

## Case Report

# Ear Mite Infestation in Four Imported Dogs from Thailand; a Case Report

N Maazi<sup>1</sup>, \*Sh Jamshidi<sup>1</sup>, HR Hadadzadeh<sup>2</sup>

<sup>1</sup>Department of Clinical Sciences, Faculty of Veterinary Medicine, University of Tehran

<sup>2</sup>Department of Parasitology, Faculty of Veterinary Medicine, University of Tehran

(Received 10 Feb 2010; accepted 20 Jul 2010)

### Abstract

*Otodectes cynotis*, ear mite or ear canker mite, is the most common cause of otitis external in cats (approximately 50%) and to a lesser extent in dogs, foxes and ferrets. The mite is living on the epidermal surface of auditory canal without burrowing into the tissue and feeding on tissue fluids and debris. In most of the cases they induce hypersensitivity reactions in the host. Four puppies; Siberian husky, Cocker spaniel, Terrier and mixed Pekignese with different genders and ages were referred to the Small Animal Hospital, Veterinary Faculty of Tehran University, Tehran, Iran for routine clinical examination just after they were imported from Thailand in a timeframe between June to August 2008.

Clinical examinations showed an excessive dark brown discharge in both ears. No signs of other clinical situations were observed. White moving mites were seen during otoscopy examination, the specimen of ear discharge was sent to parasitology laboratory for precise identification of genus and species. Mites were identified as *Otodectes cynotis* and the presence of concurrent yeast and bacterial infection was showed by laboratory examinations. Topical Amtraz solution in combination with otic antibacterial and antifungal agents were administered as the treatment. Since, all the reported cases were imported from Thailand, careful clinical examination and quarantine strategies are highly recommended at the borders.

**Keywords:** Ear mite, *Otodectes cynotis*, otitis external, dogs, Iran

### Introduction

*Otodectes cynotis* (Hering, 1838) or ear mite is a member of Psorptidae family and the most common cause of otitis external in cats while it is less common in dogs. This mite infests external ear canal and occasionally adjacent skin of the head and feeds on tissue fluids and epidermal debris. *O. cynotis* is large (300×400 µm), white and highly contagious (Scott et al. 2001, Campbell 2005, Radlinsky and Mason 2005). The hosts of *O. cynotis* are cats, dogs, foxes, ferrets and rarely humans (Gunnarsson et al. 1991, Campbell 2005). The life cycle of the mite lasts three weeks but it can survive for several weeks off the host. Female lays eggs and sticks them to the epithermal surface. Thereafter, eggs will

hatch to six-legged larvae and molt into eight-legged protonymphs and deutonymphs within two months (Harvey et al. 2001, Wall and Shearer 2001, Campbell 2005). The main route of transmission is direct contact with infected host (Harvey et al. 2001). Mite infestation can occur at any age but are more common in younger dogs. The cat is a common cause of transmission in adult dogs (Harvey et al. 2001, Wall and Shearer 2001).

In one study, the prevalence of ear mite in dogs in the United Kingdom was reported 29.1% with significant predisposition in dogs with pendulous and semi-erect pinnae (Frost 1961). The prevalence of ear mite in feral cats in the United States has been reported to

\*Corresponding author: Dr Shahram Jamshidi,  
Email: shjamshidi@ut.ac.ir

be 25% to 37% (Akucewich et al. 2002, Campbell 2005). In another study, *O. cynotis* was reported as the most common ectoparasite (22%) of dogs in Korea (Chee et al. 2008). Pathogenicity of *O. cynotis* is induced by mechanical irritants and pruritus of the mite rather than burrowing the skin. Although hypersensitivity resulted from the mite saliva may cause pruritus (Greene 2006). Common clinical signs of otitis external due to ear mite are accumulation of thick, dark brown to black crusty exudates and cerumen in auditory canal and moderate to severe otic pruritus. However, some dogs may have asymptomatic infection (Harvey et al. 2001, Scott et al. 2001, Radlinsky and Mason 2005). Diagnosis requires visual confirmation of the presence of the ear mite through otoscopic or microscopic examination.

First step of treatment is the use of topical ceruminolytics to remove cerumen and tissue debris. Then administration of different topical parasiticides such as Amitraz, Rotenone or Selamectin is recommended (Six et al. 2000, Scott et al. 2001, Campbell 2005). Thorough cleaning of the environment and pet equipments, treatment of all household pets and whole body therapy is necessary for a complete treatment (Radlinsky and Mason 2005).

This report is of particular importance because it describes while external otitis caused by *O. cynotis* is a rare situation of domestic dog breeds in Iran, imported dogs could be considered as a major source of contamination.

