Acta Scientific Veterinary Sciences (ISSN: 2582-3183)

Volume 5 Issue 8 August 2023

Research Article

Sarcoptic mange in Rabbits and its Medical Management

N Sai Hemachand[1]* and P Revathi[2]

[1]*Internee, Department of Veterinary Medicine, C. V. Sc, Proddatur, Tirupati, India*

[2]*Assistant Professor, Veterinary Medicine, Department of Veterinary Clinical Complex, C. V. Sc, Proddatur, Tirupati, India*

***Corresponding Author:** N Sai Hemachand, Internee, Sri Venkateswara Veterinary University, C.V. Sc, Proddatur, India.

DOI: 10.31080/ASVS.2023.05.0715

Received: June 23, 2023

Published: July 20, 2023

Abstract

A colony of 8 rabbits aged around one year old males and females were presented to the medicine ward of department of Veterinary Clinical Complex, College of Veterinary Science, Proddatur with clinical signs including whitish crusty lesions on the margins of the ear pinnae and nose, intense pruritus, and signs of alopecia on the withers, ear pinnae, neck, and back of the head. The rabbit had been experiencing these symptoms for the past month. Upon examination, all other clinical indicators were found to be within normal limits. Skin scrapings were collected from the affected areas and examined under a microscope, revealing the presence of *Sarcoptes scabiei*, a parasitic mite known to cause mange in rabbits. As a treatment protocol, subcutaneous injections of Ivermectin at a dose of 400 mg/kg were administered weekly. Additionally, Vimeral syrup was given orally twice daily, and lotion benzyl benzoate was recommended for topical application to treat the sores. After two weeks of treatment, a noticeable improvement in the rabbit's condition was observed. The administration of Vimeral syrup and topical application of Benzyl Benzoate were found to be effective as supportive therapies. In the fourth week, upon completion of the treatment, follow-up skin scrapings were performed, and they showed no evidence of *Sarcoptes Scabiei*, indicating successful clinical recovery. It is important to note that this case highlights the diagnosis and treatment of *S. scabiei* infestation in a rabbit. The use of Ivermectin, Vimeral syrup, and Benzyl Benzoate as part of the treatment protocol led to the resolution of clinical signs and the elimination of the parasite. Regular monitoring and follow-up examinations are essential to ensure complete recovery and prevent recurrence of the infestation.

Keywords: Rabbit; Itching; *Sarcoptic mange*; Ivermectin; Alopecia

Introduction

Scabies, a dermatological condition caused by *Sarcoptes scabiei* mites, poses a significant challenge in commercial rabbit farming in India [5,12]. This zoonotic illness is not only dangerous but also highly contagious [14]. Pruritus (itching) and alopecia (baldness) serve as typical signs of scabies, and if left untreated, the condition can progress to cachexia and even lead to death [15]. Among various mite species that infest the skin, *S. scabiei* mites are known to cause severe manifestations, including intense itching, purities, pyoderma (skin infection), crust formation, scarring, thickening, and wrinkling in affected areas [11]. Transmission of scabies occurs primarily through direct skin contact between infected and uninfected rabbits, as well as exposure to contaminated environments. Consequently, severe infestations with *S. scabiei* mites significantly increase the mortality rate, particularly among young or debilitated animals [16,19]. The infestation commonly affects sensitive areas such as the nose, ears, feet, and genitalia of rabbits [8]. The efficacy of Ivermectin in treating acariosis caused by *Sarcoptes mites* has been well-documented, whether administered orally or parenterally [3,17]. In this study, we present a successful case of

