

THERAPEUTIC MANAGEMENT OF SARCOPTIC MANGE IN RABBIT WITH IVERMECTIN

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ABSTRACT: Sarcoptic mange infected non-descriptive rabbits were successfully treated with Ivermectin @ 400 µg / kg body weight sub-cutaneously once weekly for 4 weeks resulted complete recovery within a month in Kalyani area, West Bengal, India.

Key Words : Ivermectin, *Sarcoptes* sp., Mange, Rabbit.

Dermatological problems are one of the most common clinical entities in domestic pets and fur bearing animals (Deshmuk *et al.*, 2010) due to hot and humid climates (Aulakh *et al.*, 2003). Among them, sarcoptic mange infestation is one of the most common and major constrain in commercial rabbit production in India (Darzi *et al.*, 2007, Ravindran and Subramanium 2000). Mange is the most obstinate, resistant and contagious disease with zoonotic importance (Kumar *et al.*, 2002). It is characterized by pruritis, alopecia and in prolonged illness, the animal become emaciated and may even die due to cachexia (Roy *et al.*, 2001). Among various species of mites, *Sarcoptes scabiei* is a deep burrowing mite in epidermis causing intense itching, purities, pyoderma, crust formation, scare production, thickening and wrinkling on skin of affected areas. Being a contagious

parasitic skin disease, mites are generally spread rabbit to rabbit by direct skin contact between infected and non-infected rabbits or, through contact with the environment (Panigrahi and Gupta 2013). Severe infection especially in young or, debilitated animals causes high mortality (Bornstein and Samuel 2001). Overcrowded living conditions and poor hygiene are significant factors for infection with *S. scabiei* mites (McCarthy *et al.*, 2004). It causes infestation which affects ears, nose, feet and areas around genitalia (Kachhawa *et al.*, 2013). Sarcoptic mange, if left untreated may cause significant morbidity and economic loss in livestock. Moreover, high costs are associated with acaricides used in infested livestock (Rehbein *et al.*, 2003, Walton *et al.*, 2004). The avermectin group of drugs includes ivermectin, abamectin, doramectin, eprinomectin and selamectin,

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which can be used to treat rabbits that are naturally infected with scabies (Kachhawa *et al.*, 2013). Among these acaricides, ivermectin given orally or, parentally, has been reported to be effective in treatment of acariosis (Aulakh *et al.*, 2003, Erasian *et al.*, 2010). The present communication reports successful management of sarcoptic mange with Ivermectin in rabbit.

Case history

Seventeen non-descriptive rabbits were

maintained by an animal owner of Kalyani, Nadia, West Bengal, India. The rabbits were kept in moist, dirty and ill ventilated house. Eight rabbits, aged 3-10 months were affected with clinical signs of anorexia, anaemia, intense itching, erythema, dandruff, white indurated dry crust like lesions on ears, nose, face, around ears, paws, around genitalia and over dorsal surface with brownish discharge (Fig.1). The clinical manifestation observed were in accordance with those of Chandra & Ghosh

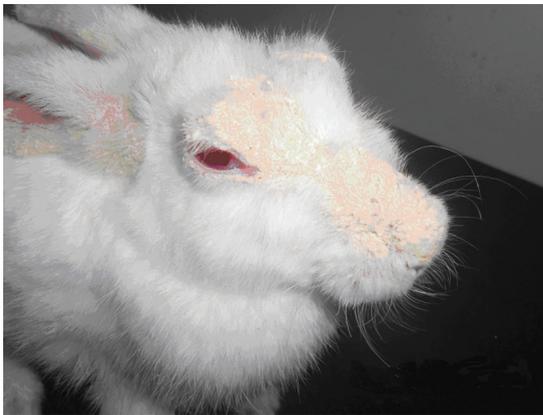


Fig.1: Mange affected rabbit before treatment.



Fig.2: *Sarcoptes sp.* under microscope.



Fig.3: Curative stage after 21 days of treatment.



Fig.4: Completely recovered after 28 days of treatment.

(1990), Hrapkiewicz and Medina (2007).

