

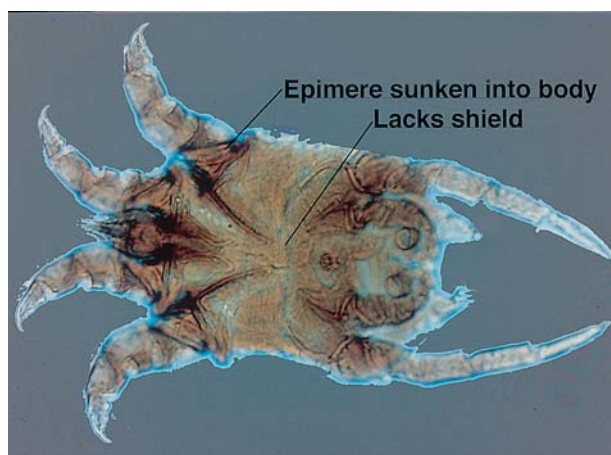
What's Eating You? *Psoroptes* Mites

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P*soroptes* mites are related to human scabies mites.¹ They cause scab and mange disease in domestic animals and can affect humans that come in contact with these animals. Both *Psoroptes* and *Sarcoptes* mites are astigmatid mites. *Psoroptes ovis* (Acari: Psoroptidae) (Figure) is an obligate non-burrowing ectoparasite of vertebrates that principally affect sheep. Sheep scab is one of the oldest known diseases to affect sheep. It is caused either by *P ovis* or a zoonotic form of *Sarcoptes scabiei*. Like humans, the sheep develop an intensely pruritic dermatosis. The disease has profound constitutional effects and affected animals rapidly become emaciated.¹

In humans, the disease resembles a scabies infestation. People with close contact to the infested animals are most likely to be affected. In an Egyptian study of human and animal infestation with zoonotic mites, 2 types of mites were recovered: *S scabiei* and *P ovis*.² Roughly 21% of approximately 900 sheep studied were infested. About 4% were infested with *S scabiei* and 17% with *P ovis*. In the humans studied, 69 of 790 (8.7%) were infested. *S scabiei* was found in 63 subjects (8%) and *P ovis* in 5 subjects (0.63%). The rate of infestation with scab mites among shepherds was particularly high (79.7%). Some of the patients were heavily infested and roughly one third had multiple cutaneous sites of involvement. The most heavily infested sites were the upper extremities, followed by the lower extremities, face, ears, genitalia, and abdomen.²

The distribution of skin lesions in affected humans is partly dependent on what areas come into closest contact with the animal, but they also are influenced by the tactic responses of the mites.³ In darkness, the mites move relatively little, but



Psoroptes ovis.

any movement typically is an upward motion. In contrast, with illumination only from above, the mites move downward. They also migrate towards the areas of highest temperatures.³

Although transmission of both of the scab mites, *S scabiei* and *P ovis*, can occur from sheep to human, there is an inverse prevalence of the 2 mites in both hosts.² Despite the greater exposure to *Psoroptes* mites, zoonotic *Sarcoptes* mites are more likely to cause sustained infestation in human contacts. This finding is not unexpected, as zoonotic *Sarcoptes* mites are very closely related to the human mite, and human infestation with other zoonotic forms has been described, including canine, porcine, and feline scabies.^{4,5} Adult female *Sarcoptes scabiei* var. *canis* mites applied to human skin for 96 hours produce clinical burrows. They also have been shown to be capable of producing viable eggs in human burrows.⁶

Sarcoptes scabiei var. *canis* mites can survive off the host for 24 to 36 hours at room conditions (21°C and 40%–80% relative humidity).⁷ Higher humidity and lower temperature favor longer survival. Penetration into human skin can occur in less than 30 minutes after contact.⁷ Under ordinary

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climatic conditions, *P ovis* females can survive off the body for up to 15 days.⁸

Many patients with mite-induced dermatitis are farmers or pet owners, and they may report contact with affected animals.^{9,10} Although the animals should be treated by a qualified veterinarian, it is helpful for the dermatologist to have some familiarity with the characteristic presentations of mite infestation in the patient's animals. *P ovis* is generally found on sheep. Scab-type lesions result from inflammation and accumulation of coagulated serum, forming a scale crust. They occur on all parts of the body covered by wool. The wool becomes loose and falls out. The animals experience itch, progressive emaciation, and finally death. Mites usually are found in the dry crusty areas of the lesions. *Psoroptes bovis* is found on cattle. Lesions first appear on the withers, neck, and around the base of the tail, and, with time, may spread over the entire body. These scablike lesions may resemble those found in sheep. *Psoroptes cuniculi* affects rabbits and some species of wild sheep. The lesions resulting from infestation may be similar to those of *P ovis* or *P bovis*. A variety of sarcoptic and psoroptic mange mites are related immunologically, and the host response to the mites shows some cross-reactivity.^{9,10}

Humans with zoonotic mite infestation should be treated with a topical scabicide, such as permethrin 5% cream, but there is no published data suggesting the optimal method of treatment. A single application of a topical scabicide may be successful if further contact with infested animals can be avoided. There are no published studies concerning the use of ivermectin or topical sulfur in this setting.

The affected animals should be evaluated and treated by a qualified veterinarian.¹¹ In addition to prescription antiparasitic drugs, a variety of topical treatments have been used to treat topical scab

mites in animals, including essential oils. In a study of essential oils against a rabbit mange mite, *cuniculi*, molecules possessing free alcoholic or phenolic groups showed the most potent acaricidal activity.¹¹

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