Treatment of mange infection in a weaner flock of sheep with ivermectin at sheep breeding farm Hardishiva of Kashmir valley

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Received: 27 March 2013 / Accepted: 27 April 2013 / Published online: 21 May 2013
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Abstract An outbreak of *Sarcoptes scabiei* mange occurred in a weaner flock that comprised of 74 animals including 31 male and 43 female at sheep breeding farm Hardishiva of Kashmir valley. All the animals in the flock were affected. Animals were very weak and emaciated skin lesions were confined to the lips, nostrils, ears, face, and were characterized by pruritus, erythema, papule formation, alopecia and scab formation. Microscopic examination of skin scraping revealed *S. scabiei* mange infestation. The affected animals were treated with ivermectin at 1 ml/50 kg b.wt. S/C, as single dose along with supportive therapy. 7th day post treatment scrapping examinations revealed absence of mites or their eggs in these scrapings.

Keywords *Sarcoptes scabiei* · Mange · Ivermectin · Pruritus · Sheep · Kashmir

Introduction

Small ruminants are known to adapt to harsh environments. However the cumulative effects of overcrowding, poor nutrition and diseases can result in serious production losses (Tilahun 1995). Among the diseases of sheep and goats, infestations by mange mites pose a considerable economic loss particularly to the skin and hide export due to various defects (Woldemeskel 2000). It is a contagious skin disease, reducing the meat quality of goats by causing

skin damage characterized by marked hyperkeratosis with lesions usually starting on the head and neck, weight loss, irritation and death in severe cases (Rao and Naidu 1999). The distribution of mites on animals varies according to season, the infection being quiescent in reservoir sites such as axillae, groin, infra-orbital fossa and auditory canal during spring, summer and early autumn (Urquhart et al. 1996) and most outbreaks occur in cold months (Neog et al. 1992). Mange mites spread through direct contact between sheep or from ewe to lamb, while sucking (Schmidt 1994).

Mange is mainly caused by four types of mites i.e., sarcoptic, chorioptic, psoroptic and demodectic (Radostits et al. 1994). In sheep, *Sarcoptes* spp. is an important cause of mange that leads to itch, dermatitis and intense pruritus due to which animals lose much of the grazing time and hence lose general body condition. Later on, vesicles and papules appear, skin becomes thickened, covered with pale scabs and wool is lost (Radostits et al. 1994). In Jammu and Kashmir State, mange has not been given due attention and its prevalence is still unknown in many areas of Kashmir. Therefore the present study deals with clinical signs in animals affected with sarcoptic mange and its treatment with ivermectin.

Materials and methods

The work was carried out between December 2012 and February 2013 during an outbreak of mange was reported in sheep at sheep breeding farm. A total of 74 animals including 31 male and 43 female weaners were affected. The animals had earlier history of mange and dipping with diazenone could not treat the animals completely. The animals had recurrent attack after a period of 1 year. Clinical signs exhibited by affected animals included alopecia, erythema, pruritus, superficial skin fissures, lichenification, small crusts

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and scabs. The animals were restless and continuously rubbing their bodies against walls and bars. Deep scrapings were taken from these animals. These were placed in separate petridishes and transported to the Disease Investigation Laboratory at Nowshera Srinagar where all the samples were examined as per standard protocol (Soulsby 1982). The affected animals were then treated with ivermectin at 1 ml/50 kg b.wt. S/C along with supportive therapy (Brotan syrup) orally. Samples were again taken after 7 days post treatment.

Result and discussion

Clinical signs

The important clinical signs of the flock infested with mite shows loss of wool, pruritus and the lesions appeared in non-woolly skin of the body mainly confined to the face. These findings agreed with the findings of (Kaufman et al.

2009; Al-Shebani et al. 2012). The skin lesions were characterized by general erythema, presence of small red papules and which started near the mouth (lips, nostrils) and spreaded to other parts of the head, face and ears. As the disease progressed, the animal showed intense itching and frequently excoriated by biting, loss of hair, thick brown scabs formation and thickening, wrinkling of the surrounding skin (Fig. 1, 2). Skin scrapings examination confirmed *Sarcoptic scaebiei* based on its morphological characteristics. Sarcoptic mange is often associated with poor feeding and overcrowding as we have seen in this study. In sheep, *Sarcoptes scabiei* var. ovis is rare and affects only sparsely haired parts of the body such as face and ears (Solusby 1982; Bates 2000; Radostits et al. 2000).

Treatment with ivermectin and supplement therapy

The weaners were treated with single dose of Ivermectin (Hitek) (Virbac pvt limited) at 1 ml/50 kg b.wt. S/C) along

Fig. 1 Showing mange infestation of sheep flock (Lesions on face, eyes, neck, nose)

Fig. 2 a *Sarcoptes scabiei* mite (20×) b Egg of *Sarcoptes scabiei* (40×)

with supportive therapy (Brotone syrup at recommended dose rate orally (Virbac pvt limited) for 7 days. The skin scrappings were examined after 7 days post treatment and they were found negative for both sarcoptic mites and their eggs. The present findings are in agreement with (Williams 1992; Bates et al. 1995; Singh and Swarnkar 2010; Akomas et al. 2011). Pruritus decreased gradually and noticeable skin healing was observed after 35 days. The present findings are also in agreement with earlier findings of Shastri et al. (1990) and Sekar et al. (1997).

Further, increased scale of ration to 600 g/head/day for weak animals in two divided doses of 300 g, each preferably at 10:00 a.m. and 5:00 p.m. resulted in improvement in health status.

Conclusion

Resistance to ectoparasitocides has been a worldwide scourge and needs to be countered by recommended measures like frequent change of drugs and making use of nonchemical methods. Speedy separation of affected cases to sick shed should be strictly enforced. Huge economic loss by way of decrease in production and cost of treatment of good number of animals is preventable by paying attention to basics while keeping strict watch on development of resistance and devising measures to counter it. Reportedly great number of flocks comes under severe mange attack in winters in the Jammu and Kashmir in unorganized sector calling for massive awareness campaigns and studies on resistance and measures to counter it. Limited choice of antiectoparasitocides in the market, especially of more handy injectable ones is one factor contributing to too overuse year after year and this calls for more research into the development of injectable preparations.

From this study, we may conclude that sex of the host animals is not determinant factors for the prevalence variation. But further study needs to be done to have full picture of the distribution and seasonal occurrence of mange in Kashmir and resistance against ectoparasitocides.

Acknowledgments The authors are grateful to the Deputy Director Research and Director Sheep Husbandry Kashmir, for providing necessary facilities at the time of the study.

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