INFORMATION FOR VETERINARIANS AND CLINICS

Whipworms in dogs

Key facts

- Whipworms in dogs are commonly caused by *Trichuris vulpis*
- Disease can range from subclinical, to mild gastro-intestinal signs, to severe diarrhea, and rarely death
- Preventive care (AAHA), companion animal parasite council (CAPC), Canadian Parasitology Expert Panel (CPEP) evidence- and expert based fecal and deworming guidelines exist for puppies and adult dogs
- KeyScreen™ GI Parasite PCR can be used for whipworm diagnosis and identification, along with 20 other parasites, Giardia zoonotic and hookworm resistance marker
- One Health, potential drug stewardship considerations

What is it and who gets it?

Pathogen information[1]
Whipworms in dogs are commonly caused by the whip-shaped nematode *Trichuris vulpis*. In tropical and warmer parts of the U.S. (i.e. FL) cats can be infected.

How common is it?

Prevalence and risk
Prevalence in dogs is thought to vary with deworming history, age, lifestyle (prey ingestion, shelter, kennel, feral), season (winter) and region (geography).[1-3]

One US CAPC data study reported annual canine whipworm prevalence of just below 1% [2], and other studies[3] report prevalence between 1-10% (CAPC).

Whipworm infection is most common (and carries the largest risk of disease) in young dogs (<2 years). Risk factors for infection are age (more common in young animals) and high-density housing (kennels, breeding facility, etc.).

Where is it?

Geography
Whipworms are global pathogens; however, there are regional variations in prevalence, CAPC maps, as accessed August 2022.

USA: capcvet.org/maps/#/2022/all-year/whipworm/dog/united-states

Canada: capcvet.org/maps/#/2022/all-year/whipworm/dog/canada

How is it transmitted (spread)?

Pathogenesis
Whipworm adults live and reproduce (74-90 days post-infection) in their definitive host's (e.g., dog, fox, coyotes) large intestine. Eggs, which are extremely hardy, from adult worms are shed in the host's feces to the environment. After ingestion, eggs develop into larva in the small intestine and from there move into the large intestine.

Dogs become infected through direct ingestion of infected soil, feces or environmental contamination.

What are the clinical signs in dogs and cats?

Disease is generally subclinical in healthy adult animals. However, severe bloody diarrhea and electrolyte shifts (pseudoaddison's) can occur.

Clinical signs are related to level of infection (worm burden) and severely infected young dogs can develop anemia, weight loss, dehydration, and bloody diarrhea.

How is it diagnosed?

Diagnosis is made through a combination of history, clinical signs and fecal testing (fecal centrifugal flotation (multiple samples may be needed), coproantigen ELISA and KeyScreen™ GI Parasite PCR).[4] In severe infestations, CBC, serum biochemistry, may be indicated to assess (and dictate therapy) for protein loss and electrolyte imbalances (mimic Addison's disease).

What is the treatment?

Treatment is indicated in all patients in order to reduce spread and environmental contamination. Combination febantel and praziquantel, pyrantel, or fenbendazole, administered for 3 months can be used.[1]

Established deworming protocols for puppies and adult dogs can include moxidectin, imidacloprid, or milbemycin oxime.[1]

Fecal testing to ensure clearance of infection can be done through fecal assessment, e.g., the KeyScreen™ GI Parasite PCR (protocol in monitoring section).

Monitoring?

Re-testing fecal samples
Fecal re-testing (either through fecal centrifugal flotation or the KeyScreen™ GI Parasite PCR) is important for whipworm positive cases to assess for continued infection or confirm resolution, determine if further therapy is indicated, and identify environmental re-infection.

At the clinic level, efforts to quickly identify persistent infection or re-infection (e.g., KeyScreen™ GI Parasite PCR) assist in limiting environmental contamination and aid in drug selection (and compliance) for treatment.

What is the prognosis?

Prognosis is excellent in most cases, although severely infected animals may require more intensive therapy and may die if severely compromised or owners cannot afford intensive therapy. Similarly, persistently infected animals can require repeated therapy and additional monitoring for parasite clearance.

What is the prevention? What can I do to stop this happening to dogs?

Following existing evidence- and expert-based guidelines (CAPC) for prevention testing, monitoring and therapy is indicated for puppies and adult dogs. Puppies should have 3-4 fecals in their first year of life, and adult dogs twice annually (as determined based on risk assessment), and routine deworming schedules followed as per CAPC and CPEP.

Environmental cleaning (pick up poop) and decontamination (infection control) can reduce re-infection risk and limit the development and geographic spread of whipworms.

"An ounce of prevention is worth a pound of cure" – Ben Franklin

Is this a One Health concern (zoonotic (human), animal, drug stewardship and environment)?

No – at this time, this is not considered a high zoonotic (human) concern.

Maybe – At this time there are no reported concerns of resistance; however, due to the rising concern of antiparasitic resistance this concern cannot be dismissed.

Yes – this is environmental concern as we work to reduce the parasite burden by ensuring parasite clearance (re-testing and effective deworming) and 'pick up the poop' messaging.

Your preventive care contribution in the clinic assists of:

- The individual pet (puppy, kitten, adult dog or cat)
- Pet-owner
- One Health
- Education of self, staff and pet-owner to follow appropriate fecal and deworm plan supported by CAPC, CPEP and AAHA evidence- and expert-based guidelines

How does Antech provide veterinary and clinic support?

Provision of diagnostic options that:
Follow existing evidence- and expert-based guidelines (CAPC, CPEP, AAHA-AAFP, Infectious disease in dogs in group setting.

KeyScreen™ GI Parasite PCR is a stable, single sample test with a fast turnaround time (TAT), provides reliable and accurate results, and is backed by scientific support (publications, internal data).

- Quickly identifies whipworms
- Aids drug selection for therapy (if needed)
- Limits environmental contamination and subsequent worsening of re-infection concern
- Allows for infectious disease surveillance, identification of 'hot spots' and risk mapping
- Environmental stewardship-reduce burden due to parasite clearance re-assessment, supports pick up poop messaging

Provision of medical support

Internal Medicine Consultant team access, clinical pathologist, radiologist, others.

Vet team and pet-owner resources (visual aids graphs of labs, lifestage, breed, parasite and protocol, tidbits that are fun and individualized), technician training (Preventive care modules).

Webinar (RACE approved), case studies, FAQ on disease, pathogen, etc. (IM consultants), visual aids for prevention (trends of labs, parasite checks, body weight based on species-breed and lifestage).

Resources

Companion Animal Parasite Council (CAPC), As accessed August 2022.

Canadian Parasitology Expert Panel (CPEP), As accessed August 2022.

Canine (2019) and Feline (2021) Life stage Guidelines, AAHA, AAHA/AAFP, As accessed August 2022.

American Animal Hospital Association (AAHA) Infectious disease in dogs in group setting (Stull, 2016, As accessed August 2022.

References

1. Weese JS, Evason ME. 2020. A Colour Handbook, Infectious Diseases of the Dog and Cat. CRC Press.
2. Drake J, et al. 2019. Seasonality and changing prevalence of common canine gastrointestinal nematodes in the USA. Parasites Vectors 12, 430.
3. Villeneuve A, et al. 2015. Parasite prevalence in fecal samples from shelter dogs and cats across the Canadian provinces. Parasites Vectors 8, 281.
4. Leutenegger CM, 2022. How molecular testing is reshaping the way parasites can be detected. Vet Pract News. March.

Antech is committed to supporting veterinary care teams with a flexible, can-do spirit resulting in healthy pets, happy pet parents, and a high-performing practice.

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