



# ***Notoedres Cati* Infestation in a Cat and its Management: A Case Report**

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## **Authors' contributions**

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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**Case Report**

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## **ABSTRACT**

Notoedric mange is a highly contagious and pruritic skin disease caused by burrowing mites *Notoedres cati* of family Sarcoptidae. *Notoedric cati* primarily affects cats, although it can also affect humans and other species. Present paper deals with clinical signs, diagnosis, and treatment of Notoedric mange in a kitten, aged about three and half months. In this case report, 1 kg male Persian kitten was presented to the Referral Veterinary Polyclinic of ICAR- Indian Veterinary Research Institute (IVRI), Izatnagar with a complaint of itching and alopecia for past 15 days. On physical examination skin thickening, dry crusty and scaly lesions on the face, neck and limbs could be noticed. The appetite and defecation was normal and all the clinical parameters (rectal temperature, pulse rate, heart rate etc.) were within the normal range. On laboratory examination, skin scraping was positive for *Notoedres cati*. Based on the history, clinical manifestations and skin scraping examination, the case was diagnosed as *Notoedres cati* infestation. Therapeutic management was done with Inj. ivermectin @ 200 µg/kg, b. wt, subcutaneously once in a week for

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four weeks along with supportive therapy by oral administration of antihistamine hydroxyzine hydrochloride @ 2.2 mg/kg b. wt thrice in a day and supplementation of multivitamin, minerals, omega 3 and omega 6 fatty acids. Owner was advised to give bath with benzyl peroxide shampoo twice in a week. Kitten showed some improvement following the second dose of ivermectin, and complete remission of clinical signs was noticed following the fourth treatment.

**Keywords:** Alopecia; cat; ivermectin; notoedres cati.

## 1. INTRODUCTION

Dermatological problems are among the most common clinical disorders in household cat. Many parasitic illnesses affect cats, with mange being one of the most common. A mite infection causes the skin to thicken, wrinkle, fold, and finally grow dense, strongly adherent crusts that range in color from yellow to gray [1]. The rare infectious disease known as "notoedric mange" in cats is caused by the obligate burrowing mites of the genus *Notoedres* (family *Sarcoptidae*) [2]. With a few subtle variations, it resembles other members of the family, such as *Sarcoptes*. *Notoedres* mites are smaller than *Sarcoptes* species and resemble a thumb print in appearance, with dorsal striations, shorter limb stalks, and a dorsal anus instead of a terminal anus, dorsal legs, and spines [3]. Alopecia, lichenification of the skin, crusts, scales, and occasionally scabs on the head, legs, and genitalia are common feline lesions [4].

Secondary bacterial infections that are brought on by the excoriations from self-trauma frequently exacerbate the clinical symptoms [5]. Although the name of the species suggests that the parasite is exclusive to cats, notoedric mange has been found in more than 15 other animal hosts. When humans come into close contact with an infected cat, they can get the disease, which causes excruciating itching and papular lesions on their arms and legs [6].

## 2. CASE PRESENTATION

A three and half months old male Persian kitten weighing one kg was presented to Referral Veterinary Polyclinic, ICAR- Indian Veterinary Research Institute (IVRI), Izatnagar with a complaint of itching and alopecia for the past 15 days. Physical examination revealed thickening of the skin, dry crusty and scaly lesions on the face, neck and limbs (Figs. 1., 2., 3., 4.).



Fig. 1.



Fig. 2.



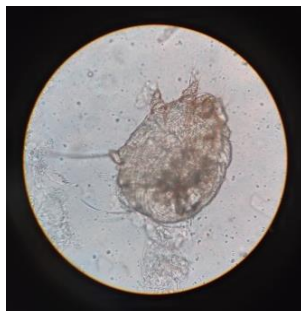
Fig. 3.



Fig. 4.

