

Veterinary Specialists Inc.

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Canine Demodicosis

What is demodicosis? What causes it?

Canine demodicosis is one of the most common skin diseases encountered in veterinary practices. The demodex mite is a normal inhabitant of the hair follicle of all dogs. Dogs normally have a low number of mites in their skin without it causing a problem. It is when the number of mites increases that this results in skin disease. Although there have been a large number of studies looking at the cause of the disease the details have not been fully defined. It is believed that the immune system is important in keeping the number of mites under control. Several studies have reported abnormalities/weakness of the immune system in dogs with generalized demodicosis (see below). Poor nutrition, stress, heat cycle, internal parasites and debilitating diseases have been noted as predisposing factors. It has also been shown that bacterial skin infections can be a factor that suppresses the immune system in dogs with demodicosis. Bacterial skin infections lead to an increased number of demodex mites, more mites lead to further bacterial skin infection and it is easy to see how an endless cycle is created.

How are the mites found on my dog's skin?

It is rare to find demodex on a dog with normal skin. On a dog with skin disease due to demodicosis a large number mites can be found. The demodex mite can be found on the skin by three methods: deep skin scrapes, skin biopsy or hair analysis. Hair analysis is rarely ever performed and not a reliable means of excluding demodicosis in your dog (meaning if no mites are seen on the hair it doesn't mean your dog does not have demodicosis). The most common diagnostic test performed is a deep skin scrape. A dull blade is used to scrape an area of your dog's skin. Since the mites live deep inside the hair follicle, the skin needs to be squeezed to express the mites out of the hair follicle. A good skin scrape will lead to a small amount of blood produced during the scraping process. Several sites are scraped to get an adequate representation of the body, this is important in distinguishing between the two different forms of demodicosis (see below). The scrapes are then analyzed under the microscope. The skin scrape causes minimal discomfort to your pet, and the area will heal quickly and can be cleansed with mild soap and water if desired. A skin biopsy may be performed when there is suspicion of demodicosis (and skin scrapes not showing positive results) and the dog's skin is thickened due to breed characteristics (i.e. Sharpei) or due to severe skin inflammation and infection.

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There are two forms of demodicosis, a localized form and a generalized form. Generalized demodicosis is further divided into juvenile onset (those that started before 1 ½ - 2 years of age) and adult onset (those that started after 2 years of age). **Distinguishing between a localized and generalized case is important since only the generalized form is considered to be hereditary (can be passed on to pups).**

Localized demodicosis occurs commonly in young dogs less than one year of age. Patients typically have one to two focal reddened or hairless areas in one body region. Deep skin scrapes show mites in these lesional areas, with no evidence of mites in skin scrapings from other non-affected areas (this is why we recommend skin scraping more than one area). It is important that not only affected areas be skin scraped, but that unaffected skin also is assessed for mites.

Juvenile onset generalized demodicosis typically occurs at less than two years of age, whereas adult onset occurs at greater than two years of age. In an older dog it is important to distinguish if this is a juvenile onset patient that was never diagnosed or treated appropriately and has progressed into adulthood or a true adult onset patient.

Generalized cases involve lesions in two or more body regions and more than five focal areas. Some dogs only have demodex in their paws, and this is always considered a generalized form. Lesions seen in generalized patients are variable and may include comedones (or black heads), papules/pustules (or red bumps/pimple like lesions), reddened and/or darkened skin. Severely affected dogs can have deep skin infections that can be painful, itchy and ooze a bloody to clear discharge. Dogs may act and feel sick, have a fever and have their lymph nodes enlarged.

What is the treatment for a localized demodicosis patient?

Ninety percent of localized demodicosis patients will spontaneously clear despite treatment. Ten percent of localized demodex patients will progress to the generalized demodicosis form. Treating a localized demodex patient with a therapy to kill the mite is unnecessary and not recommended as it will not deter the disease from becoming generalized as this is genetically based. Avoiding treatment to kill the mites on a localized demodex case will allow the identification of dogs that will progress to generalized disease. This is important in order to advise owners about the heritability nature of generalized demodicosis. If you treat a localized demodex patient with medication to kill the mites, you will never know if that patient would have progressed to a generalized form and therefore we cannot assess if it was hereditary or not. Most localized cases do not require treatment. If the lesional area is infected then antibiotics, benzoyl peroxide shampoo/gel, or mupirocin (Bactoderm®) ointment can be used. Your veterinarian will recommend an appropriate therapy for your pet. The lesion should be re-examined through deep skin scrapes in 2-4 weeks until resolution. It is important to remember that a dog can look normal and still be positive for mites. So it is important that you follow up with your veterinarian or veterinary dermatologist for skin scrapes. And continue to return for re-examinations until otherwise directed.

