

Diagnostic update

Fecal Dx antigen testing expanded to include taeniid tapeworms

To ensure the health of patients, a fecal examination for intestinal parasites is an important part of routine wellness care as well as those with gastrointestinal disease.

Regardless of the test used, there can be limitations on accurately identifying infections with some parasites. Detection of many cestodes, commonly called tapeworms, can be difficult with traditional flotation methods.¹ IDEXX Reference Laboratories offers Fecal Dx™ antigen testing as an additional tool for detecting these parasites. With the addition of taeniid tapeworm antigen, Fecal Dx profiles now provide more accurate detection of the most common and clinically relevant intestinal parasites.

Background

In small-animal practice, tapeworms are one of the parasites commonly observed in dogs and cats.² Many times, proglottids are seen on the feces or around the perineum of infected dogs and cats. The taeniid tapeworms include both *Taenia* spp. and *Echinococcus* spp. In a fecal flotation, eggs from *Taenia* and *Echinococcus* are indistinguishable and cannot be speciated. Also, the eggs do not consistently float, so fecal flotation is not a reliable means of diagnosing tapeworm infections.¹⁻³

Taenia spp. has an indirect life cycle with specific intermediate hosts. Dogs and cats infected with adult tapeworms shed proglottids containing eggs in or on their feces, and proglottids can be seen around the perineum or on the fur of infected dogs and cats. When the appropriate vertebrate intermediate host (rabbits, rodents, or ruminants) consumes the eggs, larval cysts develop in their internal organs or subcutaneously. Dogs and cats are infected when they ingest these larval cysts while preying on or scavenging infected rabbits, rodents, or ruminants. Dogs begin

shedding proglottids of *Taenia pisiformis* 1.5–2 months following infection. Cats can begin shedding proglottids of *Taenia taeniaeformis* (*Hydatigera taeniaeformis*) as soon as 30 days postinfection, but the prepatent period may be as long as 3 months.² *Taenia crassiceps* is a parasite endemic to the northern hemisphere, including Europe, North America, and Asia. *T. crassiceps* is rarely seen in North America but is commonly found in Europe.⁴

Echinococcus spp. are the most medically significant tapeworms because of the zoonotic risk of causing severe clinical disease in dogs and people. *Echinococcus* spp. also have indirect life cycles that require specific intermediate hosts. *Echinococcus multilocularis* can be found in wild carnivores serving as the definitive host and ungulate (mammals with hooves) or rodents serving as intermediate hosts, but *Echinococcus granulosus* is most often found in domestic cycles involving domestic dogs and sheep (goats, cattle, pigs, camels, and cervids can also serve as intermediate hosts). Definitive hosts are infected with *Echinococcus* spp., adult worms shed egg-laden proglottids in the hosts' feces. The proglottids are only a few millimeters in length, and an entire tapeworm consists of only 2–6 segments, so the proglottids are seldom observed when shed. When the intermediate hosts consume the eggs, hydatid cysts develop in their internal organs. Dogs and cats are usually infected when they ingest these cysts during predation or scavenging. The prepatent period of *Echinococcus* spp. may be as long as 1–2 months.³

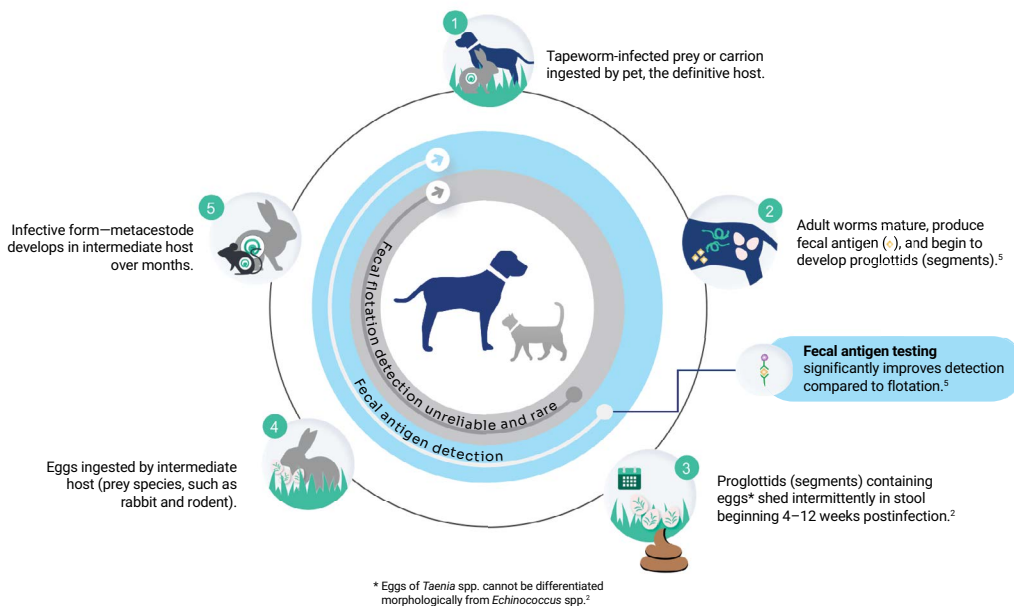


Figure 1. *Taenia* spp. life cycle.

