

Common Internal Parasites of Cats

Many kinds of internal parasites are common in cats. Most do not cause serious disease unless the animal is heavily infested. However, parasites are likely to cause illness in young kittens and puppies. The first indication of parasitic disease in a pet often is diarrhea or vomiting. The animal may be a little lethargic and not too interested in its food, and its haircoat may be dull. If parasites are suspected, a fresh stool sample should be taken to the veterinarian for diagnosis. He then can prescribe the proper deworming medication, eliminating the problem.

"Outdoor cats are more prone to becoming infected with parasites, because they hunt and because they are more likely to come into contact with other cats and their droppings," said Dr. Carl E. Kirkpatrick, assistant professor of parasitology at the University of Pennsylvania School of Veterinary Medicine. "House cats, unless they are infected when they arrive in a household or have come into contact with an intermediate host, don't have internal parasites that frequently."

The most common internal parasite seen in cats is roundworm. "There are two kinds of roundworm affecting cats," said Dr.

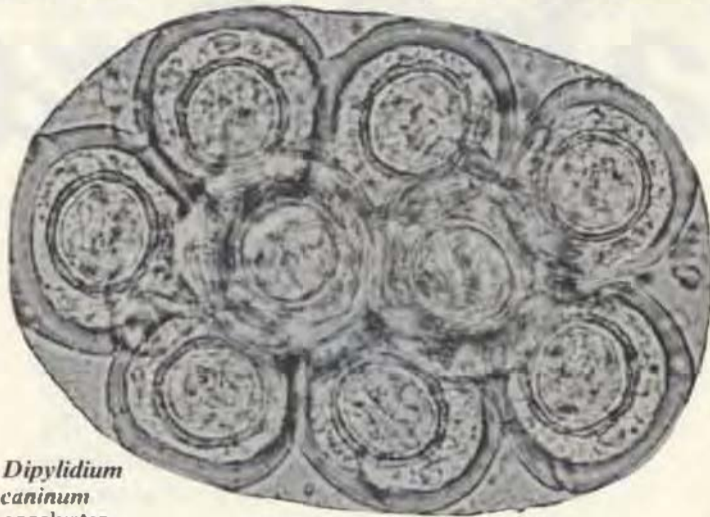
Kirkpatrick. "*Toxocara cati*, which affects cats only, and *Toxascaris leonina*, which affects cats and dogs." Kittens become infected with *Toxocara* shortly after birth because the larvae of *Toxocara cati* migrate to the milk during lactation.

Toxascaris leonina larvae do not leave the intestines to migrate to other tissues. Infection with this worm occurs by contact with feces or by eating infected prey, such as mice. Roundworm infestation can be debilitating for kittens, as it weakens the animals and prevents the proper absorption of vital nutrients. Kittens should be checked for worms and treatment should commence under veterinary supervision.

A parasite dangerous to young kittens is hookworm, though this disease is more frequent in dogs than in cats. A heavy infestation leads to anemia and diarrhea. Infective hookworm larvae survive in contaminated soil. Cats become infected in two ways; larvae are ingested or they penetrate the skin. This often causes a reaction which can develop into a moist dermatitis.

Tapeworm is another parasite affecting cats. "There are five kinds," said Dr. Kirkpatrick. "When the tapeworm is diagnosed, it is important to determine which one it is, as the species are transmitted in different ways. And to prevent reinfestation, environmental controls should be instituted."

The most common tapeworm in cats is *Dipylidium caninum*, which is also seen in dogs. It is transmitted by ingestion of fleas. The parasite is not transmitted by fleabites. If the cat has *Dipylidium caninum* then it and the environment must be treated for fleas to prevent reinfec-



Dipylidium caninum egg cluster.

tion. Other types of tapeworm infection occur if the cat eats rodents, snakes and frogs.

Threadworm is another intestinal parasite seen occasionally in cats. Larvae of these worms survive for long periods of time on the ground where the cat can come into contact with them. It is thought that threadworm (*Strongyloides*) may be transmitted through the milk of an affected queen. Although it seldom causes disease in cats, *Strongyloides* is capable of infecting humans.

Cats are also subject to lungworms which can cause respiratory illness. *Capillaria aerophila*, a hair-like worm, lives in the bronchi. Eggs are laid in the air passages, coughed up and ingested. The eggs stay, then pass out to the environment in the feces. A larva then develops within each egg, which is infective for another cat when ingested. Cats with this parasite can develop chronic respiratory disease, though many infected cats show no signs of disease.

