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Round worms in dogs.

Roundworms live in the host's/dog's intestine and feed off the nutrients in the host animal's food.

Short introduction and summery.

Roundworms are one of the most common parasitic infection in dogs and puppies.

Depending on the type of roundworm, they can infect dogs through;
The ingestion of an infected animal.

Through the ingestion of roundworm eggs.

By transmission from a mother to her puppies in utero or during nursing.

Roundworms live in the host's/dog's intestine and feed off the nutrients in the host animal's food.

Some infections will never progress to the point of detection, but other infections may cause;

Coughing

Weight loss

Vomiting

Diarrhoea

Constipation.

In severe cases, roundworms can block the intestines of their host animal.

There are two species of roundworms affecting dogs and puppies;

Toxocara canis

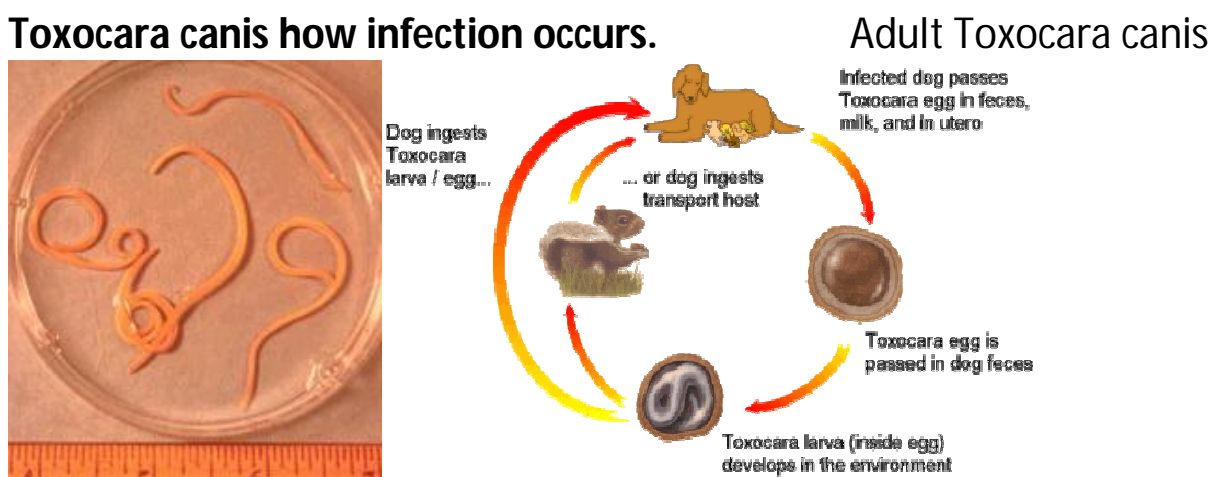
Toxascaris leonina.

Both are treated with the same medication protocol so when eggs are seen on a faecal flotation exam it may not be necessary to determine which species is present.

T. leonina can infect both dogs and cats so identifying this roundworm might be helpful in indicating which pets in the household are at risk for further contagion.

Note! >> Fresh faeces is not infectious.

Toxocara canis how infection occurs.



In dogs, there are four ways by which infection with *Toxocara canis* occurs.

Consuming infective worm eggs from soil in the environment (generally through normal grooming).

Nursing from an infected mother dog.

Consuming a prey animal (usually rodent) that is carrying developing worms.

During embryonic development when an infected mother dog is pregnant, (most puppies are infected this way).

Note! >> Cats cannot be infected with *Toxocara canis*.

Life circle of the *Toxocara canis* round worm.

Toxocara canis has one of the most amazing life cycles in the animal kingdom.

It is crucial to understand this life cycle if effective treatment is to be pursued.

Step one - *Toxocara* eggs are passed in the host's faeces.

If a faecal sample is tested, the eggs can be detected but the eggs are too young to infect a new host at this stage;

The worm inside must develop for a month + or before it becomes able to establish infection.

During this time of worm egg development, the faeces has melted into the environmental soil and is no longer evident;

The worm eggs are loose in the garden (or other environmental) dirt.

