Taenia Species Tapeworms in Dogs and Cats

Wendy Brooks, DVM, DABVP

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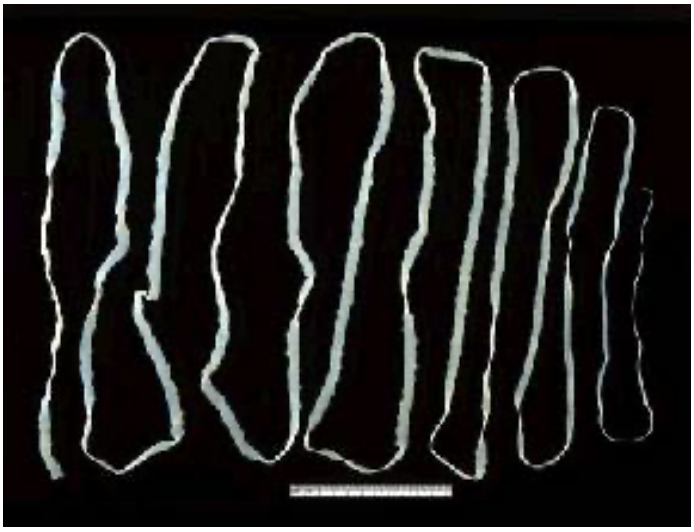
After gaining some pet-owning experience, the average pet owner has heard of tapeworms transmitted by fleas and knows to watch for sesame seed-like segments around their pet's nether regions or on the surface of stools. In fact, there is a part two to this story as there is another type of tapeworm to which dogs and cats are vulnerable. These other worms are members of the *Taenia* genus.



Example of a Taenia tapeworm (this one is a human species that comes from eating undercooked beef). Photo by CDC.

Our article on the common tapeworm (*Dipylidium caninum*) has generated some confusion regarding tapeworms that are not contracted from fleas. There actually is another tapeworm besides *Dipylidium* whose segments might be seen on a pet's anal area or on their feces.

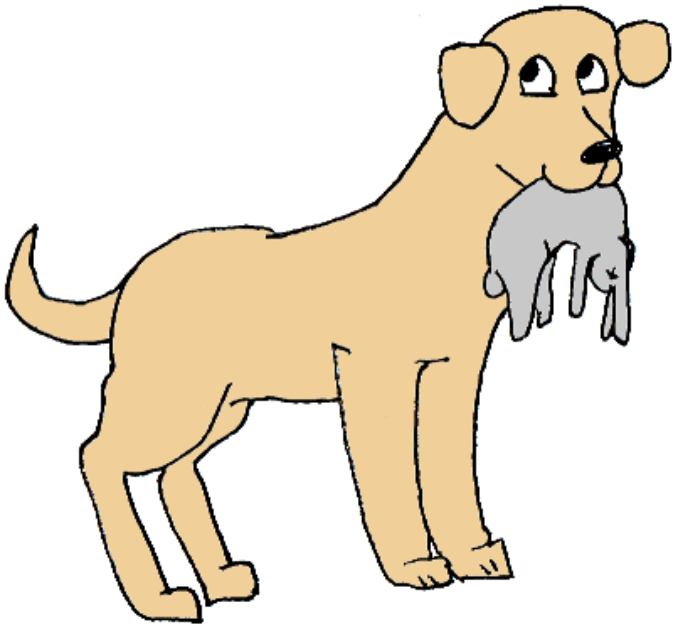
These other worms are members of the *Taenia* genus. There are several members of the *Taenia* genus with which one may come to be acquainted:

- *Taenia solium*, which infects humans when they consume undercooked pork
- *Taenia saginata*, which infects humans when they consume undercooked beef
- *Taenia hydatigena*, which infects dogs when they consume undercooked livestock or venison or feed from dead livestock or deer they find out in the world
- *Taenia taeniaeformis*, which infects cats when they consume rats and mice
- *Taenia ovis*, which infects dogs after they consume dead sheep or undercooked lamb
- *Taenia multiceps*, which infects dogs that eat the brains of infected sheep
- *Taenia crassiceps*, which infects dogs when they consume rats and mice
- *Taenia serialis* and *Taenia pisiformis*, which infect dogs when they consume dead rabbits.

In this article, the term *Taenia* will be used to refer to all species of tapeworm. There are, as you might guess, other *Taenia* species that infect animals other than dogs and cats, but will be left out of this discussion for simplicity. In short, pets at risk for a *Taenia* infection are those that eat raw meat, either through predation or raw feeding.

