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Case Report

Selamectin Spot-on: A Cure for Scabies in Rabbits

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ABSTRACT

Introduction: Mange in rabbits is a highly contagious zoonotic disease. The disease is caused mainly by *Sarcoptes scabiei*, *Psoroptes cuniculi*, *Cheyletiella parasitovorax*, and *Notoedres cati.* The most common forms of this disease in rabbits are body and ear mange. Mites infest animals through direct contact with infected animals or contaminated.
Case report: An 8-month-old non-descript female rabbit weighing about 700 g was presented to the Teaching Veterinary clinical complex, Mettupalayam, Puducherry, India, with a history of scratching, pruritus and dried crusty lesions on the margins of the ears, snout, around the eyes and legs and patchy hair loss for the past 15 days. Rectal temperature was 38.4°C, heart rate was 210 bpm, respiratory rate was 40 breaths/minute, and the color of the conjunctival mucous membrane was pink. Other signs included inappetence with normal voiding habits and a thin body condition. The collected skin scraping from the affected areas was examined under the microscope with a 10x objective lens, confirming the presence of live motile *Sarcoptes* spp. Mite species could be determined through the morphological characteristics (adult mites are nearly circular with short legs, and the third and fourth pairs do not project beyond the margin of the body with terminal anus) under the microscopic examination of the skin scrapings. Therefore, 6% selamectin was applied topically on a single spot at the base of the neck. Supportive therapy with multivitamin (vitamin A, D_3, E, B_{12}) drops was given orally at 1 ml per day.
Conclusion: The rabbit responded well to the treatments within 2 weeks.

1. Introduction

Scabies is caused by the infestation of the burrowing mite *Sarcoptes scabiei,* which is one of the most severe and highly contagious ectoparasitic skin diseases in rabbits with zoonotic importance[1]. In rabbits, the disease is caused by the common mite *Sarcoptes scabiei var cuniculi,* and the life span of the adult mites in the host's skin is 3-4 weeks[2]. The clinical signs include intense pruritus, itching, pyodermatitis, and skin appears as diffuse erythema, thickening, wrinkling, crust formation, scale production, extensive hyperkeratosis and alopecia around the ear's pinna, nose, lips, face, legs, abdomen, perianal region, and genitalia[3,4]. Selamectin is a semi-synthetic avermectin that acts on ectoparasites similar to Ivermectin but is used only topically. It binds with high affinity to GABA and Glutamate gated chloride ion channel receptors and blocks the neuronal signals, causing flaccid paralysis of parasites, leading to the death of the parasite[5]. This case report described the successful treatment of a rabbit with scabies mange treated with a selamectin spot-on drop.

2. Case report

An 8-month-old non-descript breed female rabbit weighing about 700 g was presented to the Department of Veterinary Medicine, Small Animal Unit of Veterinary Clinical Complex, Rajiv Gandhi Institute of Veterinary

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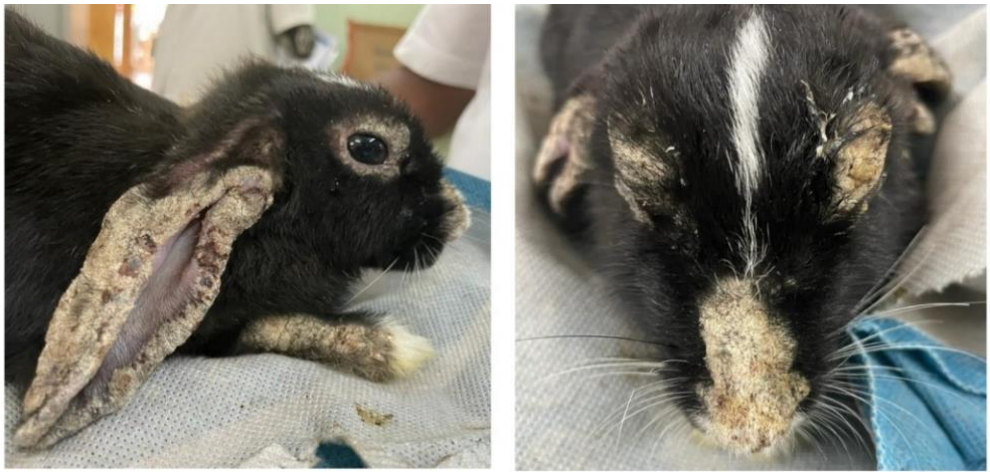

Figure 1. Hyper keratinized, dried crusty lesions on the ear margins, around the eyes, snout and legs (Eight-month-old non-descript female rabbit, 2022, India)

