

CFC protocol for demodectic mange found in a dog in clinic

General information about demodectic mange:

A) What does demodectic mange look like and what are its signs on a dog:



Demodex canis mite (1)

Demodectic mange is caused by one of two types of mites infesting the skin and causing skin lesions in dogs and humans. It is important not to confuse the two types of mange because they have different causes, treatments, and prognoses. Demodectic mange is caused by *Demodex canis*, a parasitic mite that lives in the hair follicles of dogs and many people. Under the microscope, this mite is shaped like a cigar with eight legs. (1, 3) These tiny mites feed on the hair follicles and oil glands of the skin. (4) Demodectic mange, sometimes just called 'demodex' or 'red mange' (because of the intense skin inflammation in the skin), is the most common form of mange in dogs. All normal dogs (and many humans) have a few of these mites on their skin. As long as the body's immune system is functioning properly, these mites not only cause no harm, but in low numbers, they may serve an important role as part of your dog's normal skin microfauna (1, 3, 4)

B) What does demodectic mange do to your dog?

Demodectic mange most often occurs when a dog has an immature or weakened immune system, as in very old, very young, sick, or pregnant dogs, allowing the number of skin mites to increase rapidly. As a result, this disease occurs primarily in dogs less than 12 to 18 months of age. As the dog matures, its immune system also matures. Adult dogs that have the disease usually have weakened immune systems. Demodectic mange may occur in older dogs because function of the

immune system often declines with age. Dogs who have a weakened immune system due to illness or certain medications are also susceptible to demodectic mange. (1, 4) Generally, once a dog has an infestation of demodex and the mites have been completely eliminated, they do not become re-infested with the mites because the dog's immune system is now able to recognize and eliminate any new demodex mites. Once the growth and reproduction of the demodex mites is controlled, the skin damage that was done by the mites is also healed. (4) Surprisingly, a dog with demodectic mange usually does not itch severely, even though it causes hair loss and inflammation of the skin. In some cases, the hair loss occurs in patches, usually beginning on the face. This type of mange is called localized demodectic mange, and will affect only a few parts of the body. If the disease spreads to many and/or larger areas of the body, the condition is called generalized demodectic mange. This type of demodex will many times cause secondary bacterial infections, which often cause intense itching and a foul odor. (1, 2, 4)

Adult Onset Demodex:

When a dog who has gone through life with no problems regulating demodex suddenly has a problem, there is often an underlying factor responsible for the condition. This type of demodectic mange occurs in adult dogs (usually over 5 years of age), and in most cases can be severe and difficult to treat. The most commonly reported causes of this type of demodectic mange are: underactive thyroid, Cushing's disease, cancer, or immunosuppressive medications. These underlying factors account for about 50% of adult-onset cases. In many cases, the underlying cause cannot be found, or it may require many tests to determine its cause. In some cases, demodex may be the first sign of a more serious disease which may not become obvious for several months. If there is an underlying cause which is not treated, the demodex likely will not resolve even with the best anti-demodex medications. Adult onset demodex carries a fair to good prognosis, but it can be more difficult to treat than in young dogs. (2, 4)

Is demodectic mange contagious?

No, demodectic mange is not contagious to other animals or humans. Demodex mites are transmitted to puppies from their mother during the first few days of life. Since the mite is found on virtually all dogs, exposure of a normal dog to one

with demodectic mange is not dangerous, as the immune system must be depressed for mange to develop. Since development of the immune system is under genetic or hereditary control, an affected dog often has littermates that are also affected. Owners of littermates should be alerted to watch for the development of mange in their puppies. Because the disease is due to a genetic defect, the parents of the affected dog should not be bred again and instead, spay and neutering is recommended. (1, 2)

How is demodectic mange diagnosed?

Your veterinarian may take deep skin scrapings or plucked hairs to identify the mite responsible for the condition under the microscope. The finding of larger than normal numbers of Demodex mites in skin and/or hair confirms the diagnosis. Occasionally a skin biopsy is necessary to diagnose dogs that have chronic skin infections that have not responded appropriately to treatment. (1, 3)

C) How is demodectic mange treated?

