



RINGWORM IN DOGS

What is ringworm and what causes it?

Ringworm is the common name given to a fungal infection of the superficial layers of the skin, hairs and nails. The name comes from the classical appearance of a C-shaped red raised 'ring' marking the boundary of inflammatory lesions of the infection in people. The fungi responsible for ringworm belong to a specialized group known as *dermatophytes* that can cause disease in both man and animals. There are many distinct species of dermatophytes. Some species only infect man or certain animals, whereas others can be spread from animals to man.

The three most common fungal species affecting dogs that cause ringworm are *Microsporum canis*, *Microsporum gypseum* and *Trichophyton mentagrophytes*. These fungi may also affect humans.

The fungi live in hair follicles and cause the hair shafts to break off at the skin line. This usually results in round patches of hair loss. As the fungus multiplies, the lesions may become irregularly shaped and spread over the dog's body.

What does ringworm look like?

Roughly circular areas with hair loss (alopecia) often occur in several sites. The affected hair shafts are brittle and broken. These lesions are not usually itchy, but sometimes they are inflamed and scab-covered. Occasionally fungal infection of the nails (onychomycosis) may occur. The claws become rough, brittle and broken. Some dogs may not show any skin lesions but their hair coat has ringworm fungi present.

How long does it take to get it?

The incubation period between exposure to ringworm fungus and lesions occurring ranges from 7 to 13 days.

How is ringworm diagnosed?

Diagnosis is made in one or more of three ways:

- Identification of the typical "ringworm" lesions on the skin.

- Fluorescence of infected hairs under a special ultraviolet light (Note: *T. mentagrophytes* and *M. gypseum* fungi do not fluoresce).
- Culture of the hair for the fungus. The last method is the most accurate, but it may take up to 2-3 weeks for the culture to become positive.

There are a number of causes of hair loss in dogs. Additional tests may be required before a diagnosis of ringworm can be determined.

How is it transmitted?

Transmission occurs by direct contact between infected and non-infected individuals. It may be passed from dogs to cats and visa versa. It may also be passed from dogs or cats to people and visa versa. If your child has ringworm, he or she may have acquired it from your pet or from another child at school. Adult humans usually are resistant to infection unless there is a break in the skin (a scratch, etc.), but children are quite susceptible. If you or your family members have suspicious skin lesions, check with your family physician.

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 pint of chlorine bleach (500 ml) in a gallon of water (4 liters) where it is feasible to use it.

How is ringworm treated?

There are several means of treatment. The specific method(s) chosen for your dog will depend on the severity of the infection, how many pets are involved, if there are children in the household, and how difficult it will be to disinfect your pets' environment.

Two main forms of treatment can be used for dogs with ringworm: topical therapy (application of creams, ointments or shampoos) and systemic therapy (administration of anti-fungal drugs by mouth). In addition, attention must also be given to cleaning the environment.

1. Topical treatment

Occasionally, topical therapy is used alone for treatment of ringworm, but more commonly it is used in combination with oral medications. Various creams and ointments are available to apply to localized areas of skin affected by ringworm. If there is more generalized disease, your veterinarian may recommend using a medicated shampoo. It is extremely important *only* to use preparations that have been specifically provided or recommended by your veterinarian for topical treatment of dogs.

2. Oral treatment

For most cases of ringworm, effective treatment will require administration of an oral anti-fungal drug. The most widely used drug for this purpose is griseofulvin, although newer alternative drugs are now available. The response of individual dogs to treatment varies and it is important that therapy is not stopped too soon otherwise the disease may recur. Treatment must usually be continued for a minimum of six weeks, and in some cases much longer therapy is required. If there is more than one dog in the household, it is possible either to try and separate infected from non-infected dogs and just treat the infected ones, or in some situations it may be preferable to treat all of the dogs. Your veterinarian will be able to advise you on the best treatment given your own circumstances.

3. Environmental cleaning

Hairs infected with ringworm contain numerous microscopic fungal spores that can be shed into the environment. Infection of other animals and humans can occur either by direct contact with an infected dog or through environmental contamination with these fungal spores. In addition to minimizing direct contact with an infected dog, it is also important to attempt to keep the environment as free of spores as possible. Topical treatment of affected skin and shaving infected hairs (and carefully disposing the hair) may help to reduce environmental contamination. It is also worthwhile restricting the dog to rooms of the house that are easy to clean. Thorough vacuum cleaning of rooms where the dog has access to is the best way to minimize environmental contamination and this should be done as frequently as is possible (e.g. daily or every other day). In addition, the use of diluted bleach is recommended in areas that can be readily disinfected.

How long will my dog be contagious?

Infected pets remain contagious for about three 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.

I have heard that some dogs are never cured. Is this true?

When treatment is completed, ringworm should be cured. Although symptoms may recur or 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.

What about the risk to humans?

Ringworm can be transmitted quite readily to humans, especially children, and it is important to take appropriate steps to minimize exposure to the fungus while the dog is being treated (see 'Environmental Cleaning' above). If any humans in the house develop skin lesions such as small patches of skin thickening and reddening,

typically sharply demarcated with raised scaly edges, early medical attention should be sought. Ringworm in humans generally responds very well to treatment.