

TAKING ON TOUGH QUESTIONS



AMERICAN
HEARTWORM
SOCIETY™
EST. 1974

FAQs ABOUT HEARTWORM DIAGNOSIS, PREVENTION AND MANAGEMENT

Q Dear AHS: At the 30-day recheck following heartworm adulticide treatment, my client's dog is still positive for microfilaria. Why is the dog still positive and what should I do? – Dr. M.



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THE SHORT ANSWER

If the dog was treated with the full AHS protocol and is on heartworm prevention, there is little cause for concern.

As part of its heartworm treatment protocol, the AHS recommends that dogs that have undergone melarsomine treatment for heartworms be rechecked for microfilaria (MF) 30 days after their last injection, which is Day 120 following diagnosis. If you're seeing MF on Day 120, consider these questions:

Which heartworm preventive did you give during the pretreatment phase? The AHS protocol recommends administering an "appropriate heartworm preventive" on Days 1 and 30 as part of the pretreatment protocol that also includes doxycycline and either ivermectin or moxidectin. These macrocyclic lactones coupled with doxycycline suppress embryogenesis, weaken adult heartworms, and have adulticidal activity.

Did you give the full dose of doxycycline? Doxycycline is administered to eliminate the *Wolbachia* bacteria prior to giving melarsomine. *Wolbachia* are necessary for embryogenesis and giving 4 weeks of doxycycline at 10 mg/kg B.I.D. should result in amicrofilaremia for at least 12 months. If you dose doxycycline properly, any residual MF won't develop into adult worms;

however, if you gave doxycycline at a lower dose (e.g., 5 mg/kg) or shorter time period, the *Wolbachia* could recrudescence and embryogenesis may have not been completely suppressed.

Was the full dose of melarsomine given?

Melarsomine is an adulticide, but it does not kill microfilaria—nor is it absolutely 100% effective. However, if you give melarsomine as part of a 3-dose protocol, you will kill 98% of the worms, including 100% of male worms. Even if a female worm survived, it cannot produce microfilariae without a male worm. Giving the full recommended dose of melarsomine is essential as underdosing will affect efficacy! A bottle of melarsomine treats a 44-pound dog, so if the dog weighs 50 pounds, you will have to open a second vial. While melarsomine is a costly medication that must be used within 24 hours once opened, practitioners should avoid the temptation to underdose patients.

Could it be a case of macrocyclic lactone-resistant heartworms?

While heartworm resistance isn't common, you should monitor for potentially resistant isolates in your practice area. When you do the Knott test, count the MF, then administer topical moxidectin which is the only FDA-approved microfilaricide. A week later, you can do another Knott test and once again do a count. If the number has dropped by half, chances are the heartworms weren't resistant. If the number hasn't dropped, you may be looking at a resistant isolate. While the presence of macrocyclic lactone-resistant isolates in your area is of concern, the good news is they are not resistant to melarsomine.

The most important factor with MF in a heartworm-positive dog is to prevent future heartworm transmission. If you follow the AHS treatment protocol diligently, any remaining MF will not pose a threat.

