Parasitology

Collected by: Ahmed Fadil

Third stage

1st term

NEMIATODES

parasítology 2014-2015

| | | Entero | bius vermicularis | | |
|--|---|---|--|---|--|
| Scíentífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon |
| Enterobius vermicularis | Pin worm OR oxyuris | Enterobiasis OR Oxyuriasis | Feco -orally transmitted parasite | Adult | & Cecum appendix (free in lumen) |
| Life size | 2-5mm | (old name) | | Egg | In perianal & perineal skin Ovum δ5 x 25 μm Cecum |
| Infectíve | Mode of | Maín | Díagnosís and | Treatment | Control |
| stage | transmission | pathogenesís | Díagnostíc Stage | | Control |
| Egg with L1 (embryonated egg) Location of :development In perianal skin | -Ingestion of the egg -Inhalation(air borne) -autoinfection | -Pruritus anus -Pruritus vulvae -weeping eczema | Cellophane tape Technique (Scotch tape technique) Clear adhesive tape slide Diagnostic stage: Larvated ova | Mebendazole Treat the family Repeat after 2 weeks | -Bedding and underclothing should be sanitized -Personal &family hygiene -Mass chemotherapy |

Enterobius vermicularis

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| | | Trichi | uris trichiura | | |
|---|-----------------------------|---------------------------------|---|--|---|
| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
| Trichuris | whipworm | Trichuriasis OR | Soil transmitted parasite | Adult | Cecum & appendix |
| trichiura | | Whipworm disease | | | Threaded into) (mucosal epithelium |
| ¥ 35-50 mm | Life size | | | Egg | Soil Ovum 50 x 22 jum |
| | | Imm | Imm | L1,L2,L3,L4 | Lower small intestine&cecum |
| Infectíve | Mode of | Maín | Díagnosís and | Treatment | Control |
| stage | transmission | pathogenesís | Díagnostíc Stage | | |
| Egg with L1 (embryonated egg) Location of development: After a period in soil | Ingestion of egg with L1 | -Prolapsed rectum -dysentery | Stool examination Diagnostic stage: Embryonated eggs | Mebendazole, 200mg for adults 100mg for children | -Infections must be treated -Hygiene -Sanitation |

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| Ascaris lumbricoides | | | | | | | | |
|---|--|---|--|--|---|--|--|--|
| Scientífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location | | | |
| Ascaris Iumbricoides | The large intestinal roundworm of man | Ascariasis or roundworm disease | Soil transmitted parasite | Adult Egg | Free in the lumen of small intestine Soil | | | |
| | 200-350 x 4-6 mm. icle, unstriated, non-segmented | L1,L2,L3,L4 | Morphology of ova in deposit Morphology of ova in deposit Morphology of ova in deposit Morphology of ova in deposit Decorlicated Decorlicated Decorlicated Decorlicated Decorlicated Decorlicated Decorlicated Decorlicated | | | | | |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control | | | |
| Fertilized egg with L1 Location of development: After a period in soil | Ingestion of ovulated ovum | -intestinal abstraction -biliary obstruction -loffler syndrom | Stool examination Diagnostic stage: fertilized& Unfertilized eggs in feces | Benzimedazole (larvae migration) Mebendazole (adult) | -Sanitation -Stop use of human feces in fertilization. | | | |

| | | Necat | for americanes | | |
|--|---|--|---|--|--|
| Scíentífíc name of parasíte | Common name | Dísease | Kind of parasite according to the mode of transmission | Stages | Locatíon |
| <i>Necator americanes Or Uncinaria</i> | New World hookworm Lif <u>e si</u> ze | Uncinariasis Or Nectoriasis | Soil transmitted parasite New world | Adult Egg,L1,L2(Rhabditiform | -attached in the mucosa of the small intestine Soil & feces |
| americana | ф x 0.6 mm | | | larva) | 70 x 38 μm Ovum |
| 8-11 x 0 |).45 mm | Bursa Dorsal ray, deep cleft, bifid tips, spicules fused and barbed | Buccal capsule Cutting plates | L3(Filariform larva) | -Soil /skin/heart/lung -small intestine |
| Infectíve | Mode of | Maín | Diagnosis and | Treatment | Control |
| stage | transmíssíon | pathogenesís | Díagnostíc Stage | | |
| L3 (filariform larvae) Location of development: After a period | Skin penetration | Anemia | Stool examination Diagnostic stage: Eggs in feces | Mebendazole 200-adult 100-children | Sanitation is the chief method of control. |
| in soil | | | | | |