The localized form of demodectic mange is usually treated with topical medication. The generalized form requires more aggressive treatment using special shampoos and dips, along with oral medication. Shampooing with special cleansing shampoos containing benzoyl peroxide helps to flush out and open the hair follicles prior to dipping. (1) Since about 90% of young dogs with demodex will resolve the problem on their own, immediate treatment is not recommended in these cases. Instead, a 4-week monitoring period is recommended to determine if it will resolve on its own or will require treatment. If a dog appears to be uncomfortable and/or is developing sores or a skin infection, a veterinarian should be contacted. However, keep in mind that a lot of dogs will look a little worse before they get better. (2, 3)

1. Topical treatments: There are several 'spot on' topical treatments, such as imidacloprid and moxidectin. These medications are used 'off label' for the treatment of demodicosis. The term 'off label' describes the use of a drug for conditions other than what it was approved for. A dip commonly used for demodectic mange contains the insecticide amitraz, which can cause serious side effects both to your dog and to you if not used properly. Your dog may experience vomiting and sedation for twenty-four to thirty-six hours following each application. Most of these problems will resolve without medical intervention by

diluting the next dip with 25% more water. If you are using a 'spot on' topical treatment, you may see drooling if your dog licks the medication. Most dogs develop tolerance to the dip as they are repeated, therefore side effects with each subsequent treatment will be lessened. After receiving two to three dipping treatments at seven-day intervals, skin scrapings should be repeated and examined for the presence of live mites or mite eggs. The results of these skin scrapings will determine whether further treatment is needed. (1)

2. Systemic treatments: An injectable form of doramectin is commonly used for off label treatment of demodex. Your veterinarian will discuss the benefits and risks of these medications with you. (1)

Ivermectin is a very strong drug which has been used orally off label for demodectic mange in some dogs. Ivermectin can cause severe side-effects, including death, if it is not administered properly. It is extremely important to follow your veterinarian's instructions and cautions carefully, as their directions may be very different from those on the label. Veterinarians do not generally recommend ivermectin for use in Collies, Shetland Sheepdogs, Australian Shepherds, Old English Sheepdogs, or any other herding breed because they are sensitive to the medication. (1)

3. Secondary skin infections: In some cases, especially in dogs with generalized demodectic mange, secondary skin infections complicate the condition, requiring antibiotic therapy. (1)

Treatment of demodectic mange is generally successful. However, if the immune system is weakened, neither the mites nor the infection may respond to treatment. With generalized demodicosis, successful treatment may take a long time, and may require regular skin scrapings to check the progress of the treatment. Because the immune system does not mature until 12 to 18 months of age, a young dog with demodectic mange may have relapses until that age. In addition, dogs with suppressed immune systems may be susceptible to relapse. It is important to treat as soon as a relapse occurs to minimize the possibility of developing uncontrollable problems. Relapses usually occur within 3-6 months after treatment is discontinued. (1)

D) Removing demodectic mites from your home:

If your dog is diagnosed with demodex it is not necessary to do any special cleaning or disinfection of your home or to avoid contact with your pet since demodectic mites are natural inhabitants of the skin of dogs and humans. (4)

E) What to do if skin lesions resembling demodectic mange are found in a dog in clinic:

1. It is not necessary to change clothes, do any special cleaning or disinfection of the premises or to avoid contact with other dogs since demodectic mites are natural inhabitants of the skin of other dogs and humans.
2. 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 fleas at home and recommend to seek veterinary advise.

References:

- 1- <https://vcahospitals.com/know-your-pet/mange-sarcoptic-in-dogs#:~:text=%22Sarcoptic%20mange%20is%20a%20zoonotic,transmissibl%20from%20pets%20to%20people>
- 2- https://www.petmd.com/dog/conditions/skin/c_multi_Demodicosis
- 3- <https://wagwalking.com/condition/demodex->
- 4- <https://www.uvsonline.com/demodex/>