Therapeutic management of Sarcoptic mange in Rabbits in an organized farm in Telangana: A case report

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Abstract

Sarcoptic mange caused by Sarcoptes scabiei is one of the most serious problems in commercial rabbit farming. Chronic episodes of Sarcoptic mange causes anorexia, poor growth rate, emaciation and ultimately death of the animal. High housing density in the rabbit sheds and poor hygienic conditions are the most important and critical predisposing factors. The lesions are frequently seen on the ears, nose, feet, and perineal area. Pruritis, seborrhea, alopecia, hypersensitive reaction, crusting, and hyperkeratosis are the clinical indications of Sarcoptic mange. The ear margins are frequently affected by dry crusty lesions. Forty five rabbits of the Rabbit research center, College of Veterinary Science, Rajendranagar, Hyderabad were presented with history of anorexia, pruritis and crusty lesions in ear, face and legs. Skin scraping examination revealed the presence of mites. Treatment was initiated with Ivermectin (Neomec, Intas Pharmaceuticals) which was administered subcutaneously at the dose rate of 400 µg/kg bodyweight at weekly intervals for 4 weeks. Supplemental therapy was given daily with Zincovit and Vimeral syrup, 6 drops each orally. All the rabbits recovered by the third week and were free from external lesions. Ivermectin given subcutaneously has been found to be effective in managing mange in rabbits. Supplementation of zinc and vitamins in addition to Ivermectin was found to be helpful in managing drug induced oxidative stress, so that the animals recovered faster.

Keywords: rabbit, mange, Sarcoptes sp., ivermectin

Introduction

Rabbit has emerged as a key livestock that farmers are increasingly raising in many parts of our country. However, lack of technical knowledge about the diseases that can affect rabbits is a major challenge to sustainable rabbit farming. (Meenakshisundaram and Anna, 2016) [12]. Parasitic infestation is a common issue for the majority of rabbit breeders. Sarcoptic mange caused by Sarcoptes scabiei is one of the most important and major constraint in commercial rabbit rearing (Ravindran and Subramaniam 2000, Darzi et al., 2007, Shola et al., 2018 and Rao et al. 2020) [17, 5, 21, 16]. The most significant predisposing factors in the case of Sarcoptes scabiei infestation are overcrowded living conditions and poor hygiene (Mc Carthy et al. 2004) [11]. Moreover, infestation of mites is extremely common in subtropical countries such as India due to low temperatures and high humidity during the rainy and winter seasons. Burrowing mites (Sarcoptes scabiei and Notoedres cati) are a zoonotic threat, causing itching dermatosis in dogs, cats, and humans. Sarcoptes scabiei is the most common mange in rabbits and is distinguished by the presence of pruritis, intense itching, pyoderma, thickening, and wrinkling of affected skin, hypersensitivity reaction, crusting and hyperkeratosis. Dry crusty lesions are commonly seen in the ear margins (Reddy et al. 2016) [13]. Chronic Sarcoptic mange causes anorexia, lethargy, emaciation, and even death in rabbits (Scott et al. 2001) [10]. Lesions are commonly seen in the ears, nose, feet, and perineum in Sarcoptic mange (Kachhawa et al. 2013) [9]. Severe pruritus often causes alopecia and dermal abrasions, which can progress to serious eruptions and subsequent secondary bacterial dermatitis (Eshar, 2010) [8]. If left untreated, it can cause significant morbidity and economic losses (Bhardwaj et al., 2012) [2]. Being contagious, the mites spread the parasitic skin disease from rabbit to rabbit through direct skin contact between infected and non-infected rabbits or through contact with the environment (Panigrahi and Gupta 2013) [15]. Severe infection, particularly in young or debilitated animals, has a high mortality rate (Bornstein and Samuel 2001) [3]. Ivermectin is a broad-spectrum parasiticide used in domestic animals, and it is also used to treat acariosis (Aulakh et al., 2003) [1]. The subcutaneous route is the most efficient and preferred route of administration of Ivermectin in terms of bioavailability, when compared to oral and topical administration (Sharun et al., 2019) [20]. The current study reports on the successful treatment of Sarcoptic mange in rabbits with Ivermectin.
Case history and Observations
Forty five broiler rabbits of different age groups and breeds belonging to the Rabbit Research Station, College of Veterinary Science, Rajendranagar, were presented with a history of scratching, anorexia, pruritis, and alopecia, skin scaling and crusty lesions in the ear, face and legs. The rabbits had different grades of infection ranging from mild to severe. Ruffled fur, erythema, crust, scale, and scab formation on ear pinnae and the pinna borders, paws, and muzzle were observed during the physical examination of the skin and hair coat. Alopecia was observed on the face and on the ear pinna borders (Fig 1, 2). Skin scrapings and crusts were collected in 10% KOH from both skin and ear pinnae and examined for the presence of mites under a low power microscope using standard procedures (Soulsby, 1985) [22]. Based on history, clinical manifestation and detection of parasites in skin scrapings (Fig 3), it was confirmed that these rabbits were infested with Sarcoptes spp.

