

Original Research Article

<https://doi.org/10.20546/ijcmas.2018.708.244>

Prevalence of Canine Parasitic Dermatitis in and Around Jammu

Sindhu Berian*, S.K. Gupta, Vijay Sharma, R.K. Bhardwaj and Shamim Ali

Division of Veterinary Medicine, Division of Veterinary Public Health and Epidemiology
Faculty of Veterinary Sciences & Animal Husbandry, SKUAST-J, R. S. Pura,
Jammu-181102, India

*Corresponding author

ABSTRACT

Keywords

Demodectic,
Sarcoptic

Article Info

Accepted:
12 July 2018
Available Online:
10 August 2018

Prevalence study was conducted during the period from July 201 to June 2015, on 391 clinical cases of dogs presented at Referral Veterinary Hospital F. V. Sc & A.H R. S. Pura Jammu. The overall prevalence of dermatitis was 24.55 per cent (96/391) The prevalence of parasitic dermatitis was found to be 35.41 per cent with maximum prevalence recorded in July (42.55 %). Dogs less than one year of age were found to be more susceptible to canine parasitic dermatitis. Erythema, scaling, crust formation, hyper-pigmentation, itching, and hair loss were the main clinical features of demodectic mange. While in sarcoptic mange intense pruritis was found along with erythema, rashes, excoriation, crust and hair loss. Lesion in parasitic dermatitis were mainly located at head and neck (36.21 %), thorax, abdomen and groin (24.23%), limbs and paws (17%) and on elbow (13.27%).

Introduction

Dogs have served as hunting companion and were used for hunting the wild animals for their food. Dogs are the closest to man because of their sophisticated social behaviors (Ugbomoiko *et al.*, 2008). Since the beginning of civilization dog had served various purposes to man ranging from draught dogs for work, guard dogs for protection, assistant dogs to aid the blind and physically challenged, detective dogs to aid in criminal investigations and most importantly pet dogs for man companion (Bridgestome, 2004).

Pet owners have a close relationship with their dogs and often spend their leisure time cuddling them. In the pets various form of

skin diseases caused by infestation of vectors like ticks, lice, fleas and mites. These all ectoparasites are responsible for canine parasitic dermatitis (demodecticosis) which cause great damage to skin and also results in malodor from body. Among parasitic dermatitis, the most common ticks are *Rhipicephalus sanguineus*. Mange (acariasis) is a persistent contagious skin disease of animals and man caused by parasitic mites. Common mites which affect the dogs are *Demodex spp*, *Sarcoptes scabiei* and Otodectic mange (Ear mites). Demodecticosis is a mange caused by *Demodex canis* and follicular mite which infects follicles and sebaceous glands. The disease is common among canine species being manifested in three different forms (Kiminsky *et al.*, 2010).

Sarcoptic mange (canine scabies) is more serious, highly contagious and zoonotic. It can infect all species of animals including man. Clinical signs manifest in form of intense itch, injury to the skin, weeping skin lesions, crusts and scab formations often seen at the elbow and ear region (Nayak *et al.*, 1997) Demodectic mange, (Red mange) is the third form and the most serious type caused by *Demodex canis* (Marsalla, 2010). Which is non- contagious and can only be seen in immunodeficient animals, old dogs and young puppies of about 3-months to a year infected in utero (Koutz, 1954). The mites burrow deep into the skin, feeds and secrete substance that reduces the innate resistance of the animal. The disease is thought to be hereditary often seen in oily skinned and short haired dogs. Both the sexes have the same ability to transmit genetic predisposition to demodocosis. However, Marsalla (2010) reported a higher prevalence of disease in long haired dogs.

Dogs with localized form of demodocosis develop alopecic areas around the eyelids, lips, mouth and front limb giving the animal a characteristic moth-eaten appearance. Infected puppies recover by their fourteenth month as their immunity develops. Otherwise, the disease becomes chronic and generalized showing large alopecic areas on various parts of the body which coalesce into large bald areas. The hair follicles may be plugged with debris and *Demodex canis* mites with draining sinus tracts emitting there by a strong foul odour. At this stage the animals may be at risk of secondary bacterial infection along with complications of pododemodocosis affecting the paws. Unlike other canines *Demodex* species mite *Demodex corenei* can reside in most superficial layer of epidermis. It is 50 per cent shorter than other form of *Demodex canis* (Tamura *et al.*, 2001) *Demodex injai*, the large body *demodex*, is larger in all life stages than *demodex canis* (Desch and Hillier 2003).

