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Sarolaner a drug use for therapeutic treatment of canine demodicosis

Jitendra Tanwar, Pooja Solanki, Sumnil Marwaha and Sunita Choudhary

Abstract
A 4month old Boxer breed male dog weighing 10 kg was presented at VCC, CVAS, Bikaner with a history of severe itching, foul body odor, complete hair fall on body (alopecia) condition. Skin visual examination showed redness, papular and pustular lesions on neck region, ventral abdomen and formation of scabs in the fore and hind limbs, inner thigh, loin region and tail. Deep skin scrapping collected from the lesion was treated with 10% KOH and examined under microscope revealed presence of *Demodectic canis.* On the basis of history, clinical signs and skin scrapping examination the case was diagnosed as Demodicosis. The dog was treated with Ivermectin, shampoo containing benzoyl peroxide, spray amitraaz and tab cephalexin (Lixen®) antibiotic. After 1 week of completion of treatment, itching and redness of skin relapsed in dogs then tab Simpercia® (Sarolaner) 40 mg (q, 35days) was given and repeated four times after 35 days interval.

Keywords: Itching, scrapping, alopecia, Sarolaner

Introduction
Demodexcanis is common cause of demodicosis or red mange in dogs is a tiny cigar shaped parasite commensal in the skin of mammals and spend their entire life cycle in the hair follicles and sebaceous glands of their host. Factors that may predispose dog to demodicosis include other parasites, poor nutrition and immunosuppressive drug therapy and stress (Shrestha *et al*., 2015) [15]. Generalized demodicosis in dogs may be classified as juvenile onset (affecting dogs 3-18 months of age) or adult onset (affecting middle aged to older dogs) (Shiptone, 2000) [14]. Usually two types of manifestations are found in there, squamous form causes dry alopecia and thickening of skin and pustule form which is the more severe form causing secondary bacterial infection usually complicated by *Staphylococcus epidermis* resulting red numerous pustule, fever, septicemia and wrinkling of skin (Mueller, 2004 and Mueller *et al*., 2012) [7, 8]. The clinical signs include alopecia, erythema, crusts, hyperkeratosis, scaling, hair casting, pustules and pruritus with secondary pyoderma (Pradhan *et al*., 2012) [10] and (Koch, 2017) [5]. Demodicosis can be diagnosed through clinical history, signs and laboratory tests, such as deep skin scraping test, where the scraping dissolves into potassium hydroxide (KOH) or hydrogen peroxide (H_2O_2) to let out the mites (Nwoha RI., 2011).The most common treatments are a combination of systemic antibiotics and/or antiseptic shampoo, with spot-on application of acaricides or amitraz bath, subcutaneous ivermectin injection or orally ivermectin. In supportive therapy, omega-3 fatty acids in the form of capsules or fish oil and or vitamin E are considered (Arsenovic *et al*., 2015) [1].

Case History
A 4 month old Boxer breed male dog weighing 10 kg was presented at VCC, CVAS, Bikaner with a history of severe itching, foul body odor, complete hair fall on body (alopecia)condition gradually worsen in last 15 days. Animal was completely vaccinated. On clinical examinations, the body temperature, heart rate, respiration rate, pulse rate, urination and defecation were fond well within physiological range. Skin visual examination showed redness, papular and pustular lesions on neck region, ventral abdomen and formation of scabs in the fore limbs, hind limbs, inner thigh, loin region and tail. Deep skin scrapping collected from the lesion was treated with 10% KOH and examined under microscope. Blood was collected in EDTA vial from cephalic vein for hematological examination of different parameters.

Diagnosis

Skin scrapping examination revealed presence of *Demodectic canis* (Fig1). *Demodex canis* was elongated, cigar shaped mite, with body divisible into head, thorax bearing four pairs of short and stumpy legs and abdomen bearing transverse striations (Souls by, 1982). Blood examination did not reveal any significant changes. On the basis of history, clinical signs and skin scrapping examination the case was diagnosed as Demodicosis.

