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## Clinico-therapeutic management of mange infestation in a dog by using ivermectin along with topical benzoyl peroxide and amitraz bath

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### Abstract

On telephonic call of a dog owner in nearby colony of Apollo College of Veterinary Medicine, Jaipur, it has been informed that dog was suffering with itching and scratching of ear with loss of hairs on whole body since last 10-15 days. On request of owner veterinary team move to his doorstep and noticed the dog with the symptom of generalized alopecia, Pruritis, itching and reddening of skin. On the basis of clinical symptoms the case was suspected as demodicosis and skin scrapings were taken for microscopic examination for the confirmation of disease. Positive result of microscopic examination revealed the case as confirmative for canine demodicosis and treatment was done accordingly with injectable ivermectin along with benzoyl peroxide containing shampoo and topical Amitraz bath. Dog started recovering from 35 days post therapy and fully recovered after 2.5 month from the start of therapy.

**Keywords:** Alopecia, demodicosis, ivermectin

### Introduction

Canine demodicosis is a common and imperious noncontagious, inflammatory parasitic disease caused by excessive proliferation of the host-specific follicular mites of various *Demodex* species [1]. It has a very harmful effect on the health, utility and cosmetic values in dogs [2]. Clinical disease is influenced by numerous such as genetic defect, alteration of skin's structure, immunological disorders, hormonal status, breed, age, nutritional status, oxidative stress, endoparasites and debilitating diseases but the immune status is thought to be the most significant factor among all [1]. Immunosuppression allow the mites to proliferate excessively in hair follicles, resulting in clinical signs [3]. Which include mild erythema, itching, partial or complete alopecia, comedones and Pruritis [4]. The diagnosis of the canine demodicosis is commonly made by visualising the demodectic mite (*Demodex canis*) and its developmental stages in deep skin scrapings [5]. Various diagnostic techniques are evolved by scientists as echograms, adhesive tape strips, exudates microscopy and deep skin scrapings, for the purpose of accuracy in diagnosis of demodicosis. Treatment of canine demodicosis is generally recommended by appropriate oral antibiotic therapy and contemporaneous topical antimicrobial therapy (whole-body soaks or shampoos) with generalized demodicosis with secondary bacterial infection along with topical application of Benzoyl peroxide and chlorhexidine-based shampoos [6]. Topical therapy with shampoo removes crusts and debris that may contain mites, exudate and inflammatory mediators thus reduces the recovery time.

### Materials and Methods

A two-year-old female German shepherd dog in nearby colony of Apollo College of Veterinary Medicine, Jaipur was found with the symptoms of itching on body and scratching of ear. Close clinical examination revealed presence of generalized alopecia, Pruritis, itching and reddening of skin. For further diagnosis skin scrapings were taken in 10% KOH [7] solution, brought to the college laboratory and heated gently till hairs were digested then centrifuged @ 3000 rpm for five minute and examined the sediment under low magnification of microscope which revealed presence of mites (*Demodex* species). So, based on the history, clinical signs and microscopic examination the present case was diagnosed as demodicosis and treatment was done accordingly.

## Results and Discussion

Treatment was started with Ivermectin injection @ 1ml/20 kg body wt. subcutaneously at weekly intervals of 4 weeks (7) along with injectable pheniramine maleate (Avinin®) @ 1mg per kg body wt. intramuscular. Besides, owner was also advised to bathing the dog with Benzoyl Peroxide (2.5%) shampoos / shampooed (PetBen®) twice a week and topical application of 12.5% Amitraz (RIDD®) @ 4 ml/litre of water<sup>[10]</sup> once a week for 2 weeks.

After a month of therapy slight improvement was seen but skin scrapping was still positive and only topical bath with Benzoyl Peroxide shampoo was advised further. The skin scrapings were taken regularly on weekly basis upto two month and negative results were obtained almost one and half month after the start of therapy. Topical application of Benzoyl Peroxide (2.5%) shampoo was stopped after three consecutive negative skin scrapings taken on weekly basis and complete recovery was seen about 2 and half months. Pattern of skin lesions observed in present case was almost similar to that observed by<sup>[8, 9]</sup>. Ivermectin is a macrolide endectocide with activity against both endoparasites and ectoparasites such as *Sarcoptes scabiei*. Ivermectin is commonly used in the treatment of patients with different forms of scabies, demodicosis, cutaneous larva migrans, myiasis, filariasis etc. It acts by binding with glutamate-gated chloride channels causing an increase in the permeability of the cell membrane to chloride ions which causes hyperpolarization of the nerve or muscle cell. Amitraz, used in present case study is a miticidal drug which acts by inhibiting an enzyme monoamine oxidase and prostaglandin synthesis and by stimulating alpha-2 adrenergic receptor of mites. Benzoyl Peroxide is a good keratolytic agent and has strong follicular flushing action which assists in clearance of mites from skin of dogs<sup>[10]</sup>. Injectable ivermectin along with topical benzoyl peroxide and Amitraz therapy is very good combination for treating the canine demodicosis as concluded by present study.

## Conclusion

From above discussion it is very clear that topical application of benzoyl peroxide containing shampoo and amitraz bath aids in the clinical efficacy of parental administration of ivermectin and early recovery of demodicosis.



**Fig 1:** Erythema and alopecia in mange infestation before treatment



**Fig 2:** Post recovery condition

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