Schistosoma mansoni

Occurence - fluke parasitizes in humans and other mammals. Exists in the venous plexuses of the colon.

Pathogenicity:

-during host's skin penetration by cercariae: itching and inflammation may occur - within a few weeks acute schistosomiasis initiate - fever, chills, bronchospasm, headache, arthralgia, abdominal pain, diarrhea, swollen lymph nodes, liver and spleen,

Detection: -eggs in stool, -serological tests,



Developmental stages of oviparous tapeworms (*Pseudophyllidea*):

- egg with oncosphere
- coracidium
- procercoid
- plerocercoid
- adult (*Diphyllobothrium*)

Developmental stages of viviparous tapeworms: (*Cyclophyllidea*):

- oncosphere,
- different types of cercoid:

Cysticercus (*Taenia saginata*, *T. solium*), **Cysticercoid** (*Dipylidium caninum, Hymenolepis nana*), **Hydatid** (*Echinococcus granulosus, E. multilocularis*)

-adult (*Echinoccocus, T. solium, T. saginata*)

	Pseudophyllidea	Cyclophyllidea
Number of intermediate hosts	2	1
Larval forms	Coracidium, procercoid, plerocercoid,	Cysticercoid, cysticercus, hydatid
Development of oncosphere	In water environment	In uterus
Eggs	With the operculum	No operculum
Ending of uterus	Ventrally	End blindly

Diphyllobothrium latum

Occurence - tapeworm parasitizes in the human small intestine and over 30 species of mammals (bear, seal, dog, pig), which feed on raw fish. Most in the polar zone and countries with a moderate climate (Finland, Sweden, Iceland, Greenland, Canada, USA, Japan).

Pathogenicity: -diphyllobothriasis may proceed with periodic ileus, -diarrhea, -abdominal pain, -anaemia caused by vitamin B₁₂ deficiency

Detection: -detection of eggs or proglottids in stool



Taenia saginata

Occurence - cosmopolitan tapeworm parasitize in the small intestine of human, who is the only definitive host of *T. saginata*.

Mainly found in southern America, western and eastern Africa, center and eastern Europe.

Pathogenicity:

taeniasis

-abdominal pain,

-nausea,

-increased or reduced appetite,

-reduction in physical activity

- reduce the overall physical condition,

-sleep and memory disorders,

-diarrhea alternating with constipation;

-20% of infection is asymptomatic.

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Detection:
-identification of proglottids in stool; rarely
eggs,
-ELISA test
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Taenia solium

Occurence - cosmopolitan tapeworm parasitizing in the small intestine of human; 2-4 meters length.

Pathogenicity:

taeniasis is characterized by:

-abdominal pain,

-nausea,

-occasional vomiting, diarrhea and constipation,

-headaches and dizziness

longer duration of infection

-abnormal physical development

-reduction in body weight,

-weakness

-perforation

cysticercosis

-causes different clinical manifestations depending on the location; the most severe is cysticercosis of central nervous system (includes cerebral cortex, ventricles and base of the brain, spinal cord).

Detection: -identification proglottids and eggs in stool, -CT, MRI and ELISA test



Dipylidium caninum

Occurence – parasitizes in the small intestine of dog, human, cat, wild canines and felines throughout the world; in humans occurs mostly in children.

Pathogenicity:

- Dipylidiasis: intestinal disorders, indigestion,
- diarrhea, loss of appetite,
- children may be excited and nervous,
- often asymptomatic.

Detection:

- identification proglottids and eggs in stool



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Echinoccocus granulosus

Occurence – adults parasitize in the small intestine of canines almost all over the world;

Human is an intermediate host.

Pathogenicity:

- ~10 cm

-echinococcosis:

mostly with changes in the liver (70%),

rarely in the lungs (25%), and occasionally in the kidney, muscle, spleen (6%), brain (3%)or bones (0,5-2%), in which grow slowly over many years and may have no symptoms. Pathogenicity: -mechanical compression, -allergic reaction, -anaphilactic shock

on the location: -<u>in the liver</u> can cause jaundice, cholangitis, -<u>in the lungs</u> cough, shortness of breath and chest pains, -<u>in the central nervous system</u> symptoms of brain tumor

Detection:

-finding protoscolices in biopsy or in the bladder after surgical removal, -CT, MRI,

-serological tests.



Ancylostoma duodenale – Old-World hookworm

Occurence - duodenal parasite of mainly human and monkeys. Distribution - in the Mediterranean countries, Europe, Africa, in southern and eastern Asia, Central and South America.

