



# UNDERSTANDING SPIROCERCOSIS (the silent killer)

## WHAT IS SPIROCERCOSIS?

*Spirocerca lupi* is a potentially lethal parasitic worm that lives in nodules within the oesophagus of **dogs**. The worms can survive in these nodules for up to 2 years, laying eggs through a small opening in the nodule which are swallowed and passed out in the faeces.

Dung beetles ingest *Spirocerca* eggs present in the faeces and the immature larvae hatch inside the dung beetle. Dogs are infected when they eat the infected dung beetles. The dung beetles usually associated with *Spirocerca* infections are only approximately 6 mm in length and are not the large, conspicuous dung beetles we are familiar with.



Fig 1: Coprophagous beetle. (Dung beetle). Photograph courtesy of Clinvet.

Once the beetle has been ingested by a dog, the larvae emerge in the stomach of the dog. The larvae burrow through the stomach wall, causing intense discomfort and enter blood vessels around the stomach. The larvae migrate “upstream” within the walls of the blood vessels until they reach the large artery which leaves the heart, known as the aorta. The larvae live within the wall of the aorta for a period of a few months, maturing into young adults and causing a weakening of the aortic wall, otherwise known as an aneurysm.

The young adult worms then migrate directly to the oesophagus, which lies in close proximity to the aorta. The worms have also been known to migrate to other locations in the body, including the spinal cord. Once inside the oesophagus, the worms form nodules in the oesophageal wall, mating, laying eggs and starting the life cycle over again.

## HOW WILL I KNOW IF MY DOG HAS SPIROCERCOSIS?

Symptoms of spirocercosis are non-specific and are caused by the migration of larvae through the body as well as the space-occupying nodules in the oesophagus. Symptoms include retching, vomiting, weight loss and difficulty in swallowing. The oesophageal nodules often become cancerous in the late stages of the disease. In rare instances, abnormal migration of *Spirocerca lupi* to the spinal cord can result in lameness or neurological disorders. Thickening of the forelimb bones has also been documented in the late, cancerous stages of the disease.



Sudden deaths may occur and are associated with rupture of the aortic aneurysms caused by the young adult worms. Since the damage to the aortic wall is permanent, rupture of an aneurysm may still occur even after the worms have been eradicated from the body, although this is fairly rare. Research has shown that most aortic ruptures occur early on in the migratory phase of the infection. *Spirocerca lupi* is often called the “*silent killer*” as sudden deaths may occur with no outward signs of ill health.

## CAN MY DOG BECOME INFECTED WITH *SPIROCERCA LUPI* BY EATING RATS AND OTHER SMALL ANIMALS?

The *Spirocerca* worm has a complex life cycle, involving definitive (final), intermediate and paratenic hosts. Paratenic hosts are hosts within which no further development of the parasite takes place. The *Spirocerca* worm has to infect a specific host in order to complete its life cycle. The definitive or final host is the dog and the intermediate host is the dung beetle (coprophagous beetles). Paratenic hosts, which may ingest infected dung beetles and in turn harbour the infective larvae, include frogs, lizards, birds and small mammals such as rats and mice. In order for the dog to be infected via this route, the entire paratenic host would have to be eaten and thoroughly digested to allow the release of the infective larvae.

## HOW DO YOU TREAT A DOG THAT HAS SPIROCERCOSIS?

Treatment is often difficult and complex. Treatment is aimed at killing the migrating, immature phases of the parasite as well as the adult worms living inside the oesophageal nodules. Unfortunately there is no treatment for aortic aneurysms or cancerous nodules, which usually spread very quickly to the lungs.

Up until recently, accepted treatment has involved a series of injections every 7 to 10 days until all nodules have resolved. Bayer has developed Advocate<sup>®</sup>, an innovative **spot-on** formulation which is the only product registered for the **prevention and treatment** of spirocercosis in dogs. Treatment of confirmed cases of spirocercosis is a simple weekly application of Advocate<sup>®</sup> to the back of the neck until complete resolution of the nodules in the oesophagus. Treatment of infected dogs should be closely monitored by the Veterinarian throughout the treatment period.

## HOW DO I PREVENT MY DOG FROM CONTRACTING SPIROCERCOSIS?

**Monthly** Advocate<sup>®</sup> treatments in dogs not affected by spirocercosis will prevent infection with this deadly parasite, as well as provide all the other benefits of Advocate<sup>®</sup>, including the prevention and treatment of mange mites, ear mites, fleas, lice and various stages of intestinal roundworms. Daily removal and disposal of dog faeces from your garden is also important to limit potential exposure to *Spirocerca*. Ask your veterinarian about Advocate<sup>®</sup>.

**Reference:** Ettinger SJ, Feldman EC. Textbook of veterinary internal medicine. 6th ed. St. Louis (MO): Elsevier Saunders; 2005. p. 701-2