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Prevalence study of canine transmissible venereal tumor in Bidar, Karnataka

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Abstract

Canine transmissible Venereal tumor is a benign reticuloendothelial which is commonly seen in external genitalia and rarely internal genitalia appears as pedunculated friable cauliflower like growth which can be seen in both male and female dogs. To know the prevalence rate of tvt in Bidar region data was collected from Veterinary Clinical Complex during April 2018 to December 2023. The overall prevalence rate of tvt was 3.24 percent with 22 cases, out of 679 reproductive disorders. The incidence was more in female (86.36%) as compared to male (13.63%) with age groups 1-6 years (81.82%). The breed wise analysis revealed nondescript dogs were more prevalent compared to other breeds of dogs.

Keywords: Bidar, dogs, transmissible venereal tumor

Introduction

One of the main conditions that accounts for 27% of dog fatalities is tumor (Adams *et al.*, 2010) [1]. The most prevalent neoplastic syndrome affecting either sex in dogs is transmissible venereal tumour (TVT), out of all the tumour disorders. Canine TVT, also referred as transmissible venereal sarcoma, sticker's sarcoma, venereal granuloma and infectious sarcoma, which is a contagious transmitted from one dog to another during mating when abraded mucosa is exposed to the tumor of an infected dog (Otter *et al.*, 2015) [5] which appears cauliflower like growth, friable pedunculated nodules with hemorrhagic discharge from external genital organ. The prevalence of TVT in affected populations is usually below 10%, being generally higher in countries with larger populations of free-roaming dogs, as these act as reservoirs for the disease (Strakova and Murchison, 2014) [9]. The tumor's size varies from millimetres to several centimetres with dark red to a greyish pink in colour. The tumor is usually seen in young (2-5 years), sexually active dogs from an environment with high concentration of free roaming dogs with uncontrolled reproduction (Bawaskar *et al.*, 2023) [2]. Minimal information is available about the influence of venereal granuloma in dogs in various parts of the Bidar region in Karnataka. Thus, the purpose of this study is to gather information to provide data on transmissible venereal tumors in dogs in Bidar region, Karnataka.

Materials and Methods

Data was collected from Veterinary Clinical Complex, Veterinary College, Bidar, with duration of April 2018 to December 2023, includes total 679 dogs which were presented with various reproductive disorders. A total of 22 cases were reported for transmissible venereal granuloma. Out of which 3 were male and 19 were females between 1 to 6 years of age. The prevalence of venereal tumor was studied on the basis of age, sex, breed and body weight of canines.

Results and Discussion

To study the prevalence percent of transmissible venereal tumor in canines, present study revealed overall prevalence of venereal granuloma was reported at clinics in 22 dogs with 3.24 percent while, out of reported 679 cases of animal reproduction in canines.

Sex

There were 22 adult dogs found suffered from transmissible venereal tumor with 3 (13.63%) males and 19 (86.36%) females. The present study revealed that, the influence of venereal granuloma was observed more in female as compared with male dogs, because of indiscriminate sexual activity which are high in stray and nondescript dogs. If male is affected with venereal granuloma which through coitus are transmitted in females and such recipient females later on acts as the donor. Similarly, Ganguly *et al.* (2016)^[3] reported that female dogs are more affected with TVT than males because only one infected male often mates with numerous females.

Age

Table 1 revealed that, age group of 1-3 and 3-6 years were most prevalent to canine transmissible venereal tumor with 9 (40.92%) and 9 (40.92%) respectively, out of 22 dogs. While out of 19 female dogs, highest prevalence of venereal granuloma was also observed in young to adult middle-aged with 7 and 8 female dogs with 36.84 percent and 42.11 percent respectively, as well as during the same age group out of 3 males, 2 males with 66.66% showed highest prevalence of venereal granuloma (Fig.1). Similarly, Gupta *et al.* (2020)^[4] reported around 80.0 percent of affected dogs were in the age group of 2-6 years with the majority of cases (61.6% in the age group of 2-4 years followed by 4-6 years (18.5%), less than 2 years(11.3%) and more than 6 years (8.6%). Panchkhande *et al.* (2019)^[7], who reported that, higher incidence of venereal granuloma was found in dogs aged between 4 to 7 years as 38.88 percent, followed by 2 to 4 years (27.77%), 8 years and above (22.22%) while, less than 2 years as 11.11%.

Table 1: Prevalence rate of TVT in canines by age

	<1 year	1-3 year	3-6 year	>6 year
Male (n= 3)	0	2 (66.66%)	1 (33.33%)	0
Female (n=19)	1 (5.26%)	7 (36.84%)	8 (42.11%)	3 (15.79%)
Total (n=22)	1 (4.54%)	9 (40.91%)	9 (40.91%)	3 (13.64%)

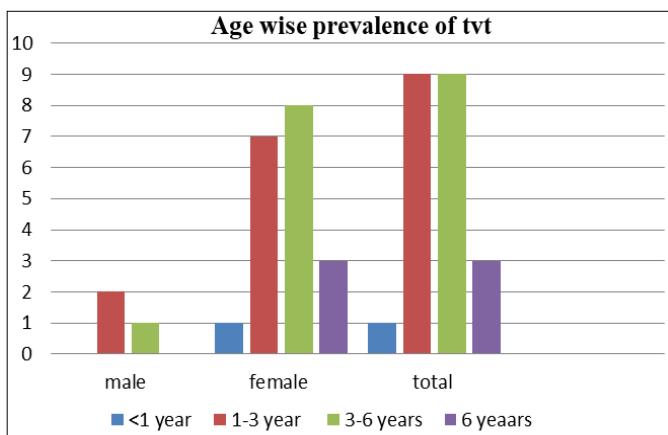


Fig 1: Prevalence rate of TVT in canines by age

Breed

Breed wise distribution of venereal granuloma affected are presented in Table 2. Irrespective of gender overall highest incidence of venereal granuloma was observed in 10 nondescript dogs out of 22 with 45.45%, followed by German