Sarcoptes infection treatment in a rabbits using subcutaneous injections of Ivermectin at a dose of 400 mg/kg. This treatment approach holds promise for combating scabies in rabbits. Prompt intervention to address *Sarcoptes* infestations is crucial in preventing the spread of mites, reducing morbidity and mortality rates, and ultimately improving the welfare of affected rabbits. Key aspects of successful management and control include regular monitoring, appropriate treatment measures, and implementation of preventive strategies, such as maintaining good hygiene and isolating affected animals. By investigating the impact of *S. scabiei* mite infestations and evaluating the effectiveness of Ivermectin treatment, this research aims to contribute to the existing knowledge in the field of rabbit farming. The findings have the potential to enhance scabies management practices, leading to improved outcomes for both rabbit health and the farming industry as a whole.. Overall, this introduction provides a comprehensive overview of the significance of scabies in commercial rabbit farming, its impact on rabbit health and welfare, treatment options, and the importance of proactive management and prevention strategies.

Materials and Methods

The medical history of the rabbit indicated the presence of alopecia (hair loss), erythematous (reddened), scabby, and dry crusty lesions on the nose and ear margins (Figure 1, Figure 2). Skin scrapings were collected from the ear margins and examined microscopically, revealing a large number of *Sarcoptes scabiei* mites under low-power objective (Figure 2). Based on the history, clinical symptoms, and the identification of parasites in the skin scrapings (Figure 3), it was determined that the rabbit was infected with *Sarcoptes spp*. The presence of a significant mite infestation confirms the diagnosis of *Sarcoptes* infection in the rabbit. This finding supports the clinical presentation of alopecia, erythematous lesions, and scabby crusts observed on the nose and ear margins. Microscopic examination of skin scrapings is a valuable diagnostic tool for identifying the specific mite species responsible for the infestation.

Results

The results of the study provide compelling evidence for the effectiveness of the treatment protocol in managing *Sarcoptes scabiei* infestations in rabbits.

- **Treatment Protocol:** The rabbits received a subcutaneous dose of 400mg/kg of Ivermectin on a weekly basis for four weeks, along with Vimeral syrup administered at a dosage of 4 drops twice a day. This treatment protocol was chosen based on established knowledge of Ivermectin's efficacy against *Sarcoptes mites* and the potential benefits of Vimeral syrup in managing clinical signs.

Figure 1: Pictures showing crusty and scabby lesions in rabbit.

Figure 2: Pictures showing crusty and scabby lesions on ear margins.

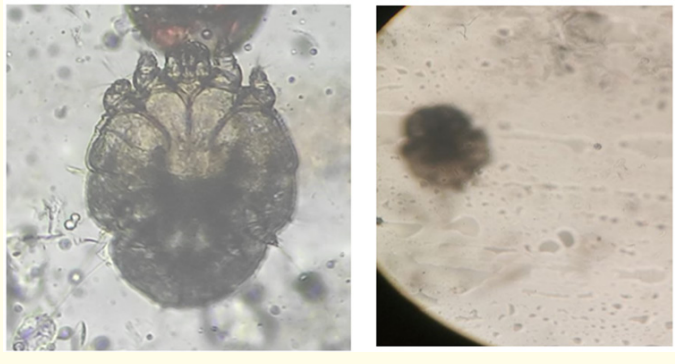

Figure 3: Skin scrapings showing *Sarcoptic scabiei* mites.

- **Improvement in Lesions:** After four weeks of treatment, a marked improvement in the severity of lesions was observed. This observation is a direct outcome of the treatment and provides quantitative evidence of the therapeutic effect.

