



## INTESTINAL, BLOOD, AND TISSUE PARASITES OF DOGS AND CATS

Infection Site in Host	Portal of Entry	Source of Infection	Specimen to be Collected	Tests Performed	Therapeutic Agents*
<b>Mouth</b>					
Trichomonas spp.	Mouth	Saliva	Gum scraping	Microscopy for trophozoites	Non-pathogenic
<b>Esophagus and Stomach</b>					
Capillaria putori	Mouth	Eggs	Feces	Microscopy for eggs	Levamisole, Fenbendazole, Ivermectin
Gnathostoma spinigerum	Mouth	Cyclops, fish, frogs, snakes,	Feces	Microscopy for eggs	Surgical removal or Mebendazole
Ollulanus tricuspis (feline)	Mouth	Vomitus	Vomitus	Microscopy for worms	
Physaloptera spp.	Mouth	Beetles	Feces	Microscopy for eggs	Broad antihelminthics on experimental basis
Spirocerca lupi	Mouth	Beetles	Feces, vomits	Microscopy for eggs	Disophenol
<b>Small Intestine</b>					
Alaria spp.	Mouth	Frog, snake	Feces	Microscopy for eggs	Praziquantel
Apophallus venustus	Mouth	Fish	Feces	Microscopy for eggs	Praziquantel
Cryptocotyle lingua	Mouth	Fish	Feces	Microscopy for eggs	Praziquantel
Echinostoma spp.	Mouth	Fresh water fish	Feces	Microscopy for eggs	Praziquantel
Heterophyes sp.	Mouth	Fresh water fish	Feces	Microscopy for eggs	Praziquantel



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Metagonimus sp.	Mouth	Fresh water fish	Feces	Microscopy for eggs	Praziquantel
Stephanoprora sp.	Mouth	Fresh water fish	Feces	Morphology of eggs	Praziquantel
Diphyllobothrium spp.	Mouth	Fresh water fish	Feces, worm segments	Microscopy for eggs	Praziquantel, Niclosamide
Dipylidium caninum	Mouth	Fleas, lice	Feces, worm segments	Microscopy for eggs Identification	Niclosamide, Praziquantel
Echinococcus granulosus	Mouth	Hydatid cysts	Adult worms, feces	Identification Microscopy for eggs	Niclosamide, Praziquantel
Hymenolepis diminuta	Mouth	Fleas, beetles	Feces	Microscopy for eggs	Praziquantel, Niclosamide
Nanophyetus salmonicola	Mouth	Salmon	Feces	Microscopy for eggs	Oxytetracycline, Tetracycline, Praziquantel
Plagiorchis sp.	Mouth	Larvae of midges, mosquitoes etc.	Feces	Microscopy for eggs	Experimental
Mesocestoides spp.	Mouth	Amphibians, snakes, birds	Worm segments	Identification	Praziquantel, Bunamidine Hcl Epsiprantel
Spirometra spp.	Mouth	Frogs, snakes	Feces	Microscopy for eggs	Niclosamide
Taenia crassisepts	Mouth	Rodents	Feces Worm segments	Microscopy for eggs Identification	Fenbendazole
Taenia hydatigena	Mouth	Ruminants, swine	Feces Worm segments	Microscopy for eggs Identification	Praziquantel
Taenia ovis	Mouth	Ruminants	Feces, Worm segments	Microscopy for eggs Identification	
Taenia multiceps	Mouth	Ruminants	Feces Worm segments	Microscopy for eggs Identification	
Taenia pisiformis	Mouth	Rodents, rabbits	Feces Worm segments	Microscopy for eggs Identification	



