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Epizootological studies of canine transmissible venereal tumours (TVT) in Chennai

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Abstract

The present work was carried out to study the prevalence of transmissible venereal tumours (TVT) in dogs presented at Madras Veterinary College Teaching Hospital, Chennai for a period of 5 months (July 2024 to November 2024). A total number of 802 cytological smears collected each from various breeds of dogs, were referred to the Centralised Clinical Laboratory, Madras Veterinary College, Chennai for cytological diagnosis. The overall prevalence of TVT was found to be 3.49%, of which, males showed a higher prevalence (57.14%) when compared to females (42.85%). With regard to the age affected, the highest prevalence was recorded in dogs belonging to 3 to 6 years (39.28%), followed by more than 6 years (32.14%) and 0 to 3 years (28.57%) of the age group. Among different breeds, non-descript breeds revealed an increased prevalence (67.85%), followed by Labrador Retriever (10.71%), Spitz (7.14%) and German Shepherd, Chippiparai, Pomeranian, and Great Dane (3.57% each).

Keywords: Chennai, dog, prevalence, transmissible venereal tumour

Introduction

A canine transmissible venereal tumor (CTVT) is a horizontally transmitted venereal round cell tumor, affecting dogs and other canine species such as foxes, coyotes, and wolves. It has been recorded for several thousand years in dogs worldwide and it is mainly transmitted through coitus but also by bites, sniffing or licking the affected areas. Genital presentation is the most frequent form, followed by cutaneous, nasal, oral, and lymph nodes presentations and less frequent manifestations such as ocular and anal/perianal (Yimesgen Tarekegn Abeka 2019; Pimentel *et al.*, 2021) [9, 6]. CTVT is mostly recorded in sexually active free-roaming animals in tropical and subtropical regions characterized by the presence of cauliflower-like, pedunculated, nodular, papillary, or multilobulated red-colored growth with sizes measuring from 5mm to more than 10 cm in diameter. Though the lesions are located mostly on the external genitalia, it may also be seen in extragenital areas like skin, nostrils, oral cavity, eye ball, eyelids and anus. The clinical signs include bleeding, serosanguineous secretion, intense odour, deformity, ulceration, and possibly areas of necrosis (Yimesgen Tarekegn Abeka 2019; Bendas *et al.*, 2022) [9, 1].

Usually, the tumour does not have tendency to metastasize except in puppies and immune incompetent animals. However, in some cases, metastases can occur to the skin, inguinal lymph nodes, liver, kidneys, spleen, intestine, heart, brain, lungs, and other organs. Tentative diagnosis is usually made based on the history and clinical signs while confirmatory diagnosis is done based on cytological and histological examination (Yimesgen Tarekegn Abeka 2019; Bendas *et al.*, 2022) [9, 1]. Various treatments include complete surgical excision of mass, radiotherapy, and chemotherapy. However, chemotherapy using vincristine sulphate, vinblastine, doxorubicin and cyclophosphamide is the most effective and easily available therapy (Gupta *et al.*, 2020). The present work was carried out to study the epizootiology of transmissible venereal tumours (TVT) in dogs in Chennai.

Materials and Methods

A total number of 802 cytological smears prepared each from various breeds of dogs presented at Madras Veterinary College Teaching Hospital, Chennai were referred to the Centralised

Clinical Laboratory, Madras Veterinary College, Chennai for cytological diagnosis. The present study was conducted for a period of 5 months (July 2024 to November 2024). The cytological smears were air dried, stained with Leishman and Giemsa cocktail stain as described by Garbayl *et al.* (2006)^[2] and subjected to microscopic examination.

Results and Discussion

Out of 802 smears examined, 28 smears revealed cytological features suggestive of TVT (Fig.1 and Fig. 2), thus revealing an overall prevalence of 3.49%. Between sex, TVT was recorded in 16 males and 12 females and thus males showed a higher prevalence (57.14%) when compared to females (42.85%). About the age affected, TVT was noticed in 8 dogs belonging to the age group of 0-3 years, 11 dogs belonging to 4-6 years and 9 animals belonging to more than 6 years. Thus highest prevalence was recorded in dogs aged 3-6 years (39.28%), followed by more than 6 years (32.14%) and 0-3 years (28.57%). Among different breeds, TVT was observed in 19 non-descript breeds, 3 Labrador Retrievers, 2 Spitz and German Shepherd, Chippiparai, Pomeranian and Great Dane at one each. Thus non-descript breeds revealed the highest prevalence (67.85%) followed by Labrador Retriever (10.71%), Spitz (7.14%), German Shepherd, Chippiparai, Pomeranian and Great Dane (3.57% each).

