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## Canine Demodicosis

**Also Known As:** Demodex, Demodectic mange, Red mange, follicular mange

**Transmission or Cause:** Localized demodicosis usually is passed from the mother to her nursing puppies after they are born. Generally, a puppy will clear the mite infection once its immune system strengthens. However, when a young dog is not able to rid itself of mites, or when treatment fails, the animal will continue to have the infection as an adult. Unfortunately, older dogs that have an underlying disease such as cancer or are being given medications that suppress the immune system can develop the generalized form of the disease.

**Affected Animals:** Dogs and cats.

**Overview:** Canine demodicosis is a type of mange that occurs when abnormally high numbers of a mite called *Demodex canis* multiply on the skin. This mite is normally present in small numbers in the skin of healthy dogs, but when a dog's immune system becomes weakened, the mites can overgrow and cause disease and inflammation of the skin.

It is not uncommon for nursing puppies to become infected with this eight-legged skin parasite during the first two to three days of life. The mites can be passed from the mother to the nursing puppies because the puppies have weak and underdeveloped immune systems that allow the mites to overgrow, causing occasional localized patches of hair loss, redness and scaling. However, as the puppies grow and their immune systems become stronger, they are usually able to fight off the disease on their own with little or no medical intervention.

It is possible for older dogs (those four years of age or older) to develop canine demodicosis, but for them, the disease is much more serious. The infestation can be localized to a few areas of the body, or generalized, meaning that the mites are all over the body. Generalized demodicosis usually means that the dog has a serious underlying disease that is weakening the immune system, thereby making the dog susceptible to overgrowth of the *Demodex* mites.

**Clinical Signs:** There are two types of demodicosis: localized, meaning confined to a few specific areas of the skin, and generalized, in which the mites have spread all over the body. Each type has a different set of signs or symptoms.

Localized demodicosis occurs most often in young puppies six months old or younger. The mites usually will appear on the front legs and face, and the effects of their presence will be fairly mild. Hair loss is a common symptom, and in the bald patches the skin may be red and scaly, and may or may not be itchy. Most cases heal without treatment and do not progress to generalized demodicosis.

Generalized demodicosis is far more severe than the localized form, especially when it starts when the dog is an adult of four or five years of age. Clinical signs begin with multiple areas of hair loss, scaling, and redness. These small areas get larger and progress to affect the entire body, causing severe irritation of the skin. Secondarily, severe bacterial infections commonly occur as a result of the demodicosis. After a few months, the skin may become covered with infected, pus-filled, crusty, bloody sores.

**Description:** Demodex is a type of skin mite that has a head and eight legs extending from a long, tubular body. In the skin of healthy dogs and puppies, the mites can exist in small numbers, but when the dog's immune system is weakened or not functioning normally, the population of mites begin to increase to the point that skin disease begins. Demodicosis can manifest itself in two forms. The first is a milder form that occurs commonly in young puppies that get the mites from their mother while nursing. The Demodex mite, which will be localized to just a few regions of the puppy's skin, may cause hair loss, mild redness, scaling, and occasional itchiness. However, with time, the puppy's immune system will strengthen so that it resists the mites and prevents them from overgrowing. Generalized demodicosis may occur in a dog that, as a puppy, had localized demodicosis that never went away, or in a dog that developed localized demodicosis as an adult. This form of the disease can be very serious because it usually means that another disease is causing the dog's immune system to function poorly, allowing the mite to proliferate at an uncontrolled rate. Because the mites burrow deep into the skin, they cause irritation leading to severe inflammatory skin disease. Many times, secondary bacterial infections occur, causing severe infections that make the illness worse. The diseased skin of a dog with generalized demodicosis is often hairless, reddened, scaling and, in certain areas, will ooze a pus-filled, bloody material that forms thick crusts.

**Diagnosis:** The veterinarian will be able to diagnose demodicosis after analyzing skin scrapings from the dog and detecting the presence of the mites under a microscope. In an adult dog that has the more severe, generalized form, additional diagnostic tests may need to be performed to find the underlying disease that has caused the immune system to be weak and has made the dog susceptible to demodicosis as a result.

**Prognosis:** Localized demodicosis will usually heal on its own within six to eight weeks. The treatment is usually minimal, as most cases will resolve without treatment. The prognosis for generalized demodicosis affecting adult dogs greater than two years of age is guarded for recovery; the disease may be controlled through medication and therapies, but not always cured.

**Treatment:** When the demodicosis is localized or only affects a few regions of a puppy's skin, it will usually heal within six to eight weeks with minimal or no medical treatment. Generalized demodicosis, however, often requires a very intense and lengthy treatment plan. Thus, the underlying disease should be determined and the dog's overall health should be improved before attempting to treat demodicosis. Sometimes in older dogs the disease cannot be cured but only controlled. Oral antibiotics are often needed for 1-2 months to treat secondary bacterial infection. Options for treatment of the demodex mites include topical therapy with weekly amitraz dips, or systemic medication with daily ivermectin or milbemycin. These potentially toxic medications should be dispensed by a veterinarian at a carefully calculated dose, and ivermectin (in the dose needed to treat demodex) should never be used in herding breed dogs such as collies, shelties, Australian shepherds, Old English sheepdogs, or border collies, as death can ensue. A genetic test is available to screen animals for sensitivity to Ivermectin (<http://www.vetmed.wsu.edu/depts-VCPL/>). Regardless of therapy, treatment is continued until one month beyond a negative skin scraping (no live or dead mites), which is an average of 3-4 months. Regular rechecks with your veterinarian are important to determine need for continued therapy.

**Prevention:** The best prevention is to keep animals in good health. Regular visits to the veterinarian will help maintain the dog's overall health and detect underlying conditions that could weaken the dog's immune system. Regular de-worming and vaccinations are also important. Dogs with generalized demodicosis should be spayed or neutered, as they will pass the immune defect which will predispose their puppies to demodicosis as well.