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Canine demodicosis

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Abstract

Canine demodicosis is a common noncontagious parasitic dermatosis caused by different species of Demodex mites including *Demodex canis*, *Demodex injai* and *D. cornei*. Generalized demodicosis can be one of the most frustrating skin diseases, one will ever treat. All recognized Demodex mites in dogs appear to respond similarly to mite targeted therapy. Treatment for canine demodicosis includes ivermectin and supportive agents - benzyl peroxide shampoo as weekly bath, twice daily administration of immunoliquid and nutricoat advance.

Keywords: canine, demodicosis, ivermectin, mite

Introduction

Ectoparasites are the common and pivotal cause of skin diseases in dogs (Chee *et al.*, 2008) [2]. Demodicosis, also named as demodectic mange, red mange or follicular mange can be defined as an inflammatory, non-contagious parasitic dermatosis caused by overpopulation of the host-specific follicular mites of various Demodex species (Shrestha *et al.*, 2015) [11]. Follicular mite, *Demodex canis* is the most common species and there have been two other morphologically different types of Demodex mites named as *Demodex canis* (Fig-1), *Demodex cornei* (Fig-2) and *Demodex injai* (Fig-3) being reported in different countries in the recent past (Sivajothi *et al.*, 2013a) [13]. Demodex mites are better considered act as opportunistic pathogens in certain circumstances (Ferrer *et al.*, 2014) [3]. The life cycle of Demodex is that an egg develops into 6 legged larvae that then develops into an 8 legged nymph (Mueller, 2008) [5] differentiated from an adult by its lack of an "armor-like" breastplate. Demodicosis can be classified into localized and generalized (Shipstone, 2000) [10] with juvenile or adult onset. Most of the (90%) localized demodicosis cases will resolve spontaneously over 6-8 weeks period. Generalized demodicosis may be a severe and potentially life-threatening disease (Mueller *et al.*, 2012 and Singh *et al.*, 2011a) [6, 12]. The most common treatments recommended by veterinarians are a combination of systemic antibiotics and/or antiseptic shampoo, with advocate spot-on, ivermectin s/c and/or amitraz bath. As supportive therapy, omega-3 fatty acids in the form of capsules or fish oil and/or E vitamin are considered (Arsenovic *et al.*, 2015) [1].

Case History

A case (dogs) has been presented to people for animal zumarath bazar (PFA), caseNo.256 owner name: Ganesh, aged 5 years and Case No. 329, owner name: Shiva aged 3 years cases with a history of skin diseases.

Clinical Symptoms in Canines

The clinical manifestations of the positive dog was which include pruritus, alopecia, erythema (Fig-4), papules, pustules (Fig-5), scabs, crusts, scales and change in pigmentation, greasy and pyoderma observed.

Diagnosis

Acetate tape impression test

A 5-cm transparent acetate tape of 1 inch diameter was placed on the lesion site, applied pressure using the thumb and index fingers, with the purpose of dislodging the mites outwards the follicle to attach them on to the tape. With a pressure on the skin surface, the tape was removed and placed (Fig-6) on a microscope glass slide for further examination (Pereira *et al.*, 2015) [8].

Hair pluck method

Hairs ranging from 50-100 numbers from skin lesion were plucked with hemostatic forceps (Fig-7) in the direction of the hair growth and placed in a drop of liquid paraffin on a glass slide.

Slide impression smears

Sterile grease-free glass slide was directly pressed against the skin with lesions that were moist (Fig-8), greasy or have macules, plaques or lichenification. The technique was also used after removal of crust, expression of fluid from the lesion or gently opening the surface of papules, pustules or vesicles.

Therapeutic Regimens

The dog that was found positive for demodicosis were given (Parmar *et al.* 2013) [7] Ivermectin @ 600 µg/kg body weight subcutaneously once in a week. Doses were calculated based on the recent body weight and were given immunol liquid (Kachhawa *et al.* 2013) [4] and nutricoat advance orally twice daily and weekly bathing with sulbenz pet shampoo (Reddy *et al.* (2014b) [9]. The therapy was continued till negative scrapings at 2 weeks apart in the dog. The case was monitored by doing clinical examination and parasitological testing on 0 day (Fig-9) i.e. the day of presentation and at 14th (Fig-10), 28th (Fig-10) and 56th (Fig-11) days of post therapy. The response to therapy was assessed based on subsidence of clinical signs, gross lesions and mite count.

Figures

Micrometry of *Demodex* mites.



Fig 1: Demodex canis mite



Fig 2: Demodex cornei mite



Fig 3: Demodex injai mite

Clinical Symptoms



Fig 4: Erythema



Fig 5: Pustules

Diagnosis Figures

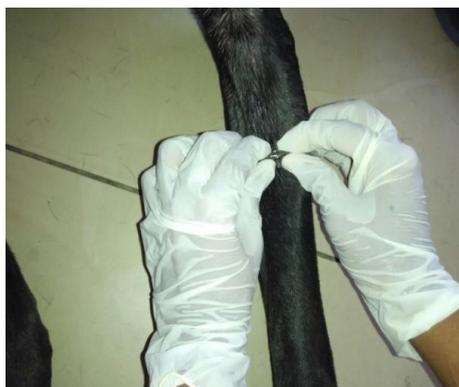


Fig 6: Tape placed on a glass slide.

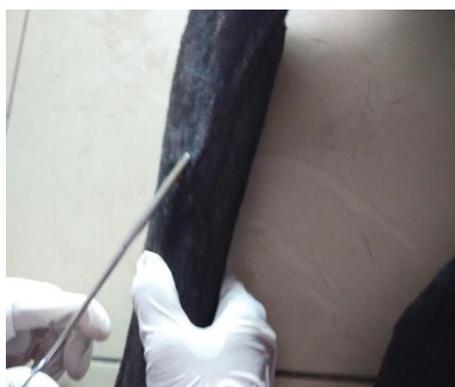


Fig 7: Hair pluck method.



Fig 8: Performing slide impression smear.

Path of recovery of demodiosis with ivermectin



Fig 9: Zero day

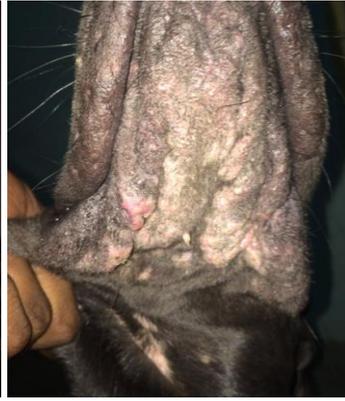


Fig 10: 14th day



Fig 11: 28th day



Fig 12: 56th day

Conclusion

The therapeutic efficacy of injectable miticides used i.e. ivermectin. Hence, from the present study it may be concluded that use of weekly ivermectin along with supportive therapy was found to be effective in terms of alleviation of clinical signs and rapid reduction of mite counts.

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