

Short communication

Therapeutic management of Demodicosis (*Damodex canis*) in a labrador dog: A case report

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Abstract

Damodex canis is the etiological agent of demodicosis (Demodectic mange) in dogs. It develops localized and generalized types of cutaneous infections in canine population worldwide. An adult Labrador dog (one-year-old), weighing 23 kg was presented to teaching veterinary clinical hospital, Faculty of Veterinary and Animal Sciences, Lasbela University of Agriculture, Water and Marine Sciences, (FVAS, LUAWMS), Uthal. The animal had history of anorexia, alopecia, dehydrated, erythema, itchy skin, crust formation, hyperpigmentation, week and dullness. On clinical examination, the skin smear was made and diagnosed as demodicosis (*Damodex canis*). The case was treated with tablet ivermectin @ 0.6mg/kg for two weeks and scabion lotion once every three days for two weeks along with supportive therapy. Dog successfully responded to treatment and no any distinguished complications were appeared. Similarly, complete recovery was observed on 3rd week of the treatment. The purpose of present report is to provide the awareness about the incidence and therapeutic management of *Damodex canis* to the pet owners.

Keywords: *Damodex canis*; Ivermectin; Labrador dog; Therapeutic

Introduction

Dogs are the mostly kept as pet animals though out the world. A range of parasites are infect the canines with zoonotic potentials, which are humans health concerns [1]. Moreover, canine demodicosis is most important cutaneous skin disease of dogs that is encountered in veterinary practices [2].

Similarly, Demodecosis is the most frequently reported in immuno-deficient young, adults and old dogs [1].

There are three documented canine *Demodex* mites are isolated i.e., *Demodex canis*, *Demodex injai*, and the unnamed (short-bodied) mite. However, the *Demodex canis* is the causative agent of demodicosis

colonize in the hair follicles, sebaceous glands of the animal [2]. It is characterized by skin changes significantly includes alopecia, erythema, follicular hyperkeratosis, comedones, pustules, seborrhea, crusts, however, a secondary pyoderma could be frequently reported as further complicates of this infection [3].

Demodex Canis is follicular effecting parasite and most common skin infection in dogs [4, 5]. Therefore, two types of infections are documented; localized and generalized form. Similarly, localized type occurs mostly

in young dogs less than a year old [6]. Moreover, the cutaneous infection becomes generalized due to proliferation of mite population [4]. Generalized demodicosis in dog might take several months to years to recover in dog. Moreover, persistent puritis observed in infected animals due to itching resulting wounds on the body from *Demodex canis* [1]. Therefore, the present report is about the alarming incidence of demodicosis (Fig. 1) in Balochistan province and helps in to treatment, prevention and control of disease in dogs.



Figure 1. Demodicosis (*Demodex Canis*) in a labrador dog. (a) alopecia, papules, erythema of skin (white circles); (b) Papules, erythema and crusty skin (white arrows)

History

An adult one-year-old Labrador dog (weighing, 23 kg) was presented to teaching veterinary clinical hospital, FVAS, LUAWMS, Uthal. Animal had history of anorexia, hair shedding, weak, dull and foul smell from the animal's body since last one month.

Physical examination

On physical examination, the infected dog was anorexic with dehydrated skin. The moderate pathological conditions include alopecia, erythema, itchy skin, crust formation and the hyperpigmentation were observed.

Sample collection and diagnosis

Scraped deep skin was done with the help of scalpel and surgical blades. The suspected crusted papule of skin area was selected on infected animal. Unnecessary hairs were clipped to reduce the amount of hairs during slide preparation used for diagnosis. Adjacent to the infected area of skin was immediately selected for sample collection. A drop of liquid paraffin was placed on the selected area and allow for spread-out. The skin was squeezed to maximize the numbers of mites inside the skin area to be scrapped. Scraping of skin started with the help of scalpel and surgical blades and finished till

the bleeding of capillaries occurs. The scraped material shipped to center of slide then mixed with a drop of liquid paraffin oil [7]. After that, placed a cover slip and

examined under the low power (40x) of magnification [8]. On microscopic examination, the skin smear was made diagnosed as *Demodex canis* (Fig. 2).



Figure 2. *Demodex canis*: gnathosoma (a); podosoma (b); Opisthosoma and extremities (c)

Treatment and prognosis

The tablet ivermectin @ 0.6mg/kg was given to animal for two weeks. Bath was recommended with scabion lotion once every three days for two weeks. Similarly, supportive treatment including dextrose (5%) with multivitamins was given to animal for 3 days to recovering re-hydration and weakness. On clinical observations, the texture of skin appeared as almost normal and the negative skin scraping was obtained after two weeks of treatment.

Discussion

Demodex canis colonization in the mammals appears to be an surprising example of adaptation of one organism to another [9]. Furthermore, some researchers consider that this relationship observed as commensalism rather than parasitism [10]. However, the symbiotic relationship with mammals was observed in *Demodex* mites infections [9]. Localized demodecosis was observed in Labrador dog (one-year-old) with cutaneous

lesions including erythema, itchy skin, and crust formation with hyperpigmentation. Findings are in line with Kaminsky [11], who reported that the described lesions on the body as reddish hence the name this disease as red mange. Moreover, localized demodecosis documented in dogs less than a year of age [6]. Consequently, *Demodex* can be considered as a normal inhabitant of the canine skin [9]. Additionally, it is very difficult to study the lived *Demodex* mange in skin of canine. Nonetheless, lived *Demodex canis* in skin was observed in scrapped sample of infected Labrador dog in current study. The colonization of *Demodex canis* in the skin is reported in dogs independent of age, sex, breed [9].

Similarly, diagnosis and identification of *Demodex canis* microscopically is important for success of treatment. Moreover, treatment depends upon the spread of infection and its response. Many studies has been reported the

protocol in generalized demodicosis with topical amitraz and systemic and oral ivermectin with different doses [8, 12, 13]. The protocol of treatment was ivermectin used for two weeks until negative skin scraps in present case. Moreover, ivermectin is the most commonly using macrocyclic lactone in the treatment of canine demodicosis since last two decades [8]. However, the current results of this case were also in agreement with that of Paradis and Laperrier [13] and Mueller [6], who successfully treated the demodectic mange with ivermectin orally @ 0.3 to 0.6 mg/kg body weight. Moreover, demodicosis chronic in nature could be treated with amitraz and ivermectin [14]. In present case, the scabion (antimicrobial shampoo) was as an effective to control the mild to moderate localized form of demodocosis [15].

Conclusion

Demodex canis has been remained a big challenge for both of the pet owner and veterinarian from treatment point of view. Furthermore, proper treatment and intensive care must be adopted by pet owner to prevent the animal from generalized form of disease. Additionally, demodocosis diagnosed through skin scraping and treated successfully with ivermectin @ 0.6 mg/kg body weight and scobian antimicrobial shampoo.

Authors' contributions

Conceived and designed the experiments: M Atif, M Umar & M Zahir, Performed the experiments: M Atif, MH Kakar, N Bangulzai & M Naeem, Analyzed the data: N/A, Contributed materials/ analysis/ tools: RA Magsi, I Kakar & SU Shah, Wrote the paper: M Umar & A Ronjha.

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