

Heartworm Disease

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Heartworm disease in the domestic ferret is a significantly under-recognized problem. Many veterinarians do not know enough about the ferret to understand that ferrets are susceptible to *Dirofilaria immitis*.

Clinical signs are similar to those in the dog, but often progress much more rapidly, so early diagnosis is extremely important. Clinical signs include dyspnea (trouble breathing), tachypnea (rapid breathing), anorexia, pulmonary rales (harsh lung sounds), holosystolic heart murmur, ascites (fluid in the abdomen), coughing, fluid in the thoracic cavity, and sometimes sudden death. Many cases of "unexplained" sudden death in ferrets are heartworm-related.

Diagnosis is made readily with the IDEXX Snap heartworm antigen test. I have used the IDEXX test for about thirteen years and it has proved to be extremely useful. Ultrasound has actually been less accurate in that it has produced both false negatives and false positives. There have been two cases of heartworms diagnosed by experienced ultrasonographers where no heartworms were found on antigen tests or necropsies. Conversely, two cases of heartworms diagnosed by antigen test and confirmed on necropsy were not seen by ultrasound. It is possible that the presence of only one worm accounted for this.

Until recently, treatment has been marginally successful. Both Caparsolate and Immiticide have been used and survival rates with both treatments have been disappointing. Ferrets are at high risk of sudden death from worm emboli. Immiticide has not been superior to Caparsolate in this regard. In fact, judging from my early experience, Immiticide survival may be lower, although the ability to administer the drug via intramuscular injection makes it a more attractive option for veterinarians who are not experienced working with ferrets. I have treated about 40 ferrets with either Caparsolate or Immiticide and the survival rate is about fifty percent (50%) with each drug.

I do not recommend Immiticide to treat adult heartworms in ferrets. A new drug called ProHeart (moxidectin) shows great promise as an adulticide in ferrets, although it is marketed and approved only as a preventive for dogs.

ProHeart is an injectable heartworm preventive administered every six months. In the dog, it does not have the capability to kill adult worms at the recommended dose. It does, however, kill all larval stages of the worm. Since adult heartworms in ferrets tend to be stunted and do not achieve the size and reproductive ability they do in dogs, this may make them more susceptible to moxidectin in the ferret.

I have used ProHeart in four heartworm-positive ferrets with excellent results. All four ferrets not only survived, but thrived and tested negative six to twelve months post-injection. All ferrets received a single dose of 0.1 cc's regardless of weight.

Much more research is needed to prove consistent efficacy and safety, but ProHeart is the best treatment option I have found to date. In our hospital, we now also offer ProHeart as an option for heartworm preventive in ferrets.

Please remember that this drug, like almost every other, is not approved for use in ferrets, and you must understand there is not much information available on its use in ferrets.

Prevention is the preferred method of dealing with heartworm in ferrets. It is important to stress that living indoors in endemic areas does not eliminate the need for administration of heartworm preventive. Many cases of heartworm disease have occurred in ferrets that have seldom or never been outdoors.

The oral administration of a monthly dose of liquid Ivermectin diluted in propylene glycol is dependable and safe. Simply add 0.3 ml's of 1% Ivermectin injectable to one ounce of propylene glycol, making a 100 microgram/ml solution. Dose this at 0.1 ml per pound of body weight (10 micrograms per pound) once monthly. It should be dispensed in an amber bottle and given a two-year expiration date. This method has been used and recommended by me for over ten years and I know of no cases in which a ferret has become infected while on this regimen.

Heartgard® for Cats monthly tablet may prove to be a useful alternative. Although the chewable dog tablet is effective, most ferrets will not ingest the entire tablet, but the feline tablet is much smaller and more readily consumed. In a test conducted in my hospital, about sixty percent (60%) of ferrets found the tablets attractive and palatable and did consume the entire dose willingly. Placing a few drops of Ferretone on the tablet makes it even more palatable.

ProHeart injectable heartworm preventive also appears to be safe and effective in ferrets. We have been using it in our hospital since 2002 and to date have not had any bad reactions or problems with it.

It is apparent that there is still much to be learned about heartworms in ferrets. Further study of survival rates of treated versus non-treated animals would be very useful, as would more information on safe and effective adulticide therapy.

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