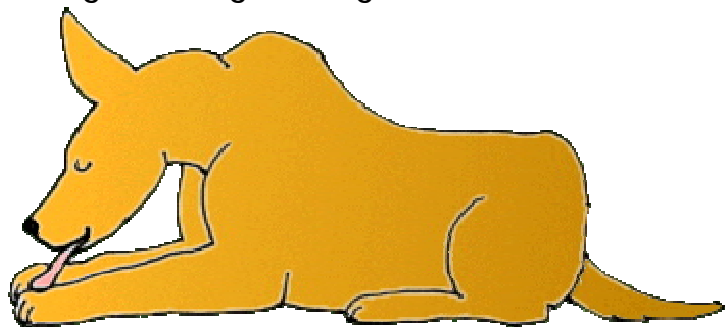
If environmental conditions are favourable, it takes about a month for the egg to become infective but *Toxocara* eggs are famous for weathering harsh environmental conditions.

Eggs can remain **infective for months to years**.

Note! >> Fresh faeces is not infectious.

Soil contaminated with faeces is infectious.

Self-grooming / liking feet contaminated by larva.



Step two - The egg containing what is called a "second stage larva" is picked up from the dirt by a dog or by some other animal.

Usually in the course of normal self-grooming.

The egg hatches in the new host's intestinal tract and the young worm burrows its way out of the intestinal tract to encyst in the host's other body tissues.

If the new host is a dog, the life cycle proceeds.

If the new host is a member of another species, the larvae wait encysted until the new host is eaten by a dog.

Step 3 - These second stage larvae can remain encysted happily for years.

If the host is a dog, the larvae mostly encyst in the host's liver.

When the time comes to move on, the larvae excyst and migrate to the host's lungs where they develop into "third stage larvae."

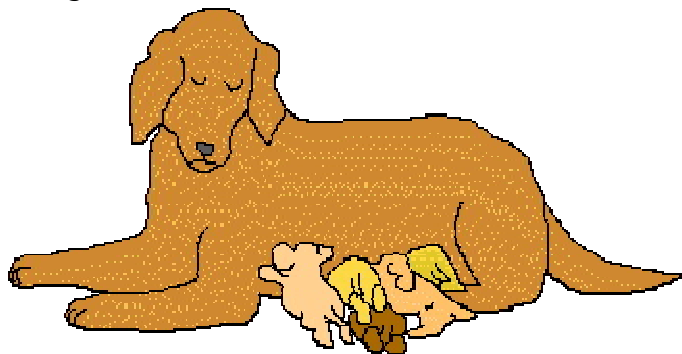
They burrow into the small airways and travel upward towards the host's throat.

A heavy infection can produce a serious pneumonia.

When they get to the upper airways, their presence generates coughing.

The worms are coughed up into the host's throat where they are swallowed thus entering the intestinal tract for the second time in their development.

Pregnant mothers with roundworms infect the unborn puppies



If the host is pregnant, the larvae do not migrate to the lung after they excyst;

instead they home to the uterus and infect the unborn puppies.

The second stage larvae make their way to the puppies' lungs to develop into third stage larvae.

If the host is a nursing mother, second stage larvae can migrate to the mammary gland instead of the lung after excysting.

Puppies can be infected by drinking their mother's milk, though, due to the intrauterine cycle described above, the litter would probably already be infected.

Note! >> When dogs are dewormed with traditional de-wormers, this affects only worms in the intestinal tract.

It **does not** affect encysted larvae.

It is very difficult to prevent mother to puppy transmission and routine deworming is not adequate.

It is possible to prevent infection in unborn puppies by using a specific daily protocol of "**fenbendazole**" (your veterinarian can provide details) or with the new generation product AdvantageMulti® (containing moxidectin).

Step four - Once back in the intestine, the larvae complete their maturation and begin to mate.

The first eggs are laid about one week after the fourth stage larvae have arrived in the intestine and about 4-5 weeks after infection has first occurred.

From here the cycle repeats.

Effect of roundworms in your dog.

Roundworm infection can have numerous negative effects.

It is a common cause of diarrhoea in young animals can cause vomiting as well.