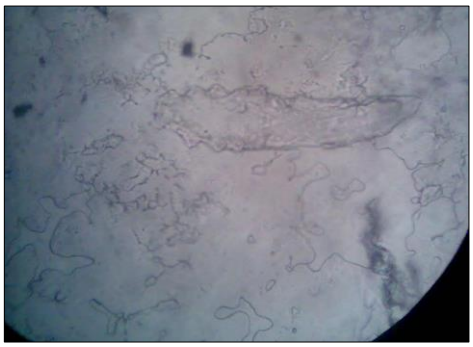

Fig 1: *Demodectic canis*

Treatment

The dog was treated with ivermectin@300–600 µg/kg b.wt. orally and had bath with Shampoo containing benzoyl peroxide (Sulbenz Pet®) followed by spray Amitraaz (Ridd®) (12.5%) 4ml/1lit water twice in week. Tab cephalexin (Lixen®) antibiotic @ 30mg/kg b.wt for 21 days, syrup Advamune® (immunobooster) 5ml bid and syrup Starcoat® 5ml bid. Dog was showing improvement after 10 days of treatment, pustule disappears gradually, itching and erythema decreased. Treatment continued for 24 days till full recovery of dog and negative skin scrapping report for demodicosis. After 1 week of completion of treatment, itching and redness of skin relapsed in dogs then tab Simpercia® (Sarolaner) 40 mg (q, 35days) was given and repeated four times after 35 days interval. Dog showed improvement in 5 days and there was no relapsing of clinical sign in future.

Fig 2: Day 1 before treatment (Alopecia and pustule on body)

Fig 3: After two week hair growth and pustule disappear

Fig 4: Relapsing signs

Fig 5: After (Sarolaner) treatment and complete recovery

Discussion

In most of the dogs affected with demodicosis, secondary bacterial infection will develop with time. In the past, systemic antibiotic therapy was recommended for all dogs in which a secondary bacterial infection could be demonstrated clinically. In the localized form of canine demodicosis, lesions are characterized by scattered alopecia and erythema, but in the generalized form of infection, lesions are found in whole skin areas. Benzoyl peroxide shampoo showed a good success in the treatment of generalized demodicosis because of their Keratolytic and supposed follicular flushing activity (Scott, 2001 and Kaplaywar S. 2017) [11]. The use of broad spectrum antibiotic in the present study is primarily due to the fact that most cases of canine generalized demodicosis involve a secondary bacterial skin infection, which needs administration of systemic antibiotics for several weeks along with acaricidal treatment i.e., Amitraz (Verde, 2005 and Mueller, 2011) [16], amitraz associated with the antibiotic therapy is highly effective for treating generalized demodectic mange (Horne, 2010) [3]. To minimize oxidative stress, to support healthy skin growth and improve skin integrity omega fatty acid were supplied (Sharma *et al*., 2018) [13]. Ivermectin is derived from the fermentation of molecularly synthesized *Streptomyces avermitilis* the most commonly used macrocyclic lactone in the treatment of canine demodicosis**,** **s**ince its introduction as a broad-spectrum parasiticide in 1981 Campbell *et al*., 1983 [2]. Initial results indicated that daily oral administration ofivermectin was the most efficacious route Scott *et al*., 1985 [12]. The currently recommended protocols generally employ 300–600 µg/kg p.o. once daily untilfour to eight weeks beyond parasitological cure. Sarolaner the latest addition to the isoxazoline class of oral ectoparasiticides is a very potential insecticide and acaticide (McTier *et al*., 2016) [6] with its monthly dosing schedule sarolaner could provide a very convenient and effective treatment option for dogs suffering from mite infestations. In an initial *in vivo* study in dogs, sarolaner demonstrated robust efficacy (≥99.8%) for 35 days against both fleas and adult ticks. Sarolaner chewable tablets are generally well-tolerated with rare treatment-related adverse reactions currently authorized chewable tablet with indications for the treatment of fleas, ticks, demodicosis and ear mites in dogs.

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