Diagnosis is by taking deep skin scrapping in Potassium Hydroxide (KOH) or Sodium Hydroxide (NaOH) as 10% solution in order to digest the debris and release of mites (Kaminsky *et al.*, 2010). However, most of times it is difficult to identify mites under the microscope and treatment is often commenced based on the obvious clinical signs. A simple way of diagnosis is by “Pedal-pinna reflex” technique where by the dog moves its hind limb in scratching motion as the examiner gently manipulate and scratches the ear.

This technique is effective for over 95% of most mange cases because these mites proliferate around the ear region at some point of time. Treatment is of a great controversy amongst veterinarians and there are different thoughts. Some group recommend small daily shots of ivermectin along with medicated bath for 3-4 weeks. Others prefer weekly injection of ivermectin shots or by oral route (Nayak *et al.*, 1997).

As such, health status of dog as regard skin affection is of prime concern and a challenge to the field veterinarian to tackle as with. Assessment of hematobiochemical alteration with prompt therapeutic management is the dire need of hour. Therefore, an attempt is being made to study the etiology, prevalence and for evolving suitable therapeutic regimen to the treat canine dermatosis.

The present research work was undertaken as envisaged in the objective of the study to test the hemato biochemical changes and therapeutic management of canine dermatitis. The study was carried out on dogs of different age groups referred as clinical cases for treatment at Referral small animal OPD, of Faculty of Veterinary Sciences and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, R.S. Pura, campus Jammu as well as dogs from adjoining areas also.

Materials and Methods

Screening of dogs presented at small animal OPD of Referral Veterinary Hospital as well dogs from adjoining areas in and around R S Pura was conducted from June 2014 to July, 2015. There apparently healthy dogs with no skin affection and kept under the same environmental conditions irrespective of age sex and breed were chosen randomly and kept control for the present study.

The comprehensive history in relation to onset of symptoms, original location of lesions and its type and intensity of pruritis were recorded. The entire hair coat of all the dogs were examined thoroughly in the day light for the type and location of skin lesion like papules, pustules, vesicles and scabs.

Observation for the presence or absence of gross parasites was also made. History in relation to type of feed given was also recorded. Any previous treatment given and clinical response elicited was also recorded. Entire history of each case was recorded.

Collection of samples

Affected skin was scraped with a dermal curette by a deep-skin scraping in the direction of hair growth until capillary bleeding occurred. The skin was firmly squeezed prior to and during the scraping to extrude mites from the hair follicles. Scraping was collected from different location in sufficient quantity from periphery of active lesions in sterile vials for fungal screening and in 10 percent KOH for detection of mites using sterilized scalpel.

Hair were plucked from the periphery of active lesions along with crust and scales if present for trichography and isolation of fungal organism. Hair around the lesion was clipped. Pustules were cleaned with 70 percent alcohol gently, allowed to dry and opened with sterile needle. Sterile cotton swab was

touched to the exudate avoiding any contact with surrounding and carried to the laboratory in ice for bacteriological studies.

Processing of samples

Detection of parasites

Skin scrapping were collected in 10 percent KOH, and transferred to test tube, subsequently, scrapping in the tube were stirred and heated gently. The stirring was done till the mixture appeared homogenous after cooling the contents of the tubes were transferred to the centrifuge tubes and centrifuge at 500 rpm for 5 minutes. The supernatant was discarded and the sediments was spread on a glass slide for detailed microscopic examination.

For identification of gross ectoparasite, samples were collected in 70 per cent alcohol identification of mite and gross ectoparasites were done as per Soulsby (2005)

Results and Discussion

Details of screened animals

A total of 391 canines comprising of 240 males and 151 females were screened for canine dermatitis. Dermatitis was recorded only in 96 animals out of 391 undertaken for treatment from different sources in the present study.

Percentage prevalence of dermatitis

During the study period (July 2014 to June, 2015) a total of 391 dogs presented for treatment at Referral Veterinary Clinics and Teaching Hospital, (TVCC), R.S. Pura, Jammu from different sources only ninety six (24.55 per cent) were found positive for skin diseases i.e. canine dermatitis (Fig. 1; Table 1).