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| | | Ancylos | toma duodena | le | |
|--|---|---|---|---|---|
| Scientífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon |
| Ancylostoma duodenale | Old world hookworm Life size | Ancylostomiasis | Soil transmitted parasite Old world | Adult | attached in the mucosa of the small intestine |
| C C | Q 10 x 0.6 mm 0.45 mm | Bursa Dorsal ray, shallow cleft, tips tridigitate | Buccal capsule 2 pairs of teeth | Egg,L1,L2(Rhabditiform larva) 60 x 40 µm 00000000000000000000000000000000000 | Soil & feces |
| Infectíve | Mode of transmíssíon | Maín | Díagnosís and | Treatment | Control |
| stage L3 (filariform larvae) Location of development: After a period in soil | -Skin penetration -ingestion -transmammary route | pathogenesís Anemia | Diagnostic Stage Stool examination Diagnostic stage: Eggs in feces | Mebendazole 200-adult 100-children | Sanitation is the chief method of control. |

| | | Strongyloid | des stercoralis | | |
|--|---|---|--|---|--|
| Scientífíc name of parasíte | Common name | Dísease | Kind of parasite according to the mode of transmission | Stages | Locatíon |
| Strongyloides stercoralis | Threadworm | Strongyloidiasis- Threadworm - infection Cochin-China - | Soil transmitted parasite (free living & (parasitic | Adult female & eggs | The mucosal epithelium of the upper small intestine |
| | | diarrhea | Auto infection (parasitic) | L1,L2(Rhabditiform larva) | Soil & feces |
| | A Participant | Strongyloide | es filariform larva | Contraction of the second s | Rhabditiform larva 250 x 20 µm |
| | refer H | | | L3(Filariform larva) | -Soil then penetrate skin |
| Contraction of the second seco | | | | L4 | The mucosal epithelium of the upper small intestine |
| Infectíve | Mode of | Maín | Díagnosís and | Treatment | Control |
| <i>stage</i> L3 (filariform (larvae Location of :development After a period in soil | <i>transmission</i> -Skin penetration by larva from soil or (at low level healthy individuals) external auto infection -Internal auto infection (larvae penetrate mucosa) | <i>pathogenesis</i> Sanitation (prevent contamination of soil with human feces). | Diagnostic Stage Stool examination Diagnostic stage: Rhabditoid larvae. | Thiabendazole Albendazole | Sanitation (prevent contamination of soil with human feces). |

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Trichostrongylus orientalis

| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
|---|--|--|---|------------------|---|
| Trichostrongylus orientalis | | Trichostrongyliasis | Soil transmitted parasite | Adult | Threaded in mucosa of small intestine |
| | | | | Eggs ,L1,L2 | Soil |
| | | | | L3 | Enter by ingestion without migration to lungs |
| | | | | L4 | Small intestine |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control |
| L3 pseudo-filariform Location of development: After a period in soil | Ingestion of pseudo- filariform larva. | Intestinal disturbances; transient eosinophilia; sever diarrhea; | Stool examination Diagnostic stage: Eggs in feces | Pyrantel pamoate | -Sanitation -Personal hygiene |

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Dracunculus medinensis

| Scientífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
|--|---|---|--|--|---|
| Dracunculus medinensis | Guinea worm | Dracunculiasis <u>or</u> Dracontiasis | Water transmitted pargeasite | Adult | Deep somatic&visceral C.T |
| | | | | L1 | water |
| | | | | L2,I3 L4 | Copepods cyclops Deep somatic&visceral C.T |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control |
| L3 Location of development:In Copepods cyclops | ingestionof water containing infected Cyclops | Skin lesion; erythema; rash; nausea; vomiting; diarrhea; dyspnea; syncope | Made from local blister, symptoms, outlines of♀ by reflected light Diagnostic stage: Adult female in the blister | -Extraction of the adult by rolling or by surgical removal. -Metronidazole to kill♀ -Antihistamine or corticosteroids for allergy. | -Protection of drinking water from Cyclops -Piped water prevents transfer of larvae from water. |

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| | | Wuche | reria bancrofti | • | |
|---|---|---|--|--|--|
| Scíentífíc name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon |
| Wuchereria | Sheathed microfilaria | Bancroftian filariasis | Insect transmitted parasite | Adult | Lymph vessles |
| bancrofti Microfilaria | | Or Elephantiasis | Maturation time 2-3 weeks May survive several months | Microfilaria L1 | In lymphatic &migrate at night to blood |
| μm | Tail pointed, free from nuclei Sheathed | | Culex Mansonia Aedes Anopheles | L2 L3 | In Mosquito Culex In Mosquito Culex |
| Infectíve stage | Mode of transmission | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control |
| L3 filariform from mosquito during blood meal Location of development: | Insect bite | Lymphangitis; lymphadenitis lead to elephantiasis. | Blood film at (10pm- 2 am). Diagnostic stage: Sheathed microfilaria larva. | -Diethylcarbamazine to kill adults -Steroids to alleviate inflammatory symptoms | -Control vector(mosquito) -Treat all carriers in an endemic area |
| In Mosquito Culex | | | | | |

| | | Onche | ocerca volvulus | | |
|--|----------------------------|---|--|--|---|
| Scientífic name of parasíte | Common name | | | Stages | Location |
| Onchocerca volvulus | Unsheathed microfilaria | Onchocerciasis <u>or</u> Blinding filariasis | Insect transmitted parasite | Adult | Adults mated pair coiled in subcutaneous T. as nodules |
| Microfilaria | | <u>or</u> River blindness | | Microfilaria L1 | in upper layers of dermis, urine&rarely in blood |
| 150-36 | 8 x 5–9 μm | MIMMARCO | | L2 | In Black fly |
| 150–368 x 5–9 μm | | Eye involvement | | L3 | In Black fly |
| Infectíve | Mode of | Maín | Díagnosís and | Treatment | Control |
| stage | transmíssíon | pathogenesis | Díagnostíc Stage | | |
| L3 in infected black fly Location of development: | Insect bite | Sowda | Skin snip Or Skin biopsy Diagnostic stage: Unsheathed | -Surgical removal of nodules (nodulectomy) -Diethylcarbamazine to kill adults | Vector control by insecticide |
| In black fly | | | microfilaria larva. | | |

