

Internal Parasites: Roundworms

The Basics Of Roundworms

The most common intestinal parasite found in dogs and cats is the infamous roundworm. They occur most often in puppies and kittens. Roundworms receive their name from their cylindrical shape and they have a circular cross section. They can infest many species of animals besides dogs and cats, including birds, reptiles, and people.

These worms live in the small intestine and absorb nutrients from passing food. The adults can grow to be three to four inches long. Some roundworms in dogs have been measured at eight inches in length.

Roundworm Species

- *Toxascaris leonina* affects cats and dogs.
- *Toxocara canis* affects dogs.
- *T. cati* affects cats and occasionally dogs.

The Life Cycle Of Roundworms

These three species of roundworms have slightly different life cycles. For the species *T. leonina*, the adults live in the small intestine and pass eggs in the feces of the host animal. These eggs need to be in the outside environment for three to six days to mature. Then, if an animal ingests these eggs, they hatch and the larvae mature in the lumen and the walls of the small intestine. The roundworms become adults and mate and begin to lay eggs. Sometimes, a small animal like a mouse will ingest the eggs and they hatch. Rather than moving to the small intestine and maturing to adults as in their normal host, these roundworm larvae migrate through the tissues of the mouse and at some point form a small cyst and become dormant. Then if another animal eats the mouse, the larvae pass into the small intestine of the new host and mature into adults.

The primary roundworm that infests dogs is *T. canis*. Similar to *T. leonina*, the adults of *T. canis* live in the small intestine and pass eggs in the stool of their host. These eggs need to mature in the outside world for ten to fourteen days in order to infest a new host. If a dog ingests these eggs through contact with contaminated soil, the eggs hatch and the larvae move to the small intestine. They burrow through the intestinal wall and migrate to a nearby blood vessel. The roundworm larvae travel the circulatory system to the lungs or to other tissue. Those that arrive at the lungs penetrate these organs and migrate up into the bronchi and trachea. The host dog coughs them up and swallows them. The larvae pass into the small intestine and attach to the intestinal wall and mature into adults.

The larvae that do not travel to the lungs instead end up in other locations in the body. Here, they form cysts and become dormant and can remain for months to years. If a female dog becomes pregnant, these encysted larvae can awaken and travel to either the uterus or mammary glands. Those larvae entering the uterus can infest fetal pups and these puppies are born with roundworms. When puppies nurse, those larvae in the mammary glands can enter and infest nursing puppies. Overall, it takes approximately four weeks after eggs are ingested by a host animal to the time that the next generation of eggs begin to pass in the stool from adult roundworms.

The roundworm *T. cati* has a life cycle nearly identical to that of *T. canis*. However, *T. cati* cannot infect fetal kittens. Instead any encysted larvae in a pregnant cat all migrate to the mammary glands to infest nursing kittens.

Transmission of Roundworms

Roundworms can infest a new host in one of several ways. A dog or cat may lick roundworm eggs that stick to their fur after lying in contaminated soil. If food has been kept in a contaminated environment, an animal can become exposed to roundworm eggs. Raw meat may contain encysted roundworm larvae that will awaken and infest a new host when eaten.

- While in the uterus from migrating larvae in the mother.
- When nursing, puppies can ingest larvae that migrated to the mammary glands.
- Puppies can lick and swallow infective larvae in fecal material on the mother or each other or their den.
- Larvae can enter through the skin of puppies if they lie in contaminated water or soil.

Symptoms Of Roundworm Infestation

Quite often, animals infested with roundworms do not show any signs of problems. However, in cases with large worm populations, symptoms can become quite severe.

- Dogs and cats may have thin, dull coats.
- Diarrhea or loose stool.
- Pets may vomit food and even adult worms.
- Puppies and kittens can become pot-bellied.
- A cough may develop along with pneumonia-like symptoms.

Smaller animals have more severe signs than larger animals with the same number of worms.

Treatment And Prevention Of Roundworms

If your pet is infested with roundworms, we will administer an appropriate deworming agent and repeat this four weeks later. This medication destroys the adult worms in the intestines but does not affect larvae migrating through body tissue. We must allow the larvae to complete their migration and pass into the small intestine where the second round of medication will destroy them. Occasionally, after a treatment, you may observe dead worms passing in the stool for 24-36 hours. The symptoms associated with roundworm infestation will be treated on a case by case basis.

To prevent a roundworm infestation, regularly remove feces from your yard. Remember that roundworm eggs passing in the stool require one to two weeks to hatch and until then, they cannot infect passing animals. However, infective eggs already in the ground can remain there for months to years.

Possibility Of Human Infestation From Roundworms

Roundworms can and do regularly infest people around the United States. People usually become infested in the same manner of cats and dogs, they must eat infective eggs. Usually children develop roundworm infestations from playing with puppies or playing in areas contaminated with roundworm eggs and not washing their hands afterwards.

When these ingested eggs hatch, the larvae migrate through tissue and can cause inflammation or even mechanical damage to the organs they pass through including the lungs, liver, and the brain (known as "visceral larval migrans").

Every year, physicians deal with cases in children where roundworm larvae have entered the body through the eye (known as "ocular larval migrans"). Obviously, this can pose serious problems including vision loss and even blindness.

To prevent people from being exposed to roundworms, always wash hands prior to eating and wash all food well. Clean up any stool in the environment. Keep any rodent populations under control.

For more information or questions about human infestation of roundworms, contact North Shore Veterinary Clinic at 847-966-3080.