



# CANINE HEARTWORM (HW)

Extended Version

**Presentation:** **NO signs** in most HW-infected dogs.  
**COUGHING** is most common complaint  
(when clinical signs exist).

Also-**Exercise intolerance, weight loss**, syncope, death  
-**Ascites** - manifestation of right-sided heart failure  
-**Dyspnea** - manifestation of pulm. hypertension (PTE)

**Classic case:** INCIDENTAL finding at routine work up  
-or-  
Coughing, exercise intolerant, outdoor dog



**Differential Dx:** Congestive heart failure (CHF) or PTE due to causes other than HW  
Coughing-*Bordetella*, Left CHF, primary bronchointerstitial disease

**Test of choice:** **HW antigen test**-detects adult female worms  
**Filter or modified Knott's** for microfilariae  
For dogs with moderate to severe HW infection, do **echocardiography**  
Assess for pulmonary hypertension, caval syndrome

**Rx of choice:** 1.) **Melarsomine, 3 dose adulticide protocol**

- 2.5 mg/kg IM today
- Two more doses, 24 hours apart, given 1-3 months later

2.) **EXERCISE RESTRICTION** extremely important, 4-6 weeks after each dose

3.) Consider **prednisone or NSAIDs** to reduce melarsomine injection site inflammation

Pre-adulticide treatment 1-3 months

**Doxycycline**, 10mg/kg BID 4 weeks- **Why?**

- Kills endo-symbiotic *Wolbachia* bacteria living inside HW larvae
- Decreases lung pathology associated w/ dead worms during adulticide Rx

**Monthly HW preventive**- most clinicians start asymptomatic dogs at time of Dx-**Why?**

- “Susceptibility Window”
  - Melarsomine adulticide does not kill HW larvae < 4 months old
  - HW-infected dog likely to have larvae < 4 months old in blood
  - If larvae < 4 months survive adulticide Rx, can re-infect dog
  - So use monthly HW preventive to kill youngest larvae
- Ivermectin, selamectin (Revolution®), moxidectin = “Slow microfilaricides”
  - Fewer adverse rxns, because microfilariae die off slowly



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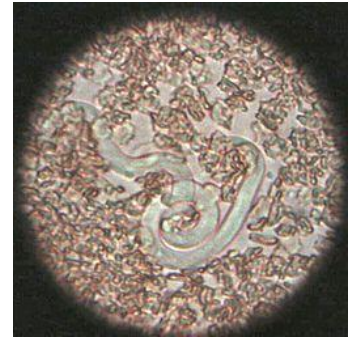
- Milbemycin (Interceptor®)= “fast microfilaricide” **Take precautions**
  - 10% have adverse rxns because larvae die off fast
  - Can see shock, depression, hypothermia, vomiting
  - Pre-treat with dexamethasone and diphenhydramine
  - Hospitalize and observe 8 hours after giving milbemycin

**Prognosis:** Good in mild to moderate HW infections  
Fair-Guarded in severe cases.  
Poor to Grave even with treatment in dogs with caval syndrome, PTE or CHF

**Prevention:** Monthly macrolides-Ivermectin, selamectin, moxidectin, milbemycin  
**WIDE window of efficacy-** up to **two-month “reachback effect”**  
Eliminates developing larvae that have been in dog as long as 2 months

**Pearls:** **Caval syndrome** - see in some heavily-infected dogs

- Adults obstruct tricuspid valve (RAV), posterior vena cava
- **ACUTE ONSET-severe lethargy, dyspnea, pallor, weakness**
- +Jugular pulses, systolic murmur (R) of tricuspid regurgitation
- + Hemoglobinemia, hemoglobinuria
- **Rx by surgical extraction or dog likely to die w/in 2 days**



Refs: Current Canine Guidelines for Dx, Prev and Mgt of Heartworm (*Dirofilaria immitis*) Infection, rev. Jan. 2012  
Cote, Cin Vet Advisor, Dog and C. 2<sup>nd</sup> ed. pp. 477-9, Merck Vet Manual online, Heartworm  
Images courtesy, Terri Defrancesco DVM, DACVIM (radiograph), Dr. Joel Mills, DVM (microfilaria)

**My Notes:**