



Ascarid

Ascarid for Cat Last updated:

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Synopsis

CAPC Recommends

CAPC recommends testing all cats for ascarids by fecal flotation with [centrifugation](#). Fecal tests for specific parasite antigens have been optimized for use in companion animals and are also available to aid in identification of infection.

Kittens should be tested more frequently than adult cats. CAPC recommends testing for intestinal parasites, including ascarids, at least four times in the first year of life and at least two times per year in adults depending on patient health and lifestyle factors.

Kittens should be given anthelmintics starting at 2 weeks of age and repeating every 2 weeks until regular broad-spectrum parasite control begins, and adult pets should receive year-round broad-spectrum parasite control with efficacy against ascarids.

Species

Toxocara cati

Toxascaris leonina

Overview of Life Cycle

Cats become infected with ascarids via ingestion of larvated eggs from a contaminated environment and ingestion of other vertebrate hosts that have consumed larvated eggs and thus have larvae in their tissues. Transplacental transmission has not been shown to occur in *T. cati* or *Toxascaris leonina*. Transmammary transmission of *T. cati* appears to only occur when the queen is infected while lactating.

Migration of larval ascarids within the host is complex. Following acquisition, larvae of *Toxocara* spp. migrate through the liver and lungs, are carried up the mucociliary apparatus, and then are swallowed to develop in the small intestine.

Larvae acquired from ingestion of vertebrate tissues do not migrate in the cat definitive host, but instead travel to the small intestine to become adult worms.

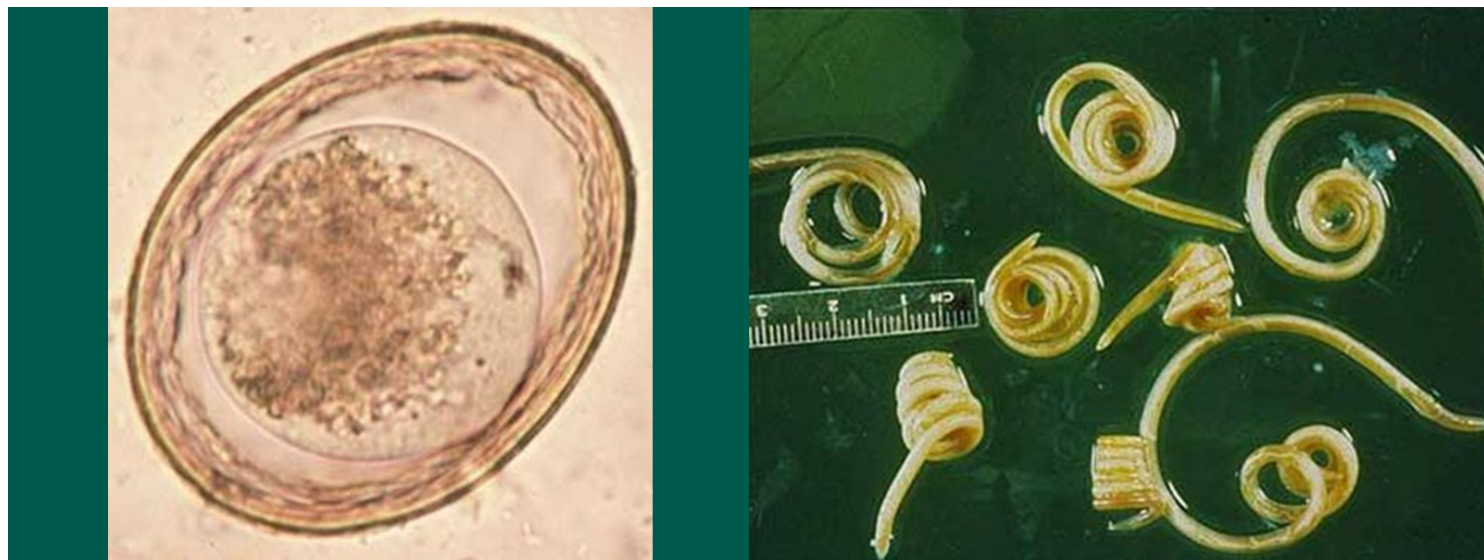
Toxascaris leonina is different from *Toxocara* spp. in that migration outside the intestinal tract does not occur.

Stages

Nonembryonated ascarid eggs are passed in the feces of an infected cat; the most commonly seen species is *T. cati* in the cat. Infective, larvated eggs of *Toxocara* spp. are found in fecal-contaminated soil.

Adult ascarids in the small intestine of the infected cat can be identified by their size, stout appearance, and the presence of three lips on the anterior end.

Adult *T. cati* has distinct cervical alae on the anterior end which gives a cobra like appearance, allowing for definitive identification; the alae of *Toxascaris leonina* is less distinct.