## Case Report

### Clinical examination

Three months male Siberian husky, 3.5 months male Cocker spaniel, 4 months female Terrier and 3.5 months female mixed Pekingese were referred to the Small Animal Hospital, Veterinary Faculty of Tehran University for routine clinical examinations just after they were imported from Thailand in a timeframe between June to August 2008. Physical ex-

amination revealed bilateral excessive dark brown ear discharge (Fig. 1). There was no sign of scratching of pinnae in puppies. Bilateral otoscopy was carried out in all puppies. Mites were easily observed in otoscopic examination using a veterinary speculum as tiny moving white specks. Some smears of ear discharge were made for cytologic and microscopic examination by cotton swabs; moreover, specimens were collected for parasitological examination. Smears and specimens were sent to clinical pathology and parasitology laboratories respectively. Smears were stained with gram and modified Wright's staining methods for evaluation of bacteria and yeast in the laboratory of clinical pathology. Direct microscopic examination showed more severe infection in Cocker spaniel and Terrier compared to Siberian husky and mixed Pekingese puppies. Concurrent bacterial (gram positive cocci) and yeast (*Malassezia pachydermatis*) infection as the secondary causes of external otitis (August 1988) were detected by cytologic examination in all of them except the mixed Pekingese.

### Parasitological examination

Samples were collected in tubes containing glycerin and alcohol. The found mites were placed on glass slides, then they were covered with cover slip and KOH solution was added. Identification of the mites was carried out according to the protocol of the identification of external parasites (Scott et al. 2001, Wall and Shearer 2001, Campbell 2005) and as following:

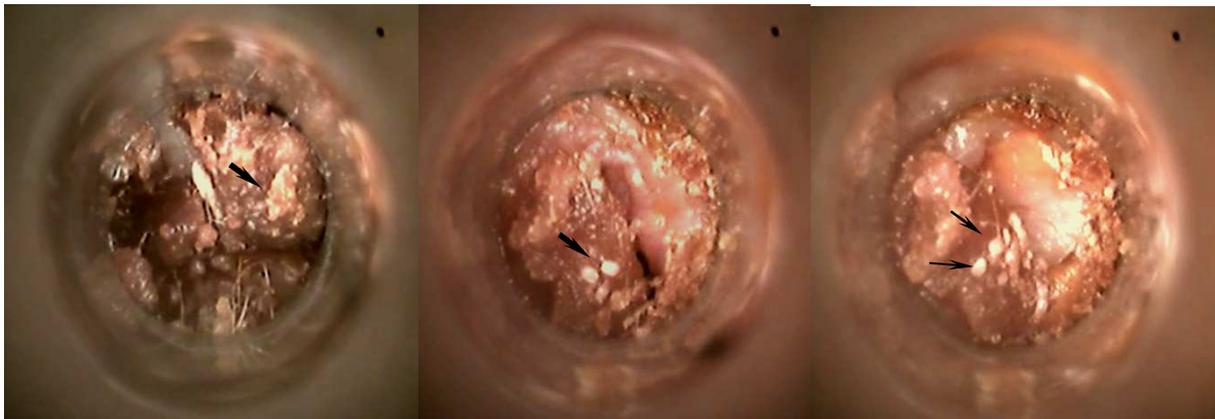
Adult mites were white with terminal anus and four pairs of legs. The sucker-like pulvillus was cup-shaped as opposed to trumpet-shaped in *Psoroptes*. Pretarsi had short, unjointed pedicels on the first and second pairs of legs of the female and on all legs of the male. In the adult female, the third and fourth pairs of legs had a pair of terminal whip-like setae and the fourth pair of legs was reduced and did not extend beyond the body margin. The

genital opening was transverse. The body of the male was only weakly bilobed posteriorly and had copulatory suckers (Fig. 2).

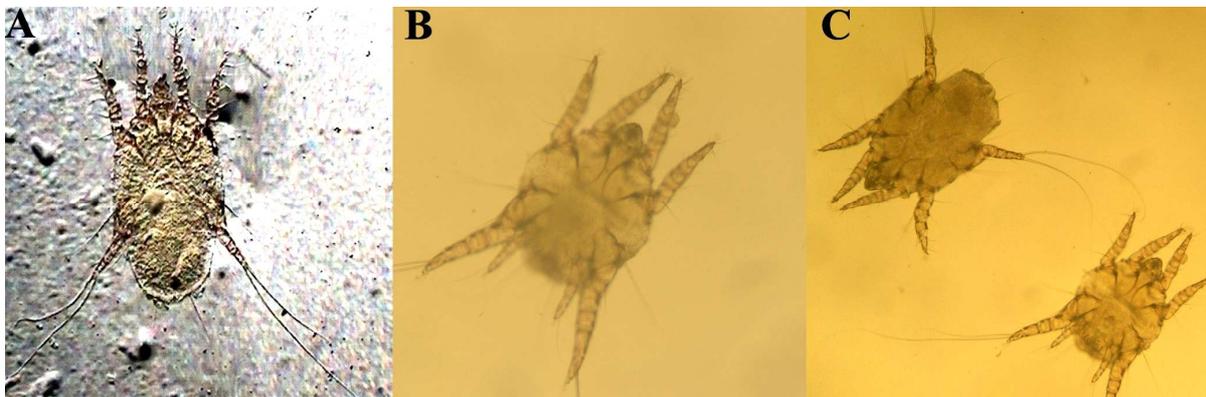
### Treatment

Both ears in all puppies were thoroughly cleaned with mineral oil and ceruminolytic agents. Then Amitraz solution 2.5% was ad-

