



Research Article

DIAGNOSIS AND SUCCESSFUL THERAPEUTIC MANAGEMENT OF *PSOROPTES* SPP MANGE INFESTATION IN GOATS

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Abstract: *Psoroptes* infestation is one of the most common ectoparasitic infestation affecting small ruminants especially goats. Five goats were presented with the history of itching, hair loss, crust formation, thickening of skin over the body mainly at ear, neck, facial region for a brief period of three months (September to November, 2020) to Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal, Tamil Nadu, India. Clinical examination revealed encrustation, severe localized alopecia and thickened dermis associated with pruritus. Skin scraping examination documented *Psoroptes* spp mites over the lesion and treated with inj. Ivermectin @ 600 µg/kg subcutaneously (weekly once) and topical application of sol. Deltamethrin @ 2 ml/lit of water (once weekly) for 5 weeks along with supportive care. All the affected animals manifested noticeable improvement from 3rd week and complete recession noticed on 5th week of therapy.

Keywords: Anaemia, Deltamethrin, *Psoroptes* spp., Ivermectin, Small ruminants

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Introduction

Mange infestation in small ruminants leads to alopecia, itching, crust formation [5] and location of infestation determined the nature of skin affection [1, 14]. Major mange causing mites in small ruminants are *Sarcoptes* spp., *Psoroptes* spp., *Demodex* spp. and *Cheyletiella* spp., [11] among which *Psoroptes* ovis and *Chorioptes* bovis are non-burrowing mites and *Demodex* spp. and *Sarcoptes* spp. are burrowing mites [3]. *Psoroptes* spp. mites placed supreme role in small ruminant skin disease, which puncture the epidermal area and suck lymph leads to stimulation of local inflammatory reaction, mainly affects ear pinna and ear canal [1], represented by intense itching, scratching, rubbing leads to restlessness and alopecia and erythema. In severe cases cracking of skin, emaciation, anemia and exhaustion also reported [2].

Case History and Observation

A total of five goats were presented to Large Animal Medicine unit of Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with the history of itching, hair fall and skin thickening during the period from September 2020 to November 2020. Clinical examination of affected goats revealed crust formation in the ear pinna, dorsal neck region, back region with white flakes formation, encrustation and severe pruritus leads to thickening of skin [Fig-1]. Visual examination of external skin area disclosed the absence of macro parasites like ticks, lice and fleas.

Skin scraping was collected from the affected area and examined under low power which confirms mange infestation and further the mite was identified as *Psoroptes* spp by morphological examination [Fig-2]. Blood was collected in EDTA vials and subjected to haematological examination that reveals anaemic picture and was depicted by reduced packed cell volume (PCV) ($19.23 \pm 0.45\%$) and haemoglobin (Hb) (8.72 ± 0.32 g/dL).



Fig-1 Psoroptic mange affected goat

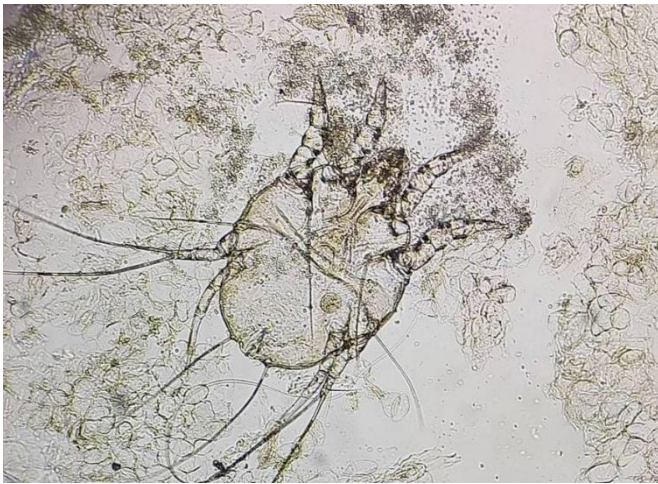


Fig-2 Psoroptic mange in skin scraping

Result and Discussion

Psoroptes spp. mites are ectoparasites of the family Psoroptidae, usually parasitizes on the skin and ear of different species of domestic ruminants [14]. In goats, the mite located in the auditory canal, and can also be found in the epidermis, feeds from secretions, exudates and eventually the blood, results in mange, which may be asymptomatic or symptomatic [4]. Restlessness, shaking of head, signs of discomfort, crust formation, pruritus are the clinical signs associated with the Psoroptic mange infestation in affected goats along with significant economic loss [9]. Weight loss and loss of body condition of the mite infected animals are also noticed due to the distraction caused by intense pruritus ended in reduction of feed intake are the symptoms of severe mange infestation in small ruminants [7].

All five Psoroptic mange affected goats were treated for five weeks with inj. Ivermectin (@ 600 µg/kg subcutaneously (weekly once), topical application of sol. Deltamethrin @ 2 ml/lit of water (once weekly), topical application with cetrimide cream (twice daily), Benzyl peroxide shampoo bath (once in 4 days) and inj. Vit AD3E ml was given intramuscularly (IM) (alternate days). All affected goats showed clinical recovery on 3rd week and complete recovery noticed on 5th week. The current study reports mange *Psoroptes* spp infestation in adult goats, all were above 3 years of age. [10], reported mange infestation in adult female goats of 1 - 2 years. The present study depicts anaemic picture in all the affected goats, which is in accordance with [11], also reported significant reduction ($P < 0.01$) in haematological parameters. Marked reductions in Hb, PCV in *Psoroptes* mange affected goats as compared to healthy control was observed by [6] and could be due to feeding of *Psoroptes* mites on whole blood and production of scabs [8]. Alteration of serum biochemical parameters in severe *Psoroptes* affected goats like raised ALT, AST, serum creatinine, BUN level as well as hypoalbuminemia may be associated with compromised organ functions due to severe infection of goats with *Psoroptes* spp [6]. Generally, mange infestation is frustrating to treat and lesions such as itching, erythema, crust formation and thickening skin over the ear, facial area, neck and body region will cause irritation to animal and economic losses to the flock owner due to loss of hide value and subsequent reduction in economic value of the animal [6]. Earlier therapeutic interventions, isolation of affected animals from healthy flock, periodical removal and replacement of bedding material, maintenance of sanitation measures is the primary, secondary, tertiary prevention strategies recommended for management of Psoroptic mange infestation in goats [12].

Conclusion

Current study confirmed the haematological alteration in mange affected goats and suggested a set of treatment protocol may be used in field level to treat *Psoroptes* spp infestation in goats.

Application of research: Integumentary system examination and proper treatment serves to improve livelihood of farmers rearing small ruminants.

Research Category: Veterinary and Animal Sciences

Abbreviations: µg/kg-microgram per kilogram, ALT-Alanine Transaminase
AST-Aspartate aminotransferase, BUN-Blood Urea Nitrogen
EDTA-Ethylenediamine Tetra Acetic Acid, g/dL-Gram per decilitre
Hb-haemoglobin, IM-intramuscular, ml/lit-millilitre per litre,
PCV-Packed cell volume

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Breed name: Kanni and Jamunapari

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