TOXOPLASMOSIS

You do not have to give up your cat because you are pregnant.

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Once upon a time, doctors used (and some still are) to routinely advise pregnant women to get rid of their feline companions because the risk of getting toxoplamosis and passing it to their unborn child.
Studies show that the largest risk of toxoplasmosis in pregnancy is from eating undercooked meat and handling raw vegetables and cat ownership is not really the source of the problem.

What is toxoplasmosis?

Toxoplasmosis is a disease caused by a single-celled parasite called Toxoplasma gondii (T. gondii).
Toxoplasma gondii is an obligate intracellular parasite that is very common and can infect nearly all warm-blooded animals, including man.
Members of the species Felidae (cats), wild cats included are the only known definitive hosts for the sexual stages of T. gondii in consequence cats serve as the primary reservoir for the parasite and are the only ones that can shed it.
Many other species such as rodents and birds are paratenic hosts and serve as intermediate hosts required for completion of the parasite's life cycle but in which developmental changes do not occur.
There are 3 main ways that infection can be transmitted:
1. Infection of a fetus during pregnancy.
2. Eating raw or undercooked meat that is infected.
3. Through Ingesting of oocyst through contaminated food or water.
Please note that flies and roaches (which eat feces), can serve as transport agents for the parasite.
As mentioned above only domestic and wild cats shed the infective form of the parasite oocyst in their feces.
Oocysts can contaminate and live in the environment for up to a year or longer, due to the fact that it is resistant to drying and freezing temperatures as well as to most disinfectants.
If an animal such as a mouse ingests the infectious oocysts, it becomes then

infected with Toxoplasma.
If the mouse survives the infection, it becomes a source of infection for any animal that eats it.
Cats usually become infected by ingesting the infectious oocysts, by eating prey or raw meat that actually has the parasite.
Unpasteurized milk, goat milk can be a source as well for acquiring the parasite, feeding pets milk it is not advisable at all.
Kittens can be infected in utero if the mom acquires the parasite while pregnant.
When a cat ingests an infected prey or infected raw meat the parasite is released into the cat's digestive tract, where then these organisms multiply in the wall of the small intestine and produce oocysts during what is called the intraintestinal infection cycle.
Oocysts are then shed in great numbers in the cat's feces.
Cats previously unexposed to T. gondii will usually begin shedding oocysts between 3 and 10 days after ingestion of infected tissue, and will keep shedding oocysts for approximately 10 to 14 days, during that time great numbers of oocysts are produced.
Shedding is heaviest in infected kittens 6 to 14 weeks old.
Disease is most severe in those kittens infected in utero.
During the intraintestinal infection cycle, T. gondii organisms released from the ingested cysts penetrate deep into the wall of the intestine where they multiply as what is called tachyzoite forms.
Tachyzoite spreads then from the intestine to other parts of the cat's body, starting what is called the extraintestinal cycle.
At some point the cat's own immune system restrains this stage of the parasite and it is then that it enters a dormant stage by forming cysts in muscles and brain.
These cysts contain bradyzoites, or organisms that multiply very slowly.
Oocysts passed in a cat's feces are not immediately infectious to other animals as they must go through a process called sporulated.
Oocysts are infectious to cats, people, and other intermediate hosts.
Intermediate hosts become infected through ingestion of sporulated oocysts, and this infection results in the formation of tissue cysts in various tissues of the body, these tissues stay in the intermediate host for life and are infectious to cats, people and other intermediate hosts if the cyst containing tissue is eaten.

Usually a cat infected with T-gondii will show no symptoms.
However symptoms for cats infected after birth may be: loss of appetite, lethargy, and trouble breathing due to pneumonia.
Other symptoms can be fever, jaundice, vomiting, diarrhea, weight loss and neurologic problems to name a few.
The majority of animals and people infected with Toxoplasma do not become ill.
The reason of why, it is not fully understood but factors such as stress, concurrent illness and immunosuppression play a role.
In cats, clinical toxoplasmosis has been seen in association with Hemobartonella felis, FeLV , FIV, and FIP.
You may read about FELV, FIV and FIP on our Educational Link section on our web page: www.HurricanePets.petfinder.com

Diagnosis:

Toxoplasmosis is usually diagnosed based on the history and signs of illness, and the results of laboratory tests such as fecal exams, x-rays, blood tests, etc.
Please note that fecal exams is not a reliable method of diagnosis.
Antibody titer tests for the IgG class of antibodies are available, but interpretation of a single sample can be difficult.

A definitive diagnosis requires microscopic examination of tissues or tissue impression smears for distinctive pathologic changes and presence of tachyzoites.

Cats that had toxoplasmosis in the past and have recovered from the infection and are now immune will have a positive IgG titer.
Cats with an active infection will also have a positive titer.
False positive titers for Toxoplasma antibodies may occur as well.
Using paired blood samples to monitor antibody titers can be more helpful.
Active toxoplasmosis can be documented if the IgG antibody titer increases four-fold over a two to three week period.
Another antibody test, for the IgM class of antibody, is a better indicator of an active infection.
Usually a blood test is done for both IgG and IgM antibodies at the same time.
Most cats that have toxoplasmosis can recover with treatment.