What is the treatment for a generalized demodicosis patient?

Forty to fifty percent of dogs with juvenile onset generalized demodicosis will self clear and approximately 50% percent will need mite-specific therapy. Of those patients that need mite treatment 5-15% percent will never be cured and will require life long therapy to be kept in remission. Of the generalized cases that self clear it is important to remember that this is still a hereditary disease and the dog should be spayed or neutered.

Bacterial skin infections are almost always present with demodicosis. All generalized demodicosis cases should be treated with antibiotics. We recommend all generalized demodicosis cases be kept on antibiotics until the first negative skin scrape. Since 50% of generalized cases will self clear, mite treatment is not absolutely necessary. However, antibiotics and antibacterial topical therapy are always instituted. The decision to treat a generalized case with mite therapy depends on the number of mites and mite stages seen on skin scrapes and the severity of skin lesions- your veterinarian will discuss this with you. Patients with mild lesions and the presence of all adult mites on skin scrapes may self clear. Moderate to severe cases with early mite stages (i.e. eggs and larvae) will usually need a mite therapy. At this time there are three recommended mite treatment options for generalized demodicosis: amitraz (Mitaban®), ivermectin (Ivomec®) and milbemycin (Interceptor®). We will discuss which treatment is best suited for your pet. Treatment with these medications should continue until three consecutive negative skin scrapes 2-4 weeks apart are achieved. It is important to remember that a dog can look normal and still be positive for mites. So it is important that you follow up with your veterinarian or veterinary dermatologist for skin scrapes. And continue to return for re-examinations until otherwise directed.

What if I have an older dog with demodicosis?

Adult onset generalized cases should be thoroughly screened for an underlying disease or immunosuppressive disease (i.e. infectious diseases, heartworm disease, spontaneous or iatrogenic hyperadrenocorticism (cushings), hypothyroidism, and neoplasia). Immunosuppressive drugs (i.e. chemotherapeutic agents, glucocorticoids, or cyclosporine) should also be assessed in the medical history for a dog with adult onset demodicosis. In the majority of cases an underlying cause is not found, but may manifest in weeks to months later. If an underlying cause is not found, it may be difficult to cure the demodicosis. Treatment is the same as a dog with juvenile onset demodicosis- we will discuss with you the best treatment for your dog. We will work together with your veterinarian to perform the tests necessary to find an underlying cause.

How often does my pet need to be skin scraped and examined for demodicosis?

We recommend that generalized demodicosis patients should have at least three-five representative areas skin scraped every 2-4 weeks. The muzzle and at least two paws should be included in the areas that are skin scraped. These same areas should be skin scraped at each recheck visit and the mite numbers and life stages should be assessed. **After three consecutive negative skin scrapes are achieved, treatment can be discontinued.** However, patients need to be re-examined by repeating deep skin scrapes of the five representative sites at 1, 3, 6 month and 1 year after the discontinuation of therapy. If the patient is still mite negative after 1 year without treatment then a cure can be pronounced. If a relapse occurs in this time frame, treatment will need to be re-instituted until three negative skin scrapes are achieved and then placed on maintenance therapy.

Hereditary information and life long maintenance therapy:

Please understand that 5-15% of dogs with generalized demodicosis may never be cured and need life long therapy to be kept in remission. This is why it is important to follow up with your veterinarian after the discontinuation of therapy. Most dogs that need life long therapy lead a good life and usually only require a pulse dosing of their medication—if it comes to this point, we will discuss this with you further. It is also important to understand that generalized demodicosis is a hereditary disease. Parents and unaffected siblings of an affected pet can be carriers. Thus, parents and littermates of an affected puppy need to be spayed or neutered to reduce or eliminate the incidence of demodicosis in that population of dogs. The patient should be spayed or neutered as soon as there is no clinical evidence of skin infection at the surgical site and before the first negative skin scrape. Surgery should be performed while the patient is still on mite therapy. Surgery should not be performed when three negative scrapes have been achieved and the patient is taken off therapy because the stress of the surgical procedure may cause a relapse of the demodicosis. It is important to know that the skin scrapings after surgery may show an increase number of mites even in a patient still on therapy.

If you have any questions, please do not hesitate to call Dr Rosales: _____.