



## Researchers Investigate *T. Foetus* Infection in Catteries

**A**byssinian breeders and owners of Highgait Paws Cattery in Clintondale, N.Y., Dave and Mindy Dybas recall vividly when a stud cat named "Hollywood" came to live at their house. Right away, they noticed Hollywood's loose, foul-smelling stools.

Nothing seemed to stop the cat from having smelly, thick, runny stools. Several visits to the veterinarian and numerous tests failed to define the cause of the diarrhea. After a year of dealing with the condition, the Dybases decided to have Hollywood neutered, thinking the problem may be hormonal. "We were just guessing at that point," Dave Dybas says.

After Hollywood was neutered, the cat was moved from the stud area of the cattery to the common area, where he shared a common litter box. "All of a sudden, our females and other cats in the common area started having loose, foul stools," says Dave Dybas.

Remembering that he had read on the Internet about cats having loose stools caused by a parasitical infection, Dave Dybas started researching the condition. The more he learned, the

more he was convinced that his cattery was infected with *Tritrichomonas foetus* (TF). Sure enough, 10 cats tested positive for *T. foetus*. The Dybases' veterinarian prescribed treatment for the affected felines.

### A Highly Contagious Disease

Catteries and multi-cat environments are most susceptible to *T. foetus*, a parasite that infects a cat's colon, causing colitis and chronic foul-smelling diarrhea. Although the condition is contagious, it is not life-threatening.

Jody Gookin, D.V.M., Ph.D., DACVIM, assistant professor of small animal internal medicine at North Carolina State University College of Veterinary Medicine, a leading researcher of TF, explains that cats with *T. foetus* are generally healthy.

"The colon is located at the end of the gastrointestinal tract and is not responsible for nutrient absorption," she says. "As a result, cats with TF are able to assimilate nutrients normally. However, their ability to store feces properly and form dry fecal balls is impaired, which accounts for the foul-smelling, pudding-like diarrhea."

Unfortunately, TF is often misdiagnosed. "*T. foetus* is easy to confuse with *Giardia*, the most common parasite affecting cats," Gookin says. "Both infect the gastrointestinal tract and have similar signs. If you are unaware of the existence of *T. foetus*, it's easy to assume you are looking at *Giardia*. It's common for cats identified as having TF to have a history of being diagnosed with *Giardia*."

Treatment for *Giardia*, however, does not work for TF, which sometimes leads to frustration and unnecessary expense for owners. Meanwhile, for owners of catteries and multi-cat households, the infection often spreads to other cats.

"The TF organism exists in cat feces," says Gookin. "It infects cats that inadvertently ingest the organism, probably by sharing the same litter box and then grooming themselves. A cat can become infected by stepping in fresh contaminated stool and then licking his feet."

Though *T. foetus* does not live for long periods outside the body, if a cat swallows the parasite, it can live for days. The parasite infects the colon, and in severe cases, a cat may dribble feces uncontrollably with the anus becoming swollen and painful.

"It's uncomfortable for the kittens and certainly intolerable for cat owners," Gookin says. "I would suspect that the main cause of death among cats with *Tritrichomonas foetus* is euthanasia due to misunderstanding and frustration for owners dealing with the diarrhea."

The Dybases' veterinarian prescribed ronidazole for the Abyssinian cats that tested positive for *T. foetus*. The female cats responded well to the treatment, but two stud cats and Hollywood, who was neutered when treated, still tested positive. Though the males had stopped producing foul-smelling, loose diarrhea, they still had to be isolated for fear of possible contamination.

### Owners May Participate in TF Research

**O**wners of catteries with active breeding programs may participate in research at North Carolina State University to learn more about the reproductive tract prevalence of *Tritrichomonas foetus* (TF), a parasite that causes loose, foul-smelling diarrhea. Jody Gookin, D.V.M., Ph.D., DACVIM, assistant professor, and her research team plan to examine the reproductive tracts and fecal samples of about 100 cats undergoing spaying or neutering surgeries.

