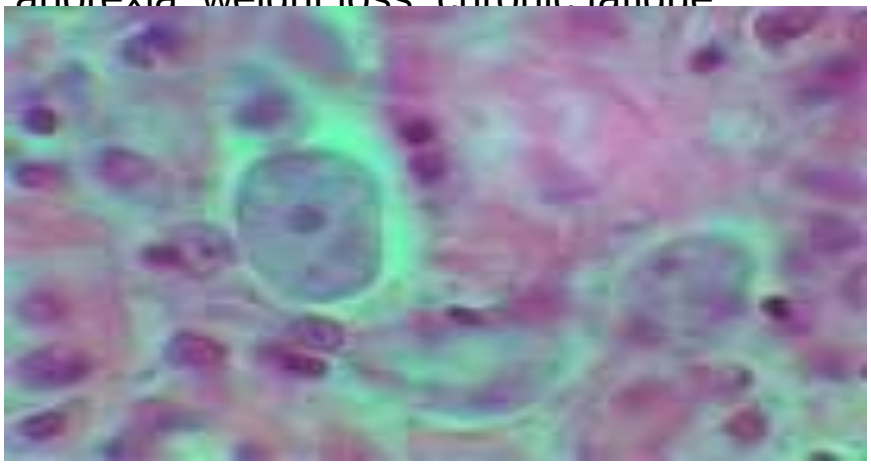
Pulmonary

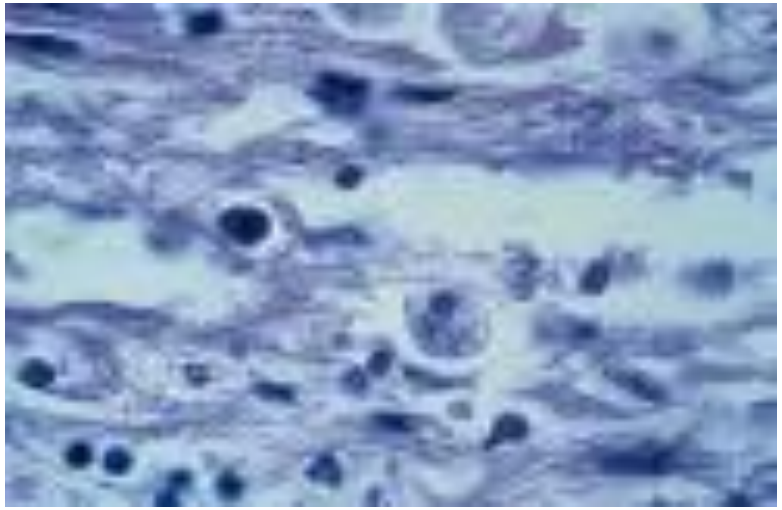
The extra foci

Liver abscces

Acut nonsupprative

Intestinal Amebiasis symptoms: Diarrhea or dysentery, abdominal pain, cramping , anorexia, weight loss, chronic fatigue