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TREMATODES

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| | | Heterophye | s heterophyes | | |
|--|---|-------------------------|---|---|---|
| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
| <section-header></section-header> | Ovary round O T T Testes round | Heterophyiasis | Snail transmitted parasite Oral sucker Scales, especially anterior Caecae Ventral sucker Genital sucker armed with spines Uterus, coiled Vitellaria in posterior third 1.7 x 0.3–0.4 mm | adult Egg Iniracidim Sporocyst,Redia, Cercaria, Metacercaria | Mucosa of samall intestine attached by suckers stool Water/snail Snail Fresh water fish |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control |
| Metacercaria encysted on under cooked or salted fresh water fish <u>Location of</u> <u>development:</u> In tissue of fresh water fish | Ingestion of contaminated fresh water fish (brackish fish) | -Diarrhea -Dysentery | G.S.E Diagnostic stage: embryonated operculated ova | Praziquantel | -Infection can be prevented by not eating uncooked fish |

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Fasciola hepatica

| Scíentífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
|---|---|--|--|---|--|
| Fasciola hepatica | | Fascioliasis | Snail transmitted parasite | adult | large bile ducts & gall bladder attached by |
| Adult | A CONTRACTOR OF | | Important snail hosts: Lymnaea Succinea | Едд Ovum 0000 130-150 x 63-90 µm | suckers Stool |
| 30 x 13 mm | | | | Sporocyst,Redia miracidim Cercaria | Lymnaeid snail Water |
| 31 | | | | Metacercaria | Watercress |
| Infectíve | Mode of | Maín | Díagnosís and | Treatment | Control |
| stage | transmíssíon | pathogenesís | Díagnostíc Stage | | |
| Metacercaria encysted on watercress | Ingestion of contaminated not cleaned watercress | - Hepatomegaly -Cholecystitis -Cholengitis | G.S.E Diagnostic stage: unembryonated | Praziquantel | -Human feces should not be used as fertilizer -Control of snail |
| Location of development: On water plant | | | operculated ova | | -Human should not consume raw watercress |

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Dicrocoelium dendriticum

| Scíentífíc name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
|-----------------------------------|------------------|-----------------|--|-------------------------------|--------------------------|
| Dicrocoelium | | Docrocoeliasis | Snail transmitted parasite | adult | small bile ducts of |
| dendriticum | | | | Egg | grazing animals stool |
| | | | | | |
| 22 | | | | Sporocyst,Redia ,miracidim | Land snail |
| | | | | Cercaria, | Ant |
| 100 | | | | Metacercaria | Ant |
| Infectíve | Mode of | Maín | Díagnosís and | Treatment | Control |
| stage | transmission | pathogenesis | Díagnostíc Stage | | |
| Metacercaria on | Ingestion of | - Hepatomegaly- | G.S.E | Praziquantel | -Human feces should |
| forging ant | infected forging | -Cholecystitis | | | not be used as |
| | ant on grass | -Cholengitis | Diagnostic stage: | | fertilizer |
| Location of | | | Embryonated eggs in | | -Control of snail |
| development: | | | feces | | -Human should not |
| In forging ant | | | | | consume raw |
| | | | | | -vegetables and fruits |

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| | | Clonorch | his sinensis | | |
|--|--|--|---|-------------------------------|---|
| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon |
| Clonorchis sinensis | Chines OR Oriental liver flukes | clonorchiasis | Snail transmitted parasite | adult | Small to medium biliary ducts attached by suckers |
| | Adult | | | Egg | stool |
| | A BANK | | | Sporocyst,Redia, miracidim | Snail |
| 61 | | | | Cercaria | Snail |
| | 11-20 x 3-4 mm | | | Metacercaria | Flesh of fresh water fish |
| Infectíve stage | Mode of | Maín | Díagnosís and | Treatment | Control |
| | transmíssíon | pathogenesís | Díagnostíc Stage | | |
| Netacercaria encysted n fresh water fish .ocation of levelopment: n flesh of fresh water ish. | Ingestion of undercooked, salted,pickled or smoked freshwater fish | - Hepatomegaly -Cholecystitis -Cholengitis | G.S.E Diagnostic stage: Embryonated ova with operculum | Praziquantel | -Human feces should not be used as fertilizer -Control of snail -Human should not consume raw fish |

