

Internal Parasites: Hookworms

The Basics Of Hookworms

As one of the more common intestinal parasites, hookworms are familiar, at least in passing, to many pet owners. The aptly named hookworms have narrow slim bodies with the tail shaped like a small hook. Adult worms can measure 1/2 to 3/4 of an inch long (1-2 cm). Although hookworms are visible to the naked eye, they are rarely seen in stool.

Hookworms can be found throughout the United States, Canada, and Mexico.

Hookworms use teeth or cutting plates to attach themselves and burrow into the wall of the small intestine. They live on the blood of their host and can potentially cause serious problems like anemia.

Hookworm Species

- *Ancylostoma caninum* affects dogs.
- *A. braziliense* affects cats and dogs.
- *A. tubaeforme* affects cats.
- *Uncinaria stenocephala* affects dogs and cats.

The Life Cycle Of Hookworms

Adult hookworms live in the small intestine and attach to the intestinal wall via their teeth. They ingest blood from their host and lay eggs that pass in the feces. The eggs hatch in one to three weeks producing larvae that swim very well and can move great distances relative to their size. The next stages of the hookworm's life cycle vary depending upon how it enters its host.

Hookworm larvae can enter the body through the skin. An animal may rest on the ground for a time and the larvae burrow into the skin. Then they migrate to the bloodstream and get carried to the lungs. Once there, the larvae are coughed up by the host and swallowed. Then they pass to the intestines and attach and mature into adults. Some larvae do not travel to a blood vessel once they enter the body, instead they remain in the tissue and form small cysts and become dormant.

If an animal ingests contaminated soil or water while cleaning itself, most of the hookworm larvae pass directly into the small intestine and attach to the intestinal wall. A few migrate through the body's tissue and pass to the lungs and trachea and are coughed up and swallowed. These larvae then pass to the small intestine. Some migrating larvae do not complete their migration to the lungs and instead encyst in tissue and become dormant.

Puppies can become infested with hookworms while in the uterus. If a pregnant dog or cat has encysted larvae in her tissue, for reasons as yet not understood, these dormant larvae "awaken" and migrate to the uterus and infest fetal puppies and kittens. When born, the hookworm larvae complete their lifecycle in the small intestine.

Another way puppies can become infested with hookworms involves their mother's milk. Encysted larvae that awaken in a pregnant cat or dog may migrate to the uterus or the mammary glands. Larvae in the mammary glands are ingested by the newborn puppy or kitten while nursing.

Transmission of Hookworms

As you can see from their life cycle, hookworms can infest puppies in one of four ways:

- 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.

Adult dogs and cats usually ingest hookworm larvae by exposure to contaminated soil, water, or food sources. Occasionally, hookworm larvae enter through the skin.

Symptoms Of Hookworm Infestation

The most severe problem associated with hookworm infestation is usually anemia. Hookworm saliva contains an anticoagulant that prevents blood from clotting as they feed. Sometimes the worms detach themselves from their site in the intestine and move to another one. The original site will still continue to bleed and the host will experience blood loss. The dog or cat becomes weak and will have pale gums. Occasionally, the stools will be blackened from blood loss or actual free blood may appear as well. This condition becomes a serious health issue very quickly, especially in small puppies and kittens. Less severe hookworm infestations may stunt the growth in puppies and kittens or they may appear emaciated and have a dull dry coat.

Treatment And Prevention Of Hookworms

Hookworms are diagnosed through a fecal parasite exam. Simply bring in a small stool sample and we will prepare a specimen through centrifugation and examine it microscopically. The presence of hookworm eggs in the stool indicate a hookworm infestation.

If your pet is infested with hookworms, 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 hookworm infestation will be treated on a case by case basis.

To prevent a hookworm infestation, regularly remove feces from your yard. Remember that hookworm eggs passing in the stool require one to three weeks to hatch and until then, they cannot infect passing animals.

Possibility Of Human Infestation From Hookworms

Hookworms can cause problems for people. The larvae can penetrate the skin, most often through a person's feet. They migrate through the tissue creating fine red lines that can often become itchy or crack and break. They usually die in several weeks. Occasionally, problems can be more severe. People can also accidentally ingest hookworm larvae and they will attach themselves to the small intestine.

To prevent exposure to hookworms, always wash hands before eating and after playing with animals. Gardeners should wear long pants and gloves when working with soil that might be contaminated by stool from passing dogs or wild animals. Sunbathers should wear sandals at the beach and always use a towel when lying out in the sun.

For more information on hookworm infestations in people, contact North Shore Veterinary Clinic at 847-966-3080.