- **Reduction in Clinical Signs:** Clinical signs such as alopecia (hair loss) and itching were significantly reduced after the treatment period. These clinical signs are commonly associated with *Sarcoptes* infestations, and their reduction indicates successful management of the infection.
- **Absence of Mites:** Skin scrapings taken from the affected site after the four-week treatment period revealed the absence of mites. The elimination of *Sarcoptes scabiei* mites from the rabbit's skin indicates that the treatment has effectively targeted and eradicated the cause of the infestation.
- **Treatment Efficacy:** The reduction in clinical signs and the absence of mites in the follow-up skin scrapings provide strong indicators of the treatment's efficacy. These findings suggest that the combination of Ivermectin and Vimeral syrup has effectively managed the *Sarcoptes* infection in the rabbits, leading to the improvement of lesions and the alleviation of itching.
- **Implications and Recommendations:** Continued monitoring and follow-up examinations are necessary to ensure complete resolution of the infection and to prevent any potential recurrence. This highlights the importance of ongoing care and vigilance in managing *Sarcoptes* infestations. The overall success of the treatment emphasizes the significance of timely intervention and appropriate medication in effectively managing *Sarcoptes* infestations in rabbits. By these results the authors can provide a comprehensive overview of the treatment's effectiveness and its implications for the management of *Sarcoptes scabiei* infestations in rabbits.

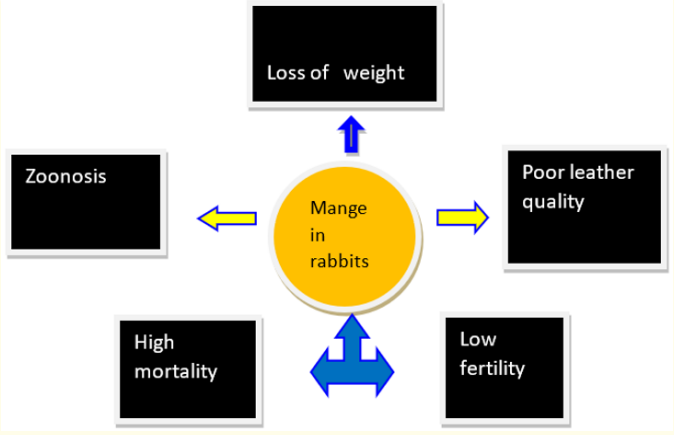

Figure 4: Economic losses in rabbit's production system due to manage infestation [1].

Figure 5: After recovery.

Discussion

Mange and ear mite infestation are the two most significant skin disorders observed in rabbits, affecting both young and adult individuals [9]. Among these, *Sarcoptes scabiei* mange is more common in rabbits and can be identified based on the presence or absence of itching (pruritus), the morphology of the mites, and the location of lesions [2,7]. Diagnosing *Sarcoptic mange* typically involves performing a skin scraping examination, although false-negative results can sometimes occur, necessitating deeper scrapings [4]. Confirmation of sarcoptic mange infestation in rabbits involves the microscopic examination of mites along with the characteristic skin lesions present on various parts of the body. Under a microscope, the mite species can be identified based on their morphological characteristics. Adult Sarcoptes scabiei mites have a round shape, short legs, a long unjointed stalk with a sucker on the front pair of legs, a thick chitinous wall with large spines on the dorsal body surface, a terminal anus, and scales, cones, and bladelike setae on the dorsum [13]. The pathogenic effects of *Sarcoptes mites* include burrowing activity, mechanical injury during excavation, irritation from their secretions, allergic reactions to certain extracellular products, and the release of interleukin-I [10]. The administration of Ivermectin subcutaneously at a dosage of 400 µg/kg body weight is known to selectively bind to glutamate-gated and gamma-aminobutyric acid (GABA) gated chloride channels in the mite's nervous system. This binding leads to hyperpolarization of cells, paralysis, and eventual death of the mites [3,18]. The use of Ivermectin in the described manner aligns with the mechanism of action reported by previous studies. Its efficacy in treating *Sarcoptes* infestations is attributed to its paralytic and lethal effects on the mites, resulting in their elimination.

Conclusion

In conclusion, the medical management of *Sarcoptes mange* in rabbits is essential for achieving the objective of relieving symptoms and promoting recovery. By implementing targeted treat-

ments, such as lime sulfur dips or acaricidal creams, and systemic medications like ivermectin or selamectin, mites can be eradicated effectively. Additionally, supportive care, including antibiotics for secondary infections and anti-inflammatory medications, plays a crucial role in managing complications and facilitating healing. Close collaboration with a veterinarian, regular check-ups, and adjustments to the treatment plan are vital for achieving the desired outcome. Furthermore, preventive measures, such as regular inspections and maintaining proper hygiene, are important for preventing reinfestation and reducing the risk of *Sarcoptes mange.* By adhering to these strategies, rabbit owners can ensure the well-being and recovery of their companions.

