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Prevalence of canine demodicosis in Karimnagar city

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Abstract

Dermatological disorders having history of alopecia, itching, erythema, papules, crusts were selected for our study. With above mentioned history 229 cases were reported to DVH, Karimnagar in the period of January to June, 2020. Skin scraping examination was carried out in these cases and the results obtained were referred to determine sex wise, month wise, age wise prevalence of Canine Demodicosis. During overall period in our study prevalence of Canine Demodicosis being 8.3% (19/229). Sex wise study on prevalence of Canine Demodicosis revealed that higher percentage (9.3%) of female dogs (10/107) were affected than male dogs 7.3% (9/122). Month wise observation on prevalence of Demodicosis were 6.8% (2/29), 3.2% (1/31), 1.39% (6/43), 1.53% (4/26), 5.6% (3/53), 6.3% (3/47) in months January, February, March, April, May, June respectively. Age wise study on prevalence of Canine Demodicosis were 6.2% (2/32), 12% (7/58), 7.1% (4/56), 8.3% (4/48), 5.7% (2/35) in age groups of <3 months, 3-6 months, 6-12months, 1-3 years, >3 years respectively.

Keywords: Demodicosis, prevalence, Karimnagar city

Introduction

There are various dermatological problems noticed in canines among those the diseases caused by ectoparasites are common [1]. The red mange or demodectic mange caused by Demodex species is presented in two forms i.e, localised and generalised form [2]. Demodicosis is classified into localised, generalised and juvenile, adult onset, the localised form is commonly seen in young animals on face and forelimbs whereas generalised form is seen in adult dogs with severe skin lesions all over the body secondary to primary dermatological conditions [3-1]. The demodex mites are normal inhabitants in very low number but they start proliferating when highly populated on skin in majorly immunosuppressed dogs [6]. The most common skin lesions observed are alopecia, pruritus, erythema, papules, crusts and folliculitis due to the inflammation of hair follicles caused by demodex mites [4, 7, 8]. This disease is diagnosed easily through the clinical signs and deep skin scrapings from various sites all over the body [6]. The present study aimed to determine the prevalence of canine demodicosis over a period of six months (January – July 2020), gender wise, and age wise in Karimnagar city, Telangana.

Materials and Methods

Animals and Study period

Present study was conducted in the Karimnagar city in various canine breeds (Nondescript, pure and mixed breeds) presented with various dermatological lesions (Figure 1&2). Deep skin scrapings were collected using sterilised blunt scalpel blade. Liquid paraffin drop was placed on slide and scalpel is dipped in it then skin scrapings were collected from different locations. A glass slide was placed and examined under microscope (Figure 3&4). The dogs with demodex mites in skin scrapings were considered to study prevalence according to age (< 3 months to > 3 years), sex (male and female), and month (January to July 2020).

Results and Discussion

A total of 229 dogs were presented to the District Veterinary Hospital, Karimnagar during January 2020- June 2020 with various skin lesions and 19 cases (8.3%, 19/229) were found to be having demodicosis. Data related to gender, age, month of presentation was subjected to prevalent study.

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Fig 1: Bilateral skin lesions at periorbital areas (Localised demodicosis)



Fig 4: Demodex mites (40 x)



Fig 2: Skin lesions all over the body (Generalised demodicosis in a pug)



Fig 3: Demodex mites in skin scrapping (10 x)

Gender wise prevalence of demodicosis

In present study, prevalence of demodectic mange in females (10/107, 9.3%) was higher than in males (9/122, 7.3%). Similar observation was found in a study [9] with higher prevalence noticed in females than males. Against the findings of this study, in a total of 430 dogs with different dermatological cases, the prevalence of demodicosis was higher in males when compared to females [10-11]. The stress factors in female dogs like oestrus, hormonal issues, whelping and lactation etc leads to over-proliferation of demodex mites and also seen commonly in immunocompromised dogs [9, 12]. In male dogs the higher prevalence and more ectoparasitic load was noticed due to increase in testosterone levels, the relationship between Testosterone levels and demodex mite proliferation was not well understood [13] but the reason behind this phenomenon could be that dogs with increase in Testosterone levels were associated with reduced immunity and higher activity of male dogs which lead to proliferation of mites [14, 15].