Clinical Manifestations

- **Incubation period: 1~4 weeks**

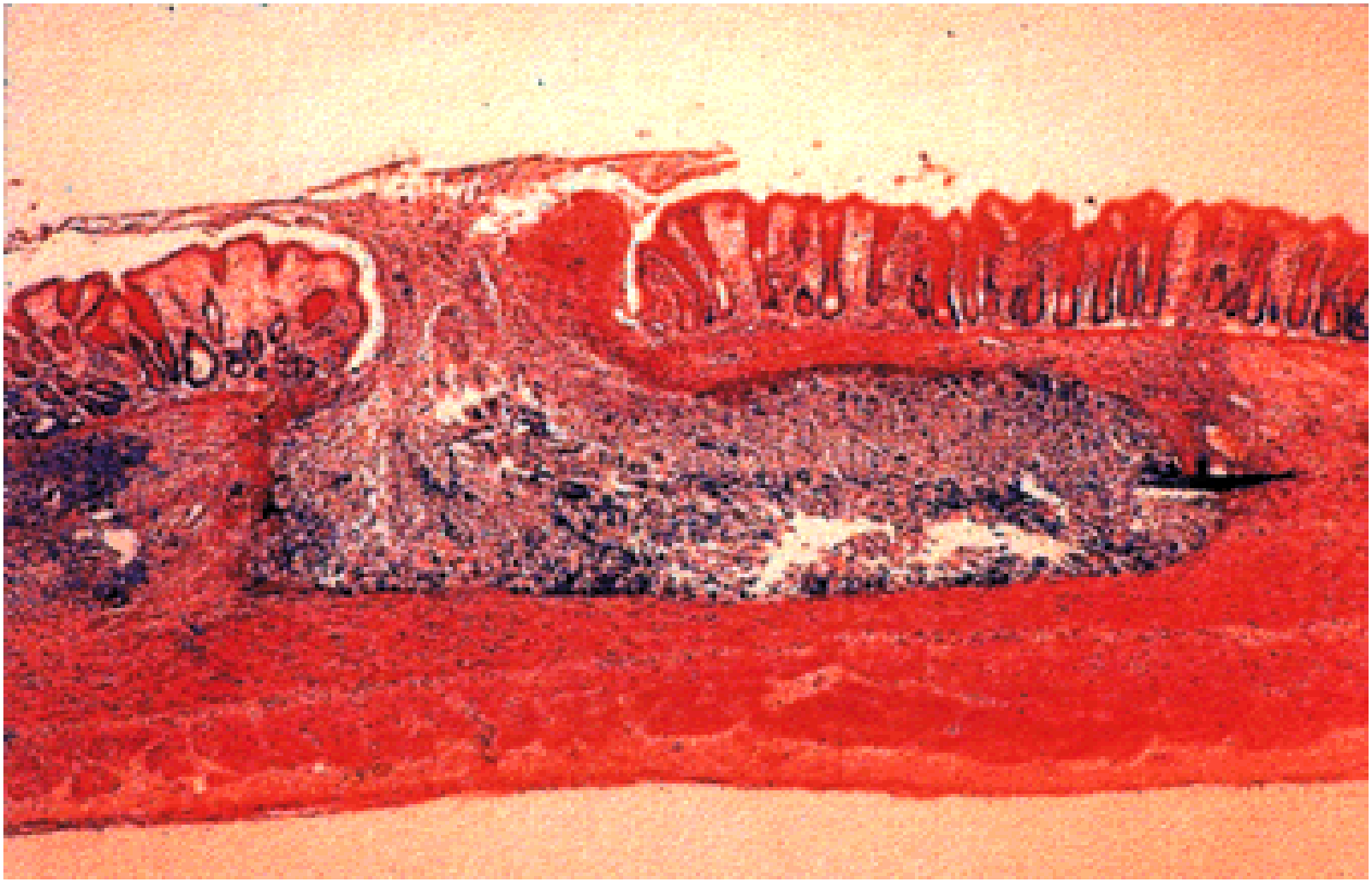
  Clinical forms: acute typical form but can asymptommatic to acute to chronic chronic form.