Details of animals screened

S. No.	Sources	No. of animals Screened	Male	Female
01	Referral Small animal OPD of F.V.Sc.& A.H.	355	216	139
02	Others (in and around R.S.Pura)	36	24	12
Total		391	240	151

Table.1 Overall prevalence of canine dermatitis

No. of dogs Examined / Screened	No. of Positive animals	Overall Prevalence (%)
391	96	24.55

Table.2 Month wise prevalence of canine dermatitis

Month/Year	Total animals Screened	Positive Cases	Prevalence (%)
July-2014	47	20	42.55
August -2014	33	06	18.18
September-2014	36	07	19.44
October-2014	23	03	13.04
November-2014	09	01	11.11
December-2014	10	01	10.00
January-2015	18	02	11.11
February-2015	21	04	19.04
March-2015	47	11	23.40
April-2015	49	14	28.57
May-2015	44	10	22.72
June-2015	54	17	31.48
Total	391	96	24.55

Table.3 Age wise incidence of screened animals

S. No.	Age Group (years)	Total no of animal screened	No. of animals with dermatitis	Percentage
01	0-1	207	44	21.25
02	1-2	81	22	27.16
03	2-3	57	17	29.82
04	3-4	46	13	28.26
Total		391	96	24.55

Table.4 Age wise distribution of screened animals

S. No.	Sources	Age group (in years)				Total
		Up to 1 year	Up to 2 years	Up to 3 years	Up to 4 years	
01	Small animal OPD (TVCC)	188	73	52	42	355
02	Others (in and around R.S. Pura)	19	8	5	4	36
Total		207	81	57	46	Grand Total = 391