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| Common name | | | Paragonimus westermani | | | | | | | | |
|--|---|---|--|--|--|--|--|--|--|--|--|
| | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location | | | | | | | |
| Oriental lung fluke | Paragonimiasis | Snail transmitted parasite | adult | Fibrous tissue of lung attached by suckers | | | | | | | |
| Adult | | Snail 1st intermediate host: | Egg | Sputum & stool | | | | | | | |
| | | 100 | Sporocyst,Redia, Miracidim | Snail | | | | | | | |
| | X | Cercaria, | Crab | | | | | | | | |
| 7–12 x 4-6 mm 3–5 mm thickness | | | Metacercaria | Crab | | | | | | | |
| Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control | | | | | | | |
| Ingestion of undercooked crab containing metacercaria | -Cough -Haemoptesis | Finding egg in sputum & stool <u>Diagnostic stage:</u> Unembryonated eggs in sputum | Praziquantel | -Human feces should not be used as fertilizer -Control of snail -Human should not | | | | | | | |
| | Adult Adult Adult 7–12 x 4-6 mm 3–5 mm thickness Mode of transmission Ingestion of undercooked crab containing | AdultIngestion of undercooked crab containing | Oriental lung flukeParagonimiasisSnail transmitted parasiteAdultAdultSnail transmitted parasiteSnail transmitted parasiteAdultImage: Snail transmitted parasiteImage: Snail transmitted parasite7-12 x 4-6 mm 3-5 mm thicknessMain pathogenesisDiagnostis and Diagnostic StageMode of transmissionMain pathogenesisDiagnostic StageIngestion of undercooked crab containing metacercaria-Cough -HaemoptesisFinding egg in sputum & stool Diagnostic stage: Unembryonated eggs | Mode of transmissionmode of transmissionOriental lung flukeParagonimiasisSnail transmitted parasiteadultAdultImage: Sinal state of the state of | | | | | | | |

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| | | Schistosoma | haematobium | | |
|-----------------------------------|---------------------------------|-----------------------|---|---------------------|---------------------|
| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon |
| Schistosoma | | -Urinary | Snail transmitted | adult | vesical venous |
| haematobium | | Schistosomiasis | parasite | | plexus. attached by |
| Ovary posterior half | | -Urinary bilharziasis | | _ | its sucker |
| € | 4–5 testes Tegument slightly | -vesical bilharziasis | Host: Bulinus | Egg | Urine |
| 1- | \cap | 1. 0-1 | | Sporocyst, Redia | Bulinus snail |
| | | | | miracidim | Bulinus snail |
| | 1 mm | N/ | | Cercaria | water |
| Infectíve stage | Mode of | Maín | Díagnosís and | Treatment | Control |
| | transmíssíon | pathogenesís | Díagnostíc Stage | | |
| Cercaria | Skin penetration | Terminal painless | 1.Identification | Praziquantel | -Health education |
| Location of | by Cercaria | haematuria | (eggs in urine) | (Dose of 20- | |
| development: | | | 2.serological & | 40mg/Kg body | -Chemotherapy |
| In Bulinus snail | | | immunologica tests | Wt. as single | Cuell century! |
| | | | Diagnostic stage: Ova with terminal spine | oral dose). | -Snail control |

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| | | Schistosol | ma mansoni | | |
|---|---|---|--|--|---|
| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
| Schistosoma mansoni | anterior half | -Intestinal Schistosomiasis -Intestinal | Snail transmitted parasite | adult | inferior mesenteric venule attached by its sucker |
| ¢ ¢ | 8–9 testes Tegument coarsely tuberculated | bilharziasis | | Egg | Stool |
| to | 2 | 20 | Host: Biomphalaria | Sporocyst,Redia | Biomphalaria snail |
| C | | Page 1 | | miracidim | Biomphalaria snail |
| | | | | Cercaria | water |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control |
| Cercaria Location of development: In Biomphalaria snail | Skin penetration by Cercaria | -Diarrhea -Dysentery | 1.G.S.E 2.immunological tests 3.rectal biopsy Diagnostic stage: Ova with later spine | Praziquantel (Dose of 20- 40mg/Kg body Wt. as single oral dose). | -Health education -Chemotherapy -Snail control -Human feces should not be used as fertilizer -Swimming in specific pools only |

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Schistosoma japonicum

| Scientífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon |
|---|-------------------------------|--|--|--|---|
| Schistosoma japonicum | Oriental | -Schistosomiasis Japonicum -Intestinal | Snail transmitted parasite | adult | superior mesenteric venule attached by its sucker |
| | 6-8 testes Tegument smooth | bilharziasis | Host: Oncomelania | Egg Lateral k Sporocyst, Redia miracidim Cercaria | Oncomelania snail Oncomelania snail water |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control |
| Cercaria | Skin penetration | -Diarrhea | 1.G.S.E | Praziquantel | -Health education |
| Location of development: In Oncomelania snail. | by Cercaria | -Dysentery | 2.serological test Diagnostic stage Ova with minut blunt projection on outer surface | (Dose of 20- 40mg/Kg body Wt. as single oral dose). | -Chemotherapy -Snail control |

