

## CFC protocol for ringworm found on a dog in clinic

### General information about ringworm:

- A) What does ringworm look like, where in the body does it present itself, and what are the signs of ringworm on a dog:



Appearance of ringworm in dogs (1)

Despite its name, ringworm is not actually a worm—it is a fungus, and in dogs the skin lesions are not necessarily round. The name comes from the classical appearance of the round, red, raised 'ring' marking the boundary of inflammatory lesions in people infected with the disease. (2, 3) This fungal infection is common all over the world and infects almost all species of domestic animals, including dogs, cats, and livestock. Ringworm is not a life-threatening disease, but it is very contagious to humans or other pets (dogs and cats) in your home and does require the intervention of a veterinarian. In addition, other underlying medical conditions in dogs such as Cushing's disease, hypothyroidism, a nutrient imbalance, or allergies, a different parasite, or bacterial infections can cause skin lesions, another important reason for seeking veterinary care. (2, 3)

Ringworm, scientifically known as **dermatophytes**, is a collection of pathogenic fungi. In dogs, 70 percent of ringworm cases are caused by the fungus Microsporum canis, 20 percent are caused by the fungus Microsporum gypseum, and just 10 percent are caused by Trichophyton mentagrophytes. The incidence of these and the less common species that cause ringworm varies according to your geographic location. (2, 4)

*Where in the body does ringworm present itself-* The fungus grows, lives, and feed on the keratin found in the outermost layer of skin and in the hair follicles of

infected dogs. Less frequently, dogs develop a raised nodular lesion that may ooze called a kerion. The nails and claw folds (the skin bordering the nail) may also be infected by ringworm fungus, which results in brittle or misshapen nails. The infection is superficial, and in most cases only affects a few areas of the dog's body. As the fungus multiplies, the lesions may become irregularly shaped and spread over the dog's body. As these lesions enlarge, the central area heals and hair may begin to regrow in the middle of the lesion. Sometimes lesions become inflamed and develop a scabby covering. Occasionally fungal infection of the nails (onychomycosis) may occur. The claws become rough, brittle, and broken. (2, 3, 4) Puppies, senior dogs, and immunocompromised dogs sometimes suffer from more widespread ringworm infections. (2)

*The main sign of a ringworm infection in dogs* is the presence of areas of hair loss throughout the body. *In humans, the appearance of ringworm* is that of a round, raised, red ring lesion for which the infection is named after. In dogs, however, the infected areas are not always ring-shaped. These lesions may start to heal in the center as they enlarge, creating a patchy appearance, and may become inflamed or scabbed. Ringworm usually does not itch. The affected hair follicles are brittle and break easily, which helps spread the disease throughout your home. (2, 3, 4) Some dogs may have ringworm fungi present in their hair or skin without showing any clinical signs of disease. These dogs can spread ringworm to other animals or people despite having no obvious skin lesions, and are called 'asymptomatic carriers'. (3, 4)

*How is ringworm transmitted:* The fungal spores may remain dormant on combs, brushes, food bowls, furniture, bedding, carpet, or other environmental surfaces for many months (reportedly up to 18 months). Ringworm transmission occurs by direct contact with the fungus. It may be passed by direct contact with an infected animal or person, or by handling contaminated objects or touching contaminated surfaces. The amount of environmental contamination is an important factor in the development of a ringworm infection, as is the age and health status of the exposed person or animal. Healthy adult humans or animals are usually resistant to infection unless there is a break in the skin such as a scratch. Elderly and young people or animals, and adult people or animals with immune system weaknesses or skin sensitivities are especially susceptible to ringworm infection. The incubation period between exposure to ringworm fungus and the development of

ringworm lesions usually ranges from seven to fourteen days, and in some cases may take up to 21 days before signs of infection develop. (3)

B) Diagnosis and treatment for ringworm:

Ringworm is diagnosed by performing a diagnostic test, as well as a physical exam. A sample of hair or skin cells is collected for a fungal culture and/or examination of the infected hairs which become fluorescent under a special ultraviolet light called a Wood's lamp. While this technique is acceptable in certain situations as a rapid screening tool in multi-animal facilities, diagnosis made on Wood's lamp evaluation is not always reliable. The most accurate method for diagnosing ringworm in dogs is by fungal culture of a sample of hair or skin cells. A positive culture can sometimes be confirmed within a couple of days, but in some cases the fungal spores may be slow to grow, and culture results can take up to four weeks. Therefore, a suspected sample cannot be called negative for at least a month. (2, 3, 4)

