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Prevalence of chronic generalized demodicosis in dogs in and around Jabalpur

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Abstract

Present study was undertaken to determine the occurrence of chronic generalized demodicosis in dogs in and around Jabalpur. A total of 341 dogs were screened for chronic generalized demodicosis at TVCC, College of Veterinary Science and A.H., Jabalpur from August 2017 to April 2018. All the dogs were thoroughly examined for the presence of any visible skin lesions and microscopically for the presence of *Demodex canis* mite. The overall occurrence of chronic generalized demodicosis in dogs was found to be 19.64%. The age-wise occurrence was higher in dogs upto 2 years of age i.e. 23.7%. Among breeds German Shephard was more affected whereas sex-wise occurrence was more in male dogs (22.74%).

Keywords: Demodicosis, prevalence, skin scraping

1. Introduction

Demodicosis is a parasitic inflammatory skin disease of dogs caused by excessive proliferation of *Demodex canis*. Demodicosis is also referred as demodectic mange which is a common infestation of the dog's skin with tiny, cigar-shaped, eight-legged mites. These mites reside and feed in the hair follicles and oil glands of the skin [13]. Demodex mites are better considered as parasites that normally do not cause adverse effects on their host but sometimes that can act as opportunistic pathogens.

Canine demodicosis can be divided into two clinical manifestations viz. localized and generalized [1]. The localized form appears as small patches of alopecia and mild erythema in young dogs often including face and fore limbs. This form most often affects the dogs younger than 1 year of age. Approximately 90% of the cases spontaneously regress without treatment usually within 6-8 weeks but the generalized form of demodicosis is more severe and can even be fatal. If the disease has persisted for at least 6 months, it can be regarded as chronic generalized demodicosis.

Chronic generalized demodicosis is characterized by five or more affected areas or by lesions covering an entire region of the body and/or pododemodicosis involving two or more paws [4]. Pathological changes include erythema, papules, lichenification, crusts in the feet, face, pinnae, abdominal skin, flank and/or in the lumbar area. Receptivity of dogs to demodicosis and progression of the clinical disease is influenced by factors like genetic predisposition, malnutrition and immunosuppression.

Demodicosis is diagnosed by performing skin scrapings. Scraping should be obtained from multiple areas and should be deep enough to produce capillary bleeding while squeezing the area being scraped which forces mites deep in the hair follicle to the surface. Microscopically, fusiform eggs, six-legged larvae, eight-legged nymphs or eight-legged adult mites can be seen [5].

2. Material and methods

The proposed work was conducted in the Department of Veterinary Medicine, College of Veterinary Science and Animal Husbandry, Nanaji Deshmukh Veterinary Science University, Jabalpur (M.P.). A total of 341 dogs having dermatological disorders were screened at TVCC, College of Veterinary Science and A.H., Jabalpur from August 2017 to April 2018. Complete history of the dogs were recorded including age, sex, breed and duration of illness. All the dogs were thoroughly examined for the presence of any visible skin lesions like scab, erythema, pruritus, papules, alopecia and pigmentation.

The skin scrapings of these dogs were examined microscopically as per the standard procedure for the presence of *Demodex canis* mite [11].

3. Results and discussion

3.1 Overall occurrence of chronic generalized demodicosis in dogs

Out of dogs 341 dogs, 67 were found positive for *Demodex canis* mite. The overall occurrence of chronic generalized demodicosis in dogs was 19.64 per cent (Table 01).

The result of the study correlate well with the findings of various workers [10, 9 and 6]. However, comparatively less occurrence of demodicosis was reported by Kumari *et al.* [7] also found lesser prevalence of generalized demodicosis (7.75%) in dogs at Gannavaram.

The results of present study indicated the presence of chronic generalized demodicosis in dogs in and around Jabalpur, although there is variation in the occurrence rate with the findings of other workers. These variations might be attributed to several factors such as geographical location, seasonal variations, difference in management conditions and innate resistance of the animal.

Table 1: Occurrence of chronic generalized demodicosis in dogs at TVCC, Jabalpur

No. of dogs with dermatological disorders	No. affected with CGD	Occurrence (%)
341	67	19.64

3.2 Age wise occurrence of chronic generalized demodicosis in dogs

To know the age wise occurrence of chronic generalized demodicosis in dogs, wide range of age groups were taken and categorized into three categories. The highest occurrence of chronic generalized demodicosis were recorded in dogs upto 2 years i.e. 23.76 per cent (53 out of 223) followed by 2-4 years i.e. 13.33 per cent (10 out of 75) and the lowest occurrence was recorded in dogs of more than 4 years of age i.e. 9.30 per cent (4 out of 43) (Table 02).

