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Sarcoptic Mange

SCABIES: THE ORGANISM AND HOW IT LIVES

Sarcoptic mange is the name for the skin disease caused by infection with the *Sarcoptes scabiei* mite. Mites are not insects; instead they are more closely related to spiders. They are microscopic and cannot be seen with the naked eye.



Adult *Sarcoptes scabiei* mites live 3-4 weeks in the host's skin. After mating, the female burrows into the skin depositing 3-4 eggs in the tunnel behind her. The eggs hatch in 3-10 days producing a larva which, in turn, moves about on the skin surface eventually molting into a "nymphal" stage and finally into an adult. The adults move on the surface of the skin where they mate and the cycle begins again with the female burrowing and laying eggs.



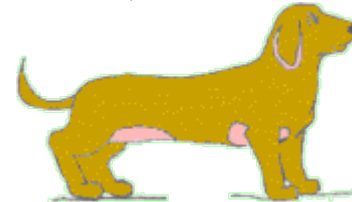
Sarcoptes Scabiei: Female sarcoptes mite burrowing in the skin and leaving a trail of eggs behind her. Her presence generates an inflammatory response in the skin similar to an allergic response.

APPEARANCE OF THE DISEASE

The motion of the mite in and on the skin is extremely itchy. Further, the presence of mites and their eggs generates a massive allergic response in the skin that is even more itchy.

Mites prefer hairless skin thus targeting the ear flaps, elbows and abdomen at highest risk for the red, scaly itchy skin that characterizes sarcoptic mange. It should be noted that this pattern of itching is similar to that found with inhalational allergies (atopy) as well as with food allergies. Frequently, before attempting to sort out allergies, a veterinarian will simply treat a patient for sarcoptic mange as a precaution. It is very easy to be led down the wrong

path (pursuing allergy aggressively) if one considers sarcoptic mange an unusual or unlikely possibility. As the infection progresses, eventually most of the dog's body will be involved. Classically, though, the picture begins on the ears (especially the ear margins), the elbows, and abdomen.



Dog with dematitis problems typical of sarcoptic mange. Note: Many dogs do not develop the classical ear margin crusts until later in the disease.

The term "Scabies" refers to mite infestations by either *Sarcoptes scabiei* or other mite species closely related to *Sarcoptes scabiei*. While *Sarcoptes scabiei* can infect humans and cats, it tends not to persist on these hosts. When people (including some veterinarians) refer to "sarcoptic mange" or "scabies" in the cat, they are usually referring to infection by *Notoedres cati*, a mite closely related to *Sarcoptes scabiei*. In these feline cases, it would be more correct to refer to "Notoedric mange," though the treatment for both mites is the same. Notoedric mange, in cats, generally produces facial itching and scabbing.

DIAGNOSIS

When an animal with sarcoptic mange scratches itself, it breaks open the tunnels that the mites have burrowed into and the mites are killed (though the itch persists due to toxins in the skin). The result is that the mites can be very difficult to confirm by skin scraping tests. (Mites are confirmed in 50% or fewer of sarcoptic mange cases).

Since negative test results do not rule out mite infection, treating for sarcoptic mange and observing for resolution of the signs within 2-4 weeks may be tried in the absence of a confirmed diagnosis.

Of course, if mite presence is confirmed by skin scraping, then one knows immediately the cause of the itching and need not be concerned about allergy

possibilities or other diseases and the condition can be addressed with confidence.

BIOPSY - Mange mites are rarely seen on a skin biopsy sample. However, if the sample is read out by a pathologist who specializes in skin, the type of inflammation seen in the sample can be highly suggestive of sarcoptic mange. This is an example of a skin disease where it makes a difference whether the pathologist reading the sample specializes in reading skin samples.

TREATMENT

While sarcoptic mange is difficult to diagnose definitively, it is fairly easy to treat and a number of choices are available.

DIPPING - Anti-bacterial or anti-itch shampoos precede one of several anti-mite dips. Paramite dip (an organophosphate), Mitaban dip (Amitraz), and Lime-Sulfur dips given weekly are usually effective. Disease typically resolves within one month. Dips are often used in combination with one of the other treatments listed below.

IVERMECTIN - Ivermectin is given either orally or by injection. There are many protocols to treat sarcoptic mange with ivermectin but usually treatments are weekly or every 2 weeks for a month. Occasionally, a longer course of treatment is required. This product is not approved for use in animals for treatment of sarcoptic mange. This is an extra-label usage of this medication, which may be performed with your informed consent.

IT IS IMPORTANT TO NOTE THAT LETHAL TOXIC REACTIONS IN SENSITIVE INDIVIDUALS (ESPECIALLY COLLIE AND AUSTRALIAN SHEPHERD BREEDS) HAVE BEEN REPORTED IF THIS DRUG IS NOT USED APPROPRIATELY. DO NOT ATTEMPT TO DOSE IVERMECTIN BY YOURSELF.

FIPRONIL (FRONTLINE®) - The recommended monthly use of Frontline flea control products may not be reliable against *sarcoptes scabiei*. Some veterinary dermatologists have used more frequent dosing with success. While we know that Fipronil has at least some activity against sarcoptic mange

mites, we recommend one of the more “tried and true” products. This is an extra-label usage of this product.

ALL DOGS IN A HOUSEHOLD WHERE SARCOPTIC MANGE HAS BEEN DIAGNOSED SHOULD BE TREATED.

Cats should be treated as well if they are in contact with infected dogs.

SELAMECTIN (REVOLUTION®) - Selamectin is an ivermectin derivative recently marketed for the control of fleas, roundworms, hookworms, ticks, ear mites and sarcoptic mange mites. Normal monthly use of this product should clear a sarcoptic mange problem and prevent further infections. This product is probably the best choice for collie or Australian shepherd breeds. This medication is approved by the FDA for treatment of sarcoptic mange.

HOW THE INFECTION IS SPREAD

Sarcoptic mange mites are usually spread by direct contact from host to host. While mites can live off of a host for days to weeks depending on their life stage, they are only infective for 36 hours, which means that environmental decontamination is generally not necessary.

Mite infections on humans are self-limiting (i.e. they go away on their own) as the mite is not able to complete its life cycle on the "wrong" host. The condition is extremely itchy, though, while it lasts. The mites are most active where skin is warm (in bed and where clothing is snug). If you suspect that these mites may be causing you dermatologic problems, consult your dermatologist.

IF A SARCOPTIC MANGE ANIMAL IS PRESENT IN THE HOME, IT IS A GOOD IDEA TO WASH ANY BEDDING IN THE WASHING MACHINE (OR REPLACE WITH NEW BEDDING), AND WASH ANY COLLARS OR HARNESSSES.

Adapted from "Sarcoptic Mange" by Wendy C. Brooks, DVM, DABVP