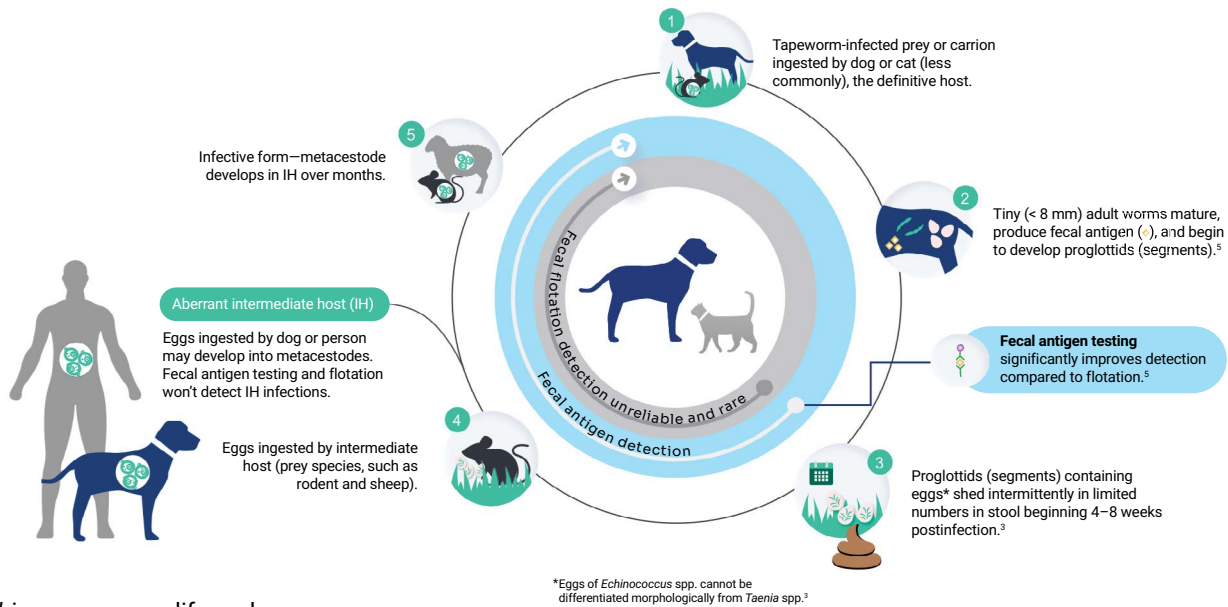


Figure 2. *Echinococcus* spp. life cycle.

Prevalence

Taenia species are commonly found in dogs and cats globally. The true prevalence of both *Echinococcus* spp. and *Taenia* spp. is underestimated because fecal flotation is an insensitive method of detection.¹ Two publications assessing IDEXX fecal testing over a 3-year period found tapeworm ova in 0.2% of dogs and 0.9% of cats.^{6,7} Another recent study on 898,299 samples over a three-month period found 0.34% of dogs and 0.35% of cats had tapeworm ova in the samples, with two-thirds of them being taeniid-type eggs.⁸

Clinical signs

***Taenia* spp.**

Disease in dogs and cats due to infection with adult *Taenia* species is rare. Passage of proglottids may be associated with perianal irritation. Rarely, intestinal impactions with *Taenia* spp. that necessitate surgical removal of a mass of tapeworms from the small intestine have been reported. *T. taeniaeformis* and *T. pisiformis*, the most common *Taenia* found in dogs and cats, are not zoonotic.²

***Echinococcus* spp.**

Adult *Echinococcus* spp. in the lumen of the small intestine are not known to cause disease in dogs or cats. Rarely, infections have been reported to cause bloody diarrhea. Occasional cases of alveolar echinococcosis, in which dogs serve as accidental intermediate hosts and develop multilocular hydatid cysts, have been reported. These cases follow either ingestion of a large number of eggs from the environment (coprophagy) or intestinal infections in which the adult *E. multilocularis* release eggs into the intestinal lumen.³

