

CANINE HEARTWORM DISEASE

Heartworm is an important disease of dogs in Hong Kong. Here, the incidence of Heartworm is high, due to the presence of already infected dogs and availability of the disease transmitter, the mosquito, all year round.

How is it spread? (LIFE CYCLE):

1. The mosquito sucks blood from an affected dog, thus ingesting microfilaria (baby worms).
2. Within the mosquito, these microfilaria change into infective larvae.
3. The mosquito then infects a healthy dog when feeding.
4. These larvae develop into adult worms which migrate to the heart and large blood vessels.
5. The adult female worms will start producing more microfilaria and allow the cycle to repeat.

What are the signs of disease?

The first symptoms of disease include coughing, breathing difficulty, weakness and exercise intolerance. As the number of adult heartworms increase, they interfere with the normal functioning of the heart. Consequently congestive heart failure and death can occur.

How is it diagnosed?

A sample of blood is taken and tested for adult heartworm (Heartworm Antigen Test). If your pet has tested positive to Heartworm, you will need to discuss treatment options with your veterinary surgeon.

How can it be prevented?

Heartworm is easier to prevent than cure. There are two choices:

- Giving heart worm prevention tablets (**TRIHEART**) EVERY month. Ideally all puppies should commence tablets from 3 months of age (2nd vaccination) and continue for the rest of their lives. No test is required if started at this age. Remember to weigh your dog regularly to ensure correct dosing.
- **PROHEART** injection. This is given yearly in dogs over 9 months of age. It can be given to dogs between 3-9 months of age but doesn't last a full year in these cases – your veterinary surgeon will be able to advise you on this.

If a dog had not started heart worm prevention by 6 months of age, a Heartworm test will be required. If you forget to give **TRIHEART** or the **PROHEART** injection is overdue, consult your veterinary surgeon for advice regarding the need for a blood test.

How to treat?

Treatment is expensive and can be risky. Prevention is much better, cheaper and kinder to your dog.

A positive test can mean either **INFECTION** (the worms are present but not yet causing clinical signs) or **DISEASE** (symptoms of coughing, exercise intolerance, weakness or breathing difficulty may be evident). We currently offer 2 treatment protocols. Protocol 1 is less complex in terms of treatment numbers and owner time (and we have had good success with this) however Protocol 2 is now widely considered to be “gold standard” at eliminating all stages of worms from your pet and reduces the risk of treatment complications.

- **Hospitalisation:**

- The disease is staged by your veterinary surgeon and a treatment plan is devised. Generally, treatment involves a strong chemical (**IMMITICIDE**) being injected into the lumbar muscles of the dog. Your dog should be hospitalised for the injection portion of the treatment as we need to monitor the dog for any possible reaction to the drug or to the dying worms.
- The veterinary surgeon may or may not prescribe other supportive drugs before and after these injections.

- **Post Treatment Care/Plan:**

- After you collect your dog from the clinic, it is important that it receives absolute rest i.e. NO EXERCISE and NO PLAYING for several weeks after treatment. If you allow your dog to be active then the heart will beat faster causing dead worms to create blockages in blood vessels, kidneys or other organs. REST IS ESSENTIAL.

**IF HEARTWORM DISEASE IS NOT TREATED IT WILL BECOME MORE SEVERE
AND LEAD TO THE DEATH OF YOUR PET**

Protocol 1

1. Treatment depends on stage of disease:
 - **Stage 1** - No clinical signs. Treat with 2 x “Immiticide” (melarsomine) injections 24 hours apart into the lumbar muscles, recommend to hospitalise during treatment, cage rest for 2-4 weeks and treat with antibiotics (doxycycline) for one month. Good prognosis.
 - **Stage 2** - Mild clinical signs (anaemia, mild exercise intolerance, occasional cough). Treat as Stage 1 or Stage 3 depending on clinical signs/owner. Good/fair prognosis.
 - **Stage 3** - Moderate to severe clinical signs (haematuria, weakness, pulmonary oedema, vomiting). Treat the symptoms to stabilise for up to a month before 1 x “Immiticide” injection then one month later 2 x “Immiticide” injections 24 hours apart, 24 hours hospitalisation after each treatment, 4-6 weeks strict rest and antibiotics (as Stage 1). Moderate prognosis.
 - **Stage 4** - “Caval Syndrome” Severe clinical signs: cardiac, renal, hepatic failure, pulmonary complications, very ill dog. Treatment preferably surgical/referral but very poor prognosis. Can try to treat as Stage 3.
2. One month post final “Immiticide” treatment a single dose of “Ivomec” (ivermectin) should be administered to kill any microfilariae (larvae). In the cases of Collie breeds Triheart can be used. In all cases, recheck at one month after the final Immiticide injection.
3. Preventative medication either “Proheart” or “Triheart” to commence one month after ivermectin injection. Repeat heartworm test 6 months after “Proheart/ Triheart” prevention commenced.

Protocol 2

1. **Day 0** Dog diagnosed and verified as heartworm positive, exercise restriction is commenced. Stabilized with supplemental therapy as deemed appropriate by your veterinary surgeon, start on heartworm prevention (“Triheart”) and the antibiotic (doxycycline) to reduce pathology associated with dead heartworms.
2. **Day 30** Administer heartworm prevention (“Triheart”).
3. **Day 60** Administer heartworm prevention (“Triheart”) and admit to the hospital for 24 hours supervision and 1st “Immiticide” injection. Discharged on steroid treatment for 4 weeks. Decrease activity level even further (cage restriction/on leash when outside).
4. **Day 90** Administer heartworm prevention (“Triheart”) and admit to the hospital for 48 hours supervision and 2nd “Immiticide” injection.
5. **Day 91** 3rd “Immiticide” injection; discharged with another 4 week course of steroid treatment and must continue exercise restriction for 6-8 weeks.
6. **Day 120** Test for the presence of microfilariae (by blood smear). If positive your vet will retest in 4 weeks. Commence year-round heartworm prevention (“Triheart”).
7. **Day 271** Antigen test 6 months after completion for adult worms. If negative can either continue on monthly “Triheart” or change to yearly “Proheart” injections.