Toxascaris leonina egg

Toxocara spp. Adult

Disease

Toxocara cati causes ill thrift and a pot-bellied appearance in kittens. Cats are susceptible to infection with this parasite throughout life. In adult cats, irritation of the gastric mucosa by adult *T. cati* that have migrated from the small intestine may cause vomiting. Adult ascarids are often found in the vomitus of infected cats.

Infections with adult *Toxascaris leonina* have not been commonly associated with clinical disease in cats. However, treatment is still warranted.

Prevalence

Toxocara cati is an extremely common parasites of cats throughout the world. More than 25% of cats have tested positive to *Toxocara cati* in recent studies.

Although infection rates are likely to be higher in pets kept outdoors or allowed to consume prey species that may harbor larvae in their tissues, infection with *Toxocara cati* is common in all cats.

The geographic distribution of *Toxascaris leonina* is more focal in nature than that of *Toxocara cati* and infection with *Toxascaris leonina* occurs less frequently. However, this parasite is still widespread in cat populations.

[Click here to view our Prevalence Maps](#) and to sign up for updates on reported cases in your area

Host Associations and Transmission Between Hosts

Cats become infected with ascarids upon ingestion of larvated eggs from a contaminated environment and ingestion of larvae in tissues of vertebrate hosts.

Earthworms and possibly other invertebrate paratenic hosts can harbor larvae from eggs in the soil that can then be passed by ingestion to both paratenic (birds and rodents), and perhaps also to the final host, i.e., the cat.

A wide variety of vertebrate hosts can harbor ascarid infections, and infection is common in cats that consume prey species.

Prepatent Period and Environmental Factors

T. cati has an approximately 8-week prepatent period, and the prepatent period of *Toxascaris leonina* is approximately 8 to 10 weeks.

Most ascarid eggs require 2 to 4 weeks in the environment to larvate and develop to the infective stage. *Toxascaris leonina* is the exception; eggs of *Toxascaris leonina* become infective as soon as 1 week after being shed. Because of the time required, fecal material has often broken down before the eggs are infective, and thus there is often no gross evidence that the environment is contaminated with ascarid eggs. However, once present, ascarid eggs are hardy and can survive and remain infective for years.

Removing eggs from a contaminated environment is difficult, and common disinfectants are not effective at killing them. Strict adherence to leash laws and prompt removal of feces from the environment are essential aids in the prevention of ascarid infections. Preventing environmental contamination by routinely deworming infected animals before the infections become patent is another key component in achieving effective control (see Control and Prevention below).

Site of Infection and Pathogenesis

Upon infection, larvae of *Toxocara* spp. undergo an extensive migration through the liver and lung before making their way back to the small intestine to develop into adult worms.

Focal scarring associated with larval ascarid migration may be evident in the liver at necropsy, but clinical disease because of this hepatic migration rarely, if ever, occurs.

In contrast, the hemorrhage and inflammation that occur in response to the traumatic migration of larvae across the pulmonary alveoli may result in overt pulmonary disease.

Adult ascarids in the small intestine of cats may cause a mucoid enteritis and occasionally a mild diarrhea. Kittens may display a pot bellied appearance and failure to thrive.

Adult ascarids that migrate to the stomach may cause irritation of the gastric mucosa that results in vomiting.

Diagnosis

CAPC recommends testing all cats for ascarids by fecal flotation with [centrifugation](#). Fecal tests for specific parasite antigens have been optimized for use in companion animals and are also available to aid in identification of infection.

Kittens should be tested more frequently than adult cats. CAPC recommends testing for intestinal parasites, including ascarids, at least four times in the first year of life and at least two times per year in adults depending on patient health and lifestyle factors.

Cats of any age may have subclinical infections and show no signs of disease. However, when ascarid infections are allowed to persist, contamination of the environment with these potentially zoonotic parasites can occur.

Adult ascarids may be recovered from the vomitus of an infected cat. The nematodes can be identified as ascarids by their large size, light tan color, and the presence of three prominent lips on the anterior end. *Toxocara cati* also has distinct cervical alae, giving it an arrowhead appearance (See image under Life Cycle)

Fecal flotation with centrifugation

Diagnosis of patent ascarid infections via fecal flotation is straightforward. Ascarids are prolific egg producers and the eggs float readily in most flotation solutions.

Mix 1 to 5 g feces and 10 ml of flotation solution (ZnSO_4 sp.gr. 1.18; sugar sp. gr. 1.25) and filter/strain into a 15-ml centrifuge tube.

Top off with flotation solution to form a slightly positive meniscus, add coverslip, and centrifuge for 5 minutes at 1500 to 2000 rpm.

Examine for characteristic eggs.

Eggs of *Toxocara* spp. can be readily differentiated from those of *Toxascaris leonina* (see image under Stages).

