



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2018; 6(6): 614-616

© 2018 JEZS

Received: 15-09-2018

Accepted: 16-10-2018

Manjusha KM

Department of Veterinary
Clinical Medicine, Ethics and
Jurisprudence, College of
Veterinary and Animal Sciences,
Mannuthy, Thrissur, Kerala,
India

Usha Narayana Pillai

Department of Veterinary
Clinical Medicine, Ethics and
Jurisprudence, College of
Veterinary and Animal Sciences,
Mannuthy, Thrissur, Kerala,
India

Sharun Khan

Division of Surgery, ICAR-
Indian Veterinary Research
Institute, Izatnagar, Bareilly,
Uttar Pradesh, India

Therapeutic management of generalized demodicosis complicated with pyoderma in a dog

Manjusha KM, Usha Narayana Pillai and Sharun Khan

DOI: <http://dx.doi.org/10.22271/j.ento.2018.v6.i6k.05>

Abstract

Demodicosis is a common skin disease in canine patients. Once affected it is very difficult to cure and requires prolonged therapy. The dog was presented with a history of severe exudative skin lesions in the past three months. On general clinical examination, the physiological parameters were found to be within normal range. Examination of skin revealed generalized alopecia, macules, and erythematous exudating crusty lesions on all over the body. The deep skin scraping revealed the presence of *Demodex canis* mite. Impression smear from the lesions revealed presence of clusters of gram positive cocci. Culture and sensitivity test revealed the presence of gram positive cocci sensitive to Cotrimoxazole, Tetracycline, Gentamycin and Ceftriaxone. The dog was successfully treated with Sulfamethoxazole-Trimethoprim, Ivermectin, Amitraz, Benzyl peroxide, and other supportive therapy.

Keywords: Demodicosis, pyoderma, dog, ivermectin, Amitraz

Introduction

Canine Demodicosis is a parasitic disease caused by the excessive multiplication of the mite *Demodex spp* in the hair follicle [1]. Three species of demodex are involved in canine demodicosis. The most common type is *Demodex canis*. *Demodex injai* characterized by large body and *Demodex cornei* which is having a short body also cause disease in canines [2]. Concurrent occurrence of mixed infection by mites and bacteria are becoming common among pet dogs [3]. This might be due to unhygienic management, immunosuppression and complications due to demodicosis. *Demodex canis* is the most common cause of demodicosis or red mange in dogs. Even though *Demodex* mites are normal inhabitants of the skin, their presence may lead to erythema, alopecia, scaling and dermatitis during immunosuppression. Further demodectic mange can act as a predisposing factor for secondary bacterial infections leading to furunculosis and cellulitis. Such cases are usually diagnosed based on history, clinical examination along with skin scrapping test and bacterial culture [3]. Treatment in such cases should target both mite and bacteria. This paper describes a case of demodicosis complicated by pyoderma and its effective therapeutic management.

History and Diagnosis

A two year old female Labrador dog weighing 27 kg was presented to the TVCC, College of Veterinary and Animal Sciences, Mannuthy, Thrissur with complaint of complicated skin lesions with hair loss and exudative skin lesions all over the body. The owner reported that the dog was under steroid therapy for the past 3 months.



Fig 1: Extend of skin lesion on Day 0

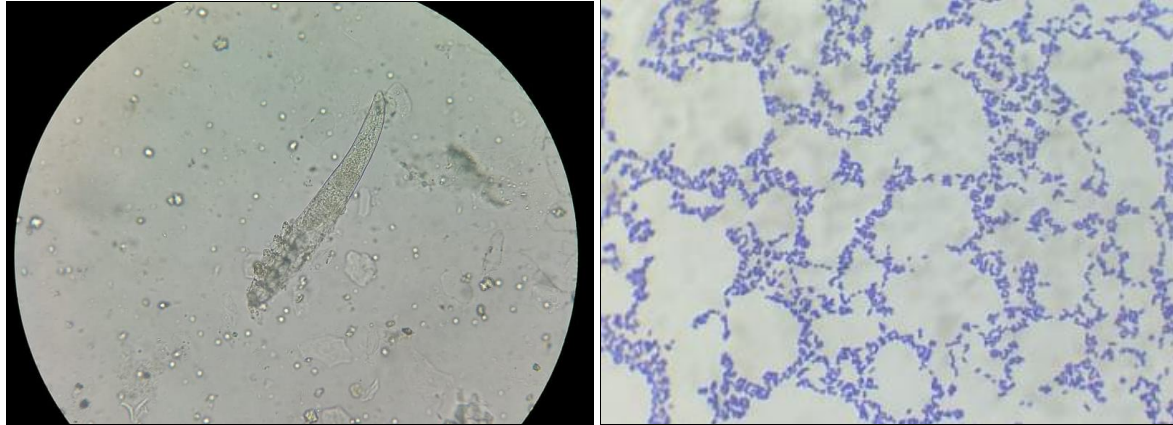
Correspondence

Manjusha KM

Department of Veterinary
Clinical Medicine, Ethics and
Jurisprudence, College of
Veterinary and Animal Sciences,
Mannuthy, Thrissur, Kerala,
India

On general clinical examination, the physiological parameters were found to be within the normal range. Generalized alopecia, macules and erythematous exudating crusty lesions noticed all over the body especially on the face, neck, limbs, abdomen and perineal region (Fig. 1). The lesions extended up to the paws. Pustules, hyperpigmented and hyperkeratosed area was noticed all over the body except chest region. Serosanguinous discharge oozed out from the lesions.

Microscopic examination of deep skin scraping revealed the presence of mites which was confirmed as *Demodex canis* by parasitological examination (Fig. 2a). Using sterile swab skin surface impression was collected for culture and sensitivity analysis which revealed the presence of clusters of gram positive cocci (Fig. 2b). It was found to be sensitive to Cotrimoxazole, Tetracycline, Gentamycin and Ceftriaxone.



