

Management of pyoderma associated with demodicosis in a dog-A case report

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Abstract

Demodicosis is a very common parasitic skin disease caused by the mite *Demodex canis*. Demodicosis can occur in dogs of all ages. One-year-old adult male dog was presented with a history of pruritis and clinical signs such as alopecia, erythema and pustules on the face with keratinization of forelimbs and ventral side of the abdomen. Impression smear revealed *Staphylococcus* bacteria when stained with gram stain. Deep skin scrapping examination revealed presence of *Demodex canis*. Treatment with ivermectin, external application of amitraz, cephalixin, vitamin supplement with liver extract, was successful in managing demodicosis in this case.

Keywords: Demodicosis, pyoderma, dog, Ivermectin

Demodicosis is a common skin disease of the dog. Despite a number of studies evaluating pathogenesis and therapeutic options, treatment of canine demodicosis is still a matter of discussion in many conferences and continuing education courses (Mueller *et al.*, 2011). Demodicosis, also known as Red Mange, Acarus Mange, and Follicular Mange, is a skin disease caused by *Demodex canis* mites (Diwakar *et al.*, 2017). *D. canis*, *D. injai*, and *D. cornei* are three different species of demodex mite (Izdebska *et al.*, 2010). Predilection sites for *D. canis* and *D. injai* are Hair follicles, glands, and sebaceous ducts. Whereas, *D. cornei* can be found in the superficial layer of the stratum corneum. The species with the greatest prevalence is *D. canis*, while the other two species are far less common. *D. canis* inhabits primarily the hair follicles on the head – usually in the periorbital region, and on the cheeks and upper lip. Only when the level of infection is high these mites are to be found in other skin regions (Izdebska *et al.*, 2010). Immune suppression due to endoparasitism or malnutrition in young dogs are considered predisposing factors and should be diagnosed and treated to optimize

the therapeutic outcome. Secondary bacterial skin infections frequently complicate the disease due to immune suppression and require topical and/or systemic antimicrobial therapy. (Mueller *et al.*, 2011).

Case history and observations

A one year old male dog was presented to the V.C.C, Rajendranagar with a history of pruritis and clinical signs such as alopecia, generalized edema, redness of skin and pustules mainly on the face, forelimbs and ventral side of the abdomen (Fig. 1 A and B). The lesions were tangled with bacterial infection leading to pustules on the ventral abdomen. The clinical signs presented are in accordance with (Gelagar *et al.*, 2023) (Diwakar and Diwakar, 2017) who documented that severe alopecia, hair loss, crusts, pruritus, inflammation, erythema of the skin, and even crust formation and keratinization are common signs of demodicosis in dogs. Secondary infections are usually caused by *Staphylococcus aureus* bacteria. Deep skin scrapings revealed several carrot shaped parasite with four pairs of legs arising from thorax suggestive of *Demodex canis* (Fig. 1 C).



A



B



Fig.1. Erythema of skin crust formation (A); pustules on ventral side of abdomen (B); skin scrapings revealing *Demodex canis* (C); recovered dog on day 30 (D).

Discussion

The affected dog was treated with Inj. Ivermectin @ 400 µg/kg body weight subcutaneously once a week for four weeks. This finding is in contradiction with Mueller, (2004) who stated that the weekly ivermectin protocol did not demonstrate much efficacy. However, Mueller *et al.*, (2011) also stated that daily dose of administration causes ivermectin toxicity and thus daily administration was not practiced in the present case. In addition, amitraz was applied topically once in a week for four weeks. Amitraz is a monoamine oxidase inhibitor, an alpha 2-adrenergic agonist and inhibits prostaglandin synthesis that leads to overexcitation and consequently paralysis and death in insects (Corta *et al.*, 1999). It was also advised to use benzoyl peroxide shampoo bath once in a week and topical application of clobetasol, miconazole and Ofloxacin lotion, vitamin supplement and liver extract and antibiotic cephalixin @15 mg/kg PO. The dog began to show improvement of signs (Fig.1 D& E) , and after receiving medication for 30 days, the animal underwent the same round diagnostic testing as before. Blood values showed satisfactory recovery. Following a 30-day course of treatment, the animal underwent a skin scraping test, and the results showed that there was no evidence of mite infestation or other clinical symptoms. It is recommended to continue treatment for one month after obtaining the second consecutive set of negative monthly skin scrapings (Mueller *et al.*, 2011).

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