



Lungworm

As pet owners, we are all aware of our pets picking up intestinal worms from the environment, and most owners are proactive in using preventative medicines to keep their worm burden low. Fewer owners are aware of the risk of lungworm to their pets. Whilst less common than the intestinal worms, lungworm is significantly more serious and can be fatal if left untreated.

Canine Lungworm (*Angiostrongylus vasorum*) is now endemic throughout most of the UK and most vets are seeing cases of infected animals each year.

What is lungworm?

Lungworm is a parasitic worm affecting dogs and cats. The specific species of worm are different between dogs and cats, but both can cause problems for the animal infected.

Dogs can be infected by *Angiostrongylus vasorum*. It can also infect foxes, which are thought to contribute to spread of the worm. Dogs contract this worm from ingesting its larvae which reside within its intermediate host, snails and slugs and their trails. The worms migrate from the dog's intestines throughout the body via the liver and large blood vessels. The adult lungworms live in the major blood vessels of the lungs and live within the heart causing serious problems due to an immune response and inflammation. Eggs are deposited in the small vessels of the lungs, from which they hatch, and larvae migrate into the airways to be coughed up, swallowed and passed out in the faeces for snails and slugs to ingest.

Cats can be infected by *Aelurostrongylus abstrusus*. This is much less likely to infect cats, but it can be incredibly serious due to a severe inflammatory reaction in the lungs and respiratory distress. Rather than being associated with slugs and snails, this worm's intermediate hosts are birds and rodents, meaning that any cat allowed outdoors is at risk.

How can my pet catch lungworm?

Dogs can be infected from lungworm by ingesting snails and slugs and even just their slime trails. Juvenile slugs and snails can be tiny and if your dog plays with toys in the garden, rummages in the undergrowth, eats grass or even drinks from puddles or outdoor water bowls, they are at risk. Unsurprisingly, young dogs are more at risk as they are more likely to rootle about outdoors.

Cats can be infected by lungworm by catching and eating birds and rodents.

What problems does lungworm cause?

Signs can be very vague and are not always obvious as early stages are often asymptomatic. Infection can present as mild ongoing signs or severe life-threatening signs such as:

- Respiratory signs: coughing, difficulty breathing, breathing quickly, wheezing. The cough may only be mild but could be an indicator of more serious problems not visible externally. In cats, the respiratory signs can be sudden and very severe
- Cardiovascular signs: Fast heart rate, swelling under the skin or of the limbs, fluid build-up in the abdomen or lungs
- Clotting problems: prolonged bleeding, bloody vomit/faeces, bruising, pale gums.
- Neurological signs: balance problems, lack of coordination, seizures, vision loss.
- Inappetence, weight loss, high temperature, lethargy/depression, collapse.



Diagnosis

SNAP ELISA tests – This is a test which looks for lungworm antigen in an animal's blood and can give rapid results.

Faecal sample - Definitive diagnosis requires examination of faeces for larvae of the worm. The larvae may only be shed into faeces intermittently so several samples over a week are required to increase chances of finding evidence of infection.

Broncho-alveolar lavage – flushing the lungs with small amounts of fluid which is then collected to look for signs of larvae. This does not always show up infection even if present and false negatives are possible.

General blood test – Animals infected with lungworm can have changes to platelet levels, blood protein levels and white blood cells.

X-rays – Evidence of infection can show up on x-ray but the patterns seen are not specific to lungworm. As such this diagnostic tool can contribute to a diagnosis but is unlikely to provide a diagnosis on its own.

Specific Treatment if infected:

- A specific wormer to kill the worms:
 - Imidacloprid/moxidectin
 - Milbemycin oxime
 - Fenbendazole
 - Ivermectin
- Bronchodilator, corticosteroids, diuretics, and supportive care if required, as complications can arise after worm death.

Prevention

Prevention is always better than cure and this is certainly the case with lungworm as it can be fatal.

1. Treat with a specific wormer (imidacloprid/moxidectin or Milbemycin oxime) every 4 weeks like clockwork. If you treat less frequently, some of the worms can 'slip through the net' and continue developing to cause health problems. These wormers will treat for intestinal worms as well, so it is mainly a case of shifting from a mentality of traditional 3 monthly worming, to 4 weekly worming. Remember, not all worming products will prevent lungworm, so discuss which one is most appropriate for your pet with your vet. Some owners worry about worming so regularly. With intestinal worms, a routine faecal worm egg count can be used to identify whether pharmaceutical wormers are needed before dosing. However, this is very inaccurate with lungworm as the presence of larvae (not eggs) in the faeces is very intermittent and unreliable. This can result in false negatives and infection can progress when it should have been treated. Research has shown that these wormers are safe to use this frequently, and due to the severity of lungworm we would advise 4 weekly treatments with the above-mentioned wormers to prevent infection.
2. Pick up poo – picking up your dog or cats' poo will reduce the chance of transmission of the worm to a snail/slug or bird/rodent. The quicker you pick the poo up, the better.
3. Pick toys up from the garden – If toys are left overnight, small slugs or snails could hide in the crevices of the toys and be ingested by your dog when next playing.
4. Regularly clean outdoor water bowls – They are a haven for slugs/snails and regular cleaning will reduce the chance of ingestion of one by your dog.