Toxocara cati: 75 μ x 65 μ , dark embryo, rough outer shell wall

Toxascaris leonina: 75-85 μ x 60-75 μ , lighter embryo, smooth outer shell wall, internal surface of shell wall is wavy

Fecal test for ascarid antigen

Commercial assays are used for the detection of antigen produced by immature and adult ascarids in the lumen of the small intestine. Both male and female worms can be detected, and antigen production is not linked to egg production.

Diagnosis by detection of antigen allows identification of prepatent and single sex infections, supporting use of preventives and allowing earlier treatment.

To ensure the widest breadth of detection of intestinal parasites in cats, fecal tests for antigen should be combined with microscopic examination of feces for eggs.

Treatment

Milbemycin oxime, moxidectin, and pyrantel pamoate are approved for the treatment of ascarid (*T. cati*, and/or *Toxascaris leonina*) infections in cats. Selamectin is also approved for treating *T. cati* in cats. Pyrantel and febantel are approved for treating *T. cati* in cats. Emodepside is approved for treating *T. cati* in cats.

Piperazine is also approved for treatment of ascarids cats but may have a lower efficacy than other available products.

Pyrantel is available in a highly palatable liquid formulation that is readily administered to nursing animals and thus may be considered the preferred treatment for very young kittens.

Because the prepatent period of *T. cati* is 8 weeks, kittens do not need to be treated for ascarids until 6 weeks of age. However, given concern about hookworm infection (see Hookworm Recommendations), all kittens should be routinely treated with pyrantel pamoate beginning at 2 weeks of age and then placed on a monthly preventive with efficacy against *Toxocara cati*.

Nursing queens due to the inherent immunosuppression associated with pregnancy should be treated for ascarids at the same time as their litters.

Toxocara cati: the following products are approved for the treatment of adult *T. cati* infections in cats:

Advantage Multi® Topical Solution for Cats* (imidacloprid + moxidectin) (Bayer Animal Health)

Drontal® (praziquantel/pyrantel pamoate) (Bayer Animal Health)

Interceptor® Flavor Tabs® for Cats (milbemycin oxime) (Elanco)

Paradyne® (selamectin)(Zoetis)

Profender® Topical Solution* (emodepside/praziquantel) (Bayer Animal Health)

Revolution® (selamectin)(Zoetis)

*Products with approved efficacy against fourth-stage larvae (L4).

[Click here to view Parasite Product Applications](#)

Control and Prevention

Kittens should be routinely dewormed beginning at 2 weeks of age, with deworming repeated every 2 weeks, until the animals are four to eight weeks of age and placed on a monthly product with efficacy against ascarids.

To treat potential newly acquired infections, cats should be maintained on monthly intestinal parasite control products with efficacy against ascarids.

Efficacy of the initial dewormings, monthly control product, and client compliance should be monitored by performing a fecal examination 2 to 4 times in the first year and 1 to 2 times per year thereafter, depending on the age of the animal and its prior history of infection.

Prevention of predation and scavenging activity by keeping cats indoors will limit the opportunity for cats to acquire infection with ascarids via ingestion of vertebrate hosts or from an environment contaminated with feces from untreated animals.

Prompt removal of feces from the yard or the litterbox will also help prevent ascarid eggs from remaining in the environment as the fecal material decomposes or is dispersed.

Public Health Considerations

Toxocara spp. are well-documented and important zoonotic disease agents. Infection with *Toxocara* spp. is most common in children and occurs upon ingestion of larvated eggs from a contaminated environment following dirt eating or other forms of pica. Although all children are susceptible to infection, some studies have shown that toxocarasis is more common in both rural and inner-city areas, and is associated with poverty and contact with breeding and/or untreated, free-roaming pets.

Larvated eggs of *Toxocara* spp. are commonly found in soil collected from playgrounds or parks, and the eggs survive and remain infective for many years. When these eggs are ingested, the larvae they contain migrate internally in the child, resulting in disease.

Syndromes of toxocariasis include visceral larva migrans, which is usually characterized by hepatomegaly, pulmonary disease, and eosinophilia; neural larva migrans, characterized by progressive neurologic disease; ocular larva migrans, characterized by a unilateral granulomatous retinitis; and covert toxocariasis, in which chronic abdominal pain or other nonspecific symptoms develop.

Prevention of disease caused by infection with zoonotic ascarids requires preventing the ingestion of eggs from the environment. Young children should be closely monitored so that dirt eating and other forms of pica can be discouraged, particularly in public areas known to be frequented by cats and dogs.

Early and regular deworming is essential in preventing contamination of the environment with *Toxocara* eggs. Treating pets to prevent egg shedding is critical because the eggs are very hardy and long-lived in the environment. Once present, the eggs can be removed or destroyed only through extreme measures such as paving kennel areas or areas of pet defecation with concrete or asphalt, complete removal of topsoil, prescribed burns, or treatment with steam.

Selected References

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