Cattery owners may enroll any number of purebred adult cats and up to two kittens 8 months of age or less. Free screening for TF, which normally runs \$75 a cat, is available for participating cats. Breeders will receive a report that can be used to let future kitten owners know their cattery has been tested for TF. Results are confidential. For information about participating, visit [www.cvm.ncsu.edu/mbs/gookin\\_jody.htm](http://www.cvm.ncsu.edu/mbs/gookin_jody.htm).

The Web site contains forms with information for veterinarians on how to collect and ship samples, plus information about TF and an owners' guide to diagnosis and treatment by Gookin and Abyssinian breeder Dave Dybas of Clintondale, N.Y. For additional information about the Winn Feline Foundation study or diagnostic testing for *T. foetus* infection, please contact Maria Coccaro at North Carolina State University at (919) 513-6365 or by e-mail at [Maria\\_Coccaro@ncsu.edu](mailto:Maria_Coccaro@ncsu.edu).

## T. Foetus Infection

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"Almost all cats will show improvement in signs even if left untreated, although it can take years," Gookin says. "More than half of these cats, however, still harbor the organism. Although we have some excellent tests to diagnose the infection, none is able to conclusively establish whether a cat no longer has the condition. In other words, it usually is easier to prove an infection than it is to show a cat no longer has the infection."

It also can be difficult to identify TF in cats that do not show clinical signs. "The infection can be hard to find in those cats," says Gookin. "It's also possible some cats that seem to fail treatment actually have been reinfected by other cats in the household. If an owner goes through the expense of treating an entire cattery with ronidazole, but one cat fails treatment, that one cat can potentially reinfect the other cats."

### Learning More About TF

Gookin and her research team at North Carolina State University aim to learn more about TF, including why some cats fail treatment. She recently received a \$12,465 grant from the Winn Feline Foundation to study whether the parasite may infect the feline reproductive system in addition to the gastrointestinal tract. The theory is that reproductive tract infection may be associated with treatment resistance or reproductive problems. A nonprofit organization, the Winn Feline Foundation ([www.winnfelinehealth.org](http://www.winnfelinehealth.org)) funds and supports studies that focus on feline health and medical problems.

In preliminary research, Gookin and her team gathered data in 2001 from cat breeders and owners who attended an international cat show. They took fecal samples from 117 cats representing 89 catteries and found

that 30 percent of the cats were infected with *T. foetus*.

"This indicates that TF is not a local or isolated infection since catteries from all over North America and even some international countries were represented at the show," she says. "We learned that the cats at risk were ones housed in a densely populated environment, meaning catteries are at high risk."

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Much needs to be learned about TF before the infection can be properly treated. "If we find infection in a cat's reproductive tract, this may explain why some cats fail treatment for infection," she says. "It also may predispose queens to problem pregnancies and stillborn kittens. We will want to identify risk factors and discover potential consequences of reproductive disease and fertility."

In cattle, researchers found that *T. foetus* infects the reproductive tract and that bulls are particularly difficult to treat because medication is unable to reach infected genitalia areas. Similarly, Gookin theorizes that male cats, such as Hollywood and the Dybases' stud cats, may fail treatment because TF in the reproductive tract does not respond to treatment.

To test the theory, the researchers plan to examine the reproductive tracts of around 100 purebred cats under-

going spaying or neutering surgeries. Purebred cats of any age living in catteries with active breeding programs are eligible to participate. "We chose purebreds because we wanted populations at high risk for having *T. foetus*," Gookin says. "If we learn that the infection is sexually transmitted, we will want to study cats engaged in sexual activity."

Gookin plans to use polymerase chain reaction (PCR) testing to determine whether *T. foetus* is in the reproductive tract. "The PCR test allows us to identify the DNA of the parasite," she explains. "We want to use the most sensitive test possible because there may only be small numbers of parasites present and we do not want to run a risk of missing infections."

Though there are many unanswered questions about feline *Tritrichomonas foetus*, thanks to Gookin and her research team, with support from the Winn Feline Foundation, progress is being made to learn more about the parasite that often resembles *Giardia*. They hope to discover more about how the disease is transmitted and to raise awareness among veterinarians, breeders and owners about the annoying, highly contagious condition. ■

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### Want to Reach the Editor?

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