

Feline Parasites: Be an "AdvoCat"

By Cathy Lund, DVM

Cats today may be far removed from the survival struggles that their ancestors faced, but veterinarians should not make the mistake of thinking that because many cats live indoors, they are cocooned inside a sterile environment. Owners invariably believe that if a cat stays indoors, it is not being exposed to diseases — zoonotic or otherwise. However, parasites are opportunistic, and indoor cats frequently carry intestinal parasites, ectoparasites, and entire melting pots of potential pathogens.

Veterinarians also face other dilemmas, such as owners being unaware of the various signs associated with parasitic infection. Too frequently, veterinarians see indoor cats with fleabite allergy, perianal evidence of tapeworm proglottids, or an asthmatic cough that went unrecognized by owners. Likewise, often veterinarians must constantly educate owners about the potential for zoonotic infections and the merits of prophylactic treatment when properly implemented.

Cats are beautifully adapted for parasitic infections — partly because of their fastidious nature. It is natural for cats to clean fecal material off themselves or other cats in their environment, and contamination secondary to shared litter boxes is frequent. Parasitic infections can cause varied clinical signs, such as diarrhea, which can be mucoid or hemorrhagic, as well as straining, vomiting, and lethargy, or the infection can exist without any apparent clinical signs. Therefore, diagnostic testing, such as multiple fecal flotations, is always recommended, as frequent testing can be the only way to identify these diseases.

Because insects can serve as transport or intermediate hosts for some of the more common intestinal parasites, it makes sense to recommend fecal checks for indoor cats.¹ Flying insects can easily gain access to the most well-secured house, and owners who enter the house wearing shoes contaminated with the parasite reservoirs that exist in most suburban yards can introduce potential pathogens. All these instances create opportunities for parasite exposure.

Ectoparasites

Ectoparasites not only are nuisances to both cats and owners, they are significant disease carriers, so implementing rigorous yet safe preventive measures is important. Numerous products can provide excellent defenses against ectoparasite infection (go to ForumVet.com for a list of feline external parasiticides), which is advantageous for owners who run the risk of contracting a preventable zoonotic illness from their feline companion. For example, the flea is the vector for *Bartonella henselae*, the infectious agent for cat scratch disease.

Endoparasites

Because parasite control is an integral part of wellness programs, year-round preventive therapy is a clinically sound measure. Nowhere, however, is there more potential to prevent harm than with prophylactic deworming of kittens. Kittens are frequently infected by enteric parasites and are prone to reinfection, which can occur during nursing and through the environment. They of-

Protecting Pets and People from Parasites

The Companion Animal Parasite Council (CAPC) is an independent council of veterinarians and other animal health care professionals established to create guidelines for the optimal control of internal and external parasites that threaten the health of pets and people. It brings together broad expertise in parasitology, internal medicine, public health, veterinary law, private practice, and association leadership. Initially convened in 2002, the CAPC was formed with the expressed purpose of changing the way veterinary professionals and pet owners approach parasite management. The CAPC advocates best practices for protecting pets from parasitic infections and reducing the risk for zoonotic parasite transmission. Sponsoring the peer-reviewed Parasite 101 column is one more avenue for reaching veterinarians on important topics and issues related to the prevention of parasitic transmission and disease.



ten harbor immature forms of parasites, which can escape the effects of treatment and confound diagnostic testing.

Larval parasite migration also can wreak havoc on the kitten's organ systems, and it is not unusual to see profoundly debilitated animals suf-

The CAPC recommends diligent year-round prevention, control and treatment of fleas, ticks, intestinal parasites and heartworm in cats.

fering from rampant parasitism. Intestinal parasites in cats are not transmitted prenatally, which is the reason that the Companion Animal Parasite Council (CAPC) recommends deworming every 2 weeks starting at 3 weeks of age and using monthly preventatives starting at 8 to 9 weeks of age.² (See Table 1 for a list of products.)

Other endoparasites, such as the ascarid *Toxocara*, also can be implicated as zoonotic agents. The Centers for Disease Control and Prevention (CDC) recently reported no real change in the percentage of people who tested positive for exposure to *Toxocara* spp, the causative agent of visceral and ocular larval migrans in humans. This has consistently remained a steady 15% from 1980 to 2000, despite the advent of more efficacious parasiticides during that period.³

Zoonotic potential can create other situations in which prevention is imperative. The cat is the primary host for *T. cati*, which is considered one of the causes of human larval toxocariasis. *Toxocara* eggs remain infectious in the environment for long periods, making reinfection a frequent concern.¹

Some recent studies on enteric parasites in humans are fascinating as well as disturbing, including studies that have raised the possibility of a link between toxoplasmosis and schizophrenia.^{5,6}

In addition, cats harbor the hookworms *Ancylostoma tubaeforme* and *A. braziliense*, both of which can induce primary disease in cats, with *A.*

braziliense also being a source of cutaneous larval migrans in humans. Cats also can become infected with *Coccidia*, *Giardia*, tapeworms, trichomonads, and a host of other less common parasites.

