

Tapeworms (*Dipylidium caninum*) in Dogs and Cats

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The Common Tapeworm: *Dipylidium caninum*

Biology of the Parasite

The adult *Dipylidium caninum* lives in the small intestine of the dog or cat, attached to the intestinal wall by several suckers as well as by a structure called a rostellum which resembles a hat with hooks on it. Most people are confused about the size of a tapeworm because they only see its segments which are small; the entire tapeworm is usually 6 inches or more.

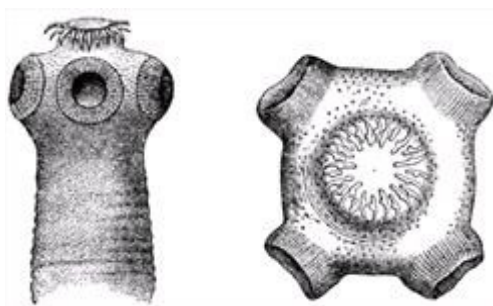
Once docked like a boat to the host intestinal wall, the tapeworm begins to grow a long tail; the tapeworm's body is basically a head segment to hold on with, a neck, and many tail segments. Each segment is like a separate independent body, with an independent digestive system and reproductive tract. The tapeworm absorbs nutrients through its skin as the food being digested by the host flows past it. Older segments are pushed toward the tip of the tail as new segments are produced by the neckpiece. By the time a segment has reached the end of the tail, only the reproductive tract is left. When the segment drops off, it is basically just a sac of tapeworm eggs.

The sac, called a proglottid, is passed from the host's rectum and out into the world, either on the host's stool or on the host's rear end. The segment is the size of a grain of rice and is able to move. Eventually the segment will dry and look more like a sesame seed. The sac breaks and tapeworm eggs are released. These eggs are not infectious to mammals. The tapeworm must reach a specific stage of development before it can infect a mammal and this stage comes much later.

Meanwhile, fleas living on the pet have been happily drinking the pet's blood, mating, and laying eggs. The eggs drop off the pet and onto the ground where ever the pet goes with the largest number of flea eggs

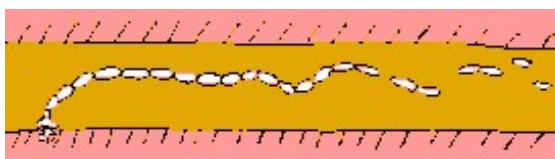


Adult *Dipylidium*. The segments are easily seen. The thick end is the tail, where segments drop off. Photo by CDC.



Taenia solium scolex – 4 suckers, rostellum, one row of hooks.

Wikipedia Commons



Adult tapeworm segment. Graphic by MarVistaVet

accumulating in areas where the pet tends to frequent. This will also be where tapeworm segments accumulate as well. The flea eggs hatch, releasing hungry flea larvae that eagerly begin to graze on dust, dandruff, and flea dirt. The flea larvae do not pay close attention to what they eat and innocently consume tapeworm eggs.

As the larval flea progresses in its development, the tapeworm inside it is also progressing in development. By the time the flea is an adult, the tapeworm is ready to infect a dog or cat. The young tapeworm is only infectious to its mammal host at this stage of its development. The flea goes about its usual business, namely sucking its host's blood and reproducing when, to its horror, it is licked away by the host and swallowed.'

Inside the host's stomach, the flea's body is digested away and the young tapeworm is released. It finds a nice spot to attach and the life cycle begins again. It takes three weeks from the time the flea is swallowed to the time tapeworm segments appear on the pet's rear end or stool.

Controlling fleas is essential to prevent recurring infections.

FAQ

Why is it Called a Tapeworm?

This creature gets its name because its segments and body are flat and look like a piece of tape.

What do they look like?