Education and Research, Puducherry, India, with a history of inappetence, scratching, intense pruritus, dried crusty lesions on the margins of both the ears, snout, around the eyes and legs, and patchy hair loss for the past 15 days. Clinical examination revealed dullness, thin body condition, rectal temperature of 38.4°C, pink conjunctival mucous membrane, normal voiding habit, heart rate of 210 bpm and respiratory rate of 40 breaths/minutes. Dermatological investigation revealed crusty hyper-keratinized lesions, rough haircoat, intense pruritus, and patchy alopecia on the margins of both ear flaps, snout, around the eyes and legs (Figure 1). Superficial skin scrapings taken from the lesions were placed on a clean glass slide along with liquid paraffin and subjected to microscopic examination (Figure 2). Skin scraping examination under low power microscopy revealed the presence of numerous live motile mites of *Sarcoptes* spp. (Figure 3). The morphological characteristics of the mites (adult mites are nearly circular with short legs and the third and fourth pairs do not project beyond the margin of the body with terminal anus) were identified, and confirmatory diagnosis was made[2]. The rabbit was treated with a single dose of 6% selamectin spot-on which was applied topically over the scruff region for 2 weeks along with a supportive therapy of multivitamin (vitamins A, D3, E, B12) drops which were advised to be given as 1 ml per day orally for a month[1,3].

Figure 2. Collection of Skin scraping from the lesions on the ear (8-month-old non-descript female rabbit, mid May 2022, India)

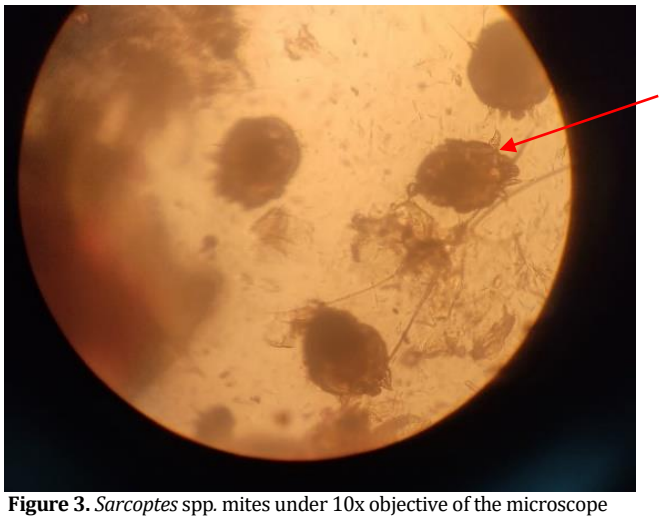

Figure 3. *Sarcoptes* spp. mites under 10x objective of the microscope (Eight-month-old non-descript female rabbit, mid May 2022, India)

3. Discussion

Mange infestation caused by *Sarcoptes scabiei* is common in rabbits, which is characterized by presence or absence of pruritis, specific morphology of mite and pattern of lesion distribution[6]. The skin lesions were diagnosed as sarcoptic mange, and the single application of selamectin spot-on along with the supportive therapy showed complete recovery by the second week of treatment (Figure 4). The treatment had no adverse effects, making it an effective and safest drug for the treatment of scabies in rabbits. The causative agent, *Sarcoptes scabiei var cuniculi* inhabits the epidermis of sparsely haired areas of the body, where it forms tunnels within stratum corneum[7]. Topical application of the drug selamectin is absorbed into the circulation, accumulated in the sebaceous glands, and released slowly, providing longer and persistent action against the mites[5]. The recurrence of the disease can be prevented by repeating the treatment after a month, along with good managemental practices like disinfection of rabbit cages and segregation of affected animals.

Figure 4. Complete reduction of scabs, regrowth of fur, and smooth body coat (Eight-month-old non-descript female rabbit, mid May 2022, India)

4. Conclusion

The present case reports on the careful selection and use of acaricide in rabbits. Scabies is a common problem in rabbits which causes severe economic loss to the owners. Rabbits are very sensitive to most of the acaricides. Hence, in this case, the selamectin spot-on was selected, used, and carefully monitored till its complete recovery. The rabbit did not show any untoward drug reaction and recovered completely.

Declarations

Competing interest

The authors have no conflict of interest in this study.

Authors' Contribution

Abiramy Prabavathy Arumugam diagnosed the case and executed the overall investigation of the case; Keerthika Senthil collected the data and conducted the treatment; Devadevi Narayanan assisted with the skin scraping examination; Rajkumar Karuppaiah oversaw the treatment; Vijayalakshmi Padmanaban provided the technical and logistic support and supervised the whole procedure. All authors read and approved the final version of the manuscript for publication in the present journal.

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Availability of data and materials

The materials and data have been obtained from clinical cases presented to the Teaching Veterinary clinical complex, Mettupalayam, Puducherry, India. All the data of the current study is available per editors' request.

Ethical considerations

The authors confirm that the manuscript has been read and approved by all the named authors. All authors consented to publish this article and confirm that there is no plagiarised information in the article. All sentences are written originally, and all available data are published in this article.

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