Zoonotic relevance

Although the overall risk of human infection with *Echinococcus* spp. is low, dogs and cats infected with these tapeworms create a zoonotic risk.³ The eggs shed in the feces of an infected dog

or cat are immediately infectious to the intermediate host. Humans are susceptible as accidental intermediate hosts to *E. granulosus*.⁹ The large, slow-growing, thick-walled unilocular hydatid cysts usually develop in the liver and lungs and are associated with pressure atrophy and impaired organ function due to their size. Surgical removal is necessary to effectively treat. Humans may also serve as accidental intermediate hosts of *E. multilocularis*.⁹ Due to the rapid, invasive growth of the multilocular hydatid cysts associated with alveolar echinococcosis, this disease is more severe in people. Even with surgical resection followed by anthelmintic treatment, it is potentially fatal.⁹ Additionally, immunocompromised humans can be infected if they ingest eggs of *T. crassiceps* and become an accidental intermediate host. They develop *T. crassiceps*-induced cysticercosis. *T. crassiceps* has a life cycle that includes canines as definitive hosts of the adult tapeworm and rodents as intermediate hosts.¹⁰

Current diagnostics

Diagnosis of taeniid tapeworm infections with fecal flotation can be challenging as eggs are quite dense. *Taenia* spp. proglottids are not uniformly distributed in feces, and the eggs do not consistently float, which makes fecal flotation an insensitive technique for diagnosing many tapeworm infections.² Due to the small size of *Echinococcus* spp. adults and their small number of body segments, it is unlikely for proglottids to be observed on the feces.¹ Polymerase chain reaction (PCR) testing can also be used when *Echinococcus* infections are suspected.

Testing innovations

With the addition of taeniid tapeworm antigen to Fecal Dx™ panels and profiles, detection does not depend on the presence of eggs in the feces. Monoclonal antibodies were developed against an excretory-secretory product of *T. taeniaeformis* that is consistently detectable by immunoassay in the feces of an infected host. A positive result for taeniid tapeworm

antigen indicates detection of the presence of one or more of the following: *Taenia crassiceps*, *Taenia pisiformis*, *Taenia taeniaeformis*, *Echinococcus granulosus*, and *Echinococcus multilocularis*.⁵ As with a taeniid fecal flotation-positive result, *Echinococcus* PCR testing can be performed if needed to identify the potential for a zoonotic infection. In cases where dogs or cats are accidental intermediate hosts, fecal antigen testing will likely be negative because no adult tapeworms are present in the gastrointestinal tract.

In 104,935 fecal specimens submitted to the IDEXX Reference Laboratories from March 16–27, 2026, 0.26% were taeniid-antigen positive overall. Cats showed a higher positivity rate (0.68%) compared to dogs (0.19%). For 94,992 of these specimens, there were paired Fecal Dx™ antigen testing and centrifugal flotation (O&P) results. In this dataset, fecal antigen found over 3 times more positives than O&P alone (250 [0.26%] taeniid-antigen positives compared to 63 [0.07%] O&P positives).¹¹

	Taeniid O&P (+)	Taeniid O&P (–)
Taeniid antigen (+)	49	201
Taeniid antigen (–)	14*	94,726

*8 specimens had only 1 egg observed on O&P and likely below the limit of detection for coproantigen or as a result of coprophagy.

Figure 3. Fecal O&P testing compared with taeniid tapeworm antigen testing.

In previous published studies,^{6–8} overall tapeworm O&P positivity had ranges of 0.2%–0.35% in dogs and 0.35%–0.9% in cats. Positivity during this 2-week period was likely lower than these previous publications due to the short time period evaluated and the effect of seasonal availability of the intermediate host. Positivity will likely vary based on host availability and the population of dogs and cats being tested.

Treatment

Praziquantel and epsiprantel are approved for the treatment of *Taenia* spp. infections in dogs and cats. Fenbendazole is also approved for the treatment of *T. pisiformis* in dogs.² Praziquantel is approved for elimination of intestinal stages of

adult *Echinococcus* spp. in dogs.³ The same dose of praziquantel is effective against *Dipylidium caninum* (flea tapeworm), *Taenia* spp., and *Echinococcus* spp. To prevent zoonotic infections in areas where *Echinococcus* spp. is endemic, routine monthly deworming of dogs with praziquantel is recommended. Strict fecal hygiene is key to help prevent transmission to naïve dogs or people.³ Preventing dogs and cats from consuming intermediate hosts prevents them from becoming infected as a definitive host, and eliminating opportunities for coprophagy decreases the likelihood that the dog or cat becomes an accidental intermediate host.

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