Aelurostrongylu is another lungworm found in cats. It is not as common in this area, but it is seen occasionally. Lungworms can cause serious problems for kittens because of the respiratory disease which can develop. Cats become infected with lungworms by eating snails or slugs, intermediate hosts of these worms, or prey animals which have consumed infected, intermediate hosts.

Worms are not the only parasites affecting cats. Single-celled organisms, protozoa, may also cause intestinal signs. *Isospora spp.* ("coccidia") rarely cause problems in older animals, but kittens are susceptible, developing coccidiosis, which manifests itself as diarrhea.

Giardia is another protozoa seen in cats. It causes diarrhea. This organism is found in many species of animals, and Dr. Kirkpatrick and his colleagues are conducting a study to identify the different types of *Giardia*. They are also trying to determine if *Giardia* can be transmitted from animals to humans. In older cats, *Giardia* rarely causes symptoms, though the animals are carriers and shed cysts which are infectious to other cats.

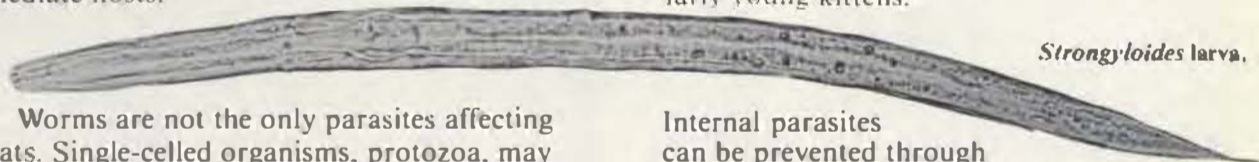
Toxoplasmosis is potentially a more serious protozoan disease. *Toxoplasma gondii* needs the cat as a host to complete its life cycle. Toxoplasma affects many animals, but only the cat spreads the disease through shedding of infectious cysts. In humans toxoplasmosis can cause flu-like symptoms. The disease is dangerous to women in the first trimester of pregnancy, as it may cause congenital malformation in the fetus. Pregnant women should avoid handling the lit-

ter pan, and it should be cleaned and disinfected frequently. A bloodtest is available to determine whether a cat harbors the organism.

Many infected cats show no signs of disease. Toxoplasmosis can be a serious problem in young cats, as the motile stage of the organism may invade other tissues. Signs often resemble those of other diseases, depending on the location of the protozoa. They have been found in the eye, brain, intestines, spinal cord and other parts of the body. Toxoplasmosis is spread by ingestion of the infectious oocysts, in cat feces, or tissue cysts in many kinds of meat. Cooking the meat destroys the protozoa. Cats should not be fed raw meat. The organism, in the oocyst stage, also survives in soil. In areas where there are many outdoor cats, gardeners should wear gloves to work in the soil. Just one *Toxoplasma gondii* can start an infection as the organism multiplies within a host.

Diagnosis of these parasitic diseases is made by microscopic examination of fecal material. "It is important that an owner bring a fresh stool sample when the cat is taken for its annual check-up," said Dr. Kirkpatrick. "This is part of the exam. Also when acquiring a new kitten, it should be checked for parasites even though it may already have been dewormed."

He recommended that cats which live indoors exclusively be checked annually for parasites. Outdoor cats need to be checked at least twice a year. He also recommended against routine deworming. "For a drug to be effective, it has to be the correct one," he said. "Many deworming drugs work only for a particular parasite, some only on one stage of the life cycle. In order to utilize the most effective drug, the sample has to be checked by the veterinarian to determine which drug is needed to control the parasite. Often multiple dewormings are needed to eliminate the organism. It is best to consult the veterinarian before deworming an animal, particularly young kittens."



Strongyloides larva.

Internal parasites can be prevented through proper sanitation. Litter pans should be cleaned and disinfected frequently. Cats should not be permitted to eat prey or raw meat. Also they should be checked and treated for fleas on a regular basis. "In most cases, parasites cause only mild problems," said Dr. Kirkpatrick. "But they may interfere with the absorption of nutrients and this can be detrimental, particularly to kittens or old animals. As cats mature, they develop some immunity to parasites, making it more difficult for the organisms to cause serious disease."

Dr. Kirkpatrick is conducting a study with Dr. Lawrence Glickman, Chief, Section of Epidemiology, to determine the species of parasites found in pets in this area. He hopes to determine how common parasite infections are among cats and dogs and whether certain species are more prevalent than others. The researchers are also looking at the geographic areas where the parasites are found, and they hope to determine whether certain parasites are more prevalent in specific geographic areas.

H. W.



Toxocara cati eggs.