Sometimes the worms themselves are vomited up which can be alarming as they can be quite large with females reaching lengths of up to seven inches.

The worms in the dog consume the host's food and can lead to unthriftiness and a classical "pot-bellied" appearance.

Very heavy infections can lead to pneumonia as the worms migrate

and, if there are enough worms, the intestine can actually become obstructed.

It should also be noted that human infection by this parasite is especially serious (see below).

It is important to minimize the contamination of environmental soil with the faeces of infected animals so as to reduce the exposure hazard to both humans and other animals.

Symptoms of infestation.

Toxocara egg



You may not know and this is one of the arguments in favour of regular deworming.

Regular deworming is especially recommended for dogs that hunt and might consume the flesh of hosts carrying worm larvae.

Puppies should be wormed at 2 – 4 – 6 weeks ... generally with a combined wormer like “Antizole” liquid for puppies and thereafter at 8 weeks and thereafter as directed by your vet.

Of course, there are ways to find out if your dog is infected.

If a dog or puppy vomits up a worm, there is a good chance this is a roundworm (especially in a puppy).

Roundworms are long, white and described as looking like spaghetti.

Tapeworms can also be vomited up but these are flat and obviously segmented.

If you are not sure what type of worm you are seeing, bring it to your vet’s office for identification.

Faecal testing for worm eggs is a must for puppies and a good idea for adult dogs having their annual check-up.

Obviously, if there are worms present, they must be laying eggs in order to be detected but, by and large, faecal testing is a reliable method of detection.

Treatment.

Numerous deworming products are effective.

Some are over the counter and some are prescription.

Many flea control and/or heartworm prevention products provide a monthly deworming which is especially helpful in minimizing environmental contamination.

Common active ingredients include;

Febantel (active ingredient in Drontal and Drontal plus)

[Pyrantel pamoate](#) (active ingredient in Strongid, Nemex, HeartgardPlus and others)

Piperazine (active ingredient in many over the counter products)

[Fenbendazole](#) (active ingredient in Panacur)

Milbemycin Oxime (active ingredient of [Interceptor](#) and [Sentinel](#), and [Trifexis](#).)

Moxidectin (active ingredient in [AdvantageMulti](#))

There are two important concepts to keep in mind about deworming.

Medications essentially anesthetize the worm so that it lets go of its grip on the host intestine and passes with the stool.

Once it has been passed, it cannot survive in the environment and dies.

This means that you will likely see the worms when they pass so be prepared as they can be quite long and may still be alive and moving when you see them.

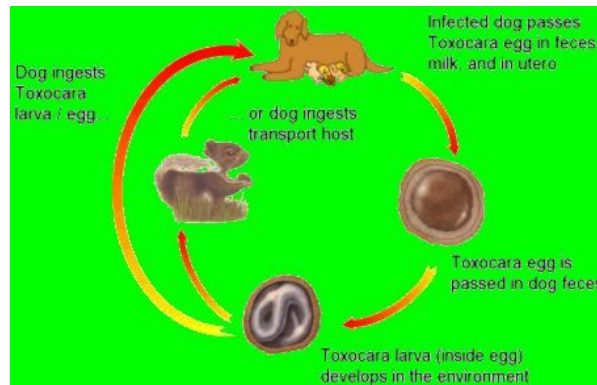
The other concept stems from the fact that all the larvae in migration cannot be killed by any of these products.

After the worms are cleared from the intestine, they will be replaced by new worms completing their migration.

This means that a second, and sometimes even a third deworming is needed to keep the intestine clear.

The follow-up deworming is generally given several weeks following the first deworming to allow for migrating worms to arrive in the intestine where they are vulnerable.

Toxascaris leonine.



The life cycle of Toxascaris leonina is not nearly as complicated. They do not migrate through the body in the way that Toxocara does.

Instead, the Toxascaris second stage larva is consumed and simply matures in the intestine, a process which takes 2-3 months.

Like Toxocara, Toxascaris can infect hosts of other species, though with Toxascaris the larvae can develop into third stage larvae in these other hosts while with Toxocara larval development is arrested in species other than the dog.

Note! >> Toxocara Leonia can infect both dogs and cats.