



## Case Report

### Psoroptic Otocariasis Associated with *Psoroptes Cuniculi* in Domestic Rabbits in Korea

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#### ABSTRACT

Two male domestic rabbits, weighing 2.8 and 3.4 kg, were referred to the Animal Health Center of the Seoul Zoo with clinical signs of head shaking and extensive pinnal pruritus. Diagnosis was accomplished by clinical signs and microscopic examination of skin lesions. *Psoroptes cuniculi*, the ear mite of domestic rabbits, was identified as the cause of the lesions. To our knowledge, this is the first report of *P. cuniculi* in domestic rabbits in Korea.

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#### INTRODUCTION

*Psoroptes cuniculi* is a common worldwide parasite of rabbits and causes infestation primarily in the ears (Ulutas *et al.*, 2005). It lives in the external auricular meatus, where it is thought to feed mainly on serous exudate, skin secretions, and blood (Perrucci *et al.*, 2005). Ear mange in rabbits, caused by *P. cuniculi* mites, is of importance with respect to general animal health and hygiene as well as economic concerns. The infestation can cause considerable weight loss, less favorable feed conversion rates, vestibular dysfunction, and meningitis, which is frequently fatal when complicated by secondary bacterial pathogens (Ulutas *et al.*, 2005). As an important disease of domestic animals throughout the world, *P. cuniculi* infestations in rabbits have been reported in the USA (Yeatts, 1994), Italy (Fichi *et al.*, 2007) and Turkey (Kurtdele *et al.*, 2007), but not in Korea. This study describes infestation of *P. cuniculi* in domestic rabbits, which were referred to the Animal Health Center of the Seoul Zoo in Korea.

#### History and clinical examination

Two male domestic rabbits, weighing 2.8 and 3.4 kg, presented with head shaking, intense pruritus, weight loss, and less favorable feed conversion rates. An ear examination revealed marked, dense, adherent crusts and erythema covering the external ear canal and internal surfaces of both pinnae (Fig. 1). Sensitivity on palpation of the ears was also observed.

#### Diagnosis

Diagnosis was performed by clinical signs and microscopic examination of the skin lesions. Viable mites were observed on otoscopic examination in both cases. Infestation with the mite *P. cuniculi* from affected rabbits was diagnosed by skin scrapings and microscopy. Many mites were detected on microscopic examination of material scraped from the external ear canal mixed with mineral oil (Fig. 2). *Psoroptes cuniculi* was the only species detected from the lesions. The lengths of opisthosomal setae of adult mites were 32-87  $\mu\text{m}$ , which are within the range of setal lengths characteristic of *P. cuniculi* (Sweatman, 1958).

#### Treatment

The ear canals of the affected animals were cleaned to remove accumulated debris and facilitate instillation of a parasitocidal otic preparation. The rabbits were injected subcutaneously with ivermectin at 200  $\mu\text{g}/\text{kg}$  of body weight, as well as with a streptomycin-penicillin combination to prevent secondary infection. One rabbit became negative for mites after twice treatments of ivermectin at fourteen days interval, and clinical ear mange did not recur. However, another rabbit showed meningitis-like signs died the next day.

#### DISCUSSION

The mite *Psoroptes cuniculi* is a worldwide obligatory ectoparasite, mainly of rabbits, goats, horses, and sheep (Perrucci *et al.*, 2005). In rabbits, lesions are



**Fig. 1: Extensive crusting and erythema in the ear of a rabbit.**



**Fig. 2: Microscopic examination of material from ears of domestic rabbits revealed the ear mite *Psoroptes cuniculi*.**

limited to the ears (Saunders, 1979). The mite causes intense pruritus with formation of crusts and scabs, which can completely fill the external ear canal and internal surface of the pinna in untreated animals (Bates, 1999; Perrucci *et al.*, 2005). The clinical findings in the present cases are similar to those reported by others.

According to McKellar *et al.* (1992), ivermectin is useful for the treatment of *P. cuniculi* in rabbits. In this report, one of the rabbits injected subcutaneously with ivermectin at 200 µg/kg of body weight died with

meningitis-like signs. Although very mild infestations of *P. cuniculi* may not affect immune responsiveness, heavy infestations may alter the immune function in laboratory rabbits. Additionally, behavioral changes in pruritic rabbits may alter a variety of experimental studies, including those dependent upon adequate feed intake (Baker, 1998). Although we did not evaluate immune function, reduced immune status may have contributed to the death of a rabbit. However, further investigation is necessary.

This study is the first report of *P. cuniculi* in domestic rabbits in Korea and suggests the necessity for prophylactic study of psoroptic otocariasis. Further more it is required that the epidemiological survey on large scale for the detection of the mite.

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