

## ***Prevention and Treatment of External Parasites in Cavies***

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The phylum Arthropoda contains many beneficial and parasitic members. Fleas and lice are true insects whereas mites and ticks are more closely related to spiders as members of the class Arachnida. Because of this difference, insecticides/anti-parasitic drugs do not work the same on all external parasites. It is also true that these parasitic pests may be vectors of other serious disease causing organisms. These infectious agents include viruses, bacteria (including *Chlamydia* and *Rickettsia*), as well as protozoan parasites. This is well known in both human and animal diseases such as malaria, Rocky Mountain spotted fever, West Nile virus, etc... I mention this because I have experienced cases where ivermectin resolved or started to resolve the mite problem but the cavy died from a secondary infection.

Ectoparasites found in cavies include: Mites (*Trixacarus caviae*, *Chirodiscooides caviae*) and lice (*Gliricola porcelli*, *Gyropus ovalis*).<sup>1,2,3</sup> Less commonly the mite, *Demodex caviae*, and the flea, *Ctenocephalides felis*, may be found in cavies.<sup>1,2,3</sup> If cavies are housed with other animals (e.g. rabbits, birds, other rodents, etc...) they may become transiently infected with other ectoparasites as well. The parasites that cause the most damage to the skin (e.g. *Trixacarus*) are also more likely to respond to insecticide drugs. This is because they chew or suck blood and tissues which allows access to the drugs. Parasites that chew the hair or dead skin cause less damage but are more difficult to control.

The only way to diagnose the specific parasite is with direct visualization. This usually requires a skin scraping and examination under a microscope. Lice have six legs whereas mites have eight legs. There are some oblong mites that crawl on the hair shafts making them easy to mistake for lice. Diagnosis of *Trixacarus* and *Demodex* require deeper skin scrapings. Superficial mites and lice can be examined by pulling hairs or a light scraping and examination under low magnification.

Symptoms of external parasites vary from mild pruritis (itching) to extremely thickened, flakey skin and open sores. *Trixacarus* mite infection can cause such severe itching that the cavy appears to seizure.<sup>3</sup> Light dandruff/dry skin has many causes and should not be assumed to be mite infection without visual confirmation and/or severe itching.

Prevention is preferred and requires at best a 30 day quarantine of any new animals brought into the caviary as well as any animals returning from a show. At a minimum all animals should be treated with an anti-parasitic drug prior to attending a show or immediately upon coming into the caviary. There are many treatments available, however, most of them are not yet labeled for use in guinea pigs or rabbits. The best treatment for *Trixacarus* mite infection is injectable ivermectin (0.2-0.5 mg/kg) given subcutaneously (under the skin) every 7-10 days for 3-4 treatments.<sup>1,2,3</sup> Giving ivermectin orally at the same dosage is the second best therapeutic choice. Severe cases with thickened skin do not respond well to topical treatment. Selamectin (Revolution® Pfizer Animal Health, Exton, PA) used topically at 6

mg/kg every two weeks for three treatments has been recommended for use in rabbits with ear and fur mites.<sup>1,2</sup> Fipronil (Frontline® Merial Limited, Duluth, GA) and imidacloprid (Advantage® Bayer Animal Health, Shawnee Mission, KS) have also been used topically to treat ectoparasites in dogs, cats, and small mammals.<sup>1,2,3</sup> Products that are effective against fleas (e.g. Advantage) are likely to be effective against lice as well (both are true insects). Products that are effective against ticks (e.g. Revolution, Frontline) are likely to be effective against mites as well (both are arachnids). There are no studies in cavy related to how long selamectin, ivermectin, fipronil or imidacloprid persist in the tissues. Research in rabbits with selamectin demonstrated a much shorter half-life than what is seen in dogs and cats.<sup>4</sup> Therefore, treatment with dog/cat monthly topical drugs should probably be re-applied every two weeks in cavy and rabbits.

Anti-parasitic topical products have chemicals added to enhance/allow their rapid absorption through the skin. Rabbits appear to absorb selamectin much more rapidly than dogs and cats.<sup>4</sup> This rapid absorption in rabbits might explain the reports of deaths in rabbits treated with fipronil (Frontline).<sup>4</sup> Use caution with generic topical products because there are greater reports of negative reactions in dogs and cats. Use of injectable, oral or spray on products on the skin topically as a spot on product is practiced by many cavy and rabbit fanciers, however, research has shown that this method of application does not lead to absorption through the skin. Flea and tick shampoos, sprays, powders and dips may work well to treat lice and superficial mites but are not usually effective against deep mites.

Drug resistance has also been reported. All of the products available are vulnerable to parasites developing resistance to them. It is recommended to switch to another brand after using one product for 3-6 months (e.g. Advantage to Revolution, Revolution to Frontline, etc...). Overdosage of any product may lead to neurologic symptoms (e.g. blindness, seizures, death).

#### References:

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2. Bishop CR, Burgess ME. "Reproductive Physiology, Normal Neonatology, and Neonatal Disorders of Cavy (Guinea Pigs)" in Lopate C. Management of Pregnant and Neonatal Dogs, Cats and Exotic Pets. Wiley-Blackwell, Ames, Iowa, 2012. P 256
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4. Carpenter J. AEMV Conference 2010, personal communication.



T. caviae infection



T. caviae seen on skin scraping under microscope.



Lice and nits on hair shafts

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