Age wise prevalence of demodicosis in dogs

The age wise prevalence of demodectic mange in present study is summarised in Figure 5. The highest prevalence was observed in the age group of 3 – 6 months (7/58, 12%) followed by 1–3-year-old dogs (4/48, 8.30%), 6–12-months (4/56, 7.10%), < 3-month-old puppies (2/32, 6.25%) and > 3 years (2/35, 5.70%). In one study, highest prevalence was noticed in less than one year age group (3) however, present study was categorised initial year of life stage into 3 parts so that the accuracy in finding susceptible age group would be high. In other study highest prevalence was observed in 2-year-old dogs (9). Canine demodicosis is usually presented in two forms (age related) juvenile onset in puppies of 3 months to > 1 year age group and adult onset in > 4-year-old dogs (16). In puppies the juvenile onset of demodicosis is common due to less immunity, worm load and malnutrition whereas in adults stress due to puberty, various primary skin infections, co morbidities and management of the dogs favours the mite proliferation [17, 18].

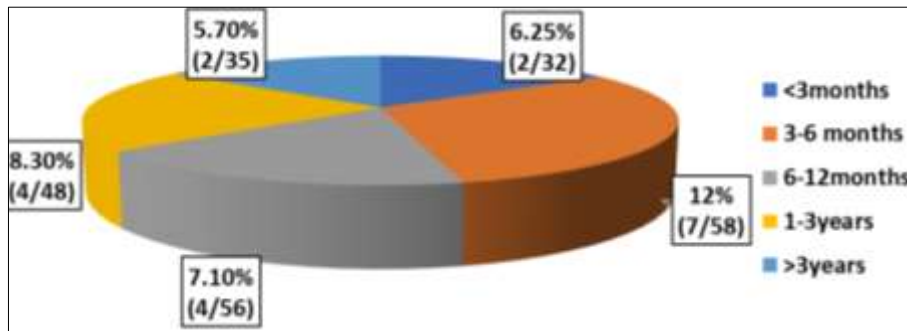


Fig 5: Age wise prevalence of canine demodicosis

Month wise prevalence of canine demodicosis

The highest prevalence of demodicosis was recorded in April (4/26 dogs with different dermatosis, 15.3%) followed by March (6/43, 13.9%), January (2/29, 6.80%), June (3/47, 6.3%), May (3/53, 5.6%) and February (1/31, 3.2%) Figure 6. In one study (2), higher number of cases were reported in summer (25.42%) and monsoon (25.09%) compared to winter season (21.33%). Other study revealed highest prevalence in May month (22.7%) than in spring (19.1%), winter (18.6%) and lowest prevalence is autumn (14.3%) (3). The reasons for varied prevalence in different seasons could be attributed to factors like humidity, high temperature, moisture content in

skin folds of different breeds, and especially animals living in outdoors causes over proliferation of mites in summers (19). The relationship between ectoparasitic infestation and seasonal variation was noticed especially demodex mite infestation is highly prevalent in winter season whereas ticks in spring and summer season, fleas in autumn season (19). The drawback of present was that study period included half of the year which didn't cover all seasons. So, year wise study may reveal proper conclusion about prevalence in different months and seasons. Moreover, the prevalence in one season may not be same in different geographical locations.



Fig 6: Month wise prevalence of canine demodicosis

Conclusion

The prevalence of canine demodicosis in Karimnagar city was 8.3% (19 cases) among all the dermatological cases (229 cases) during 6 months period. The prevalence was more in females than males. There was higher proliferation of demodex mites in younger animals of 3-6 months age group than others. The mite infestation was highest during April month in half yearly study.

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