Case Report

EAR CANKER IN A RABBIT – A CASE REPORT

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ABSTRACT

A three-month-old female New Zealand White Rabbit, weighing about 1.4 kg was brought to the Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli with ahistory of intense pruritis and alopecia all over the body. Clinical observation revealed crusty lesions on the nose,ear margin and toes. Microscopic examination of the deep skin scraping revealed the presence of Psoroptes cuniculi mite. The rabbit was treated with an injection Ivermectin @ 0.4 mg/kg sub-cutaneous and an injection of Chlorpheniramine maleate @ 0.4 mg/kg intramuscular and further advised the owner to give HITEK® oral solution (Ivermectin) @ 0.4 mg/kg PO once a week and Benzyl benzoate I.P. solution topically daily for a continuous period of one month along with multivitamin supplementation (Multistar pet®) @ 2 ml PO BID. The rabbit recovered successfully without any drug side effects (Tandem usage of ivermectin and Benzyl Benzoate).

Keywords: Benzyl benzoate, Ivermectin, Ear canker, Rabbit.

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INTRODUCTION

"Ear canker" is a skin related condition in rabbits causing infection to the ears and is caused by mites *Psoroptes cuniculi* (Smith, 2022) which is a common parasite of rabbits and ubiquitous in nature causing irritation to the ear lining, leading to the formation of thick crusts and oozing of serum within the ear canal. Sometimes the lesions can extend to the face and neck, potentially perforating the eardrum causing otitis media. This parasitic skin disease of rabbits spread through direct contact and the contributing factors include stress, unsanitary conditions, inadequate hygiene, poor nutrition, overcrowding and extreme environmental conditions (Acar *et al.,* 2007). Diagnosis typically involves confirming the presence

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of mites through skin scraping examination (Bichard and Sherding, 2000). In general, rabbits commonly experience both *Sarcoptic* and *Psoroptic* mange and eradication of this condition is entirely challenging (Aiello, 1998). In clinical practice, ivermectin has been employed in the successful management of mange infestation in rabbits (Soundararajan and Iyue, 2006; Sharun *et al.,* 2019). This report focuses on the occurrence of *Psoroptic* mange in a rabbit maintained under an intensive cage system and explores its successful clinical therapy with ivermectin and benzyl benzoate in tandem.

CASE REPORT

A three-month-old female New Zealand White Rabbit, weighing about 1.4 kg was brought to Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli with a history of hyporexia, intense pruritis, lustreless hair coat and alopecia all over the body for the past two weeks. Clinical examination revealed a crusty lesion on the nose, ear margin and toes (Fig. 1). Skin scraping from the affected areas was collected and processed in the laboratory using a standard technique with 10% potassium hydroxide. Microscopic examination of the processed sample revealed the presence of the ear mite "*Psoroptes cuniculi*" (Fig. 2) morphologically as described by Soulsby (1982). Based on the clinical and skin scraping examination, the present case was diagnosed as ear mite infection and the rabbit was treated with an injection Ivermectin @ 0.4 mg/kg sub-cutaneous and an injection Chlorpheniramine maleate @ 0.4 mg/kg intramuscular (Smith, 2022) and further advised the owner to give HITEK® oral solution (Ivermectin) @ 0.4 mg/kg PO weekly once (Quesenberry, 1994) and apply Benzyl benzoate I.P. solution topically for a continuous period of one month (Divisha *et al.,* 2020) along with multivitamin supplementation (Multistar pet®) @ 2ml PO BID. After one month of treatment with the above medication the rabbit recovered clinically without any side effects (Fig. 3).