The *Taenia* Life Cycle

The life cycle of *Taenia* tapeworms starts in the host's intestine, the host being a dog or cat. The worm can be unbelievably long (up to five yards



Note that Taenia tapeworms need two hosts: a dog or cat to house the adult tapeworm and a member of a prey species (see list below) to house the baby tapeworm while it develops. The predator (dog or cat) eats the infected prey to become infected. Illustration by MarVistaVet

for *Taenia hydatigena*) and is made of segments. Each segment contains an independent set of organs, with new segments being created at the neck while older segments drop off the tail. As a segment matures, its reproductive tract becomes more and more prominent until it consists of a bag of tapeworm eggs. These segments, called proglottids, are passed with the feces into the world, where an unsuspecting intermediate host (mouse, rabbit, deer, sheep, etc.) swallows one while eating.

The young tapeworm hatches in the new host's intestine and escapes into the blood supply, with the next stop being the liver. (Remember, this new host is a prey animal such as a mouse, rabbit, deer, etc.) The larval tapeworm wanders through the liver, leaving bloody tracks behind. It ultimately falls into the abdominal cavity, where it forms a sac and waits. After about two months of development in this location, the larval tapeworm is ready to continue its development, but it will need a new host to do so. When the host (prey species) dies or is killed by a predator, the sac and its young tapeworm inside may be consumed incidentally when the body of the host is eaten.

About two months later, inside the predator (dog, cat, or even human, depending on what kind of animal the prey was), the young tapeworm is now mature and is beginning to shed its first segments, and the cycle begins again.

How Do you Know What Kind of Tapeworm the Segments Are from?

In most cases, tapeworm segments seen are from *Dipylidium caninum*, which is not called the common tapeworm for no reason (i.e., it is very common). The segments of *Dipylidium* are longer than they are wide and are said to look like grains of rice. The segments of a *Taenia* tapeworm are wider than they are long.

As with most tapeworms, it is hard to find tapeworm eggs using the normal fecal testing used to screen animals for worm infection. This is because tapeworms shed their eggs in discreet packets (the proglottids) rather than releasing them freely. Unless a proglottid breaks open and releases its eggs, it is likely that eggs will not be found. Diagnosis is usually based on seeing the proglottids with the naked eye.

Is it Important to Recognize Which Type of Tapeworm the Pet Has?

The good news here is that the same medication, praziquantel, kills both types of tapeworms efficiently. Where it becomes useful to know one type of worm from another is prevention. *Dipylidium* comes from swallowing a flea; *Taenia* comes from swallowing carrion, hunting prey, or feeding raw food. Knowing where the tapeworm came from tells you what to do to prevent the next infection: stop feeding raw, restrict access to prey, or beef up flea control.

Tapeworms do not cause significant symptoms and are largely of cosmetic concern.

If you see tapeworm segments on your pet's fur or feces, see your veterinarian for a tapeworm treatment.

A note on the *Echinococcus* tapeworm:
There is a much more dangerous (to humans) genus of tapeworms called *Echinococcus*. Humans can be infected via contact with canine feces. Under the microscope, *Taenia* eggs and *Echinococcus* eggs appear identical when they are found. They can be distinguished with more advanced testing should this event occur.

A Few Words About *Echinococcus multilocularis:*

Echinococcus multilocularis under the microscope. Photo Courtesy CDC.gov

There is another type of tapeworm to be aware of if you live in a woodsy area, especially if your dogs and cats roam or hunt out in nature. This very small tapeworm, *Echinococcus multilocularis*, employs a fox (or potentially a dog or cat) as its host. The host sheds tapeworm segments that are too small to see in its feces. The egg-containing segments will likely be mixed in with dirt. The usual life cycle involves a rodent consuming the egg, developing destructive tapeworm cysts in its liver, and ending up as lunch (cysts and all) to a dog, cat, or fox. The dog, cat, or fox then becomes the new source of tapeworm eggs. Should the contaminated soil end up on human hands instead of in a rodent's mouth, the potential for human transmission exists, and the tapeworm cysts in the lungs and liver can be lethal. To prevent your roaming dog or cat from becoming a source of these dangerous eggs, regular praziquantel dosing should be included in the monthly parasite protection program for the pet. Check with your veterinarian to see if you live in an area where *Echinococcus multilocularis* is native.

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