

Parasites (protozoa, helminthes, arthropoda)

I. Protozoa

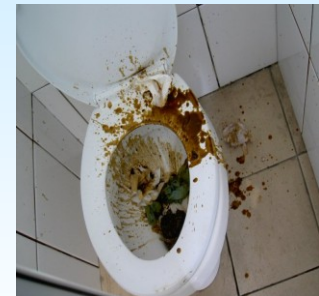
Giardia intestinalis

Patogenicity: watery diarrhea

Therapy: metronidazol

Dg.: cysts + trofozoits in stool, trofozoits in duodenal fluid

Epidemiology: contaminated water



Trichomonas vaginalis

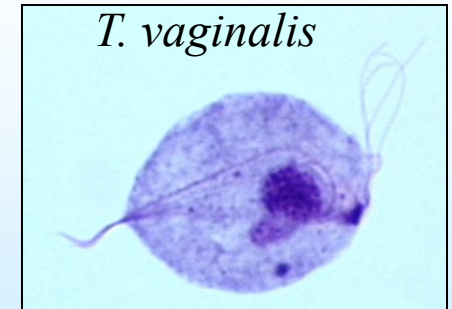
Pathogenicity: kolpitis, urethritis

Therapy: metronidazol

Epidemiology: STD

Dg.: native - CAT medium

/Gram – Giemsa staining (MOP V)



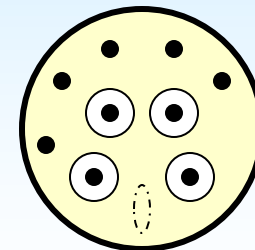
Entamoeba histolytica

2 forms: invasive (magna) and non-invasive (minuta)

Pathogenicity: invasive form damages intestine and causes dysenteric diarrhea, liver absces

Therapy: metronidazol

Dg.: microscopy, cultivation



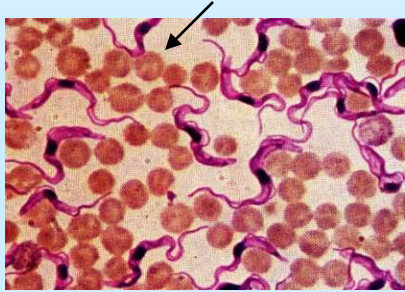
Trypanosoma cruzi

Patogenicity: Chagas disease

Therapy: benznidazol, insecticids

Epidemiology: bug

Dg.: blood smear, serology



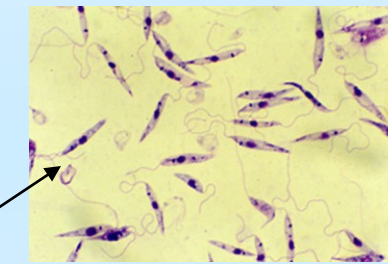
T. brucei

sleeping sickness

pentamidin, suramin

fly tse-tse (*Glossina*)

blood smear



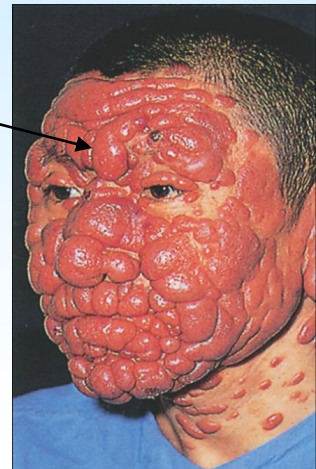
Leishmania sp.

Patogenicity: Old and New world – skin and visceral forms (kala azar, dum dum etc.)