Fig 1: Mange affected rabbit before treatment. Lesions on ear, skin and legs

Fig 2: Dried crusty scabs on the ear margins and pointed nose

Fig 3: Sarcoptes sp under the microscope

Treatment and discussion
Mange affected rabbits were isolated and treated with injection Ivermectin (Neomec, Intas Pharmceuticals) at 400μg/kg bodyweight subcutaneously at weekly intervals for four weeks along with injection Chlorpheniramine maleate at 1mg/kg body weight and topical application of Ascabiol lotion for severe skin lesions. Zincovit (Apex laboratories Pvt. Ltd.) syrup was also administered orally six drops, daily for two weeks to supplement elemental zinc and essential vitamins. Supportive therapy with Vimeral (Virbac) syrup was also given orally six drops, daily for two weeks to improve the immunity and protect from the stress due to medications. Disinfection of the rabbit cages was done by singeing with a blow lamp once weekly for 4 weeks to control mites. Throughout the study, no clinically observable adverse reactions to Ivermectin treatment were observed in any of the rabbits.

Significant clinical improvement was observed by the second week of treatment, with fewer skin lesions (Fig 4). There was complete removal of the crusts and lesions almost disappeared and appeared to heal in most of the rabbits. Complete recovery took 3 weeks time. Skin lesions resolved, clinical signs of pruritis disappeared and the overall health of the rabbits improved drastically (Fig 5 and 6).

Sarcoptes scabiei is highly contagious and burrows deep into the skin’s epidermis (Wall and Shearer, 1997; Haritha et al., 2016) [23, 8]. The mites are easily transmitted to other rabbits within the shed through close contact and result in outbreaks. Clinical manifestations and lesions such as the formation of scales, scabs, crusts, and alopecia, as observed in the current study, were consistent with the findings of Oraon et al., 2000 [14]; Chandey et al., 2000 [4]; Darzi et al., 2007 [5]; Kachhawa et al. 2013 [9]; Mitra et al., 2014 [13]; Galdhar et al., 2015 [7]; Haritha et al., 2016 [8] and Kumar et al., 2018 [10]. These mites’ pathogenic effects have been attributed to their burrowing activity and mechanical damage caused by parasites during excavation, as well as the irritant action of their secretions and excretions (Darzi et al., 2007) [5]. Ivermectin, at a dose of 0.2-0.4 mg/kg body weight administered subcutaneously once every 2 weeks for 2-3 treatments, is a simple, safe, and effective treatment (Galdhar et al., 2013). Ivermectin selectively binds to glutamate-gated and gamma-aminobutaric acid (GABA)-gated chloride channels in the nervous system of mites, causing hyperpolarization of cells, paralysis, and ultimately the death of the mite. (Haritha et al., 2016) [8]. In the present study, it was observed that the outbreak occurred during the post-rainy season. Ravindaran and Subramanian (2000) [27] also reported a high prevalence of mites during low temperatures and high mean relative humidity. External factors such as extreme weather or limited food availability may increase susceptibility.
The present study reports mange infestation in rabbits and its successful treatment with subcutaneous administration of Ivermectin @ 400 µg/kg bodyweight along with supportive therapy with elemental zinc and vitamins.

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References

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