Shepherd 6 (27.27%) and Labrador 4 (18.18%) while lowest prevalence rate was observed in Pomeranian 2 (9.09%) (Fig.2). This affection was found commonly in nondescript breeds, particularly in free roaming dogs. During oestrus period mating of dogs with affected bitches is factor for spreading of the disease. It was assumed that owners have knowledge of canine diseases, so well-maintained dogs of recognised breeds do not get venereal granuloma. Similar statement was submitted Simon *et al.* (2016)^[8] who also observed the incidence of venereal tumour more in nondescript dogs (38.84%). In the present study, the highest incidence of venereal granuloma was observed in nondescript which could be due to the fact that the population of non-descript dog is more and these dogs are not confined and are free roaming.

Table 2: Prevalence rate of canine transmissible venereal tumor by breed wise

	Nondescript	Pomeranian	Labrador	GSD
Male (n=3)	3 (100%)	0	0	0
Female (n=19)	7 (36.84%)	2 (10.53%)	4 (21.05%)	6 (31.58%)
Total (n=22)	10 (45.45%)	2 (9.09%)	4 (18.18%)	6 (27.27%)

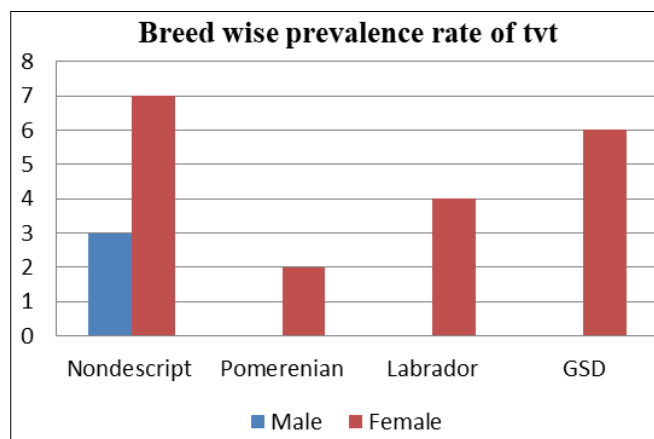


Fig 2: Prevalence rate of canine transmissible venereal tumor by breed wise

Body weight

Body weight wise distribution of venereal granuloma values are depicted in Table 3. Overall highest prevalence of transmissible venereal granuloma was recorded in 10 to 25 kg body weight in 14 dogs with 63.63 percent followed by more than 25 kg body weight 5 (22.72%) dogs (Fig.3). Almost similar findings are submitted by Panchkhande *et al.* (2019)^[7] with highest incidence of venereal granuloma as in 15 to 25 kg body weight (50%) followed by 8 to 15 kg body weight (27.77%) then 25 to 35 kg body weight (22.22%). The incidence and correlation of venereal granuloma with body weight could not be established and such literature regarding same could not be outlined.

Table 3: Prevalence rate of canine transmissible venereal tumour by body weight

	<10kg	10-25 kg	>25kg
Male (n=3)	0	2 (66.66%)	1 (33.33%)
Female (n=19)	3 (15.78%)	12 (63.15%)	4 (21.05%)
Total (n=22)	3 (13.63%)	14 (63.63%)	5 (22.72%)

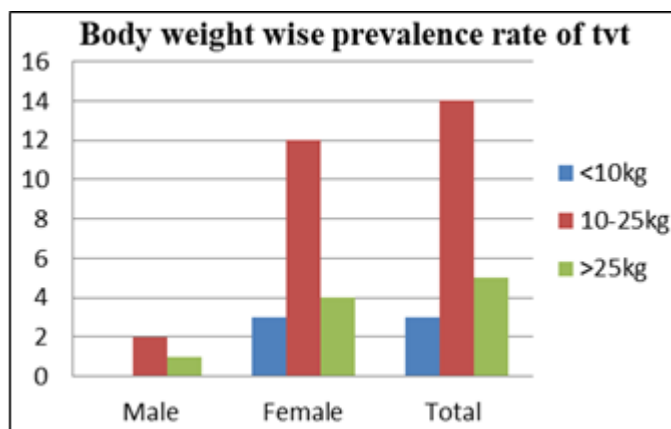


Fig 3: Prevalence rate of canine transmissible venereal tumour by body weight

Conclusion

In our study on transmissible venereal tumor (TVT) in canines, we found that TVT had an overall prevalence of 3.24% among 679 reported cases of animal reproduction. Female dogs were significantly more susceptible to TVT (86.36%) compared to males (13.63%), which could be attributed to their higher levels of indiscriminate sexual activity, especially among stray and nondescript dogs. Age-wise, the most affected groups were dogs aged 1-6 years, with peaks observed in the 1-3 and 3-6 year age brackets. Nondescript dogs showed the highest incidence of TVT, suggesting that free-roaming and unmaintained dogs are at greater risk due to uncontrolled mating during estrus. Interestingly, there was no significant correlation between body weight and TVT incidence in our study population. These findings shed light on the epidemiology of TVT in canines, emphasizing the importance of responsible breeding practices and veterinary care to control and prevent this disease.

Conflict of Interest: No

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