**Figs. 1, 2, 3, 4. Presence of dry crusty, scaly lesions and alopecia**

The appetite and defecation were normal and all the clinical parameters (rectal temperature, pulse rate, heart rate and respiratory rate) were within the normal range. Skin scrapings were collected from both the hind limb and neck region. For this put a drop of paraffin wax on a sterile scalpel blade. Squeeze the area to be scraped out to help extrude the mites from deep skin. Scrap with moderate pressure until the blood oozes out from superficial layer. Transfer the scrapped material attached on scalpel blade onto the glass slide and stir the mixture. Digest the skin scraping in 10% KOH solution heat [7]. On microscopic examination thumb-print like dorsal striations, shorter limb stalks and a dorsal anus (Fig. 5.) are confirmatory morphology of *Notoedres cati* [8].



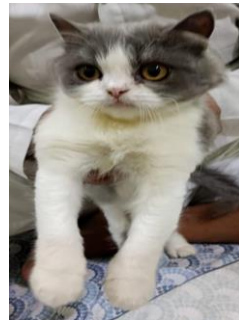
**Fig. 5. Presence of *Notoedres cati* (Thumb print like) under low power microscope**

Clinical diagnosis was done depending upon the clinical signs and microscopic findings of *Notoedres cati*.

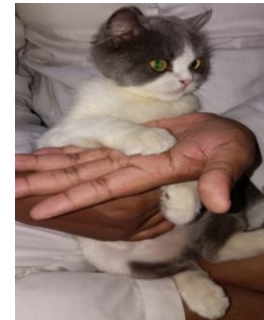
### 3. RESULTS

Affected cat was treated with Inj. Ivermectin (Inj. Neomac 10%) at the dose rate of 200 µg/kg, body weight, subcutaneously at weekly interval for four weeks along with supportive therapy by oral administration of antihistamine hydroxyzine hydrochloride @ 2.2 mg/kg b. wt thrice in a day and supplementation of multivitamin, minerals, omega 3 and omega 6 fatty acids. Owner was advised to give bath with benzyl peroxide shampoo twice in a week. The owner was urged to properly disinfect inanimate objects, such as bedding and feeding materials, using antiseptic solutions as per management practice in order to prevent the sickness from spreading and reoccurring. Throughout the course of the treatment, there were no side effects, and no recurrences were noted. Kitten showed some improvement following the second dose of ivermectin, and complete remission of clinical signs (Figs. 6. and 7.) was noticed following the

fourth treatment. No adverse reactions clinical sign were observed throughout the treatment period, and no recurrence was reported thereafter.



**Fig. 6.**



**Fig. 7.**

**Fig. 6. & 7. Cat after complete recovery (40th day post therapy)**

### 4. DISCUSSION

Usually, severe pruritis, hair loss, and a crusty, scabby appearance of the skin, particularly around the tips of the ears, are the initial symptoms of notoedric mange. It subsequently spreads to the neck and face, and if left untreated, it can spread to other body areas, especially the genital area and feet. Similar sorts of lesions were observed in our current investigation, with the exception of genital areas. In addition to their burrowing behavior and the mechanical harm the parasites inflict during excavation, notoedres also induce irritation through their secretions and excretions, allergic reactions to some of their extracellular products, and most notably, the release of IL-1 [9,10]. Subcutaneous administration of ivermectin selectively binds to glutamate- and gamma-aminobutyric acid-gated chloride channels in mites's nervous systems, causing hyperpolarization of the cells, paralysis, and ultimately death [11]. like other members of the family *Sarcoptes* -*Notoedres* can also infect humans. Although the condition is usually self-limiting, our current investigation has shown that it can occasionally induce itching. The best way to avoid infection in cats is to keep healthy cats away from stray or sick cats and steer clear of boarding or grooming cats in unsanitary settings. Because they can be harbors the mites, it is frequently advised that all cats in the family receive treatment if there are numerous cats living there. The owner also reported that for the previous week, they had been severely itching.

## 5. CONCLUSION

Based on the clinical indicators and microscopic examinations of the mite's morphology from skin scrapings, Notoedric mange can be diagnosed. After receiving subcutaneous treatment for four weeks at a dose of 200 µg/kg body weight of ivermectin, the afflicted cats fully recovered and showed healthy growth of body coat and hair. That to complete resolution of all symptoms related to severe pruritis, alopecia, scales, or crusts in the affected body parts indicates that ivermectin is a good treatment option for notoedric mange in domestic cats.

## DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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