



E-ISSN: 2709-9423
P-ISSN: 2709-9415
JRC 2022; 3(1): 15-16
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www.chemistryjournal.net

Received: 09-11-2021

Accepted: 05-01-2022

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Effect of Selamectin spot on in the treatment of *Notoedres cati* in a Persian kitten

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Abstract

Two months old Persian kitten was presented with a history of scratching on both the ears and neck with erythematous lesions and hair loss on the ears for the last one week. Rectal temperature was 38°C, palpable popliteal lymph nodes, pink conjunctival mucous membrane with normal feeding and voiding habits. Animal showed positive for Pinna Pedal reflex. Skin scraping examination collected from the affected site examined under 40x microscopy confirmed the presence of live motile *Notoedres cati*. The kitten was applied with Selamectin 6% spot on over the scruff region and further was advised to give bath with Petben™ shampoo at 3 days interval for two week period. The cat was supported with vitamin supplements for a month and Epiotic™ ear drops. After four weeks of treatment animal had an uneventful recovery.

Keywords: *Notoedres cati*, selamectin, kitten

Introduction

Notoedres cati is rare in cats belonging to the family Sarcoptidae. Since it is zoonotic, the affected cat should be handled with caution and it requires immediate and appropriate treatment as mentioned in Chakrabarti 1986^[1] and Sivajothi *et al.* 2015^[2]. Wall *et al.* 1997^[3] reported that the burrowing activity of female mite damages the keratinocytes of skin, leading to cytokine (IL-1) release, cutaneous inflammation and cause intense scratching, alopecia, scale and crust formation. Selamectin is a semi synthetic Avermectin which acts on ectoparasites similar to that of ivermectin. It blocks the neuronal signals causing paralysis of the parasites and affects the reproduction by diminishing oviposition and abnormal oogenesis (Parasitipedia.net 2021)^[6]. The present study was carried out to study the efficacy of selamectin in the treatment of *Notoedres cati* in a Persian kitten.

Materials and Methods

Persian female kitten of two months old weighing about one kg body weight was presented to the Department of Veterinary Medicine, Small Animal Unit, Veterinary Clinical Complex, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry with the history of scratching on both the ears and neck region with an erythematous lesions and alopecia on the ear pinna for the last one week. Clinical examination revealed normal vital signs with rectal temperature of 38 °C, palpable popliteal lymph nodes, pink conjunctival mucous membrane, heat rate of 195 bpm and respiration rate of 22 breaths/min with normal feeding and voiding habits. Skin examination (Fig. 1) revealed alopecia, erythema, scales and intense pruritis. Positive Pinna pedal reflex was an approved method of diagnosis of scabies in cats and dogs. The method is performed by making to lie on animal in lateral recumbency, cat scratches with ipsilateral hind limb when ear canal is scrubbed (Keith *et al.* 2017)^[10]. Skin scraping taken from the affected ears and neck was placed in glass slides along with liquid paraffin and subjected to 10x and 40x microscopic examination. Microscopic examination revealed the presence of live motile *Notoedres cati* (Fig. 2). Morphologic characteristics of the mange is identified as per Wall *et al.* 1997^[3]. The animal was treated with single dose of Selamectin 6% (6mg/kg) spot on applied topically over the scruff region; Shampoo Petben™ was advised for bathing once in three days for a period of two weeks, Syp. Catstar™ 2.5ml PO was suggested for a month and drops Epiotic™ once in a week for cleaning the ears.

Results and Discussion

Common mites affecting cats is *Otodectes* spp. Whereas *Notoedres cati* is rarely found on the cats, dogs and rabbits. *Notoedres cati* occur in clumps in the skin and usually found on the ears and legs and spread by larvae or nymph form. Untreated cat becomes severely debilitated and become fatal at 4-6 months of age (Wall *et al.* 1997) [3]. Selamectin is a broad-spectrum avermectin endectocide. It is safe to use in cats for heartworm and endectocide at six weeks of age and during pregnancy. The recommended dosage is 6 mg/kg body weight topically (Krautman *et al.* 2000) [5]. Selamectin act by activating the Glutamate gated chloride channels by increasing the permeability to the chloride ions and hyperpolarization at the nerve synapses and also potentiate other chloride channels including ones gated by Gamma Amino Butyric Acid (GABA) causing paralysis and death of the parasites. Mammals are not affected by this drug due to lack of Glutamate gated chloride channels and lower affinity for other mammalian chloride channels and do not penetrate the blood brain barrier, GABA gated channels in the CNS. Selamectin has high affinity to sebaceous glands and skin and have half life of 11days in dogs and 8 days in cats (Marks 2016) [4]. In the present study, the morphological characteristic of the mite showed dorsal striations and thumb print like appearance on 40x microscopic examination which is in agreement with Wall *et al.* 1997 [3]. Selamectin (Selamec™ spot on) is an efficient alternative drug for the treatment of Notoedric mange in cats (Georgiana *et al.* 2021) [9] and the topical recommended dosage is 6 mg/kg body weight (Ramesh 2005) [7] which is in concurrence with the present study. Benzyl peroxide (Petben™ shampoo) exhibits a degreasing action on contact with the skin as it breaks down to benzoic acid and free oxygen radicals which react and disrupt microbial cell membrane. It exhibits a follicular flushing activity in the hair follicles and remove debris and mites (Curtis 1998) [8]. Multivitamin tonic (Syp.Catstar™) is enriched with taurine, multivitamins and omega fatty acids which improves immunity and health and control hair fall. After two weeks of treatment, the animal had reduction in the scaly lesions and pruritus. After four weeks, the animal had complete clinical recovery which showed hair growth on affected site and no scratching. Skin scraping examination revealed negative for mite.



Fig 1: Persian kitten showing scales, erythematous lesions with alopecia on the ear pinna.



Fig 2: Skin scraping revealed *Notoedres cati* in 40x microscopic examination.

Conclusion

The present study reported the use of selamectin spot on @ 6mg/kg body weight topically on the household Persian kitten was effective and successful in the treatment of mange caused by *Notoedres cati*.

Acknowledgement

Authors are thankful to The Dean, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry, India, for providing all the facilities and permission to publish this article.

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