Entamoeba histolytica

Occurence:

-cosmopolitan amoeba lives in the form of trophozoite and cyst in the human colon, but in multifocal invasions may locate various organs including the lungs,
-common in tropical or subtropical countries with low standard of hygiene,
-infection in Poland reaches less than 1% (an "exotic" disease).

Detection:

- stool examination (cysts, trophozoites)- wet mounts or stained microscopic specimens
- preparations of the material taken from the wall of the intestine, liver
- in serological diagnostic is used double diffusion in agar gel, indirect hemoaglutynation and ELISA test,



Giardia intestinalis

Occurence- cosmopolitan protozoan living in the form of trophozoite and cyst in the human small intestine (prevalence in Poland at the level of 5-15%).

Pathogenicity

- nausea, vomiting, diarrhea in the first stage;

- in the chronic disease -alternating diarrhea and constipation, anorexia, epigastric pain, nausea, headache,

- children: allergic-type changes on the skin, weight loss, sleepiness

Detection

- detection of trophozoites or cysts in wet mount of duodenal contents or finding cysts in the stool

- immunoenzymatic tests



Cryptosporidium parvum

Occurence - parasitizes in the small intestine, in the respiratory tract of man and animals (poultry, cattle, dogs, cats, horses, laboratory animals), in Poland prevalence reaches 5%

Pathogenicity

- diarrhea, fever, cough, shortness of breath -post-acute chronic disease with chronic diarrhea

Detection

- detected in microscopic specimens stained by Ziehl-Neelsena oocysts in stool, duodenal contents, sputum or the content collected during bronchoscopy;

- immunofluorescence tests and ELISA



Balantidium coli

Occurence: cosmopolitan protozoan widespread mainly in tropical countries; to its hosts belongs: humans, domestic swines, rats, wild boars, chimpanzees and orangutans.

Pathogenicity:

-balantidiosis - numerous intestinal ulcers -in the acute form - diarrhea, vomiting, abdominal pain, bloody stools with large amounts of mucus -in the chronic form - headaches, insomnia, weight loss and anorexia

Detection:

- detection of trophozoites and cysts in stool, staining with Lugol's iodine (cysts), hematoxylin or carmine ferruginous (trophozoites)



Trypanosoma brucei gambiense

Occurence- parasitizes in the form of trypomastigotes in blood, lymph and cerebrospinal fluid of human,

Distribution - in the central and western Africa

Reservoirs are infected humans and the vector is tse-tse fly (Glossina sp.)

Pathogenicity

-causes African sleeping sickness,

once penetrate the skin, trypomastigotes formed lumpy, local inflammation,
-ulcers are formed, in which trypomastigotes can be found,

In the first phase of the disease when the protozoans parasitize in blood and lymph, there are chills, fever (40°C), nausea, anorexia, headache and joint pain, myocarditis, Enlargement of the liver, spleen and lymph nodes occurs;

The further development of the disease is rather slowly (in years)

In the invasion of the central nervous system psychiatric disorders are observed, alternating periods of stimulation with coma or apathy;

Sleeping sickness is a chronic disease, often leading to death

Detection

-in the first phase - detection in the blood,

-in the second phase - detection in the cerebrospinal fluid,

-agglutination, indirect immunofluorescence, ELISA test,



🗥 = Diagnostic Stage

http://www.dpd.cdc.gov/dpdx

Trypanosoma cruzi

Occurence – parasitizes in the blood, lymph and parenchymal organs of man and many animals in central and south America

Reservoirs for humans are infected armadillos, as well as cats, dogs, rats and monkeys.

Pathogenicity:

Causes American trypanosomiasis (Chagas' disease) with acute or chronic course; incubation period is 7- 20 days.

Primary symptoms on the skin of the face and oral mucosa.

➤ Acute disease is observed for 2-3 weeks mainly in children:

fever up to 39°C, swollen eyelids, conjunctivitis, muscle pain, itchy rash,

- later enlarged and painful lymph nodes, liver, spleen and symptoms of myocarditis, meningitis and encephalitis.

 \succ Symptoms of chronic disease depend on protozoan location: cardiac, cerebral, adrenal and thyroid forms are distinguished - in each there is enlargement of the liver, spleen, lymph nodes, and lymphocytosis and monocytosis in peripheral blood.

Detection:

-based mainly on serological reactions (indirect hemoagglutination, indirect

immunofluorescence, ELISA and SAFA tests)

-cultures in vitro

-cultures in vivo- infecting experimental animals

-tripomastigotes or amastigotes in biopsy material taken from the original tumor



Plasmodium vivax

Occurence- parasitizes in hepatocytes, reticulum and endothelial cells, and red blood cells from human peripheral blood

Mosquitoes (Anopheles sp.) are the vectors

Detection:

-stained a thin smear and thick drop of blood (the Giemsa or Wright's methods)

- liver biopsy, biopsy of bone marrow or lymph nodes,

-immunoserological tests, such as immunochromatography test



Clinical data	P. vivax	P. ovale	P. malariae	P. falciparum
The incubation period (in days)	8-17	10-17	18-40	7-11
Fever	daily irregular	daily irregular	every 72 h	daily continuous
The periodicity of attacks	48h	48h	72h	36-48h
Initial attacks	moderate /severe	mild	moderate /severe	severe
Duration of illness	5-7 years	1 year	20 years	6-17 months
Max level of parazytemia	20000/ml	20000/ml	20000/ml	500000/ml
Anemia	often	often	often	very often
Occupation of the central nervous system	rarely	rarely	rarely	often
Changes in the kidneys	rarely	rarely	very often	rarely
Relapses	yes	yes	no	no

Toxoplasma gondii

Occurence - cosmopolitan protozoan, parasitizes intracellular in all cells except red blood cells in humans and many animals (1/3 of the world population).