Amebic dysentery

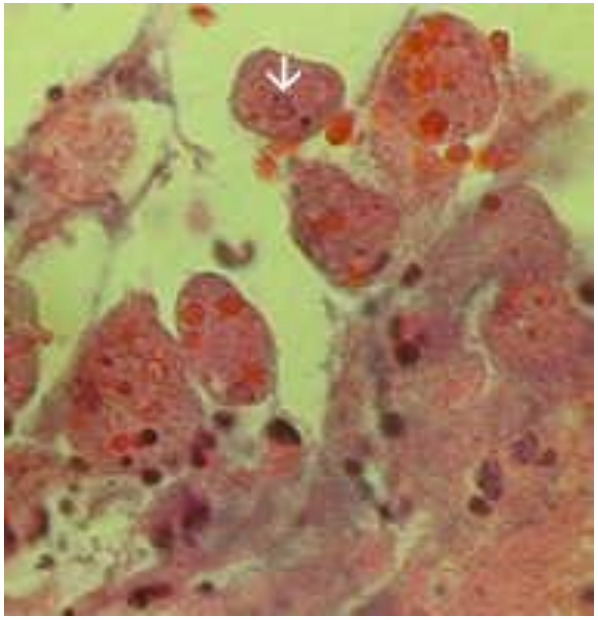
- **Definition**

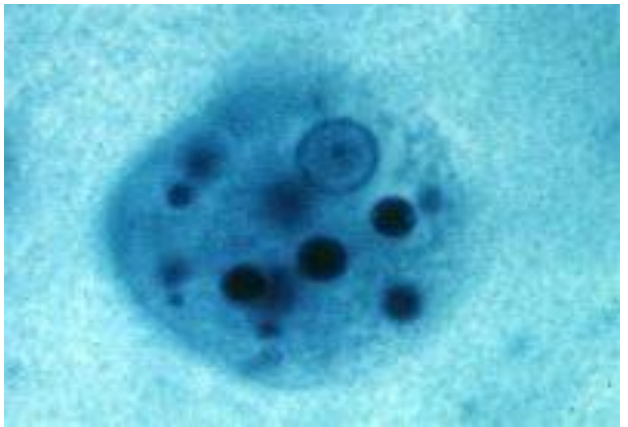
Entamoeba histolytica trophozoites induce submucosal ulcerations and pt prsents with abdominal pain, diarrhea, with blood or mucus in the stool.

Figure 1. Invasion of submucosa by trophozoites. The lesion spreads out laterally, creating the flask-shaped amebic ulcer. (Histopathology, UFPA, Araújo R.).



Pathology of Amebiasis





Flask-like Ulcer

Complications

1. **amebic liver abscess.**
2. **intestinal perforation.**
3. **Peritonitis.**
4. **intestinal hemorrhage.**
5. **intestinal ameboma.**
6. **amebic appendicitis.**
7. **perianal rectal fistulas**

Diagnosis

1. **Epidemiological data.**
2. **Clinical manifestations.**
3. **Laboratory tests.**

lab tests

- **C.B.C. : leukocytosis and . eosinophilia**
- **fecal microscopy: RBC, WBC and mucus**
- **Microscopic identification of fresh stool samples for E. histolytic cysts and trophozoites.**
- **Antibody detection: The EIA test detects antibody specific for *E. histolytica* in approximately 95% of patients with extra intestinal amoebiasis, 70% of patients with active intestinal infection, and 10% of asymptomatic persons who are passing cysts of *E. histolytica*.**

- In reference diagnosis laboratories, PCR is the method of choice for discriminating between the pathogenic species (*E. histolytica)* from the (nonpathogenic species) *E. dispar*.

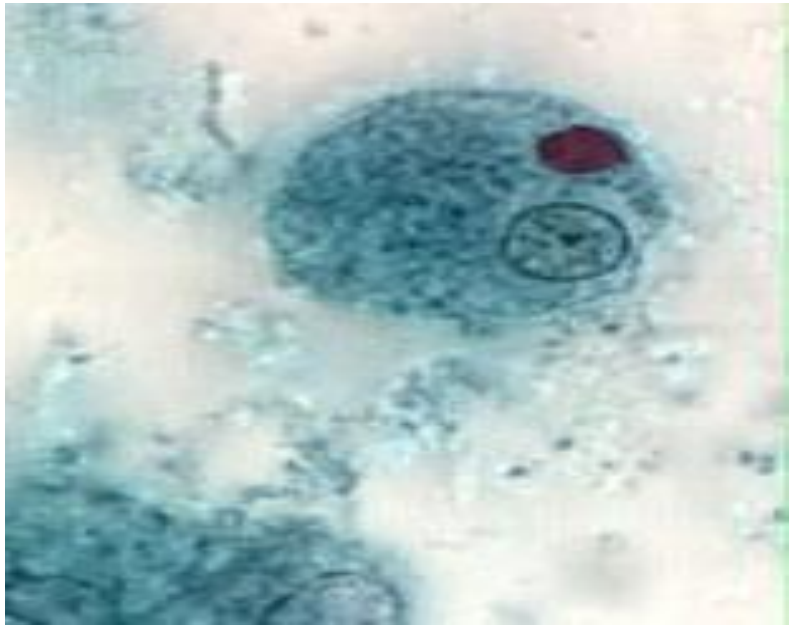
- Sigmoidoscopic examination:

presence of a grossly normal mucosa between the ulcers serves to differentiate amebic from bacillary dysentery,
(the entire mucosa being involved in bacillary dysentery).

