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CLINICAL SIGNS AND EPIDEMIOLOGICAL AND IN CANINE DEMODICOSIS

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Abstract: Dogs with signs suggestive of mange were presented with a history of itching, alopecia, pustules, bad odour, erythema, hyper pigmentation, scales, lichenification, nodules, crusts, pododemodicosis and keratinization. Their epidemiological observations and clinical observations are discussed.
Keywords: Epidemiology - dogs.

Introduction

Canine demodicosis is a common non contagious, inflammatory parasitic skin disease resulting from excessive proliferation of *Demodex* canis mites within hair follicles and sebaceous glands (Singh *et al*., 2011). Canine demodicosis may be classified as localized and generalized form. Localized demodicosis involves only small areas of skin having one or more discrete foci that regress spontaneously or may progress to wide spread generalized cutaneous lesion. Generalized demodicosis may be severe; potentially life threatening disease and mostly associated with secondary bacterial pyoderma requiring prolonged treatment (Mueller, 2012).

Materials and Method

Dogs presented with signs suggestive of mange at Teaching Veterinary Clinical Complex, Gannavaram and surrounding Veterinary institutions were taken up for the present study. The period of study was December 2015 to July 2016. Symptoms of itching, alopecia, pustules, bad odour, erythema, hyper pigmentation, scales, lichenification, nodules, crusts, pododemodicosis and keratinization. Information with regard to age, breed, sex were recorded.

: Cases were diagnosed as generalized demodicosis based on signalment, anamnesis, examination of skin scrapings, Tape impression smears and Swabs from dogs affected with generalized demodicosis.

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Results and Discussion

During the period under study (December 2015 to July 2016), a total of 1482 dogs were registered at Teaching Veterinary Clinical Complex, Gannavaram and Veterinary Hospitals around Gannavaram. Out of these, 516 dogs were positive for skin diseases (34.82%). Out of them 75 dogs were affected with demodicosis (14.53%) of which 40 were affected with generalized demodicosis (53.33% of demodicosis/ 7.75 % of total skin cases) (Depicted in Table1). These observations are in agreement with those of Chen *et al.* (2012) who reported the prevalence around 13.3 per cent in Guangzhou, a subtropical city of China. They also indicated seasonal prevalence of the disease with highest in March (4.15%) and lowest in December (1.39%). The present study was also undertaken from December to July which included hot humid months from March to July. Which was also supported by Solanki *et al.* (2007) due to closer clipping of hairs? The age-wise prevalence of generalized demodicosis (Depicted in Table2) in dogs, the highest prevalence of generalized demodicosis was recorded in dogs aged up to 2 years (70%) followed by 2 to 4 years (20%) and with the lowest occurrence in dogs aged > 4 year (10%). These recordings are in agreement with those of Craig (2003) and Gortel (2006). Out of 40 dogs with generalized demodicosis, 27 (67.50%) were male and 13 (32.50%) were female (Depicted in Table3). Generalized demodicosis was more frequent in male dogs in the present study. These findings are well supported by those of Barboza *et al*. (2000) and Chen *et al*. (2012) who opined that the gender wise discrimination might attributable to humoral factors (Sarkar *et al*., 2009). Breed-wise prevalence of generalized demodicosis (Depicted in Table 4) in the present study was found to be higher in Pomeranian 14 cases (35%), followed by Nondescript/mongrel 9 (22.5%). Similar observations were recorded by earlier workers (Nayak *et al.,* 1997 and Solanki *et al*., 2007) as they indicated that pure breeds are more susceptible to the disease than crossbreeds. The highest occurrence in Pomeranian dogs might be explained by the fact that long – haired dogs pick up dust, dirt and infection more easily. Mongrel also were affected next to Pomeranians which might be due to poor body condition that might have resulted in alternation of micro-environment of skin making it more conducive of multiplication of mites as hypothesized by Scott *et al.* (1974). The dogs suffering from generalized demodicosis revealed a wide variety of clinical manifestations (Depicted in Table 5 and plate 1-4). Clinical examination of 20 dogs with generalized demodicosis revealed symptoms of pustules, alopecia and pruritus in all dogs. These clinical signs were also noted by previous workers (Prapasarakul *et al*., 2001). The signs associated with the condition are

