



Itchy insect bites

Not all itches are caused by fleas

By Dr Duncan Graham



Insects and mites, those critters with six or eight legs rather than four, cause a vast amount of irritation in the canine and feline worlds, despite the tremendous improvements in products to prevent this happening. But why are they so itchy when they bite?

The insect injects a small amount of saliva into the tissue when it feeds. This saliva contains anti-clotting factors to prevent the animal's blood from clotting as it is sucked up. The animal's body recognises these foreign substances and releases histamine, which binds to the invading proteins, and produces an allergic reaction. In some animals, this response is even more exaggerated, producing a more widespread hypersensitivity reaction. The best way to prevent the itching caused by insect bites is to prevent them biting, and a great deal of money has gone into products designed to do just that.

Fleas are still the principal culprits in both dogs and cats. Despite the improvements, fleas worldwide are the number one cause of insect bite irritations and still probably the main cause of itching in both dogs and cats. It is important to realize that it can take several weeks to eliminate a flea infestation. This is because all flea infested animals have become infested from the surrounding premises and it takes time to eradicate the immature stages living in the environment, indoors and outdoors.

All animals in the household must be treated, even those cats showing

no symptoms or signs of fleas. Many people are surprised to learn the most important flea species infesting both cats and dogs is the cat flea (*Ctenocephalides felis*). The fleas lay their eggs on the animal, and the animal distributes them, acting as a living "salt shaker" in the area the animal frequents. Eggs and larvae are most likely to survive in shaded protected areas, developing into adult fleas under houses, in crawl spaces and under shrubs, bushes and verandahs.

The way fleas are eradicated from the environment these days is by using flea products labeled for monthly appli-



Mosquito bite sensitivity



An example of mosquito bite hypersensitivity showing the areas which have been affected: the nose - which has lost its pigment because of the resulting inflammation, and the foot pads.

cation. These products have enough residual activity to continue killing the emerging fleas that jump on the treated pet and some products will even kill flea eggs that are laid. Basically, we are ridding the environment of fleas by preventing flea eggs from being laid. We are killing the fleas before they lay eggs or killing any eggs that might be produced. Eventually the environment is free of fleas.

In the old days, before the modern spot on formulations of flea control became available, every itching animal

was thought to have fleas. Even now, my sister-in-law Marge asks 'why is my dog scratching? Does she have fleas?' Marge is meticulous in her flea control, and her dog actually has a dust mite allergy.

Meticulous flea control is so much easier now. When I graduated from vet school, not only was the male shower block larger and finer than the female one (now the situation is reversed), but we also had to teach people how to dip their dog and cats in highly toxic organophosphates, at

some risk to themselves and to their pets. Symptoms of organophosphate toxicity were not uncommon, especially in cats.

The modern treatments are safer and easier. However, modern products do not repel fleas effectively and they do not kill fleas instantly. It often takes several hours, even up to a day or two, for fleas that have jumped on to the animal to be killed. This means that in heavily infected premises, owners may find fleas on their pets, even up to three to four weeks post treatment.

These modern products have very little anti-feeding effect as well, which means fleas may get a chance to bite. The older products had an immediate "nauseating" effect, which meant the fleas weren't much interested in feeding. The consequence of this is that animals that are extremely reactive to flea bites may be nibbled and consequently show signs of hypersensitivity. One way of coping with this is to apply the products even more frequently to increase the effective dose and speed of kill, or administer a short acting adulticide like Capstar.

Insects, including fleas, are a type of arthropod, which is the largest division not only among animals but all living organisms.

Arthropods are joint-legged animals with an exoskeleton which gives the arthropod a ready made armour, apparently a very successful survival strategy. Insects make up about 75 percent of the described species of Arthropoda, but cats and dogs are often affected by mites and ticks, more closely related to spiders than they are to insects.

Mites are recognizable by their four pairs of legs. The mites that most commonly affect dogs include the Sarcoptes mite and the Demodectic mite, both of which cause a disease called mange; ear mites (Otodectes),

and the Walking Dandruff mite (Cheyletiella).

Mites, except for the Demodectic mite, are very contagious and cause varying degrees of irritation, often being intensely itchy. Many of the modern flea products are very useful against mites and ticks.

Mosquitoes and spiders can cause very severe irritation in both cats and dogs.

Cats seem uniquely prone to mosquito bites on their nose, ears and foot pads and, as seen in the photographs on the previous page, can develop severe lesions.

Dog noses are subject to severe reactions after spider bites, developing an intense deep inflammatory reaction. Both diseases may need corticosteroids to dampen down the inflammation.

Although we have made great progress in controlling insects and mites, these very successful animals will still be causing our pets to itch in the near future.

Duncan Graham BSc (Hons) BVSc is a veterinarian with a particular interest in dermatology of dogs and cats.

He travels to Palmerston North, Wellington and Christchurch monthly, and Dunedin bi-monthly, seeing referral dermatology cases in those centres. He can be contacted at: dgg@clear.net.nz

Other itchy examples



Top: an example of eosinophilic furunculosis spider bite inflammation.

Above: severe pruritus and hair loss secondary to Sarcoptes.

Summary

- The itchiness of insect bites is caused by the anti-clotting factors in the insect's saliva causing an allergic reaction.
- In some animals the response is more exaggerated causing a more widespread hypersensitivity reaction.
- While the majority of itchy bites in cats and dogs are caused by fleas, a range of other culprits such as mosquitos, mites, ticks and spiders can also be to blame. The trick is not to automatically assume and treat for fleas.