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Management of tick infestation in dogs

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ABSTRACT

The present study was carried out during the month of January 2014 when a total of 148 dogs with history of various diseases were presented to the Campus Veterinary Hospital, Teaching Veterinary Clinical Complex, College of Veterinary Science, Rajendranagar, Hyderabad, India. Out of 148 dogs that were presented to the hospital, 48 dogs had the clinical signs of loss of hair, itching, and reduced food intake. The dogs were restless and continuously rubbed their bodies against the walls in the houses, and scratching with their legs. Clinical examination of the dogs revealed presence of alopecia, pruritus, and the formation of small crusts. All 48 dogs were treated with ivermectin by subcutaneous injection dosed at 0.02 mL/kg body weight at a weekly interval for 2 to 3 weeks. All dogs were bathed with cypermethrin shampoo weekly once for 2-3 weeks. In the present study, it was observed that ivermectin/cypermethrin combination therapy was effective for the management of tick infestation in dogs.

Keywords

Cypermethrin, Dogs, Ivermectin, Lice, Ticks

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INTRODUCTION

Ticks, lice, fleas and mites are the most common parasites of dogs found on skin. The tick infestation in dog underscores the importance of tick control measures (Beck et al., 2013). Adult dog ectoparasites feed on blood while they live on skin. Within 24 h, each female parasite can lay up to 50 eggs. The eggs fall off the dog into the surrounding area. The next generation of ticks is developed in the house, car or other places where the dog goes. Some dogs bearing the ticks on their skin do not show any skin disease, whereas others can show hair loss, severe irritation, inflamed or secondarily-infected skin (Smith et al., 2011). Different pathogens are transmitted by ticks to animals and humans (Beck et al., 2013).

MATERIALS AND METHODS

The present study was carried out during the month of January 2014 in Campus Veterinary Hospital, Rajendranagar, Hyderabad. Tick infestation was diagnosed based on clinical signs and visualization of ticks. All tick-infested dogs were treated once weekly for 3 weeks with Ivermectin injection (at 1 mL/50 kg b.wt.) subcutaneously and cypermethrin shampoo. For fast tick eradication, kennel premises were also treated with insecticide liquid cypermethrin at 1 mL/L of water. In addition to treatment with these specific drugs, infested cases were also given multivitamin and amino acid tablets orally once a day for 30 days and chlorpheniramine maleate by intramuscular (IM) injection at 0.5-1.0 mL for 5 days for quick relief from itching sensation. To avoid reinfestation that might be associated with the emergence of developing nymphal stages from eggs that fell on the ground and possible body contact with other infested animals, the same therapy was repeated 7 days and 14 days after the first treatment. The improvement in the therapy was

monitored at different intervals after 0, 7 and 14 days of post treatment. External parasites were collected for laboratory diagnosis.

RESULTS AND DISCUSSION

Out of 148 dogs that were presented to the hospital, 48 dogs had the clinical signs of alopecia, itching, reduced food intake, restlessness, and scratching and were continuously rubbing their bodies against the walls in the houses. Clinical examination revealed presence of alopecia, pruritus, and small crust formation (Jennett et al., 2013). Lesions were distributed all over the body, but particularly confined to shoulders, neck, back, ears, and over the tail head. General clinical examination revealed no changes in body temperature or pulse rate, but the visible mucous membranes were pale. Close inspection of the skin of all dogs at multiple locations revealed the presence of various stages of ectoparasites. In the total 148-dog population prevalence of tick infestation was 32.4%. Of the 48 dogs with clinical signs of tick infestation, 38 were positive for *Rhipicephalus* spp (79.16%), and 10 for *Hyalomma* spp (20.8%). Of the clinically affected dogs, 23 were male (47.9%) compared to 25 female (52.1%), 26 were strays (54.17%) compared to 22 pets (45.83%), and 27 (56.25%) were younger than 1 year of age compared to 21 (43.75%) that were older than 1 year of age. The dogs with above therapy did not reveal any ticks after 24 h. There were no adverse reactions to the insecticide in any of the treated dogs and or any of staff (handlers and kennel workers).

Amuta et al. (2010) reported that out of the 130 dogs examined, 55.38% (n=72/130) dogs were infested with various species of ticks. A study in Nagpur, Maharashtra, India carried out by Raut et al., (2007) to assess the prevalence of ticks in 167 male and female German Shepherd dogs, older than 3 years of age, that were screened during post-monsoon season, revealed the prevalence of *Rhipicephalus* (*R.*) *sanguineus* tick infestation was 80.23%. Similarly, Papazahariadou et al, (2003) reported 89.3% infestation of *R. sanguineus* in dogs. In an another study, Adhikari et al. (2013) found that 46.39% dogs were infested with three different ixodid tick spp. (*viz*., *Boophilus* spp., *Rhipicephalus* spp., and *Haemaphysalis* spp.); however, many dogs had mixed infestations.

In our study, stray dogs were found to be mostly affected (54.17%) as compared to pet dogs. These results supported the findings of Adhikari et al. (2013) who reported a higher rate of tick infestation among stray dogs (58.33%) as compared to pet dogs. In terms of age group, younger (<1 year) dogs were highly infested (56.25%) as compared to older (>1 year) dogs (43.75%), which were in agreement with Adhikari et al. (2013).

For the treatment of pets, a topical spot-on solution was developed that contained metaflumizone and amitraz as active ingredients (Sabnis et al., 2007). As we reported in this paper, Pradeep et al. (2010) found cypermethrin as an effective drug against *R. sanguineus*. Similarly, Sharma et al (2008) reported that within 48 h post-application of cypermethrin, 100% of female engorged ticks were disappeared, and all the dogs treated with cypermethrin shampoo were completely tick free. After completion of three applications of the above combination therapy along with supportive therapy, all the dogs retained their normal activities with normal intake of feed and normal habitat.

CONCLUSIONS

In the present study, it was observed that a combination therapy of weekly subcutaneous injections of ivermectin (at 0.02 mL/kg b.wt.), weekly bathing with cypermethrin shampoo, and spraying premises with cypermethrin (1 mL/L of water) was effective for the management of tick infestation in dogs.

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