Pathogenicity:

-causes congenital toxoplasmosis (mother-baby) or acquired disease (zoonosis)

-congenital toxoplasmosis is disclosed to the half of mothers with primary toxoplasmosis during pregnancy, the risk of fetal infection increases with the duration of pregnancy, while decreasing the risk of birth defects

-acquired acute toxoplasmosis- fever and symptoms from infected organs (nodes form, generalized and ocular form)

Detection:

-diagnosis of congenital toxoplasmosis is based on detecting the presence of the parasite, its antigens or nucleic acids in cord blood, fetal waters, placenta, fluids,

- monitoring of child-specific humoral immunity

-Microscopic specimen stained with Wright's or Giemsa from amniotic fluid, cerebrospinal fluid, biopsy of lymph nodes

-immunobiological reactions- concentration of antibody class G, M and A



Naegleria fowleri

Occurence- cosmopolitan protozoan found in fresh water, moist soil and air in the form of trophozoite and cyst.

Pathogenicity:

 \succ negleriosis- primary acute encephalitis and meningitis, after swimming in lakes and pools there are following symptoms:

-severe headache

-fever

-anorexia, nausea, vomiting
-excessive sleepiness or agitation
-hallucinations, changes in vision
-paralysis of the facial nerve
-changes in smell and taste

Detection

-in wet mounts or stained samples from the cerebrospinal fluid amoebas can be found -cultures from the content of nasal, throat, sputum, cerebrospinal fluid or blood -analysis of antigens



Trichomonas vaginalis

Occurence- cosmopolitan protozoan, found only in the trophozoite form in the genitals and urinary organs of human

Pathogenicity:

- only 30% of infected persons show any symptoms Men:

- Itching/ irritation of penis

-burning sensation

- discharge

Women:

-,,,Strawberry cervix'' – 2%

-Itching, burning, redness, soreness of genitals,

-Discomfort during urination

-Odorous yellow-green discharge (12%)

Detection:

-direct wet mount microscopy from vaginal discharge

-fixed and stained microscopic specimens

-immunoserological methods



Leishmania tropica

Occurence- parasitizes in the form of amastigote in the skin and subcutaneous tissue of human (Africa, Asia, South and Central America, Mediterranean countries, Bulgaria, Romania);

Reservoirs are dogs, cats and rodents.

Pathogenicity:

-skin leishmaniasis in acute form (wet focal necrosis) and chronic dry (focal necrosis), often called the eastern ulcer

Detection:

-stained microscopic
specimens with amastigote
form,
-cultures on a substrate
-intracutaneous test of
delayed hypersensitivityMontenegro test

Skin test (leishmanin test or Montenegro

test) It is a delayed hypersensitivity skin test for survey of populations and follow-up after treatment - 0.2 ml(6-10 million/ml of killed promastigotes in 0.5% phenol saline) injected—erythema ≥ 5mm→ +ve after 6-8 weeks of cure.

Leishmania tropica



Digenea

Stages of development: -egg -miracidium -sporocyst -redia -cercaria -metacerkaria -adult

Paragonimus westermani

Occurence- human and animals (felines, canines, pigs) lungs; occurs in south-east Asia and Africa.

Pathogenicity:

-once metacerkariae get into the lungs cause cells infiltration of eosinophils and neutrophils

-fibrous capsules are formed around flukes; cough with blood and chest pain occur,
- eggs may reach various organs with the bloodstream, and when they reach the central nervous system - fever, headache, nausea, vomiting, symptoms of epilepsy, blurred vision, or even total paralysis, symptoms of meningitis, encephalopathy may occur

Detection:

- eggs in stool or sputum, lung biopsy

- serological methods (immunoelectrophoresis, ELISA- to detect specific immunoglobulin class G and E, searching for specific antigens in blood)



Fasciola hepatica

Occurence- cosmopolitan fluke occurs in the liver and bile ducts of man, domestic and wild ruminants and other animals;

Pathogenicity:

-fasciolosis initially runs as acute disease-fever,-muscles and joints pain,

- -nausea, vomiting,
- -hepatomegaly,
- -jaundice,
- -anemia,

-in the later phase

- -cholangitis,
- -acute abdominal pain,
- -hepatomegaly,
- -itching,
- -jaundice,

-rarely occur abscesses and cirrhosis;
-flukes sometimes settle in the lungs, central nervous system, muscle, skin, eyes;
-sometimes infection may be asymptomatic

Detection: -in acute phase- serological tests, -in chronic phase- eggs in stool or duodenal content.



Dicrocoelium dendriticum

Occurence: worldwide; liver parasite of ruminants and many other species of herbivorous mammals, man accidentally

Pathogenicity:

-infection in humans is usually asymptomatic, in a serious infections symptoms from the gastrointestinal tract and hepatomegaly may occur

Detection: eggs in stool

