



TOXOPLASMOSIS

What is Toxoplasmosis? - It is an intracellular one-celled parasite (*Toxoplasma gondii*) that infects nearly all mammals. Felines, including domestic cats, are the definitive hosts; all other warm-blooded animals are intermediate hosts. It has a worldwide distribution. The severity and manifestations of clinical illness depend on the location and degree of tissue injury caused by tissue cysts. Infection is acquired by ingestion of tissue cysts or eggs and results in spread of organisms to organs through the bloodstream or lymphatic system. This results in spots of cellular death in many organs (heart, eye, central nervous system). This acute disseminated infection is rarely fatal. Chronically, tissue cysts form to produce low grade disease that usually is not clinically apparent unless the immune system is suppressed or concomitant illness allows *Toxoplasma gondii* to proliferate and cause an acute inflammatory response.

Clinical toxoplasmosis is often associated with other infections causing severe immunosuppression such as canine distemper, feline infectious peritonitis, and feline leukemia virus infections.

What are the Symptoms of Toxoplasmosis?

Clinical toxoplasmosis is more commonly recognized in cats than dogs, but the systems affected are usually the same. Approximately 80% of cats with toxoplasmosis will have evidence of internal eye inflammation. Approximately 30% of healthy cats and up to 50% of healthy people will test positive for *Toxoplasma gondii*. Since most animals and people with toxoplasmosis show no symptoms, clinical disease is uncommon. In one study, mean age of infection in cats was 4 years, with a range from 2 weeks to 16 years. More male cats have been reported with the disease than females.

The signs of the disease are determined mainly by the site and extent of organ damage, and can be acute (occurring at the time of initial infection) or from reactivation of encysted infection (chronic) caused by immune suppression. The history may include: lethargy, depression, loss of appetite, weight loss, and fever. Other signs are determined by the site and

extent of organ injury, and may include: Inflamed eyes (discharge, light sensitivity, pinpoint pupils); Respiratory distress; Neurologic signs (wobbliness, seizures, tremors, paralysis); Digestive tract signs (vomiting, diarrhea, abdominal pain); and Stillborn kittens.

On physical examination, the doctor may see a variety of abnormalities, including:

Cats: Infected kittens may be stillborn or die before weaning. Live kittens may show no appetite, lethargy, and high fevers unresponsive to antibiotics in surviving kittens. Acquired infections in cats result most commonly in respiratory and digestive signs (loss of appetite, lethargy, high fevers unresponsive to antibiotics, difficult breathing, weight loss, jaundice, vomiting, diarrhea, fluid-filled abdomen); Rarely cats may show neurologic signs (blindness, stupor, incoordination, circling, variable pupil sizes, seizures). Eye signs are common and relate to inflammation. The disease can have a rapid course in acutely affected cats with brain and/or respiratory involvement, or slow course in cats with reactivation of chronic infection.

Dogs: Young dogs usually are afflicted by generalized infection, resulting in fever, weight loss, loss of appetite, tonsillitis, difficult breathing, diarrhea, and vomiting. Older dogs tend to develop localized infections mainly associated with neural and muscular systems. Neurologic signs are quite variable usually reflecting diffuse neurologic inflammation: seizures, tremors, ataxia, paresis, paralysis, muscle weakness, and paralysis.

How is It Diagnosed? - Because the disease does not have specific, characteristic signs and because it is often associated with other diseases (like canine distemper, feline leukemia, immune suppressive virus, and infectious peritonitis), diagnosis is done by a process of elimination. In other words, eliminating the various disease entities that can cause the changes we are seeing. Blood tests can be helpful and there is a serum titer test for Toxoplasmosis (if it is suspected).



TOXOPLAMOSIS (Cont.)

Fecal examination may be diagnostic, but fecal oocyst (egg) shedding rarely occurs during the clinical disease. Oocysts may be detected on routine fecal examinations in “healthy” cats though.

Can It be Treated? - Yes, but...

Most patients can be treated as outpatients at home. Those with pneumonia or debilitation should be supported in the hospital until stabilized though. Prognosis is guarded in cats needing therapy because response to therapy is inconsistent. The worse prognosis is in newborns and the severely immune compromised. The antibiotic Clindamycin is used and continued for at least 2 weeks after clinical signs go away. Also Sulfadiazine in combination with pyrimethamine for 2 weeks has been used. Both of these treatments may have side effects though.

PREVENTION/AVOIDANCE: Prevent cats from eating raw meat, bones, viscera, or unpasteurized milk (especially goat milk), or from eating mechanical vectors (flies, cockroaches). Meat may be eaten if well-cooked. Outdoor cats are especially vulnerable because they can hunt prey (birds, rodents) or enter buildings where food-producing animals are housed.

EXPECTED COURSE & PROGNOSIS: Because of the varied response to drug treatment, prognosis has to be guarded. In acute cases, prompt and aggressive therapy often is successful. Residual deficits (especially neurologic) cannot be predicted until after a course of therapy. Eye disease usually responds to appropriate therapy. Severe muscular or neurologic disease usually results in chronic debility.

I Have Heard It is Dangerous to Pregnant Women.

Is This True? - Yes. This parasite can cause abortion in pregnant women. Infection through the bloodstream during pregnancy can cause spread of the organisms to the fetus. A healthy cat with a positive *Toxoplasma gondii* antibody titer poses little danger to its owner. A cat with no antibody titer is more at risk of becoming infected, shedding oocysts in the feces, and constituting a risk to its owner. To avoid contact with oocysts or tissue cysts:

- Do not feed raw meat and you shouldn't eat raw meat yourself. The risk is higher from undercooked meat than from your cat. Remember, 50% of people test positive for this disease, and almost all of them got exposure from undercooked meat.
- Wash hands and surfaces (cutting boards) after preparing raw meat.
- Boil drinking water if the source is unreliable.
- Keep sandboxes covered to prevent cats from defecating in them.
- Wear gloves when gardening.
- Wash hands and vegetables before eating to avoid contact with oocyst soil contamination.
- Empty cat litter boxes daily (oocysts need 24 hours at least to become infective).
- Disinfect litter boxes with boiling water.
- Control stray cat population to avoid oocyst contamination of environment.

Summary: Pregnant women should avoid all contact with a cat excreting oocysts in its feces, avoid contact with the soil and cat litter, and not handle or eat raw meat (meat cooked to 150° F will kill *Toxoplasma gondii*).

Thank you for this opportunity to serve you