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Clinical management of notoedric mange (*Feline scabies*) in domestic cats: A case report

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Abstract

A case of notoedric mange was reported in five domestic cats with signs of alopecia, intense pruritis, rough hair coat, itchy crust and scales, lichenification on ear margins, face, neck and forelimbs. Laboratory scraping examination revealed positive for notoedric mange. Affected cats were subjected to treatment with ivermectin @ 200µg/kgbw, SC at weekly intervals for 3 weeks. The affected cats showed recovery with remissions of clinical signs and negative skin scrapings at 14th day post therapy.

Keywords: *Notoedres cati*, ivermectin, domestic cats

Introduction

Notoedric mange commonly called as feline scabies is a rare, but highly contagious disease of cats and kittens caused by *Notoedres cati* (*N. cati*), which can infest other animals including humans. This disease often affects domestic cats (*Felis catus*), wild cats and more rarely it has become a major disease among wild animals in captivity and natural reserves [1]. Notoedres mites are smaller than sarcoptes, have 'thumb print' like dorsal striations, shorter limb stalks and dorsal anus compared to terminal anus, dorsal legs and spines as seen in sarcoptes species [9]. The condition is highly contagious and primarily occurs by direct contact between animals or by contact with infested bedding or sites recently visited by infested animals. The clinical manifestation are more or less similar to scabies, characterized by intense pruritis, hyperkeratosis, peeling skin and lesions, especially on the face and the ears [4], extending to the neck, limbs and other body areas in the case of massive infestation. The clinical symptoms are often aggravated by secondary bacterial infections, initiated by the excoriations from self-trauma [3], and the disease can even be lethal. The mite also possesses a zoonotic potential and has been diagnosed in humans after close contact with infested animals [1, 5]. Various acaricides have been used to control the disease of which ivermectin given orally or by injection has been reported to be effective in treatment of acariasis [10, 2]. The disease can be grossly diagnosed by direct microscopic identification of the mite, obtained by superficial skin scrapings. The present paper describes the successful management of notoedric mange in domestic cats with ivermectin therapy.

Case history and Observations

Five domestic cats aged between 8 months to 1 year of opposite sex were presented with the complaint of alopecia, intense pruritis and rough hair coat which had persisted almost 2-3 weeks ago. Physical examination revealed itchy crusts and scales on the ear pinna, face, neck and forelimbs (Fig:1). Lichenification and excoriation was observed in two female cats and the owner had pruritic rashes in the arms. Anamnesis revealed slight decrease in normal food intake, mild fever since few days but no other serious abnormalities could be observed. Under standard protocol, both deep and superficial skin scrapings were taken separately from 2 to 3 different skin lesions with a 2-cm blade so that capillary oozing occurred for subsequent detection of mites. Blood sample was also collected from the marginal ear vein with disodium EDTA as anticoagulant for conducting the haematological parameters. Skin scrapings digested in 10% KOH solution were examined microscopically for morphological studies which revealed a circular body, very short legs along with dorsal anus (Fig:2) which differentiates it from *sarcoptes scabiei* [12]. Haematological parameters were within the normal range except mild eosinophilia was observed. Clinical diagnosis was done depending upon the clinical signs and microscopic findings of *Notoedres cati*.

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Treatment and Discussions

All the affected cats were subjected to treatment with parenteral ivermectin (Inj. Neomec, 10%) at the dose rate of 200µg/kgbw, SC at weekly intervals for 3 weeks. Supportive therapy was instituted orally by using multivitamins (syrup zipvit) and minerals (syrup zincovit) daily for atleast 10 days along with topical skin ointment (oint. kiskin). Efficacy of the therapy was assessed after 1 week of first injection based on clinical recovery and skin scraping examinations. On 7th day post therapy, mild pruritis and scales/crusts were seen on some body parts with negative scrapings. By 14th day post therapy, negative scrapings was recorded again but mild pruritis, alopecia, scales/crusts were seen. The affected cats showed complete recovery with good hair growth and smooth body coat on 20th day post treatment. As managemental protocol, proper advised was given to the owners to disinfect the inanimate objects like bedding and feeding materials with good antiseptic solutions to protect against recurrence and spread of the disease. No adverse reactions were observed throughout the treatment period and no recurrence was reported thereafter.

The first sign of notoedric mange is usually intense pruritis along with hair loss and a crusty and scabby appearance to the skin, especially along the tip of the ears. It then progresses to the face and neck, and if untreated can progress to other parts of the body particularly the feet and genital area. In our present study, similar types of lesions were noticed except genital areas. Notoedres produce their pathogenic effects by burrowing activity and mechanical damage caused by the parasites during excavation, irritant action of their secretions and excretions, allergic reactions to some of their extracellular products and especially the release of IL-1 [6, 13]. Ivermectin given subcutaneously selectively binds to glutamatergated and gamma-aminobutyric acid (GABA) gated chloride channels in the nervous system of mites, resulting in hyperpolarization of cell, paralysis and finally death of mites [8]. As with other mites in the *Sarcoptes* family, *Notoedres* can infect humans. The disease, though, is generally self-limiting, may cause temporary itching as seen in our present study. Prevention can be best accomplished by preventing healthy cat from coming in contact with stray or infected cats. Avoid boarding or grooming cats at locations that do not provide good sanitation. If there are multiple cats in the household, it may be often recommended that all cats in the household be treated because they may be harboring the mites.



Fig 1: Cats infested with *Notoedres cati* (on presentation).

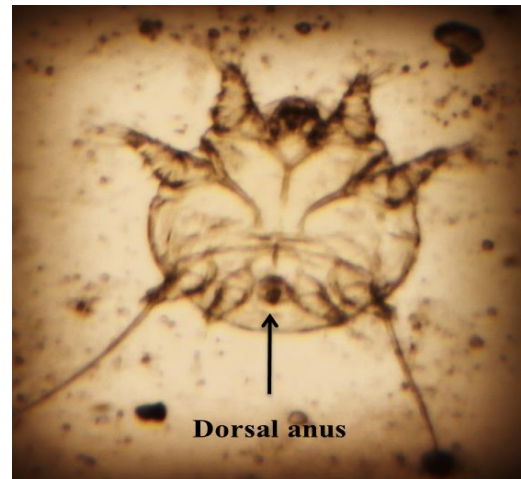


Fig 2: *Notoedres cati*, dorsal anus and short legs.



Fig 3: Cats infested with *Notoedres cati* (7th day post therapy with ivermectin).

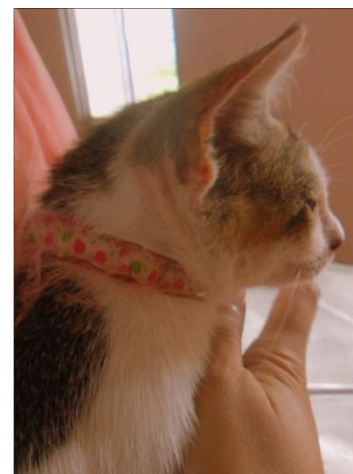


Fig 4: Cats infested with *Notoedres cati* showing complete recovery (20th day post therapy with ivermectin).

Conclusion

Diagnosis of *Notoedric mange* can be done based on clinical signs and microscopic studies of the morphology of the mite from skin scrapings. Following 3 weeks of subcutaneous treatment with ivermectin at 200µg/kgbw, the affected cats recovered completely with good hair growth and body coat. All signs of intense pruritis, alopecia, scales or crusts also resolved completely from the affected body parts suggesting

good efficacy of ivermectin for successful management of notoedric mange in domestic cats.

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