Notoedres cati in cats and its management

S. Sivajothi · B. Sudhakara Reddy ·
V. C. Rayulu · C. Sreedevi

Received: 10 June 2013 / Accepted: 6 July 2013 / Published online: 3 September 2013
© Indian Society for Parasitology 2013

Abstract *Notoedres cati* was observed in two domestic cats. Cats exhibited crust formation, hyperkeratosis, alopecia and intense pruritus. Distribution of lesions observed at the ear margins, face, and legs. Owners also had intense pruritus over the hands, small erythematic crusted papules on the wrists and both the legs. Laboratory examination of skin scrapings from the cat revealed the presence of ova, adult mites of *N. cati*. The infected cats were treated with weekly twice oral administration of ivermectin at 200 µg/kg body weight, oral administration of 2 ml of multi-vitamin and mineral syrup daily. Improvement was noticed by complete clinical recovery along with absence of mites in skin scrapings, after completion of four doses of oral ivermectin along with supportive therapy.

Keywords *Notoedres cati* · Cats · Ivermectin

Introduction

Notoedric mange is rare, highly contagious disease of cats and kittens caused by *Notoedres cati*, which can opportunistically infest other animals, including humans (Griffin et al. 1993). *Notoedres* mites are smaller than *Sarcoptes*, have ‘thumb print’-like dorsal striations, shorter limb stalks and a dorsal anus compared with the terminal anus, dorsal pegs and spines seen on *Sarcoptes* species (Scott et al.

2001). As *N. cati* mange is communicable to human beings, it requires immediate and appropriate treatment and the owners must be cautioned when handling cats (Chakrabarti 1986; Foil 2003). The present report describes case of notoedric mange in two cats and successful management with ivermectin therapy.

History and observations

Six months old cat was presented to the Teaching Veterinary Clinical Complex, Proddatur with a history of decreased food intake, chronic skin problems and intense pruritus as a chief complaint. Upon enquiry, it was revealed that owners had one more cat i.e., non descriptive local breed aged 1 year with same history. They were indoor cats and reared in and outside of the house. Clinical examination of cat revealed high temperature (104 °F) with emaciation condition. Examination of cat revealed scales, crusts, erythema and alopecia. Eczematous lesions on the face, margins of ears, legs, chest and ventral abdomen were noted (Fig. 1). Superficial and deep skin scrapings and tape impression smears were also collected from various sites of the cat. Skin scrapings revealed ova and adult live mites. Skin scrapings were also digested in 10 % NaOH solution and examined microscopically for morphology, which revealed a round body, short legs, and long unjointed stalk with a sucker shorter limb stalks and a dorsal anus (Fig. 2). The mites were identified as per the reports of Walker (1994), based on their shape and the presence of dorsal anus, which distinctly differentiated the *N. cati* from *Sarcoptes* sp. The owners who had close association with the cats and also suffering from intense pruritus since 1 month. They had small erythematic crusted papules, hyper pigmentation on the hands, fingers, legs and ankles (Fig. 3). A presumptive diagnosis of mange in humans was made based on history of

S. Sivajothi (✉) · V. C. Rayulu · C. Sreedevi
Department of Veterinary Parasitology, College of Veterinary
Science, Sri Venkateswara Veterinary University, Proddatur
516360, Andhra Pradesh, India
e-mail: sivajothi579@gmail.com

B. Sudhakara Reddy
College of Veterinary Science, TVCC, Proddatur, India

Fig. 1 Skin lesions over the face in a cat

Fig. 2 *Notoderic cati* adult mite (40×)

Fig. 3 Lesions over the hands to the owners

pruritus and the distribution of the inflammatory papules, history of contact with the affected cats.

Treatment and discussion

Based on morphology, mites from the affected cat were identified as *N. cati* (Soulsby 1982). Hence the cats were treated with weekly twice oral administration of ivermectin at 200 µg/kg body weight for four doses along with supportive therapy by oral administration of 2 ml of multi-vitamin and mineral syrup (Zincovit) daily. Efficacy of the drug was assessed based on the clinical recovery and examination of skin scrapings at weekly intervals of post therapy. Post treatment clinical examination of cat on 7th day revealed partial improvement in pruritus, disappearance of scales. By 14th day cat was totally free from of pruritus and alopecia with negative scrapings. On 28th day of examination, cats were free from all lesions and hair growth was also observed. After completion of 2 weeks of therapy (four doses of ivermectin) scrapings were negative for mites. But oral ivermectin was continued for two more weeks along with supportive therapy to prevent recurrence. Senthil Kumar et al. (2008) reported higher efficacy with parenteral ivermectin at 200 µg/kg body weight, S/C in cats with *Notoderic cati*. Affected owners got treated by human dermatologist. Advice was given to the owners to wash all inanimate objects like feeding and watering bowls, cloths, bedding and towels those were in contact with the cats and owners with hot water. It was also advised to spray the floor and walls with cypermethrin at 4 ml/l of water monthly twice. No recurrence was observed in any of the cats up to 4 months of post therapy. No adverse reactions were observed after the treatment with oral ivermectin. The successful recovery in the present study indicated the benefit of ivermectin therapy in cats for the management of feline scabies.

The notoedric mange progresses to involve the face and ultimately covers the entire body, if the skin disease was ignored (Scott et al. 2001). In the present study the cats had mange lesions covering the entire body. The characteristic itching and hair loss pattern was often all that was needed to diagnose notoedric mange in the cat (Foil 2003). Ivermectin is known to act on GABA neurotransmission at 2 or more sites blocking interneuronal stimulation of excitatory motor neurons, leading to flaccid paralysis. More recent evidence suggests that ivermectin may exert its effect through action on glutamate-gated Cl^- ion conductance at the postsynaptic membrane or neuromuscular endplate (Adams 2001). Humans will develop intense pruritus without any mite burrows within few hours of initial contact with the infested cats. Prolonged association with the infested cats was responsible for this cutaneous disease.

The lesions in infested people subsided when the cats were segregated from humans (Chakrabarti 1986).

Conclusion

The present study reported *N. cati* in cats of a single household with the chief complaint of pruritus. Four doses of ivermectin at 200 µg/kg body weight, orally along with supportive therapy successfully cured notoedric mange infection in cats.

References

- Adams HR (2001) Veterinary pharmacology and therapeutics, 8th edn. Iowa state university press, Ames, pp 1025–1029
- Chakrabarti A (1986) Human notoedric scabies from contact with cats infected with *Notoedres cati*. Int J Dermatol 25:646–648
- Foil CS (2003) An approach to feline alopecia. In: Foster AP, Foil CS (eds) BSAVA Manual of small animal dermatology, 2nd edn. BSAVA, Gloucester
- Griffin C, Kwochka K, Macdonald (1993) Current veterinary dermatology. Mosby Publications, Linn
- Scott D, Miller W, Griffin CM, Kirk (2001) Small animal dermatology. W.B. Saunders Co, Philadelphia
- Senthil Kumar K, Selvaraj P, Vairamuthu S, Srinivasan SR, Kathiresan D (2008) Ivermectin therapy in the management of notoedric mange in cats. Tamilnadu J Vet Anim Sci 4(6): 240–241
- Soulsby EJJ (1982) Helminths, arthropods and protozoa of domesticated animals, 7th edn. Bailliere Tindall, London, pp 482–486
- Walker A (1994) The arthropods of human and domestic animals. Chapman and Hall, London, pp 7–8