A: *Demodex* spp in 40x magnification

B: Clusters of cocci spp

Fig 2

Treatment

Demodicosis complicated by pyoderma often presents a challenge in the treatment aspect. The treatment was commenced with ^aNeomec (Ivermectin) @ 400 mcg/kg body weight once daily orally until two consecutive results became negative for *Demodex canis*, ^bBactrim DS (Sulfamethoxazole-Trimethoprim) @ 30 mg/kg body weight once daily orally for

10 days, External application of ^cRIDD (Amitraz) at a concentration of 250 ppm was also advised once in every week along with the use of ^dPetben shampoo (Benzyl peroxide) for 4 months. ^eNutricoat Advance and ^fImmunol syrup was given orally during this period. The dog made an uneventful recovery with complete healing of lesions after four months of treatment (Fig. 3).



Fig 3: Improvement in the condition of the dog a - Day 0, b - Day 30, c - Day – 120

(^a Product of Intas Pharmaceuticals Ltd, ^b Product of Abbott India Ltd, ^{c, d, e} Product of Petcare Ltd.

^f Product of The Himalaya Drug company.)

Discussion

Canine demodicosis is a common, non-contagious, inflammatory parasitic skin disease characterized by

excessive proliferation of commensal mite *Demodex canis* within the hair follicles and sebaceous glands [4]. The etiological agent as such is not responsible for the entire

pathological process, thus demodicosis is a multifactorial disease where genetics, immune mechanisms, cutaneous ecology, environment, bacteria and parasite intervene at various degrees. Three forms of demodicosis are seen in dogs: localized demodectic mange, juvenile-onset generalized demodicosis and adult onset generalized demodicosis. Localized demodicosis is seen in dogs less than 1 year old and most cases resolve spontaneously. The generalized form is mostly triggered by immunosuppression. At the early stage of demodicosis alopecia and scaling of the skin is observed but when it is complicated by secondary bacterial infection it produces pustular and crusting dermatitis^[5].

The characterized feature of generalized demodicosis is the presence of either five or more alopecic areas, a whole body area or at least with pododemodicosis involving two or more feet. Even though spontaneous resolution of clinical sign is possible in generalized demodicosis, the prognosis is uncertain. Most cases involve a secondary bacterial skin infection, which needs administration of systemic antibiotics for several weeks concomitantly with the acaricidal treatment^[4]. This is the main reason for failure of treatment and relapse of demodicosis even after treatment. Amitraz is the commonly used drug against canine demodicosis. The recommended concentration varies from 0.025 to 0.06 % with a frequency of once weekly to every 2 weeks^[6]. Use of macrocyclic lactones in demodicosis is very well established. When demodicosis is complicated by bacterial infection, therapeutic regime requires a strategic approach that overcomes the effects of both mite and bacteria to the animal. Proper timing, frequency and duration of treatment will determine the outcome of therapy in many cases as suggested by Yatoo *et al.*, 2014^[7]. Treatment of canine demodicosis includes drugs such as Amitraz, Ivermectin, milbemycin oxime, moxidectin, and doramectin^[8]. High dose milbemycin oxime (0.5-3.1 mg/kg body weight) have higher cure rate in demodicosis and can be tolerated by Ivermectin sensitive dogs^[9]. Doramectin is an alternative to Ivermectin but cannot be used in Ivermectin sensitive dogs.

Conclusion

In the present case, demodicosis complicated with pyoderma was effectively managed with Sulfamethoxazole-Trimethoprim, Ivermectin, Amitraz, Benzyl peroxide, and other supportive therapy. Animal made an uneventful recovery without any recurrence. From the above results we can conclude that demodex can be effectively managed with Ivermectin Amitraz combination along with an antibiotic of choice depending on the culture and sensitivity in cases which are complicated with pyoderma. Benzyl peroxide shampoo helps to keep the number of demodex mites in the hair follicle under control due to its follicular flushing action. Other supportive therapies also helped to hasten the recovery.

References

1. Paradis M. New approaches to the treatment of canine demodicosis. *Veterinary Clinics: Small Animal Practice*. 1999; 1; 29(6):1425-36.
2. Tater KC, Patterson AP. Canine and feline demodicosis. *Veterinary medicine*, 2008, 444-461.
3. Mueller RS, Bensignor E, Ferrer L, Holm B, Lemarie S, Paradis M *et al.* Treatment of demodicosis in dogs: 2011 clinical practice guidelines. *Veterinary dermatology*. 2012; 23(2):86-e21.
4. Verde Maite, Canine Demodicosis. Treatment Protocol.

The North American Veterinary Conference - Proceedings. 2005; 287:3.

5. Mederle N, Darabu G, Oprescu I, Morariu S, Ilie M, Indre D *et al.* Diagnosis of canine demodicosis. *Sci. Parasitol*. 2010; 11(1):20-3.
6. Mueller RS. Treatment protocols for demodicosis: an evidence-based review. *Veterinary dermatology*. 2004; 15(2):75-89.
7. Yatoo MI, Jhambh R, Malepad DP, Kumar P, Dimri U. Advances in therapeutic management of complicated demodicosis in canines. *J Adv. Parasitology*. 2014; 1(1):6-8.
8. Umesh D, Singh SK, Sharma MC, Pankaj K, Waila T, Kumar S *et al.* Efficacy of doramectin against canine demodicosis. *Indian Veterinary Journal*. 2009; 86(11):1127-1128.
9. Tranquilli WJ, Paul AJ, Todd KS. Assessment of toxicosis induced by high-dose administration of milbemycin oxime in collies. *American journal of veterinary research*. 1991; 52(7):1170-1172.