Skin scraping of affected parts and its microscopic examination was performed as described by Soulsby (1985). Skin scraping from each affected rabbits were taken from different sites *viz.* ear, nose, feet, eyes, tail and inguinal region. These scrapings were placed in a petridish. Each sample was treated with 10% potassium hydroxide solution. The mixture was stirred, centrifuged and supernatant discarded from each sample. A few drops of solution was placed on a slide for microscopical examination to find out parasites. Clinical and parasitological examination was done on 0,7,14 and 21 and 28th days of treatment.

Skin scrapping examination under microscope revealed adult parasites of *Sarcoptes* sp. (Fig.2) and their ova. Based on history, clinical manifestation and detection of parasites in skin scrapings confirmed that these rabbits were infested with *Sarcoptes* sp.

Treatment

The affected rabbits were treated after separating from healthy ones with subcutaneous injection of Ivermectin (1% w/v) (Truemectin^R, Sarabhai Zydus) @ 400 µg / kg body weight once weekly for 4 weeks. Disinfection of the rabbit cages were done with a blow lamp once weekly for 4 weeks to control mites.

There was marked clinical improvement on day 14 of treatment with reduced lesions and skin scrapping were found positive for low infestation. There was complete removal of crusts and dis-appearance of lesions occurred after 14th day of post-treatment in 4 rabbits, while it took 21 days for complete recovery in rest 4 rabbits. On 21 and 28 day post-treatment, all the rabbits were negative to any kind of

mites. Anorexia, alopecia and anaemia was completely cured after 21 days (Fig.3). After 4 weeks of therapy all the rabbits were recovered from falling down of remaining scales as well as complete disappearance of itching and secondary sores. At the same time the general condition improved and skin lesions disappeared. Lesions due to scratching rapidly resolved over the whole body surface including face resulting in hair growth and resolution of alopecia (Fig.4).

Ear mite and mange infestation have been reported as major skin diseases in young ones as well as adult rabbits (Siegmu 1979). Mange caused by *S. scabiei* is more common in rabbits and distinguished by presence or absence of prurites, morphology of mite and distribution of lesions (Deshmukh *et al.*, 2010, Bhardwaj *et al.*, 2012). Diagnosis is usually confirmed by skin scrapings examination and results are sometimes falsely negative for which repeated deep scrapings are recommended (Birchard and Sherding 2000). Demonstration of mites under microscope along with characteristic skin lesions in most of the body parts confirm the sarcoptic mange infestation in rabbit. *Sarcoptes* sp. the burrowing fur mite, produce their pathological effects by burrowing activity and mechanical damage caused by the parasites during excavation, irritation action of their secretion, allergic reactions to some of their extracellular products and especially release of intra-leukin-I (Wall and Shearer 1997).

Ivermectin given subcutaneously @400 µg / kg. body weight selectively binds to glutamate-gated and gamma-amino-butamic acid (GABA) gated chloride channels in the mites nervous system, resulting in hyperpolarization of cells, paralysis and finally death of mites, which was in accordance with Aulakh *et al.* (2003) and

Quesenberry and Carpenter (2004).

Treatment with subcutaneous administration of 4 doses of Ivermectin @ 400 µg / kg body weight at 7 days interval was effective in treating *S. scabiei* (Panigrahi and Gupta 2013). Bharadwaj *et al.* (2012) compared efficacy of Ivermectin and Doramectin in rabbits affected with sarcoptic and psoroptic mange and reported that Ivermectin @ 400 µg / kg body weight subcutaneous injection was more effective than doramectin. Treatment with Ivermectin once in 6 months is advised to suppress ear mange (Koopman *et al.*, 1989). However, administration of 3 doses of Ivermectin @ 200-400 µg / kg body weight at an interval of 2 weeks, which is usually curative in rabbits affected with mange. Disinfection of the rabbit cages and their houses with a blow lamp was effective in control of mange in rabbits, which corroborate with the findings of Darzi *et al.*, (2007). However present observation indicates Ivermectin therapy coupled with proper management, disinfection of rabbit cages and segregation of infected animals is effective in control of mange in rabbits.

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