



**VETERINARY HOSPITAL & HOTEL**

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## Ringworm in Cats

Ringworm is a skin disease caused by a fungus (plural: fungi). Because the lesions are often circular, ringworm was once thought to be caused by a worm curling up in the tissue. However, ringworm has nothing to do with any type of worm.

Ringworm is also known as *dermatophytosis*. There are four species of fungi that can cause dermatophytosis in cats; however, it is most often caused by the organism called *Microsporum canis*. The *Microsporum canis* organism is so well adapted to cats that up to 20% of cats are thought to be asymptomatic carriers, meaning they have the organism but show no outward signs.

Ringworm is actually an infection of the dead layer of the skin, hair, and nails. The organism is able to utilize this dead tissue (keratin) in the skin as a source of nutrition.

### Contributing Factors

Genetic and environmental influences play an important role in feline ringworm infection. A significant amount of research remains to be done on this disorder. It appears that Himalayan and Persian cats are affected most frequently. In catteries, ringworm can be hard to control because of the numbers of animals involved.

### Clinical Signs

The fungi live in hair follicles. As the organism invades the hair shafts and they weaken, hairs break off at the skin line. Patches of hair loss tend to be round; however, as the fungus multiplies, the lesions may become irregularly shaped and spread over the cat's body. These patches may be associated with scaling and crusting of the skin. The lesions are sometimes itchy (pruritic) but this is not a consistent finding.

The incubation period is 10-12 days. This means that the exposure to the fungus and establishment of infection occurs 10-12 days before any lesions occur.

### Diagnosis

Feline ringworm can be diagnosed by three different methods. In some cases, more than one technique is used.

1. Identification of the typical "ringworm" lesions on the skin. This is the least accurate method.
2. Fluorescence of infected hairs under a special light. This is a screening test that is useful because *Microsporum canis* will sometimes fluoresce as a bright apple green under ultraviolet light. However, failure to fluoresce does not eliminate ringworm as a potential diagnosis.
3. Culture of the hair for the fungus. This method is the most accurate way to diagnose feline ringworm. After some hair is plucked from a lesion on the skin, it is placed on a culture media to watch for growth of the fungus. The color of the media will change from yellow to red as the fungus grows. These cultures are checked daily. Most cats with ringworm will have a positive culture within 10 days, but in rare cases, growth may not occur for 14-21 days.

### Transmission

Transmission can occur by direct contact between infected and non-infected individuals. It may be passed from dogs to cats and vice versa. It may also be passed from dogs or cats to people and vice versa. If a child has ringworm, he or she may have gotten it from the pet or from another child at school. Adult humans are relatively resistant to infection unless there is a break in the skin or there is suppression of the immune system (AIDS, chemotherapy, etc). Children are quite susceptible. Consult with your family physician if any family member develops suspicious skin lesions.

Transmission may also occur from the infected environment. The fungal spores may live in bedding or carpet for several months. They may be killed with a dilution of chlorine bleach and water (1 cup of chlorine bleach in a gallon of water) where it is feasible to use it.

### **Treatment**

There are several methods for treating ringworm. The specific method(s) chosen for your cat will depend on the severity of the infection, how many pets are involved, presence of children in the household, and how difficult it will be to disinfect your cat's environment.

1. Itraconazole is an oral (systemic) drug used to treat ringworm. It is not approved for use in cats, but is generally considered safe and effective. It may offer the advantage of preventing fungal spores from adhering to the dead layer of the skin. Talk to your veterinarian about potential side effects.
2. Baths using an antifungal shampoo. A bath should be given twice weekly for 6-8 weeks. Bathe exposed but unaffected pets twice weekly for 3 weeks. These baths are important in getting the spores off the hairs so they do not drop into the environment and result in re-exposure. A lather should be formed and left on for 5-10 minutes before rinsing. Bathing works best in combination with oral medication.
3. Lime Sulfur Dip. This should be done once weekly until the infection is resolved. Lime sulfur dip can be applied to other pets (dogs or cats) in the household to prevent them from being infected. Wear gloves when applying the dip. Lime sulfur can change the color of some jewelry. It is an effective form of treatment, but the dip has an objectionable odor (rotten eggs) and can stain some fabrics. This can be used on single lesions or used to treat the whole pet. Since kittens less than 1 year of age are most susceptible to ringworm, we recommend treating the whole kitten. Treating a single lesion does not alter the length of time it takes for ringworm to resolve, but it can help reduce environmental contamination.

Treatment will not produce immediate results and the areas of hair loss may get larger before they begin to get smaller. Within 1-2 weeks, the hair loss should stop, there should be no new areas of hair loss, and the crusty appearance of the skin should diminish. If any of these do not occur within two weeks, your veterinarian should see your cat again.

Infected pets remain contagious for about 3 weeks if aggressive treatment is used. Contagion will last longer if only minimal measures are taken or if you are not faithful with the prescribed approach. Minimizing exposure to other dogs or cats and to your family members is recommended during this period.

When treatment is completed, ringworm should be cured. Although a carrier state can exist, this usually occurs because treatment is not long enough or aggressive enough or because there is some underlying disease compromising the immune system.

To decontaminate the environment, wash all bedding, brushes, and collars. Change the furnace filters in your home since the spores can become airborne. Vacuum the entire house thoroughly. Wash hard floor surfaces with a dilute bleach solution if possible. Repeat this cleaning process weekly.