Differential Diagnosis

- **Shigellosis**
- **Schistosomiasis**
- **Colonic carcinoma**
- **Rectal cancer**
- **Non-specific ulcerative colitis**

Trophozoites of Entamoeba histolytica with ingested erythrocytes (trichrome stain)



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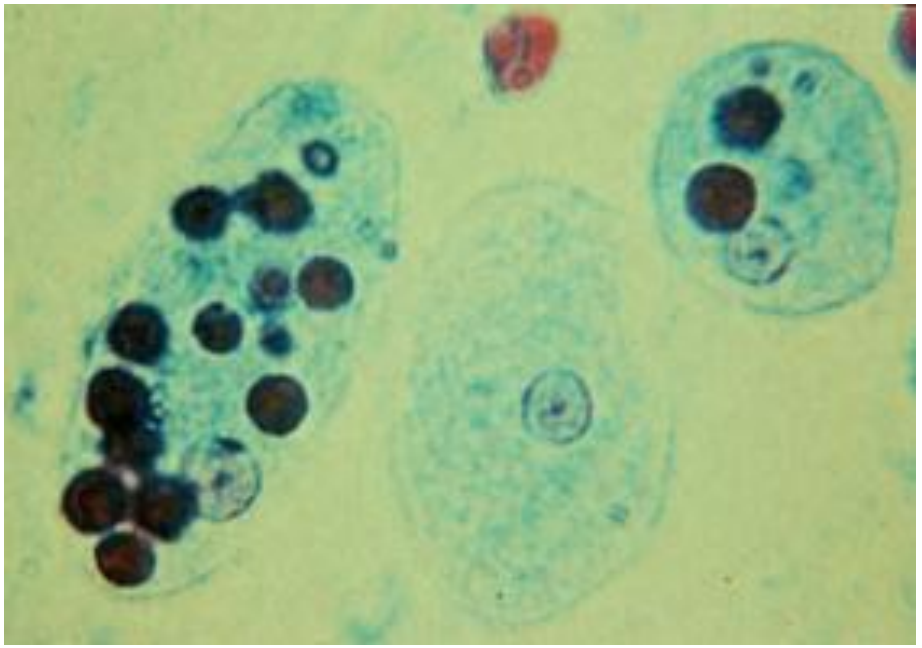

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The ingested erythrocytes appear as dark inclusions.

Erythrophagocytosis is the only morphologic characteristic that can be used to differentiate *E. histolytica* from the nonpathogenic forms .

Treatment

- Supportive treatment

And

metronidazole 500mg tid for 10 days, or tinidazole 2.0 qd 5 days.

- Asymptomatic amebiasis(cyst passer):
- Diloxanide furoate (furamide)
  500 mg 3 times daily / 10 days

prevention

- **To control the sources of infection**
- **To interrupt the routes of transmission**

AMEBIC LIVER ABSCESS

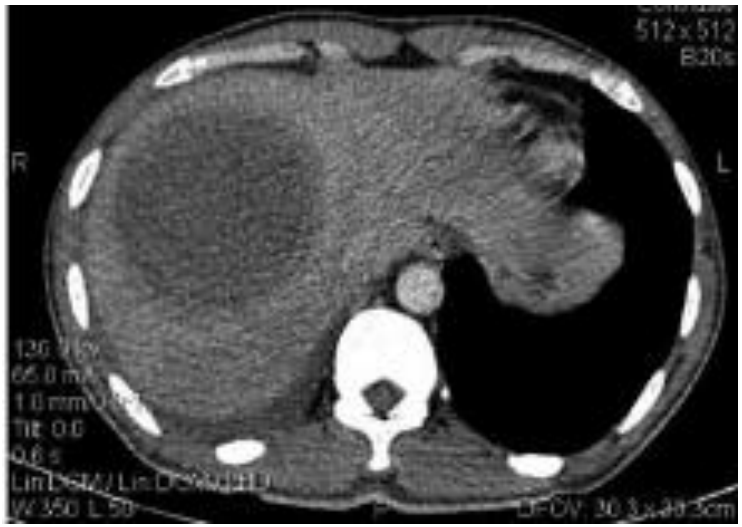
commonest complication of intestinal amebiasis

Clinical Manifestations

- abdominal pain.
- fever.
- anemia lose of appetite and decrease body weight .
- tender hepatomegaly.
- Laboratory findings
- liquefied space-occupying lesion,
- Aspiration is indicated for large abscess or non responsive
- an amoebic abscess has the characteristic chocolate-brown appearance .