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| Fasciolopsis buski | | | | | | | | | |
|---|--|-------------------------|--|--|---|--|--|--|--|
| Scíentífíc name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon | | | | |
| Fasciolopsis | | Fasciolopsiasis | Snail transmitted parasite | adult | Duodenum attached by their suckers | | | | |
| buski | | | Snail | Egg | stool Ovum | | | | |
| | | | | miracidim Sporocyst, Redia, Cercaria, | Water/snail snail | | | | |
| 2-7 x 0.5-2 cm | | | | Metacercaria | Water chestnut | | | | |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control | | | | |
| Metacercaria encysted in water chestnut. Location of development: On water chestnut. | Ingestion of contaminated water chestnut | -Diarrhea -Dysentery | G.S.E Diagnostic stage: Unembryonated operculated ova | Praziquantel | -Human feces should not be used as fertilizer | | | | |

CESTODES

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| | | Taenia s | saginata | | |
|--|--|---|--|--------------------------------|---|
| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
| Taenia saginata | Beef tapeworm Scolex -1-2 mm 4 suckers No hooklets | Taeniasis saginata <u>Or</u> Beef tapeworm infection | Soil transmitted parasite Gravid segment | Adult Egg Ovum 30-40 μm | Middle third of small intestine attached by scolex suckers Feces |
| Infectíve stage | 5-10 m 1000-2000 segments Mode of transmission | Maín pathogenesís | Uterus with 15–30 lateral branches 16–20 x 5–7 mm Díagnosís and Díagnostíc Staga | Cysticercus bovis Treatment | Flesh of cow |
| The larvae (cysticercus bovis) <u>Location of</u> <u>development:</u> Muscles of cattle. | Ingestion of uncooked beef meat | Epigastric pain Vomiting; diarrhea; Abdominal discomfort | Stage -Stool examination -Cellophane tape tech. <u>Diagnostic stage:</u> Eggs or gravid proglottids in stool or perianal area | Praziquantel &niclosamid | -Sanitation -Adequate cooking or freezing of cow meat or beef effective. |

| Taenia solium | | | | | | | | |
|---|---------------------------------------|---|---|---------------------------------------|---|--|--|--|
| Scíentífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location | | | |
| Taenia solium Scolex ← 1 mm → () () () () () () () () () () () () () | Pork tapeworm | Taeniasis solium OR Pork tapeworm infection | Soil transmitted parasite Proglottid | Adult Egg Ovum δ J1-43 μm | mucosa of small intestine attached by scolex suckers Feces | | | |
| 800–1000 segments | | | branches on each side | cysticercus cellulosae | Pork muscles | | | |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control | | | |
| The larvae cysticercus cellulosae &egg Location of development: In muscles of pigs. | Ingestion of uncooked pork meat | Epigastric pain Vomiting; diarrhea; Abdominal discomfort -Cysticercus produce serious clinical consequences. | -Stool examination Diagnostic stage: Eggs or gravid proglottids in stool | Praziquantel &niclosamid | -Sanitation -Adequate cooking or freezing of pig meat are effective. | | | |

| | | Hymenol | epis nana | | |
|--|---|--|--|-----------------------------|---|
| Scientífic name of parasite | Common name | Dísease Kínd of parasíte according to the mode of transmission | | Stages | Location |
| Hymenolepis nana | Dwarf tapeworm | Hymenolepiasis Or dwarf tapeworm | -Soil transmitted parasite - Auto infection | Adult | Attached to the mucosa of small intestine |
| Adult | | Broader than long | parasite (external & enternal) ment | Egg Ovum | Human feces |
| Contraction of the second | Gorpyrighted, Peter W. Pappas Parasites and Parasitological Recourses | 1 ar a | <u>zor o caerco</u> | Cysticercoid | Small intestine |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control |
| -The larvae (cysticercoid) -Embyronated egg Location of development: In arthropod intermediate host. | -Ingestion of infected arthropod Or -Embryonated eggs in contaminated food, water, hands | Pruritus of nose& anus | -Stool examination Diagnostic stage: Eggs in stool | Praziquantel &niclosamid | - Sanitation - Personal hygiene |

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| | | Hymenolep | is diminuta | | |
|---|--|---|---|--|---|
| Scientífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon |
| <i>Hymenolepis diminuta</i> ^{Adult} | Rat tapeworm | Hymenolepiasis <u>Or</u> Rat tapeworm infection Hos | Soil transmitted parasite st | Adult Egg | Attached to the mucosa of small intestine by the scolex's suckers Human & rat feces |
| | | | | 70 x 50 μm No polar filaments (hexacanth embryo) | Ovum |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control |
| The larvae (cysticercoid) In infected arthropod Location of development: In arthropod intermediate host. | Accidental ingestion of infected insects in precooked cereals&directly from the environment. | Infection usually produces <u>NO</u> symptoms | -Stool examination Diagnostic stage: Eggs in stool | Praziquantel &niclosamid | Eradicate rats around the home |