The adult tapeworm inside the pet can be a half a foot or more long. It is made of small segments, each about the size of a grain of rice. The tapeworm's head hooks onto the dog's intestine by tiny teeth and the worm absorbs nutrients through its skin. Each segment contains a complete set of organs but as new segments grow in at the neck area and older segments progress to the tip of the tail, the organs disintegrate except for the reproductive organs. When the segment drops off from the tail tip, it is only a sac of eggs.

This segment is white and able to move when it is fresh and, at this time, looks like a grain of white rice. As the segment dries, it looks more like a sesame seed.

Where do they Come from?

There is no other way for a pet to get *Dipylidium caninum* except from fleas.

Many people who had thought their pet could not possibly have fleas find out about the infestation this way. The tapeworm segment breaks open releasing its eggs. A larval flea consumes the egg along with the flea dirt that it normally eats. As the larval flea matures, so does the baby tapeworm. When a grooming dog or cat licks the flea and swallows it, the dead flea is digested in the stomach, releasing the baby tapeworm. The



As a dog sleeps, tapeworm segments are passed.



tapeworm is passed to its new home in the dog or cat's small intestine where it attaches and lives its life.

This parasite does not harm the pet in any way as there are plenty of nutrients passing by to serve both the host and its tapeworm (tapeworms require very little nutrients.) Still, high performance dogs who need every calorie working for them, may show a decrease in performance because of a tapeworm infection.

There is another type of tapeworm that may be confused with *Dipylidium caninum* and that is the *Taenia* genus of tapeworms. This tapeworm has a segment that looks different and has a different mechanism of infection.

How Do you Know if your Pet has them? Why do they Sometimes Fail to Show up in a Fecal Test?

Because the eggs are passed by the pet in packets (segments), they often do not show up on the fecal exam; the packet must break open for the eggs to be seen. Consider that the pet has tapeworms if segments are seen under its tail, around its anus, or on its feces. Segments can be passed in small groups connected to each other leading the owner to describe a worm that sounds larger than a grain of rice. Tapeworm segments are also quite flat.

Some people will mistake maggots in the stool for tapeworms. Maggots are not seen in freshly passed stool and are not flat.

Can People Get them?

Theoretically, yes, people can get them but they must be infected the same way dogs and cats are: by swallowing an infected flea.

How do we Get Rid of Them?

Tapeworms are killed by different medications (praziquantel, which is administered by injection, tablet, or topically, or epsiprantel, which is a pill). Fenbendazole is effective against several types of tapeworms but not against *Dipylidium caninum*.

Why do some Veterinarians Recommend Two Treatments and others only Recommend One?

Flea eggs and flea dirt. Photo by MarVistaVet



Flea larva eats tapeworm egg. Photo by Alan R. Walker via Wikipedia Commons



Flea pupa with a young tapeworm developing inside it. Photo by Auguste Le Roux via Wikipedia Commons



Adult flea carrying a tapeworm. Photo by Alan R. Walker via Wikipedia Commons

Only one treatment is needed to kill the tapeworms in the body; however, many clinics recommend a second injection in three weeks. The reason for the second injection is if the owner finds out at the time of their office visit that they need to control fleas to control tapeworms, they will need at least a month or so to control the fleas.

After the first treatment is given, there is no reason why the pet cannot immediately reinfect itself. It probably will reinfect itself at some point. By seeing the animal in three weeks and giving another treatment after the fleas are controlled, there is a good chance that the tapeworms will not just be back three weeks later. It takes three weeks from the time tapeworms are swallowed by the pet to the time segments can be seen by the owner.

On the other hand, who knows when the pet will swallow another infected flea? My recommendation is that a single treatment be administered whenever segments are seen.

If One Pet Has Tapeworm Segments, can it be Assumed that they all Do?

No, just because one pet in the household has swallowed an infected flea does not mean they all have. My recommendation is to deworm only the pets who have obvious tapeworms.

Why Might a Pet Continue to get Tapeworm Infections?

While many people would like to blame the medication as ineffective, the truth is that there must be an on-going flea population in the pet's environment. The key to eradicating *Dipylidium caninum* is flea control.

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