Differential diagnosis

1. bacterial liver abscess
2. congenital liver cyst
3. primary hepatocellular carcinoma
4. liver metastasis of carcinomas
5. liver hydatid disease



Treatment

- Extraintestinal Amebiasis:
- *Amebic liver abscess, ameboma:

  Metronidazole, as above plus dehydroemetine / 10 days or Metronidazole or dehydroemetine as above plus Chloroquine

giardiasis

- *Giardia intestinalis*
  - Protozoal parasite
- Also known as:
  - *Giardia lamblia*
  - *Lamblia intestinalis*
  - *Giardia duodenalis*

Organism

- Human infections
  - Humans are main reservoir

Geographic Distribution

- *Giardia intestinalis*
  - Occurs worldwide
  - Most common in warm climates

Morbidity and Mortality: Humans

- Populations affected
  - Children
  - Travelers, hikers
  - Swimmers
- Prevalence
  in developed countries
  - 2% of adults
  - 6-8% of children
    - **Up to 15% in developing cour**

Morbidity and Mortality: Humans

- Infections often resolve spontaneously
- Chronic infections occur
  - May contribute to decreased lifespan in immunodeficient individuals

Problem

- transmission

Parasite Stages

- Two stages of the parasite: cyst and trophozoite

(a wet mount stained with iodine)