Therapy: amphotericin B, Sb (antimon)

Epidemiology: *Lutzomya*, *Phlebotomus*

Dg.: cultivation, biopsy, serology in visceral form



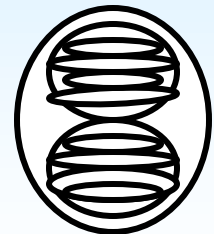
Toxoplasma gondi

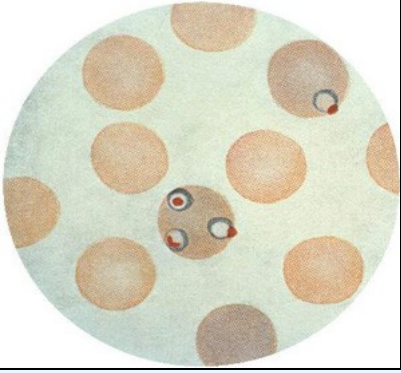
Epidemiology and life cycle: infection via oocyst from cats dung or tissue cyst from host meat (pig). Human ingest cyst and parasite migrates to tissues + forms cysts in these tissues

Pathogenicity: elevated temperature, torpidity, enlargement of lymph nodes, in pregnant leads to malformation and abortion

Therapy + prevention: spiramycin – pyrimethamin, cooked meat, pregnant screening

Dg.: indirect – KFR, ELISA (IgA, IgG)





Plasmodia (*P. falciparum*, *P. malariae*,
P. vivax, *P. ovale*)

Pathogenicity: malaria

Symptoms: freezing, shakes, fever, swelling - patient feels better until the next attack. Sometimes occurs also anemia, kidney damage or CNS (depends of plasmodium type)

Epidemiology: transfer via mosquito Anopheles, difficult life cycle

Therapy: chlorochin, primachin, meflochin, chinin, atremisins etc., prophylaxis before travelling to malaric areas

Dg.: thick **blood drop** stained with Giemsa-Romanovsky, fluorescence microscopy, PCR

II. Helminths (trematodes, taenia, nematodes)

Taenia saginata (taenia, tapeworm)

Morphology + life cycle: human ingests slack cooked beef (cysticercus), matures in small intestine and form articles full of eggs, come out with stool and infect animals. From their bowels migrate to muscles and form cysticercus. Cycle repeats.

Symptoms: abdominal pain, vomiting, diarrhea, tabitude

Dg.: eggs in stool, article observation (more branches womb)

Therapy: praziquantel, niklosamid



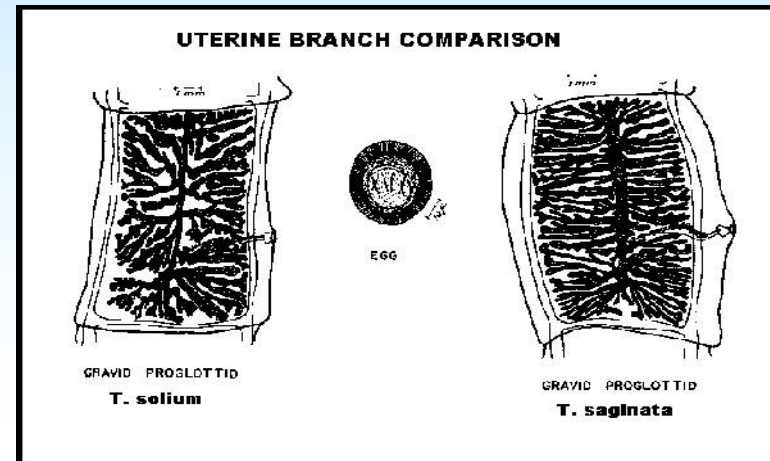
T. solium (tapeworm, taenia)

Morphology and life cycle: human ingests slack cooked pork (cysticercus), matures in small intestine and form articles full of eggs, come out with stool and infect animals. From their bowels migrate to tissues (muscles, spinal cord etc.) and form cysticercus. Infection from eggs is also possible, in this case rises cysticercus direct in human (human is a host as well as intermediate host). Cycle repeats.

Symptoms: abdominal pain, vomiting, diarrhea, tabitude, cysticercus – headache, pain in muscles, eye damage...