attributable to irritation and inflammatory reaction caused by mites in the hair follicles resulting to damage of the epidermal cells and exudation produced by secondary bacterial and fungal infection (Mueller *et al*., 1989). The pedal pinna reflex was noted in 80% of dogs which was slightly lower but almost similar to that of Nwoha, 2011. The topography of lesions (Depicted in Table 6) in dogs with generalized demodicosis (plate 1-4) indicated that the most affected region was the fore limbs in 15 dogs (75%). In the present study lesions were distributed in more than five localized areas so as to indicate that the dogs were suffering from generalized demodicosis (Scott *et al*., 1995). The lesion distribution in the study is almost similar to that of earlier workers (Nambi *et al*., 2010 and Grandi *et al*., 2013) and Gupta *et al*. (2013) Spectacle eye condition was also reported by Chen (1995). The exact cause of variation of mite infestation in different parts of dogs is not clear.

Conclusion

In conclusion the prevalence of generalized demodicosis accounted for 53.33 per cent. The breed-wise occurrence showed highest prevalence in Pomeranian followed by mongrel. The age-wise prevalence showed highest occurrence in dogs aged up to 2 years with male predominance. Pustules, alopecia and pruritus were most observed clinical signs.

Table 1: Prevalence of generalized demodicosis in dogs in and around Gannavaram

Total Number of dogs	Number having dermatological disorders	Percentage having dermatological disorders	Number having demodicosis	Percentage over skin diseases	Number affected with generalized demodicosis	Percentage over skin diseases
1482	516	34.82	75	14.53	40	53.33

Table 2: Age wise occurrence of generalized demodicosis (n= 40)

S No	Age groups	Number affected	Percentage
1	Up to 2 years	28	70
2	2 – 4 years	8	20
3	> 4 years	4	10
Total		40	100

Table 3: Gender wise occurrence of generalized demodicosis (n= 40)

Gender	Number affected	Percentage
Male	27	67.5
Female	13	32.5
Total	40	100

Table 4: Breed wise occurrence of generalized demodicosis (n= 40)

S No	Name of the breed	No of dogs affected	Percentage
1	Pomeranian	14	35.0
2	German shepherd	5	12.5
3	Labrador Retriever	4	10.0
4	Doberman	2	5.0
5	Pug	2	5.0
6	Dachshund	1	2.5
7	Rottweiler	1	2.5
8	Saint Bernard	1	2.5
9	Bullmastiff	1	2.5
10	Non-descript/ Mongrel	9	22.5
Total		40	100

Table 5: Symptomatology in generalized demodicosis (n = 20)

Clinical sign	Frequency	Percentage
Papule	3	15
Pustule	20	100
Nodules	11	55
Erythema	17	85
Alopecia	20	100
Scales/ Epidermal collarettes	14	70
Crust	5	25
Lichenification	10	50
Hyper pigmentation	15	75
Moth eaten appearance	3	15
Pruritus	20	100
Pedal-pinna reflex	16	80
Bad odour	18	90
Comedones	3	15
Pododermatitis	4	20
Edema of toes	3	15

Table 6: Topography of lesions in dogs affected with generalized demodicosis (n =20)

S No	Body region	Number affected	Percentage
1	Head	14	70
2	Neck	7	35
3	Forelimb	15	75
4	Hind limb	10	50
5	Dorsum	12	60
6	Abdomen	9	45
7	Generalised	7	35
8	Tail	2	10
9	Foot	3	15

Symptomatology and Topography of generalized demodicosis in dogs

Fig 1. Labrador dog showing lesions of erythema, alopecia and lichenification on whole body and pododemodicosis

Fig 2. Pomeranian dog showing lesions of erythema, alopecia on face, limbs and trunk

Fig 3. Pomeranian dog showing lesions of generalized erythema and alopecia

Fig 4. Labrador dog showing lesions of erythema, alopecia, crust, lichenification and pododemodicosis

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