Pathogenicity:

-in the first period larvae penetrate the skin causing itching,

-during migration through the lungs symptoms of pneumonia may occur. -Intestinal phase:

-nausea,

-vomiting,

-abdominal pain,

-diarrhea with dark stools,

-weakness,

-swelling of the face and feet,

-apathy.

<u>children</u>

-retardation in physical and mental development,

infection during pregnancy

-may cause fetal infection,-the possibility of transmitting larvae by human breast milk,

Detection: -eggs in stool, -serological tests.



Enterobius vermicularis - pinworm

Occurence - cosmopolitan parasite of the human colon, especially common in temperate climate; prevalence in children even up to 100%.

Pathogenicity:

-enterobiasis is often chronic, recurrent; Symptoms:

-decrease of appetite and body weight reduction,

-weakness,

-sleep disorders,

-increased nervous excitabilityassociated with itching around the anus,-complication may be acuteappendicitis,

-sometimes asymptomatic infection.

Detection:

-detection of parasites in stool or on the skin around the anus, and eggs in smear (using cellophane adhesive tape)

Detection:

-direct preparations of stool- eggs in a drop of Lugol solution,-endoscopy of the duodenum,-serological tests.



Ascaris lumbricoides – giant human roundworm

Occurence – cosmopolitan parasite of human small intestine with a high prevalence; in Indonesia more than 90% of the population are infected by human worm.

Pathogenicity

-ascariasis at the beginning gives symptoms associated with migration of larvae, the appearance of larvae in the lungs - Loeffler syndrome and symptoms of pneumonia, bleeding from the lungs;

During parasitizing mature forms in the intestine, worms may spread to the liver, kidney and peritoneal cavity.

-abdominal pain

- -nausea,
- -vomiting,
- -anorexia,
- -sleep disorders;

children

-abnormal physical and mental development, -allergic symptoms may occur,

serious complications:

-obstruction of intestinal, pancreatic ducts and bile ducts;

-worms can infect the fetus.



Trichuris trichiura - whipworm

Occurence - cosmopolitan nematode found in the large and caecum of man, the second after threadworm in occurence in Poland.

Pathogenicity:

-trichuriasis may be asymptomatic or poorly symptomatic,
-abdominal pain,
-painful urge to stool,
-nausea,
-diarrhea,
in chronic invasion:
-loss of appetite,
-diarrhea alternating with constipation,
-malnutrition,
-inhibition of physical development;

Detection:

- eggs in faeces,



Anisakis simplex – herring worm

Occurence - cosmopolitan parasite, occurring mainly in the seas and oceans of the northern hemisphere.

Adults live in the stomach of marine mammals; accidentally- in human stomach.

Pathogenicity:

-nausea,

-abdominal pain,

-damage mucosa of the stomach and small

intestine,

-eosinophilic granuloma.

Detection: -gastroscopy (visible living larvae), -serological methods.



Loa loa – African eye worm

Occurence - nematode occurring in the eye and subcutaneous tissue of man in tropical countries of Central and West Africa.

Vectors are flies of the genus Chrysops.

Pathogenicity:

-loiasis proceeds in the form of emerging, painful swelling, mostly in the vicinity of joints, disappearing after a few days and found again in other places;

-migration of nematodes in the conjunctiva of the eye causing pain, itching and tearing; particularly dangerous is the location of the nematode in the larynx and the central nervous system,
- dead nematodes cause severe allergic reactions.

Detection:

-microfilariae detected in the blood, -serological tests.

Loa loa



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Wuchereria bancrofti

Occurence - parasitize in human blood vessels, lymph nodes, abdominal organs, the anterior chamber of the eye and upper eyelid in tropical and subtropical countries (widespread in Asia).

Vectors are mosquitos of the genus Culex, Aedes, Anopheles and Mansonia.

Pathogenicity: -wuchereriosis causes fever, swollen lymph nodes leading to elephantiasis of limbs, labia, penis, scrotum or nipples,

Detection:

- microfilariae in the peripheral blood smear,
- adult worms in the lymph node biopsy,
- serological tests.

Wuchereria bancrofti



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Trichinella spiralis – trichina worm

Occurence - cosmopolitan nematode occurring in many host species, mainly human, pig, wild boar, dog, rat, and many others. Trichinellosis is widespread mainly in Europe and America.

Pathogenicity:

Signs accompanying of settling larvae in the muscles:

-high fever,

-severe muscle pain,

-sometimes difficult in chewing, swallowing and

breathing,

-ecchymosis subungual and subconjunctival,

-swelling of the eyelids and face,

-headache,

-rush.

Detection:

-larvae in animals are detected by trichinoscopy or during biopsy of deltoid muscle or gastrocnemius muscle,
-immunoserological tests in humans.