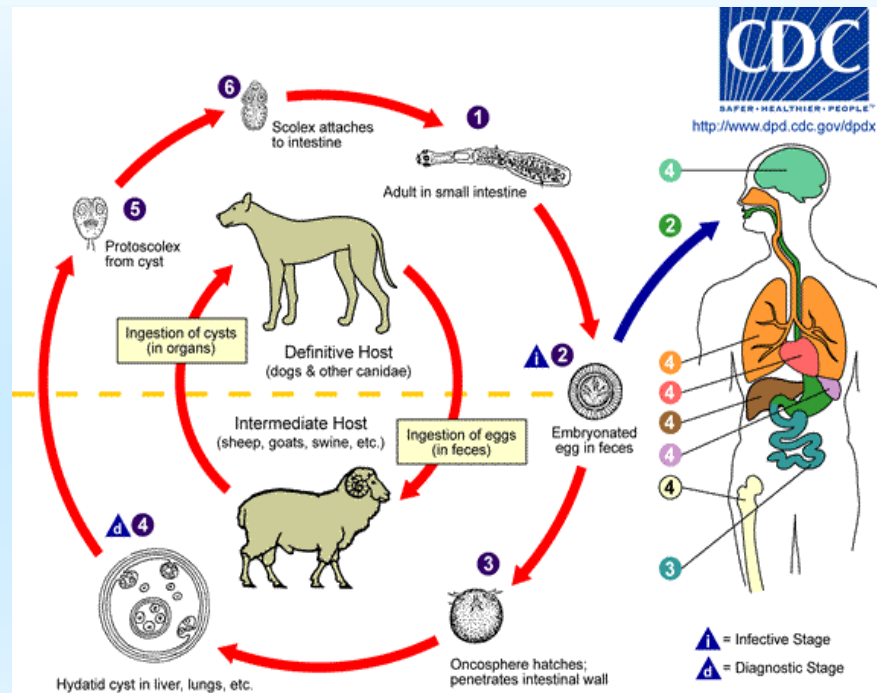
Dg.: eggs in stool, article observing (less branches womb), cysticercus: serology – ELISA, WB, CT, PCR

Therapy: praziquantel, niklosamid



Echinococcus granulosus

Morphology: tapeworm of dogs. Egg come out of dog, is ingested by human, in bowel come out larva, migrates to liver/lung/brain where changes to cyst



Symptoms: damage organe function – most frequently liver function, cyst rupture - anaphylactic shock

Therapy: killing with formalin + surgical removal, albendazol

Dg.: indirect – KFR, ELISA, SONO, CT

Nematodes

Enterobius vermicularis (pinworm)

Morphology: ingestion of infectious eggs, live in large intestine, female put eggs in perianal area

Symptoms: restless children, vomiting, intensive claw

Therapy: pyrvinium, prevention - hygiene

Dg.: eggs on sticky tape (Iepex)



Ascaris lumbricoides (roundworm)

Morphology: ingest of eggs, in bowel larva come out, migrates to lungs, expectorate and get down, mature in intestine

Symptoms: depends on life cycle – cough, tiredness, pressure on chest, digestive problems, loss of appetite

Dg.: intestinal phase- eggs in stool, penetration to tissue - ELISA

Therapy: mebendazol, pyrantel



Trichinella spiralis (trichina)

Morphology: ingest of uncooked meat with encysted larvae, larvae free themselves in digestive tract, where mature. An adult female bears larvae and they migrate **into muscles**, where form cysts

Symptoms: intestinal phase - vomiting, pain in muscles

Therapy: mebendazol

Dg.: ELISA, WB, muscle **tissue biopsy**



III. Ectoparasites - arthropods

Serve as vehicle of infection

Ixodes ricinus (dog tick) - boreliosis, tick born encephalitis etc.

Neotrombicula autumnalis - autumn rash

Sarcoptes scabiei - scabies

Pediculus capitis (hair lice), *P. humanus* – spotted fever,
Phthirus pubis (crab louse)

Mosquitos (Anopheles – malaria, *Aedes aegypti* – yellow fever)

Flea, bug etc.