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| Dipylidium caninum | | | | | | | | |
|---|------------------------------------|---|---|-----------------------------|---|--|--|--|
| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Locatíon | | | |
| Dipylidium caninum | Dog tape worm | Dipylidiasis Or Dog tapeworm infection | Soil transmitted parasite | Adult | Attached to the mucosa of small intestine of man & dogs | | | |
| | | | | Egg | Feces of man &dogs | | | |
| | | | <u>300µm</u> | Cysticercoids | Arthropod | | | |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control | | | |
| The larvae (cysticercoid) In infected arthropod Location of development: In adult fleas | Ingestion of infected arthropod | Infection may produce diarrhea & unrest. | -Stool examination Diagnostic stage: Egg capsule in stool | Praziquantel &niclosamid | -Flea control of pets largely eliminate infection -Periodic administration of Taeniafuges to dogs & cats | | | |

Ahmed Fadíl

| Scientífic name of parasíte | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location |
|---|--|--|--|---------------------------|---|
| Diphylloboth- rium latum | Fish tapeworm | Diphyllobotheriasis <u>Or</u> Fish tapeworm | Water transmitted parasite | Adult | Attached to small intestinal wall |
| | 3–10 m | infection | | Plerocercoid | Freshwater fish |
| | 3000 segments | 2-7 x 10-12 mm | annon anna | Procercoid | Cyclops |
| | | IC-2-7 I DECORAT | Supromotion Supromotion | Coracidium | Water |
| 2 x 1 mm 2 suctorial grooves or bothria | | Broader than long Segment | A second se | | |
| Infectíve stage | Mode of | Maín | Díagnosís and | Treatment | Control |
| | transmission | pathogenesis | Díagnostíc Stage | | |
| Plerocercoid larva (Sparganum) In infected fresh water fish. Location of development: In freshwater fish. | Ingestion of infected Fresh water fish | Infections produce diarrhea; abdominal pain; fatigue; vomiting; dizziness; nausea. | Stool examination Diagnostic stage: Egg with operculum in stool | Praziquantel & niclosamid | -Freezing for 24 h. thorough cooking the fish -Fish reservoirs should be kept free of raw sewage. |

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Echinococcus granulosus

| Scientífic name | Common name | Dísease | Kind of parasite | Stages | Locatíon |
|------------------|---------------|------------------------------|--|----------------------------|----------------------------------|
| of parasíte | | | according to the mode of | | |
| | | | transmíssion | | |
| Echinococcus | | Unilocular Hydatid | Soil transmitted | Adult | Attached to the |
| granulosus | e 60 | disease Or Echinococcosis | parasite | | small intestine of dogs |
| R | | | | Egg Ovum 30-37 μm | Feces of dogs |
| Adult | | Brood capsules of Ec | chinococcus granulosus | Hydatid cyst | Tissues &organs of man &sheep |
| Infectíve stage | Mode of | Maín | Díagnosís and | Treatment | Control |
| | transmission | pathogenesís | Díagnostíc Stage | | |
| Embryonated eggs | Ingestion of | Differ according to | -Clinical symptoms | Surgical | Avoid contact |
| in feces | eggs in feces | site | -Casoni test -X-ray | removal Inactivation of | with infected dogs & cats & |
| Location of | | | -Serological tests | hydatid sand, | eliminate their |
| development: | | | -Aspiration of fluid | Mebendazole | infection |
| In the soil | | | Diamantia stans | result in some | |
| | | | Diagnostic stage: Hydatid larva or cyst | SUCCESS | |

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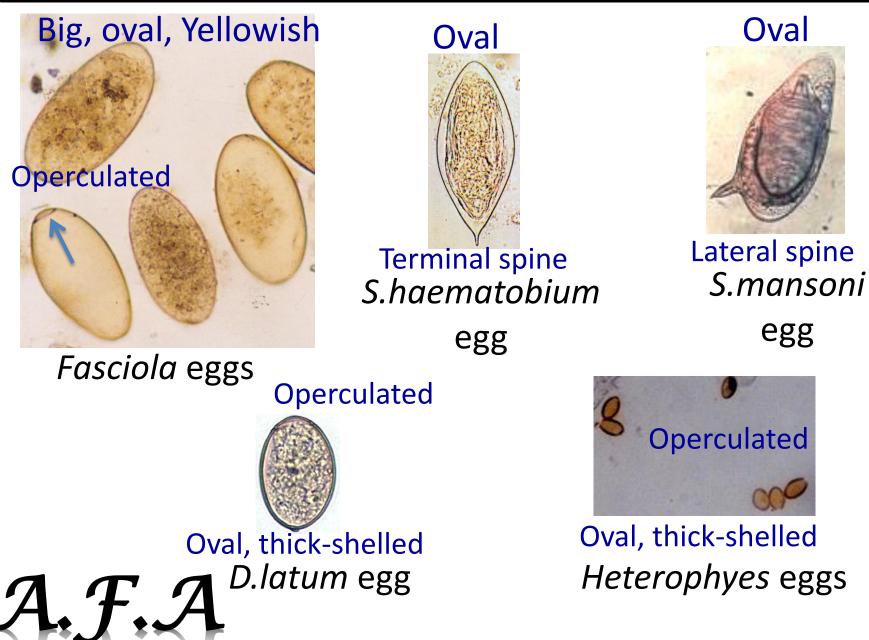
| Echinococcus multilocularis | | | | | | | |
|--|---|-----------------------------|--|--|---|--|--|
| Scientífic name of parasite | Common name | Dísease | Kínd of parasíte accordíng to the mode of transmíssíon | Stages | Location | | |
| Echinococcus multilocularis | à A | Alveolar Hydatid disease | Soil transmitted parasite | Adult | Attached to the small intestine of foxes | | |
| B | | Foxes | Host: s, wolves, etc. | Egg Ovum | Feces of foxes | | |
| Adult | a L L L L L L L L L L L L L L L L L L L | | | Hydatid cyst | Tissues &organs of man &rodents | | |
| Infectíve stage | Mode of transmíssíon | Maín pathogenesís | Díagnosís and Díagnostíc Stage | Treatment | Control | | |
| Embryonated eggs in feces Location of development: In soil | Ingestion of eggs in feces | Differ according to site | Specific diagnosis might be missed due to unfamiliarity with this type of infection Diagnostic stage: Hydatid larva or cyst | Surgical removal , but it is not amenable, albendazole r have some anti parasitic effect | Avoid contact with infected dogs & cats & eliminate their infection | | |