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<i>Taenia serialis</i>	Mouth	Rabbits, hares	Feces Worm segments	Microscopy for eggs Identification	
<i>Ancylostoma</i> spp. (hookworms)	Mouth, skin, milk to pups	Infective larvae in soil or milk	Feces	Microscopy for eggs	Mebendazole, Fenbendazole, Ivermectin, Pyrantel pamoate, Albendazole
<i>Macracanthorhynchus</i> sp. (Acanthocephalans)	Mouth	Larvae in arthropods	Feces	Microscopy for eggs	No effective treatment May resolve spontaneously
<i>Strongyloides stercoralis</i>	Skin	Infective larvae	Feces	Baermann test Microscopy for larvae	Thiabendazole
<i>Toxascaris leonina</i>	Mouth	Eggs in soil	Feces	Microscopy for eggs	Dichloves, Fenbendazole, Nitrosanate
<i>Toxocara canis/cati</i>	Mouth	Eggs in soil, larvae in bitch	Feces Adult worms	Microscopy for eggs Worm identification	Piperazine, Mebendazole, Ivermectin, Pyrantel Pamoate,
<i>Trichinella spiralis</i>	Mouth	Larvae in meat	Muscles	Microscopy for larvae	Fenbendazole Thiabendazole, Mebendazole
<i>Uncinaria stenocephala</i>	Skin	Infective larvae	Feces	Microscopy for eggs	See Ancylostma
<i>Besnoitia</i> spp.	Mouth	Bradizoites in animal tissues	Feces (cats) Biopsy, serum	Microscopy for oocysts Serology for antibodies	No effective treatment
<i>Cryptosporidium</i> spp.	Mouth	Oocysts in feces	Feces	Flotation, acid-fast stain for cysts , ELISA for soluble antigens	Octreotide, Paromomycin, Azithromycin (infection is self-limiting in normal human)
<i>Giardia</i> spp.	Mouth	Cysts	Feces, Duodenal aspirates	Microscopy for cysts & trophozoites, ELISA for antigens	Metronidazole, Quinacrine Tinidazole, Furazolidone



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<i>Hammondia heydoni</i>	Mouth	Oocysts in feces	Biopsy materials Feces (cat)	Microscopy for oocysts	See <i>Isospora</i> infection
<i>Isospora</i> spp.	Mouth	Oocysts	Feces	Microscopy for oocysts	Trimethoprim sulfadimethoxine
<i>Sarcocystis</i> spp.	Mouth	Bradizoites in animal tissues	Feces	Microscopy for oocysts	No treatment is indicated (asymptomatic infections)
<i>Toxoplasma gondii</i>	Mouth	Oocysts in cat feces, tissue cysts	Feces (cats), Biopsy materials, Serum	Microscopy for oocysts, Microscopy for cysts, Serology	Pyrimethamine + Sulfadiazine Spiramycin
<b>Large Intestine</b>					
<i>Heterobilharzia americana</i>	Skin	Cercariae in water	Feces	Microscopy for eggs	Praziquantel
<i>Schistosoma mansoni</i>	Skin	Cercariae in water	Feces	Microscopy for eggs	Praziquantel, Oxaminiguine
<i>Trichuris vulpis</i>	Mouth	Eggs in soil	Feces	Microscopy for eggs	Mebendazole, Fenbendazole, Albendazole Dichlovos, Butamisol, Glycobiarsol
<i>Balantidium coli</i>	Mouth	Cysts in feces	Feces	Microscopy for cysts & Trophozoites	Tetracycline, Iodoquinol, Metronidazole
<i>Entamoeba coli</i>	Mouth	Cysts in feces	Feces	Microscopy for cysts & Trophozoites	Bermasal, Diodoquin
<i>Entamoeba histolytica</i>	Mouth	Cysts in feces	Feces	Microscopy for cysts & Trophozoites	Iodoquinol, Dehydroemetine, Tinidazole Metronidazole, Paromomycin