DISCUSSION

Infestation by the non-burrowing mite *Psoroptes cuniculi* is the common cause of otitis in rabbits and is the most prevalent dermatologic ailment in this species. The typical presentation includes unilateral or bilateral intenseitchy otitis accompanied by thick crusty lesion. Initially, the crusts appear in the proximal external ear canal and extend to the distal pinna. In cases of prolonged affection the condition may get complicated ending in neurologic symptoms or otitis media potentially leading to eardrum perforation resulting in purulent otitis media due to secondary bacterial infection and progress to meningitis. Ramadhar, (2005) stated Rabbits are generally affected by *Sarcoptesscabiei* var. *Cuniculi*which affect the ear resulting in ear canker and sometimes may predispose for aural hematoma. Additionally, the condition may also extend to the skin, particularly the face, neck (dewlap folds) and genitalia causing intense pruritus (White *et al.,* 2002). In the present case, crusty lesions were noticed on the external ear pinna, nose and toes without any

involvement of the inner pinna and absence of neurological symptoms.

Jackson (1989) stated that Ivermectin prevented the transmission of electrical impulses in the muscles and nerves of invertebrates by amplifying the glutamate effects on the invertebrate-specific gated chloride channel which enter into the cells, causing hyperpolarization and culminating in paralysis of the invertebrate neuromuscular system.Abd El-Ghany (2022) reported that higher efficacy of ivermectin could be achieved in the keratin layer and might be due to the higher therapeutic concentration of the drug achieved in the skin due to administration of drug choosing the subcutaneous route. In the present study, ivermectin was given through subcutaneous route @ a dose rate of 0.4 mg/kg body weight which was proven to be very effective at weekly intervals as suggested by Kaplaywar *et al.* (2017). Similar effective therapy with administration of ivermectin @ 0.2-0.4 mg/kg body weight once every two weeks for 2-3 times (White *et al.,* 2002; Singh *et al.,* 2017), and 400 µg/kg body weight for three weeks at weekly intervals and 700 µg/kg body weight (Ayodhya*,* 2013) werealso very effective in the treatment of *Psoroptes cuniculi* infestation in rabbits.

Benzyl benzoate when used in tandem with ivermectin have proved to be effective in early healing of the disease condition without any untoward side effects (Curtis *et al.,* 1990; Bowman *et al.,* 1992). Benzyl benzoate was used to treat lice and scabies infestations and believed to have good efficacy in killing the lice and mites by its action on the nervous system and was proven to have a good effect when used in tandem with ivermectin and was believed to be absorbed by the lice and mites which were finally destroyed by acting on their nervous system (Alberici *et al.,* 2000; Karthikeyan, 2005). Frequent application of benzyl benzoate on the skin causes irritation which can be overcome with the application of benzyl benzoate-loaded microemulsion with lipid particles for topical applications against mite infestation in rabbits enhancing better dermatokinetic profile and better delivery of drug without causing any irritation (Sharma *et al.,* 2016).

In the present case ivermectin was considered to be asafe drug in rabbits and can be used in tandem with benzyl benzoate against “Ear Canker” in rabbits with complete recovery and without any untoward side effects.

REFERENCES

Abd El-Ghany, W.A. (2022). Mange in Rabbits: An Ectoparasitic Disease with a Zoonotic Potential. *Veterinary Medicine International,* **2022:** 5506272.

Acar, A., Kurtdede, A., Kerem-Ural, K., Cingi, C.C., Karakurum, M.C., Yagci, B.B. and Sari, B. (2007). An Ectopic Case of *Psoroptes cuniculi* Infestation in a Pet Rabbit. *Turkish Journal of Veterinary and Animal Sciences*, **31:** 423 - 425.

Aiello, S.E. (1998). Merck Veterinary Manual. 8th ed. New Jersey, Merck, Inc. pp. 1386-1396.

Alberici, F., Pagani, L., Ratti, G. and Viale, P. (2000). Ivermectin alone or in combination with benzyl benzoate in the treatment of human immunodeficiency virus-associated scabies. *British Journal of Dermatology,* **142:** 969 - 972.

Ayodhya, S. (2013). Ear canker and its clinical management in rabbits. *International Journal of Current Microbiology and Applied Biosciences,* **2:** 66-71.