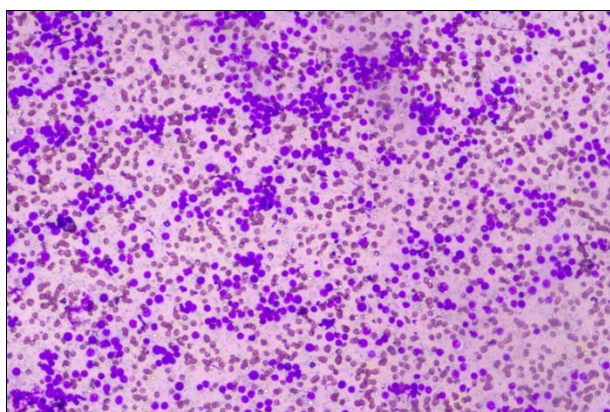


Fig 1: Cytology- Dog –TVT showing numerous round cells. L&G stain x40

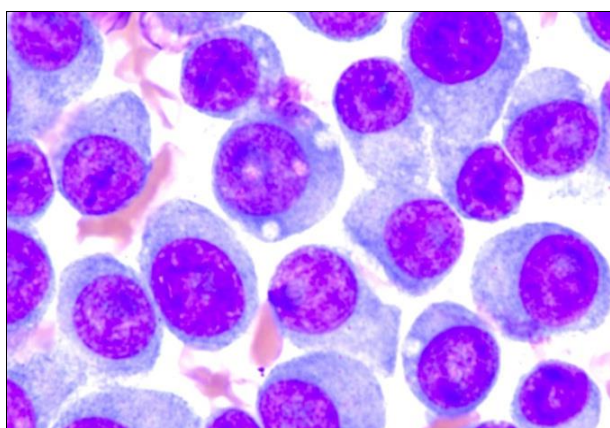


Fig 2: Cytology- Dog –TVT –Round cells with cytoplasm containing punctate vacuolations and centrally placed nucleus L&G stain x1000

The present study which recorded an overall prevalence of TVT (3.49%) was in accordance with that of Strakova and Murchison (2014)^[8] who opined that a large proportion of the dog population around the world harbours TVT at a prevalence of 0.5 to 10%. Gond *et al.* (2024)^[3] also reported

an overall prevalence of 3.24% of TVT in dogs as noticed in the present study. Despite the widespread occurrence of TVT in dog populations globally, the results of a survey by Strakova and Murchison (2014)^[8] indicated that its prevalence rarely increased above 10%. An increased prevalence of TVT observed in males during the present study was in accordance with that of Simon *et al.* (2016)^[7] who also noticed a higher prevalence in males (87.50 percent) than in females (12.50 percent). The cause might be due to the preference of males chosen as companion animals by the pet parents. Moreover, the majority of the cases brought by the pet parents to the veterinary hospitals were males rather than females. In contrast to these findings, Gupta *et al.* (2020)^[4]; Pimentel *et al.* (2021)^[6] and Gond *et al.* (2024)^[3] reported an increased prevalence of TVT in females when compared to males. Gupta *et al.* (2020)^[4] opined that the cause of increased prevalence in males might be due to a single infected male mating with numerous females and thus spreading the tumour to many females.

The present study which recorded an increased prevalence of TVT in dogs aged more than 3 years was in agreement with that of Pimentel *et al.* (2021)^[6] who also reported more prevalence in adult dogs. Panchkhande *et al.* (2019)^[5] also noticed a higher incidence in dogs aged between 4 to 7 years, followed by 2 to 4 years, 8 years and above and the least in dogs aged 2 years. Gond *et al.* (2024)^[3] reported an increased prevalence in dogs belonging to the age group of 1- 6 years. Panchkhande *et al.* (2019)^[5] opined that the cause of the highest prevalence in middle age dogs might be due to the physiological functions making the animals more sexually active to get infected when mating with other animals.

An increased prevalence of TVT (67.85%) noticed in the non-descript breeds during the present study was in accordance with that of Pimentel *et al.* (2021)^[6] who also reported the highest prevalence in mixed breeds (75.2%). Simon *et al.* (2016)^[7] and Gond *et al.* (2024)^[3] also noticed higher prevalence in non-descript breeds than other breeds. Gond *et al.* (2024)^[3] opined that the highest incidence of TVT in nondescript could be due to an increased population of non-descript breeds and also these dogs have been left partly free roaming when compared to the exotic breeds which are kept confined indoors by the pet parents. In contrast to these findings, Gupta *et al.* (2020)^[4] reported more incidence in the native Chippiparai breeds than the non-descript and exotic breeds and they attributed the cause to the habitually yard-escaping nature of these native breeds having guarding and hunting behaviour.

Conclusion

The study revealed the overall prevalence of TVT in dogs was 3.49%. The males showed a higher prevalence when compared to females. The dogs aged above six years of age are highly susceptible. An increased prevalence noticed in non-descript breeds showed its role in the transmission of disease.

Conflict of Interest

Not available.

Financial Support

Not available.

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