Fig.1 Prevalence of canine dermatitis

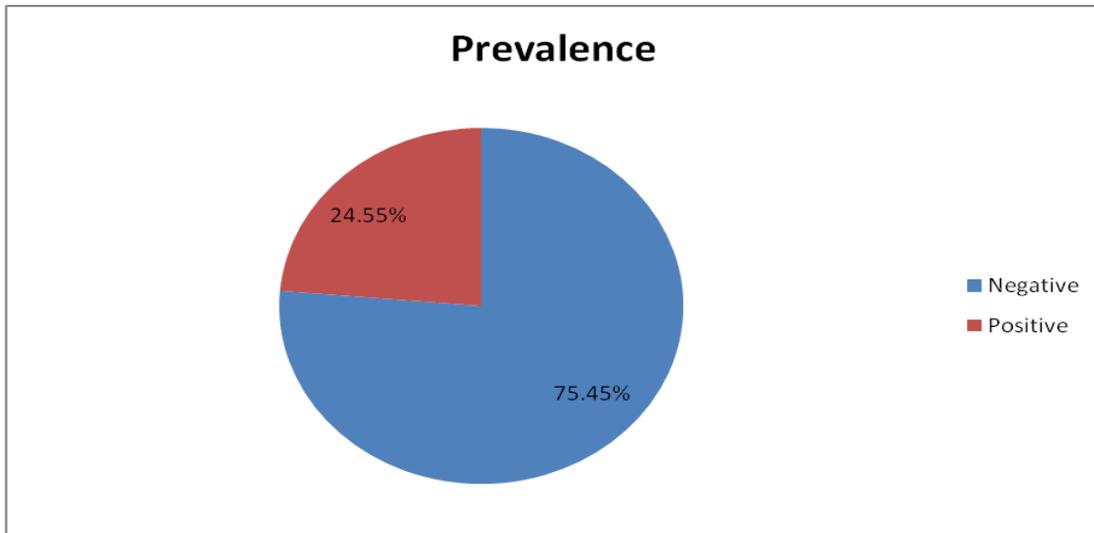


Fig.2 Month wise prevalence of canine dermatitis

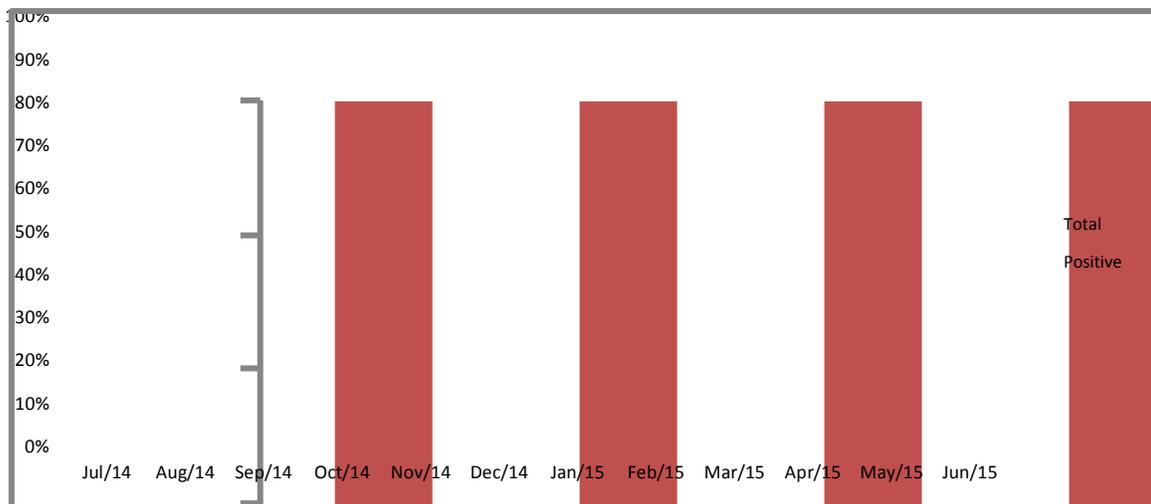


Fig.3 Age wise incidence of canine dermatitis



On overall basis, maximum cases 20(42.55) per cent) were recorded during July, 2014 and minimum 01(10.00) during December, 2014 and. Maximum prevalence was encountered in the dogs up to one year of age (45.83 per cent) followed by dogs two to three years (24.42 per cent)

On overall basis the maximum cases of dermatitis were of parasitic (35.41 per cent) followed by bacterial (30.25 per cent), fungal (21.87 per cent), non-specific (11.45 per cent).

Parasitic dermatitis

The overall prevalence of parasitic dermatitis was found to be 34.41 per cent with maximum prevalence in July, 2014 (42.55 per cent) and minimum in December, 2014 (Fig. 2; Table 2).

Incidence of canine dermatitis

Age wise incidence of canine dermatitis was found to be 21.25% in canines up to 1 year old, 27.16% among 1 to 2 years old, 29.82%

among 2 to 3 years old and 28.26% among 3 to 4 years old.

Age wise distribution

Age wise Distribution a total of 391 canines of different age groups was screened for dermatitis. Age wise prevalence was 45.83 % (44/96) up to 1 year old, 22.91 (22/96) up to 2 years old, 31.06 (17/96) up to 3 years old, 29.43 % (13/96) up to 4 years old (Fig. 3; Table 3 and 4).

Clinical signs

The dogs with dermatological disorders revealed a range of clinical signs varying from pruritis, alopecia to pyoderma.

Parasitic dermatitis

Main clinical entity in dogs with ectoparasite infestation was pruritis. Alopecia, erythema, papule, thickening and wrinkling of skin with loss of texture were also recorded the lesion were mainly located at head/neck (36.21 per cent), thorax, abdomen and groin

(24.23percent), limbs and paws (17 percent) elbow (13.27) and shoulder, erythema scailing, crust formation, hyper pigmentation, itching, and hair loss were the main features of demodectic mange. In sarcoptic mange intense pruritis was found along with erythema, rashes, excoriation, crust and hair loss.

Canine dermatitis is one of the most common clinical ailment directly or indirectly associated with immunodepression and number of etiological agents. Dermalogical disorders in canines assumes great importance due to their effect on the animal such as irritation, distress and offensive smell.

The present study was conducted on 391 dogs presented for health examination at Referral small animal OPD of F.V.Sc. & A.H, R.S. Pura, to investigate the possible association between history, clinical findings and laboratory findings. The study was done to isolate the organism responsible for canine dermatitis, as well as to identify predisposing factors involved in this disease. Overall prevalence of canine dermatitis during the study period was 24.55 per cent (96/391) with maximum prevalence during July, (42.55 per cent) and minimum in December, (10.00 per cent).

References

- Brigestome. 2004. Association of veterinary medical student (AVMS) 2004. *Dogs As Man Companion*; 1-5.
- Kaminsky, A. What is the Best Treatment for Mange? Wise GEEK.com. 2010.
- Koutz, F.R. 1954. *Demodex folliculorum* (iii) A survey of clinical cases in dogs. *Journal of American Veterinary Medical Association* 123: 131-133.
- Marsalla, R. 2010. Demodicosis (Red Mange) in Dogs. *Petplace.com*.
- Nayak, D.C., Tripathy, S.B. Dey, P.C., Ray, S.K., Mohanty, D.N., Parida, G.S., Biswal, S. and Das, M. 1997. Prevalence of canine demodicosis in Orissa (India), *Veterinary Parasitology*, 73: 347-352.
- Soulsby, E.L.J. 2005. *Helminth Arthropods and Protozoa of Domesticated Animals*. Baillere Tindall.
- Ugbomoiko, U. S., Ariza, L. and Heukelbach, J 2008. Parasites of importance for human health in Nigerian dogs: high prevalence and limited knowledge of pet owners. *Veterinar Research*; 4: 49.

How to cite this article:

Sindhu Berian, S.K. Gupta, Vijay Sharma, R.K. Bhardwaj and Shamim Ali. 2018. Prevalence of Canine Parasitic Dermatitis in and Around Jammu. *Int.J.Curr.Microbiol.App.Sci*. 7(08): 2420-2426. doi: <https://doi.org/10.20546/ijcmas.2018.708.244>