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Review of Helminthes

Collected by: Ahmed fadil 2014-2015

Eggs of Helminthes



Eggs of Helminthes (continued)

Thick shell, mamillated surface



Brownish Ascaris egg

Barrel-shaped



2 mucus plugs Trichuris egg

Plano-convex



Translucent Enterobius eggs

Radially-striated shell



Taenia eggs

Adult Trematodes



Leaf-like flat worm

Lateral borders are parallel

F.gigantica



Lateral borders are converging

F.hepatica

Has 2 globular testes at posterior end



Pear-shaped flat worm

Adult *H.heterophyes*

Adult Trematodes (continued)

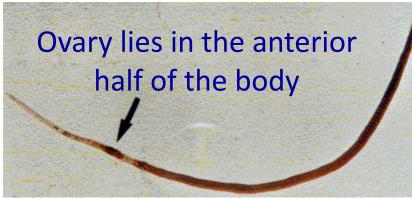
Coarse tubercles on cuticle



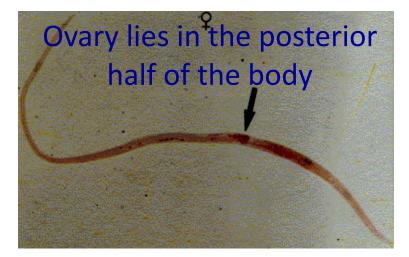
് S.mansoni

Testes 6-9 arranged in cluster

Long & slender



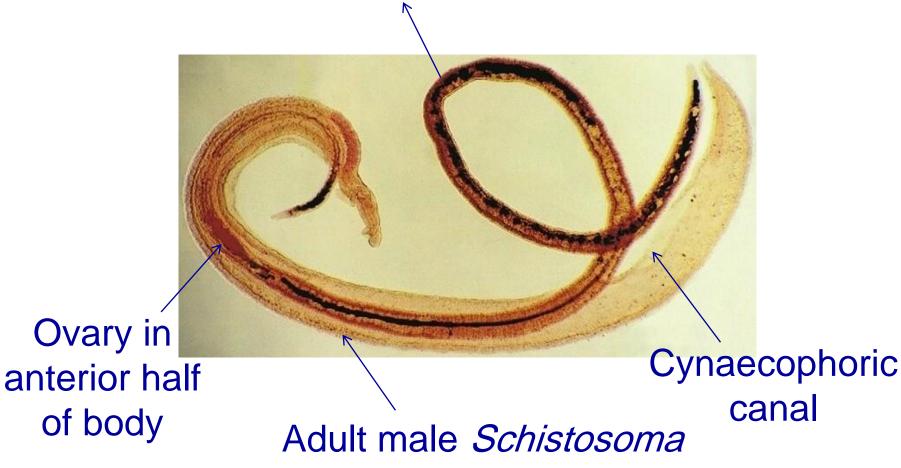
♀ S.mansoni



♀ S.haematobium

Adult Schistosoma (in copula)

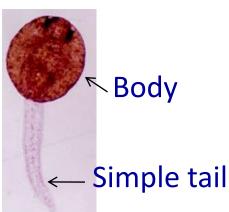
Adult female Schistosoma



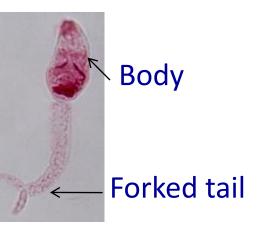
 $\mathcal{A}.\mathcal{F}.\mathcal{A}$

Cercariae

Cercaria of Fasciola (leptocercous cercaria)



Cercaria of Schistosoma (furcocercous cercaria)



Snails in boxes

Short spire Blunt apex



Pointed apex

Long, conical -spire

Coarse

tubercles

Flat, Button-like



Right-sided opening Left-sided opening **Bulinus** Pirenella Lymnaea cailliaudi conica truncatus