Feline heartworm disease

As is the case for many diseases in veterinary medicine, the cat came late to the fold and has suffered from the negative comparisons to the dog. As the veterinary knowledge base of feline diseases continues to develop, veterinarians may stop dovetailing the cat into the "small dog" category. For example, heartworm disease classically has not been associated with the cat, but research now shows evidence that feline heartworm disease is more prevalent than previously thought and results in a disease condition in which adult heartworms are minimally, if at all, involved.⁷ The disease in cats presents as inflammatory lung disease and subsequent respiratory-associated signs that mimic asthma. If veterinarians could prevent even a handful of cats from developing a syndrome that might be similar to chronic obstructive pulmonary disease (COPD) in humans, they will have acted as true advocates for feline welfare.

Cats with heartworm disease are victims of their own exuberant immune system, as the disease results from the inflammatory response invoked by the larval stages of the parasite inside pulmonary arterioles and the subsequent changes that cause impaired pulmonary function. The cat's immune system is so efficient that often larval stages are eliminated, and if adult worms do occur, they and their microfilariae are frequently destroyed by the immune system, which results in a secondary cascade of inflammatory changes. Sudden death may be the only clinical sign.

Considering how difficult it is to diagnose a case and the many and varied clinical signs of feline heartworm infection, including apparent permanent changes in the airways, there are compelling reasons to implement preventive therapy.⁸ Recent studies show that more than 25% of confirmed cases of feline heartworm disease occur in cats that never leave the house.⁹

It also is sobering to realize that heartworm disease consistently affects cats at a higher incidence — 4% to 33% — than FeLV or FIV does at 2% to 3%.¹⁰

CAPC guidelines

The CAPC guidelines discuss the benefits of year-round prevention and treatment for heartworm disease as well as for the control and treatment of flea, tick and intestinal parasites that have zoonotic potential.² Even in the Northeast,

mosquitoes are found in houses during the winter, and insect activity is consistent. Heated, humidified houses can be terrific breeding grounds for fleas. Vigilant parasite control is essential for a healthy relationship with a cat, and veterinarians can and should use the tools they have available to

Table 1. Parasiticides for Feline Endoparasites¹

Product Name (company)	Efficacy Claims ²						Formulation (frequency)	Minimum Age (weight)
	<i>Toxocara cati</i> (roundworm)	<i>Dirofilaria immitis</i> (roundworm)	<i>Ancylostoma tubaeforme</i> (hookworm)	<i>Ancylostoma braziliense</i> (hookworm)	<i>Dipylidium caninum</i> (tapeworm)	<i>Taenia taeniaeformis</i> (tapeworm)		
Advantage Multi (Bayer Animal Health)	■	■	■				10% imidacloprid and 1% moxidectin topical spot-on (monthly)	9 weeks (2 lb)
Cestex (Pfizer Animal Health)					■	■	12% epsiprantel tablet (single 1.25 mg/lb dose)	7 weeks
Droncit (Bayer Animal Health)					■	■	23-mg praziquantel tablet (single dose) or injection (SC, IM)	6 weeks (4 lb)
Drontal (Bayer Animal Health)	■		■		■	■	18.2-mg praziquantel and 76.6-mg pyrantel pamoate tablets (single dose)	4 weeks (1.5 lb)
Heartgard Chewables for Cats (Merial)		■	■	■			55- and 165-µg ivermectin chewable tablet (monthly)	6 weeks
Interceptor Flavored Tabs for Cats (Novartis Animal Health)	■	■	■				5.75-, 11.5-, and 23-mg flavored milbemycin oxime tablets (monthly)	6 weeks (1.5 lb)
Profender (Bayer Animal Health)	■		■		■	■	1.98% emodepside and 7.94% praziquantel topical spot-on (single dose)	8 weeks (2.2 lb)
Revolution (Pfizer Animal Health)	■	■	■				15- or 45-mg selamectin topical spot-on (monthly)	8 weeks

¹Information in this table was provided by the Companion Animal Parasite Council as well as by product information summaries.
²See specific products for details of efficacy claims.

ensure the successful treatment and prevention of these all-too-common diseases. **vF**

Reviewer Comment

The concept of comprehensive feline health care goes well beyond the administration of routine vaccines. Given the risk for exposure and infection to a host of hostile parasites that cats routinely face, wellness planning must include treatments for infections ranging from intestinal parasites to blood-borne parasites to viral, bacterial, and even fungal disease.

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Dr. Lund is the owner of City Kitty Veterinary Care for Cats, in Providence, R.I. She graduated from Auburn University College of Veterinary Medicine and is a past president of the Rhode Island Veterinary Medical Association. She is board president of the Companion Animal Foundation, an organization that helps low-income pet owners afford veterinary care, and currently serves on the board of directors of the Companion Animal Parasite Council.

ForumVet.com



For a listing of products for feline ectoparasites, go to ForumVet.com.