Acknowledgments

This manuscript was derived from different sources of information and the acknowledgement goes to Dr. P. Revathi, Asst. professor, veterinary medicine, TVCC, CVSC proddutur.

Declaration of interest

The authors declare that they have no conflict of interest.

Bibliography

1. Wafaa A and Abd El-Ghany. Poultry Diseases Department, Faculty of Veterinary Medicine, Cairo University, Giza 12211, Egypt "Mange in Rabbits: An Ectoparasitic Disease with a Zoonotic Potential". *Veterinary Medicine International* 16 (2022): 5506272.

2. Bhardwaj RK., *et al*. "An outbreak of mange in rabbits". *The Indian Veterinary Journal* 89 (2012): 78.

3. Aulakh GS., *et al*. "Pathology and therapy of natural notoedric acariosis in rabbits". *Journal of Veterinary Parasitology* 17 (2003): 127-129.

4. Birchard SJ and Sherding RG. "Saunders Manual of Small Animal Practice. 2nd Edition. W.B. Saunders Company, Philadelphia (2000).

5. Darzi MM., *et al*. "Clinicopathological, histochemical and therapeutic studies on concurrent sarcoptic and natoedric acariosis in rabbits (Orytolagus cuniculus)". *Veterinarski arhiv* 77 (2007): 167-75.

6. Chandra D and Ghosh SS. "Incidence of ear canker in rabbits in north eastern hilly region". *The Indian Veterinary Journal* 67 (1990): 187.

7. Deshmukh VV., *et al*. "Clinical management of scabies in rabbit". *Intas Polivet* 11 (2010): 112-114.

8. Kachhawa JP., *et al*. "Therapeutic management in rabbits". *Intas Polivet* 14.11 (2013): 306-308.

9. Siegmu OH. "The Merck Veterinary Manual. 5° edition. Merck and company. Inc. Ranway NJ. USA (1979): 1184.

10. Wall R and Shearer D. "Veterinary Entomology". 1st edition. Chapman and Hall. London (1997).

11. UK. Cited in:Panigrahi PN, Gupta AR. "Therapeutiv management of concurrent Sarcoptic and Psoroptic icariosis in rabbits". *Intas Polivet* 14.2 (2013): 319-321.

12. Ravindran R and Subramanium H. "Effect of seasonal and climatic variations on the prevalence of mite infestation in rabbits". *The Indian Veterinary Journal* 77 (2000): 991-992.

13. M Chitwood and JR Lichtenfels. "Identification of parasitic metazoa in tissue sections". *Experimental Parasitology* 32.3 (1972): 407-519.

14. Kumar P., *et al*. "Comparative efficacy of someacaricides against mange in dog". *The Indian Veterinary Journal* 79 (2002): 828-830.

15. Roy S., *et al*. "Therapeutic evaluation herbal preparations against domestic mange infection in dogs". *The Indian Veterinary Journal* 78 (2001): 629-630.

16. Bornstein SMT and Samuel WH. "Parasitic diseases of wild mammals". Iowa state University Press. Ames. Iowa (2001): 107-119.

17. Erasion G., *et al*. "Comparative pharmokinetics of some injectable preparation containing ivermectin in dogs". *Food and Chemical Toxicology* 48 (2010): 2181-2185.

18. Quesenberry K and Carpenter J. "Ferrets, Rabbits and Rodents. Clinical Med Surgery 2nd edition". Saunders Company. Philadhelpia (2004).

19. McCarthy J., *et al*. "Scabies: more than just an irritation". *Postgraduate Medical Journal* 80 (2004): 382-387.