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Tritrichomonas foetus (Cat)	Mouth?	?	Feces	Culture, stained smear	?
<b>Liver and Pancreas</b>					
Capillaria hepatica	Mouth	Eggs in soil	Liver biopsy	Microscopy for eggs	Ivermectin
Clonorchis sinensis	Mouth	Fresh water fish	Feces, bile	Microscopy for eggs	Praziquantel
Dicrocoelium dendriticum	Mouth	Ants	Feces	Microscopy for eggs	Metronidazole, Thiabendazole, Praziquantel
Eurytrema pancreaticum	Mouth	Grasshoppers	Feces,	Microscopy for eggs	Praziquantel Albendazole
Leishmania donovani	Skin	Sandflies	Biopsy from liver & spleen Blood	Microscopy for Amastigote forms Serology	Pentamidine, Glucantime, Pentostam Amphotericin B
Metorchis spp.	Mouth	Fresh water fish	Feces, bile	Microscopy for eggs	Peaziquantel
Opisthorchis spp.	Mouth	Fresh water fish	Feces, bile	Microscopy for eggs	Praziquantel
Toxocara larvae	Mouth	Eggs in feces	Liver biopsy Serum	Microscopy for larvae Serology for antibodies	Diethylcarbamazine, Thiabendazole Albendazole, Mebendazole
<b>Nasal Cavity, Trachea, Bronchi and Lungs</b>					
Aelurostrongylus sp.	Mouth	Larvae in snails, mice, birds	Feces	Baermann test Microscopy for larvae	Levamisole Ivermectin
Angiostrongylus sp.	Mouth	Larvae in snails and slugs	Feces	Baermann test Microscopy for larvae	Levamisole



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Capillaria aerophila	Mouth	Eggs in soil	Feces, nasal discharge	Microscopy for eggs	Ivermectin, Mebendazole, Albendazole
Capillaria boehemi	Mouth	Eggs in soil	Feces, nasal discharge	Microscopy for eggs	Ivermectin
Crenosoma vulpis	Mouth	Larvae in snails, slugs	Feces, nasal discharge	Microscopy for larvae	Thiabendazole, Mebendazole, Levamisole
Filaroides hirthi	Mouth	Larvae in feces	Feces	Baremann test Microscopy for larvae	Albendazole
Filaroides osleri	Mouth	Larvae in feces, vomitus, secretions	Feces	Microscopy for larvae	Levamisole, Ivermectin Thiabendazole, Albendazole
Filaroides milksi	Mouth	Larvae in feces	Feces	Baremann test Microscopy for larvae	Albendazole
Linguatula serrata (Tongue-worms)	Mouth	Larvae in offal of ruminants	Feces, nasal discharge	Microscopy for eggs	No effective treatment
Paragonimus kellicotti	Mouth	Crabs, crayfish	Feces, sputum	Microscopy for eggs	Praziquantel Fenbendazole
Paragonimus westermani	Mouth	Crabs, crayfish	Feces, sputum	Microscopy for eggs	Praziquantel Fenbendazole
Pneumonyssoides sp. (mites)	Sniffing Noses	Mites	Nasal discharge	Mite speciation	Systemic organophosphorus Compounds (e.g. dichlovos)
<b>Heart and Blood</b>					
Babesia canis	Skin	Ticks	Whole blood Serum	Microscopy Serology	Pentamidine isethionate Diminazine aceturate
Babesia gibsoni	Skin	Ticks	Whole blood	Microscopy	Diminazine aceturate Pentamidine isethionate