Once ringworm is diagnosed, treatment plan will depend on the severity of the case, the number of pets in the household, and whether or not there are children or immunocompromised adults in the home. Treating ringworm in dogs usually consists of the following three steps. It is very important that owners continue to treat for ringworm for the prescribed period of time. Just because the clinical signs go away doesn't mean that your dog is no longer contagious, and your vet will most likely want to retest your dog for ringworm before giving you the "all's clear." (2)

- 1. Topical therapy:** Medications such as creams, ointments, and/or medicated shampoo can help treat and control the infection. Your vet might also suggest clipping long-haired dogs to speed up treatment and shaving the hair from affected areas. Topical therapy can take several months to fully eliminate the infection, but does help prevent environmental contamination. (2, 4)
- 2. Oral medications:** Oral therapy is usually used in conjunction with a topical therapy for more severe cases. Anti-fungal oral medications like itraconazole, griseofulvin, fluconazole, terbinafine, or ketoconazole. Treatment often must continue for several months and should not be stopped until

follow-up diagnostic testing shows that the dog is free of ringworm. If an underlying condition (e.g., malnutrition, administration of immunosuppressive drugs, etc.) is thought to be playing a role in the dog's development of ringworm, it should be addressed as well. (2, 4)

**3. Preventing ringworm in dogs:** Most owners don't have to worry about ringworm prevention on a regular basis unless they have already had a case of ringworm in one or more pets. The best ways to prevent reinfection of ringworm in dogs are to fully cleanse the environment of the home and any tools and bedding that the animals regularly come into contact with, and to follow the instructions of your veterinarian. Pets undergoing treatment for ringworm need to be isolated to prevent the spread of the disease to other animals or people. Wear disposable gloves and wash your skin and clothes after handling an infected pet. (2, 4)

C) Environmental decontamination:

The spores that live inside the hair follicles remain contagious for months at a time, surviving on couches, grooming tools, bedding, furniture, and clothing. To decontaminate your home, thoroughly vacuum floors and upholstery and clean hard surfaces with an effective disinfectant like a dilute bleach solution. Your veterinarian can put together an appropriate plan for treatment, monitoring, and environmental decontamination based on the specifics of your dog's case. Cleaning up all the hair, as many dog owners know, is a bit of a challenge. Some owners keep their dogs in rooms that are easy to clean during the time they are infected with ringworm. This makes it easier to eliminate stray hairs and to mop with a disinfectant. If you can't contain your dog to hard floors, daily vacuuming and removal of hair from furniture and surfaces is needed help prevent ringworm from spreading. (2, 4)

D) What to do if ringworm is detected in a dog in clinic:

**1. Remove dog from clinic.** Immediately after ringworm is discovered on a dog's skin, the client should be politely informed that we have a protocol in place to contain a potential ringworm infection that requires the potentially infected dog to be removed from the clinic immediately. Also inform the client that we can

provide them with information regarding diagnosis/ treatment / control of ringworm infection in their dog and home.

2. Remove and wash blanket. Once the dog is removed from our premises, the blanket where the dog was laying should be gathered in a bunch and placed directly into the washer and washed immediately OR placed in a plastic bag immediately or, setting the water temperature at the hottest possible setting, or 'Sanitize' in our current washer. If the washer is in use and not immediately available, keep the blanket in the plastic bag until the washer becomes available and proceed with washing the blanket as described above. Set the clothes dryer also in the hottest possible setting and proceed to dry the blanket. The blanket should be washed and dried along with the clothes of any staff that would have become in contact to the infested dog.
3. Change clothes. Anyone that has been in contact with the dog should change their clothes and place the exposed clothes directly into the washer or in the plastic bag containing the blanket. Proceed to wash as described above.
4. Vacuum the room thoroughly. Once the dog and the blanket have been removed, vacuum the floor in the entire room VERY thoroughly, making sure to get under the chairs, desk, bench, etc. Empty the vacuum cleaner into a plastic bag and dispose of it directly into the outside dumpster.
5. Provide information to the owner. Once the owner and dog have left the premises, provide owner with written information (see file) as to how to proceed to exterminate ringworm at home and recommend to seek veterinary advise.

References:

- 1- [ringworm in dogs - Google Search](#)
- 2- <https://www.akc.org/expert-advice/health/ringworm-in-dogs/>
- 3- <https://vcacanada.com/know-your-pet/ringworm-in-dogs>
- 4- <https://www.petmd.com/dog/conditions/skin/c dg dermatophytosis>