These observations are in accordance with the findings of Shrestha *et al.* (2015) observed the higher prevalence in dogs upto 2 years of age (49%) followed by dogs of 3-8 years of age (6.9%) and the least being in dogs above 8 years of age.

The possible reason of occurrence of chronic generalized demodicosis in younger dogs might be due to more sociable behaviour of younger dogs and their curiosity to explore the outdoor environment more. So they are at higher risk of being exposed to mite infestation through direct contact. Moreover, Younger dogs have less developed immune system as compared to older dogs.

Table 2: Age wise occurrence of chronic generalized demodicosis in dogs at TVCC, Jabalpur

Age group	No. examined	No. affected	Occurrence (%)
Upto 2 years	223	53	23.76
2-4 years	75	10	13.33
> 4 years	43	4	9.30

3.3 Breed wise occurrence of chronic generalized demodicosis in dogs

The occurrence of chronic generalized demodicosis in dogs were recorded in various breeds. Highest occurrence was observed in German Shephard dog i.e. 24.5 per cent (45 out of 183) followed by Labrador i.e. 16.4 per cent (12 out of 73), Pug i.e. 14.19 per cent (6 out of 41), Spitz i.e. 10.5 per cent (2

out of 19) and the lowest being in non-descript dogs i.e. 8 per cent (2 out of 25) (Table 03).

The pattern of occurrence of chronic generalized demodicosis in dogs in this study is in contrast to Bindari *et al.* [2] who reported that Mongerls were more affected followed by cross and pure breed dogs. Kumar *et al.* [6] reported that the occurrence of demodectic mange in long haired breeds was 15.18 per cent in Spitz, 13.92 per cent in Pomeranian, 12.02 per cent in German Shephard and 0.63 per cent in St. Bernard. As *Demodex canis* mites are the normal cutaneous micro fauna of healthy dogs and lowered immunity of the dog is responsible for the disease [8]. Since non-descript dogs are having better immunity, hence least occurrence of chronic generalized demodicosis was observed in them in the present study. Highest prevalence in German Shephard dogs might be attributed to the fact that the long haired dogs pick up more dust, dirt and infection. However, the variability in the breed wise occurrence might be due to the variability in the number of samples examined in each category.

Table 3: Breed wise occurrence of chronic generalized demodicosis in dogs at TVCC, Jabalpur

Breeds	No. examined	No. affected	Occurrence (%)
German shepherd	183	45	24.50
Labrador	73	12	16.40
Pug	41	6	14.19
Spitz	19	2	10.50
Non- descript	25	2	08.00

3.4 Gender wise occurrence of chronic generalized demodicosis in dogs

Out of total sample collected, 255 samples were from male and the 86 from female. 58 samples from male (22.74%) and 9 samples from female (10.4%) were found positive for chronic generalized demodicosis (Table 04).

Similar findings were observed by Chen *et al.* [3] who found that prevalence of *Demodex* in male dogs (3.67%) was higher than female dogs (2.74%). Shrestha *et al.* (2015) also reported higher prevalence was in male (36.7%) than female (22.9%). On the contrary, Solanki *et al.* (2007) observed that there was no significant influence of sex on the prevalence of demodicosis. However, Bindari *et al.* [2] have also reported that demodectic mange was comparative higher in females than male.

Higher prevalence of chronic generalized demodicosis in male dogs might be due to some hormonal influences. Moreover, it is observed that increased parasitism is often associated with elevated plasma testosterone level [12]. However many studies also reported higher prevalence of chronic generalized demodicosis in females. The reason behind the variability might be associated with the nutritional status, immune status and managemental conditions of the dogs under study. Besides this, the sample size in different studies might have varied.

Table 4: Gender wise occurrence of chronic generalized demodicosis in dogs at TVCC, Jabalpur

Gender	No. examined	No. affected	Occurrence (%)
Male	255	58	22.74
Female	86	9	10.4

4. Conclusions

The overall occurrence of chronic generalized demodicosis in dogs was 19.64 per cent in and around Jabalpur. Highest occurrence was found in dogs upto 2 years followed by 2-4

years and lowest being in more than 4 years of age. Among the breeds, German Shephard was more (24.5%) affected and gender wise occurrence was more (22.74%) in male dogs.

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