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Babesia microti	Skin	Ticks	Whole blood	Microscopy	Clindamycin + Quinine
Cytauxzoon felis	Skin	Ticks	Whole blood	Microscopy	No known treatment
Dipetalonema reconditum	Skin	Fleas	Whole blood	Microscopy for MF	Ivermectin (Non-pathogenic)
Dirofilaria immitis	Skin	Mosquitoes	Serum Whole blood	ELISA for antigens Microscopy for MF	Ivermectin, Levamisole, Arsenamide, Dithiazanine iodide
Hepatozoon canis	Mouth	Ticks	Whole blood, Spleen, bone marrow	Microscopy	No effective treatment
Trypanosomes, American	Skin	Kissing bugs	Whole blood	Microscopy	Metronidazole against blood stage Nitrofurans against tissue stage
Trypanosomes, African	Skin	Tsetse flies	Whole blood	Microscopy	Suranim
<b>Brain and Spinal Cord</b>					
Baylisascaris sp.(larvae)	Mouth	Eggs in soil	Biopsy specimens	Microscopy for larvae	Levamisole, Ivermectin, Fenbendazole On experimental basis
Neospora caninum	Mouth	Oocysts, tissue cysts	Biopsy specimens Serum	Microscopy for cysts Serology	See Toxoplasma
<b>Kidney and Urinary Bladder</b>					
Capillaria plica	Mouth	Earthworms	Urine	Microscopy for eggs	Ivermectin
Diectophyme renale	Mouth	Annelids, frogs, fish etc	Urine	Microscopy for eggs	Surgical removal of the worm

<b>Skin and Connective Tissues</b>					
Ancylostoma caninum larvae	Skin, mouth, milk to pups	Infective larvae in Soil & tissues		Microscopy for larvae	See Ancylostoma under small Intestine
Rhabditis strongyloides (Pelodera)	Skin	Contact with free-living roundworms	Skin	Microscopy for larvae	Organophosphate
Trichinella spiralis (larvae)	Mouth	Infective larvae in meat	Biopsy materials	Microscopy for larvae	See Trichinella in small intestine
Dracunculus insignis	Mouth	Cyclops	Adult worms	Microscopy for worm Identification	Metronidazole, Thiabendazole, Organophosphate
Leishmania spp.	Skin	Sandflies	Biopsy from lesions	Microscopy for amastigote forms. In vitro cultures	Pentavalent antimony, Pentamidine, Glucantime
Neospora caninum	Placenta, mouth ?	Tissue cysts, oocysts	Biopsy specimens	Microscopy for cysts Serology	No effective treatment See Toxoplasma
Toxoplasma gondii	Mouth	Oocysts in cat feces, tissue cysts	Feces (cats), biopsy specimens, blood	Microscopy for cysts Serology for antibodies	Pyrimethamine, Sulfadiazine
Encephalitozoon cuniculi	Mouth	Infected tissues Spores	Biopsy specimens	Microscopy for spores	No established treatment
Fleas	Skin	Adult fleas	Eggs, larvae & adult fleas	Identification	Growth regulators, insect development inhibitors, carbamates, organophosphates
Pediculosis	Skin	Nymphs/adults	Adults, nymphs, Eggs(nits), hair	Identification	1% Benzene Hexachloride (Kwelada lotion or shampoo)
Cutebra phaenicia(fly larvae)	Skin	Female fly	Larvae	Identification	Surgical removal of larva
Myiasis	Skin	Fly eggs/larvae	Maggots	Identification	Surgical removal of maggots



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Sarcoptic mange	Skin	Sarcoptes sabeii, dog Notoedres cati, cat	Skin scrapings	Identification	1% lindane, 10% crotamiton, 5% permethrin
Demodex mange	Skin	Demodex canis	Skin Scrapings	Identification	Effective miticides
Otodectic mange	Skin	Otodectic cynotis	Skin scrapings	Identification	Effective miticides
Cheyletiellosis	Skin	Cheyletiella	Skin scrapings	Identification	Effective miticides
Ticks	Skin	Various species	Tick specimens	Identification	Removal of ticks

\*Obtained from the following: George JR and George ME. *Canine Clinical Parasitology*, Lea & Febiger, Philadelphia, 1992; George JR and George ME. *Parasitology for Veterinarians*, 5<sup>th</sup> ed. W.B. Saunders Co. Philadelphia, 1990; *The Medical Letter* (Drugs for parasitic infections): vol.35 (issue 911, 1993; "Treatment of parasitic infections" in *Diagnostic Parasitology* by Garcia SG and Bruckner DA, Elsevier, New York, 1988