ministered topically every week for a month. A combination of topical antibacterial and anti-fungal agents (otosporin) was administered daily for one week as well. All puppies were re-evaluated after one month and there was no sign of mite infestation in otoscopic and microscopic examinations.



**Fig. 1.** Otoscopic view of otitis external due to ear mite. Note the small and white mites with dark brown cerumen and debris (black arrow)



**Fig. 2.** Photomicrographs of *O. cynotis*. (A) An adult female with rudimentary fourth pair of legs, (B) An adult male with short, unjointed pedicels on all legs, (C) adult female and male

### Discussion

*O. cynotis* is an irritant and highly contagious ear mite with time consuming treatment of its infection. Obviously, prevention is more efficient and sometime less costly when com-

pared to treatment. Here, we suggest some recommendations in order to achieve more effective prevention and treatment strategies. Given the fact that there is no data on the

prevalence of ear mite in cats and dogs in Iran, we first suggest a comprehensive study on this issue in Iran. Second, we highly recommend a thorough clinical examination, quarantine and treatment policies at country borders and entrance ports, since all the reported cases were imported from abroad. Third, it has been shown that breeds with pendulous and semi-erect pinnae have a high predisposition to mite infestation; therefore we suggest a more precise clinical examination upon referring such breeds to clinics.

### Acknowledgements

The authors declare that they have no conflicts of interest.

### References

- Akucewich LH, Philman K, Clark A, Gillespie J, Kunkle G, Nicklin CF, Greiner EC (2002) Prevalence of ectoparasites in a population of feral cats from north central Florida during the summer. *Vet Parasitol.* 109: 129–139.
- August JR (1988) Otitis externa, A disease of multifactorial etiology. *Vet Clin North Am Small Anim Pract.* 18(4): 731–742.
- Campbell KL (2005) Other external parasites. In: Ettinger SJ and Feldman EC (Eds): *Textbook of veterinary internal medicine*, Vol. 1. 6<sup>th</sup> ed. Saunders Elsevier, St. Louis, Missouri, pp. 66–67.
- Chee JH, Kwon JK, Cho HS, Cho KO, Lee YJ, Abd El-Aty AM, Shin SS (2008) A survey of ectoparasite infestations in stray dogs of Gwang-ju City, Republic of Korea. *Korean J Parasitol.* 46(1): 23–27.
- Frost CR (1961) Canine otocariasis. *J Small Anim Pract.* 2: 253–256.
- Greene CE (2006) Otitis externa. In: Greene CE (Ed): *Infectious diseases of the dog and cat*. 3<sup>rd</sup> ed. Saunders Elsevier, St. Louis, Missouri, pp. 815–817.
- Gunnarsson E, Hersteinsson P, Adalsteinsson S (1991) Prevalence and geographical distribution of the ear canker mite (*Otodectes cynotis*) among arctic foxes (*Alopex lagopus*) in Iceland. *J Wildl Dis.* 27(1): 105–109.
- Harvey RG, Harari J, Delauche AJ (2001) *Ear diseases of the dog and cat*. Manson Publishing Ltd, London.
- Radlinsky MG, Mason DE (2005) Diseases of the ear. In: Ettinger SJ and Feldman EC (Eds): *Textbook of veterinary internal medicine*, Vol. 2. 6<sup>th</sup> ed. Saunders Elsevier, St. Louis, Missouri, pp. 1171–1174.
- Scott DW, Miller WH, Griffin CE (2001) *Muller and Kirk's small animal dermatology*. 6<sup>th</sup> ed. W.B. Saunders, Philadelphia.
- Six PH, Clemence RG, Thomas CA, Behan S, Boy MG, Watson P, Benchaoui HA, Clements PJM, Rowan TG, Jernigan AD (2000) Efficacy and safety of selamectin against *Sarcoptes scabiei* on dogs and *Otodectes cynotis* on dogs and cats presented as veterinary patients. *Vet Parasitol.* 91: 291–309.
- Wall R, Shearer D (2001) *Veterinary ectoparasites; biology, pathology and control*. 2<sup>nd</sup> ed. Blackwell science, London.