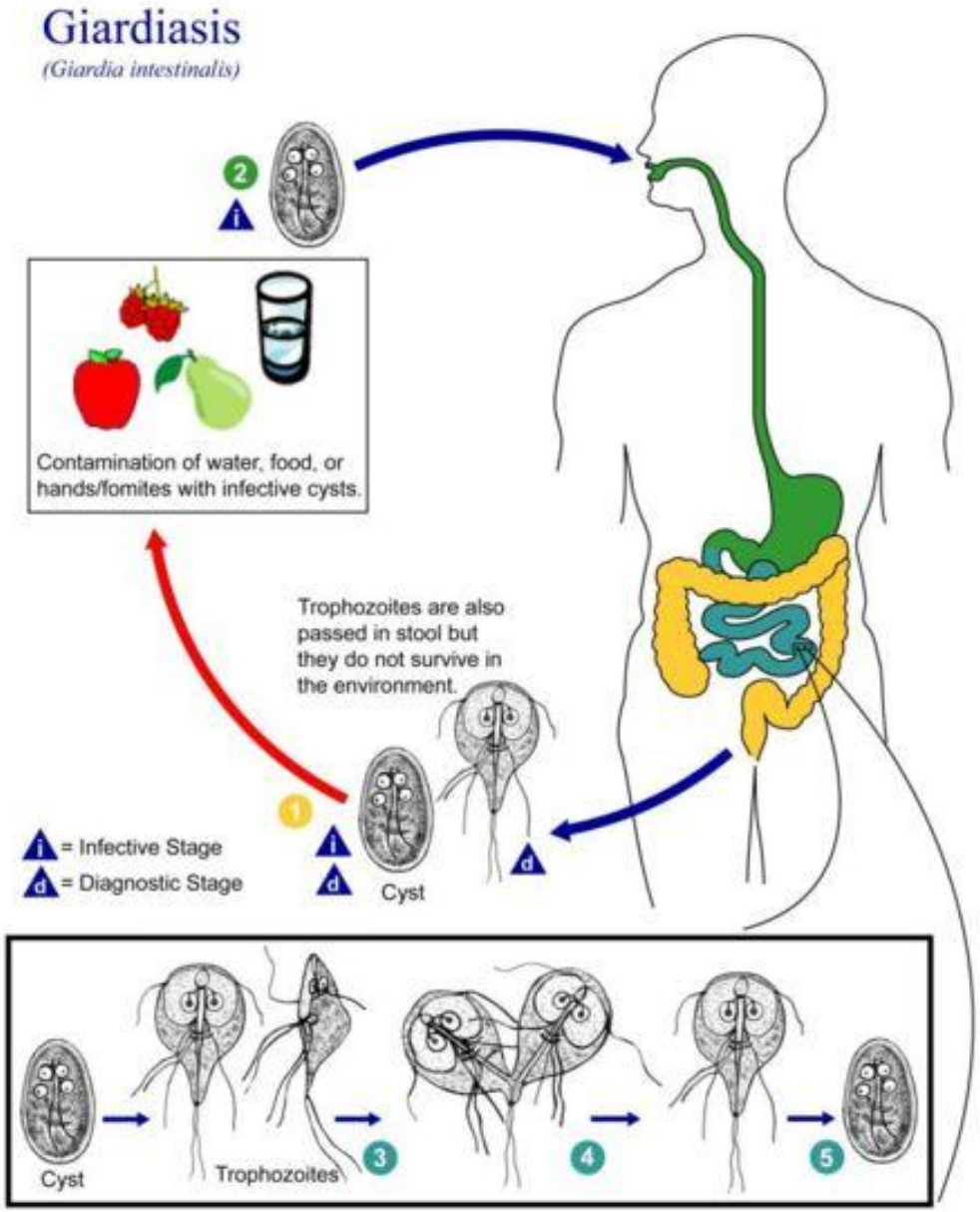
Transmission

- Cysts
  - Direct transmission
  - Fomites
    - Contaminated water and/or food
- Ingested cysts release trophozoites
- Trophozoites multiply and encyst in intestines
- Excreted in feces

Survival

- Cysts
  - Survive well in cool, moist conditions
  - Remain viable for months in cold water
    - Two months at 8^{o}C
    - One month at 21^{o}C
  - Can also survive freezing
  - Susceptible to desiccation and direct sunlight.

Giardia Lamblia



Disease in Humans

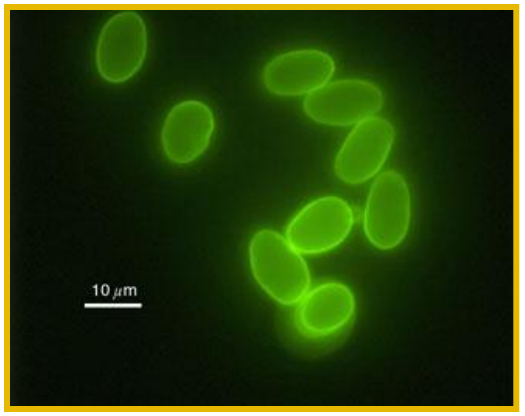
- Incubation period: 1-25 days
- **Most infections asymptomatic**
- Symptoms of clinical disease
  - Mild to severe gastrointestinal signs
    - Sudden onset diarrhea
    - Foul-smelling stools
    - Abdominal cramps
    - Bloating, flatulence
    - Nausea, fatigue
    - Weight loss

Disease in Humans

- Illness usually lasts for **1-2 weeks**
- Chronic infections reported
  - **May last months to years**
  - **Immunodeficient and immunocompetent individuals**
  - **May lead to malabsorption syndromes, vitamin deficiencies, and weight loss,**
  - **Disaccharide intolerance**

Diagnosis

- Direct observation in feces
  - Trophozoites
    - “Tear drop” shape
    - Two nuclei and tumbling mobility
  - Cysts
    - Approximately 13 microns long
    - Oval, with 2-4 nuclei
- Immunofluorescence
- ELISA, PCR



Treatment

- Anti-protozoal drugs
  - Metronidazole
  - Tinidazole

Prevention and Control

- Water
  - Avoid contaminated water
  - Treat potentially contaminated water
    - Heat (rolling boil for one minutes)
    - Filter (absolute pore size of one micron)
    - Chlorinate
- Food
  - Wash raw fruits and vegetables

Prevention and Control

- Practice good hygiene for pt
  - Hand washing
  - Don’t swim in recreational waters for at least two weeks after symptoms end.

- thanx