Birchard, S.J. and Sherding, R.G. (2000). Saunders Manual of Small Animal Practice. 2nd ed. W.B. Saunders Company, Philadelphia.

Bowman, D.D., Fogelson, M.L. and Carbone, L.G. (1992). Effect of ivermectin on the control of ear mites (*Psoroptes cuniculi*) in naturally infested rabbits.*American Journal of Veterinary Research,* **53:** 105 - 109.

Curtis, S.K. Housley, R. and Brooks, D.L. (1990). Use of ivermectin for treatment of ear mite infestation in rabbits. *Journal of American Veterinary Medical Association,* **196:** 1139 -1140.

Divisha, R., Soundararajan, C. and Arul Prakash, M. (2020). Therapeutic management of concurrent sarcoptic and psoroptic mange infestations in Rabbits. *Journal of Entomology and Zoology Studies,* **8:** 1041 - 1043.

Jackson, H.C. (1989). Ivermectin as a systemic insecticide. *Parasitology Today*. **5:** 146 - 156.

Kaplaywar, S., Jyothi, J. and Srinivasa, G.S.M. (2017). Resolving Sarcoptic mange infection in a New Zealand white rabbit. *The Pharma Innovation Journal,* **6:** 641- 642.

Karthikeyan, K. (2005). Treatment of scabies: newer perspectives.*Postgraduate Medical Journal,* **81:** 7 -11.

Quesenberry, K.E. (1994). Rabbits. *In:* Saunders Manual of Small Animal Practice, ed. Birchard, H. J. and Sherding, R.G. WB Saunders Co., Philadelphia pp.1345 - 1362.

Ramadhar, S. (2005). Scientific production and management of Goats and Rabbits, Kalyani Publishers, New Delhi, pp.281.

Sharma, G., Dhankar, G., Thakur, K., Raza, K. and Katare, O.P. (2016). Benzyl Benzoate-Loaded Microemulsion for Topical Applications: Enhanced Dermatokinetic Profile and Better Delivery Promises. *AAPS PharmSciTech,* **17:** 1221 - 1231.

Sharun, K., Anjana, S., Sidhique, S.A. and Panikkassery, S. (2019). Treatment of Sarcoptic mange infestation in rabbits with long acting injectable ivermectin. *Journal of Parasitic Diseases*, **43**: 733 - 736.

Singh, B., Gupta, D., Tiwari, A. and Shukla, P.C. (2017). Therapeutic management of sarcoptic mange in rabbit - a case report. *Global Journal*

of Biochemistry and Biotechnology Academic and Science, **6:** 398 - 399.

Smith, M.V. (2022). Text book of Rabbit Medicine. 3rd ed. Elsevier Publication, Amsterdam. pp.1-500.

Soulsby, E.J.L. (1982). Helminths, Arthropods and protozoa of domesticated animals. 7th ed. ELBS. Baillers Tindall, London. pp. 490.

Soundararajan, C. and Iyue, M. (2006). Comparative efficacy of anti-parasitic agents in the treatment of mange in rabbits. *The Indian Journal of Field Veterinarians*, **1**: 19 - 20.

White, S.D., Bourdeau, P.J. and Meredith, A. (2002). Dermatologic Problems of Rabbits. *Seminars in Avian and Exotic Pet Medicine,* **11:** 141 - 150.

Fig.1. Before treatment

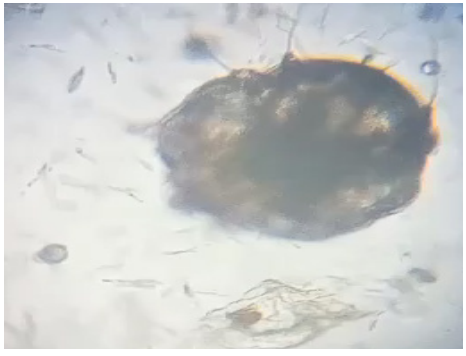

Fig. 2. *Psoroptes cuniculi* ear mite

Fig. 3. After treatment