Treatment:

Treatment involves a course of an antibiotic being Clindamycin the drug of choice given for 2 to 3 weeks.

Other drugs of use are pyrimethamine and sulfadiazine, these drugs act together to inhibit T. gondii reproduction.

Treatment must be started as soon as possible after diagnosis and continued for several days after signs have disappeared.

If improvement is not seen within two to three days after starting treatment, diagnosis of toxoplasmosis should be questioned.
There is currently no vaccine to prevent Toxoplasmosis.

How can I get Toxoplasmosis ?

In developing countries and rural areas contaminated soil is usually the most common form for people, rodents, birds, goats, sheep, cattle and pigs to acquire it.

In the industrialized nations transmission to people is most likely due to eating undercooked infected meat and by eating unwashed fruits and vegetables as well as by consuming unpasteurized dairy products, such as goat's milk.

Toxoplasmosis is a very common human infection, in the United States, it is estimated that about 60 million people carry Toxoplasma antibodies in their bloodstream.

However very few people have symptoms of illness.
Studies also show that 1 in every 1,000 babies born in the US is infected with Toxoplasma , it is here where its effects are most devastating.

Adults who are immunosuppressed, either with immunodeficiency syndrome (AIDS) or cancer can become very ill with toxoplasmosis.

Should I rehome my cat if I am pregnant?

Regardless of what your doctor tells you the answer is NO.
The fact that you have a cat doesn't automatically put you at risk of your unborn child being infected with Toxoplasmosis.
Cats are not usually carriers of T. gondii, they acquire it,
In order for a house cat to pass toxoplasmosis to its owner, the cat would have to have had recent exposure to T.gondii itself.
It is usually outdoor cats that are exposed to T. gondii far more frequently than indoor cats; toxoplasmosis in indoor cats is rare.
By now you know that T- gondii is found in rodents and raw meat, a cat who lives only indoors is unlikely to be exposed to it unless the owner regularly feeds the cat raw meat.
The means of transmission from cat to owner would most likely be through exposure to cat feces.
That being said a pregnant women will only get Toxoplasmosis from her cat if she was to ingest T-gondii, which it can only be if somehow she was to eat the cat feces.
Therefore I can safely say that there is no need to re-home your cat, just because you are pregnant.
However precautions must be taken if you own a cat and you are pregnant.

HPR'S recomendations are:

1. Get someone else to clean your cat litter box, if cannot wear gloves and wash your hands after cleaning it.
Washing hands after cleaning litter boxes it also a must for everyone not just for women that are pregnant.
2. Change the cat litter daily.
3. Do not feed raw meat to your cat.
4.Do not give your cat eggs, goat milk.
5. Keep your cat always indoors.
6. Keep outdoor sand boxes covered.
7. Wear gloves when gardening.
8. Avoid handling raw meat.
9. Wash hands, surfaces and utensils well with soap and water after handling

raw meat and fruits and vegetables specially those bought at fresh markets.

10. Do not eat unwashed fruit or vegetables.

11. **Do eat raw or undercooked meat, pork, lamb and venison should be cooked to an internal temperature of 160oF (70oC).**

12. Control rodent populations and other potential intermediate hosts such as roaches and flies.

13. **Do not drink untreated water and do not let your cat drink it either unless is boiled.**

14. **Women that are planning a pregnancy should consult with their doctor ab out getting a prenatal blood test do ne to see if they have already contracted the infection, if they ha ve chances are they are already immune.**

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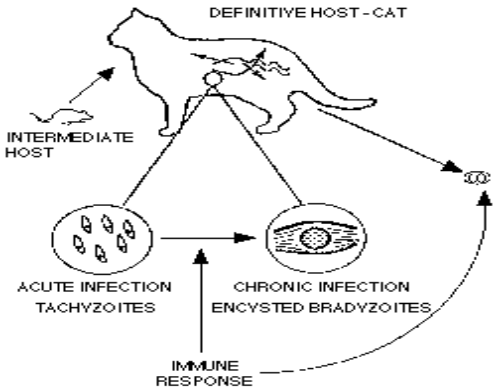

Figure 1: Life cycle of *Toxoplasma gondii* – definitive host

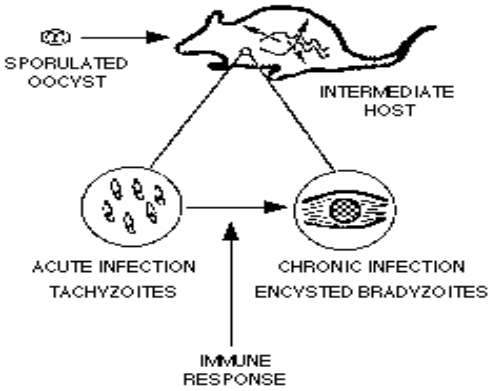

Figure 2: Life cycle of *Toxoplasma gondii* – intermediate host