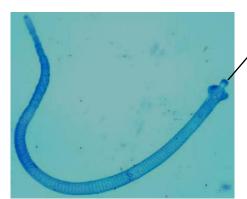
Left-sided opening Biomphalaria alexandrina

Adult Cestodes

2 adult Cestodes come whole worm on a slide namely: *Echinococcus granulosus Hymenolepis nana*

Globular scolex with hooks

Strobila: 3 segments



Small globular scolex with rostellum & hooks

Segments broader than long

The rest of adult Cestodes come either

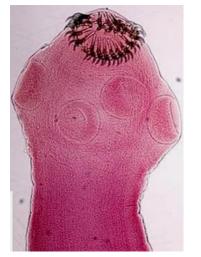
Scolex

Mature segment

Gravid segment

Adult Cestodes Scolices

Rostellum with 2 circles of hooks



NO rostellum , NO hooks



Globular with 4 suckers

T.solium scolex

T.saginata scolex



Adult Cestodes Segments

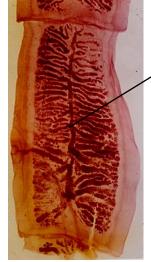
Mature segment of Taenia

Bilobed ovary

<u>Gravid segment of</u> <u>Taenia saginata</u>

Segment is Squarish

Segment is longer than broad



Longitudinal median uterus with many lateral branches

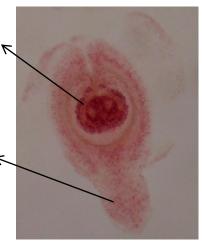


Larval Cestodes

Invaginated scolex with circle of hooks

Invaginated scolex in upright position with NO hooks

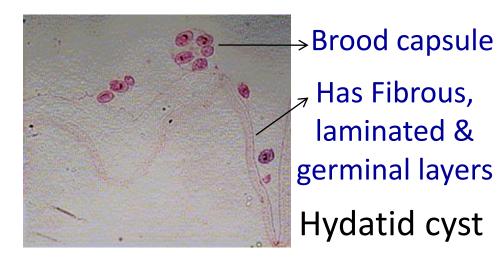
> Tail-like appendage

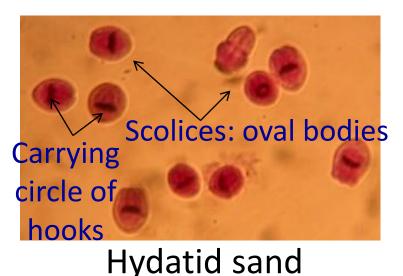


Cysticercoid diminuta

Cysticercus cellulosae

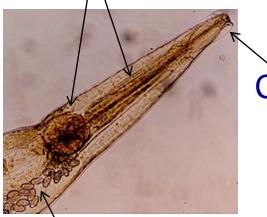
Oval cyst





Adult Nematode

Double-bulbbed oesophagus



Cephalic alae

Shows
Enterobius Eggs
Anterior end of
♀ E.vermicularis
Has 2 pairs of teeth
Has 2 plates
Buccal capsule of
Ancylostoma

Has a buccal capsule





Schedule<

Adult Nematode



Adult & Trichuris trichiura

Cellular oesophagus



Blunt posterior end

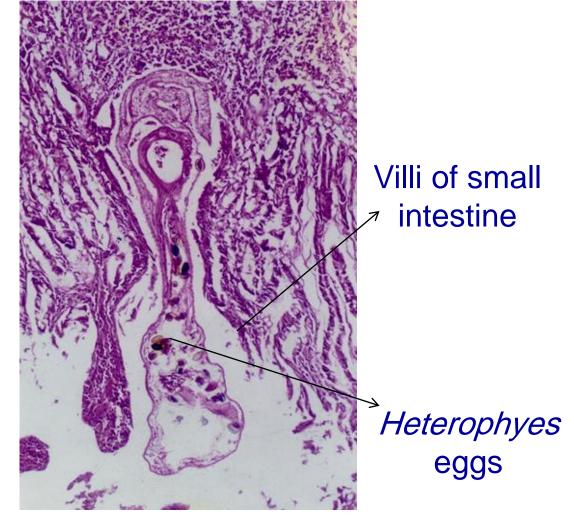


Adult ♀ *Trichuris*



Adult *QT.spiralis*

Sections of Helminths



Adult *Heterophyes* in small intestine

Sections of Helminths

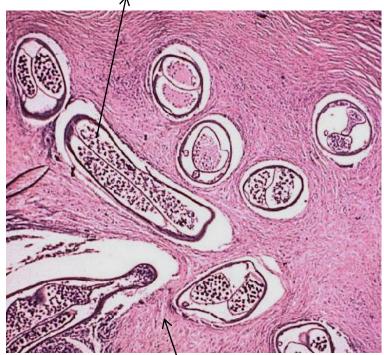
Cysts are ellipsoidal in



Long axis of cysts are parallel along long axis of muscle fibres

Encysted larva of *T.spiralis*

Microfilariae inside 2 uteri



Worms are surrounded by Fibrous tissue

Onchocerca nodule